



Phase II Environmental Site Assessment Report

Prepared for:
Tacoma Public Utilities

Cushman Substation, 3713 North 19th
Street, Tacoma, Washington

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Phase II Environmental Site Assessment Report

Cushman Substation, 3713 North 19th Street, Tacoma, Washington



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EXECUTIVE SUMMARY

ERM-West, Inc. (ERM) completed a Phase II Environmental Site Assessment (ESA) for Tacoma Public Utilities (TPU) at the Cushman Substation located at 3713 North 19th Street in Tacoma, Washington (the “Subject Property” or “Site”) in accordance with ERM’s proposals dated 19 January 2018 and 30 May 2018. The work is intended to assess certain recognized environmental conditions (RECs) identified in the Phase I ESA report for the Subject Property prepared by ERM dated 17 December 2017 (ERM 2017).

The Site was developed in the mid-1920s as an end terminal substation and was part of TPU’s system to bring power from the Cushman Hydroelectric Project to the City of Tacoma. The Site operated as substation until 21 August 2018, when electrical operations were discontinued. The Subject Property is 83,000 square feet and improved with a three-story building located in the southwest corner of the Site. The substation portion of the Site is unpaved and includes electrical equipment equipped with concrete pads or footings in the northwestern corner. The eastern half of the Site is primarily vacant and gravel-packed with the exception of two telecommunication support areas. Four closed-in-place, underground storage tanks (USTs) are present on the eastern side of the building at depths of approximately 25 feet below ground surface (bgs).

To assess the RECs identified as part of the Phase I ESA, ERM completed a Phase II ESA that included surface and subsurface soil sampling, sump sampling, and a Hazardous Building Material (HBM) Survey.

Between 12 and 28 March 2018, soil samples were collected from soil borings advanced on the Cushman Substation property. Additional soil sampling work was conducted between 20 and 24 August 2018 to assess the extent of soil impacts identified during the initial Phase II ESA fieldwork completed at the Site. Water samples were collected from the sump located in the basement of the Cushman Substation building during both field events to assess potential subsurface soil impacts from the USTs and other oil-filled equipment (e.g., aboveground storage tanks, rotary condensers) historically operated inside the building. An HBM survey was completed between 5 and 6 March 2018 by an AHERA-Certified Asbestos Building Inspector and Washington Department of Commerce-Certified Lead Risk Assessor.

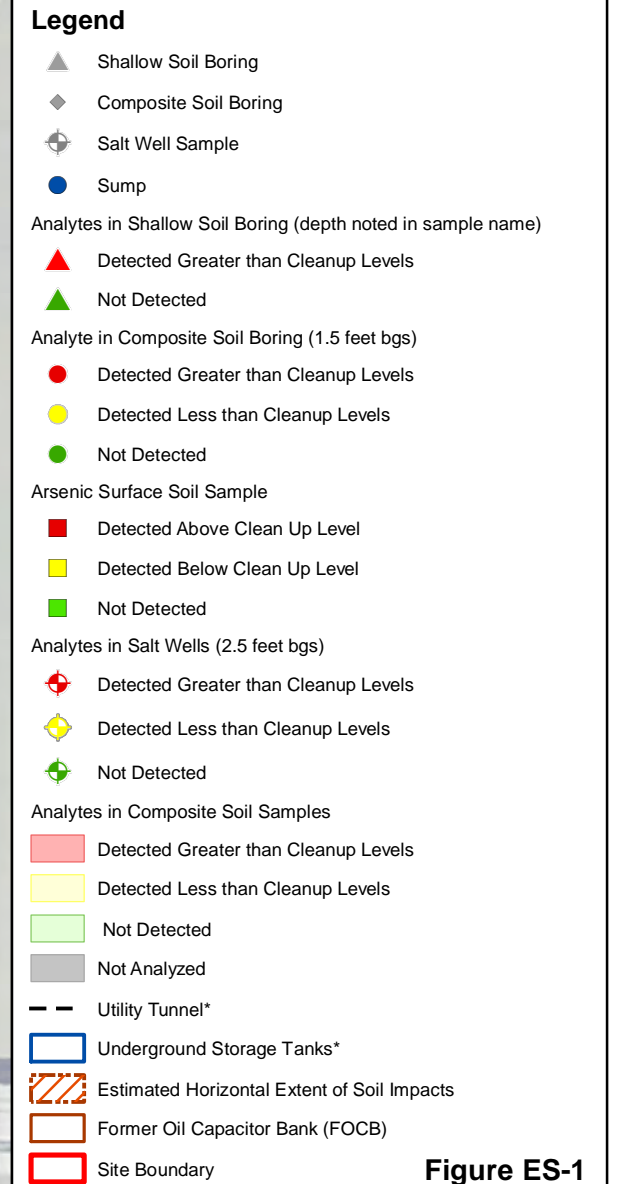
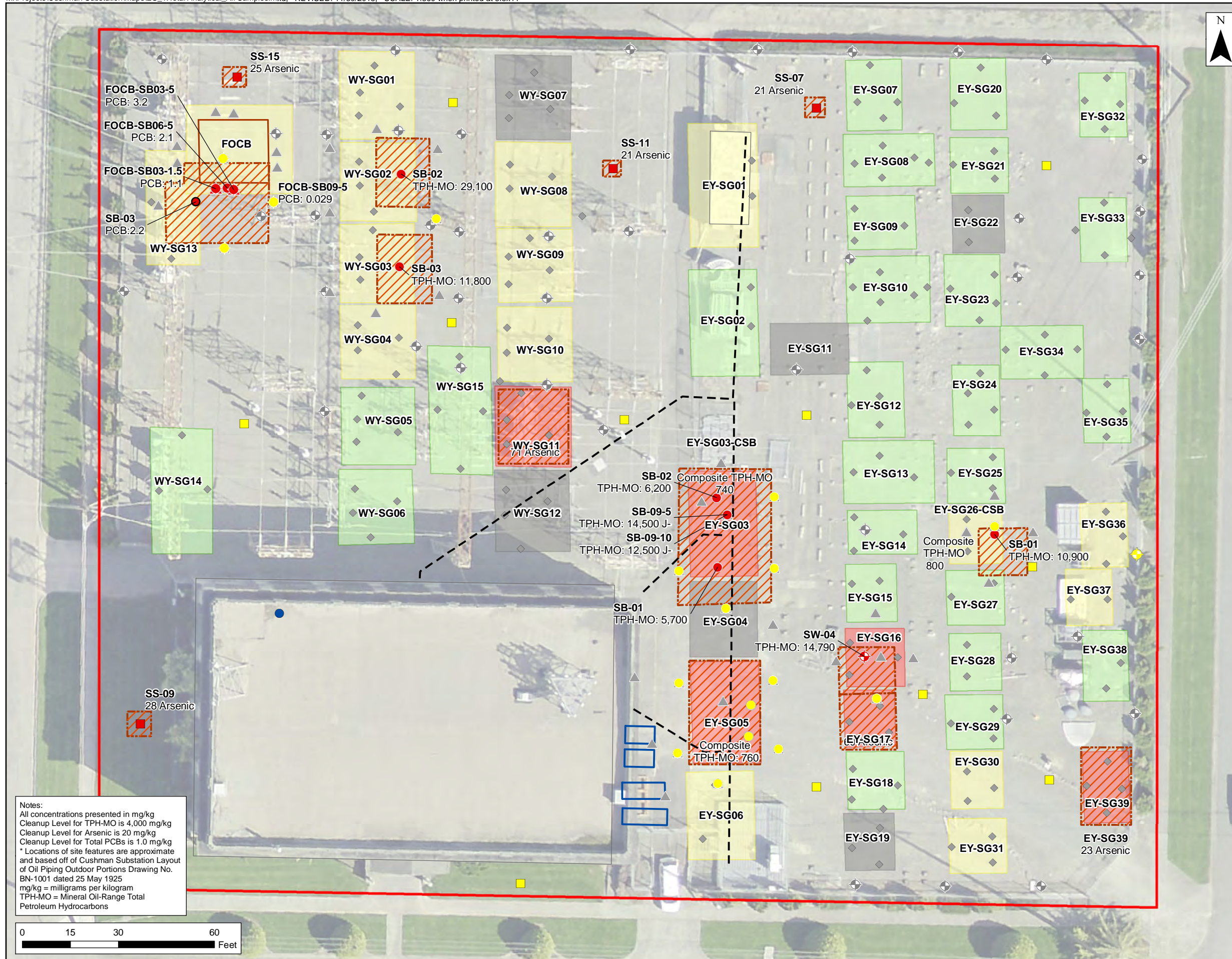
Based on soil data obtained during this Phase II ESA, a total of 14 areas of soil impacted with contaminants at concentrations exceeding Washington State Model Toxics Control Act (MTCA) Method A soil cleanup levels for unrestricted land use (CUL) were identified. These areas are depicted on Figure ES-1 and include the following:

- Six areas were identified with mineral oil concentrations in soil exceeding the MTCA CUL of 4,000 milligrams per kilogram (mg/kg). The vertical extent of mineral oil impacts is limited to the top 5 feet of soil with the exception of soil within composite soil group EY-SG03, which extends deeper than 10 feet below ground surface (bgs).
- One area located in the northwest corner of the site near the Former Oil Capacitor Bank was identified with PCB concentrations in soil exceeding the MTCA CUL of 1 mg/kg. The vertical extent of PCB impacts are limited to the top 10 feet bgs.
- Seven areas of soil located throughout the site impacted with arsenic at concentrations exceeding the MTCA CUL of 20 mg/kg. The horizontal and vertical extent of arsenic impacts are unknown.

In addition to the soil impacts, both of the water samples collected from the sump located in the basement of the Cushman Substation building had reported mineral oil concentrations exceeding the MTCA Method A groundwater cleanup level of 0.5 milligrams per liter (mg/L).

The HBM survey identified building materials containing asbestos and lead-containing paint. Details of the HBM survey and the recommendations for addressing risks associated with them are described in the HBM survey summary memorandum provided to TPU on 15 May 2018.

Recommendations to address environmental impacts identified through the Phase II ESA are provided in separate memoranda.



Notes:
 All concentrations presented in mg/kg
 Cleanup Level for TPH-MO is 4,000 mg/kg
 Cleanup Level for Arsenic is 20 mg/kg
 Cleanup Level for Total PCBs is 1.0 mg/kg
 * Locations of site features are approximate and based off of Cushman Substation Layout of Oil Piping Outdoor Portions Drawing No. BN-1001 dated 25 May 1925
 mg/kg = milligrams per kilogram
 TPH-MO = Mineral Oil-Range Total Petroleum Hydrocarbons

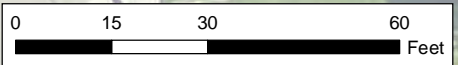


Figure ES-1
 Total Analytical Summary
 Phase II ESA
 Cushman Substation
 3713 North 19th Street
 Tacoma, WA

1. INTRODUCTION

ERM-West, Inc. (ERM) prepared this report for Tacoma Public Utilities (TPU) to document the Phase II Environmental Site Assessment (ESA) completed at the Cushman Substation located at 3713 North 19th Street in Tacoma, Washington (the “Subject Property” or “Site”, Figure 1). The Phase II ESA was performed in accordance with ERM’s proposals dated 19 January 2018 and 30 May 2018. The work is intended to assess certain recognized environmental conditions (RECs) identified in the Phase I ESA report for the Subject Property prepared by ERM dated 17 December 2017 (ERM 2017). Recommendations to address environmental impacts identified through the Phase II ESA are provided in separate memoranda.

ERM conducted the Phase II ESA in substantive compliance with the requirements specified in the Model Toxics Control Act (MTCA) regulation at Washington Administrative Code (WAC) 173-340. The Phase II ESA assessed the Subject Property for evidence of environmental impacts from historical operations. This report describes the property background, investigation activities, field activities, analytical results of environmental samples collected from the Subject Property, and a summary of Site conditions as they relate to regulatory criteria.

ERM completed a Phase I Environmental Site Assessment on 17 December 2017 and identified the following RECs and other potential issues at the Subject Property:

- Presence of USTs;
- Potential for on-Site metal impacts to soil from the Tacoma Smelter Plume;
- Known and potential discharges of petroleum products to ground from historical operations;
- Historical storage and use of petroleum products within the building; and
- Potential presence of asbestos-containing materials, lead-based paints, and mercury-containing devices.

2. SITE BACKGROUND

The following subsections provide descriptions of the physical setting, history, hydrology, geology, and hydrogeology of the Subject Property, as well as previous investigations conducted at the property.

2.1 Property Description

The Subject Property is located on 1.91 acres of land, situated on one rectangular-shaped parcel north of North 19th Street, approximately 2 miles west of downtown Tacoma, Washington (Figure 1). The Subject Property is surrounded by a chain-link fence. Access is controlled by gates on the west, south, and southeast portions of the Site. The Subject Property is 83,000 square feet with a three-story building (the “building”) with a gross footage of approximately 31,000 square feet. The building has a basement that spans the building footprint. The building is located in the southwestern portion of the Subject Property (Figure 2). The building is used for support activities related to the substation, which is located in the northwestern portion of the Subject Property, north of the building. The substation portion of the Site is unpaved and includes electrical equipment (e.g., circuit breakers, current/potential transformers, disconnect switches, lightning arrestors, distribution buses) equipped with concrete pads or footings. Four closed-in-place, underground storage tanks (USTs) are present on the eastern side of the building at depths of approximately 25 feet below ground surface (bgs).

The eastern portion of the Site is primarily vacant and gravel-packed. Two areas of the eastern portion of the Site are leased to telecommunications companies for communication tower support activities, as shown on Figure 2. One area is approximately 600 square feet surrounded by a chain-link fence. The second area is comprised of an approximately 400-square foot, pre-fabricated structure atop a concrete pad surrounded by chain-link fencing located along the northern Site boundary. Areas along the interior perimeter of the eastern portion are also utilized by TPU for the storage of miscellaneous equipment originating from off-site TPU properties. A driveway traverses in a north-to-south direction adjacent to the east of the building. The driveway is equipped with railroad tracks that were historically used to move electrical equipment (e.g., transformers) from the exterior portions of the Site into the building.

Three subgrade utility tunnels are present in the exterior portions of the Site and can be accessed from the basement of the building and from three hatches present throughout the exterior portion of the Site. The tunnels are concrete lined and are used for the routing of high voltage cables and telecommunication cables. A sump present in the basement of the building that was historically used to collect process wastewater was generated from the non-contact cooling water used in the rotary condensers (ERM 2017). The sump contents were reportedly conveyed to a “cooling pond,” but are currently discharged to a municipal sanitary sewer system.

Land use in the surrounding area of the Subject Property is residential, with the exception of one western adjoining property that was developed by TPU as a substation (the “Adams Substation”). The Adams Substation was decommissioned in the early to mid-1980s and is currently vacant. The abutting properties and nearby land-use includes:

- North: North 21st Street, followed by single-family homes;
- East: North Washington Street, followed by single-family homes;
- South: North 19th Street, followed by single-family homes; and
- West: North Washington Street, followed by the Adams Substation and single-family homes.

2.2 Property History

The Site was developed in the mid-1920s as an end terminal substation and was part of TPU's system to bring power from the Cushman Hydroelectric Project to the City of Tacoma. In 1949, the end terminal substation was relocated to an off-site substation (the Pearl Street substation). Since then, the Site has operated as a transmission substation. Over time, the majority of the electrical equipment in the exterior portions of the Site and the support equipment within the building were removed. Up until 21 August 2018, operating electrical equipment, including additional equipment installed to support transmission substation operations, was limited to the northwestern portion of the Site. Electrical operations were discontinued on 21 August 2018.

2.3 Topography and Hydrology

The Subject Property is located at an elevation of approximately 370 feet above mean sea level, is generally flat, and slopes slightly to the northeast. Precipitation at the Subject Property percolates into the ground surface at unimproved areas, which comprise the majority of the Site. The overall topographic trend of the surrounding area also slopes to the northeast and north. The nearest surface water body is Commencement Bay, located approximately one mile northeast of the Subject Property.

2.4 Geology and Hydrogeology

The Subject Property is located in the Greater Duwamish Valley, which was formed by glaciers. The alluvial fill within the Duwamish Valley is comprised of fluvial sediments of the White, Green, and Black Rivers. The alluvial fill includes beds of fine silts and sands deposited as riverine and floodplain deposits, with coarser sands and gravels deposited near the water's edge. As described in the Phase I ESA report prepared by ERM (December 2017), regional soils are generally described as Class C soils that are moderately well drained, gravelly-sandy loams with slow infiltration rates.

The Site-specific depth-to-groundwater data necessary to determine shallow groundwater flow direction is not available, and as such, groundwater flow direction at the Site is not currently known. However, an environmental studies' review completed within one mile of the Subject Property suggests that regional groundwater is present at depths greater than 100 feet below ground surface. Based on surface topography, it is expected that groundwater generally flows to the northeast toward Commencement Bay.

It is important to note that groundwater flow direction can be influenced locally and regionally by the presence of local wetland features, surface topography, recharge and discharge areas, horizontal and vertical inconsistencies in the types and location of subsurface soils, and proximity to water pumping wells.

2.5 Previous Site Investigations

ERM completed a Phase I Environmental Site Assessment on 17 December 2017. The following RECs and other potential issues were identified in the Phase I ESA:

- **Presence of USTs:** There are four inactive USTs in the southern portion of the Site, to the east of the building that previously contained transformer oils. The USTs were reportedly closed-in-place, but environmental sampling was not completed to assess the potential of UST leaks.
- **Potential for On-Site Metal Impacts to Soil:** The Site is located within the boundaries of the Tacoma Smelter Plume, a more than 1,000-square mile area with known arsenic, lead, and other heavy metal impacts to soil.
- **Known and Potential Discharges of Petroleum Products to Ground:** There are known and potential historical operations that resulted in the discharge of petroleum products to unimproved portions of

the Site. In addition, concrete conduits referred to as “salt wells” are located throughout the Site. Based on interviews with TPU, the possibility that oils were discharged to the salt wells on-site cannot be ruled out.

- Historical Operations within the Building: Notable operations include the maintenance of electrical equipment, including the storage and use of lubricant oil in aboveground storage tanks and the use of non-contact cooling water. Potential releases from the aboveground storage tanks or of non-contact cooling water would ultimately be discharged to a sump in the basement of the building.
- Potential Presence of Asbestos-Containing Materials and Lead-Based Paints: Based on the building construction date of 1925, there is a potential for the presence of asbestos-containing materials and lead-based paints within the building.
- Potential Presence of Mercury-Containing Devices: Based on the building construction date and historical operations, there is a potential for the presence of mercury-containing devices within the building.

3. INVESTIGATION ACTIVITIES

To assess the RECs identified as part of the Phase I ESA, ERM performed the following tasks for the Phase II ESA:

- Pre-field activities;
- Subsurface clearance activities;
- Surface and subsurface soil sampling;
- Sump sampling; and
- A Hazardous Building Material (HBM) Survey.

The field sampling procedures and data gathering methods selected for use during this investigation were selected to ensure that the data collected over the course of the project are of known quality to meet their intended use, and that all components of data acquisition are documented, verifiable, and defensible. Details regarding the performance of these tasks are presented in the following subsections.

3.1 Pre-Mobilization Activities

The Phase II ESA field activities were conducted in March and August of 2018. Prior to performing field activities, ERM coordinated with TPU and conducted Site visits to mark the proposed surface and subsurface soil sample locations in white paint, as required by the Revised Code of Washington (RCW) Section 19.122.030. The pre-mobilization activities also included preparing a Site-specific health and safety plan and procuring the private utility locating, drilling, analytical laboratory, and HBM survey subcontractors for the project.

3.2 Subsurface Clearance Activities

Call Before You Dig, a public utility identification service, was notified of the drilling and subsurface soil sampling activities and performed a public utility locate at the Subject Property prior to the March and August 2018 sampling activities. Additionally, as-built drawings of the Subject Property were reviewed by ERM prior to the field activities. Ground Penetrating Radar Systems, Inc. of Seattle, Washington, was contracted to assess the proposed soil sampling locations for the presence of underground utilities. Private utility clearance activities were performed between 15 and 16 March 2018 and 14 and 15 August 2018, and soil borings locations located near identified underground utilities were repositioned as necessary to avoid contact.

3.3 Soil Borings and Soil Sampling

Between 12 and 28 March 2018, soil samples were collected from soil borings advanced on the Cushman Substation property. The analytical results of soil samples collected during the initial Phase II ESA field activities indicated the presence of constituents of potential concern (COPCs) in soil exceeding regulatory cleanup levels. Based on the results of the initial Phase II ESA, additional sampling work was conducted between 20 and 24 August 2018 to assess the extent of soil impacts at the Site. Soil boring locations are illustrated in Figure 3, and details regarding the soil sampling activities are described in the following subsections.

3.3.1 Underground Storage Tank Assessment

Between 12 and 14 March 2018, Steadfast Services Northwest, LLC of Vancouver, Washington, advanced a total of three soil borings (UST-SB01, UST-SB02, and UST-SB03, Figure 3) to depths ranging between 25 and 35 feet bgs to assess the potential for subsurface soil impacts below the known

bottom of the four USTs. Two borings were advanced deeper than 25 feet bgs due to field screening which suggested the potential for contamination below 25 feet bgs. The three borings were advanced using: (1) a combination of air knife and vacuum truck for the uppermost 10 to 12 feet of soil to minimize the risk of penetrating unidentified subsurface utilities while advancing the borings through this critical zone, and (2) a hollow-stem auger drill rig from 10 to 12 feet bgs to the specified total depth of each boring.

An ERM geologist logged the soil borings, field screened the soil for signs of contamination (i.e., staining, odor, free product sheen, and/or elevated photoionization detector [PID] readings); and collected soil samples for laboratory analysis. The soil boring logs are provided in Appendix A.

One sample from the bottom of each of the three soil borings (three samples total) were collected, packaged, and transmitted under standard chain-of-custody (COC) protocol to TestAmerica, a Washington-certified laboratory located in Tacoma, Washington for the following analyses:

- Combined diesel-, mineral oil-, and heavy oil-range total petroleum hydrocarbons (TPH-MO) by Ecology Method NWTPH-Dx;
- Polychlorinated biphenyls (PCBs) using United States Environmental Protection Agency (USEPA) Method 8082;
- Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and naphthalenes using USEPA Method 8270D-SIM; and
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) by USEPA Method 8260.

3.3.2 Former Oil-Filled Electrical Equipment Assessment

Shallow soil sampling was performed in the unimproved sections of the Subject Property to assess environmental conditions adjacent to former oil-filled electrical equipment at the Site. During the initial Phase II ESA field investigation completed in March 2018, the substation located in the northwest corner of the property was energized, which presented additional health and safety risks for collecting the samples. Therefore sampling was split between the vacant portion (East Yard) and the energized portion (West Yard) of the Site.

Also during the initial Phase II ESA field investigation, TPU advanced shallow soil borings to approximately 1.5 feet bgs using a mini-excavator. The locations of the shallow soil borings, referred to as composite soil borings, are presented in Figure 3. At each soil boring, ERM collected one discrete soil sample from the bottom of the boring and composited the soil samples in groups as shown in Figure 3. ERM logged and field screened soils for indications of contamination using a PID, sheen tests, and visual observations. Field screening completed during the Phase II ESA did not indicate contamination, therefore no additional samples were collected from the shallow soil borings. Discrete soil samples were collected directly from the bucket of the mini-excavator using a decontaminated stainless-steel trowel and placed directly in laboratory-provided containers. Soil from each discrete shallow soil boring within a designated composite soil group was also placed into a clean stainless-steel bowl and composited with a clean stainless steel trowel before placing the sample directly into laboratory-provided containers.

After sample collection, the bucket of the excavator was decontaminated using a dry decontamination method between each discrete sample location and a wet decontamination method between each composite sample group. After sampling, TPU backfilled each soil boring with the overburden removed from the soil boring and then compacted the soil to their requirements.

During the second Phase II ESA field investigation completed in August 2018, soil borings were advanced to depths as specified in ERM's proposal dated 30 May 2018. This advancement used two methods depending on whether the boring location was located on a concrete or asphalt pad or within

unpaved surfaces. Soil borings located on concrete or asphalt pads were advanced by Cascade Drilling of Woodinville, Washington, using a combination of vacuum truck and hand auger after removing the concrete or asphalt surface. Soil borings in unpaved portions of the Site were advanced following the same procedures described in the previous paragraph, with the exception that composite samples were not collected during the second field effort. Locations of the soil borings advanced during the second field investigation, referred to as shallow soil borings, are presented in Figure 3.

Soil samples collected during both field efforts were packaged and transmitted under standard COC protocol to TestAmerica for the following potential analyses depending on the location.

- TPH-MO by Ecology Method NWTPH-Dx
- PCBs by USEPA Method 8082
- Resource Conservation and Recovery Act (RCRA) metals by USEPA Methods 6010 and 7471
- PAHs by USEPA Method 8270D-SIM
- BTEX by USEPA Method 8260

Details regarding the samples collected during both field investigations and associated analyses are described in the following subsections.

3.3.2.1 East Yard Shallow Soil Sampling

As part of the initial Phase II ESA field investigation, TPU advanced a total of 118 composite soil borings to a depth of 1.5 feet bgs, and ERM collected a total of one discrete soil sample from the bottom of each soil boring as described in Section 3.3.2. Of the 118 discrete soil samples collected, a total of 35 composite soil samples were collected from the East Yard composite soil groups (EY-SG01 through EY-SG39; Figure 3) and submitted for analysis of TPH-MO. Four of the 37 composite soil samples were also analyzed for RCRA metals, and one composite soil sample was analyzed for PCBs. Of the 35 composite soil samples analyzed from the East Yard, a total of 18 discrete soil samples from 8 of the composite soil groups were analyzed for TPH-MO, and 6 discrete soil samples were analyzed for PCBs.

During the second Phase II ESA field investigation, a total of 67 discrete soil samples were collected from a total of 24 shallow soil borings advanced in the East Yard to delineate the extent of petroleum impacts identified in composite soil groups (EY-SG03 through EY-SG05, EY-SG16, and EY-SG26; Figure 3) for potential analysis of TPH-MO. Of the 67 samples submitted to TestAmerica, 39 were analyzed. The remaining samples were held at the laboratory and not analyzed.

3.3.2.2 West Yard Shallow Soil Sampling

During the initial field investigation, TPU advanced a total of 58 composite soil borings to a depth of 1.5 feet bgs (Figure 3), and ERM collected a total of one discrete soil sample from the bottom of each soil boring as described in Section 3.3.2. Of the 58 discrete soil samples collected, a total of 13 composite soil samples collected from the West Yard composite soil groups WY-SG01 through WY-SG15 (Figure 3) were analyzed for TPH-MO and three of the composite soil samples were analyzed for RCRA metals. Based on analytical results from the composite soil samples, a total of 11 discrete samples from three of the composite soil groups were analyzed for TPH-MO and three discrete samples were analyzed for PCBs.

During the second field investigation, a total of 31 discrete soil samples were collected from 8 soil borings advanced in the West Yard (Figure 3) for potential analysis of TPH-MO. Of the 31 discrete soil samples transmitted to TestAmerica, 16 soil samples, two per soil boring, were analyzed for TPH-MO.

3.3.2.3 Former Oil-Capacitor Bank

As part of the initial field investigation, TPU advanced a total of four shallow soil borings (FOCB-SB01 through FOCB-SB04; Figure 3) around the assumed location of the Former Oil Capacitor Bank (FOCB), and ERM collected discrete soil samples at 1.5 and 5 feet bgs from each boring. A total of eight samples were collected from the four shallow soil borings and transmitted the samples to TestAmerica under standard COC protocol for the following analyses: TPH-MO, PCBs, PAHs, and BTEX.

During the second field investigation, a total of five shallow soil borings (FOCB-SB05 through FOCB-SB09; Figure 3) were advanced to delineate the extent of impacts identified in the vicinity of the FOCB. , and 19 discrete soil samples were collected from the five shallow soil borings and transmitted to TestAmerica for potential analysis of TPH-MO and PCBs. A total of 10 soil samples collected from this area, two from each soil boring (one at 5 feet bgs and one at the terminal depth of the boring, ranging from 8.5 to 10 feet bgs) were analyzed for TPH-MO and PCBs.

3.3.3 Surface Soil Samples for Arsenic

To further assess arsenic impacts identified in composite soil groups during the initial field investigation, a total of 15 discrete surface soil samples were collected from the East and West Yards during the second field investigation (SS01 through SS15; Figure 3). Surface soil samples were collected from a depth of 0.2 feet bgs using a clean, stainless-steel trowel and placed directly into laboratory-provided sample containers. The 15 surface soil samples were transmitted to TestAmerica for analysis of arsenic by USEPA Method 6020.

3.3.4 Salt Well Assessment

To assess potential environmental impacts associated with the salt wells, TPU and ERM advanced a total of 44 soil borings to a depth of 4.5 feet bgs using a combination of mini-excavator and hand-auger. The locations of the shallow soil borings were based on existing and former salt well locations throughout the East and West Yards. One discrete soil sample was collected from the bottom of each shallow soil boring using a clean, stainless steel trowel and placed directly into laboratory-provided sample containers and transmitted to TestAmerica under standard COC protocol for analysis of TPH-MO by Ecology Method NWTPH-Dx. Of the 44 soil samples analyzed for TPH-MO, a total of 7 were also analyzed for PCBs by USEPA Method 8082.

3.4 Sump Sampling

A total of two water samples were collected from the sump located in the basement of the Cushman Substation building to assess potential subsurface soil impacts from the USTs and other oil-filled equipment (e.g., aboveground storage tanks, rotary condensers) historically operated in the building. One sample was collected on 28 March 2018 and one was collected on 23 August 2018. Sump samples were collected directly from the sump into laboratory-provided containers and transmitted to TestAmerica under standard COC protocol for analysis. Water samples collected in March were analyzed for TPH-MO and PCBs by NWTPH-Dx and EPA Method 8082, respectively. Samples collected in August 2018 were only analyzed for TPH-MO because PCBs were not detected in the March 2018 sample.

In addition to collecting samples from the sump, ERM assessed potential sources of water currently within the sump since process water is no longer discharged to it. Groundwater is not present at the Site at depths above 35 feet bgs as determined through the soil borings advanced near the UST area; therefore, the source of water within the sump is not groundwater. The source of water within the sump is likely attributable to stormwater that enters the building through the underground utility tunnels. The three subgrade utility tunnels present at the Site connect to the basement of the building that can be accessed from three exterior hatches. The access hatches are not sealed to prevent water-intrusion; therefore,

stormwater that enters the utility tunnels can eventually migrate to the building sump. Hazardous Building Material Survey

On 5 and 6 March 2018, NVL Laboratories (NVL) of Seattle, Washington, under the supervision of ERM, performed an HBM survey of the building. An AHERA-Certified Asbestos Building Inspector and Washington Department of Commerce-Certified Lead Risk Assessor completed the HBM survey that included the following tasks:

- Sampling and testing of 25 suspect asbestos-containing materials;
- Sampling and testing of 18 suspect lead-containing paint and lead-based paint from interior and exterior areas;
- Sampling and testing of four surface wipe sampling for mercury;
- Sampling and testing of six surface wipe samples for polychlorinated biphenyls (PCBs); and
- Visual assessment to identify mercury-containing light tubes and lamps.

This survey was limited to inspecting and sampling accessible building materials. Due to restrictions of performing this survey in an active electrical substation, destructive investigation was not performed. No samples were collected from the active or inactive yard or internal or external stored equipment on-site. Additional details regarding the sampling methods and locations employed as part of the HBM survey are described in NVL's report included as Appendix B.

4. INVESTIGATION FINDINGS

4.1 Site Geology and Hydrogeology

The subsurface soils encountered in the soil borings advanced during the Phase II ESA are generally consistent with the conditions described in the Phase I ESA report (ERM 2018). The ground surface outside the footprint of the building is generally covered with gravel. Select areas, such as the UST area, are paved with a combination of asphalt, fill, and concrete, while other areas are paved with concrete. The surface layer is typically underlain by fine to medium brown sand. The sand typically becomes coarser with depth. Three soil borings were advanced deeper than 10 feet bgs (UST-SB01, UST-SB02, and UST-SB03; Figure 3), and a brown silty clay layer was encountered in UST-SB03 from 10.5 feet bgs to 20.5 feet bgs, intertwined with a silty brown sand layer from 15 to 16 feet bgs. Medium to coarse sand was encountered until the terminal depth of the boring at 36.5 feet bgs. A silty clay layer was not encountered in the other two deep borings (UST-SB01 and UST-SB02; Figure 3). Groundwater was not encountered in the soil borings advanced during the March and August 2018 field activities. Details of soil layers, including soil descriptions, and PID screening results are presented in Appendix A.

4.2 Preliminary Screening Levels

This section describes the preliminary numerical screening levels against which constituent concentration data for environmental media are compared for the purpose of identifying constituents of potential concern and areas of potential contamination. The preliminary screening levels (PSLs) applied for the Phase II ESA do not necessarily represent cleanup levels for the Subject Property. Additional information and evaluation may be needed to select cleanup levels for the Subject Property.

ERM selected MTCA Method A and B soil cleanup levels for unrestricted land use as the PSLs for the Phase II ESA data collected from the soil borings. If a MTCA Method A value has not been published for a constituent, then the lower of the MTCA Method B value for carcinogenic and non-carcinogenic risk is used for that constituent. For constituents having both Method A and Method B screening levels, the constituent concentration was compared to the MTCA Method A screening level.

ERM selected the MTCA Method A groundwater cleanup levels as the PSLs for water samples collected from the sump of the building.

4.3 Soil Sample Results

The soil sample analytical results for the Subject Property are summarized and compared to the preliminary screening levels in Table 1. Summary of soil analytical exceeding regulatory criteria are described below and are summarized in Table 2. Figures 4 through 7 depict the reported concentrations for TPH-MO in composite soil samples, TPH-MO in discrete soil samples, PCBs in soil samples, and arsenic in soil samples, respectively. Figure 8 depicts a summary of all analytical data exceeding a PSL and the estimated horizontal extent of soil impacts. Complete laboratory data reports and data validation memoranda are presented in Appendices C and D, respectively. Laboratory quality control tests did not indicate any quality control issues, and the data can be used for decision-making purposes.

4.3.1 Underground Storage Tank Assessment

TPH-MO, PCBs, cPAHs, naphthalenes, and BTEX were not detected at concentrations greater than method detection limits¹ (MDLs) in the three soil samples analyzed from the UST area. See Table 1 for additional details.

¹ The MDLs for all analytes were also below the PSLs.

4.3.2 Former Oil-Filled Electrical Equipment Assessment

4.3.2.1 East Yard Shallow Soil Sampling

Analytical results of shallow soil samples collected from the East Yard are summarized in Table 1 and depicted on Figures 4 through 8.

Mineral Oil

The reported concentration of TPH-MO in three composite soil samples (EY-SG-03, EY-SG-05, and EY-SG-26) exceeded the PSL for TPH-MO of 4,000 milligram per kilogram (mg/kg). TPH-MO concentrations in these three samples ranged from 4,500 mg/kg to 8,300 mg/kg (Table 2, Figure 4). TPH-MO was detected in six other composite soil samples at concentrations less than the TPH-MO PSL, and not detected at concentrations greater than MDLs in the other 26 composite soil samples analyzed from the East Yard (Table 1; Figure 4). Although the composite soil sample collected from composite soil group EY-SG05 exceeded the PSL, discrete samples collected from EY-SG05 did not exceed the PSL, therefore, the vertical extent of TPH-MO impacts is limited to 1.5 feet bgs, and the horizontal extent is limited as shown on Figure 8.

The reported TPH-MO concentration in five of the 57 discrete samples analyzed between March and August 2018 exceeded the PSL. The reported TPH-MO concentration in these five samples ranged from 5,700 mg/kg to 14,500 mg/kg (EY-SG03-SB01, EY-SG03-SB02, EY-SG26-SB01, EY-SG03-SB-09-5, and EY-SG03-SB-09-10; Table 2, Figure 5). Four of the five TPH-MO PSL exceedances were reported in samples collected from the East Yard composite soil group EY-SG03. Two were collected at soil borings advanced to a total depth of 1.5 feet bgs. The other two soil samples exceeding the PSL were collected from one soil boring at depths of 5 and 10 feet bgs (EY-SG03-SB09; Table 2; Figure 5). A soil sample was not collected below 10 feet bgs at EY-SG03-SB09, therefore, the vertical extent of TPH-MO impacts at this boring location is unknown. Due to the large number of subsurface utilities and the presence of the utility tunnel traversing composite soil group EY-SG03, soil borings could not be advanced to 10 feet bgs at all planned locations. As such, the complete vertical and horizontal extent of TPH-MO impacts below 1.5 feet bgs is unknown. However, the northern, northwestern, and southeastern extent of impact is defined by the data collected from EY-SG03-SB07, EY-SG03-SB08, and EY-SG03-SB11, respectively. An estimated extent of TPH-MO impacts at EY-SG03 is shown on Figure 8.

The other TPH-MO PSL exceedance was reported in a sample collected from composite soil group EY-SG26 at a depth of 1.5 feet bgs. TPH-MO was detected in 17 discrete soil samples analyzed from the East Yard at concentrations less than the PSL (11 mg/kg to 3,900 mg/kg), and not detected at concentrations exceeding the MDL in the other 35 samples analyzed. See Table 1 and Figure 4 for more detailed information. Based on the analytical results of the discrete soil samples collected from composite soil group EY-SG26, the vertical extent of TPH-MO impacts is limited to 5 feet bgs; the horizontal extent is limited as shown on Figure 8.

PCBs

PCBs were reported in two of the seven samples analyzed from the East Yard, but at concentrations less than the PCB PSL of 1 mg/kg. See Table 1 and Figure 6 for more detailed information.

RCRA Metals

Arsenic was detected in two of the four composite soil samples analyzed from the East Yard at concentrations exceeding the arsenic PSL of 20 mg/kg (23 mg/kg to 60 mg/kg; Table 1). Arsenic was detected in the other two composite soil samples analyzed, but at concentrations less than the arsenic PSL. Barium, chromium, lead, and mercury were detected in all four composite soil samples analyzed, but at concentrations less than the PSLs. Cadmium was detected in one composite soil sample at a

concentration less than the PSL of 80 mg/kg (EY-SG39-CSB; Table 1). Selenium and silver were not detected at concentrations greater than MDLs.

4.3.2.2 West Yard Shallow Soil Sampling

Mineral Oil

TPH-MO was detected in nine of the 13 composite soil samples analyzed from the West Yard but at concentrations less than the TPH-MO PSL and not detected at concentrations exceeding the MDL in the other four composite soil samples analyzed (Table 1; Figure 4).

The reported TPH-MO concentration in two of the 27 discrete soil samples analyzed from the West Yard exceeded the TPH-MO PSL (WY-SG02-SB02 and WY-SG03-SB03; Table 2; Figure 5). The two samples with reported TPH-MO concentrations exceeding the PSL were collected at a depth of 1.5 feet bgs (Table 2). TPH-MO was detected in five discrete soil samples at concentrations less than the PSL, and not detected in the other 20 discrete soil samples analyzed (Table 1; Figure 5). Based on the additional data collected during the second field investigation, the vertical extent of TPH-MO impacts is limited to 5 feet bgs; the horizontal extent is limited as shown on Figure 8.

PCBs

Of the three discrete soil samples analyzed from the West Yard, PCBs were detected in one soil sample at a concentration of 2.2 mg/kg, which exceeds the PSL of 1 mg/kg (WY-SG13-SB03; Table 2; Figure 6). This sample was collected west of the Former Oil Capacitor Bank (FOCB) at a depth of 1.5 feet bgs. PCBs were detected in the other two samples analyzed, but at concentrations less than the PSL (Table 1; Figure 6).

RCRA Metals

Arsenic was detected in one of the three composite soil samples analyzed at a concentration of 71 mg/kg, which exceeds the PSL of 20 mg/kg (Table 2; Figure 7). Arsenic was detected in the other two composite soil samples analyzed, but at concentrations less than the PSL (Table 1; Figure 7). Barium, chromium, lead, and mercury were detected in the three composite soil samples at concentrations less than the respective PSLs. Cadmium was detected in two of the three composite soil samples at concentrations less than the PSL. Selenium and silver were not detected in the three composite soil samples at concentrations greater than the MDLs (Table 1).

4.3.2.3 Former Oil-Capacitor Bank

Mineral Oil

Of the 18 soil samples analyzed from the FOCB area, TPH-MO was detected in one soil sample at a concentration of 56 mg/kg, which is less than the PSL (FOCB-03-1.5; Table 1). TPH-MO was not detected in the other 17 samples analyzed at a concentration exceeding the MDL (Table 2; Figure 5).

PCBs

PCBs were detected in three soil samples collected from the vicinity of the FOCB at concentrations exceeding the PSL of 1 mg/kg (Table 2; Figure 6). The exceedances were reported in two samples from one soil boring (FOCB-SB03 at 1.5 feet bgs and 5 feet bgs) and one sample collected at soil boring FOCB-SB06 at 5 feet bgs. PCBs were not detected in the deeper sample (10 feet bgs) collected at FOCB-SB03. PCBs were detected in three additional soil samples collected from the vicinity of the FOCB, but at concentrations less than the PSL (Table 1; Figure 6). PCBs were not detected at concentrations exceeding the MDLs in the other 12 samples analyzed (Table 1; Figure 6). Based on the additional data

collected during the second field investigation, the vertical extent of PCB impacts is limited to 10 feet bgs; the horizontal extent is shown on Figure 8.

Carcinogenic PAHs and Naphthalenes

Carcinogenic PAHs are a subset of semi-volatile organic compounds and, under MTCA guidance, have a cumulative cleanup standard. A toxicity equivalency factor is applied to each cPAH concentration to establish a proportional contribution for each cPAH that is used to calculate a toxicity equivalency quotient that is used for comparison to the MTCA Method A soil cleanup level for unrestricted land use. The toxicity equivalency quotient concentrations calculated for the eight soil samples analyzed for cPAHs were well below the PSL of 100 micrograms per kilogram ($\mu\text{g}/\text{kg}$) (Table 1).

Naphthalene was detected in one of the eight soil samples analyzed at concentrations less than the PSL of 5,000 $\mu\text{g}/\text{kg}$ (FOCB-SB03-1.5; Table 1). 1-Methylnaphthalene and 2-methylnaphthalene were detected in another soil sample, but at concentrations less than the PSLs (FOCB-SB04-1.5; Table 1).

Naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene were not detected in the other six samples analyzed (Table 1).

BTEX

Benzene, toluene, ethylbenzene, and xylenes were not detected at concentrations exceeding MDLs in the eight soil samples analyzed. See Table 1 for additional details.

4.3.3 Surface Soil Samples for Arsenic

Arsenic was detected in four of the 15 surface soil samples collected from the Subject Property at concentrations ranging between 21 and 28 mg/kg, slightly exceeding the arsenic PSL of 20 mg/kg (SS-07, SS-09, SS-11, and SS-15; Table 2; Figure 7). Arsenic was also detected at concentrations less than the PSL in the other 11 surface soil samples analyzed (Table 1; Figure 7).

4.3.4 Salt Well Assessment

Mineral Oil

TPH-MO was detected in one of the 44 soil samples analyzed as part of the Salt Well assessment at a concentration of 15,000 mg/kg, which exceeds the PSL of 4,000 mg/kg (SW-04; Table 2; Figure 5). TPH-MO was detected in nine soil samples but at concentrations less than the MTCA CUL (Table 1; Figure 5). TPH-MO was not detected at concentrations greater than the MDL in the soil samples collected from the other 34 salt wells sampled (Table 1; Figure 5). Based on the additional data collected during the second field investigation, the vertical extent of TPH-MO impacts is limited to 5 feet bgs; the horizontal extent is shown on Figure 8.

PCBs

PCBs were detected in three of the eight soil samples analyzed, but at concentrations less than the MTCA CUL. PCBs were not detected in the other five soil samples analyzed. See Table 1 and Figure 6 for details.

4.4 Sump Sample Results

The current source of water in the sump is expected to consist of stormwater entering the building through utility tunnel access hatches located in the exterior yard. Because the integrity of the sump is unknown, water in the sump could potentially impact subsurface soil and ultimately groundwater².

² The likelihood of impacted sump water intercepting site groundwater is low.

Analytical results of the two water samples collected from the sump were compared to the applicable MTCA Method A groundwater cleanup levels.

TPH-MO was detected in both sump water samples at concentrations ranging between 0.58 milligrams per liter (mg/L) and 14.7 mg/L, which exceeds the MTCA Method A groundwater cleanup level of 0.5 mg/L (Table 3). The sample collected in August 2018 (SMP-01-082318) had a higher TPH-MO concentration than the sample collected in March 2018 (SMP-01-032818).

PCBs were not detected in the water sample collected in March 2018 (SMP-01) at concentrations exceeding the MDLs (Table 3). As a result, the August 2018 sump water sample was not analyzed for PCBs.

4.5 Hazardous Building Material Survey Results

Analytical laboratory results for the building material samples collected from the building at the Cushman Substation in relation to the Hazardous Building Material Survey are summarized below and in NVL's report, included as Appendix B.

4.5.1 Asbestos

Six of the 25 samples analyzed for asbestos content were found to contain asbestos and include the following materials:

Roof:

- Approximately 9,435 square feet of rolled, built-up roofing material on the flat roof, containing approximately 20-22% asbestos;
- Approximately 410 linear feet (LF) of roof parapet walls with black tar and gray coating, containing approximately 10% asbestos;
- Approximately 165 LF of Elevator Room roof, containing approximately 20% asbestos;

Basement:

- Approximately 10 LF of transit tray in Tunnel #1 near the entrance, containing approximately 25% asbestos; and

Exterior:

- Approximately 45 LF of exterior gray window glazing on the door, window, and door components, containing approximately 2% asbestos.

4.5.2 Lead-Containing Paint

Seventeen of the 18 samples collected and analyzed for lead-containing paint were found to contain detectable concentrations of lead that ranged from less than 51 parts per million (ppm) to 160,000 ppm. Paint that contains any detectable amount of lead is classified by federal and state regulations as lead-containing paint. Lead-based paint is defined as containing 5,000 ppm or more of lead. Any detectable level of lead in paint triggers OSHA regulations that require that Site management advise demolition workers that lead-containing paints and lead-based paints are present and require them to comply with the OSHA Lead in Construction Standard (29 CFR 1926.62) and WAC 296-155-176 while performing construction work that will impact painted surfaces.

4.5.3 Mercury

Mercury was not detected above the reporting limit of 0.2 micrograms per wipe ($\mu\text{g/wipe}$) in the four wipe samples collected from the control room.

4.5.4 PCBs

PCBs were not detected above the reporting limits of 0.22 $\mu\text{g/wipe}$ to 2.0 $\mu\text{g/wipe}$ in the five wipe samples collected. Although PCBs were not detected in the wipe samples collected, a visual survey of light ballasts potentially containing PCBs was conducted. A total of 89 light ballasts were visually identified and assumed to contain PCBs.

4.5.5 Universal Waste

Universal waste consists of hazardous waste streams that are exempt from certain federal and state hazardous waste regulations. Universal waste identified at the Cushman Substation building includes light tubes and lamps assumed to contain mercury. A total of 186 florescent light tubes and 14 high-intensity discharge lamps were visually identified and assumed to contain mercury.

5. CONCLUSIONS

5.1 Soil Conditions

Based on soil data obtained during this Phase II ESA, six areas were identified that with mineral oil concentrations in soil exceeding the PSL of 4,000 mg/kg. These areas include one salt well location in the East Yard (SW-04), soil within two composite soil groups located in the northwest corner of the West Yard (WY-SG02 and WY-SG03; Figure 8), and soil within three composite soil groups located in the southwest corner of the East Yard (EY-SG03, EY-SG05, and EY-SG-26; Figure 8). The horizontal extent of mineral oil impacts are also shown on Figure 8. The vertical extent of mineral oil impacts is limited to the top 5 feet of soil with the exception of soil within composite soil group EY-SG03, which extends deeper than 10 feet bgs.

One area located in the northwest corner of the West Yard near the FOCB was identified with PCB concentrations in soil exceeding the PCB PSL of 1 mg/kg. PCBs were not detected in other areas of the Subject Property at concentrations exceeding regulatory cleanup levels, suggesting that PCB impacts in soil are limited to the area around the FOCB. Soil samples collected during the second field investigation suggest that PCB impacts in soil do not extend beyond 8.5 to 10 feet bgs.

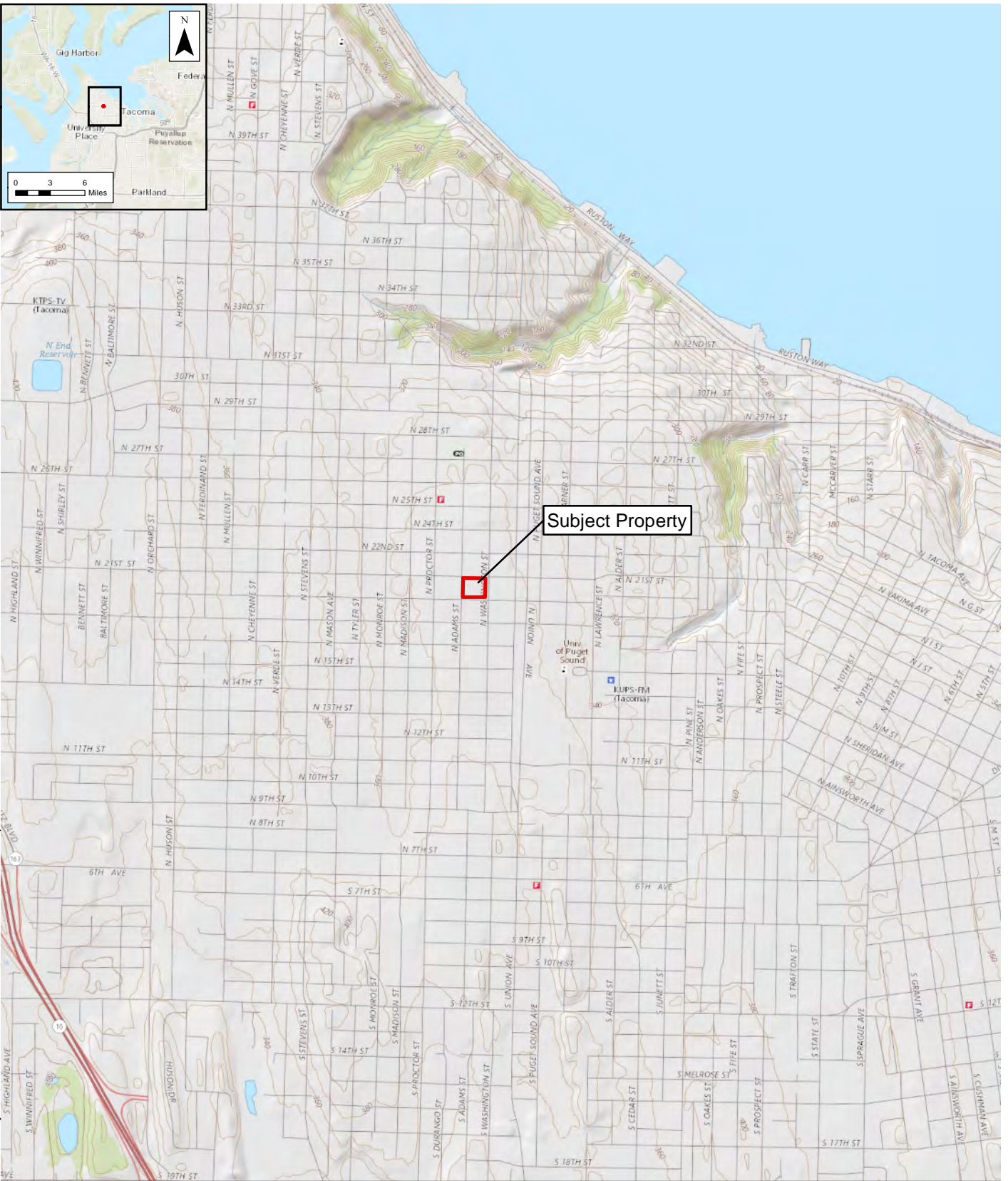
A total of three composite soil samples and four discrete soil samples were identified with arsenic concentrations exceeding the arsenic PSL of 20 mg/kg. Arsenic concentrations appear to be somewhat randomly distributed throughout the Site, and as noted in Section 2.5, the Site is located within the Tacoma Smelter “moderate zone,” with expected arsenic concentrations in soil ranging between 20 and 40 mg/kg. Therefore, the concentrations detected in soil are consistent with what is anticipated in this area. The horizontal and vertical extent of arsenic impacts in the Site have not been assessed.

5.2 Sump Conditions

As indicated in Section 3.4, the source of water in the sump is presumed to be stormwater that enters the building through exterior hatches in the utility tunnels that connect to the basement of the building. The reported TPH-MO concentrations in the water samples collected from the sump exceeded the MTCA Method A groundwater cleanup level suggesting that there may be mineral oil present on the basement floors and within the sump.

FIGURES

DRAWN BY: Kara Batdorff



Subject Property

M:\Projects\Cushman_Substation\Maps\Site Vicinity.mxd, REVISED: 12/13/2017, SCALE: 1:24,000 when printed at 8.5x11

Legend

 Property Boundary

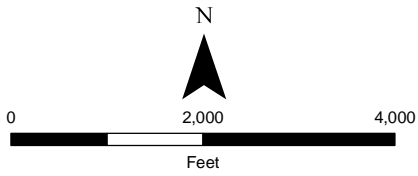
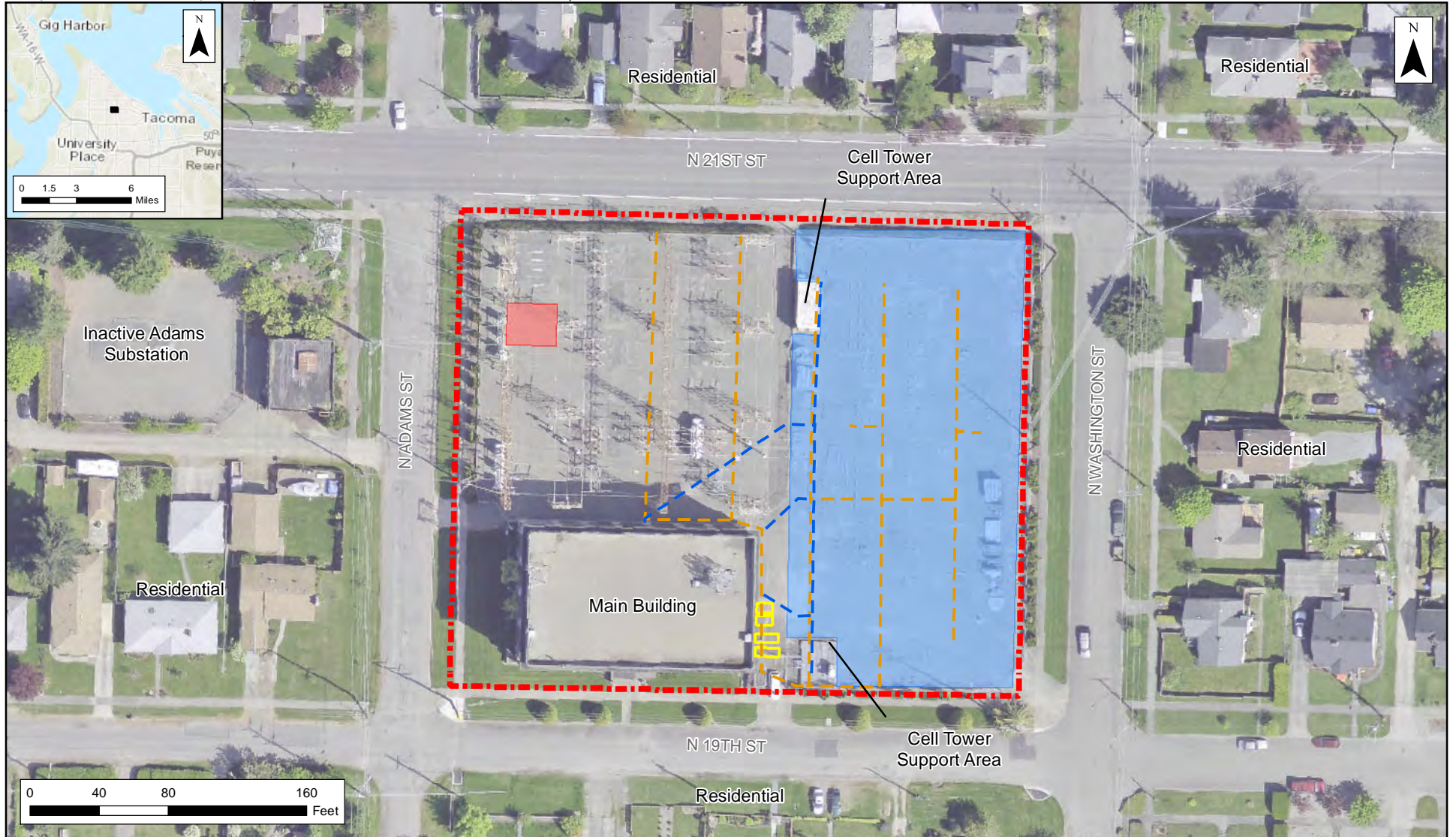


Figure 1
 Site Vicinity
 Cushman Substation
 3713 North 19th Street
 Tacoma, WA



Legend

- Approximate Utility Tunnel*
- Approximate Oil Piping*
- Approximate Location of USTs*
- Known Area of Past Mineral Oil Releases
- Non-Operational Portion of Exterior Yard
- Site Boundary

Notes:

*Locations of site features are approximate and based off of Cushman Substation Layout of Oil Piping Outdoor Portions Drawing No. BN-1001 dated 25 May 1925

Figure 2
 Site Layout
 Cushman Substation
 3713 North 19th Street
 Tacoma, WA



- Legend**
- Soil Boring Samples
 - ▲ Shallow Soil Boring
 - Deep Soil Boring
 - ◆ Composite Soil Boring
 - ⊙ Salt Well
 - Sump
 - Arsenic Surface Soil Sample
 - Utility Tunnel*
 - Composite Soil Group
 - Underground Storage Tanks*
 - Former Oil Capacitor Bank (FOCB)
 - Site Boundary

Notes:
 * Locations of site features are approximate and based off of Cushman Substation Layout of Oil Piping Outdoor Portions Drawing No. BN-1001 dated 25 May 1925

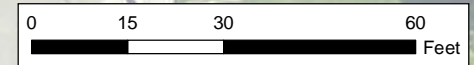
Figure 3
 Sample Locations
 Phase II ESA
 Cushman Substation
 3713 North 19th Street
 Tacoma, WA



- Legend**
- TPH-MO in Surface Soil Samples (1.5 feet bgs)
 - Detected Above Clean Up Level**
 - TPH -MO in Salt Wells (2.5 feet bgs)
 - ⊕ Detected Above Clean Up Level
 - TPH-MO in Composite Soil Samples
 - Detected Greater than Cleanup Levels
 - Detected Less than Cleanup Levels
 - Not Detected
 - Not Analyzed
 - Utility Tunnel*
 - ▭ Underground Storage Tanks*
 - ▭ Former Oil Capacitor Bank (FOCB)
 - ▭ Site Boundary

Notes:
 All concentrations presented in mg/kg
 Cleanup Level for TPH-MO is 4,000 mg/kg
 * Locations of site features are approximate and based off of Cushman Substation Layout of Oil Piping Outdoor Portions Drawing No. BN-1001 dated 25 May 1925
 mg/kg = milligrams per kilogram
 NA = Not Analyzed
 TPH-MO = Mineral Oil-Range Total Petroleum Hydrocarbons
 **Concentration not shown. See Figure 5 for details

Figure 4
 Petroleum Hydrocarbons
 in Composite Soil Groups
 Phase II ESA
 Cushman Substation
 3713 North 19th Street
 Tacoma, WA





Legend

TPH-MO in Composite Soil Borings (1.5 feet bgs)

- Not Detected
- Detected Below Clean Up Level
- Detected Above Clean Up Level
- Not Analyzed

TPH-MO in Shallow Soil Boring (depth noted in sample name)

- ▲ Not Detected
- ▲ Detected less than Cleanup Levels
- ▲ Detected greater than Cleanup Levels

--- Utility Tunnel*

- Composite Soil Group
- Underground Storage Tanks*
- Former Oil Capacitor Bank (FOCB)
- Site Boundary

Notes:
 All concentrations presented in mg/kg
 Cleanup Level for TPH-MO is 4,000 mg/kg
 * Locations of site features are approximate and based off of Cushman Substation Layout of Oil Piping Outdoor Portions Drawing No. BN-1001 dated 25 May 1925
 bgs = below ground surface
 mg/kg = milligrams per kilogram
 TPH-MO = Mineral Oil-Range Total Petroleum Hydrocarbons

Figure 5
 Petroleum Hydrocarbons in Soil
 Phase II ESA
 Cushman Substation
 3713 North 19th Street
 Tacoma, WA

Source: Esri - World Topographic Map; NAD 1983 HARN StatePlane Washington North FIPS 4601 Feet



Legend

PCBs in Composite Soil Borings (1.5 feet bgs)

- Detected Above Clean Up Level
- Detected Below Clean Up Level
- Not Detected

PCBs in Shallow Soil Boring (depth noted in sample name)

- ▲ Detected Greater than Cleanup Levels
- ▲ Detected Less than Cleanup Levels
- ▲ Not Detected

PCB in Salt Wells (2.5 feet bgs)

- ◆ Detected Less than Cleanup Levels
- ◆ Not Detected

- - Utility Tunnel*
- Composite Soil Group
- Underground Storage Tanks*
- Former Oil Capacitor Bank (FOCB)
- Site Boundary

Notes:
 All concentrations presented in mg/kg
 Cleanup Level for Total PCBs is 1.0 mg/kg
 * Locations of site features are approximate and based off of Cushman Substation Layout of Oil Piping Outdoor Portions Drawing No. BN-1001 dated 25 May 1925
 bgs = below ground surface
 mg/kg = milligrams per kilogram
 PCBs = Polychlorinated Biphenyls

Figure 6
 Total PCBs in Soil
 Phase II ESA
 Cushman Substation
 3713 North 19th Street
 Tacoma, WA



Legend

Arsenic Surface Soil Sample

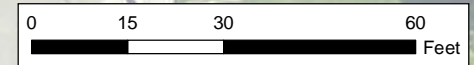
- Detected Greater than Cleanup Levels
- Detected Less than Cleanup Levels
- Not Detected

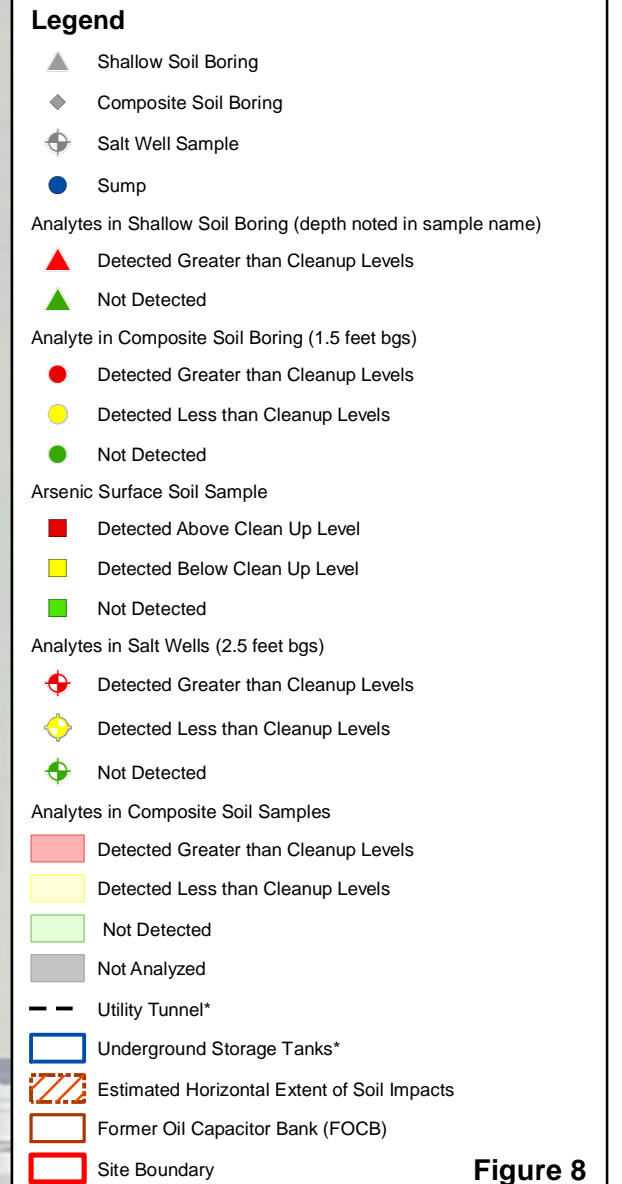
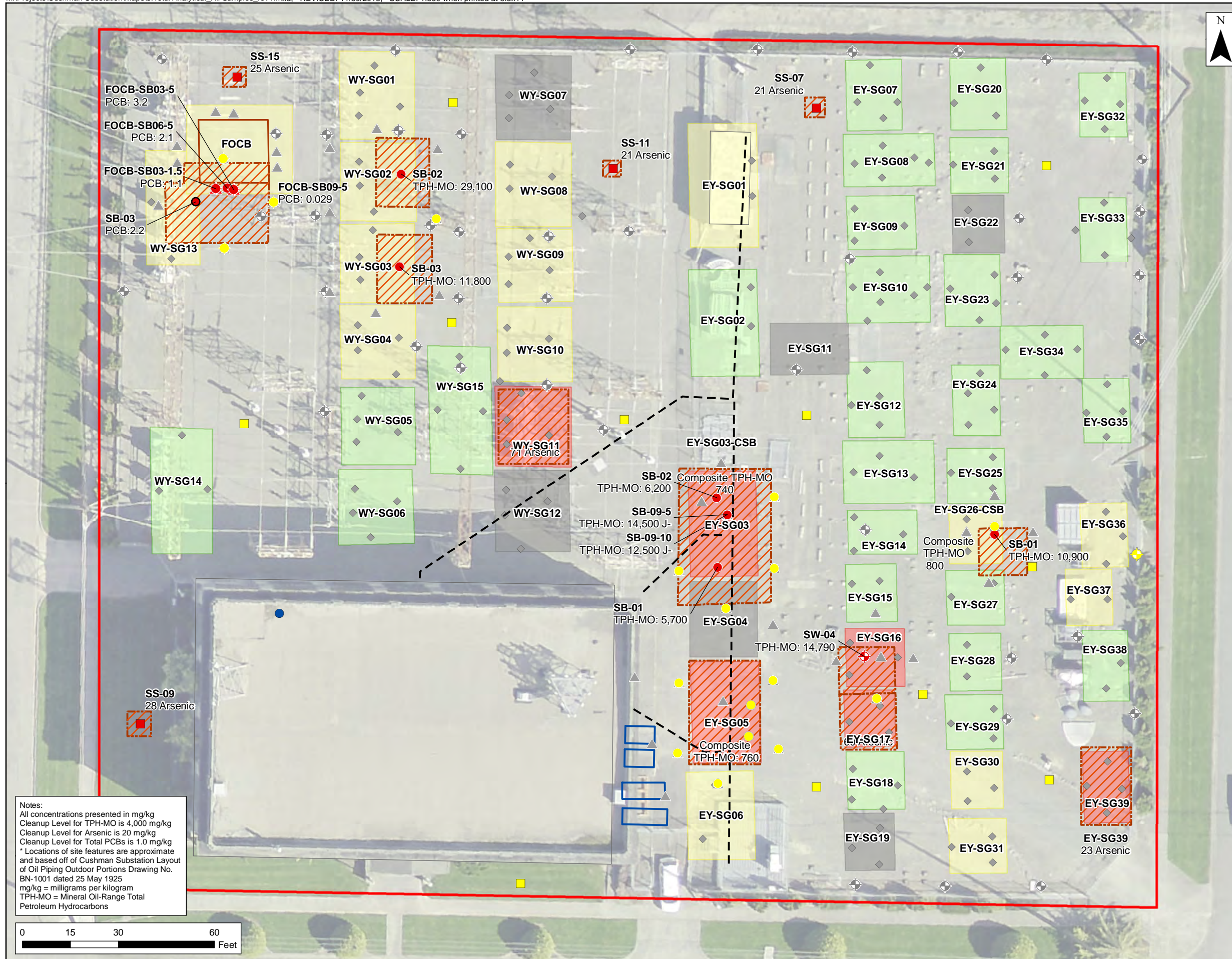
Composite Soil Group

- Detected Greater than Cleanup Levels
- Detected Less than Cleanup Levels
- Not Analyzed
- - Utility Tunnel*
- Underground Storage Tanks*
- Former Oil Capacitor Bank (FOCB)
- Site Boundary

Notes:
 All concentrations presented in mg/kg
 Cleanup Level for Arsenic is 20 mg/kg
 * Locations of site features are approximate and based off of Cushman Substation Layout of Oil Piping Outdoor Portions Drawing No. BN-1001 dated 25 May 1925
 mg/kg = milligrams per kilogram

Figure 7
 Arsenic in Soil
 Phase II ESA
 Cushman Substation
 3713 North 19th Street
 Tacoma, WA





Notes:
 All concentrations presented in mg/kg
 Cleanup Level for TPH-MO is 4,000 mg/kg
 Cleanup Level for Arsenic is 20 mg/kg
 Cleanup Level for Total PCBs is 1.0 mg/kg
 * Locations of site features are approximate and based off of Cushman Substation Layout of Oil Piping Outdoor Portions Drawing No. BN-1001 dated 25 May 1925
 mg/kg = milligrams per kilogram
 TPH-MO = Mineral Oil-Range Total Petroleum Hydrocarbons

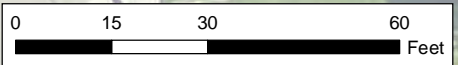


Figure 8
 Total Analytical Summary
 Phase II ESA
 Cushman Substation
 3713 North 19th Street
 Tacoma, WA

TABLES

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area	UST Assessment									East Yard Assessment						
	Sample Location	UST-SB01	UST-SB02	UST-SB03	EY-SG01	EY-SG02	EY-SG03	EY-SG05	EY-SG06	EY-SG07						
	Sample Date	13-Mar-18	13-Mar-18	14-Mar-18	28-Mar-18	16-Mar-18	16-Mar-18	28-Mar-18	28-Mar-18	13-Mar-18						
Sample Depth	N	N	N	N	N	N	N	N	N							
Sample ID	12.5 - 14 feet bgs	22.5 - 24 feet bgs	15 - 16.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs						
	UST-SB01-12.5-14-03.13.18	UST-SB02-22.5-24-03.13.18	UST-SB03-15-16.5-03.14.18	EY-SG01-CSB-032818	EY-SG02-CSB-031618	EY-SG03-CSB-031618	EY-SG05-CSB-032818	EY-SG06-CSB-032818	EY-SG07-CSB-031318							
Analyte	MTCA Screening Criteria															
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg																
TPH-D	2,000	< 52	< 52	< 54	450 NJ	< 56	1,500 NJ	1,300 NJ	< 52	< 53						
TPH-MO	4,000	< 52	< 52	< 54	780	< 56	2,300	6,200	< 52	< 53						
TPH-HO	2,000	< 52	< 52	< 54	370 NJ	< 56	740 NJ	760 NJ	61	< 53						
Combined TPH-MO	4,000	< 52	< 52	< 54	1,600 NJ	< 56	4,500 NJ	8,300 NJ	61	< 53						
RCRA Metals, EPA Method SW6010C/7471A, mg/kg																
Arsenic	20															
Barium	16,000**					5.5										
Cadmium	80**					100										
Chromium	NS					< 0.84										
Lead	250					34										
Mercury	2					15										
Selenium	400**					0.052										
Silver	400**					< 4.2										
						< 2.1										
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg																
Aroclor 1016	5.6**	< 0.021	< 0.022	< 0.021												
Aroclor 1221	NS	< 0.021	< 0.022	< 0.021												
Aroclor 1232	NS	< 0.021	< 0.022	< 0.021												
Aroclor 1242	NS	< 0.021	< 0.022	< 0.021												
Aroclor 1248	NS	< 0.021	< 0.022	< 0.021												
Aroclor 1254	0.5*	< 0.021	< 0.022	< 0.021												
Aroclor 1260	0.5*	< 0.021	< 0.022	< 0.021												
Total PCBs	1	< 0.021	< 0.022	< 0.021												
Volatile Organic Compounds, EPA Method SW8260C, µg/kg																
Benzene	30	< 24	< 22	< 22												
Ethylbenzene	6,000	< 47	< 44	< 45												
m,p-Xylenes	NS	< 240	< 220	< 220												
o-Xylene	16,000,000**	< 47	< 44	< 45												
Toluene	7,000	< 180	< 170	< 170												
Naphthalenes, EPA Method SW8270D-SIM, µg/kg																
1-Methylnaphthalene	34,500*	< 5.2	< 5.1	< 5.3												
2-Methylnaphthalene	320,000**	< 5.2	< 5.1	< 5.3												
Naphthalene	5,000	< 5.2	< 5.1	< 5.3												
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg																
Benzo(a)anthracene	1,370*	< 5.2	< 5.1	< 5.3												
Benzo(a)pyrene	100	< 5.2	< 5.1	< 5.3												
Benzo(b)fluoranthene	1,370*	< 5.2	< 5.1	< 5.3												
Benzo(k)fluoranthene	13,700*	< 5.2	< 5.1	< 5.3												
Chrysene	137,000*	< 5.2	< 5.1	< 5.3												
Dibenzo(a,h)anthracene	137*	< 5.2	< 5.1	< 5.3												
Indeno(1,2,3-cd)pyrene	1,370*	< 5.2	< 5.1	< 5.3												
cPAH TEQ (ND=1/2DL)	100	3.9	3.9	4.0												
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg																
Acenaphthene	4,800,000**	< 5.2	< 5.1	< 5.3												
Acenaphthylene	NS	< 5.2	< 5.1	< 5.3												
Anthracene	24,000,000**	< 5.2	< 5.1	< 5.3												
Benzo(g,h,i)perylene	NS	< 5.2	< 5.1	< 5.3												
Fluoranthene	3,200,000**	< 5.2	< 5.1	< 5.3												
Fluorene	3,200,000**	< 5.2	< 5.1	< 5.3												
Phenanthrene	NS	< 5.2	< 5.1	< 5.3												
Pyrene	2,400,000**	< 5.2	< 5.1	< 5.3												

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		East Yard Assessment								
Sample Location		EY-SG08	EY-SG09	EY-SG10	EY-SG12	EY-SG13	EY-SG14	EY-SG15	EY-SG16	EY-SG17
Sample Date		13-Mar-18	14-Mar-18	14-Mar-18	14-Mar-18	14-Mar-18	14-Mar-18	15-Mar-18	15-Mar-18	16-Mar-18
Sample Depth		N	N	N	N	N	N	N	N	N
Sample ID		1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs
		EY-SG08-CSB-031318	EY-SG09-CSB-031418	EY-SG10-CSB-031418	EY-SG12-CSB-031418	EY-SG13-CSB-031418	EY-SG14-CSB-031418	EY-SG15-CSB-031518	EY-SG16-CSB-031518	EY-SG17-CSB-031618
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 60	< 55	< 56	< 54	< 56	< 56	< 54	< 54	< 51
TPH-MO	4,000	< 60	< 55	< 56	< 54	< 56	< 56	< 54	< 54	< 51
TPH-HO	2,000	< 60	< 55	< 56	< 54	< 56	< 56	< 54	< 54	< 51
Combined TPH-MO	4,000	< 60	< 55	< 56	< 54	< 56	< 56	< 54	< 54	< 51
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									60
Barium	16,000**									77
Cadmium	80**									< 1.0
Chromium	NS									29
Lead	250									20
Mercury	2									0.044
Selenium	400**									< 5.1
Silver	400**									< 2.6
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**		< 0.020							
Aroclor 1221	NS		< 0.020							
Aroclor 1232	NS		< 0.020							
Aroclor 1242	NS		< 0.020							
Aroclor 1248	NS		< 0.020							
Aroclor 1254	0.5*		< 0.020							
Aroclor 1260	0.5*		< 0.020							
Total PCBs	1		< 0.020							
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		East Yard Assessment								
Sample Location		EY-SG18	EY-SG20	EY-SG21	EY-SG23	EY-SG24	EY-SG25	EY-SG26	EY-SG27	EY-SG28
Sample Date		15-Mar-18	13-Mar-18	16-Mar-18	13-Mar-18	12-Mar-18	14-Mar-18	14-Mar-18	15-Mar-18	15-Mar-18
Sample Depth		N	N	N	N	N	N	N	N	N
Sample ID		1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs
		EY-SG18-CSB-031518	EY-SG20-CSB-031318	EY-SG21-CSB-031618	EY-SG23-CSB-031318	EY-SG24-CSB-031218	EY-SG25-CSB-031418	EY-SG26-CSB-031418	EY-SG27-CSB-031518	EY-SG28-CSB-031518
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 52	< 51	< 55	< 54	< 53	< 52	2,700	< 53	< 56
TPH-MO	4,000	< 52	< 51	< 55	< 54	< 53	< 52	3,000	< 53	< 56
TPH-HO	2,000	< 52	< 51	< 55	< 54	< 53	< 52	800	< 53	< 56
Combined TPH-MO	4,000	< 52	< 51	< 55	< 54	< 53	< 52	6,500	< 53	< 56
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20			6.1						
Barium	16,000**			120						
Cadmium	80**			< 0.94						
Chromium	NS			35						
Lead	250			8.5						
Mercury	2			0.055						
Selenium	400**			< 4.7						
Silver	400**			< 2.3						
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**									
Aroclor 1221	NS									
Aroclor 1232	NS									
Aroclor 1242	NS									
Aroclor 1248	NS									
Aroclor 1254	0.5*									
Aroclor 1260	0.5*									
Total PCBs	1									
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		East Yard Assessment								
Sample Location		EY-SG29	EY-SG30	EY-SG31	EY-SG32	EY-SG33	EY-SG34	EY-SG35	EY-SG36	EY-SG37
Sample Date		15-Mar-18	15-Mar-18	15-Mar-18	12-Mar-18	12-Mar-18	12-Mar-18	12-Mar-18	16-Mar-18	16-Mar-18
Sample Depth		N	N	N	N	N	N	N	N	N
Sample ID		1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs	1.5 feet bgs
Analyte	MTCA Screening Criteria	EY-SG29-CSB-031518	EY-SG30-CSB-031518	EY-SG31-CSB-031518	EY-SG32-CSB-031218	EY-SG33-CSB-031218	EY-SG34-CSB-031218	EY-SG35-CSB-031218	EY-SG36-CSB-031618	EY-SG37-CSB-031618
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 52	130 NJ	< 55	< 52	< 56	< 52	< 54	61 NJ	84 NJ
TPH-MO	4,000	< 52	170	65	< 52	< 56	< 52	< 54	99	130
TPH-HO	2,000	< 52	110 NJ	< 55	< 52	< 56	< 52	< 54	< 53	< 57
Combined TPH-MO	4,000	< 52	410 NJ	65	< 52	< 56	< 52	< 54	160 NJ	210 NJ
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**									
Aroclor 1221	NS									
Aroclor 1232	NS									
Aroclor 1242	NS									
Aroclor 1248	NS									
Aroclor 1254	0.5*									
Aroclor 1260	0.5*									
Total PCBs	1									
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		East Yard Assessment								
Sample Location	Sample Date	EY-SG38 16-Mar-18 N	EY-SG39 16-Mar-18 N	EY-SG03-SB-01 16-Mar-18 N	EY-SG03-SB-02 16-Mar-18 N	EY-SG05-SB-01 28-Mar-18 N	EY-SG05-SB-02 28-Mar-18 N	EY-SG09-SB-01 14-Mar-18 N	EY-SG09-SB-02 14-Mar-18 N	EY-SG09-SB-03 14-Mar-18 N
Sample Depth	Sample ID	1.5 feet bgs EY-SG38-CSB-031618	1.5 feet bgs EY-SG39-CSB-031618	1.5 feet bgs EY-SG03-SB01-031618	1.5 feet bgs EY-SG03-SB02-031618	1.5 feet bgs EY-SG05-SB01-032818	1.5 feet bgs EY-SG05-SB02-032818	1.5 feet bgs EY-SG09-SB01-031418	1.5 feet bgs EY-SG09-SB02-031418	1.5 feet bgs EY-SG09-SB03-031418
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 52	< 56	1,800 NJ	2,200 NJ	1,300 NJ	520 NJ	< 55	< 55	< 54
TPH-MO	4,000	< 52	< 56	2,500	2,900	1,700	730	< 55	< 55	< 54
TPH-HO	2,000	< 52	< 56	1,400 NJ	1,100 NJ	850 NJ	400 NJ	< 55	< 55	< 54
Combined TPH-MO	4,000	< 52	< 56	5,700 NJ	6,200 NJ	3,900 NJ	1,700 NJ	< 55	< 55	< 54
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20		23							
Barium	16,000**		97							
Cadmium	80**		1.2							
Chromium	NS		31							
Lead	250		24							
Mercury	2		0.053							
Selenium	400**		< 4.7							
Silver	400**		< 2.3							
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**			< 0.022	< 0.022 J			< 0.023	< 0.023	< 0.023
Aroclor 1221	NS			< 0.022	< 0.022			< 0.023	< 0.023	< 0.023
Aroclor 1232	NS			< 0.022	< 0.022			< 0.023	< 0.023	< 0.023
Aroclor 1242	NS			< 0.022	< 0.022			< 0.023	< 0.023	< 0.023
Aroclor 1248	NS			< 0.022	< 0.022			< 0.023	< 0.023	< 0.023
Aroclor 1254	0.5*			< 0.022	< 0.022			< 0.023	< 0.023	< 0.023
Aroclor 1260	0.5*			< 0.022	0.041			< 0.023	< 0.023	< 0.023
Total PCBs	1			< 0.022	0.041			< 0.023	< 0.023	< 0.023
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		East Yard Assessment								
Sample Location	Sample Date	EY-SG16-SB-02 15-Mar-18 N	EY-SG16-SB-03 15-Mar-18 N	EY-SG26-SB-01 14-Mar-18 N	EY-SG26-SB-02 14-Mar-18 N	EY-SG26-SB-03 14-Mar-18 N	EY-SG30-SB-01 15-Mar-18 N	EY-SG36-SB-01 16-Mar-18 N	EY-SG36-SB-02 16-Mar-18 N	EY-SG36-SB-03 16-Mar-18 N
Sample Depth	Sample ID	1.5 feet bgs EY-SG16-SB02-031518	1.5 feet bgs EY-SG16-SB03-031518	1.5 feet bgs EY-SG26-SB01-031418	1.5 feet bgs EY-SG26-SB02-031418	1.5 feet bgs EY-SG26-SB03-031418	1.5 feet bgs EY-SG30-SB01-031518	1.5 feet bgs EY-SG36-SB01-031618	1.5 feet bgs EY-SG36-SB02-031618	1.5 feet bgs EY-SG36-SB03-031618
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 54	< 56	4,500 J	< 51	< 52	< 55	90 NJ	< 52	630 NJ
TPH-MO	4,000	< 54	< 56	5,200 J	< 51	< 52	< 55	120	< 52	790
TPH-HO	2,000	< 54	< 56	1,200 J	< 51	< 52	< 55	70 NJ	< 52	340 NJ
Combined TPH-MO	4,000	< 54	< 56	11,000 NJ	< 51	< 52	< 55	280 NJ	< 52	1,800 NJ
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**			< 0.021						
Aroclor 1221	NS			< 0.021						
Aroclor 1232	NS			< 0.021						
Aroclor 1242	NS			< 0.021						
Aroclor 1248	NS			< 0.021						
Aroclor 1254	0.5*			< 0.021						
Aroclor 1260	0.5*			0.25						
Total PCBs	1			0.25						
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		East Yard Assessment								
Sample Location	Sample Date	EY-SG37-SB-01 16-Mar-18 N	EY-SG37-SB-02 16-Mar-18 N	EY-SG03-SB-06 23-Aug-18 N	EY-SG03-SB-07 21-Aug-18 N	EY-SG03-SB-07 21-Aug-18 N	EY-SG03-SB-08 21-Aug-18 N	EY-SG03-SB-09 21-Aug-18 N	EY-SG03-SB-09 21-Aug-18 N	EY-SG03-SB-10 20-Aug-18 N
Sample Depth	Sample ID	1.5 feet bgs EY-SG37-SB01-031618	1.5 feet bgs EY-SG37-SB02-031618	2 feet bgs EY-SG03-SB06-2-082318	5 feet bgs EY-SG03-SB07-5-082118	10 feet bgs EY-SG03-SB07-10.0-082118	5 feet bgs EY-SG03-SB08-5-082118	5 feet bgs EY-SG03-SB09-5-082118	10 feet bgs EY-SG03-SB09-10-082118	1.5 feet bgs EY-SG03-SB10-1.5-082018
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 53	420 NJ	39	< 55	< 59	< 57	6,300 J-	5,100 J-	< 51
TPH-MO	4,000	< 53	540	66	< 55	< 59	< 57	6,800	6,000	120
TPH-HO	2,000	< 53	260 NJ	51	< 55	< 59	< 57	1,400	1,400	190
Combined TPH-MO	4,000	< 53	1,200 NJ	156	< 55	< 59	< 57	14,500 J-	12,500 J-	310
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**									
Aroclor 1221	NS									
Aroclor 1232	NS									
Aroclor 1242	NS									
Aroclor 1248	NS									
Aroclor 1254	0.5*									
Aroclor 1260	0.5*									
Total PCBs	1									
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		East Yard Assessment								
Sample Location	Sample Date	EY-SG03-SB-11 22-Aug-18 N	EY-SG03-SB-11 22-Aug-18 N	EY-SG04-SB-06 22-Aug-18 N	EY-SG04-SB-06 22-Aug-18 N	EY-SG04-SB-07 20-Aug-18 N	EY-SG05-SB-06 23-Aug-18 N	EY-SG05-SB-07 20-Aug-18 N	EY-SG05-SB-08 20-Aug-18 N	EY-SG05-SB-09 20-Aug-18 N
Sample Depth	Sample ID	5 feet bgs EY-SG03-SB11-5.0-082218	10 feet bgs EY-SG03-SB11-10.0-082218	5 feet bgs EY-SG04-SB06-5.0-082218	10 feet bgs EY-SG04-SB06-10.0-082218	2 feet bgs EY-SG04-SB07-2.0-082018	1.5 feet bgs EY-SG05-SB06-1.5-082318	1.5 feet bgs EY-SG05-SB07-1.5-082018	1.5 feet bgs EY-SG05-SB08-1.5-082018	1.5 feet bgs EY-SG05-SB09-1.5-082018
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	48	< 11	< 11	11	1,100 NJ	46	81 NJ	< 50	97 NJ
TPH-MO	4,000	61	< 28	< 27	< 28	1,800	49	170	< 50	380
TPH-HO	2,000	39	< 28	< 27	< 28	810	32	180	< 50	560
Combined TPH-MO	4,000	148	< 28	< 27	11	3,710 NJ	127	431 J	< 50	1,037 NJ
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**									
Aroclor 1221	NS									
Aroclor 1232	NS									
Aroclor 1242	NS									
Aroclor 1248	NS									
Aroclor 1254	0.5*									
Aroclor 1260	0.5*									
Total PCBs	1									
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		East Yard Assessment								
Sample Location	Sample Date	EY-SG05-SB-10 23-Aug-18 N	EY-SG05-SB-11 20-Aug-18 N	EY-SG16-SB-04 24-Aug-18 N	EY-SG16-SB-04 24-Aug-18 N	EY-SG16-SB-05 23-Aug-18 N	EY-SG16-SB-05 23-Aug-18 N	EY-SG16-SB-06 23-Aug-18 N	EY-SG16-SB-06 23-Aug-18 N	EY-SG16-SB-07 24-Aug-18 N
Sample Depth	Sample ID	1.5 feet bgs EY-SG05-SB10-1.5-082318	2 feet bgs EY-SG05-SB11-2.0-082018	5 feet bgs EY-SG16-SB04-5-082418	10 feet bgs EY-SG16-SB04-10-082418	5 feet bgs EY-SG16-SB05-5-082318	9.5 feet bgs EY-SG16-SB05-9.5-082318	5 feet bgs EY-SG16-SB06-5-082318	9.75 feet bgs EY-SG16-SB06-9.75-082318	5 feet bgs EY-SG16-SB07-5-082418
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	110	660	< 11	< 10	< 11	< 10	< 12	< 11	< 10
TPH-MO	4,000	150	800	< 29	< 26	< 27	< 26	< 29	< 26	< 26
TPH-HO	2,000	110	190	< 29	< 26	< 27	< 26	< 29	< 26	< 26
Combined TPH-MO	4,000	370	1650	< 29	< 26	< 27	< 26	< 29	< 26	< 26
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**									
Aroclor 1221	NS									
Aroclor 1232	NS									
Aroclor 1242	NS									
Aroclor 1248	NS									
Aroclor 1254	0.5*									
Aroclor 1260	0.5*									
Total PCBs	1									
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		East Yard Assessment								
Sample Location	Sample Date	EY-SG16-SB-07 24-Aug-18 N	EY-SG16-SB-08 23-Aug-18 N	EY-SG16-SB-08 23-Aug-18 N	EY-SG16-SB-08 23-Aug-18 N	EY-SG26-SB-04 24-Aug-18 N	EY-SG26-SB-04 24-Aug-18 N	EY-SG26-SB-05 23-Aug-18 N	EY-SG26-SB-05 23-Aug-18 N	EY-SG26-SB-06 24-Aug-18 N
Sample Depth	Sample ID	10 feet bgs EY-SG16-SB07-10-082418	2.5 feet bgs EY-SG16-SB08-2.5-082318	5 feet bgs EY-SG16-SB08-5-082318	9.5 feet bgs EY-SG16-SB08-9.5-082318	5 feet bgs EY-SG26-SB04-5-082418	10 feet bgs EY-SG26-SB04-10-082418	5 feet bgs EY-SG26-SB05-5-082318	10 feet bgs EY-SG26-SB05-10-082318	5 feet bgs EY-SG26-SB06-5-082418
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 10	< 11	30	< 11	< 11	< 11	< 12	< 11	< 12
TPH-MO	4,000	< 26	< 27	45	< 27	< 28	< 27	< 29	< 27	< 30
TPH-HO	2,000	< 26	< 27	31	< 27	< 28	< 27	< 29	< 27	< 30
Combined TPH-MO	4,000	< 26	< 27	106	< 27	< 28	< 27	< 29	< 27	< 30
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**									
Aroclor 1221	NS									
Aroclor 1232	NS									
Aroclor 1242	NS									
Aroclor 1248	NS									
Aroclor 1254	0.5*									
Aroclor 1260	0.5*									
Total PCBs	1									
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		East Yard Assessment					Former Oil Capacitor Bank Assessment			
Sample Location	Sample Date	EY-SG26-SB-06 24-Aug-18 N	EY-SG26-SB-07 24-Aug-18 N	EY-SG26-SB-07 24-Aug-18 N	EY-SG26-SB-08 24-Aug-18 N	EY-SG26-SB-08 24-Aug-18 N	FOCB-SB01-5 26-Mar-18 N	FOCB-SB01-1.5 28-Mar-18 N	FOCB-SB02-1.5 28-Mar-18 N	FOCB-SB02-5 26-Mar-18 N
Sample Depth	Sample ID	10 feet bgs EY-SG26-SB06-10-082418	5 feet bgs EY-SG26-SB07-5-082418	10 feet bgs EY-SG26-SB07-10-082418	5 feet bgs EY-SG26-SB08-5-082418	10 feet bgs EY-SG26-SB08-10-082418	5 feet bgs FOCB-SB01-5-032618	1.5 feet bgs FOCB-SB01-1.5-032818	1.5 feet bgs FOCB-SB02-1.5-032818	5 feet bgs FOCB-SB02-5-032618
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	40	< 11	< 12	< 11	< 11	< 58	< 55	< 57	< 57
TPH-MO	4,000	89	< 28	< 31	< 27	< 29	< 58	< 55	< 57	< 57
TPH-HO	2,000	80	< 28	< 31	< 27	< 29	< 58	< 55	< 57	< 57
Combined TPH-MO	4,000	209	< 28	< 31	< 27	< 29	< 58	< 55	< 57	< 57
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**						< 0.023	< 0.021	< 0.021	< 0.022
Aroclor 1221	NS						< 0.023	< 0.021	< 0.021	< 0.022
Aroclor 1232	NS						< 0.023	< 0.021	< 0.021	< 0.022
Aroclor 1242	NS						< 0.023	< 0.021	< 0.021	< 0.022
Aroclor 1248	NS						< 0.023	< 0.021	< 0.021	< 0.022
Aroclor 1254	0.5*						< 0.023	< 0.021	< 0.021	< 0.022
Aroclor 1260	0.5*						< 0.023	< 0.021	< 0.021	< 0.022
Total PCBs	1						< 0.023	< 0.021	< 0.021	< 0.022
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30						< 35	< 39	< 52	< 38
Ethylbenzene	6,000						< 70	< 78	< 100	< 76
m,p-Xylenes	NS						< 350	< 390	< 520	< 380
o-Xylene	16,000,000**						< 70	< 78	< 100	< 76
Toluene	7,000						< 260	< 290	< 390	< 290
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*						< 5.9	< 5.4	< 5.5	< 5.4
2-Methylnaphthalene	320,000**						< 5.9	< 5.4	< 5.5	< 5.4
Naphthalene	5,000						< 5.9	< 5.4	< 5.5	< 5.4
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*						< 5.9	< 5.4	< 5.5	< 5.4
Benzo(a)pyrene	100						< 5.9	< 5.4	< 5.5	< 5.4
Benzo(b)fluoranthene	1,370*						< 5.9	< 5.4	7.5	< 5.4
Benzo(k)fluoranthene	13,700*						< 5.9	< 5.4	< 5.5	< 5.4
Chrysene	137,000*						< 5.9	< 5.4	6.6	< 5.4
Dibenzo(a,h)anthracene	137*						< 5.9	< 5.4	< 5.5	< 5.4
Indeno(1,2,3-cd)pyrene	1,370*						< 5.9	< 5.4	< 5.5	< 5.4
cPAH TEQ (ND=1/2DL)	100						4.5	4.1	4.7	4.1
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**						< 5.9	< 5.4	< 5.5	< 5.4
Acenaphthylene	NS						< 5.9	< 5.4	< 5.5	< 5.4
Anthracene	24,000,000**						< 5.9	< 5.4	< 5.5	< 5.4
Benzo(g,h,i)perylene	NS						< 5.9	< 5.4	< 5.5	< 5.4
Fluoranthene	3,200,000**						< 5.9	< 5.4	10	< 5.4
Fluorene	3,200,000**						< 5.9	< 5.4	< 5.5	< 5.4
Phenanthrene	NS						< 5.9	< 5.4	5.5	< 5.4
Pyrene	2,400,000**						< 5.9	< 5.4	6.1	< 5.4

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		Former Oil Capacitor Bank Assessment								
Sample Location	Sample Date	FOCB-SB03-1.5 28-Mar-18 N	FOCB-SB03-5 26-Mar-18 N	FOCB-SB04-1.5 28-Mar-18 N	FOCB-SB04-5 26-Mar-18 N	FOCB-SB05 22-Aug-18 N	FOCB-SB05 22-Aug-18 N	FOCB-SB06 20-Aug-18 N	FOCB-SB06 20-Aug-18 N	FOCB-SB07 21-Aug-18 N
Sample Depth	Sample ID	1.5 feet bgs FOCB-SB03-1.5-032818	5 feet bgs FOCB-SB03-5-032618	1.5 feet bgs FOCB-SB04-1.5-032818	5 feet bgs FOCB-SB04-5-032618	5 feet bgs FOCB-SB05-5-082218	9.5 feet bgs FOCB-SB05-9.5-082218	5 feet bgs FOCB-SB06-5-082018	10 feet bgs FOCB-SB06-10-082018	5 feet bgs FOCB-SB07-5-082118
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 54	< 56	< 53	< 55	< 11	< 11	< 57	< 52	< 51
TPH-MO	4,000	< 54	< 56	< 53	< 55	< 28	< 27	< 57	< 52	< 51
TPH-HO	2,000	56 NJ	< 56	< 53	< 55	< 28	< 27	< 57	< 52	< 51
Combined TPH-MO	4,000	56 NJ	< 56	< 53	< 55	< 28	< 27	< 57	< 52	< 51
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**	< 0.022	< 0.023	< 0.023	< 0.022	< 0.011	< 0.011	< 0.022	< 0.021	< 0.021
Aroclor 1221	NS	< 0.022	< 0.023	< 0.023	< 0.022	< 0.011	< 0.011	< 0.022	< 0.021	< 0.021
Aroclor 1232	NS	< 0.022	< 0.023	< 0.023	< 0.022	< 0.011	< 0.011	< 0.022	< 0.021	< 0.021
Aroclor 1242	NS	< 0.022	< 0.023	< 0.023	< 0.022	< 0.011	< 0.011	< 0.022	< 0.021	< 0.021
Aroclor 1248	NS	< 0.022	< 0.023	< 0.023	< 0.022	< 0.011	< 0.011	< 0.022	< 0.021	< 0.021
Aroclor 1254	0.5*	1.1	3.2	< 0.023	< 0.022	0.11	< 0.011	2.1	< 0.021	< 0.021
Aroclor 1260	0.5*	< 0.022	< 0.023	< 0.023	< 0.022	< 0.011	< 0.011	< 0.022	< 0.021	< 0.021
Total PCBs	1	1.1	3.2	< 0.023	< 0.022	0.11	< 0.011	2.1	< 0.021	< 0.021
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30	< 41	< 34	< 39	< 37					
Ethylbenzene	6,000	< 81	< 69	< 79	< 74					
m,p-Xylenes	NS	< 410	< 340	< 390	< 370					
o-Xylene	16,000,000**	< 81	< 69	< 79	< 74					
Toluene	7,000	< 310	< 260	< 290	< 280					
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*	< 5.5	< 5.7	6.0	< 5.5					
2-Methylnaphthalene	320,000**	< 5.5	< 5.7	9.7	< 5.5					
Naphthalene	5,000	8.1	< 5.7	< 5.3	< 5.5					
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*	16	< 5.7	< 5.3	< 5.5					
Benzo(a)pyrene	100	13	< 5.7	< 5.3	< 5.5					
Benzo(b)fluoranthene	1,370*	24	< 5.7	< 5.3	< 5.5					
Benzo(k)fluoranthene	13,700*	6.1	< 5.7	< 5.3	< 5.5					
Chrysene	137,000*	22	< 5.7	< 5.3	< 5.5					
Dibenzo(a,h)anthracene	137*	< 5.5	< 5.7	< 5.3	< 5.5					
Indeno(1,2,3-cd)pyrene	1,370*	13	< 5.7	< 5.3	< 5.5					
cPAH TEQ (ND=1/2DL)	100	19	4.3	4.0	4.2					
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**	< 5.5	< 5.7	< 5.3	< 5.5					
Acenaphthylene	NS	< 5.5	< 5.7	< 5.3	< 5.5					
Anthracene	24,000,000**	< 5.5	< 5.7	< 5.3	< 5.5					
Benzo(g,h,i)perylene	NS	9.7	< 5.7	< 5.3	< 5.5					
Fluoranthene	3,200,000**	37	< 5.7	< 5.3	< 5.5					
Fluorene	3,200,000**	< 5.5	< 5.7	< 5.3	< 5.5					
Phenanthrene	NS	27	< 5.7	< 5.3	< 5.5					
Pyrene	2,400,000**	39	< 5.7	< 5.3	< 5.5					

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area	Former Oil Capacitor Bank Assessment						West Yard Assessment			
	Sample Location Sample Date Sample Depth Sample ID	FOCB-SB07 21-Aug-18 N 8.5 feet bgs FOCB-SB07-8.5-082118	FOCB-SB08 21-Aug-18 N 5 feet bgs FOCB-SB08-5-082118	FOCB-SB08 21-Aug-18 N 10 feet bgs FOCB-SB08-10-082118	FOCB-SB09 22-Aug-18 N 5 feet bgs FOCB-SB09-5-082218	FOCB-SB09 22-Aug-18 N 9.5 feet bgs FOCB-SB09-9.5-082218	WY-SG01 27-Mar-18 N 1.5 feet bgs WY-SG01-CSB-032718	WY-SG02 27-Mar-18 N 1.5 feet bgs WY-SG02-CSB-032718	WY-SG03 27-Mar-18 N 1.5 feet bgs WY-SG03-CSB-032718	WY-SG04 27-Mar-18 N 1.5 feet bgs WY-SG04-CSB-032718
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 52	< 52	< 49	< 11	< 11	310 NJ	1,300 NJ	480	< 57
TPH-MO	4,000	< 52	< 52	< 49	< 28	< 26	380	1,500	740	68
TPH-HO	2,000	< 52	< 52	< 49	< 28	< 26	160 NJ	580 NJ	790	78 NJ
Combined TPH-MO	4,000	< 52	< 52	< 49	< 28	< 26	850 NJ	3,400 NJ	2,000	150 NJ
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**	< 0.021	< 0.021	< 0.021	< 0.012	< 0.010				
Aroclor 1221	NS	< 0.021	< 0.021	< 0.021	< 0.012	< 0.010				
Aroclor 1232	NS	< 0.021	< 0.021	< 0.021	< 0.012	< 0.010				
Aroclor 1242	NS	< 0.021	< 0.021	< 0.021	< 0.012	< 0.010				
Aroclor 1248	NS	< 0.021	< 0.021	< 0.021	< 0.012	< 0.010				
Aroclor 1254	0.5*	< 0.021	0.046	< 0.021	0.029	< 0.010				
Aroclor 1260	0.5*	< 0.021	< 0.021	< 0.021	< 0.012	< 0.010				
Total PCBs	1	< 0.021	0.046	< 0.021	0.029	< 0.010				
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		West Yard Assessment								
Sample Location	Sample Date	WY-SG05 26-Mar-18 N	WY-SG06 26-Mar-18 N	WY-SG08 27-Mar-18 N	WY-SG09 27-Mar-18 N	WY-SG10 28-Mar-18 N	WY-SG11 28-Mar-18 N	WY-SG13 26-Mar-18 N	WY-SG14 26-Mar-18 N	WY-SG15 27-Mar-18 N
Sample Depth	Sample ID	1.5 feet bgs WY-SG05-CSB-032618	1.5 feet bgs WY-SG06-CSB-032618	1.5 feet bgs WY-SG08-CSB-032718	1.5 feet bgs WY-SG09-CSB-032718	1.5 feet bgs WY-SG10-CSB-032818	1.5 feet bgs WY-SG11-CSB-032818	1.5 feet bgs WY-SG13-CSB-032618	1.5 feet bgs WY-SG14-CSB-032618	1.5 feet bgs WY-SG15-CSB-032718
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 53	< 51	140 NJ	220 NJ	270 NJ	290 NJ	250 NJ	< 54	< 58
TPH-MO	4,000	< 53	< 51	190	310	370	380	300	< 54	< 58
TPH-HO	2,000	< 53	< 51	130 NJ	240 NJ	320 NJ	220 NJ	100 NJ	< 54	< 58
Combined TPH-MO	4,000	< 53	< 51	460 NJ	770 NJ	960 NJ	890 NJ	650 NJ	< 54	< 58
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20	11 J					71		6.4	
Barium	16,000**	100					94		110	
Cadmium	80**	0.94					< 0.85		1.0	
Chromium	NS	31					32		32	
Lead	250	17 J					20		59	
Mercury	2	0.065					0.14		0.046	
Selenium	400**	< 4.6					< 4.3		< 4.6	
Silver	400**	< 2.3					< 2.1		< 2.3	
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**									
Aroclor 1221	NS									
Aroclor 1232	NS									
Aroclor 1242	NS									
Aroclor 1248	NS									
Aroclor 1254	0.5*									
Aroclor 1260	0.5*									
Total PCBs	1									
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		West Yard Assessment								
Sample Location	Sample Date	WY-SG02-SB-01 27-Mar-18 N	WY-SG02-SB-02 27-Mar-18 N	WY-SG02-SB-03 27-Mar-18 N	WY-SG02-SB-04 27-Mar-18 N	WY-SG03-SB-01 27-Mar-18 N	WY-SG03-SB-02 27-Mar-18 N	WY-SG03-SB-03 27-Mar-18 N	WY-SG03-SB-04 27-Mar-18 N	WY-SG13-SB-01 26-Mar-18 N
Sample Depth	Sample ID	1.5 feet bgs WY-SG02-SB01-032718	1.5 feet bgs WY-SG02-SB02-032718	1.5 feet bgs WY-SG02-SB03-032718	1.5 feet bgs WY-SG02-SB04-032718	1.5 feet bgs WY-SG03-SB01-032718	1.5 feet bgs WY-SG03-SB02-032718	1.5 feet bgs WY-SG03-SB03-032718	1.5 feet bgs WY-SG03-SB04-032718	1.5 feet bgs WY-SG13-SB01-032618
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 56	11,000 NJ	< 62	< 60	< 57	< 57	3,000 NJ	< 57	< 55
TPH-MO	4,000	< 56	14,000	< 62	< 60	< 57	< 57	4,600	< 57	99 J
TPH-HO	2,000	< 56	4,100 NJ	73	< 60	< 57	< 57	4,200 NJ	< 57	140 J
Combined TPH-MO	4,000	< 56	29,000 NJ	73	< 60	< 57	< 57	12,000 NJ	< 57	240 J
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**		< 0.033					< 0.023		
Aroclor 1221	NS		< 0.033					< 0.023		
Aroclor 1232	NS		< 0.033					< 0.023		
Aroclor 1242	NS		< 0.033					< 0.023		
Aroclor 1248	NS		< 0.033					< 0.023		
Aroclor 1254	0.5*		< 0.033					< 0.023		
Aroclor 1260	0.5*		0.042					0.044		
Total PCBs	1		0.042					0.044		
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		West Yard Assessment								
Sample Location	Sample Date	WY-SG13-SB-02 26-Mar-18 N	WY-SG13-SB-03 26-Mar-18 N	WY-SG03-SB-07 23-Aug-18 N	WY-SG03-SB-07 23-Aug-18 N	WY-SG03-SB-06 23-Aug-18 N	WY-SG03-SB-06 23-Aug-18 N	WY-SG03-SB-05 22-Aug-18 N	WY-SG03-SB-05 22-Aug-18 N	WY-SG02-SB-09 22-Aug-18 N
Sample Depth	Sample ID	1.5 feet bgs WY-SG13-SB02-032618	1.5 feet bgs WY-SG13-SB03-032618	5 feet bgs WY-SG03-SB07-5-082318	10 feet bgs WY-SG03-SB07-10-082318	5 feet bgs WY-SG03-SB06-5-082318	10 feet bgs WY-SG03-SB06-10-082318	5 feet bgs WY-SG03-SB05-5-082218	10 feet bgs WY-SG03-SB05-10-082218	5 feet bgs WY-SG02-SB09-5-082218
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 57	1,000	< 11	< 11	< 11	< 10	< 10	< 11	56
TPH-MO	4,000	< 57	1,200	< 27	< 28	< 27	< 26	< 26	< 26	68
TPH-HO	2,000	< 57	250	< 27	< 28	< 27	< 26	< 26	< 26	49
Combined TPH-MO	4,000	< 57	2,500	< 27	< 28	< 27	< 26	< 26	< 26	173
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**		< 0.024 UJ							
Aroclor 1221	NS		< 0.024 UJ							
Aroclor 1232	NS		< 0.024 UJ							
Aroclor 1242	NS		< 0.024 UJ							
Aroclor 1248	NS		< 0.024 UJ							
Aroclor 1254	0.5*		< 0.024 UJ							
Aroclor 1260	0.5*		2.2 J-							
Total PCBs	1		2.2 J-							
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		West Yard Assessment								
Sample Location	Sample Date	WY-SG02-SB-09 22-Aug-18 N 9 feet bgs WY-SG02-SB09-9-082218	WY-SG02-SB-08 22-Aug-18 N 5 feet bgs WY-SG02-SB08-5-082218	WY-SG02-SB-08 22-Aug-18 N 9.5 feet bgs WY-SG02-SB08-9.5-082218	WY-SG02-SB-07 22-Aug-18 N 5 feet bgs WY-SG02-SB07-5-082218	WY-SG02-SB-07 22-Aug-18 N 9.5 feet bgs WY-SG02-SB07-9.5-082218	WY-SG02-SB-06 22-Aug-18 N 5 feet bgs WY-SG02-SB06-5-082218	WY-SG02-SB-06 22-Aug-18 N 9 feet bgs WY-SG02-SB06-9-082218	WY-SG02-SB-05 22-Aug-18 N 5 feet bgs WY-SG02-SB05-5-082218	WY-SG02-SB-05 22-Aug-18 N 10 feet bgs WY-SG02-SB05-10-082218
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 11	< 11	< 10	< 11	< 11	< 12	< 10	17	< 11
TPH-MO	4,000	< 27	< 29	< 26	< 29	< 27	< 29	< 26	< 30	< 26
TPH-HO	2,000	< 27	< 29	< 26	< 29	< 27	< 29	< 26	< 30	< 26
Combined TPH-MO	4,000	< 27	< 29	< 26	< 29	< 27	< 29	< 26	17	< 26
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**									
Aroclor 1221	NS									
Aroclor 1232	NS									
Aroclor 1242	NS									
Aroclor 1248	NS									
Aroclor 1254	0.5*									
Aroclor 1260	0.5*									
Total PCBs	1									
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		Salt Well Assessment								
Sample Location	SW-01	SW-02	SW-03	SW-04	SW-05	SW-06	SW-07	SW-08	SW-09	
Sample Date	14-Mar-18	13-Mar-18	14-Mar-18	26-Mar-18	26-Mar-18	26-Mar-18	26-Mar-18	26-Mar-18	26-Mar-18	
Sample Depth	N	N	N	N	N	N	N	N	N	
Sample ID	4.5 feet bgs SW-01-031418	4.5 feet bgs SW-02-031318	4.5 feet bgs SW-03-031418	4.5 feet bgs SW04-032618	4.5 feet bgs SW05-032618	4.5 feet bgs SW06-032618	4.5 feet bgs SW07-032618	4.5 feet bgs SW08-032618	4.5 feet bgs SW09-032618	
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	260	280 NJ	330	6,300 J-	< 56	440 NJ	< 53	< 59	< 58
TPH-MO	4,000	320	370	440	7,500 J+	< 56	620	< 53	< 59	< 58
TPH-HO	2,000	120	170 NJ	240	990 NJ	< 56	280 NJ	< 53	< 59	< 58
Combined TPH-MO	4,000	700	820 NJ	1,000	15,000 J	< 56	1,300	< 53	< 59	< 58
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**	< 0.023 UJ	< 0.026 UJ	< 0.024	< 0.022		< 0.024			
Aroclor 1221	NS	< 0.023	< 0.026	< 0.024	< 0.022		< 0.024			
Aroclor 1232	NS	< 0.023	< 0.026	< 0.024	< 0.022		< 0.024			
Aroclor 1242	NS	< 0.023	< 0.026	< 0.024	< 0.022		< 0.024			
Aroclor 1248	NS	< 0.023	< 0.026	< 0.024	< 0.022		< 0.024			
Aroclor 1254	0.5*	< 0.023	< 0.026	< 0.024	< 0.022		< 0.024			
Aroclor 1260	0.5*	< 0.023	< 0.026 UJ	< 0.024	< 0.022		0.049			
Total PCBs	1	< 0.023	< 0.026 UJ	< 0.024	< 0.022		0.049			
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		Salt Well Assessment								
Sample Location	Sample Date	SW-10 26-Mar-18 N	SW-11 26-Mar-18 N	SW-12 26-Mar-18 N	SW-13 26-Mar-18 N	SW-14 26-Mar-18 N	SW-15 26-Mar-18 N	SW-16 26-Mar-18 N	SW-17 26-Mar-18 N	SW-18 27-Mar-18 N
Sample Depth	Sample ID	4.5 feet bgs SW10-032618	4.5 feet bgs SW11-032618	4.5 feet bgs SW12-032618	4.5 feet bgs SW13-032618	4.5 feet bgs SW14-032618	4.5 feet bgs SW15-032618	4.5 feet bgs SW16-032618	4.5 feet bgs SW17-032618	4.5 feet bgs SW18-032718
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 56	< 54	1,200 NJ	< 53	350 NJ	< 56	< 54	< 62	< 52
TPH-MO	4,000	< 56	< 54	1,700	< 53	490	< 56	< 54	< 62	< 52
TPH-HO	2,000	< 56	< 54	780 NJ	< 53	180 NJ	< 56	< 54	< 62	< 52
Combined TPH-MO	4,000	< 56	< 54	3,700 NJ	< 53	1,000	< 56	< 54	< 62	< 52
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**			< 0.023		< 0.022				
Aroclor 1221	NS			< 0.023		< 0.022				
Aroclor 1232	NS			< 0.023		< 0.022				
Aroclor 1242	NS			< 0.023		< 0.022				
Aroclor 1248	NS			< 0.023		< 0.022				
Aroclor 1254	0.5*			< 0.023		< 0.022				
Aroclor 1260	0.5*			0.44		0.032				
Total PCBs	1			0.44		0.032				
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		Salt Well Assessment								
Sample Location	Sample Date	SW-19	SW-20	SW-21	SW-22	SW-23	SW-24	SW-25	SW-26	SW-27
Sample Depth	Sample ID	27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18
Sample ID	MTCA Screening Criteria	N	N	N	N	N	N	N	N	N
Analyte	MTCA Screening Criteria	4.5 feet bgs	4.5 feet bgs	4.5 feet bgs	4.5 feet bgs	4.5 feet bgs	4.5 feet bgs	4.5 feet bgs	4.5 feet bgs	4.5 feet bgs
Sample ID	MTCA Screening Criteria	SW-19-032718	SW20-032718	SW21-032718	SW-22-032718	SW23-032718	SW24-032718	SW25-032718	SW-26-032718	SW-27-032718
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 57	< 54	< 58	340	640	< 57	< 60	< 59	< 58
TPH-MO	4,000	< 57	< 54	< 58	380	790	< 57	< 60	< 59	< 58
TPH-HO	2,000	< 57	< 54	< 58	59	240	< 57	< 60	< 59	< 58
Combined TPH-MO	4,000	< 57	< 54	< 58	780	1,700	< 57	< 60	< 59	< 58
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**					< 0.024				
Aroclor 1221	NS					< 0.024				
Aroclor 1232	NS					< 0.024				
Aroclor 1242	NS					< 0.024				
Aroclor 1248	NS					< 0.024				
Aroclor 1254	0.5*					< 0.024				
Aroclor 1260	0.5*					< 0.024				
Total PCBs	1					< 0.024				
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1

Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		Salt Well Assessment								
Sample Location	Sample Date	SW-28 27-Mar-18 N	SW-29 27-Mar-18 N	SW-30 27-Mar-18 N	SW-31 27-Mar-18 N	SW-32 28-Mar-18 N	SW-33 28-Mar-18 N	SW-34 28-Mar-18 N	SW-35 28-Mar-18 N	SW-36 28-Mar-18 N
Sample Depth	Sample ID	4.5 feet bgs SW28-032718	4.5 feet bgs SW-29-032718	4.5 feet bgs SW-30-032718	4.5 feet bgs SW-31-032718	4.5 feet bgs SW-32-032818	4.5 feet bgs SW-33-032818	4.5 feet bgs SW-34-032818	4.5 feet bgs SW-35-032818	4.5 feet bgs SW-36-032818
Analyte	MTCA Screening Criteria									
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg										
TPH-D	2,000	< 58	< 55	210	< 55	< 59	< 55	< 52	< 59	< 54
TPH-MO	4,000	< 58	< 55	250	< 55	< 59	< 55	< 52	< 59	< 54
TPH-HO	2,000	< 58	< 55	< 58	< 55	< 59	< 55	< 52	< 59	< 54
Combined TPH-MO	4,000	< 58	< 55	460	< 55	< 59	< 55	< 52	< 59	< 54
RCRA Metals, EPA Method SW6010C/7471A, mg/kg										
Arsenic	20									
Barium	16,000**									
Cadmium	80**									
Chromium	NS									
Lead	250									
Mercury	2									
Selenium	400**									
Silver	400**									
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg										
Aroclor 1016	5.6**									
Aroclor 1221	NS									
Aroclor 1232	NS									
Aroclor 1242	NS									
Aroclor 1248	NS									
Aroclor 1254	0.5*									
Aroclor 1260	0.5*									
Total PCBs	1									
Volatile Organic Compounds, EPA Method SW8260C, µg/kg										
Benzene	30									
Ethylbenzene	6,000									
m,p-Xylenes	NS									
o-Xylene	16,000,000**									
Toluene	7,000									
Naphthalenes, EPA Method SW8270D-SIM, µg/kg										
1-Methylnaphthalene	34,500*									
2-Methylnaphthalene	320,000**									
Naphthalene	5,000									
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg										
Benzo(a)anthracene	1,370*									
Benzo(a)pyrene	100									
Benzo(b)fluoranthene	1,370*									
Benzo(k)fluoranthene	13,700*									
Chrysene	137,000*									
Dibenzo(a,h)anthracene	137*									
Indeno(1,2,3-cd)pyrene	1,370*									
cPAH TEQ (ND=1/2DL)	100									
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg										
Acenaphthene	4,800,000**									
Acenaphthylene	NS									
Anthracene	24,000,000**									
Benzo(g,h,i)perylene	NS									
Fluoranthene	3,200,000**									
Fluorene	3,200,000**									
Phenanthrene	NS									
Pyrene	2,400,000**									

Table 1
Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		Salt Well Assessment							
Sample Location		SW-37	SW-38	SW-39	SW-40	SW-41	SW-42	SW-43	SW-44
Sample Date		28-Mar-18	28-Mar-18	28-Mar-18	28-Mar-18	28-Mar-18	28-Mar-18	28-Mar-18	28-Mar-18
Sample Depth		N	N	N	N	N	N	N	N
Sample ID		4.5 feet bgs	4.5 feet bgs	4.5 feet bgs	4.5 feet bgs	4.5 feet bgs	4.5 feet bgs	4.5 feet bgs	4.5 feet bgs
		SW-37-032818	SW-38-032818	SW-39-032818	SW-40-032818	SW-41-032818	SW-42-032818	SW-43-032818	SW-44-032818
Analyte	MTCA Screening Criteria								
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg									
TPH-D	2,000	< 60	< 59	< 61	< 59	< 56	< 58	< 54	< 57
TPH-MO	4,000	< 60	< 59	< 61	< 59	< 56	< 58	< 54	< 57
TPH-HO	2,000	< 60	< 59	< 61	< 59	< 56	< 58	< 54	< 57
Combined TPH-MO	4,000	< 60	< 59	< 61	< 59	< 56	< 58	< 54	< 57
RCRA Metals, EPA Method SW6010C/7471A, mg/kg									
Arsenic	20								
Barium	16,000**								
Cadmium	80**								
Chromium	NS								
Lead	250								
Mercury	2								
Selenium	400**								
Silver	400**								
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg									
Aroclor 1016	5.6**								
Aroclor 1221	NS								
Aroclor 1232	NS								
Aroclor 1242	NS								
Aroclor 1248	NS								
Aroclor 1254	0.5*								
Aroclor 1260	0.5*								
Total PCBs	1								
Volatile Organic Compounds, EPA Method SW8260C, µg/kg									
Benzene	30								
Ethylbenzene	6,000								
m,p-Xylenes	NS								
o-Xylene	16,000,000**								
Toluene	7,000								
Naphthalenes, EPA Method SW8270D-SIM, µg/kg									
1-Methylnaphthalene	34,500*								
2-Methylnaphthalene	320,000**								
Naphthalene	5,000								
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg									
Benzo(a)anthracene	1,370*								
Benzo(a)pyrene	100								
Benzo(b)fluoranthene	1,370*								
Benzo(k)fluoranthene	13,700*								
Chrysene	137,000*								
Dibenzo(a,h)anthracene	137*								
Indeno(1,2,3-cd)pyrene	1,370*								
cPAH TEQ (ND=1/2DL)	100								
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg									
Acenaphthene	4,800,000**								
Acenaphthylene	NS								
Anthracene	24,000,000**								
Benzo(g,h,i)perylene	NS								
Fluoranthene	3,200,000**								
Fluorene	3,200,000**								
Phenanthrene	NS								
Pyrene	2,400,000**								

Table 1
Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		Surface Soil Arsenic							
Sample Location	Sample Date	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06	SS-07	SS-08
Sample Depth	Sample ID	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18
Sample ID	Sample ID	N	N	N	N	N	N	N	N
Sample ID	Sample ID	0.2 feet bgs	0.2 feet bgs	0.2 feet bgs	0.2 feet bgs	0.2 feet bgs	0.2 feet bgs	0.2 feet bgs	0.2 feet bgs
Sample ID	Sample ID	SS01-0.2-082418	SS02-0.2-082418	SS03-0.2-082418	SS04-0.2-082418	SS05-0.2-082418	SS06-0.2-082418	SS07-0.2-082418	SS08-0.2-082418
Analyte	MTCA Screening Criteria								
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg									
TPH-D	2,000								
TPH-MO	4,000								
TPH-HO	2,000								
Combined TPH-MO	4,000								
RCRA Metals, EPA Method SW6010C/7471A, mg/kg									
Arsenic	20	20	17	6.2	15	7.1	16	21	7.5
Barium	16,000**								
Cadmium	80**								
Chromium	NS								
Lead	250								
Mercury	2								
Selenium	400**								
Silver	400**								
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg									
Aroclor 1016	5.6**								
Aroclor 1221	NS								
Aroclor 1232	NS								
Aroclor 1242	NS								
Aroclor 1248	NS								
Aroclor 1254	0.5*								
Aroclor 1260	0.5*								
Total PCBs	1								
Volatile Organic Compounds, EPA Method SW8260C, µg/kg									
Benzene	30								
Ethylbenzene	6,000								
m,p-Xylenes	NS								
o-Xylene	16,000,000**								
Toluene	7,000								
Naphthalenes, EPA Method SW8270D-SIM, µg/kg									
1-Methylnaphthalene	34,500*								
2-Methylnaphthalene	320,000**								
Naphthalene	5,000								
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg									
Benzo(a)anthracene	1,370*								
Benzo(a)pyrene	100								
Benzo(b)fluoranthene	1,370*								
Benzo(k)fluoranthene	13,700*								
Chrysene	137,000*								
Dibenzo(a,h)anthracene	137*								
Indeno(1,2,3-cd)pyrene	1,370*								
cPAH TEQ (ND=1/2DL)	100								
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg									
Acenaphthene	4,800,000**								
Acenaphthylene	NS								
Anthracene	24,000,000**								
Benzo(g,h,i)perylene	NS								
Fluoranthene	3,200,000**								
Fluorene	3,200,000**								
Phenanthrene	NS								
Pyrene	2,400,000**								

Table 1
Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area	Surface Soil Arsenic							
	Sample Location	SS-09	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15
	Sample Date	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18
Sample Depth	N	N	N	N	N	N	N	N
Sample ID	0.2 feet bgs SS09-0.2-082418	0.2 feet bgs SS10-0.2-082418	0.2 feet bgs SS11-0.2-082418	0.2 feet bgs SS12-0.2-082418	0.2 feet bgs SS13-0.2-082418	0.2 feet bgs SS14-0.2-082418	0.2 feet bgs SS15-0.2-082418	0.2 feet bgs SS15-0.2-082418
Analyte	MTCA Screening Criteria							
Total Petroleum Hydrocarbons, Ecology Method NWTPH-Dx, mg/kg								
TPH-D	2,000							
TPH-MO	4,000							
TPH-HO	2,000							
Combined TPH-MO	4,000							
RCRA Metals, EPA Method SW6010C/7471A, mg/kg								
Arsenic	20	28	9.9	21	17	20	6.1	25
Barium	16,000**							
Cadmium	80**							
Chromium	NS							
Lead	250							
Mercury	2							
Selenium	400**							
Silver	400**							
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg								
Aroclor 1016	5.6**							
Aroclor 1221	NS							
Aroclor 1232	NS							
Aroclor 1242	NS							
Aroclor 1248	NS							
Aroclor 1254	0.5*							
Aroclor 1260	0.5*							
Total PCBs	1							
Volatile Organic Compounds, EPA Method SW8260C, µg/kg								
Benzene	30							
Ethylbenzene	6,000							
m,p-Xylenes	NS							
o-Xylene	16,000,000**							
Toluene	7,000							
Naphthalenes, EPA Method SW8270D-SIM, µg/kg								
1-Methylnaphthalene	34,500*							
2-Methylnaphthalene	320,000**							
Naphthalene	5,000							
Carcinogenic Polynuclear Aromatic Hydrocarbons, EPA Method SW8270D-SIM, µg/kg								
Benzo(a)anthracene	1,370*							
Benzo(a)pyrene	100							
Benzo(b)fluoranthene	1,370*							
Benzo(k)fluoranthene	13,700*							
Chrysene	137,000*							
Dibenzo(a,h)anthracene	137*							
Indeno(1,2,3-cd)pyrene	1,370*							
cPAH TEQ (ND=1/2DL)	100							
Semi-Volatile Organic Compounds, EPA Method SW8270D-SIM, µg/kg								
Acenaphthene	4,800,000**							
Acenaphthylene	NS							
Anthracene	24,000,000**							
Benzo(g,h,i)perylene	NS							
Fluoranthene	3,200,000**							
Fluorene	3,200,000**							
Phenanthrene	NS							
Pyrene	2,400,000**							

Table 1
Soil Sample Analytical Summary
Cushman Substation Phase II ESA
Tacoma, Washington

Notes:

< = Compound not detected at concentrations above the laboratory reporting detection limit. The laboratory reporting detection limit is shown.
Empty cells = Not analyzed
Results shown in **bold** font indicate a compound was detected above the laboratory reporting detection limit.
Total PCBs is the total of detected aroclors, or if no aroclors are detected it is the sum of half the DLs of detected aroclors at the site
All analyses performed by TestAmerica - Tacoma, WA.
* = MTCA B CARC DC
** = MTCA B N-CARC DC

Qualifiers - Organic:

J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.

Qualifiers - Inorganic:

J = The analyte was positively identified; associated numerical value is the approximate concentration of the analyte in the sample.

Abbreviations

bgs = below ground surface
CSB = Composite Soil Boring
EY = East Yard
FOCB = Former Oil Capacitor Bank
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
MTCA = Model Toxics Control Act
MTCA A UN = .MTCA Method A Soil Cleanup Level for Unrestricted Use
MTCA B CARC DC = .MTCA Method B Soil Cleanup Level for Carcinogen Direct Contact
MTCA B N-CARC DC = .MTCA Method B Soil Cleanup Level for Non-Carcinogen Direct Contact
NS = No Standard
ND = 1/2DL = Non-detect values set to half the method detection limit.
NWTPH-Dx = Northwest Total Petroleum Hydrocarbon-diesel range
PCBs = Polychlorinated biphenyls
RCRA = Resource Conservation and Recovery Act
SW = Salt Well
SB = Soil Boring
SG = Soil Group
Combined TPH-MO = Combined diesel-, mineral oil-, and heavy-oil-range total petroleum hydrocarbons
TPH-D = Diesel-Range Total Petroleum Hydrocarbons
TPH-HO = Heavy Oil-Range Total Petroleum Hydrocarbons
TPH-MO = Mineral Oil-Range Total Petroleum Hydrocarbons
TEQ = Toxic Equivalency Quotient
UST = Underground Storage Tank
WY = West Yard

Table 2
Summary of Soil Analytical Exceeding Regulatory Criteria
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		East Yard Assessment							
Sample Location	Sample Date	EY-SG03 16-Mar-18 1.5 feet bgs N	EY-SG05 28-Mar-18 1.5 feet bgs N	EY-SG17 16-Mar-18 1.5 feet bgs N	EY-SG26 14-Mar-18 1.5 feet bgs N	EY-SG39 16-Mar-18 1.5 feet bgs N	EY-SG03-SB-01 16-Mar-18 1.5 feet bgs N	EY-SG03-SB-02 16-Mar-18 1.5 feet bgs N	EY-SG26-SB-01 14-Mar-18 1.5 feet bgs N
Sample Depth	Sample ID	EY-SG03-CSB-031618	EY-SG05-CSB-032818	EY-SG17-CSB-031618	EY-SG26-CSB-031418	EY-SG39-CSB-031618	EY-SG03-SB01-031618	EY-SG03-SB02-031618	EY-SG26-SB01-031418
Analyte	MTCA Screening Criteria								
Total Petroleum Hydrocarbons, Ecology Method									
NWTPH-Dx, mg/kg									
TPH-D	2,000	1,500 NJ	1,300 NJ	< 51	2,700	< 56	1,800 NJ	2,200 NJ	4,500 J
TPH-MO	4,000	2,300	6,200	< 51	3,000	< 56	2,500	2,900	5,200 J
TPH-HO	2,000	740 NJ	760 NJ	< 51	800	< 56	1,400 NJ	1,100 NJ	1,200 J
Combined TPH-MO	4,000	4,500 NJ	8,300 NJ	< 51	6,500	< 56	5,700 NJ	6,200 NJ	11,000 NJ
RCRA Metals, EPA Method SW6010C/7471A, mg/kg									
Arsenic	20			60		23			
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg									
Aroclor 1254	0.5*						< 0.022	< 0.022	< 0.021
Aroclor 1260	0.5*						< 0.022	0.041	0.25
Total PCBs	1						< 0.022	0.041	0.25

Table 2
Summary of Soil Analytical Exceeding Regulatory Criteria
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area		East Yard Assessment		Former Oil Capacitor Bank Assessment			West Yard Assessment		
Sample Location	Sample Date	EY-SG03-SB-09 21-Aug-18 5 feet bgs N	EY-SG03-SB-09 21-Aug-18 10 feet bgs N	FOCB-SB03-1.5 28-Mar-18 N 1.5 feet bgs	FOCB-SB03-5 26-Mar-18 N 5 feet bgs	FOCB-SB06 20-Aug-18 N 5 feet bgs	WY-SG11 28-Mar-18 N 1.5 feet bgs	WY-SG02-SB-02 27-Mar-18 N 1.5 feet bgs	WY-SG03-SB-03 27-Mar-18 N 1.5 feet bgs
Sample Depth	Sample ID	EY-SG03-SB09-5-082118	EY-SG03-SB09-10-082118	FOCB-SB03-1.5-032818	FOCB-SB03-5-032618	FOCB-SB06-5-082018	WY-SG11-CSB-032818	WY-SG02-SB02-032718	WY-SG03-SB03-032718
Analyte	MTCA Screening Criteria								
Total Petroleum Hydrocarbons, Ecology Method									
NWTPH-Dx, mg/kg									
TPH-D	2,000	6,300 J-	5,100 J-	< 54	< 56	< 57	290 NJ	11,000 NJ	3,000 NJ
TPH-MO	4,000	6,800	6,000	< 54	< 56	< 57	380	14,000	4,600
TPH-HO	2,000	1,400	1,400	56 NJ	< 56	< 57	220 NJ	4,100 NJ	4,200 NJ
Combined TPH-MO	4,000	14,500 J-	12,500 J-	56 NJ	< 56	< 57	890 NJ	29,000 NJ	12,000 NJ
RCRA Metals, EPA Method SW6010C/7471A, mg/kg									
Arsenic	20						71		
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg									
Aroclor 1254	0.5*			1.1	3.2	2.1		< 0.033	< 0.023
Aroclor 1260	0.5*			< 0.022	< 0.023	< 0.022		0.042	0.044
Total PCBs	1			1.1	3.2	2.1		0.042	0.044

Table 2
Summary of Soil Analytical Exceeding Regulatory Criteria
Cushman Substation Phase II ESA
Tacoma, Washington

Assessment Area	Sample Location	West Yard Assessment	Salt Well Assessment	Arsenic Surface Soil			
		Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date
		WY-SG13-SB-03	SW-04	SS-07	SS-09	SS-11	SS-15
		26-Mar-18	26-Mar-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18
		N	N	N	N	N	N
	Sample Depth	1.5 feet bgs	4.5 feet bgs	0.2 feet bgs	0.2 feet bgs	0.2 feet bgs	0.2 feet bgs
	Sample ID	WY-SG13-SB03-032618	SW04-032618	SS07-0.2-082418	SS09-0.2-082418	SS11-0.2-082418	SS15-0.2-082418
Analyte	MTCA Screening Criteria						
Total Petroleum Hydrocarbons, Ecology Method							
NWTPH-Dx, mg/kg							
TPH-D	2,000	1,000	6,300 J-				
TPH-MO	4,000	1,200	7,500 J+				
TPH-HO	2,000	250	990 NJ				
Combined TPH-MO	4,000	2,500	15,000 J				
RCRA Metals, EPA Method SW6010C/7471A, mg/kg							
Arsenic	20			21	28	21	25
Polychlorinated Biphenyls, EPA Method SW8082A, mg/kg							
Aroclor 1254	0.5*	< 0.024 UJ	< 0.022				
Aroclor 1260	0.5*	2.2 J-	< 0.022				
Total PCBs	1	2.2 J-	< 0.022				

Notes:

< = Compound not detected at concentrations above the laboratory reporting detection limit. The laboratory reporting detection limit is shown.
 Empty cells = Not analyzed
 Results shown in **bold** font indicate a compound was detected above the laboratory reporting detection limit.
 Total PCBs is the total of detected aroclors, or if no aroclors are detected it is the sum of half the DLs of detected aroclors at the site
 All analyses performed by TestAmerica - Tacoma, WA.
 * = MTCA B CARC DC
 ** = MTCA B N-CARC DC

Qualifiers - Organic:

J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits
 J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
 NJ = Evidence of the compound at an estimated quantity.
 UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.

Qualifiers - Inorganic:

J = The analyte was positively identified; associated numerical value is the approximate concentration of the analyte in the sample.

Abbreviations

bgs = below ground surface
 CSB = Composite Soil Boring
 EY = East Yard
 FOCB = Former Oil Capacitor Bank
 µg/kg = micrograms per kilogram
 mg/kg = milligrams per kilogram
 MTCA = Model Toxics Control Act
 MTCA A UN = .MTCA Method A Soil Cleanup Level for Unrestricted Use
 MTCA B CARC DC = .MTCA Method B Soil Cleanup Level for Carcinogen Direct Contact
 MTCA B N-CARC DC = .MTCA Method B Soil Cleanup Level for Non-Carcinogen Direct Contact
 NS = No Standard
 ND = 1/2DL = Non-detect values set to half the method detection limit.
 NWTPH-Dx = Northwest Total Petroleum Hydrocarbon-diesel range
 PCBs = Polychlorinated biphenyls
 RCRA = Resource Conservation and Recovery Act
 SW = Salt Well
 SB = Soil Boring
 SG = Soil Group
 Combined TPH-MO = Combined diesel-, mineral oil-, and heavy-oil-range total petroleum hydrocarbons
 TPH-D = Diesel-Range Total Petroleum Hydrocarbons
 TPH-HO = Heavy Oil-Range Total Petroleum Hydrocarbons
 TPH-MO = Mineral Oil-Range Total Petroleum Hydrocarbons
 TEQ = Toxic Equivalency Quotient
 UST = Underground Storage Tank
 WY = West Yard

Table 3
Water Analytical Summary - Sump
Cushman Substation Phase II ESA
Tacoma, Washington

Analyte	MTCA Screening Criteria	MTCA A GW	MTCA B GW CARC	Sample Location	SMP-01 28-Mar-18 N SMP-01-032818	SMP-01 23-aUG-18 N SMP-01-082318
				Sample Date			Sample ID
Total Petroleum Hydrocarbons, Ecology Method						
NWTPH-Dx, mg/L						
TPH-D	0.5	NS	NS	NS	0.20 NJ	5.5 NJ
TPH-MO	0.5	0.5	NS	NS	0.38	6.6
TPH-HO	0.5	NS	NS	NS	< 0.35	2.6
Combined TPH-MO	0.5	0.5	NS	NS	0.58 NJ	14.7 NJ
Polychlorinated Biphenyls, EPA Method						
SW8082A, mg/L						
Aroclor 1016	1.12**	NS	1.25	1.12	< 0.46 UJ	
Aroclor 1221	NS	NS	NS	NS	< 0.46 UJ	
Aroclor 1232	NS	NS	NS	NS	< 0.46 UJ	
Aroclor 1242	NS	NS	NS	NS	< 0.46 UJ	
Aroclor 1248	NS	NS	NS	NS	< 0.46 UJ	
Aroclor 1254	0.0437*	NS	0.0437	0.32	< 0.46 UJ	
Aroclor 1260	0.0437*	NS	0.0437	NS	< 0.46 UJ	
Total PCBs	0.1	0.1	NS	NS	0	

Notes:

< = Compound not detected at concentrations above the laboratory reporting detection limit. The laboratory reporting detection limit is shown.

Empty cells = Not analyzed

Results shown in **bold** font indicate a compound was detected above the laboratory reporting detection limit.

Results shown in **bold** font and shaded grey indicate a compound was detected above regulatory screening level.

Total PCBs is the total of detected aroclors, or if no aroclors are detected, value set to zero.

All analyses performed by TestAmerica - Tacoma, WA.

Qualifiers - Organic:

NJ = Evidence of the compound at an estimated quantity.

UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.

All analyses performed by TestAmerica - Seattle, WA.

Abbreviations:

mg/L = milligrams per liter

µg/L = micrograms per liter

NS = No Standard

NWTPH-Dx = Northwest Total Petroleum Hydrocarbon-diesel range

PCBs = Polychlorinated biphenyls

TPH-D = Diesel-Range Total Petroleum Hydrocarbons

TPH-MO = Mineral Oil-Range Total Petroleum Hydrocarbons

TPH-HO = Heavy Oil-Range Total Petroleum Hydrocarbons

Combined TPH-MO = Combined diesel-, mineral oil-, and heavy-oil-range total petroleum hydrocarbons

MTCA A GW = MTCA Method A groundwater cleanup level

MTCA B GW CARC = MTCA Method B groundwater cleanup level for carcinogenic risk.

MTCA B GW N-CARC = MTCA Method B groundwater cleanup level for non-carcinogenic risk.

APPENDIX A BORING LOGS



ERM-West, Inc.
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 Seattle, Washington 98101
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CLIENT Tacoma Public Utilities
PROJECT NUMBER 0435302
DATE STARTED 3/12/18 **COMPLETED** 3/13/18
CONTRACTOR Steadfast
EQUIPMENT Hollow Stem Auger
LOGGED BY Renee Holt **CHECKED BY** Matt Crandell
NOTES Surface elevation approximate.

PROJECT NAME Cushman Substation Phase II Investigations
PROJECT LOCATION Tacoma, WA
GROUND ELEVATION 373 feet **HOLE SIZE** 6.5 in.
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING ---

DEPTH (ft)	SAMPLE IDENTIFICATION	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)	PID (ppm)
0								
0.3						4 inch asphalt slab.	372.7	
1.1						Fill material.	371.9	
1.6						6 inch concrete slab.	371.4	
						No recovery.		0.2
3.0							370.0	
						Medium brown and orange brown silty SAND with rounded fine gravel. Moist, loose.		0.1
5								
	UST-SB01-7-7.5-3.13.18					No orange brown color at 7 feet bgs.		
10		78	12-18-20 (38)	SM		Trace gravel at 10 feet bgs.		2.3
	UST-SB01-12.5-14-3.13.18	56	34-50					1515
15		83	18-27-21 (48)					
							357.5	
				SW		Light brown fine-coarse SAND, trace gravel and silt. Moist, loose to medium dense.		167
20								

(Continued Next Page)



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CLIENT Tacoma Public Utilities **PROJECT NAME** Cushman Substation Phase II Investigations
PROJECT NUMBER 0435302 **PROJECT LOCATION** Tacoma, WA
DATE STARTED 3/12/18 **COMPLETED** 3/13/18 **GROUND ELEVATION** 373 feet **HOLE SIZE** 6.5 in.
CONTRACTOR Steadfast **GROUND WATER LEVELS:**
EQUIPMENT Hollow Stem Auger **AT TIME OF DRILLING** ---
LOGGED BY Renee Holt **CHECKED BY** Matt Crandell **AT END OF DRILLING** ---
NOTES Surface elevation approximate. **AFTER DRILLING** ---

DEPTH (ft)	SAMPLE IDENTIFICATION	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)	PID (ppm)
20								
		56	7-17-18 (35)			Light brown fine-coarse SAND, trace gravel and silt. Moist, loose to medium dense. (continued)		219
		44	47-50	SW				14
25	UST-SB01-25-26.5-3.13.18	72	15-18-19 (37)					
					26.5		346.5	

Bottom of borehole at 26.5 feet.

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CLIENT Tacoma Public Utilities
PROJECT NUMBER 0435302
DATE STARTED 3/12/18 **COMPLETED** 3/13/18
CONTRACTOR Steadfast
EQUIPMENT Hollow Stem Auger
LOGGED BY Renee Holt **CHECKED BY** Matt Crandell
NOTES Surface elevation approximate.

PROJECT NAME Cushman Substation Phase II Investigations
PROJECT LOCATION Tacoma, WA
GROUND ELEVATION 373 feet **HOLE SIZE** 6.5 in.
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING ---

DEPTH (ft)	SAMPLE IDENTIFICATION	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)	PID (ppm)
0								
					0.4	4.5 inch asphalt slab.	372.6	
					1.3	Fill material.	371.8	
					2.1	10 inch concrete slab.	370.9	
					3.0	No recovery.	370.0	4.8
5				SP		Brown medium-coarse SAND, trace subrounded fine gravel. Moist, loose. Moisture likely from precipitation.		0.5
					7.8		365.3	
				ML		Orange brown SILT with sand. Moist, medium dense.		35.1
10					10.0		363.0	
	UST-SB02-10-11.5-3.13.18	100				Brown (with orange mottling) silty fine SAND, trace clay. Moist, medium dense.		10.4
				SM				
15		78			15.5		357.5	
				SW		Brown fine-coarse SAND, trace gravel. Moist, loose to medium dense.		23.5
20					20.0		353.0	167

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CLIENT Tacoma Public Utilities **PROJECT NAME** Cushman Substation Phase II Investigations
PROJECT NUMBER 0435302 **PROJECT LOCATION** Tacoma, WA
DATE STARTED 3/12/18 **COMPLETED** 3/13/18 **GROUND ELEVATION** 373 feet **HOLE SIZE** 6.5 in.
CONTRACTOR Steadfast **GROUND WATER LEVELS:**
EQUIPMENT Hollow Stem Auger **AT TIME OF DRILLING** ---
LOGGED BY Renee Holt **CHECKED BY** Matt Crandell **AT END OF DRILLING** ---
NOTES Surface elevation approximate. **AFTER DRILLING** ---

GENERAL BH / TP / WELL - GINT STD US.GDT - 10/9/18 20:43 - Q:\GENERAL\ADMIN\GINT\PRJCTS\CUSHMAN TACOMA LOGS.GPJ

DEPTH (ft)	SAMPLE IDENTIFICATION	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)	PID (ppm)	
20		0	25-50			No recovery.			
							22.5		
	UST-SB02-22.5-24-3.13.18	67	13-13-24 (37)			Brown fine-coarse SAND, trace gravel. Moist, loose to medium dense.	350.5	72.1	
25		89	12-15-15 (30)						66.8
30	UST-SB02-30-31-3.13.18	83					31.0	23.8	
						Bottom of borehole at 31.0 feet.	342.0		



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CLIENT Tacoma Public Utilities
PROJECT NUMBER 0435302
DATE STARTED 3/13/18 **COMPLETED** 3/14/18
CONTRACTOR Steadfast
EQUIPMENT Hollow Stem Auger
LOGGED BY Renee Holt **CHECKED BY** Matt Crandell
NOTES Surface elevation approximate.

PROJECT NAME Cushman Substation Phase II Investigations
PROJECT LOCATION Tacoma, WA
GROUND ELEVATION 373 feet **HOLE SIZE** 6.5 in.
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING ---

DEPTH (ft)	SAMPLE IDENTIFICATION	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)
0							
					0.4	4.5 inch asphalt slab.	372.6
					1.3	Fill material.	371.8
					2.1	10 inch concrete slab.	370.9
					2.5	No recovery.	370.5
						Brown silty SAND, trace subrounded fine gravel. Moist, loose.	
5				SM			
	UST-SB03-7.0-7.5-03.13.18						
10		100	5-8-11/6"				
						Brown silty CLAY. Dry.	362.5
				CL-ML			
15		67	7-50	SM		Grayish brown silty SAND, trace subrounded fine gravel. Dry.	358.0
						Brown silty CLAY. Dry.	357.0
				CL-ML			
20							

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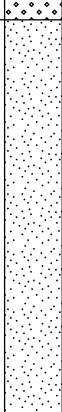
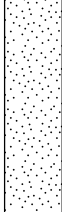


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CLIENT Tacoma Public Utilities
PROJECT NUMBER 0435302
DATE STARTED 3/13/18 **COMPLETED** 3/14/18
CONTRACTOR Steadfast
EQUIPMENT Hollow Stem Auger
LOGGED BY Renee Holt **CHECKED BY** Matt Crandell
NOTES Surface elevation approximate.

PROJECT NAME Cushman Substation Phase II Investigations
PROJECT LOCATION Tacoma, WA
GROUND ELEVATION 373 feet **HOLE SIZE** 6.5 in.
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING ---

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DEPTH (ft)	SAMPLE IDENTIFICATION	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)
20							
		100	23-23-22/6"			20.5 Brown silty CLAY. Dry. (continued) With fine sand and gravel, moist at 20 feet bgs.	352.5
						Brown and gray fine to coarse SAND with gravel. Moist.	
25							
	UST-SB03-25-26.5-03.13.18	100	15-43-35/6"	SW			
30							
						30.5 Medium to coarse SAND. Sand is fine to medium at 31 feet bgs.	342.5
35							
				SP			
						36.5 Bottom of borehole at 36.5 feet.	336.5



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CLIENT Tacoma Public Utilities **PROJECT NAME** Cushman Substation Phase II Investigations
PROJECT NUMBER 0435302 **PROJECT LOCATION** Tacoma, WA
DATE STARTED 8/21/18 **COMPLETED** 8/21/18 **GROUND ELEVATION** 373 feet **HOLE SIZE** 4 in.
CONTRACTOR Cascade Drilling **GROUND WATER LEVELS:**
EQUIPMENT Hand Auger **AT TIME OF DRILLING** ---
LOGGED BY Renee Holt **CHECKED BY** Matt Crandell **AT END OF DRILLING** ---
NOTES Surface elevation approximate. **AFTER DRILLING** ---

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DEPTH (ft)	SAMPLE IDENTIFICATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)	PID (ppm)
0				18" concrete slab.		
1.5				Brown fine-medium SAND with silt, trace coarse sand and black fragments. Dry to moist.	371.5	9.7
	EY-SG03-SB07-2.5					
5		SW		Trace fine gravel and subrounded to subangular cobbles at 5 feet bgs.		9
	EY-SG03-SB07-5					
	EY-SG03-SB07-7.5					9.8
10		ML		Gray-brown fine sandy SILT. Moist.	363.2 363.0	7
	EY-SG03-SB07-10					
				Bottom of borehole at 10.0 feet.		



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CLIENT Tacoma Public Utilities **PROJECT NAME** Cushman Substation Phase II Investigations
PROJECT NUMBER 0435302 **PROJECT LOCATION** Tacoma, WA
DATE STARTED 8/20/18 **COMPLETED** 8/20/18 **GROUND ELEVATION** 373 feet **HOLE SIZE** 4 in.
CONTRACTOR Cascade Drilling **GROUND WATER LEVELS:**
EQUIPMENT Hand Auger **AT TIME OF DRILLING** ---
LOGGED BY Renee Holt **CHECKED BY** Matt Crandell **AT END OF DRILLING** ---
NOTES Surface elevation approximate. **AFTER DRILLING** ---

DEPTH (ft)	SAMPLE IDENTIFICATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)	PID (ppm)
0						
				0.3 4 inch asphalt slab.	372.7	
				Gray-brown medium to fine SAND with coarse sand. Moist.		
	EY-SG03-SB10-1.5	SW		1.5 Concrete slab at 18.5 inches bgs.	371.5	10.3
				Bottom of borehole at 1.5 feet.	371.5	

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CLIENT Tacoma Public Utilities **PROJECT NAME** Cushman Substation Phase II Investigations
PROJECT NUMBER 0435302 **PROJECT LOCATION** Tacoma, WA
DATE STARTED 8/22/18 **COMPLETED** 8/22/18 **GROUND ELEVATION** 373 feet **HOLE SIZE** 4 in.
CONTRACTOR Cascade Drilling **GROUND WATER LEVELS:**
EQUIPMENT Hand Auger **AT TIME OF DRILLING** ---
LOGGED BY Renee Holt **CHECKED BY** Matt Crandell **AT END OF DRILLING** ---
NOTES Surface elevation approximate. Background FID reading = 1.4 ppm. **AFTER DRILLING** ---

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DEPTH (ft)	SAMPLE IDENTIFICATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)	PID (ppm)
0						
			0.5	6 inches gravel fill.	372.5	
			0.5	Brown fine-medium SAND with coarse sand, trace silt. Moist.		13.6
	EY-SG03-SB11-2.5	SW	2.5			
5	EY-SG03-SB11-5.0					
			7.5	Gray-brown fine-medium SAND, trace subrounded fine gravel. Moist.	365.5	24.9
	EY-SG03-SB11-7.5	SP	7.5			
10	EY-SG03-SB11-10.0					
	EY-SG03-SB11-11.0					
			11.0	Bottom of borehole at 11.0 feet.	362.0	22.3



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CLIENT Tacoma Public Utilities **PROJECT NAME** Cushman Substation Phase II Investigations
PROJECT NUMBER 0435302 **PROJECT LOCATION** Tacoma, WA
DATE STARTED 8/22/18 **COMPLETED** 8/22/18 **GROUND ELEVATION** 373 feet **HOLE SIZE** 4 in.
CONTRACTOR Cascade Drilling **GROUND WATER LEVELS:**
EQUIPMENT Hand Auger **AT TIME OF DRILLING** ---
LOGGED BY Renee Holt **CHECKED BY** Matt Crandell **AT END OF DRILLING** ---
NOTES Surface elevation approximate. **AFTER DRILLING** ---

GENERAL BH / TP / WELL - GINT STD US.GDT - 10/9/18 20:43 - Q:\GENERAL\ADMIN\GINT\PRJCTS\CUSHMAN TACOMA LOGS.GPJ

DEPTH (ft)	SAMPLE IDENTIFICATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)	PID (ppm)
0						
0.5				Angular gravel.	372.5	
	EY-SG04-SB06-2.5			Brown fine-medium SAND with coarse sand, trace silt. Moist.		20
5	EY-SG04-SB06-5	SW		With fine subrounded gravel at 5 feet bgs.		13.3
	EY-SG04-SB06-7.5					6.8
10	EY-SG04-SB06-10	ML		Brown fine-sandy SILT with subrounded fine gravel. Moist to wet.	363.2 363.0	10.9
				Bottom of borehole at 10.0 feet.		



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CLIENT Tacoma Public Utilities **PROJECT NAME** Cushman Substation Phase II Investigations
PROJECT NUMBER 0435302 **PROJECT LOCATION** Tacoma, WA
DATE STARTED 8/20/18 **COMPLETED** 8/20/18 **GROUND ELEVATION** 373 feet **HOLE SIZE** 4 in.
CONTRACTOR Cascade Drilling **GROUND WATER LEVELS:**
EQUIPMENT Hand Auger **AT TIME OF DRILLING** ---
LOGGED BY Renee Holt **CHECKED BY** Matt Crandell **AT END OF DRILLING** ---
NOTES Surface elevation approximate. **AFTER DRILLING** ---

DEPTH (ft)	SAMPLE IDENTIFICATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)	PID (ppm)
0						
	EY-SG05-SB07-1.5	SW		Grayish brown fine-medium SAND with coarse sand. Moist.		
			1.5	Buried concrete slab at 18 inches bgs.	371.5	26.7
				Bottom of borehole at 1.5 feet.		

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CLIENT Tacoma Public Utilities **PROJECT NAME** Cushman Substation Phase II Investigations
PROJECT NUMBER 0435302 **PROJECT LOCATION** Tacoma, WA
DATE STARTED 8/23/18 **COMPLETED** 8/23/18 **GROUND ELEVATION** 373 feet **HOLE SIZE** 48 in.
CONTRACTOR TPU **GROUND WATER LEVELS:**
EQUIPMENT Backhoe **AT TIME OF DRILLING** ---
LOGGED BY Matt Crandell **CHECKED BY** Matt Crandell **AT END OF DRILLING** ---
NOTES Surface elevation approximate. Background FID reading = 1.2 ppm. **AFTER DRILLING** ---

GENERAL BH / TP / WELL - GINT STD US.GDT - 10/9/18 20:43 - Q:\GENERAL\ADMIN\GINT\PRJCTS\CUSHMAN TACOMA LOGS.GPJ

DEPTH (ft)	SAMPLE IDENTIFICATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)	PID (ppm)
0						
				Grayish brown angular fine gravel with medium sand. Dry, loose.	372.8	
				Dark brown fine-medium SAND with fine angular gravel. Dry, stiff.		
	EY-SG16-SB06-2.5	SP				6.8
					369.0	
5				Light brownish gray silty fine-medium SAND. Dry, stiff. "Hard pan."		
	EY-SG16-SB06-5	SM				10.8
					365.5	
	EY-SG16-SB06-7.5	SP		Grayish brown medium SAND, trace fines. Very slightly moist, loose. "Beach sand."		9.9
					363.3	
	EY-SG16-SB06-10			Bottom of borehole at 9.8 feet.		8.4



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CLIENT Tacoma Public Utilities **PROJECT NAME** Cushman Substation Phase II Investigations
PROJECT NUMBER 0435302 **PROJECT LOCATION** Tacoma, WA
DATE STARTED 8/24/18 **COMPLETED** 8/24/18 **GROUND ELEVATION** 373 feet **HOLE SIZE** 48 in.
CONTRACTOR TPU **GROUND WATER LEVELS:**
EQUIPMENT Backhoe **AT TIME OF DRILLING** ---
LOGGED BY Matt Crandell **CHECKED BY** Matt Crandell **AT END OF DRILLING** ---
NOTES Surface elevation approximate. Background FID reading = 5.1 ppm. **AFTER DRILLING** ---

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DEPTH (ft)	SAMPLE IDENTIFICATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)	PID (ppm)
0						
			XXXX	0.3 Grayish brown angular fine gravel with medium sand. Dry, loose.	372.8	
				Dark brown fine-medium SAND with fine angular gravel. Dry, stiff.		
	EY-SG26-SB08-2.5	SP				12.1
5						
	EY-SG26-SB08-5					14
	EY-SG26-SB08-7.5	SP		7.5 Grayish brown medium SAND, trace fines. Very slightly moist, loose. "Beach sand."	365.5	2.2
10						
	EY-SG26-SB08-10			Bottom of borehole at 10.0 feet.	363.0	9.6



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CLIENT Tacoma Public Utilities **PROJECT NAME** Cushman Substation Phase II Investigations
PROJECT NUMBER 0435302 **PROJECT LOCATION** Tacoma, WA
DATE STARTED 8/20/18 **COMPLETED** 8/20/18 **GROUND ELEVATION** 373 feet **HOLE SIZE** 48 in.
CONTRACTOR TPU **GROUND WATER LEVELS:**
EQUIPMENT Backhoe **AT TIME OF DRILLING** ---
LOGGED BY Matt Crandell **CHECKED BY** Matt Crandell **AT END OF DRILLING** ---
NOTES Surface elevation approximate. Background FID reading = 1.2 ppm. **AFTER DRILLING** ---

GENERAL BH / TP / WELL - GINT STD US.GDT - 10/9/18 20:43 - Q:\GENERAL\ADMIN\GINT\PRJCTS\CUSHMAN TACOMA LOGS.GPJ

DEPTH (ft)	SAMPLE IDENTIFICATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)	PID (ppm)
0						
			0.3	Grayish brown angular fine gravel with medium sand. Dry, loose.	372.8	
		SP		Dark brown fine-medium SAND with fine angular gravel. Dry, stiff.		
			4.0		369.0	
5				Light brownish gray silty fine-medium SAND. Dry, stiff. "Hard pan."		
	FOCB-SB06-5	SM				6.1
			6.0		367.0	
				Dark brown fine-medium SAND with fine angular gravel. Dry, stiff.		6.6
		SP				9.9
	FOCB-SB06-7.5			No gravel, sand is loose at 8 feet bgs. "Beach sand."		
10	FOCB-SB06-10		10.0		363.0	
				Bottom of borehole at 10.0 feet.		7.7



ERM-West, Inc.
 1218 3rd Avenue, Suite 1412
 Seattle, Washington 98101
 Telephone: 425-462-8591

CLIENT Tacoma Public Utilities **PROJECT NAME** Cushman Substation Phase II Investigations
PROJECT NUMBER 0435302 **PROJECT LOCATION** Tacoma, WA
DATE STARTED 8/21/18 **COMPLETED** 8/21/18 **GROUND ELEVATION** 373 feet **HOLE SIZE** 4 in.
CONTRACTOR Cascade Drilling **GROUND WATER LEVELS:**
EQUIPMENT Hand Auger **AT TIME OF DRILLING** ---
LOGGED BY Renee Holt **CHECKED BY** Matt Crandell **AT END OF DRILLING** ---
NOTES Surface elevation approximate. Background FID reading = 2.7 ppm. **AFTER DRILLING** ---

GENERAL BH / TP / WELL - GINT STD US.GDT - 10/9/18 20:43 - Q:\GENERAL\ADMIN\GINT\PRJCTS\CUSHMAN TACOMA LOGS.GPJ

DEPTH (ft)	SAMPLE IDENTIFICATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)	PID (ppm)
0						
0.6				7.5 inch concrete slab.	372.4	
				Brown silty fine SAND, trace subrounded fine gravel. Dry to moist.		29.1
	FOCB-SB08-2.5					
5						26.1
	FOCB-SB08-5.0					
		SM				
	FOCB-SB08-7.5					12.6
10						21.2
	FOCB-SB08-10					
	FOCB-SB08-11					24.8
11.0				Color change to grayish brown at 11 feet bgs. Bottom of borehole at 11.0 feet.	362.0	



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CLIENT Tacoma Public Utilities **PROJECT NAME** Cushman Substation Phase II Investigations
PROJECT NUMBER 0435302 **PROJECT LOCATION** Tacoma, WA
DATE STARTED 8/22/18 **COMPLETED** 8/22/18 **GROUND ELEVATION** 373 feet **HOLE SIZE** 48 in.
CONTRACTOR TPU **GROUND WATER LEVELS:**
EQUIPMENT Backhoe **AT TIME OF DRILLING** ---
LOGGED BY Matt Crandell **CHECKED BY** Matt Crandell **AT END OF DRILLING** ---
NOTES Surface elevation approximate. Background FID reading = 2.1 ppm. **AFTER DRILLING** ---

GENERAL BH / TP / WELL - GINT STD US.GDT - 10/9/18 20:43 - Q:\GENERAL\ADMIN\GINT\PROJECTS\CUSHMAN TACOMA LOGS.GPJ

DEPTH (ft)	SAMPLE IDENTIFICATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)	PID (ppm)
0						
			XXXX	0.3 Grayish brown angular fine gravel with medium sand. Dry, loose. Dark brown fine-medium SAND with fine angular gravel. Dry, stiff.	372.8	
		SP	.....		
5			||||	4.5 Light brownish gray silty fine-medium SAND. Dry, stiff. "Hard pan."	368.5	
	WY-SG02-SB06-5	SM	||||			17.2
			.....	6.0 Grayish brown medium SAND, trace fines. Very slightly moist, loose. "Beach sand."	367.0	
	WY-SG02-SB06-7.5	SP			23.1
	WY-SG02-SB06-9				
				9.0 Bottom of borehole at 9.0 feet.	364.0	14.5



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PROJECT NUMBER 0435302 **PROJECT LOCATION** Tacoma, WA
DATE STARTED 8/22/18 **COMPLETED** 8/22/18 **GROUND ELEVATION** 373 feet **HOLE SIZE** 48 in.
CONTRACTOR TPU **GROUND WATER LEVELS:**
EQUIPMENT Backhoe **AT TIME OF DRILLING** ---
LOGGED BY Matt Crandell **CHECKED BY** Matt Crandell **AT END OF DRILLING** ---
NOTES Surface elevation approximate. Background FID reading = 4.7 ppm. **AFTER DRILLING** ---

GENERAL BH / TP / WELL - GINT STD US.GDT - 10/9/18 20:43 - Q:\GENERAL\ADMIN\GINT\PRJCTS\CUSHMAN TACOMA LOGS.GPJ

DEPTH (ft)	SAMPLE IDENTIFICATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (ft)	PID (ppm)
0						
			XXXX	0.3 Grayish brown angular fine gravel with medium sand. Dry, loose. Dark brown fine-medium SAND with fine angular gravel. Dry, stiff.	372.8	
	WY-SG03-SB05-2.5	SP	.....			10.2
5				5.0 Light brownish gray silty fine-medium SAND. Dry, stiff. "Hard pan."	368.0	4.9
	WY-SG03-SB05-5	SM	||||			
	WY-SG03-SB05-7.5	SP	.....	7.5 Grayish brown medium SAND, trace fines. Very slightly moist, loose. "Beach sand."	365.5	11.7
	WY-SG03-SB05-10			10.0 Bottom of borehole at 10.0 feet.	363.0	6.5

APPENDIX B HAZARDOUS BUILDING MATERIAL SURVEY



Hazardous Materials Survey

"Cushman Substation"
3713 N 19th Street
Tacoma, WA 98406



Prepared For
Ms. Suzanne Dolberg
ERM
1218 3rd Ave Ste. 1412
Seattle, WA 98101

Project Number:	2018-0172
Inspection Date:	March 5 & 6, 2018
Report Date:	March 16, 2018
Inspected By	Tanveer Khan / John Hathaway
AHERA Certification	# 1626915 / # 163622
Expiration Date	May 10, 2018 / October 11, 2018

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5.0	FINDINGS	8-12
6.0	CONCLUSIONS AND RECOMMENDATIONS	13-19
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APPENDICIES

- A** Sample Locations (Floor Plan)
- B** Laboratory Analysis Results
- C** AHERA Certifications & Laboratory Qualifications

1.0 SCOPE OF WORK

A Hazardous Materials Survey was conducted at the Cushman Substation located at 3713 N 19th St, Tacoma, WA 98406 on March 5 & 6, 2018.

Tanveer Khan (AHERA Certified Building Inspector and Washington Department of Commerce - Certified Lead Risk Assessor), and John Hathaway (an AHERA Certified Building Inspector), conducted this survey at the request of Ms. Suzanne Dolberg of ERM.

The purpose of this survey was to identify suspect asbestos containing building materials, lead paint coatings, and Mercury (Hg) / PCB containing devices which would be impacted by the planned renovation to the building. Per client request, representative mercury and PCB wipe samples were also collected.

The exterior active yard and stored equipments were not part of this survey. Non-destructive sampling methods were utilized to collect samples of suspect building materials. No soft/limited demolition was performed during this inspection. Hidden materials may exist within the structure, and all suspect materials must be treated as hazardous until testing proves otherwise.

This survey constitutes a survey of accessible suspect ACM in the project area and was conducted in accordance with:

The National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 Code of Federal Regulations (CFR) Part 61, Subpart M requires a survey by an accredited asbestos inspector prior to demolition of a structure.

This asbestos survey also satisfies the requirements for "Good Faith" inspection outlined in Washington Administrative Code (WAC) 296-62-07221(2), *Identification*, which requires the owner of a structure to provide contractors with a written report identifying the asbestos-containing materials expected to be disturbed during renovation or demolition.

The asbestos survey section is written to comply with the AHERA asbestos sampling procedure as stated in 40 CFR 763.86. This protocol is required under the Puget Sound Clean Air Agency (PSCAA Regulation III, Article IV, rev. March 26, 2009) for all asbestos surveys prior to a building demolition.

Recommendations have been included for compliance with WAC 296-155-176 "Lead in Construction". The Lead in Construction regulations are designed to protect workers from lead hazards during construction and demolition activities.

The Occupational Safety and Health Administration (OSHA) ID-145 outlines sampling and analysis protocols for Mercury that comply under Particulate Mercury in Workplace Atmospheres guidelines. Recommendations have been included for compliance with WAC 296-24-71519 "Mercury" and WAC 296-841 "Safety Standards for Airborne Contaminants". The mercury regulations are designed to protect workers from mercury hazards.

The Code of Federal Regulation 40 CFR 761.125 "Requirements for PCB Spill Cleanup" and WAC 296-841 "Safety Standards for Airborne Contaminants" specify the treatment of PCB contaminated sites. The protocols outline proper handling and treatment of PCBs as well as regulating worker exposure.

Fluorescent light tubes, HID lamps, and thermostats contain Mercury (Hg) are classified as universal waste by the EPA and Washington Department of Ecology. Recommendations have been included for compliance with WAC 173-303-573, "The Universal Waste Rule for Dangerous Waste".

A floor plan indicating locations of samples collected by NVL personnel has been included in **Appendix A**.

2.0 SURVEY METHOD

Asbestos Survey Method

The NVL Labs field inspector is an Asbestos Building Inspector, certified under the requirements of the United States Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) regulation 40 CFR 763, Subpart E. A copy of his certificate is provided in Appendix C.

The AHERA Guidelines dictate the following:

The inspector must determine *homogenous areas*, which are defined as an area of Thermal System Insulation, Surfacing Material, or Miscellaneous Material that is uniform in texture and color.

Once homogenous areas have been determined, the inspector must determine whether or not material is friable or non-friable. **Friable** is defined as a material, that when dry, can be crushed, pulverized, or reduced to dust using hand pressure, and **non-friable** material is defined as a material, that when dry, *cannot* be crushed pulverized or reduced to dust using hand pressure. Materials normally defined as non-friable can become friable by definition if sufficiently damaged.

Once friability has been determined, the materials suspected of containing asbestos are divided into one of three categories: Thermal System Insulation (TSI), Surfacing Material (SM), or Miscellaneous Material (MM). Generally speaking, TSI and SM are considered to be friable, with the exception of TSI where the structural integrity of the insulation is intact and the protective out wrap is undamaged.

Once materials are divided into one of the categories, samples are collected in the following manner:

Friable Thermal System Insulation:

1. Inspector shall collect three (3) randomly distributed samples;
2. Inspector shall collect a minimum of one sample of each TSI materials that appears to have been used as a patch, as long as the patch is less than 6 linear feet or 6 square feet;
3. Inspector shall collect in a manner sufficient, samples from areas of TSI applied to fittings, tees, and joints.

Friable Surfacing Material:

1. Inspector shall collect samples in random manner of surfacing materials as follows:
 - a. Collect three bulk samples from an area believed to be homogeneous (defined as a material that appears to be the same or similar and was installed at the same time) that is 1,000 square feet or less in size;
 - b. Collect five bulk samples from an area believed to be homogeneous that is greater than 1,000 square feet in size, but less than 5,000 square feet in size;
 - c. Collect seven bulk samples from an area believed to be homogeneous that is greater than 5,000 square feet.

2.0 SURVEY METHOD (continued)

Miscellaneous Materials:

1. Inspector shall collect samples in a manner and number sufficient to determine if the material is asbestos-containing or not.

All Materials Determined to Be Non Friable:

1. Inspector shall collect samples in a manner and number sufficient to determine if the material is asbestos containing or not.

In addition to these sampling requirements, the AHERA Building Inspector is required to assess the following of each material that is found to be positive for asbestos:

1. The condition of each material;
2. Accessibility;
3. Possibility for air erosion.

Once the samples have been collected, they must be analyzed by an accredited laboratory, and they must be analyzed using polarized light microscopy methods, commonly referred to as EPA Method 600/R-93/116.

NVL Labs collected samples and obtained analytical data for suspect asbestos-containing materials identified in the building. Once collected, each bulk sample was sealed in an unadulterated plastic bag to eliminate the possibility of cross-contamination. "Chain-of-Custody" tracking was followed to maintain sample integrity during handling and data reporting at NVL Labs.

A walk-through inspection of all accessible areas of the structures was performed to identify potential asbestos-containing materials. The walk-through inspection included a review of the internal and external aspects of the structures. The locations and types of potential asbestos-containing materials were noted.

Homogeneous Materials

Homogeneous materials are defined as an area of asbestos-containing material or presumed asbestos-containing material which appears similar throughout in terms of color, texture, and date of material application. The report listing for homogenous materials will appear as follows:

Sample Number	Material Description by Layer	Location	Asbestos	Quantity	Friable
#	Layer 1 is not asbestos-containing Layer 2 is asbestos-containing	Location description	1. % 2. %	"X" LF/ft ²	Yes/No

Lead Survey Method

NVL Labs collected representative samples of paint from the interior and exterior of the building within the project scope. Once collected, each bulk sample was sealed in an unadulterated plastic bag to eliminate the possibility of cross-contamination. "Chain-of-Custody" tracking was followed to maintain sample integrity during handling and data reporting at NVL Labs. Sampling was representative of all layers of paint. Copies of laboratory reports and field data forms for lead paint are in Appendix B.

2.0 SURVEY METHOD (continued)

PCB Survey Method

Surface samples for the presence of PCB's were collected using a wiping technique using cotton gauze pads wetted with n-hexane which were prepared by NVL in clean glass vials.

For each separate sample, the template was placed at a different location and the dust within the testing area collected using a single hexane gauze wipe. A clean template was used at each sample location. The pads were then placed in clean labeled glass jars following sample collection. Clean nitrile gloves were used at each sample location. The units for the results were calculated and reported to be per a 100 cm² area.

All sample locations were identified, reviewed and confirmed with ERM prior to sample collection. A total of five locations were identified in the substation.

The collected field blank was created by handling the cotton gauze pads identically to how the actual sample cotton gauze pads were handled, including using clean nitrile gloves with each sample, but without contacting the pads to any settled dust surface.

Mercury Survey Method

Surface samples for the presence of mercury were collected using the wiping technique using Whatman no. 1 filters.

For each sample, wipe filters were moistened with deionized water and samples were collected using the template. A clean template was used at each sample location. The filters were placed in clean labeled glass jars following sample collection. Each sample glass jar was securely wrapped with an OSHA-21 seal length wise.

All sample locations were identified, reviewed and confirmed with ERM prior to sample collection. A total of four locations were identified in the substation control room.

The collected field blank was created by handling the Whatman no. 1 filter identically to how the actual sample Whatman no. 1 filter were handled, including using clean nitrile gloves with each sample, but without contacting the filter to any settled dust surface.

3.0 LABORATORY INFORMATION

Laboratory Analysis: Asbestos

In accordance with 40 CFR Chapter 1 (1-1-87 edition) Part 763, Subpart F, Appendix A, asbestos samples are analyzed at NVL Labs using polarized light microscopy (PLM) with dispersion staining. If samples are not homogeneous, then sub-samples of the components are analyzed separately. All bulk samples are analyzed using EPA Method 600/R-93/116 with the following measurement uncertainties for reported % asbestos: 1%=0-3%, 5%≥1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%. Only materials containing more than 1% total asbestos were classified as "asbestos-containing" based on EPA, state, and local regulations.

Findings for samples containing more than one separable layer of materials are reported for each layer. The asbestos concentration in the sample is determined by visual estimation.

NVL Labs is accredited by the National Institute of Standards and Technology (NIST) under the National Volunteer Laboratory Accreditation Program (NVLAP) program for bulk asbestos fiber analysis; *NVLAP Lab Code 102063-0*

3.0 LABORATORY INFORMATION (continued)

Laboratory Analysis: Lead (Pb)

Samples are analyzed for the presence of inorganic lead using atomic absorption spectroscopy (AAS) in accordance with method EPA 3051/7000B. This method reports results in milligrams per kilogram (mg/kg) or its equivalent, parts per million (ppm).

Laboratory Analysis: PCBs

In accordance with EPA Method 8082A – Polychlorinated Biphenyls (PCBs), samples were analyzed using gas chromatography. This method reports results in microgram per hundred square centimeters ($\mu\text{g}/100\text{ cm}^2$).

Laboratory Analysis: Mercury

Samples were analyzed using a cold vapor-atomic absorption spectrophotometer in accordance to OSHA ID 145. This method reports results in microgram per wipe ($\mu\text{g}/\text{wipe}$) or microgram per square foot ($\mu\text{g}/\text{ft}^2$).

Laboratory Accreditation

Professional accreditations for NVL Laboratories, Inc. include the following:

NVL Laboratories, Inc. is currently accredited by the National Institute of Standards and Technology (NIST) under the National Volunteer Laboratory Accreditation Program (NVLAP) program for bulk asbestos fiber analysis.

NVLAP Lab Code 102063-0

NVL Laboratories, Inc. is approved by the American Industrial Hygiene Association (AIHA) Asbestos Analysts Registry (AAR) program for airborne asbestos fiber analysis.

AAR Counter ID 7412

NVL Laboratories, Inc. is currently accredited by the American Industrial Hygiene Association (AIHA) under the Industrial Hygiene Laboratory Accreditation Program (IHLAP). The IHLAP program is designed specifically for laboratories involved in analyzing samples to evaluate workplace exposure.
IHLAP Certification Number 563

4.0 BUILDING DESCRIPTION

General Building Type	The property consists of multi-story building of load bearing masonry construction.
Primary External Components	The exterior of the building is concrete.
Foundation Type	The building has a below grade concrete foundation.
Roofing Material(s)	The building has rolled built-up asphaltic roofing.
Window Type(s)	The building has metal framed windows with glazing.
Flooring	The building has sheet vinyl, wood planks, and terrazzo flooring.
Thermal Systems With Insulation	The building was heated through baseboard heaters with no visible suspect thermal insulation.
Finishing	The building is finished with concrete, metal, and ceiling tiles.

5.0 FINDINGS

Inventory of Suspect Asbestos-Containing Materials

Floor 0

Sample Number	Material Description by Layer	Location	Asbestos	Quantity**	Friable*
2018-0172-FL0-3-1	Transite tray	Tunnel # 1 (at the entrance)	25%	10 LF	Yes

Floor 1

Sample Number	Material Description by Layer	Location	Asbestos	Quantity**	Friable*
2018-0172-FL1-3-1	Gray window glazing	Interior windows	ND		
2018-0172-FL1-3-2	White window glazing	Interior windows	ND		
2018-0172-FL1-3-3	Terrazzo floor	Floor	ND		
2018-0172-FL1-3-4	Acoustical ceiling tile	Restroom, false ceiling	ND		
2018-0172-FL1-3-5	Gray laminate	Restroom, counter	ND		
2018-0172-FL1-3-6	White floor leveler	Restroom, floor, under vanity	ND		

Floor 2

Sample Number	Material Description by Layer	Location	Asbestos	Quantity**	Friable*
2018-0172-FL2-3-1	White window glazing	Interior windows	ND		
2018-0172-FL2-3-2	1: Green material with paint 2: White window glazing	Interior windows	1: ND 2: ND		
2018-0172-FL2-3-3	1: Blue sheet vinyl 2: Colorless soft material 3: White backing with fibers 4: Black material	Restroom, floor	1: ND 2: ND 3: ND 4: ND		
2018-0172-FL2-3-4	Black cove base mastic	Restroom, wall base	ND		
2018-0172-FL2-3-5	Gray laminate	Restroom, counter	ND		

ND None Detected

* The friability of this material was determined at the time of this inspection. Subsequent activities such as demolition, renovation, or abatement may affect the friability of this material.

** These quantities are only an estimate of the asbestos containing material discovered on site. Accuracy of these estimates must be verified by the asbestos abatement contractor on site.

5.0 FINDINGS (continued)

Floor 3

Sample Number	Material Description by Layer	Location	Asbestos	Quantity**	Friable*
2018-0172-FL3-3-1	White window glazing	Elevator room (roof), windows	ND		
2018-0172-FL3-3-2	White window glazing	Interior windows	ND		
2018-0172-FL3-3-3	Gray window glazing	Interior windows	ND		
2018-0172-FL3-3-4	1: Gray concrete 2: Black asphaltic tar	Battery room, south wall	1: ND 2: ND		
2018-0172-FL3-3-5	1: Brown material 2: Black asphaltic mastic	South west, corner, floor	1: ND 2: ND		
2018-0172-FL3-3-6	Gray wall leveler	South east, corner, wall	ND		

Exterior

Sample Number	Material Description by Layer	Location	Asbestos	Quantity**	Friable*
2018-0172-EXT-3-1	Gray window glazing	Main door, window / door components	2%	45 LF	No
2018-0172-EXT-3-2	1: Gray sealant 2: Silver sealant	North side, entry door frame	1: ND 2: ND		

Roof

Sample Number	Material Description by Layer	Location	Asbestos	Quantity**	Friable*
2018-0172-Roof-1	Rolled built-up roofing	Flat roof	20%	9435 ft ²	No
2018-0172-Roof-2	1: Black material with gray coating 2: Black tar with gray coating	Roof, on parapet walls	1: ND 2: 10%	410 LF	No
2018-0172-Roof-3	Rolled built-up roofing	Flat roof	22%	Same as Roof -1	No
2018-0172-Roof-4	Rolled built-up roofing	Elevator room, roof	20%	165 ft ²	No
2018-0172-Sealant-1	Yellow mastic with gray coating	Roof, on the conduit box	ND		

ND None Detected

* The friability of this material was determined at the time of this inspection. Subsequent activities such as demolition, renovation, or abatement may affect the friability of this material.

** These quantities are only an estimate of the asbestos containing material discovered on site. Accuracy of these estimates must be verified by the asbestos abatement contractor on site.

Any suspect material(s) not identified above should not be disturbed and should be tested immediately. The suspect material must be treated as asbestos-containing until testing proves otherwise.

5.0 FINDINGS (continued)

Inventory of Suspect Lead-Containing Paint Coatings

Sample Number	Material Description	Location	Lead in mg/kg	Lead in %
2018-0172-Pb-1	Off-white paint on concrete	Floor 3, interior walls / ceilings	920	0.092
2018-0172-Pb-2	Red paint on metal	Floor 3, interior, window / door components / stairways	3400	0.34
2018-0172-Pb-3	Black paint on metal	Floor 3, interior, door components / stairways	33000	3.3
2018-0172-Pb-4	White paint on concrete	Floor 2, interior, walls / ceilings	11000	1.1
2018-0172-Pb-5	White paint on wood	Floor 2, interior, cabinetry / closet components	4200	0.42
2018-0172-Pb-6	Gray paint on concrete	Floor 2, interior floors	1300	0.13
2018-0172-Pb-7	White paint on metal	Floor 2, interior partition walls	<51	<0.0051
2018-0172-Pb-8	Red paint on metal	Floor 2, interior, light fixtures	8400	0.84
2018-0172-Pb-9	White paint on concrete	Floor 1, interior, walls / ceiling	61000	6.1
2018-0172-Pb-10	Red paint on metal	Floor 1, interior railing / stairway / window components	130000	13
2018-0172-Pb-11	White paint on metal	Floor 1, interior, pipes	16000	1.6
2018-0172-Pb-12	White paint on metal	Floor 0, interior, tank	1000	0.10
2018-0172-Pb-13	Off-white paint on concrete	Floor 0, interior, floor	2000	0.20
2018-0172-Pb-14	Gray paint on metal	Exterior, delivery door	160000	16
2018-0172-Pb-15	Black paint on metal	Exterior, stairway components	10000	1.0
2018-0172-Pb-16	White paint on metal	Exterior, light posts	48000	4.8
2018-0172-Pb-17	Brown paint on wood	Exterior, main door / window components	400	0.040
2018-0172-Pb-18	Red paint on metal	Exterior, window components	10000	1.0

<

Lead content of material analyzed is below the Lower Detection Limit.

Samples in bold contain lead in excess of detectable levels

5.0 FINDINGS (continued)

Mercury Wipe Sampling

Sample Number	Material Description	Location	Hg in $\mu\text{g} / \text{wipe}$	Hg in $\mu\text{g} / \text{sq ft}$
2018-0172-Hg-1	Painted concrete	Floor 2, control room, southwest side, floor	<0.2	<0.2
2018-0172-Hg-2	Painted concrete	Floor 2, control room, northeast side, floor	<0.2	<0.2
2018-0172-Hg-3	Counter	Floor 2, control room, on control panel	<0.2	<0.2
2018-0172-Hg-4	Concrete floor	Floor 2, control room, behind control panel	<0.2	<0.2
2018-0172-Hg-5	Blank	Quality Control	<0.2	

< Mercury content of material analyzed is below the Reporting Limit.

Mercury Devices

One hundred eighty-six (186) florescent light tubes and Fourteen (14) HID lamp were visually identified and assumed to contain Mercury (Hg). This includes Mercury thermostats and florescent light tubes (including the newer "green tubes" which still contain low levels of Mercury).

Poly Chlorinated Biphenyls (PCB) Wipe Sampling

Sample Number	Location	Reporting Limit (RL) ($\mu\text{g}/\text{sample}$)	Total PCB Concentration ($\mu\text{g}/100 \text{ cm}^2$)
2018-0172-PCB-1	Floor 0, Maintenance bay floor	0.22	<0.22 No detectable levels of PCB Aroclors
2018-0172-PCB-2	Floor 0, maintenance bay floor	0.22	<0.22 No detectable levels of PCB Aroclors
2018-0172-PCB-3	Floor 0, bushing storage bay	0.22	<0.22 No detectable levels of PCB Aroclors
2018-0172-PCB-4	Floor 3, southwest side floor	0.22	<0.22 No detectable levels of PCB Aroclors
2018-0172-PCB-5	Floor 3, north side floor	0.22	<0.22 No detectable levels of PCB Aroclors
2018-0172-PCB-6	Blank	2.0	<2 No detectable levels of PCB Aroclors

< PCB content of material analyzed is below the Reporting Limit.

Poly Chlorinated Biphenyls (PCB) Light Ballasts

Eighty-nine (89) light ballasts were visually identified and assumed to contain Poly Chlorinated Biphenyls (PCB).

6.0 CONCLUSIONS AND RECOMMENDATIONS

The following is an inventory of asbestos-containing building materials identified during the Hazardous Materials Survey of the Cushman Substation located at 3713 N 19th Street, Tacoma, WA 98406.

Floor 0

1. **Transite tray (Friable)**

Sample number: 2018-0172-FL0-3-1



There is approximately 10 linear feet of asbestos containing transite tray located on the entrance of tunnel # 1 (floor 0) at the substation.

Exterior

2. **Gray window glazing (Non-friable)**

Sample number: 2018-0172-EXT-3-1



There is approximately 45 linear feet of asbestos containing gray window glazing associated with the exterior of the main door/window components (south side) at the substation.

Roof

3. **Rolled built-up roofing (Non-friable)**

Sample number: 2018-0172-Roof-1, Roof-3



There is approximately 9435 square feet of exposed asbestos containing rolled built-up roofing located on the flat roof of the substation. The substrate is concrete.

6.0 CONCLUSIONS AND RECOMMENDATIONS (continued)

Roof

4. **Black tar with gray coating (Non-friable)**

Sample number: 2018-0172-Roof-2



There is approximately 410 square feet of asbestos containing black tar with gray coating located on parapet walls of the substation. The substrate is concrete.

5. **Built-up roofing (Non-friable)**

Sample number: 2018-0172-Roof-4



There is approximately 165 square feet of exposed asbestos containing rolled built-up roofing located on the elevator room of the substation. The substrate is concrete.

Presumed ACM

6. **Electrical equipments & wirings**

Sample number: Presumed



Electrical equipments, electrical boards/panels and wirings were not sampled, due to potential electrical hazard and therefore should be treated as asbestos containing.

6.0 CONCLUSIONS AND RECOMMENDATIONS (continued)

Presumed ACM

7. Elevator brake pads / linings

Sample number: Presumed



Elevator brake pads / linings were not safely accessible during the survey, and therefore should be treated as asbestos containing.

8. Crane brake pads / linings

Sample number: Presumed



Elevator brake pads / linings were not safely accessible during the survey, and therefore should be treated as asbestos containing.

9. Stored equipments / materials

Sample number: Presumed



Stored equipments / materials are not part of this survey and therefore should be treated as hazardous (asbestos / lead / mercury / PCB), until testing proves otherwise.

6.0 CONCLUSIONS AND RECOMMENDATIONS (continued)

Contractors should be aware that concealed suspect asbestos-containing building materials may be uncovered during the course of demolition or renovation work. Contractors should have contingency plans that include stopping work, evacuation of the immediate area and sampling by a certified AHERA Building Inspector whenever these materials are found. Concealed suspect materials may include but are not limited to: non-fiberglass pipe or roof drain insulation; spray-applied coatings; cement board; asphalt or paper vapor barriers; floorings and adhesives.

If discovered, all asbestos-containing materials that will be disturbed as a natural part of renovation and/or demolition are required to be removed and disposed of in accordance with Washington State regulations. Washington State Department of Labor and Industries and PSCAA requires that the Abatement be performed using Certified Asbestos Workers under the direct on-site supervision by a Certified Asbestos Supervisor. Further, NVL suggests that an AHERA inspector review this property after abatement to ensure all asbestos-containing materials have been removed by the contractor.

NVL recommends that an AHERA inspector/project manager be on site at the time of demolition to ensure that any potentially asbestos-containing materials uncovered during the process of renovation/demolition be dealt with properly.

NVL Labs, Inc. is making the following recommendations regarding asbestos:

1. A copy of this inspection report should be maintained at the project site during the duration of renovation / demolition.
2. A copy of this inspection report should be provided to the General Contractor and any Sub Contractors working on the renovation / demolition project.
3. The inspection report is not intended to serve as a design / bidding document, or scope of work prior to renovation / demolition.
4. Abatement specifications should be prepared by a Hazardous Materials Consulting firm covering the regulated building materials that will be impacted by the renovations / demolition, and these specifications should be part of any contract documents prepared for this project.
5. A licensed asbestos abatement contractor must be utilized to remove any asbestos-containing materials that will be impacted by the planned renovation / demolition.
6. A Hazardous Materials Consulting Firm should provide project oversight and air monitoring during the removal of the asbestos-containing materials.

Lead

Lead-containing paint was identified in the following paint coatings. Worker protection protocols are applicable for this project.

- Off-white paint: Interior concrete walls / ceilings (floor 3).
- Red paint: Metal window / door / stairway components (floor 3).
- Black paint: Metal door components / stairways (floor 3).
- White paint: Interior concrete walls / ceilings (floor 2).
- White paint: Interior wooden cabinetry / closet components (floor 2).

6.0 CONCLUSIONS AND RECOMMENDATIONS (continued)

Lead-containing paint (continued)

- Gray paint: Interior concrete floors (floor 2).
- Red paint: Interior metal light fixtures (floor 2).
- White paint: Interior concrete walls / ceiling (floor 1).
- Red paint: Interior metal railings / stairway / window components (floor 1).
- White paint: Interior metal pipes (floor 1).
- White paint: Interior metal tanks (floor 0).
- Off-white paint: Interior concrete floor (floor 0).
- Gray paint: Exterior metal delivery door.
- Black paint: Exterior metal stairway components.
- White paint: Exterior metal light posts.
- Brown paint: Exterior wooden door / window components.
- Red paint: Exterior metal window components.

The Federal Occupational Safety & Health Administration's (OSHA) interim lead safety standard (29 CFR 1926.59) for the construction industry became effective on June 3, 1993. Lead exposure in construction is regulated in Washington State by WAC 296-155-176. These regulations protect workers disturbing building surfaces with lead containing paints. Paint with "any detectable level" of lead is classified as a lead containing paint by federal and state regulations and the applicable worker safety provisions must be implemented.

WORKER EXPOSURE

WAC 296-155-176, Lead (Pb), applies to all construction work where an employee may be occupationally exposed to Lead (Pb). Construction work includes activities such as demolition or salvage, removal or encapsulation, and renovation of materials that contain Lead (Pb). When an employee may be occupationally exposed to Lead (Pb), the employer must perform an exposure assessment according to WAC 296-155-176.

The exposure assessment consists of personal air monitoring to determine representative Lead (Pb) exposure levels for the work being performed. During the exposure assessment, the employer must provide the following:

- As a minimum, a half mask air purifying respirators equipped with high efficiency particulate air (HEPA) filters in accordance with WAC 296-155-17613.
- Appropriate personal protective clothing / equipment in accordance with WAC 296-155-17615.
- A designated change area which allows for separate storage areas for work and street clothing to prevent cross contamination in accordance with WAC 296-155-17619(2).
- Hand washing facilities to wash their hands and faces WAC 296-155-17619(5).
- Biological monitoring in the form of blood survey and analysis for Lead (Pb) and zinc protoporphyrin levels in accordance with WAC 296-155-17621 (1) (a).
- Training to include hazard communication, safety, and the limitations, proper use, and maintenance of respirators in accordance with WAC 296-155-100.

In addition to the protective equipment and hygiene requirements, the employer must attempt to reduce the levels of airborne Lead (Pb) through engineering controls such as ventilation and wet methods.

6.0 CONCLUSIONS AND RECOMMENDATIONS (continued)

Mercury Wipes

Detectable levels of mercury were not identified in any of the mercury wipe samples collected from the subject building on March 6, 2018.

The Federal Occupational Safety & Health Administration's (OSHA) Particulate Mercury in Workplace Atmospheres (Method ID - 145) became effective in 1987. Mercury exposure is regulated in Washington State by WAC 296-841. These regulations protect workers disturbing building surfaces with mercury containing materials.

Mercury Devices

There is a total of one hundred eighty-six (186) florescent light tubes and fourteen (14) HID lamps visually identified and assumed to contain Mercury (Hg).

Fluorescent light tubes, HID lamps, and thermostats contain mercury (Hg) are classified as universal waste by the EPA and Ecology. The Universal Waste Rule for Dangerous Waste Lamps (WAC 173-303-573) included the following requirements:

- Immediately place lamps showing evidence of leakage, damage, etc. in a container following removal;
- Containerize in closed, structurally sound, compatible containers;
- Cardboard containers may be used for inside storage only;
- Labeling container required: "Waste Lamps," or "Universal Waste Lamps;"
- Track the length of time since waste lamp generation. Acceptable methods of proof include: date on label, inventory system, etc.
- Respond immediately to potential releases. If determined to be a release, contain and determine if it designates as a dangerous waste. If so, manage the release as specified in WAC 173-303;
- Disposal of universal waste as general or construction debris is not permitted;
- The crushing of fluorescent light tubes on-site is not allowed. In addition, measures should be taken to prevent breakage of fluorescent light tubes while the light tubes are in transit to their destination.
- Provide training to employees on the proper handling and emergency procedures of universal waste lamps;
- Track shipments of universal waste lamps with records (invoice, manifest, etc.) kept for a minimum of 3 years.

PCBs Wipes

No detectable levels of PCBs were identified in the PCB wipe samples collected from the subject building on March 6, 2018.

The Federal Occupational Safety & Health Administration's (OSHA) Classification of Polychlorinated Biphenyls Standards (Instruction STD 1-4.2) became effective in October, 1978. Washington State WAC 173-303 regulates PCB exposure. These regulations protect workers who work with PCB containing devices. Waste PCBs are excluded from the Dangerous Waste Regulations if they meet the requirements at WAC 173-303-071(3).

6.0 CONCLUSIONS AND RECOMMENDATIONS (continued)

Poly Chlorinated Biphenyls (PCB) Light Ballasts

A total of eighty-nine (89) light ballasts were visually identified and assumed to contain Poly Chlorinated Biphenyls (PCB).

The Washington statutes definition of a PCB-containing material require that any material with more than 2 parts per million (ppm) to be treated as PCB-containing material. Federal regulations dictated that any material with less than 50 ppm PCBs could be labeled as a non-PCB containing material. Because of this regulatory change, NVL recommends that all light ballasts be observed, removed, handled, and disposed of in an appropriate manner. The ballasts labeled with "PCB Free" and "Non-PCB" shall be packaged for recycle by an approved recycling facility.

7.0 LIMITATIONS OF SURVEY

The purpose of this hazardous materials survey report is to document asbestos containing building materials, lead paint coatings and Mercury / PCB containing dust / devices discovered at the "Cushman Substation" 3713 N 19th St, Tacoma, WA 98406.

The purpose of this survey was to identify suspect asbestos containing building materials, lead paint coatings, and Mercury (Hg) / PCB containing devices which would be impacted by the planned renovation to the building. Per client request, representative mercury and PCB wipe samples were also collected.

The exterior active yard and stored equipments were not a part of this survey. Non-destructive sampling methods were utilized to collect samples of suspect building materials. No soft/limited demolition was performed during this inspection. Hidden materials may exist within the structure, and all suspect materials must be treated as hazardous until testing proves otherwise.

This site visit consisted of a thorough visual walk-through of the building for the purpose of viewing and sampling potential asbestos-containing material. As hazardous material surveys are non-comprehensive by nature, NVL Laboratories, Inc. cannot be held liable for materials which require destructive means to access, materials which are hidden from sight (e.g. materials hidden behind walls), materials which cannot be found due to their obscure nature, or which otherwise cannot be discovered with reasonable diligence.

This document is the sole property of NVL Laboratories and the property owner, or his agent, authorizing this survey.

Inspected By



Tanveer Khan
AHERA Building Inspector
AHERA Certification: 1626915
Expiration Date: May 10, 2018

Reviewed By



Syed Hasan
Manager Field Services
AHERA Certification: 1628677
Expiration Date: July 26, 2018

Inspected By



John Hathaway
AHERA Building Inspector
AHERA Certification: 163622
Expiration Date: October 11, 2018



Appendix A

Sample Locations (Floor Plan)



L A B S

INDUSTRIAL
HYGIENE
SERVICES

Laboratory | Management | Training

NVL Project # 2018-0172

Client ERM - Monte Alves

Location "Cushman Substation" 3713 N 19th St

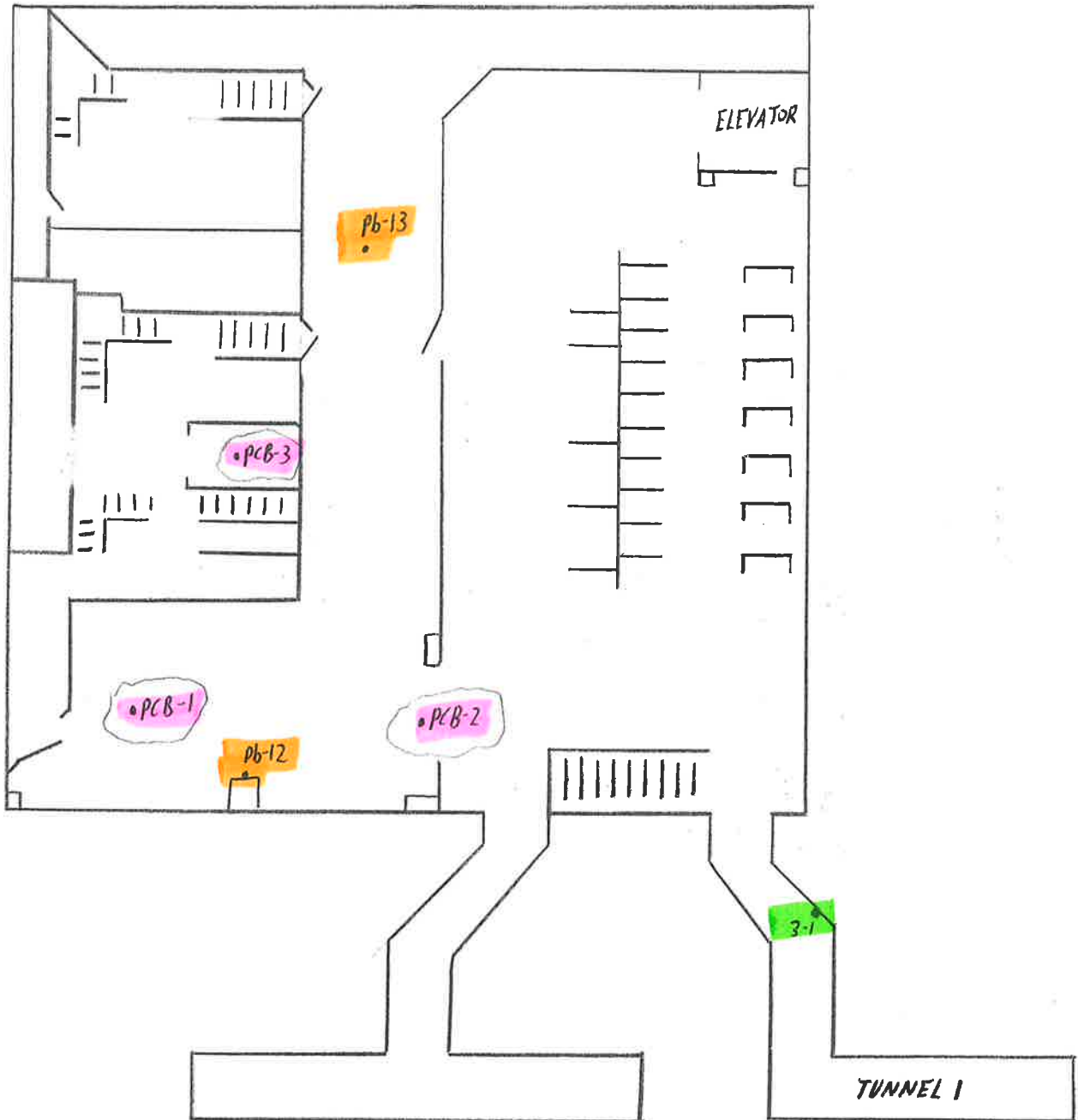
City Tacoma

Page 1 of 5

Date 3/12/18

Made by John Hathaway

FLOOR



(NOT TO SCALE)



L A B S

INDUSTRIAL
HYGIENE
SERVICES

Laboratory | Management | Training

NVL Project # 2018-0172

Client ERM - Monte Alves

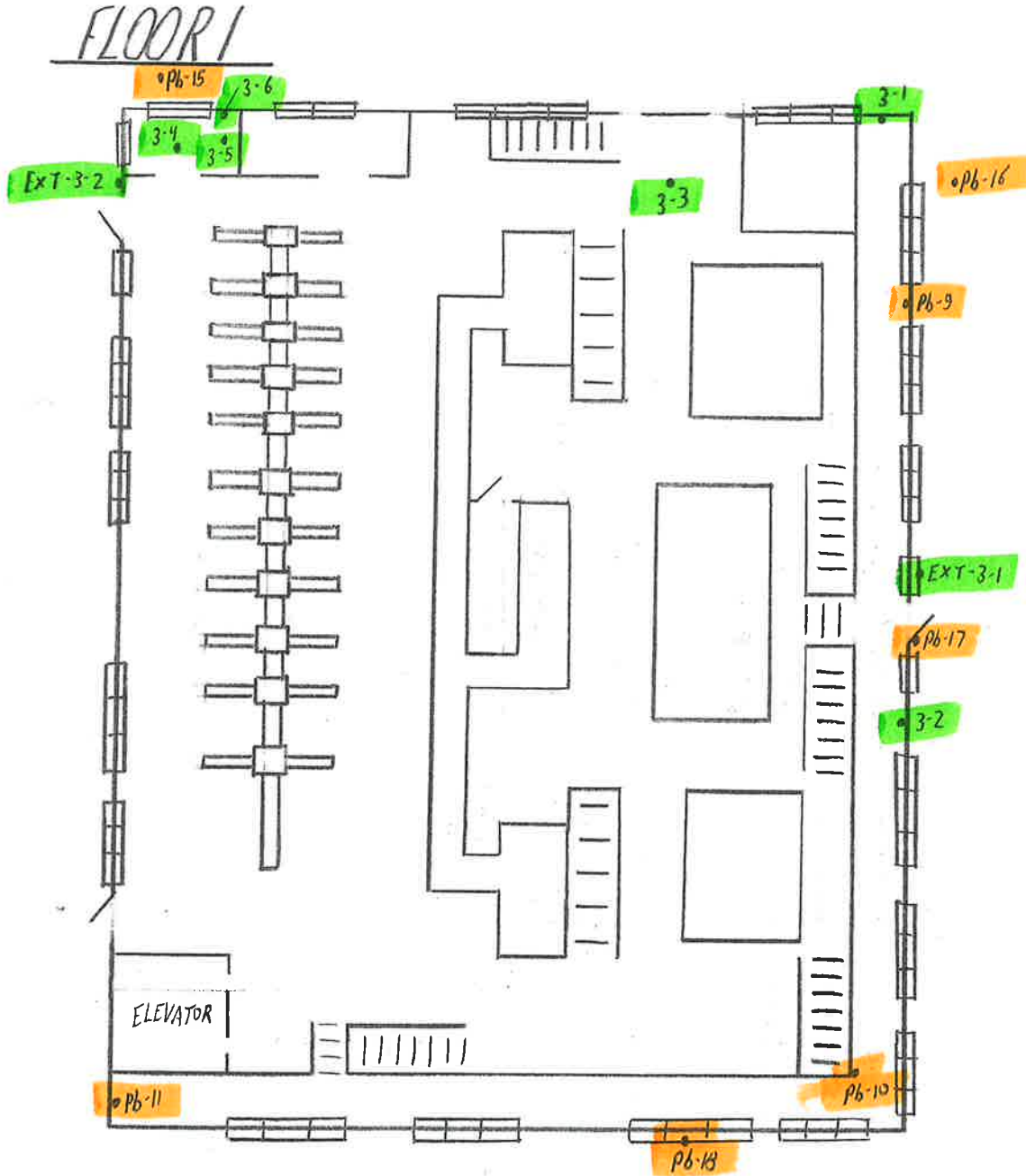
Location "Cushman Substation" 3713 N 19th St

City Tacoma

Page 2 of 5

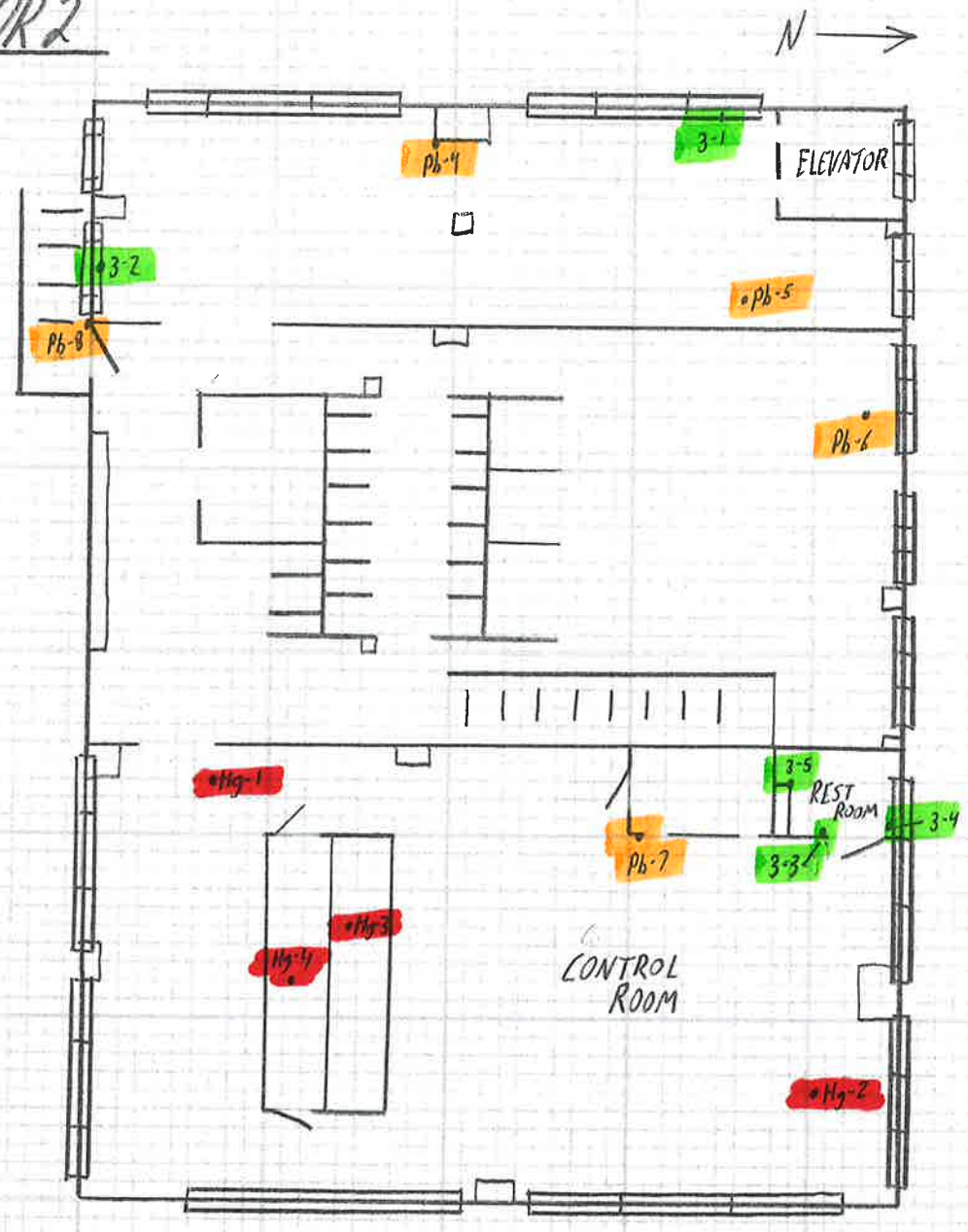
Date 3/12/18

Made by John Hathaway



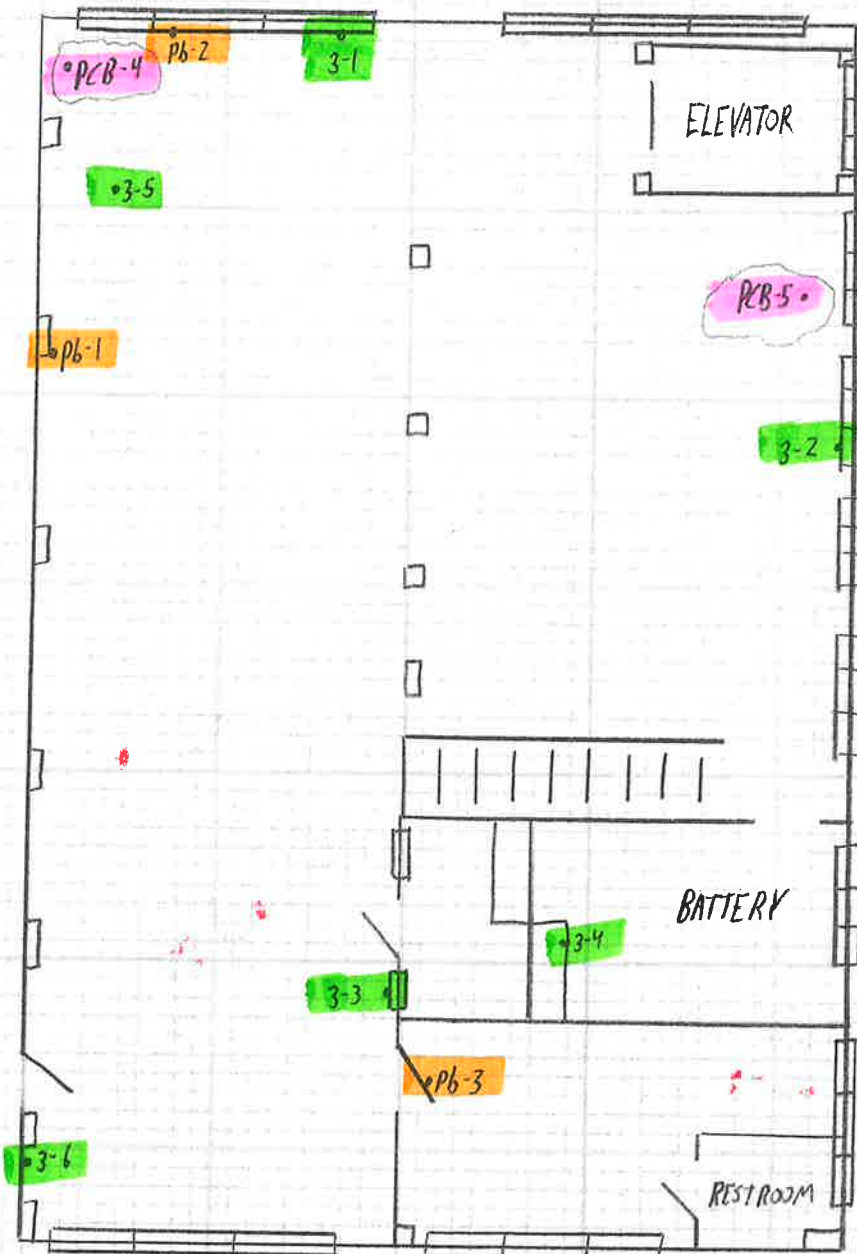
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FLOOR 2



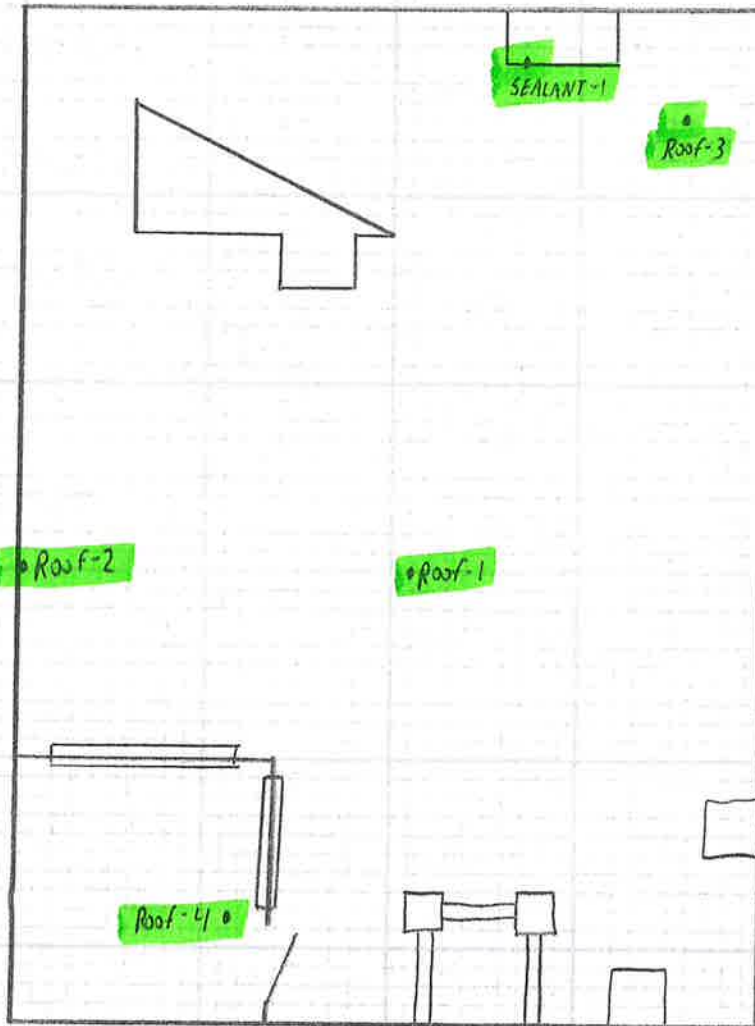
(NOT TO SCALE)

FLOOR 3



(NOT TO SCALE)

ROOF



(NOT TO SCALE)



Appendix B

Laboratory Analysis Results

March 11, 2018

Tanveer Khan
NVL Field Services Division
4708 Aurora Ave. N.
Seattle, WA 98103



INDUSTRIAL
HYGIENE
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RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1804311.00

Client Project: 2018-0172

Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Dear Mr. Khan,

Enclosed please find test results for the 25 sample(s) submitted to our laboratory for analysis on 3/6/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

A handwritten signature in black ink, appearing to read 'Nick Ly'.

Nick Ly, Technical Director



Lab Code: 102063-0



Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: NVL Field Services Division
Address: 4708 Aurora Ave. N.
Seattle, WA 98103

Batch #: 1804311.00
Client Project #: 2018-0172
Date Received: 3/6/2018
Samples Received: 25
Samples Analyzed: 25
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Attention: Mr. Tanveer Khan

Project Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Lab ID: 18022928 Client Sample #: 2018-0172-FL0-3-1

Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1 **Description:** Light gray cementitious material with white paint

Non-Fibrous Materials:	Other Fibrous Materials:%
Cement/Binder, Paint	None Detected ND

Asbestos Type: %
Chrysotile 25%
Crocidolite 5%

Lab ID: 18022929 Client Sample #: 2018-0172-FL1-3-1

Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1 **Description:** Gray brittle material with paint

Non-Fibrous Materials:	Other Fibrous Materials:%
Binder/Filler, Mineral grains, Fine particles	Cellulose 6%
Paint	

Asbestos Type: %
None Detected ND

Lab ID: 18022930 Client Sample #: 2018-0172-FL1-3-2

Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1 **Description:** White soft material

Non-Fibrous Materials:	Other Fibrous Materials:%
Fine grains, Binder/Filler, Calcareous particles	Cellulose 2%

Asbestos Type: %
None Detected ND

Lab ID: 18022931 Client Sample #: 2018-0172-FL1-3-3

Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1 **Description:** Gray brittle sandy material

Non-Fibrous Materials:	Other Fibrous Materials:%
Binder/Filler, Mineral grains, Quartz	Cellulose 4%
Calcareous particles, Fine grains, Fine particles	
Wood flakes	

Asbestos Type: %
None Detected ND

Sampled by: Client

Analyzed by: William Minor

Reviewed by: Nick Ly

Date: 03/09/2018

Date: 03/11/2018

Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: NVL Field Services Division
Address: 4708 Aurora Ave. N.
Seattle, WA 98103

Batch #: 1804311.00
Client Project #: 2018-0172
Date Received: 3/6/2018
Samples Received: 25
Samples Analyzed: 25
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Attention: Mr. Tanveer Khan

Project Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Lab ID: 18022932 Client Sample #: 2018-0172-FL1-3-4
Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1 Description: Gray fibrous brittle material with paint

Non-Fibrous Materials:	Other Fibrous Materials: %	Asbestos Type: % None Detected ND
Binder/Filler, Glass shots & debris, Fine particles	Cellulose 5%	
Paint, Calcareous particles		

Lab ID: 18022933 Client Sample #: 2018-0172-FL1-3-5
Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1 Description: Brown brittle material with laminate and adhesive

Non-Fibrous Materials:	Other Fibrous Materials: %	Asbestos Type: % None Detected ND
Binder/Filler, Laminate/binder, Fine particles	Cellulose 70%	

Lab ID: 18022934 Client Sample #: 2018-0172-FL1-3-6
Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1 Description: Gray brittle sandy material with paint

Non-Fibrous Materials:	Other Fibrous Materials: %	Asbestos Type: % None Detected ND
Binder/Filler, Mineral grains, Quartz	Glass fibers 6%	
Calcareous particles, Fine grains, Paint	Cellulose 3%	

Lab ID: 18022935 Client Sample #: 2018-0172-FL2-3-1
Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1 Description: Gray compacted powdery material with paint

Non-Fibrous Materials:	Other Fibrous Materials: %	Asbestos Type: % None Detected ND
Binder/Filler, Calcareous particles, Organic debris	Cellulose 2%	
Paint, Fine particles		

Sampled by: Client

Analyzed by: William Minor

Reviewed by: Nick Ly

Date: 03/09/2018

Date: 03/11/2018

Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: NVL Field Services Division
 Address: 4708 Aurora Ave. N.
 Seattle, WA 98103

Batch #: 1804311.00
 Client Project #: 2018-0172
 Date Received: 3/6/2018
 Samples Received: 25
 Samples Analyzed: 25
 Method: EPA/600/R-93/116
 & EPA/600/M4-82-020

Attention: Mr. Tanveer Khan
 Project Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406


Lab ID: 18022936 Client Sample #: 2018-0172-FL2-3-2
 Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 2	Description: Green brittle material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		Asbestos Type: %
	Binder/Filler, Paint, Calcareous particles	Cellulose 4%		None Detected ND
Layer 2 of 2	Description: Gray brittle material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		Asbestos Type: %
	Calcareous binder, Calcareous particles, Mineral grains	Cellulose 2%		None Detected ND

Lab ID: 18022937 Client Sample #: 2018-0172-FL2-3-3
 Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 4	Description: Colorless soft material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		Asbestos Type: %
	Binder/Filler, Fine particles	None Detected ND		None Detected ND
Layer 2 of 4	Description: Gray vinyl			
	Non-Fibrous Materials:	Other Fibrous Materials:%		Asbestos Type: %
	Vinyl/Binder, Mineral grains, Fine particles	None Detected ND		None Detected ND
Layer 3 of 4	Description: White foamy backing with white fibers			
	Non-Fibrous Materials:	Other Fibrous Materials:%		Asbestos Type: %
	Synthetic foam, Adhesive/Binder, Fine particles	Synthetic fibers 12%		None Detected ND
Layer 4 of 4	Description: Black rubbery material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		Asbestos Type: %
	Rubber/Binder	Cellulose 2%		None Detected ND

Lab ID: 18022938 Client Sample #: 2018-0172-FL2-3-4
 Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Sampled by: Client
Analyzed by: William Minor **Date:** 03/09/2018
Reviewed by: Nick Ly **Date:** 03/11/2018 
 Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: NVL Field Services Division
Address: 4708 Aurora Ave. N.
Seattle, WA 98103

Batch #: 1804311.00
Client Project #: 2018-0172
Date Received: 3/6/2018
Samples Received: 25
Samples Analyzed: 25
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Attention: Mr. Tanveer Khan

Project Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1	Description: White soft material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		Asbestos Type: %
	Binder/Filler, Paint, Fine particles	Cellulose 3%		None Detected ND
	Calcareous particles			

Lab ID: 18022939 **Client Sample #: 2018-0172-FL2-3-5**
Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1	Description: Brown brittle material with laminate			
	Non-Fibrous Materials:	Other Fibrous Materials:%		Asbestos Type: %
	Binder/Filler, Adhesive/Binder, Wood flakes	Cellulose 70%		None Detected ND

Lab ID: 18022940 **Client Sample #: 2018-0172-FL3-3-1**
Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1	Description: Gray brittle material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		Asbestos Type: %
	Binder/Filler, Calcareous particles, Paint	None Detected ND		None Detected ND
	Fine grains, Carbonaceous material			

Lab ID: 18022941 **Client Sample #: 2018-0172-FL3-3-2**
Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1	Description: Gray brittle material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		Asbestos Type: %
	Binder/Filler, Calcareous particles, Paint	Cellulose 3%		None Detected ND
	Fine grains, Fine particles			

Lab ID: 18022942 **Client Sample #: 2018-0172-FL3-3-3**
Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Sampled by: Client		
Analyzed by: William Minor	Date: 03/09/2018	
Reviewed by: Nick Ly	Date: 03/11/2018	Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: NVL Field Services Division
 Address: 4708 Aurora Ave. N.
 Seattle, WA 98103

Batch #: 1804311.00
 Client Project #: 2018-0172
 Date Received: 3/6/2018
 Samples Received: 25
 Samples Analyzed: 25
 Method: EPA/600/R-93/116
 & EPA/600/M4-82-020

Attention: Mr. Tanveer Khan
 Project Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 2	Description: Gray brittle material			
	Non-Fibrous Materials:	Other Fibrous Materials: %		Asbestos Type: %
	Binder/Filler, Mineral grains, Calcareous particles	Synthetic fibers 2%		None Detected ND
Layer 2 of 2	Description: Brown brittle mastic			
	Non-Fibrous Materials:	Other Fibrous Materials: %		Asbestos Type: %
	Mastic/Binder, Fine particles	Cellulose 3%		None Detected ND

Lab ID: 18022943 **Client Sample #: 2018-0172-FL3-3-4**
 Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 2	Description: Gray brittle sandy material			
	Non-Fibrous Materials:	Other Fibrous Materials: %		Asbestos Type: %
	Binder/Filler, Mineral grains, Fine grains	Cellulose 3%		None Detected ND
	Quartz, Calcareous particles, Wood flakes			
Layer 2 of 2	Description: Black asphaltic material			
	Non-Fibrous Materials:	Other Fibrous Materials: %		Asbestos Type: %
	Asphalt/Binder, Fine grains	Cellulose 4%		None Detected ND

Lab ID: 18022944 **Client Sample #: 2018-0172-FL3--3-5**
 Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 2	Description: Brown brittle material			
	Non-Fibrous Materials:	Other Fibrous Materials: %		Asbestos Type: %
	Binder/Filler, Mineral grains, Fine particles	Cellulose 3%		None Detected ND
	Calcareous particles			
Layer 2 of 2	Description: Black asphaltic material			
	Non-Fibrous Materials:	Other Fibrous Materials: %		Asbestos Type: %
	Asphalt/Binder, Fine grains, Wood flakes	Cellulose 5%		None Detected ND

Sampled by: Client		
Analyzed by: William Minor	Date: 03/09/2018	
Reviewed by: Nick Ly	Date: 03/11/2018	Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: NVL Field Services Division
 Address: 4708 Aurora Ave. N.
 Seattle, WA 98103

Batch #: 1804311.00
 Client Project #: 2018-0172
 Date Received: 3/6/2018
 Samples Received: 25
 Samples Analyzed: 25
 Method: EPA/600/R-93/116
 & EPA/600/M4-82-020

Attention: Mr. Tanveer Khan
 Project Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Lab ID: 18022945 Client Sample #: 2018-0172-FL3-3-6

Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1 Description: Gray brittle sandy material

Non-Fibrous Materials:	Other Fibrous Materials: %	Asbestos Type: %
Binder/Filler, Mineral grains, Quartz	Cellulose 5%	None Detected ND
Calcareous particles, Fine grains, Wood flakes		

Lab ID: 18022946 Client Sample #: 2018-0172-EXT-3-1

Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1 Description: Gray brittle material

Non-Fibrous Materials:	Other Fibrous Materials: %	Asbestos Type: %
Binder/Filler, Calcareous particles, Fine particles	Cellulose 3%	Chrysotile 2%

Lab ID: 18022947 Client Sample #: 2018-0172-EXT-3-2

Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 2 Description: Gray brittle material

Non-Fibrous Materials:	Other Fibrous Materials: %	Asbestos Type: %
Binder/Filler, Fine grains, Fine particles	Cellulose 3%	None Detected ND

Layer 2 of 2 Description: Silver rubbery elastic material

Non-Fibrous Materials:	Other Fibrous Materials: %	Asbestos Type: %
Fine particles, Fine grains, Rubber/Binder	Cellulose 2%	None Detected ND

Lab ID: 18022948 Client Sample #: 2018-0172-Roof-1

Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1 Description: Black fibrous asphaltic material with paint

Non-Fibrous Materials:	Other Fibrous Materials: %	Asbestos Type: %
Asphalt/Binder, Paint, Fine particles	Cellulose 50%	Chrysotile 20%

Sampled by: Client

Analyzed by: William Minor

Reviewed by: Nick Ly

Date: 03/09/2018

Date: 03/11/2018



Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: NVL Field Services Division
 Address: 4708 Aurora Ave. N.
 Seattle, WA 98103

Batch #: 1804311.00
 Client Project #: 2018-0172
 Date Received: 3/6/2018
 Samples Received: 25
 Samples Analyzed: 25
 Method: EPA/600/R-93/116
 & EPA/600/M4-82-020

Attention: Mr. Tanveer Khan
 Project Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Lab ID: 18022949 Client Sample #: 2018-0172-Roof-2

Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 2	Description: Black woven fibrous material with gray coating		
	Non-Fibrous Materials: Asphalt/Binder, Fine particles, Binder/Filler	Other Fibrous Materials:% Cellulose 65%	Asbestos Type: % None Detected ND
Layer 2 of 2	Description: Black fibrous asphaltic material with gray coating		
	Non-Fibrous Materials: Asphalt/Binder, Binder/Filler, Fine particles	Other Fibrous Materials:% Cellulose 25%	Asbestos Type: % Chrysotile 10%

Lab ID: 18022950 Client Sample #: 2018-0172-Roof-3

Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1	Description: Black fibrous asphaltic material with gray coating		
	Non-Fibrous Materials: Asphalt/Binder, Binder/Filler, Fine particles	Other Fibrous Materials:% Cellulose 60%	Asbestos Type: % Chrysotile 22%

Lab ID: 18022951 Client Sample #: 2018-0172-Roof-4

Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1	Description: Black asphaltic fibrous material with gray coating		
	Non-Fibrous Materials: Asphalt/Binder, Binder/Filler, Fine grains	Other Fibrous Materials:% Cellulose 55%	Asbestos Type: % Chrysotile 20%

Lab ID: 18022952 Client Sample #: 2018-0172-Sealant-1

Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Layer 1 of 1	Description: Yellow mastic with gray coating		
	Non-Fibrous Materials: Mastic/Binder, Binder/Filler, Metal	Other Fibrous Materials:% Cellulose 5%	Asbestos Type: % None Detected ND

Sampled by: Client		
Analyzed by: William Minor	Date: 03/09/2018	
Reviewed by: Nick Ly	Date: 03/11/2018	Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

March 8, 2018

Tanveer Khan
NVL Field Services Division
4708 Aurora Ave. N.
Seattle, WA 98103



Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1804314.00

Dear Mr. Khan,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm), Percent (%) or mg/cm² by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft². TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m³. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. If you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

A handwritten signature in black ink, appearing to read 'Shalini Patel'.

Shalini Patel, Laboratory Analyst



1.888.NVL.LABS
1.888.(685.5227)
www.nvllabs.com

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936

Analysis Report

Total Lead (Pb)

Client: NVL Field Services Division
 Address: 4708 Aurora Ave. N.
 Seattle, WA 98103

Batch #: 1804314.00

Matrix: Paint
 Method: EPA 3051/7000B
 Client Project #: 2018-0172
 Date Received: 3/6/2018
 Samples Received: 18
 Samples Analyzed: 18

Attention: Mr. Tanveer Khan

Project Location: Cushman Substation 3713 N 19th St, Tacoma WA 98406

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18022971	2018-0172-Pb-1	0.1959	51	920	0.092
18022972	2018-0172-Pb-2	0.2055	49	3400	0.34
18022973	2018-0172-Pb-3	0.1897	53	33000	3.3
18022974	2018-0172-Pb-4	0.1807	55	11000	1.1
18022975	2018-0172-Pb-5	0.2073	48	4200	0.42
18022976	2018-0172-Pb-6	0.1958	51	1300	0.13
18022977	2018-0172-Pb-7	0.1972	51	< 51	<0.0051
18022978	2018-0172-Pb-8	0.1915	52	8400	0.84
18022979	2018-0172-Pb-9	0.1795	56	61000	6.1
18022980	2018-0172-Pb-10	0.2065	48	130000	13
18022981	2018-0172-Pb-11	0.1866	54	16000	1.6
18022982	2018-0172-Pb-12	0.1880	53	1000	0.10
18022983	2018-0172-Pb-13	0.1903	53	2000	0.20
18022984	2018-0172-Pb-14	0.1912	52	160000	16
18022985	2018-0172-Pb-15	0.1947	51	10000	1.0
18022986	2018-0172-Pb-16	0.1891	53	48000	4.8
18022987	2018-0172-Pb-17	0.1869	54	400	0.040
18022988	2018-0172-Pb-18	0.1913	52	10000	1.0


Sampled by: Client

Analyzed by: Yasuyuki Hida

Reviewed by: Shalini Patel

Date Analyzed: 03/07/2018

Date Issued: 03/08/2018


 Shalini Patel, Laboratory Analyst

mg/ Kg =Milligrams per kilogram

Percent = Milligrams per kilogram / 10000

Note : Method QC results are acceptable unless stated otherwise.

Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit

'<' = Below the reporting Limit

Bench Run No: 2018-0307-8

NVL Laboratories, Inc.

4708 Aurora Ave N, Seattle, WA 98103

p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES



Company NVL Field Services Division
Address 4708 Aurora Ave. N. Seattle, WA 98103
Project Manager Mr. Tanveer Khan
Phone (206) 547-0100
Cell (206) 799-2916

NVL Batch Number 1804314.00
TAT 2 Days **AH No**
Rush TAT
Due Date 3/8/2018 **Time** 4:15 PM
Email tanveer.k@nvllabs.com
Fax (206) 634-1936

Project Name/Number: 2018-0172 **Project Location:** Cushman Substation 3713 N 19th St, Tacoma WA 98406

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 18 **Rush Samples**

Lab ID	Sample ID	Description	A/R
1	18022971	2018-0172-Pb-1	A
2	18022972	2018-0172-Pb-2	A
3	18022973	2018-0172-Pb-3	A
4	18022974	2018-0172-Pb-4	A
5	18022975	2018-0172-Pb-5	A
6	18022976	2018-0172-Pb-6	A
7	18022977	2018-0172-Pb-7	A
8	18022978	2018-0172-Pb-8	A
9	18022979	2018-0172-Pb-9	A
10	18022980	2018-0172-Pb-10	A
11	18022981	2018-0172-Pb-11	A
12	18022982	2018-0172-Pb-12	A
13	18022983	2018-0172-Pb-13	A
14	18022984	2018-0172-Pb-14	A
15	18022985	2018-0172-Pb-15	A
16	18022986	2018-0172-Pb-16	A
17	18022987	2018-0172-Pb-17	A
18	18022988	2018-0172-Pb-18	A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Nicholas Dossegger		NVL	3/6/18	1615
Analyzed by	Yasuyuki Hida		NVL	3/7/18	
Results Called by					
<input type="checkbox"/> Faxed <input type="checkbox"/> Emailed					

Special Instructions:

Date: 3/6/2018
 Time: 4:38 PM
 Entered By: Nicholas Dossegger

NVL Laboratories, Inc.

4708 Aurora Ave N, Seattle, WA 98103

p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

**CHAIN of CUSTODY
SAMPLE LOG**

1804314

Client NVL Laboratories Inc

Street 4708 Aurora Ave N
Seattle, WA 98103

Project Manager Syed Hasan

Project Location "Cushman Substation" 3713 N 19th St
Tacoma, WA 98406

NVL Batch Number _____

Client Job Number 2018-0172

Total Samples 18

Turn Around Time 1 Hr 6 Hrs 3 Days 10 Days
 2 Hrs 1 Day 4 Days
 4 Hrs 2 Days 5 Days

Please call for TAT less than 24 Hrs

Email address Monte.Alves@erm.com

Phone: (425) 462-8591

Fax: (425) 455-3573

Cell (206) 790-0763

<input type="checkbox"/> Asbestos Air	<input type="checkbox"/> PCM (NIOSH 7400)	<input type="checkbox"/> TEM (NIOSH 7402)	<input type="checkbox"/> TEM (AHERA)	<input type="checkbox"/> TEM (EPA Level II)	<input type="checkbox"/> Other
<input type="checkbox"/> Asbestos Bulk	<input type="checkbox"/> PLM (EPA/600/R-93/116)	<input type="checkbox"/> PLM (EPA Point Count)	<input type="checkbox"/> PLM (EPA Gravimetry)	<input type="checkbox"/> TEM BULK	
<input type="checkbox"/> Mold/Fungus	<input type="checkbox"/> Mold Air	<input type="checkbox"/> Mold Bulk	<input type="checkbox"/> Rotometer Calibration		
METALS	Det. Limit	Matrix	RCRA Metals	<input type="checkbox"/> All 8	Other Metals
<input checked="" type="checkbox"/> Total Metals	<input checked="" type="checkbox"/> FAA (ppm)	<input type="checkbox"/> Air Filter	<input type="checkbox"/> Arsenic (As)	<input type="checkbox"/> Chromium (Cr)	<input type="checkbox"/> All 3
<input type="checkbox"/> TCLP	<input type="checkbox"/> ICP (ppm)	<input type="checkbox"/> Drinking water	<input type="checkbox"/> Barium (Ba)	<input checked="" type="checkbox"/> Lead (Pb)	<input type="checkbox"/> Copper (Cu)
<input type="checkbox"/> Cr 6	<input type="checkbox"/> GFAA (ppb)	<input type="checkbox"/> Dust/wipe (Area)	<input type="checkbox"/> Cadmium (Cd)	<input type="checkbox"/> Mercury (Hg)	<input type="checkbox"/> Nickel (Ni)
		<input type="checkbox"/> Soil	<input type="checkbox"/> Paint Chips in %		<input type="checkbox"/> Zinc (Zn)
		<input type="checkbox"/> Paint Chips in cr			
<input type="checkbox"/> Other Types of Analysis	<input type="checkbox"/> Fiberglass	<input type="checkbox"/> Nuisance Dust	<input type="checkbox"/> Other (Specify) _____		
	<input type="checkbox"/> Silica	<input type="checkbox"/> Respirable Dust			

Condition of Package: Good Damaged (no spillage) Severe damage (spillage)

Seq. #	Lab ID	Client Sample Number	Comments	A/R
1		2018-0172-Pb-1		
2		Pb-2		
3		Pb-3		
4		Pb-4		
5		Pb-5		
6		Pb-6		
7		Pb-7		
8		Pb-8		
9		Pb-9		
10		Pb-10		
11		Pb-11		
12		Pb-12		
13		Pb-13		
14		Pb-14		
15		Pb-15		

	Print Below	Sign Below	Company	Date	Time
Sampled by	TAN KHAN	Jawid Khan	NVL	3-6-18	8:30 AM
Relinquished by	TAN KHAN	Jawid Khan	NVL	3-6-18	4:15 PM
Received by	NICK D	N D	NVL	3/6/18	1615
Analyzed by					
Results Called by					
Results Faxed by					

Special Instructions: Unless requested in writing, all samples will be disposed of two (2) weeks after analysis.

Results report to TAN

March 8, 2018

Tanveer Khan
NVL Field Services Division
4708 Aurora Ave. N.
Seattle, WA 98103



Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1804317.00

Dear Mr. Khan,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm² by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft². TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m³. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Nick Ly, Technical Director



1.888.NVL.LABS
1.888.(685.5227)
www.nvllabs.com

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936

NVL Laboratories, Inc.

4708 Aurora Ave N, Seattle, WA 98103

p 206.547.0100 | f 206.634.1936 | www.nvllabs.com



Analysis Report

Total Metals

Client: NVL Field Services Division
Address: 4708 Aurora Ave. N.
Seattle, WA 98103

Batch #: 1804317.00

Matrix: Wipe
Method: OSHA ID 145
Client Project #: 2018-0172
Date Received: 3/6/2018
Samples Received: 5
Samples Analyzed: 5

Attention: Mr. Tanveer Khan

Project Location: "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Lab ID	Client Sample #	Elements	Sample Sq ft	RL in ug / sq ft	Results in ug / wipe	Results in ug / sq ft
18023034	2018-0172-Hg-1	Mercury (Hg)	1.00	0.2	< 0.2	< 0.2
18023035	2018-0172-Hg-2	Mercury (Hg)	1.00	0.2	< 0.2	< 0.2
18023036	2018-0172-Hg-3	Mercury (Hg)	1.00	0.2	< 0.2	< 0.2
18023037	2018-0172-Hg-4	Mercury (Hg)	1.00	0.2	< 0.2	< 0.2
18023038	2018-0172-Hg-5	Mercury (Hg)			< 0.2	

Sampled by: Client

Analyzed by: Shalini Patel

Reviewed by: Nick Ly

Date Analyzed: 03/07/2018

Date Issued: 03/08/2018

Nick Ly, Technical Director

ug/ sq. ft. =Micrograms per square foot

ug / wipe = Micrograms per wipe

RL = Reporting Limit

'<' = Below the reporting Limit

Note : Method QC results are acceptable unless stated otherwise. Concentration (ug/ft²) not reported if sample area is zero. Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

NVL Laboratories, Inc.

4708 Aurora Ave N, Seattle, WA 98103

p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

METAL LABORATORY SERVICES



Company NVL Field Services Division
Address 4708 Aurora Ave. N.
 Seattle, WA 98103
Project Manager Mr. Tanveer Khan
Phone (206) 547-0100
Cell (206) 799-2916
NVL Batch Number 1804317.00
TAT 2 Days **AH No**
Rush TAT
Due Date 3/8/2018 **Time** 4:20 PM
Email tanveer.k@nvllabs.com
Fax (206) 634-1936

Project Name/Number: 2018-0172 **Project Location:** "Cushman Substation" 3713 N.19 St. Tacoma, WA 98406

Subcategory Inductively Coupled Plasma (ICP) - Group Tests
Item Code ICP-M4 EPA 6010 (price per analyte) <bulk/dust>
Metals Mercury (Hg)

Total Number of Samples 5 **Rush Samples**

Lab ID	Sample ID	Description	A/R
1	18023034	2018-0172-Hg-1	A
2	18023035	2018-0172-Hg-2	A
3	18023036	2018-0172-Hg-3	A
4	18023037	2018-0172-Hg-4	A
5	18023038	2018-0172-Hg-5	A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				
Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Nicholas Dossegger		NVL	3/6/18	1620
Analyzed by	Shalini Patel		NVL	3/7/18	
Results Called by					
<input type="checkbox"/> Faxed <input type="checkbox"/> Emailed					
Special Instructions:					

Date: 3/6/2018
 Time: 5:30 PM
 Entered By: Nicholas Dossegger

NVL Laboratories, Inc.

4708 Aurora Ave N, Seattle, WA 98103
 p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

**CHAIN of CUSTODY
 SAMPLE LOG**

1804317



Client NVL Laboratories Inc
Street 4708 Aurora Ave N
 Seattle, WA 98103
Project Manager Syed Hasan
Project Location "Cushman Substation" 3713 N 19th St
 Tacoma, WA 98406

NVL Batch Number _____
Client Job Number 2018-0172
Total Samples 5
Turn Around Time 1 Hr 6 Hrs 3 Days | 10 Days
 2 Hrs 1 Day 4 Days
 4 Hrs 2 Days 5 Days

*Please call for TAT less than 24 Hrs

Email address Monte.Alves@erm.com
Cell (206) 790-0763

Phone: (425) 462-8591 **Fax:** (425) 455-3573

<input type="checkbox"/> Asbestos Air	<input type="checkbox"/> PCM (NIOSH 7400)	<input type="checkbox"/> TEM (NIOSH 7402)	<input type="checkbox"/> TEM (AHERA)	<input type="checkbox"/> TEM (EPA Level II)	<input type="checkbox"/> Other
<input type="checkbox"/> Asbestos Bulk	<input type="checkbox"/> PLM (EPA/600/R-93/116)	<input type="checkbox"/> PLM (EPA Point Count)	<input type="checkbox"/> PLM (EPA Gravimetry)	<input type="checkbox"/> TEM BULK	
<input type="checkbox"/> Mold/Fungus	<input type="checkbox"/> Mold Air	<input type="checkbox"/> Mold Bulk	<input type="checkbox"/> Rotometer Calibration		
METALS	Det. Limit	Matrix	RCRA Metals	<input type="checkbox"/> All 8	Other Metals
<input checked="" type="checkbox"/> Total Metals	<input type="checkbox"/> FAA (ppm)	<input type="checkbox"/> Air Filter	<input type="checkbox"/> Arsenic (As)	<input type="checkbox"/> Chromium (Cr)	<input type="checkbox"/> All 3
<input type="checkbox"/> TCLP	<input type="checkbox"/> ICP (ppm)	<input type="checkbox"/> Drinking water	<input type="checkbox"/> Barium (Ba)	<input type="checkbox"/> Lead (Pb)	<input type="checkbox"/> Copper (Cu)
<input type="checkbox"/> Cr 6	<input type="checkbox"/> GFAA (ppb)	<input checked="" type="checkbox"/> Dust/wipe (Area)	<input type="checkbox"/> Cadmium (Cd)	<input type="checkbox"/> Mercury (Hg)	<input type="checkbox"/> Nickel (Ni)
<input type="checkbox"/> Other Types of Analysis	<input type="checkbox"/> Fiberglass	<input type="checkbox"/> Nuisance Dust	<input checked="" type="checkbox"/> Other (Specify) <u>MERCURY (Hg) - ID 145</u>		
	<input type="checkbox"/> Silica	<input type="checkbox"/> Respirable Dust			<input type="checkbox"/> Zinc (Zn)

Condition of Package: Good Damaged (no spillage) Severe damage (spillage)

Seq. #	Lab ID	Client Sample Number	Comments	A/R
1		2018-0172 - Hg - 1	1st	
2		Hg - 2	"	
3		Hg - 3	"	
4		Hg - 4	"	
5		Hg - 5	"	
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

	Print Below	Sign Below	Company	Date	Time
Sampled by	TAN KHAN	Tanvir Khan	NVL	3-6-18	8:30 AM
Relinquished by	TAN KHAN	Tanvir Khan	NVL	3-6-18	4:20 PM
Received by	NICKI	[Signature]	NVL	5/6/18	1620
Analyzed by					
Results Called by					
Results Faxed by					

Special Instructions: Unless requested in writing, all samples will be disposed of two (2) weeks after analysis.

Results report to TAN



Laboratory | Management | Training

March 8, 2018

Mr. Tanveer Khan
NVL Field Services Division
4708 Aurora Ave. N.
Seattle, 98103

Re: **NVL Batch 1804316.00**

Project Name/Number: 2018-0172

Project location: Cushman Substation 3713 N 19 St. Tacoma, WA 98406

Dear Mr. Khan,

Enclosed please find test results for samples submitted to our laboratory for analysis. Preparation and analysis of these samples were conducted in accordance with published industry standards and methods specified on the attached analytical report.

The content of this package consists of the following:

- Case Narrative & Definition of Data Qualifiers
- Analytical Test Results
- Applicable QC Summary
- Client Chain-of-Custody (CoC)
- NVL Receiving Record

The report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client will be discarded after two weeks.

Thank you for using our laboratory services. If you need further assistance, please contact us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

A handwritten signature in black ink, appearing to read 'Nick Ly', written over a horizontal line.

Nick Ly, Technical Director

Enclosure: Sample Results

Phone: 206.547.0100 | Fax: 206.634.1936 | Toll Free: 1.888.NVL.LABS (685.5227)

4708 Aurora Avenue North | Seattle, WA 98103

Case Narrative:

The following summarizes samples received on date as shown on the accompanied Chain of custody by NVL Laboratories, Inc. from NVL Field Services Division for Project Number 2018-0172. Samples were logged in for PCB analysis per client request using both customer sample ID's and laboratory assigned ID's as listed on the Chain-of-Custody (CoC). All samples as received were processed and analyzed within specified turnaround time without any abnormalities and deviations that may affect the analytical results. All quality control requirements were acceptable unless stated otherwise. The conditions of all samples were acceptable at time of receipt and all samples submitted with this batch were analyzed unless stated otherwise on the CoC.

Test Results are reported as microgram per hundred square centimeters ($\mu\text{g}/100\text{cm}^2$) for PCB samples as shown on the analytical reports.



Definition Appendix

Terms

% Rec	Percent recovery.
<	Below Reporting Limit(RL) or Limit of Quantitation(LoQ) of the instrument.
B	Blank contamination. The recorded results is associated with a contaminated blank.
DF	Dilution Factor
J	The reported concentration is an estimated value because something may be present in the sample that interfered with the analysis.
J1	The reported concentration is an estimated value because the laboratory control sample (LCS) is out of control limits.
J2	The reported concentration is an estimated value because the percent recovery for matrix spike is out of control limits.
J3	The reported concentration is an estimated value because the relative percent difference(RPD) for duplicate analysis is out of control limits.
J4	Percent recovery is outside of established control limits.
LCS	Laboratory Control Sample.
LFS	Laboratory Fortified Spike
Limits	The upper and lower control limits for spike recoveries.
LN	Quality control sample is outside of control limits. This analyte was not detected in the sample.
LOQ	Limit of quantitation(same as RL)
mg/kg	Milligrams per kilogram.
ND	Analyte not detected or below the reporting limit of the instrument or methodology



Definition Appendix

Terms

PPM	Parts per Million.
QC Batch Group	Quality Control Batch Group. The entity that links analytical results and supporting quality control results.
R	The data are not reliable due to possible contamination or loss of material during preparation or analysis. Re-sampling and reanalysis are necessary for verification.
RL	Reporting Limit. The minimum concentration that can be quantified under routine operating conditions.
RPD	Relative Percent Difference. The relative difference between duplicate results(matrix spike, blank spike, or samples duplicate) expressed as a percentage.
RPD Limit	The maximum RPD allowed for a set of duplicate measurements(see RPD).
SMI	Surrogate has matrix interference.
Spike Conc.	The measured concentration, in sample basis units, of a spiked sample.
SURR-ND	Surrogate was not detected due to matrix interference or dilution.
ug/m3	Micrograms per cubic meter.
ug/mL	Micrograms per milliliter
ug	Microgram
ug/100cm2	Micrograms per 100 square centimeters



ANALYSIS REPORT

Polychlorinated Biphenyls by Gas Chromatography

Client	NVL Field Services Division	Samples Received*	6
SDG Number	1804316.00	Analyzed By	Aaron Brown
Date Reported	03/08/2018	Samples Analyzed*	6
Project Number	2018-0172	Analysis Method	8082A
Location	Cushman Substation 3713 N 19 St. Tacoma, WA 98406	Preparation Method	3546PR (PCB)

* for this test only

Sample Number	2018-0172-PCB-1	Received	03/06/2018
Lab Sample ID	18023028	Matrix	Dust Wipe
Initial Sample Size	929.03 cm2	Units of Result	ug/100cm2

Analyte	RL	Final Result	Analysis Date
Aroclor-1016	0.22	< 0.22	03/07/2018
Aroclor-1221	0.22	< 0.22	03/07/2018
Aroclor-1232	0.22	< 0.22	03/07/2018
Aroclor-1242	0.22	< 0.22	03/07/2018
Aroclor-1248	0.22	< 0.22	03/07/2018
Aroclor-1254	0.22	< 0.22	03/07/2018
Aroclor-1260	0.22	< 0.22	03/07/2018
PCBs, Total	0.22	<0.22	03/07/2018

Sample Number	2018-0172-PCB-2	Received	03/06/2018
Lab Sample ID	18023029	Matrix	Dust Wipe
Initial Sample Size	929.03 cm2	Units of Result	ug/100cm2

Analyte	RL	Final Result	Analysis Date
Aroclor-1016	0.22	< 0.22	03/07/2018
Aroclor-1221	0.22	< 0.22	03/07/2018
Aroclor-1232	0.22	< 0.22	03/07/2018
Aroclor-1242	0.22	< 0.22	03/07/2018
Aroclor-1248	0.22	< 0.22	03/07/2018
Aroclor-1254	0.22	< 0.22	03/07/2018
Aroclor-1260	0.22	< 0.22	03/07/2018
PCBs, Total	0.22	<0.22	03/07/2018

ANALYSIS REPORT

Polychlorinated Biphenyls by Gas Chromatography



Sample Number	2018-0172-PCB-3	Received	03/06/2018
Lab Sample ID	18023030	Matrix	Dust Wipe
Initial Sample Size	929.03 cm2	Units of Result	ug/100cm2

Analyte	RL	Final Result	Analysis Date
Aroclor-1016	0.22	< 0.22	03/07/2018
Aroclor-1221	0.22	< 0.22	03/07/2018
Aroclor-1232	0.22	< 0.22	03/07/2018
Aroclor-1242	0.22	< 0.22	03/07/2018
Aroclor-1248	0.22	< 0.22	03/07/2018
Aroclor-1254	0.22	< 0.22	03/07/2018
Aroclor-1260	0.22	< 0.22	03/07/2018
PCBs, Total	0.22	<0.22	03/07/2018

Sample Number	2018-0172-PCB-4	Received	03/06/2018
Lab Sample ID	18023031	Matrix	Dust Wipe
Initial Sample Size	929.03 cm2	Units of Result	ug/100cm2

Analyte	RL	Final Result	Analysis Date
Aroclor-1016	0.22	< 0.22	03/07/2018
Aroclor-1221	0.22	< 0.22	03/07/2018
Aroclor-1232	0.22	< 0.22	03/07/2018
Aroclor-1242	0.22	< 0.22	03/07/2018
Aroclor-1248	0.22	< 0.22	03/07/2018
Aroclor-1254	0.22	< 0.22	03/07/2018
Aroclor-1260	0.22	< 0.22	03/07/2018
PCBs, Total	0.22	<0.22	03/07/2018

ANALYSIS REPORT

Polychlorinated Biphenyls by Gas Chromatography



Sample Number	2018-0172-PCB-5	Received	03/06/2018
Lab Sample ID	18023032	Matrix	Dust Wipe
Initial Sample Size	929.03 cm2	Units of Result	ug/100cm2

Analyte	RL	Final Result	Analysis Date
Aroclor-1016	0.22	< 0.22	03/07/2018
Aroclor-1221	0.22	< 0.22	03/07/2018
Aroclor-1232	0.22	< 0.22	03/07/2018
Aroclor-1242	0.22	< 0.22	03/07/2018
Aroclor-1248	0.22	< 0.22	03/07/2018
Aroclor-1254	0.22	< 0.22	03/07/2018
Aroclor-1260	0.22	< 0.22	03/07/2018
PCBs, Total	0.22	<0.22	03/07/2018

Sample Number	2018-0172-PCB-6	Received	03/06/2018
Lab Sample ID	18023033	Matrix	Dust Wipe
Initial Sample Size	100 cm2	Units of Result	ug/100cm2

Analyte	RL	Final Result	Analysis Date
Aroclor-1016	2.0	< 2.0	03/07/2018
Aroclor-1221	2.0	< 2.0	03/07/2018
Aroclor-1232	2.0	< 2.0	03/07/2018
Aroclor-1242	2.0	< 2.0	03/07/2018
Aroclor-1248	2.0	< 2.0	03/07/2018
Aroclor-1254	2.0	< 2.0	03/07/2018
Aroclor-1260	2.0	< 2.0	03/07/2018
PCBs, Total	2.0	<2	03/07/2018



Quality Control Results

Project Number:	2018-0172	SDG Number:	1804316
		Project Manager:	Tanveer Khan

QC Batch(es):	Q724	Analysis Method:	8082A
QC Batch Method:	3546PR (PCB)	Analysis Description:	Polychlorinated Biphenyls by Gas Chromatography
Preparation Date:	03/07/2018		

Blank: BLK-1804316

Analyte	Blank Result	Units	DF	RL	Control Limit	Qualifiers
Aroclor-1016	ND	ug/100cm2	1	2.0	2	
Aroclor-1221	ND	ug/100cm2	1	2.0	2	
Aroclor-1232	ND	ug/100cm2	1	2.0	2	
Aroclor-1242	ND	ug/100cm2	1	2.0	2	
Aroclor-1248	ND	ug/100cm2	1	2.0	2	
Aroclor-1254	ND	ug/100cm2	1	2.0	2	
Aroclor-1260	ND	ug/100cm2	1	2.0	2	
PCBs, Total	ND	ug/100cm2	1	2.0	2	
<i>Surrogates:</i>					% Rec	
Tetrachloro-m-xylene			1		86	40-140
Decachlorobiphenyl			1		95	40-140

Lab Control Sample: LCS-1254-1804316

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	% Rec Limits	Qualifiers
Aroclor-1254	10.1	ug/100cm2	1	10.0	101	40-140	
<i>Surrogates:</i>							
Tetrachloro-m-xylene			1		90	40-140	
Decachlorobiphenyl			1		100	40-140	

Lab Control Sample: LCS-1016+1260-1804316

Lab Control Sample Duplicate: LCS Dup-1804316

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	Limits	RPD	RPD Limit	Qualifiers
Aroclor-1016	9.78	ug/100cm2	1	10.0	98	40-140			
	9.92			10.0	99	40-140	1	50	
Aroclor-1260	10.3	ug/100cm2	1	10.0	103	40-140			
	10.6			10.0	106	40-140	3	50	
<i>Surrogates:</i>									
Tetrachloro-m-xylene			1		84	40-140			
					87	40-140			
Decachlorobiphenyl			1		88	40-140			
					96	40-140			

NVL Laboratories, Inc.4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com**Surrogate Recovery Summary Report****Client** NVL Field Services Division**SDG Number** 1804316**Project** 2018-0172

Customer Sample ID	Lab Sample ID	Analyte	Recovery	Limits
2018-0172-PCB-1	18023028	Decachlorobiphenyl	72%	40-140
2018-0172-PCB-1	18023028	Tetrachloro-m-xylene	66%	40-140
2018-0172-PCB-2	18023029	Decachlorobiphenyl	83%	40-140
2018-0172-PCB-2	18023029	Tetrachloro-m-xylene	76%	40-140
2018-0172-PCB-3	18023030	Decachlorobiphenyl	68%	40-140
2018-0172-PCB-3	18023030	Tetrachloro-m-xylene	53%	40-140
2018-0172-PCB-4	18023031	Decachlorobiphenyl	80%	40-140
2018-0172-PCB-4	18023031	Tetrachloro-m-xylene	73%	40-140
2018-0172-PCB-5	18023032	Decachlorobiphenyl	69%	40-140
2018-0172-PCB-5	18023032	Tetrachloro-m-xylene	70%	40-140
2018-0172-PCB-6	18023033	Decachlorobiphenyl	78%	40-140
2018-0172-PCB-6	18023033	Tetrachloro-m-xylene	66%	40-140
BLK-1804316	BLK-1804316	Decachlorobiphenyl	95%	40-140
BLK-1804316	BLK-1804316	Tetrachloro-m-xylene	86%	40-140
LCS Dup-1804316	LCS Dup-1804316	Decachlorobiphenyl	96%	40-140
LCS Dup-1804316	LCS Dup-1804316	Tetrachloro-m-xylene	87%	40-140
LCS-1016+1260-1804316	LCS-1016+1260-1804316	Decachlorobiphenyl	88%	40-140
LCS-1016+1260-1804316	LCS-1016+1260-1804316	Tetrachloro-m-xylene	84%	40-140
LCS-1254-1804316	LCS-1254-1804316	Decachlorobiphenyl	100%	40-140
LCS-1254-1804316	LCS-1254-1804316	Tetrachloro-m-xylene	90%	40-140

* Recovery outside limits

INITIAL AND CONTINUING CALIBRATION VERIFICATION

SDG No: **1804316**

Contract:

Determination: **8082 PCB Aroclors <Wipe>**

Run	Sample	Source	Analyzed	Analyte	True	Found	Unit	% Rec	Limits
R000717	CCV1 1016-1260	PCB_2017-1-2	03/07/2018	Aroclor-1016	5	5	ug/mL	100	80-120
		PCB_2017-1-2	03/07/2018	Aroclor-1260	5	5	ug/mL	100	80-120
	CCV1 1254	PCB_2017-1-3	03/07/2018	Aroclor-1254	5	5	ug/mL	100	80-120
	ICV 1016-1254- 1260	PCB_2017-1-4	03/07/2018	Aroclor-1016	5	4.888	ug/mL	98	85-115
		PCB_2017-1-4	03/07/2018	Aroclor-1254	5	5.4	ug/mL	108	85-115
		PCB_2017-1-4	03/07/2018	Aroclor-1260	5	5.277	ug/mL	106	85-115
	CCV2 1016-1260	PCB_2017-1-2	03/07/2018	Aroclor-1016	5	5.779	ug/mL	116	80-120
		PCB_2017-1-2	03/07/2018	Aroclor-1260	5	5.755	ug/mL	115	80-120
	CCV2 1254	PCB_2017-1-3	03/07/2018	Aroclor-1254	5	5.83	ug/mL	117	80-120

% Rec = Percent recovery

* = Percent recovery not within control limits

ORGANICS LABORATORY SERVICES



Company NVL Field Services Division
Address 4708 Aurora Ave. N.
 Seattle, WA 98103
Project Manager Mr. Tanveer Khan
Phone (206) 547-0100
Cell (206) 799-2916

NVL Batch Number 1804316.00
TAT 2 Days **AH** No
Rush TAT
Due Date 3/8/2018 **Time** 4:20 PM
Email tanveer.k@nvlabs.com
Fax (206) 634-1936

Project Name/Number: 2018-0172 **Project Location:** "Cushman Substation" 3713 N 19 St. Tacoma, WA 98406

Subcategory Quantitative analysis
Item Code ORG-03 **Method** 8082 PCB Aroclors <Wipe>

Total Number of Samples 6 **Rush Samples** _____

Lab ID	Sample ID	Description	A/R
1	18023028	2018-0172-PCB-1	A
2	18023029	2018-0172-PCB-2	A
3	18023030	2018-0172-PCB-3	A
4	18023031	2018-0172-PCB-4	A
5	18023032	2018-0172-PCB-5	A
6	18023033	2018-0172-PCB-6	A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				
Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Nicholas Dossegger		NVL	3/6/18	1620
Analyzed by	Aimee Brown		NVL	3/7/18	16:00
Results Called by					
<input type="checkbox"/> Faxed <input type="checkbox"/> Emailed					
Special Instructions:					

NVL Laboratories, Inc.

4708 Aurora Ave N, Seattle, WA 98103

p 206 547.0100 | f 206 634.1936 | www.nvllabs.com

**CHAIN of CUSTODY
SAMPLE LOG**

1804316



Client NVL Laboratories Inc
Street 4708 Aurora Ave N
 Seattle, WA 98103
Project Manager Syed Hasan
Project Location "Cushman Substation" 3713 N 19th St
 Tacoma, WA 98406

NVL Batch Number _____
Client Job Number 2018-0172
Total Samples 6
Turn Around Time 1 Hr 6 Hrs 3 Days 10 Days
 2 Hrs 1 Day 4 Days
 4 Hrs 2 Days 5 Days

*Please call for TAT less than 24 Hrs

Email address Monte.Alves@erm.com

Cell (206) 790-0763

Phone: (425) 462-8591 **Fax:** (425) 455-3573

<input type="checkbox"/> Asbestos Air	<input type="checkbox"/> PCM (NIOSH 7400)	<input type="checkbox"/> TEM (NIOSH 7402)	<input type="checkbox"/> TEM (AHERA)	<input type="checkbox"/> TEM (EPA Level II)	<input type="checkbox"/> Other
<input type="checkbox"/> Asbestos Bulk	<input type="checkbox"/> PLM (EPA/600/R-93/116)	<input type="checkbox"/> PLM (EPA Point Count)	<input type="checkbox"/> PLM (EPA Gravimetry)	<input type="checkbox"/> TEM BULK	
<input type="checkbox"/> Mold/Fungus	<input type="checkbox"/> Mold Air	<input type="checkbox"/> Mold Bulk	<input type="checkbox"/> Rotometer Calibration		
METALS	Det. Limit	Matrix	RCRA Metals	<input type="checkbox"/> All 8	Other Metals
<input type="checkbox"/> Total Metals	<input type="checkbox"/> FAA (ppm)	<input type="checkbox"/> Air Filter	<input type="checkbox"/> Arsenic (As)	<input type="checkbox"/> Chromium (Cr)	<input type="checkbox"/> All 3
<input type="checkbox"/> TCLP	<input type="checkbox"/> ICP (ppm)	<input type="checkbox"/> Drinking water	<input type="checkbox"/> Barium (Ba)	<input type="checkbox"/> Lead (Pb)	<input type="checkbox"/> Copper (Cu)
<input type="checkbox"/> Cr 6	<input type="checkbox"/> GFAA (ppb)	<input checked="" type="checkbox"/> Dust/wipe (Area)	<input type="checkbox"/> Cadmium (Cd)	<input type="checkbox"/> Mercury (Hg)	<input type="checkbox"/> Nickel (Ni)
<input type="checkbox"/> Other Types of Analysis	<input type="checkbox"/> Fiberglass	<input type="checkbox"/> Nuisance Dust	<input checked="" type="checkbox"/> Other (Specify) <u>PCB Wipe</u>		
	<input type="checkbox"/> Silica	<input type="checkbox"/> Respirable Dust			<input type="checkbox"/> Zinc (Zn)

Condition of Package: Good Damaged (no spillage) Severe damage (spillage)

Seq. #	Lab ID	Client Sample Number	Comments	A/R
1		2018-0172- PCB-1	1 ft ²	
2		↓ PCB-2	↓	
3		↓ PCB-3	↓	
4		↓ PCB-4	↓	
5		↓ PCB-5	↓	
6		↓ PCB-6		
7				
8				
9				
10				
11				
12				
13				
14				
15				

	Print Below	Sign Below	Company	Date	Time
Sampled by	TAN KHAN	Jawid Khan	NVL	3-6-18	8:30 AM
Relinquished by	TAN KHAN	Jawid Khan	NVL	3-6-18	
Received by	Nick D	[Signature]	NVL	3/6/18	16:20
Analyzed by	Anna Brown	[Signature]	NVL	3/7/18	16:00
Results Called by					
Results Faxed by					

Special Instructions: Unless requested in writing, all samples will be disposed of two (2) weeks after analysis.
 Results report to TAN



Appendix C

AHERA Certification & Laboratory Qualifications



AIHA
Laboratory Accreditation
Programs, LLC

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

NVL Laboratories, Inc.

4708 Aurora Avenue N., Seattle, WA 98103

Laboratory ID: 101861

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ INDUSTRIAL HYGIENE
- ✓ ENVIRONMENTAL LEAD
- ✓ ENVIRONMENTAL MICROBIOLOGY
- FOOD
- ✓ UNIQUE SCOPES

- Accreditation Expires: June 01, 2019
- Accreditation Expires: June 01, 2019
- Accreditation Expires: June 01, 2019
- Accreditation Expires: June 01, 2019
- Accreditation Expires: June 01, 2019

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

William Walsh

William Walsh, CIH
Chairperson, Analytical Accreditation Board

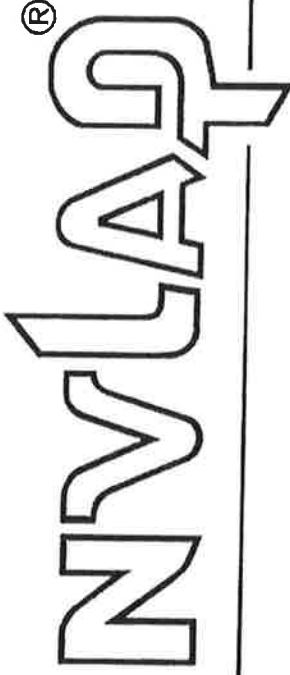
Revision 15: 03/30/2016

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Date Issued: 05/31/2017

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 102063-0

NVL Laboratories, Inc.
Seattle, WA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2017-10-01 through 2018-09-30
Effective Dates



A handwritten signature in black ink, appearing to read "Peter S. Lamm".

For the National Voluntary Laboratory Accreditation Program



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

NVL Laboratories, Inc.
4708 Aurora Avenue N.
Seattle, WA 98103
Mr. Nghiep Vi Ly
Phone: 206-547-0100 Fax: 206-634-1936
Email: nick.l@nvlabs.com
<http://www.nvlabs.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 102063-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- Appendix E to Subpart E of Part 763 -- Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

A handwritten signature in black ink, appearing to read "Dana S. Laman".

For the National Voluntary Laboratory Accreditation Program

Certificate of Completion

This is to certify that
Tanveer E. Khan
has satisfactorily completed
4 hours of refresher training as an
AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

1626915
Certificate Number



May 10, 2017 Expires in 1 year.
Date(s) of Training

Exam Score: NA
if appropriate:

Instructor

ARGUS PACIFIC, INC / 1900 WEST NICKERSON ST, SUITE 315 / SEATTLE, WASHINGTON 98119 / 206.285.3373 / ARGUSPACIFIC.COM

STATE OF WASHINGTON

Department of Commerce
Lead-Based Paint Abatement Program

Tanveer E Khan

*Has fulfilled the certification requirements of
WAC 365-230
and has been certified to conduct lead-based paint activities as a
Risk Assessor New*

<u>Certification #</u>	<u>Issuance Date</u>	<u>Expiration Date</u>
6110	01/13/2017	01/13/2020

Certificate of Completion

This is to certify that
John W. Hathaway
has satisfactorily completed
24 hours of training as an
AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

163622
Certificate Number



Oct 9 - 11, 2017 Expires in 1 year.

Date(s) of Training

Exam Score: 88%
if appropriate.

Instructor

ARGUS PACIFIC, INC / 1900 WEST NICKERSON ST, SUITE 315 / SEATTLE, WASHINGTON 98119 / 206.285.3373 / ARGUSPACIFIC.COM

APPENDIX C

LABORATORY ANALYTICAL DATA PACKAGES

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310


TestAmerica Job ID: 580-75839-1

Client Project/Site: Cushman Phase II ESA

For:

ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
3/27/2018 3:47:41 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75839-1

Job ID: 580-75839-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-75839-1

Comments

No additional comments.

Receipt

The samples were received on 3/13/2018 12:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C.

Receipt Exceptions

The following sample was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): UST-SB01-4.0-7.5-3.12.18 (580-75839-26)

Client said to add it to the end of the COC and run the analysis listed on the label.(Per Owen R. 3-16-17). Label listed 8082, 8270, 8260 and NWTPH-Dx activated for this one sample.

3/21/18 per phone conversation with Owen, sample 580-75839-26 should all be on hold. I let Owen know it will be 1/2 charge for 8270_Sim and NWTPH-Dx but the 8082 and 8260 BTEX were already analyzed so full charge.

GC Semi VOA

Method(s) NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-269570 recovered above the upper control limit for #2 Diesel (C10-C24) and Motor Oil (>C24-C36). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: EY-SG33-CSB (580-75839-1), EY-SG34-CSB (580-75839-6), (CCV 580-269570/14), (CCV 580-269570/32) and (CCVRT 580-269570/3).

Method(s) NWTPH-Dx: The laboratory control sample (LCS) for preparation batch 580-269440 and analytical batch 580-269570 recovered outside control limits for the following analytes: Motor Oil (>C24-C36). This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Method(s) NWTPH-Dx: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: EY-SG35-CSB (580-75839-11) and EY-SG32-CSB (580-75839-21).

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

General Chemistry

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

Organic Prep

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

Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75839-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.

Glossary

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

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75839-1

Client Sample ID: EY-SG33-CSB

Lab Sample ID: 580-75839-1

Date Collected: 03/12/18 12:49

Matrix: Solid

Date Received: 03/13/18 12:30

Percent Solids: 84.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		56		mg/Kg	☼	03/20/18 09:46	03/21/18 20:59	1
Motor Oil (>C24-C36)	ND	*	56		mg/Kg	☼	03/20/18 09:46	03/21/18 20:59	1
Mineral oil	ND		56		mg/Kg	☼	03/20/18 09:46	03/26/18 14:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	82		50 - 150	03/20/18 09:46	03/21/18 20:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.8		0.1		%			03/20/18 17:12	1
Percent Moisture	15.2		0.1		%			03/20/18 17:12	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75839-1

Client Sample ID: EY-SG34-CSB

Lab Sample ID: 580-75839-6

Date Collected: 03/12/18 13:30

Matrix: Solid

Date Received: 03/13/18 12:30

Percent Solids: 90.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	03/20/18 09:46	03/21/18 21:20	1
Motor Oil (>C24-C36)	ND	*	52		mg/Kg	☼	03/20/18 09:46	03/21/18 21:20	1
Mineral oil	ND		52		mg/Kg	☼	03/20/18 09:46	03/26/18 14:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	92		50 - 150	03/20/18 09:46	03/21/18 21:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.5		0.1		%			03/20/18 17:12	1
Percent Moisture	9.5		0.1		%			03/20/18 17:12	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75839-1

Client Sample ID: EY-SG35-CSB

Lab Sample ID: 580-75839-11

Date Collected: 03/12/18 15:15

Matrix: Solid

Date Received: 03/13/18 12:30

Percent Solids: 85.9

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		54		mg/Kg	☼	03/20/18 09:46	03/22/18 15:59	1
Motor Oil (>C24-C36)	ND		54		mg/Kg	☼	03/20/18 09:46	03/22/18 15:59	1
Mineral oil	ND		54		mg/Kg	☼	03/20/18 09:46	03/26/18 14:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	84		50 - 150	03/20/18 09:46	03/22/18 15:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.9		0.1		%			03/20/18 17:12	1
Percent Moisture	14.1		0.1		%			03/20/18 17:12	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75839-1

Client Sample ID: EY-SG24-CSB

Lab Sample ID: 580-75839-19

Date Collected: 03/12/18 16:15

Matrix: Solid

Date Received: 03/13/18 12:30

Percent Solids: 91.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		53		mg/Kg	☼	03/20/18 09:46	03/22/18 16:21	1
Motor Oil (>C24-C36)	ND		53		mg/Kg	☼	03/20/18 09:46	03/22/18 16:21	1
Mineral oil	ND		53		mg/Kg	☼	03/20/18 09:46	03/26/18 15:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	86		50 - 150	03/20/18 09:46	03/22/18 16:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	91.2		0.1		%			03/20/18 17:12	1
Percent Moisture	8.8		0.1		%			03/20/18 17:12	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75839-1

Client Sample ID: EY-SG32-CSB

Lab Sample ID: 580-75839-21

Date Collected: 03/12/18 11:46

Matrix: Solid

Date Received: 03/13/18 12:30

Percent Solids: 89.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	03/20/18 09:46	03/22/18 16:43	1
Motor Oil (>C24-C36)	ND		52		mg/Kg	☼	03/20/18 09:46	03/22/18 16:43	1
Mineral oil	ND		52		mg/Kg	☼	03/20/18 09:46	03/26/18 15:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	92		50 - 150	03/20/18 09:46	03/22/18 16:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.5		0.1		%			03/20/18 17:12	1
Percent Moisture	10.5		0.1		%			03/20/18 17:12	1



QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75839-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-269440/1-A
Matrix: Solid
Analysis Batch: 269570

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269440

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/20/18 09:46	03/21/18 16:53	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/20/18 09:46	03/21/18 16:53	1
Surrogate	%Recovery	Qualifier	Limits						
<i>o</i> -Terphenyl	93		50 - 150				03/20/18 09:46	03/21/18 16:53	1

Lab Sample ID: MB 580-269440/1-A
Matrix: Solid
Analysis Batch: 269637

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269440

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/20/18 09:46	03/22/18 11:55	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/20/18 09:46	03/22/18 11:55	1
Surrogate	%Recovery	Qualifier	Limits						
<i>o</i> -Terphenyl	87		50 - 150				03/20/18 09:46	03/22/18 11:55	1

Lab Sample ID: MB 580-269440/1-A
Matrix: Solid
Analysis Batch: 269868

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269440

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mineral oil	ND		50		mg/Kg		03/20/18 09:46	03/26/18 13:03	1

Lab Sample ID: LCS 580-269440/2-A
Matrix: Solid
Analysis Batch: 269570

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269440

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	561		mg/Kg		112	70 - 125
Motor Oil (>C24-C36)	500	598	*	mg/Kg		120	70 - 119
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
<i>o</i> -Terphenyl	97		50 - 150				

Lab Sample ID: LCS 580-269440/2-A
Matrix: Solid
Analysis Batch: 269637

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269440

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	454		mg/Kg		91	70 - 125
Motor Oil (>C24-C36)	500	452		mg/Kg		90	70 - 119
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
<i>o</i> -Terphenyl	87		50 - 150				

QC Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75839-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-269440/3-A
Matrix: Solid
Analysis Batch: 269570

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269440

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	540		mg/Kg		108	70 - 125	4	16
Motor Oil (>C24-C36)	500	575		mg/Kg		115	70 - 119	4	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	100		50 - 150

Lab Sample ID: LCSD 580-269440/3-A
Matrix: Solid
Analysis Batch: 269637

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269440

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	474		mg/Kg		95	70 - 125	4	16
Motor Oil (>C24-C36)	500	472		mg/Kg		94	70 - 119	4	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	86		50 - 150

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75839-1

Client Sample ID: EY-SG33-CSB
Date Collected: 03/12/18 12:49
Date Received: 03/13/18 12:30

Lab Sample ID: 580-75839-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG33-CSB
Date Collected: 03/12/18 12:49
Date Received: 03/13/18 12:30

Lab Sample ID: 580-75839-1
Matrix: Solid
Percent Solids: 84.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269570	03/21/18 20:59	TL1	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 14:03	ADB	TAL SEA

Client Sample ID: EY-SG34-CSB
Date Collected: 03/12/18 13:30
Date Received: 03/13/18 12:30

Lab Sample ID: 580-75839-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG34-CSB
Date Collected: 03/12/18 13:30
Date Received: 03/13/18 12:30

Lab Sample ID: 580-75839-6
Matrix: Solid
Percent Solids: 90.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269570	03/21/18 21:20	TL1	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 14:24	ADB	TAL SEA

Client Sample ID: EY-SG35-CSB
Date Collected: 03/12/18 15:15
Date Received: 03/13/18 12:30

Lab Sample ID: 580-75839-11
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG35-CSB
Date Collected: 03/12/18 15:15
Date Received: 03/13/18 12:30

Lab Sample ID: 580-75839-11
Matrix: Solid
Percent Solids: 85.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75839-1

Client Sample ID: EY-SG35-CSB

Lab Sample ID: 580-75839-11

Date Collected: 03/12/18 15:15

Matrix: Solid

Date Received: 03/13/18 12:30

Percent Solids: 85.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	269637	03/22/18 15:59	ADB	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 14:44	ADB	TAL SEA

Client Sample ID: EY-SG24-CSB

Lab Sample ID: 580-75839-19

Date Collected: 03/12/18 16:15

Matrix: Solid

Date Received: 03/13/18 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG24-CSB

Lab Sample ID: 580-75839-19

Date Collected: 03/12/18 16:15

Matrix: Solid

Date Received: 03/13/18 12:30

Percent Solids: 91.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269637	03/22/18 16:21	ADB	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 15:04	ADB	TAL SEA

Client Sample ID: EY-SG32-CSB

Lab Sample ID: 580-75839-21

Date Collected: 03/12/18 11:46

Matrix: Solid

Date Received: 03/13/18 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG32-CSB

Lab Sample ID: 580-75839-21

Date Collected: 03/12/18 11:46

Matrix: Solid

Date Received: 03/13/18 12:30

Percent Solids: 89.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269637	03/22/18 16:43	ADB	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 15:24	ADB	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75839-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids



Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75839-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-75839-1	EY-SG33-CSB	Solid	03/12/18 12:49	03/13/18 12:30
580-75839-6	EY-SG34-CSB	Solid	03/12/18 13:30	03/13/18 12:30
580-75839-11	EY-SG35-CSB	Solid	03/12/18 15:15	03/13/18 12:30
580-75839-19	EY-SG24-CSB	Solid	03/12/18 16:15	03/13/18 12:30
580-75839-21	EY-SG32-CSB	Solid	03/12/18 11:46	03/13/18 12:30

- 1
- 2
- 3
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- 8
- 9
- 10
- 11

TestAmerica Seattle
 5755 8th Street East
 Tacoma, WA 98424
 Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

Loc: 580
75839

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information				Sampler: <i>Tanya Battye</i>			Lab PM: Cruz, Sheri L			Carrier Tracking No(s):			COC No: 580-27907-9206.15														
Client Contact: Suzanne Dolberg				Phone:			E-Mail: sheri.cruz@testamericainc.com						Page: Page 15 of 33														
Company: ERM-West				Analysis Requested						Job #:																	
Address: 1218 3rd Ave Suite 1412				Due Date Requested:			<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td rowspan="7" style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 8px;">Field Filtered Sample (Yes or No) Perform: MS/MSD (Yes or No)</td> <td style="font-size: 8px;">8092A, NWTPH_Dx</td> <td style="font-size: 8px;">8092A, B270D_SIM, NWTPH_Dx</td> <td style="font-size: 8px;">8260C - BTEX</td> <td style="font-size: 8px;">6010C, 7471A, NWTPH_Dx</td> <td style="font-size: 8px;">8082A - PCBs, standard list</td> <td style="font-size: 8px;">6020A, 7470A</td> <td style="font-size: 8px;">NWTPH_Dx - Northwest - DRO/RO</td> <td style="font-size: 8px;">8260C - BTEX</td> <td colspan="3" rowspan="7" style="font-size: 8px; text-align: center;">Total Number of Containers</td> </tr> </table>						Field Filtered Sample (Yes or No) Perform: MS/MSD (Yes or No)	8092A, NWTPH_Dx	8092A, B270D_SIM, NWTPH_Dx	8260C - BTEX	6010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	6020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX	Total Number of Containers			Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)		
Field Filtered Sample (Yes or No) Perform: MS/MSD (Yes or No)	8092A, NWTPH_Dx	8092A, B270D_SIM, NWTPH_Dx	8260C - BTEX	6010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	6020A, 7470A								NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX	Total Number of Containers											
	City: Seattle				TAT Requested (days):																						
	State, Zip WA, 98101				PO #: 0435302.03																						
	Phone: 425-214-0462(Tel)				WO #:																						
	Email: suzanne.dolberg@erm.com				Project #: 58012210																						
	Project Name: Cushman Phase II ESA				SSOW#:																						
	Site: <i>Cushman</i>																										
Sample Identification				Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code			Special Instructions/Note: RunTPH, Hold PCBs & Hold Hold Hold Hold RunTPH, Hold PCBs Hold Hold Hold RunTPH, Hold PCBs																
EY-SG33-CSB				3/12/18	12:49	G/C	Solid	N	N	F				N	N	D	A	A									
EY-SG33-SB01				3/12/18	12:16	G	Solid		X																		
EY-SG33-SB02				3/12/18	12:24	G	Solid		X																		
EY-SG33-SB03				3/12/18	12:33	G	Solid		X																		
EY-SG33-SB04				3/12/18	12:44	G	Solid		X																		
EY-SG34-CSB				3/12/18	13:30	C	Solid		X																		
EY-SG34-SB01				3/12/18	13:10	G	Solid		X																		
EY-SG34-SB02				3/12/18	13:15	G	Solid		X																		
EY-SG34-SB03				3/12/18	13:21	G	Solid		X																		
EY-SG34-SB04				3/12/18	13:26	G	Solid		X																		
EY-SG35-CSB				3/12/18	15:15	C	Solid		X																		
Possible Hazard Identification														Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)													
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological												<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months															
Deliverable Requested: I, II, III, IV, Other (specify)												Special Instructions/QC Requirements:															
Empty Kit Relinquished by:				Date:			Time:			Method of Shipment:																	
Relinquished by: <i>Own Rudolph</i>				Date/Time: <i>3/13/18 1230</i>			Company:			Received by: <i>[Signature]</i>			Date/Time: <i>3/13/18 1230</i>			Company: <i>TA-SEA</i>											
Relinquished by:				Date/Time:			Company:			Received by:			Date/Time:			Company:											
Relinquished by:				Date/Time:			Company:			Received by:			Date/Time:			Company:											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks:																					

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <u>Tanya Ballup</u>		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.11	
Client Contact Suzanne Dolberg		Phone:		E-Mail: sheri.cruz@testamericainc.com				Page: Page 11 of 33	
Company: ERM-West								Job #:	
Address: 1218 3rd Ave Suite 1412		Due Date Requested:							
City: Seattle		TAT Requested (days):							
State, Zip: WA, 98101									
Phone: 425-214-0462(Tel)		PO #: 0435302.03							
Email: suzanne.dolberg@erm.com		WO #:							
Project Name: Cushman Phase II ESA		Project #: 58012210							
Site: <u>Cushman</u>		SSOW#:							
								Analysis Requested Field Filtered Sample (Yes or No) Perform MS/MSO (Yes or No) 8082A, NWTPH_Dx 8082A, 8270D_SIM, NWTPH_Dx 8260C - BTEX 6010C, 7471A, NWTPH_Dx 8082A - PCBs, standard list 8020A, 7470A NWTPH_Dx - Northwest - DRO/RO 8260C - BTEX	
								Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)	
								Total Number of containers Other:	
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	
								Field Filtered Sample (Yes or No) Perform MS/MSO (Yes or No) 8082A, NWTPH_Dx 8082A, 8270D_SIM, NWTPH_Dx 8260C - BTEX 6010C, 7471A, NWTPH_Dx 8082A - PCBs, standard list 8020A, 7470A NWTPH_Dx - Northwest - DRO/RO 8260C - BTEX	
								Total Number of containers Other:	
								Special Instructions/Note:	
SW43						Solid			
EY-SG23-CSB						Solid			
EY-SG23-SB01						Solid			
EY-SG23-SB02						Solid			
EY-SG23-SB03						Solid			
EY-SG23-SB04						Solid			
EY-SG24-CSB						Solid			
EY-SG24-SB01						Solid			
EY-SG24-SB02		3/12/18		10:02		G		Solid	
EY-SG24-SB03		3/12/18		10:04		G		Solid	
EY-SG24-SB04		3/12/18		10:12		G		Solid	
Possible Hazard Identification								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Deliverable Requested: I, II, III, IV, Other (specify)								Special Instructions/QC Requirements:	
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:			
Relinquished by: <u>Aven Swoloff</u>		Date/Time: 3/13/18 1230		Company:		Received by: <u>[Signature]</u>		Date/Time: 3/13/18 1230	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:						Cooler Temperature(s) °C and Other Remarks:	

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <u>Tanya Battye</u>		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.14																							
Client Contact: Suzanne Dolberg		Phone:		E-Mail: sheri.cruz@testamericainc.com				Page: Page 14 of 33																							
Company: ERM-West		Analysis Requested						Job #:																							
Address: 1218 3rd Ave Suite 1412		Due Date Requested:		<table border="1"> <tr> <th>Field Filtered Sample (Yes or No)</th> <th>Parathion MS/MSD (Yes or No)</th> <th>8082A, NWTPH, Dx</th> <th>8082A, 8270D, SIM, NWTPH, Dx</th> <th>8260C - BTEX</th> <th>8010C, 7471A, NWTPH, Dx</th> <th>8082A - PCBs, standard list</th> <th>8020A, 7470A</th> <th>NWTPH, Dx - Northwest - DRO/RO</th> <th>8260C - BTEX</th> </tr> <tr> <td>X</td> <td>X</td> <td>N</td> <td>N</td> <td>F</td> <td>N</td> <td>N</td> <td>D</td> <td>A</td> <td>A</td> </tr> </table>						Field Filtered Sample (Yes or No)	Parathion MS/MSD (Yes or No)	8082A, NWTPH, Dx	8082A, 8270D, SIM, NWTPH, Dx	8260C - BTEX	8010C, 7471A, NWTPH, Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH, Dx - Northwest - DRO/RO	8260C - BTEX	X	X	N	N	F	N	N	D	A	A	Preservation Codes:	
Field Filtered Sample (Yes or No)	Parathion MS/MSD (Yes or No)	8082A, NWTPH, Dx	8082A, 8270D, SIM, NWTPH, Dx							8260C - BTEX	8010C, 7471A, NWTPH, Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH, Dx - Northwest - DRO/RO	8260C - BTEX																
X	X	N	N							F	N	N	D	A	A																
City: Seattle		TAT Requested (days):								A - HCL		M - Hexane																			
State, Zip: WA, 98101		PO #: 0435302.03		B - NaOH		N - None																									
Phone: 425-214-0462(Tel)		WO #:		C - Zn Acetate		O - AsNaO2																									
Email: suzanne.dolberg@erm.com		Project #: 58012210		D - Nitric Acid		P - Na2O4S																									
Project Name: Cushman Phase II ESA		SSOW#:		E - NaHSC4		Q - Na2SO3																									
Site:				F - MeOH		R - Na2S2O3																									
				G - Amchlor		S - H2SO4																									
				H - Ascorbic Acid		T - TSP Dodecahydrate																									
				I - Ice		U - Acetone																									
				J - DI Water		V - MCAA																									
				K - EDTA		W - pH 4-5																									
				L - FDA		Z - other (specify)																									
				Other:																											

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Parathion MS/MSD (Yes or No)	8082A, NWTPH, Dx	8082A, 8270D, SIM, NWTPH, Dx	8260C - BTEX	8010C, 7471A, NWTPH, Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH, Dx - Northwest - DRO/RO	8260C - BTEX	Total Number of Containers	Special Instructions/Note:
EY-SG30-SB02 SG35-SB01	3/12/18	14:50	G	Solid	X	X	N	N	F	N	N	D	A	A		Hold
EY-SG30-SB03 SG35-SB02	3/12/18	14:58	G	Solid	X	X										Hold
EY-SG31-SB03 SG35-SB03	3/12/18	15:07	G	Solid	X	X										Hold
EY-SG31-SB04 SG35-SB04	3/12/18	15:15	G	Solid	X	X										Hold
EY-SG31-SB07 SG35-CSB SG24-CSB	3/12/18	10:15	C	Solid	X	X										Run TPH, Hold PCBs
EY-SG31-SB09 SG24-SB01	3/12/18	15:55	G	Solid	X	X										Hold
EY-SG32-CSB	3/12/18	11:40	C	Solid	X	X										Run TPH, Hold PCBs
EY-SG32-SB01	3/12/18	11:20	G	Solid	X	X										Hold
EY-SG32-SB02	3/12/18	11:34	G	Solid	X	X										Hold
EY-SG32-SB03	3/12/18	11:39	G	Solid	X	X										Hold
EY-SG32-SB04	3/12/18	11:43	G	Solid	X	X										Hold

Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological				<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:					

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:	
Relinquished by: <u>Gwen Ruffalo</u>		Date/Time: 3/13/18 1230	Company:	Received by: <u>[Signature]</u>	
Relinquished by:		Date/Time:	Company:	Received by:	
Relinquished by:		Date/Time:	Company:	Received by:	

Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
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Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-75839-1

Login Number: 75839

List Source: TestAmerica Seattle

List Number: 1

Creator: Gall, Brandon A

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



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-75845-1

Client Project/Site: Cushman Phase II ESA

For:
ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
3/28/2018 5:39:13 PM
Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Designee for
Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

LINKS

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results through
TotalAccess

Have a Question?



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Sample Summary	42
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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Job ID: 580-75845-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-75845-1

Comments

No additional comments.

Receipt

The samples were received on 3/14/2018 1:05 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was -0.3° C.

GC/MS VOA

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

GC/MS Semi VOA

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

GC Semi VOA

Method(s) 8082, 8082A: The continuing calibration verification (CCV) associated with batch 580-269421 recovered above the upper control limit for PCB-1232, PCB-1248, PCB-1242, PCB-1254 PCB-1260 The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: (CCV 580-269421/10), (CCV 580-269421/11), (CCV 580-269421/23), (CCV 580-269421/8), (CCV 580-269421/9) and (CCVIS 580-269421/12).

Method(s) 8082A: The following continuing calibration verification (CCV) standard associated with batch 580-269421 recovered outside acceptance criteria for %D for surrogate DCB Decachlorobiphenyl. Since the %Rec is within the acceptance criteria for the surrogate in the CCV and associated samples, the data have been reported. The following samples are impacted: (CCV 580-269421/23) and (CCVIS 580-269421/12)

Method(s) 8082A: The continuing calibration verification (CCV) associated with 580-269971 recovered high and outside the control limits for PCB-1260 and PCB-1016 on one column. Results are confirmed on both columns and reported from the passing column. The following sample is impacted: (CCV 580-269971/28).

Method(s) 8082A: The continuing calibration verification (CCV) associated with batch 580-270056 recovered above the upper control limit for PCB-1221, PCB-1016, and PCB-1260. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: RNS-5 (580-75845-35), RNS-06 (580-75845-41), (CCV 580-270056/15) and (CCVIS 580-270056/16).

Method(s) 8082A: The following sample(s) contained more than one Aroclor with insufficient separation to quantify individually. The PCBs present are quantified as the predominant Aroclor: SW-02 (580-75845-17).

Method(s) NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-269570 recovered above the upper control limit for #2 Diesel (C10-C24) and Motor Oil (>C24-C36). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: EY-SG07-CSB (580-75845-4), EY-SG23-CSB (580-75845-16), EY-SG20-CSB (580-75845-24), UST-SB02-22.5-24-03.13.18 (580-75845-31), UST-SB01-12.5-14-03.13.18 (580-75845-33), UST-SB03-15-16.5-03.14.18 (580-75845-42), (CCV 580-269570/14), (CCV 580-269570/25), (CCV 580-269570/32), (CCVRT 580-269570/3) and (580-75845-A-42-D DU).

Method(s) NWTPH-Dx: The laboratory control sample (LCS) for preparation batch 580-269440 and analytical batch 580-269570 recovered outside control limits for the following analytes: Motor Oil (>C24-C36). This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Method(s) NWTPH-Dx: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: EY-SG08-CSB (580-75845-9) and SW-02 (580-75845-17).

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

Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Job ID: 580-75845-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

General Chemistry

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

Organic Prep

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

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Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

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

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: EY-SG07-CSB

Lab Sample ID: 580-75845-4

Date Collected: 03/13/18 10:55

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 88.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		53		mg/Kg	☼	03/20/18 09:46	03/21/18 22:41	1
Motor Oil (>C24-C36)	ND	*	53		mg/Kg	☼	03/20/18 09:46	03/21/18 22:41	1
Mineral oil	ND		53		mg/Kg	☼	03/20/18 09:46	03/26/18 15:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	86		50 - 150	03/20/18 09:46	03/21/18 22:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.0		0.1		%			03/20/18 16:20	1
Percent Moisture	12.0		0.1		%			03/20/18 16:20	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: EY-SG08-CSB

Lab Sample ID: 580-75845-9

Date Collected: 03/13/18 12:08

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 82.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		60		mg/Kg	☼	03/20/18 09:46	03/22/18 17:06	1
Motor Oil (>C24-C36)	ND		60		mg/Kg	☼	03/20/18 09:46	03/22/18 17:06	1
Mineral oil	ND		60		mg/Kg	☼	03/20/18 09:46	03/26/18 16:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	83		50 - 150	03/20/18 09:46	03/22/18 17:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82.3		0.1		%			03/20/18 16:20	1
Percent Moisture	17.7		0.1		%			03/20/18 16:20	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: EY-SG23-CSB

Lab Sample ID: 580-75845-16

Date Collected: 03/13/18 15:40

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 85.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		54		mg/Kg	☼	03/20/18 09:46	03/21/18 23:22	1
Motor Oil (>C24-C36)	ND	*	54		mg/Kg	☼	03/20/18 09:46	03/21/18 23:22	1
Mineral oil	ND		54		mg/Kg	☼	03/20/18 09:46	03/26/18 16:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	90		50 - 150	03/20/18 09:46	03/21/18 23:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.3		0.1		%			03/20/18 16:20	1
Percent Moisture	14.7		0.1		%			03/20/18 16:20	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: SW-02

Date Collected: 03/13/18 14:33

Date Received: 03/14/18 13:05

Lab Sample ID: 580-75845-17

Matrix: Solid

Percent Solids: 74.5

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND	F1	0.026		mg/Kg	☼	03/26/18 09:17	03/27/18 10:32	1
PCB-1221	ND		0.026		mg/Kg	☼	03/26/18 09:17	03/27/18 10:32	1
PCB-1232	ND		0.026		mg/Kg	☼	03/26/18 09:17	03/27/18 10:32	1
PCB-1242	ND		0.026		mg/Kg	☼	03/26/18 09:17	03/27/18 10:32	1
PCB-1248	ND		0.026		mg/Kg	☼	03/26/18 09:17	03/27/18 10:32	1
PCB-1254	ND		0.026		mg/Kg	☼	03/26/18 09:17	03/27/18 10:32	1
PCB-1260	ND	F1	0.026		mg/Kg	☼	03/26/18 09:17	03/27/18 10:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	51		25 - 149	03/26/18 09:17	03/27/18 10:32	1
Tetrachloro-m-xylene	58		35 - 130	03/26/18 09:17	03/27/18 10:32	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	280		63		mg/Kg	☼	03/20/18 09:46	03/22/18 17:28	1
Motor Oil (>C24-C36)	170		63		mg/Kg	☼	03/20/18 09:46	03/22/18 17:28	1
Mineral oil	370		63		mg/Kg	☼	03/20/18 09:46	03/26/18 17:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	69		50 - 150	03/20/18 09:46	03/22/18 17:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	74.5		0.1		%			03/20/18 16:20	1
Percent Moisture	25.5		0.1		%			03/20/18 16:20	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: RNS-03

Date Collected: 03/13/18 09:12

Date Received: 03/14/18 13:05

Lab Sample ID: 580-75845-18

Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.48		ug/L		03/26/18 13:34	03/27/18 12:28	1
PCB-1221	ND		0.48		ug/L		03/26/18 13:34	03/27/18 12:28	1
PCB-1232	ND		0.48		ug/L		03/26/18 13:34	03/27/18 12:28	1
PCB-1242	ND		0.48		ug/L		03/26/18 13:34	03/27/18 12:28	1
PCB-1248	ND		0.48		ug/L		03/26/18 13:34	03/27/18 12:28	1
PCB-1254	ND		0.48		ug/L		03/26/18 13:34	03/27/18 12:28	1
PCB-1260	ND		0.48		ug/L		03/26/18 13:34	03/27/18 12:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	57		38 - 134	03/26/18 13:34	03/27/18 12:28	1
Tetrachloro-m-xylene	61		54 - 115	03/26/18 13:34	03/27/18 12:28	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12		mg/L		03/22/18 11:06	03/22/18 19:41	1
Motor Oil (>C24-C36)	ND		0.37		mg/L		03/22/18 11:06	03/22/18 19:41	1
Mineral oil	ND		0.37		mg/L		03/22/18 11:06	03/26/18 20:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	88		50 - 150	03/22/18 11:06	03/22/18 19:41	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: RNS-04

Date Collected: 03/13/18 16:05

Date Received: 03/14/18 13:05

Lab Sample ID: 580-75845-19

Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.47		ug/L		03/26/18 13:34	03/27/18 12:47	1
PCB-1221	ND		0.47		ug/L		03/26/18 13:34	03/27/18 12:47	1
PCB-1232	ND		0.47		ug/L		03/26/18 13:34	03/27/18 12:47	1
PCB-1242	ND		0.47		ug/L		03/26/18 13:34	03/27/18 12:47	1
PCB-1248	ND		0.47		ug/L		03/26/18 13:34	03/27/18 12:47	1
PCB-1254	ND		0.47		ug/L		03/26/18 13:34	03/27/18 12:47	1
PCB-1260	ND		0.47		ug/L		03/26/18 13:34	03/27/18 12:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	49		38 - 134	03/26/18 13:34	03/27/18 12:47	1
Tetrachloro-m-xylene	64		54 - 115	03/26/18 13:34	03/27/18 12:47	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12		mg/L		03/22/18 11:06	03/22/18 20:04	1
Motor Oil (>C24-C36)	ND		0.37		mg/L		03/22/18 11:06	03/22/18 20:04	1
Mineral oil	ND		0.37		mg/L		03/22/18 11:06	03/26/18 20:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	82		50 - 150	03/22/18 11:06	03/22/18 20:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: EY-SG20-CSB

Lab Sample ID: 580-75845-24

Date Collected: 03/13/18 11:10

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 89.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		51		mg/Kg	☼	03/20/18 09:46	03/22/18 00:23	1
Motor Oil (>C24-C36)	ND	*	51		mg/Kg	☼	03/20/18 09:46	03/22/18 00:23	1
Mineral oil	ND		51		mg/Kg	☼	03/20/18 09:46	03/26/18 17:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	86		50 - 150				03/20/18 09:46	03/22/18 00:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.3		0.1		%			03/20/18 16:20	1
Percent Moisture	10.7		0.1		%			03/20/18 16:20	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: UST-SB02-22.5-24-03.13.18

Lab Sample ID: 580-75845-31

Date Collected: 03/13/18 16:45

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 89.0

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		22		ug/Kg	☼	03/19/18 14:37	03/21/18 00:15	1
Toluene	ND		170		ug/Kg	☼	03/19/18 14:37	03/21/18 00:15	1
Ethylbenzene	ND		44		ug/Kg	☼	03/19/18 14:37	03/21/18 00:15	1
m-Xylene & p-Xylene	ND		220		ug/Kg	☼	03/19/18 14:37	03/21/18 00:15	1
o-Xylene	ND		44		ug/Kg	☼	03/19/18 14:37	03/21/18 00:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		75 - 120	03/19/18 14:37	03/21/18 00:15	1
Trifluorotoluene (Surr)	103		60 - 150	03/19/18 14:37	03/21/18 00:15	1
4-Bromofluorobenzene (Surr)	98		47 - 150	03/19/18 14:37	03/21/18 00:15	1
Dibromofluoromethane (Surr)	101		80 - 118	03/19/18 14:37	03/21/18 00:15	1
1,2-Dichloroethane-d4 (Surr)	102		80 - 121	03/19/18 14:37	03/21/18 00:15	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
2-Methylnaphthalene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Acenaphthene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Acenaphthylene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Anthracene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Benzo[a]anthracene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Benzo[a]pyrene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Benzo[b]fluoranthene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Benzo[g,h,i]perylene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Benzo[k]fluoranthene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Chrysene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Dibenz(a,h)anthracene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Fluoranthene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Fluorene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Indeno[1,2,3-cd]pyrene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Naphthalene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Phenanthrene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1
Pyrene	ND		5.1		ug/Kg	☼	03/20/18 09:30	03/20/18 19:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	86		68 - 138	03/20/18 09:30	03/20/18 19:21	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.022		mg/Kg	☼	03/19/18 09:38	03/19/18 20:45	1
PCB-1221	ND		0.022		mg/Kg	☼	03/19/18 09:38	03/19/18 20:45	1
PCB-1232	ND		0.022		mg/Kg	☼	03/19/18 09:38	03/19/18 20:45	1
PCB-1242	ND		0.022		mg/Kg	☼	03/19/18 09:38	03/19/18 20:45	1
PCB-1248	ND		0.022		mg/Kg	☼	03/19/18 09:38	03/19/18 20:45	1
PCB-1254	ND		0.022		mg/Kg	☼	03/19/18 09:38	03/19/18 20:45	1
PCB-1260	ND		0.022		mg/Kg	☼	03/19/18 09:38	03/19/18 20:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	114		25 - 149	03/19/18 09:38	03/19/18 20:45	1
Tetrachloro-m-xylene	91		35 - 130	03/19/18 09:38	03/19/18 20:45	1

TestAmerica Seattle

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: UST-SB02-22.5-24-03.13.18

Lab Sample ID: 580-75845-31

Date Collected: 03/13/18 16:45

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 89.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	03/20/18 09:46	03/22/18 01:04	1
Motor Oil (>C24-C36)	ND	*	52		mg/Kg	☼	03/20/18 09:46	03/22/18 01:04	1
Mineral oil	ND		52		mg/Kg	☼	03/20/18 09:46	03/26/18 17:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	94		50 - 150				03/20/18 09:46	03/22/18 01:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.0		0.1		%			03/20/18 16:20	1
Percent Moisture	11.0		0.1		%			03/20/18 16:20	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: UST-SB01-12.5-14-03.13.18

Lab Sample ID: 580-75845-33

Date Collected: 03/13/18 14:00

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 90.7

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		24		ug/Kg	☼	03/19/18 14:37	03/21/18 00:42	1
Toluene	ND		180		ug/Kg	☼	03/19/18 14:37	03/21/18 00:42	1
Ethylbenzene	ND		47		ug/Kg	☼	03/19/18 14:37	03/21/18 00:42	1
m-Xylene & p-Xylene	ND		240		ug/Kg	☼	03/19/18 14:37	03/21/18 00:42	1
o-Xylene	ND		47		ug/Kg	☼	03/19/18 14:37	03/21/18 00:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		75 - 120	03/19/18 14:37	03/21/18 00:42	1
Trifluorotoluene (Surr)	104		60 - 150	03/19/18 14:37	03/21/18 00:42	1
4-Bromofluorobenzene (Surr)	97		47 - 150	03/19/18 14:37	03/21/18 00:42	1
Dibromofluoromethane (Surr)	100		80 - 118	03/19/18 14:37	03/21/18 00:42	1
1,2-Dichloroethane-d4 (Surr)	102		80 - 121	03/19/18 14:37	03/21/18 00:42	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
2-Methylnaphthalene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Acenaphthene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Acenaphthylene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Anthracene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Benzo[a]anthracene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Benzo[a]pyrene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Benzo[b]fluoranthene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Benzo[g,h,i]perylene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Benzo[k]fluoranthene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Chrysene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Dibenz(a,h)anthracene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Fluoranthene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Fluorene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Indeno[1,2,3-cd]pyrene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Naphthalene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Phenanthrene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1
Pyrene	ND		5.2		ug/Kg	☼	03/20/18 09:30	03/20/18 19:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	87		68 - 138	03/20/18 09:30	03/20/18 19:45	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.021		mg/Kg	☼	03/19/18 09:38	03/19/18 21:02	1
PCB-1221	ND		0.021		mg/Kg	☼	03/19/18 09:38	03/19/18 21:02	1
PCB-1232	ND		0.021		mg/Kg	☼	03/19/18 09:38	03/19/18 21:02	1
PCB-1242	ND		0.021		mg/Kg	☼	03/19/18 09:38	03/19/18 21:02	1
PCB-1248	ND		0.021		mg/Kg	☼	03/19/18 09:38	03/19/18 21:02	1
PCB-1254	ND		0.021		mg/Kg	☼	03/19/18 09:38	03/19/18 21:02	1
PCB-1260	ND		0.021		mg/Kg	☼	03/19/18 09:38	03/19/18 21:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	112		25 - 149	03/19/18 09:38	03/19/18 21:02	1
Tetrachloro-m-xylene	89		35 - 130	03/19/18 09:38	03/19/18 21:02	1

TestAmerica Seattle

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: UST-SB01-12.5-14-03.13.18

Lab Sample ID: 580-75845-33

Date Collected: 03/13/18 14:00

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 90.7

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	03/20/18 09:46	03/22/18 01:24	1
Motor Oil (>C24-C36)	ND	*	52		mg/Kg	☼	03/20/18 09:46	03/22/18 01:24	1
Mineral oil	ND		52		mg/Kg	☼	03/20/18 09:46	03/26/18 18:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	85		50 - 150				03/20/18 09:46	03/22/18 01:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.7		0.1		%			03/20/18 16:20	1
Percent Moisture	9.3		0.1		%			03/20/18 16:20	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: RNS-5

Date Collected: 03/13/18 18:42

Date Received: 03/14/18 13:05

Lab Sample ID: 580-75845-35

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			03/24/18 22:36	1
Toluene	ND		2.0		ug/L			03/24/18 22:36	1
Ethylbenzene	ND		3.0		ug/L			03/24/18 22:36	1
m-Xylene & p-Xylene	ND		3.0		ug/L			03/24/18 22:36	1
o-Xylene	ND		2.0		ug/L			03/24/18 22:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		80 - 122		03/24/18 22:36	1
Trifluorotoluene (Surr)	100		80 - 120		03/24/18 22:36	1
4-Bromofluorobenzene (Surr)	93		75 - 125		03/24/18 22:36	1
Dibromofluoromethane (Surr)	99		77 - 120		03/24/18 22:36	1
1,2-Dichloroethane-d4 (Surr)	99		80 - 126		03/24/18 22:36	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.040		ug/L		03/20/18 13:51	03/20/18 20:35	1
2-Methylnaphthalene	ND		0.030		ug/L		03/20/18 13:51	03/20/18 20:35	1
1-Methylnaphthalene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 20:35	1
Acenaphthylene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 20:35	1
Acenaphthene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 20:35	1
Fluorene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 20:35	1
Phenanthrene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 20:35	1
Anthracene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 20:35	1
Fluoranthene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 20:35	1
Pyrene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 20:35	1
Benzo[a]anthracene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 20:35	1
Chrysene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 20:35	1
Benzo[b]fluoranthene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 20:35	1
Benzo[k]fluoranthene	ND		0.030		ug/L		03/20/18 13:51	03/20/18 20:35	1
Benzo[a]pyrene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 20:35	1
Indeno[1,2,3-cd]pyrene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 20:35	1
Dibenz(a,h)anthracene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 20:35	1
Benzo[g,h,i]perylene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 20:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	78		53 - 112	03/20/18 13:51	03/20/18 20:35	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.45		ug/L		03/26/18 13:34	03/28/18 08:56	1
PCB-1221	ND		0.45		ug/L		03/26/18 13:34	03/28/18 08:56	1
PCB-1232	ND		0.45		ug/L		03/26/18 13:34	03/28/18 08:56	1
PCB-1242	ND		0.45		ug/L		03/26/18 13:34	03/28/18 08:56	1
PCB-1248	ND		0.45		ug/L		03/26/18 13:34	03/28/18 08:56	1
PCB-1254	ND		0.45		ug/L		03/26/18 13:34	03/28/18 08:56	1
PCB-1260	ND		0.45		ug/L		03/26/18 13:34	03/28/18 08:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	50		38 - 134	03/26/18 13:34	03/28/18 08:56	1
Tetrachloro-m-xylene	57		54 - 115	03/26/18 13:34	03/28/18 08:56	1

TestAmerica Seattle

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: RNS-5

Date Collected: 03/13/18 18:42

Date Received: 03/14/18 13:05

Lab Sample ID: 580-75845-35

Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		03/22/18 11:06	03/22/18 20:26	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		03/22/18 11:06	03/22/18 20:26	1
Mineral oil	ND		0.35		mg/L		03/22/18 11:06	03/26/18 21:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	77		50 - 150				03/22/18 11:06	03/22/18 20:26	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: TB-SOIL

Lab Sample ID: 580-75845-36

Date Collected: 03/13/18 00:01

Matrix: Solid

Date Received: 03/14/18 13:05

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		19		ug/Kg		03/19/18 14:37	03/21/18 01:08	1
Toluene	ND		140		ug/Kg		03/19/18 14:37	03/21/18 01:08	1
Ethylbenzene	ND		37		ug/Kg		03/19/18 14:37	03/21/18 01:08	1
m-Xylene & p-Xylene	ND		190		ug/Kg		03/19/18 14:37	03/21/18 01:08	1
o-Xylene	ND		37		ug/Kg		03/19/18 14:37	03/21/18 01:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		75 - 120	03/19/18 14:37	03/21/18 01:08	1
Trifluorotoluene (Surr)	103		60 - 150	03/19/18 14:37	03/21/18 01:08	1
4-Bromofluorobenzene (Surr)	97		47 - 150	03/19/18 14:37	03/21/18 01:08	1
Dibromofluoromethane (Surr)	101		80 - 118	03/19/18 14:37	03/21/18 01:08	1
1,2-Dichloroethane-d4 (Surr)	102		80 - 121	03/19/18 14:37	03/21/18 01:08	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: TB-WATER

Lab Sample ID: 580-75845-37

Date Collected: 03/13/18 00:01

Matrix: Water

Date Received: 03/14/18 13:05

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			03/25/18 23:04	1
Toluene	ND		2.0		ug/L			03/25/18 23:04	1
Ethylbenzene	ND		3.0		ug/L			03/25/18 23:04	1
m-Xylene & p-Xylene	ND		3.0		ug/L			03/25/18 23:04	1
o-Xylene	ND		2.0		ug/L			03/25/18 23:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		80 - 122		03/25/18 23:04	1
Trifluorotoluene (Surr)	100		80 - 120		03/25/18 23:04	1
4-Bromofluorobenzene (Surr)	95		75 - 125		03/25/18 23:04	1
Dibromofluoromethane (Surr)	97		77 - 120		03/25/18 23:04	1
1,2-Dichloroethane-d4 (Surr)	99		80 - 126		03/25/18 23:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: RNS-06

Date Collected: 03/14/18 12:15

Date Received: 03/14/18 13:05

Lab Sample ID: 580-75845-41

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			03/25/18 23:33	1
Toluene	ND		2.0		ug/L			03/25/18 23:33	1
Ethylbenzene	ND		3.0		ug/L			03/25/18 23:33	1
m-Xylene & p-Xylene	ND		3.0		ug/L			03/25/18 23:33	1
o-Xylene	ND		2.0		ug/L			03/25/18 23:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		80 - 122		03/25/18 23:33	1
Trifluorotoluene (Surr)	99		80 - 120		03/25/18 23:33	1
4-Bromofluorobenzene (Surr)	95		75 - 125		03/25/18 23:33	1
Dibromofluoromethane (Surr)	98		77 - 120		03/25/18 23:33	1
1,2-Dichloroethane-d4 (Surr)	100		80 - 126		03/25/18 23:33	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.042		ug/L		03/20/18 13:51	03/20/18 20:59	1
2-Methylnaphthalene	ND		0.031		ug/L		03/20/18 13:51	03/20/18 20:59	1
1-Methylnaphthalene	ND		0.021		ug/L		03/20/18 13:51	03/20/18 20:59	1
Acenaphthylene	ND		0.021		ug/L		03/20/18 13:51	03/20/18 20:59	1
Acenaphthene	ND		0.021		ug/L		03/20/18 13:51	03/20/18 20:59	1
Fluorene	ND		0.021		ug/L		03/20/18 13:51	03/20/18 20:59	1
Phenanthrene	ND		0.021		ug/L		03/20/18 13:51	03/20/18 20:59	1
Anthracene	ND		0.021		ug/L		03/20/18 13:51	03/20/18 20:59	1
Fluoranthene	ND		0.021		ug/L		03/20/18 13:51	03/20/18 20:59	1
Pyrene	ND		0.021		ug/L		03/20/18 13:51	03/20/18 20:59	1
Benzo[a]anthracene	ND		0.021		ug/L		03/20/18 13:51	03/20/18 20:59	1
Chrysene	ND		0.021		ug/L		03/20/18 13:51	03/20/18 20:59	1
Benzo[b]fluoranthene	ND		0.021		ug/L		03/20/18 13:51	03/20/18 20:59	1
Benzo[k]fluoranthene	ND		0.031		ug/L		03/20/18 13:51	03/20/18 20:59	1
Benzo[a]pyrene	ND		0.021		ug/L		03/20/18 13:51	03/20/18 20:59	1
Indeno[1,2,3-cd]pyrene	ND		0.021		ug/L		03/20/18 13:51	03/20/18 20:59	1
Dibenz(a,h)anthracene	ND		0.021		ug/L		03/20/18 13:51	03/20/18 20:59	1
Benzo[g,h,i]perylene	ND		0.021		ug/L		03/20/18 13:51	03/20/18 20:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	84		53 - 112	03/20/18 13:51	03/20/18 20:59	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.47		ug/L		03/26/18 13:34	03/28/18 09:16	1
PCB-1221	ND		0.47		ug/L		03/26/18 13:34	03/28/18 09:16	1
PCB-1232	ND		0.47		ug/L		03/26/18 13:34	03/28/18 09:16	1
PCB-1242	ND		0.47		ug/L		03/26/18 13:34	03/28/18 09:16	1
PCB-1248	ND		0.47		ug/L		03/26/18 13:34	03/28/18 09:16	1
PCB-1254	ND		0.47		ug/L		03/26/18 13:34	03/28/18 09:16	1
PCB-1260	ND		0.47		ug/L		03/26/18 13:34	03/28/18 09:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	53		38 - 134	03/26/18 13:34	03/28/18 09:16	1
Tetrachloro-m-xylene	60		54 - 115	03/26/18 13:34	03/28/18 09:16	1

TestAmerica Seattle

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: RNS-06
Date Collected: 03/14/18 12:15
Date Received: 03/14/18 13:05

Lab Sample ID: 580-75845-41
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12		mg/L		03/22/18 11:06	03/22/18 20:48	1
Motor Oil (>C24-C36)	ND		0.37		mg/L		03/22/18 11:06	03/22/18 20:48	1
Mineral oil	ND		0.37		mg/L		03/22/18 11:06	03/26/18 21:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	83		50 - 150				03/22/18 11:06	03/22/18 20:48	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: UST-SB03-15-16.5-03.14.18

Lab Sample ID: 580-75845-42

Date Collected: 03/14/18 08:40

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 87.0

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		22		ug/Kg	☼	03/19/18 14:37	03/21/18 01:34	1
Toluene	ND		170		ug/Kg	☼	03/19/18 14:37	03/21/18 01:34	1
Ethylbenzene	ND		45		ug/Kg	☼	03/19/18 14:37	03/21/18 01:34	1
m-Xylene & p-Xylene	ND		220		ug/Kg	☼	03/19/18 14:37	03/21/18 01:34	1
o-Xylene	ND		45		ug/Kg	☼	03/19/18 14:37	03/21/18 01:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	106		75 - 120	03/19/18 14:37	03/21/18 01:34	1
Trifluorotoluene (Surr)	103		60 - 150	03/19/18 14:37	03/21/18 01:34	1
4-Bromofluorobenzene (Surr)	99		47 - 150	03/19/18 14:37	03/21/18 01:34	1
Dibromofluoromethane (Surr)	101		80 - 118	03/19/18 14:37	03/21/18 01:34	1
1,2-Dichloroethane-d4 (Surr)	102		80 - 121	03/19/18 14:37	03/21/18 01:34	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
2-Methylnaphthalene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Acenaphthene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Acenaphthylene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Anthracene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Benzo[a]anthracene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Benzo[a]pyrene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Benzo[b]fluoranthene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Benzo[g,h,i]perylene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Benzo[k]fluoranthene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Chrysene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Dibenz(a,h)anthracene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Fluoranthene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Fluorene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Indeno[1,2,3-cd]pyrene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Naphthalene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Phenanthrene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1
Pyrene	ND		5.3		ug/Kg	☼	03/20/18 09:30	03/20/18 20:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	93		68 - 138	03/20/18 09:30	03/20/18 20:10	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.021		mg/Kg	☼	03/19/18 09:38	03/19/18 21:19	1
PCB-1221	ND		0.021		mg/Kg	☼	03/19/18 09:38	03/19/18 21:19	1
PCB-1232	ND		0.021		mg/Kg	☼	03/19/18 09:38	03/19/18 21:19	1
PCB-1242	ND		0.021		mg/Kg	☼	03/19/18 09:38	03/19/18 21:19	1
PCB-1248	ND		0.021		mg/Kg	☼	03/19/18 09:38	03/19/18 21:19	1
PCB-1254	ND		0.021		mg/Kg	☼	03/19/18 09:38	03/19/18 21:19	1
PCB-1260	ND		0.021		mg/Kg	☼	03/19/18 09:38	03/19/18 21:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	107		25 - 149	03/19/18 09:38	03/19/18 21:19	1
Tetrachloro-m-xylene	83		35 - 130	03/19/18 09:38	03/19/18 21:19	1

TestAmerica Seattle

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: UST-SB03-15-16.5-03.14.18

Lab Sample ID: 580-75845-42

Date Collected: 03/14/18 08:40

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 87.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		54		mg/Kg	☼	03/20/18 09:46	03/22/18 01:45	1
Motor Oil (>C24-C36)	ND	*	54		mg/Kg	☼	03/20/18 09:46	03/22/18 01:45	1
Mineral oil	ND		54		mg/Kg	☼	03/20/18 09:46	03/26/18 18:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	88		50 - 150	03/20/18 09:46	03/22/18 01:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.0		0.1		%			03/20/18 16:20	1
Percent Moisture	13.0		0.1		%			03/20/18 16:20	1



QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-269401/1-A

Matrix: Solid

Analysis Batch: 269425

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 269401

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		20		ug/Kg		03/19/18 14:15	03/19/18 16:47	1
Toluene	ND		150		ug/Kg		03/19/18 14:15	03/19/18 16:47	1
Ethylbenzene	ND		40		ug/Kg		03/19/18 14:15	03/19/18 16:47	1
m-Xylene & p-Xylene	ND		200		ug/Kg		03/19/18 14:15	03/19/18 16:47	1
o-Xylene	ND		40		ug/Kg		03/19/18 14:15	03/19/18 16:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		75 - 120	03/19/18 14:15	03/19/18 16:47	1
Trifluorotoluene (Surr)	101		60 - 150	03/19/18 14:15	03/19/18 16:47	1
4-Bromofluorobenzene (Surr)	98		47 - 150	03/19/18 14:15	03/19/18 16:47	1
Dibromofluoromethane (Surr)	99		80 - 118	03/19/18 14:15	03/19/18 16:47	1
1,2-Dichloroethane-d4 (Surr)	103		80 - 121	03/19/18 14:15	03/19/18 16:47	1

Lab Sample ID: LCS 580-269401/2-A

Matrix: Solid

Analysis Batch: 269425

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 269401

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzene	800	694		ug/Kg		87	79 - 135
Toluene	800	752		ug/Kg		94	80 - 125
Ethylbenzene	800	766		ug/Kg		96	80 - 127
m-Xylene & p-Xylene	800	716		ug/Kg		90	80 - 128
o-Xylene	800	761		ug/Kg		95	80 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	105		75 - 120
Trifluorotoluene (Surr)	102		60 - 150
4-Bromofluorobenzene (Surr)	98		47 - 150
Dibromofluoromethane (Surr)	101		80 - 118
1,2-Dichloroethane-d4 (Surr)	104		80 - 121

Lab Sample ID: LCSD 580-269401/3-A

Matrix: Solid

Analysis Batch: 269425

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 269401

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Benzene	800	726		ug/Kg		91	79 - 135	4	10
Toluene	800	785		ug/Kg		98	80 - 125	4	16
Ethylbenzene	800	799		ug/Kg		100	80 - 127	4	10
m-Xylene & p-Xylene	800	748		ug/Kg		94	80 - 128	4	13
o-Xylene	800	777		ug/Kg		97	80 - 125	2	14

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	106		75 - 120
Trifluorotoluene (Surr)	102		60 - 150
4-Bromofluorobenzene (Surr)	98		47 - 150
Dibromofluoromethane (Surr)	100		80 - 118

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

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

Lab Sample ID: LCSD 580-269401/3-A
Matrix: Solid
Analysis Batch: 269425

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269401

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		80 - 121

Lab Sample ID: MB 580-269820/5
Matrix: Water
Analysis Batch: 269820

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			03/24/18 15:55	1
Toluene	ND		2.0		ug/L			03/24/18 15:55	1
Ethylbenzene	ND		3.0		ug/L			03/24/18 15:55	1
m-Xylene & p-Xylene	ND		3.0		ug/L			03/24/18 15:55	1
o-Xylene	ND		2.0		ug/L			03/24/18 15:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		80 - 122		03/24/18 15:55	1
Trifluorotoluene (Surr)	103		80 - 120		03/24/18 15:55	1
4-Bromofluorobenzene (Surr)	95		75 - 125		03/24/18 15:55	1
Dibromofluoromethane (Surr)	102		77 - 120		03/24/18 15:55	1
1,2-Dichloroethane-d4 (Surr)	105		80 - 126		03/24/18 15:55	1

Lab Sample ID: LCS 580-269820/6
Matrix: Water
Analysis Batch: 269820

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.5		ug/L		105	75 - 120
Toluene	10.0	10.6		ug/L		106	75 - 120
Ethylbenzene	10.0	10.1		ug/L		101	75 - 120
m-Xylene & p-Xylene	10.0	9.90		ug/L		99	75 - 120
o-Xylene	10.0	10.3		ug/L		103	74 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	101		80 - 122
Trifluorotoluene (Surr)	103		80 - 120
4-Bromofluorobenzene (Surr)	95		75 - 125
Dibromofluoromethane (Surr)	100		77 - 120
1,2-Dichloroethane-d4 (Surr)	103		80 - 126

Lab Sample ID: LCSD 580-269820/7
Matrix: Water
Analysis Batch: 269820

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	11.4		ug/L		114	75 - 120	8	14
Toluene	10.0	11.1		ug/L		111	75 - 120	5	13
Ethylbenzene	10.0	10.9		ug/L		109	75 - 120	8	14
m-Xylene & p-Xylene	10.0	10.4		ug/L		104	75 - 120	5	14

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

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

Lab Sample ID: LCSD 580-269820/7
Matrix: Water
Analysis Batch: 269820

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
o-Xylene	10.0	11.0		ug/L		110	74 - 120	7	16
Surrogate	%Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	104		80 - 122						
Trifluorotoluene (Surr)	100		80 - 120						
4-Bromofluorobenzene (Surr)	94		75 - 125						
Dibromofluoromethane (Surr)	101		77 - 120						
1,2-Dichloroethane-d4 (Surr)	102		80 - 126						

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-269435/1-A
Matrix: Solid
Analysis Batch: 269518

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269435

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
1-Methylnaphthalene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Acenaphthylene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Acenaphthene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Anthracene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Benzo[a]anthracene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Chrysene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Fluoranthene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Benzo[b]fluoranthene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Fluorene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Benzo[k]fluoranthene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Benzo[a]pyrene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Naphthalene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Indeno[1,2,3-cd]pyrene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Phenanthrene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Dibenz(a,h)anthracene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Pyrene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Benzo[g,h,i]perylene	ND		5.0		ug/Kg		03/20/18 09:30	03/20/18 15:40	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	95		68 - 138				03/20/18 09:30	03/20/18 15:40	1

Lab Sample ID: LCS 580-269435/2-A
Matrix: Solid
Analysis Batch: 269518

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269435

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylnaphthalene	1000	1110		ug/Kg		111	75 - 120
1-Methylnaphthalene	1000	1190		ug/Kg		119	71 - 120
Acenaphthylene	1000	1060		ug/Kg		106	68 - 120
Acenaphthene	1000	1050		ug/Kg		105	68 - 120

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-269435/2-A
Matrix: Solid
Analysis Batch: 269518

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269435

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Anthracene	1000	1210		ug/Kg		121	73 - 125
Benzo[a]anthracene	1000	1110		ug/Kg		111	66 - 120
Chrysene	1000	1050		ug/Kg		105	69 - 120
Fluoranthene	1000	1100		ug/Kg		110	65 - 125
Benzo[b]fluoranthene	1000	924		ug/Kg		92	63 - 121
Fluorene	1000	1070		ug/Kg		107	66 - 121
Benzo[k]fluoranthene	1000	1140		ug/Kg		114	63 - 129
Benzo[a]pyrene	1000	1110		ug/Kg		111	72 - 124
Naphthalene	1000	1020		ug/Kg		102	70 - 120
Indeno[1,2,3-cd]pyrene	1000	980		ug/Kg		98	65 - 121
Phenanthrene	1000	994		ug/Kg		99	73 - 120
Dibenz(a,h)anthracene	1000	1040		ug/Kg		104	70 - 125
Pyrene	1000	1090		ug/Kg		109	64 - 120
Benzo[g,h,i]perylene	1000	961		ug/Kg		96	63 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	81		68 - 138

Lab Sample ID: MB 580-269492/1-A
Matrix: Water
Analysis Batch: 269518

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269492

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		0.030		ug/L		03/20/18 13:51	03/20/18 16:29	1
1-Methylnaphthalene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 16:29	1
Acenaphthylene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 16:29	1
Acenaphthene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 16:29	1
Anthracene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 16:29	1
Benzo[a]anthracene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 16:29	1
Chrysene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 16:29	1
Fluoranthene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 16:29	1
Benzo[b]fluoranthene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 16:29	1
Fluorene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 16:29	1
Benzo[k]fluoranthene	ND		0.030		ug/L		03/20/18 13:51	03/20/18 16:29	1
Benzo[a]pyrene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 16:29	1
Naphthalene	ND		0.040		ug/L		03/20/18 13:51	03/20/18 16:29	1
Indeno[1,2,3-cd]pyrene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 16:29	1
Phenanthrene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 16:29	1
Dibenz(a,h)anthracene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 16:29	1
Pyrene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 16:29	1
Benzo[g,h,i]perylene	ND		0.020		ug/L		03/20/18 13:51	03/20/18 16:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	87		53 - 112	03/20/18 13:51	03/20/18 16:29	1

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-269492/2-A
Matrix: Water
Analysis Batch: 269518

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269492

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2-Methylnaphthalene	4.00	3.65		ug/L		91	61 - 120
1-Methylnaphthalene	4.00	3.87		ug/L		97	57 - 120
Acenaphthylene	4.00	3.52		ug/L		88	63 - 120
Acenaphthene	4.00	3.47		ug/L		87	62 - 120
Anthracene	4.00	4.14		ug/L		103	69 - 120
Benzo[a]anthracene	4.00	4.02		ug/L		101	71 - 120
Chrysene	4.00	3.74		ug/L		93	64 - 120
Fluoranthene	4.00	3.91		ug/L		98	70 - 120
Benzo[b]fluoranthene	4.00	3.34		ug/L		83	66 - 120
Fluorene	4.00	3.52		ug/L		88	68 - 120
Benzo[k]fluoranthene	4.00	3.96		ug/L		99	68 - 120
Benzo[a]pyrene	4.00	3.89		ug/L		97	76 - 120
Naphthalene	4.00	3.53		ug/L		88	62 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.53		ug/L		88	63 - 120
Phenanthrene	4.00	3.44		ug/L		86	65 - 120
Dibenz(a,h)anthracene	4.00	3.66		ug/L		91	60 - 125
Pyrene	4.00	3.87		ug/L		97	69 - 120
Benzo[g,h,i]perylene	4.00	3.38		ug/L		84	61 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	82		53 - 112

Lab Sample ID: LCSD 580-269492/3-A
Matrix: Water
Analysis Batch: 269518

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269492

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
2-Methylnaphthalene	4.00	3.42		ug/L		85	61 - 120	7	16
1-Methylnaphthalene	4.00	3.57		ug/L		89	57 - 120	8	17
Acenaphthylene	4.00	3.46		ug/L		87	63 - 120	2	13
Acenaphthene	4.00	3.39		ug/L		85	62 - 120	3	13
Anthracene	4.00	4.11		ug/L		103	69 - 120	1	17
Benzo[a]anthracene	4.00	3.98		ug/L		99	71 - 120	1	16
Chrysene	4.00	3.72		ug/L		93	64 - 120	0	16
Fluoranthene	4.00	3.92		ug/L		98	70 - 120	0	20
Benzo[b]fluoranthene	4.00	3.24		ug/L		81	66 - 120	3	20
Fluorene	4.00	3.46		ug/L		87	68 - 120	2	12
Benzo[k]fluoranthene	4.00	3.99		ug/L		100	68 - 120	1	20
Benzo[a]pyrene	4.00	3.87		ug/L		97	76 - 120	1	17
Naphthalene	4.00	3.40		ug/L		85	62 - 120	4	15
Indeno[1,2,3-cd]pyrene	4.00	3.51		ug/L		88	63 - 120	1	15
Phenanthrene	4.00	3.41		ug/L		85	65 - 120	1	15
Dibenz(a,h)anthracene	4.00	3.65		ug/L		91	60 - 125	0	15
Pyrene	4.00	3.86		ug/L		96	69 - 120	0	17
Benzo[g,h,i]perylene	4.00	3.37		ug/L		84	61 - 120	0	16

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 580-269492/3-A
Matrix: Water
Analysis Batch: 269518

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269492

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	80		53 - 112

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-269343/1-A
Matrix: Solid
Analysis Batch: 269421

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269343

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		03/19/18 09:38	03/19/18 16:50	1
PCB-1221	ND		0.020		mg/Kg		03/19/18 09:38	03/19/18 16:50	1
PCB-1232	ND		0.020		mg/Kg		03/19/18 09:38	03/19/18 16:50	1
PCB-1242	ND		0.020		mg/Kg		03/19/18 09:38	03/19/18 16:50	1
PCB-1248	ND		0.020		mg/Kg		03/19/18 09:38	03/19/18 16:50	1
PCB-1254	ND		0.020		mg/Kg		03/19/18 09:38	03/19/18 16:50	1
PCB-1260	ND		0.020		mg/Kg		03/19/18 09:38	03/19/18 16:50	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	119		25 - 149	03/19/18 09:38	03/19/18 16:50	1
Tetrachloro-m-xylene	95		35 - 130	03/19/18 09:38	03/19/18 16:50	1

Lab Sample ID: LCS 580-269343/2-A
Matrix: Solid
Analysis Batch: 269421

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269343

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
PCB-1016	0.100	0.104		mg/Kg		104	69 - 126
PCB-1260	0.100	0.119		mg/Kg		119	68 - 136

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	124		25 - 149
Tetrachloro-m-xylene	97		35 - 130

Lab Sample ID: MB 580-269846/1-A
Matrix: Solid
Analysis Batch: 269971

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269846

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		03/26/18 09:17	03/27/18 09:54	1
PCB-1221	ND		0.020		mg/Kg		03/26/18 09:17	03/27/18 09:54	1
PCB-1232	ND		0.020		mg/Kg		03/26/18 09:17	03/27/18 09:54	1
PCB-1242	ND		0.020		mg/Kg		03/26/18 09:17	03/27/18 09:54	1
PCB-1248	ND		0.020		mg/Kg		03/26/18 09:17	03/27/18 09:54	1
PCB-1254	ND		0.020		mg/Kg		03/26/18 09:17	03/27/18 09:54	1
PCB-1260	ND		0.020		mg/Kg		03/26/18 09:17	03/27/18 09:54	1

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: MB 580-269846/1-A
Matrix: Solid
Analysis Batch: 269971

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269846

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	76		25 - 149	03/26/18 09:17	03/27/18 09:54	1
Tetrachloro-m-xylene	81		35 - 130	03/26/18 09:17	03/27/18 09:54	1

Lab Sample ID: LCS 580-269846/2-A
Matrix: Solid
Analysis Batch: 269971

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269846

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	0.100	0.0874		mg/Kg		87	69 - 126
PCB-1260	0.100	0.0866		mg/Kg		87	68 - 136

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	82		25 - 149
Tetrachloro-m-xylene	84		35 - 130

Lab Sample ID: 580-75845-17 MS
Matrix: Solid
Analysis Batch: 269971

Client Sample ID: SW-02
Prep Type: Total/NA
Prep Batch: 269846

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
PCB-1016	ND	F1	0.130	0.0689	F1	mg/Kg	☼	53	69 - 126
PCB-1260	ND	F1	0.130	0.0700	F1	mg/Kg	☼	38	68 - 136

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	43		25 - 149
Tetrachloro-m-xylene	52		35 - 130

Lab Sample ID: 580-75845-17 MSD
Matrix: Solid
Analysis Batch: 269971

Client Sample ID: SW-02
Prep Type: Total/NA
Prep Batch: 269846

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
PCB-1016	ND	F1	0.125	0.0787	F1	mg/Kg	☼	63	69 - 126	13	17
PCB-1260	ND	F1	0.125	0.0815	F1	mg/Kg	☼	49	68 - 136	15	21

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	51		25 - 149
Tetrachloro-m-xylene	60		35 - 130

Lab Sample ID: MB 580-269894/1-A
Matrix: Water
Analysis Batch: 269971

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269894

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
PCB-1016	ND		0.45		ug/L		03/26/18 13:34	03/27/18 11:30	1
PCB-1221	ND		0.45		ug/L		03/26/18 13:34	03/27/18 11:30	1
PCB-1232	ND		0.45		ug/L		03/26/18 13:34	03/27/18 11:30	1

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: MB 580-269894/1-A
Matrix: Water
Analysis Batch: 269971

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269894

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1242	ND		0.45		ug/L		03/26/18 13:34	03/27/18 11:30	1
PCB-1248	ND		0.45		ug/L		03/26/18 13:34	03/27/18 11:30	1
PCB-1254	ND		0.45		ug/L		03/26/18 13:34	03/27/18 11:30	1
PCB-1260	ND		0.45		ug/L		03/26/18 13:34	03/27/18 11:30	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	68		38 - 134	03/26/18 13:34	03/27/18 11:30	1
Tetrachloro-m-xylene	56		54 - 115	03/26/18 13:34	03/27/18 11:30	1

Lab Sample ID: LCS 580-269894/2-A
Matrix: Water
Analysis Batch: 269971

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269894

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	1.00	0.729		ug/L		73	60 - 121
PCB-1260	1.00	0.767		ug/L		77	55 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	70		38 - 134
Tetrachloro-m-xylene	58		54 - 115

Lab Sample ID: LCSD 580-269894/3-A
Matrix: Water
Analysis Batch: 269971

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269894

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
PCB-1016	1.00	0.781		ug/L		78	60 - 121	7	20
PCB-1260	1.00	0.830		ug/L		83	55 - 132	8	22

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl	51		38 - 134
Tetrachloro-m-xylene	62		54 - 115

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-269440/1-A
Matrix: Solid
Analysis Batch: 269570

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269440

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/20/18 09:46	03/21/18 16:53	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/20/18 09:46	03/21/18 16:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	93		50 - 150	03/20/18 09:46	03/21/18 16:53	1

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-269440/1-A
Matrix: Solid
Analysis Batch: 269637

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269440

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/20/18 09:46	03/22/18 11:55	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/20/18 09:46	03/22/18 11:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	87		50 - 150	03/20/18 09:46	03/22/18 11:55	1

Lab Sample ID: MB 580-269440/1-A
Matrix: Solid
Analysis Batch: 269868

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269440

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mineral oil	ND		50		mg/Kg		03/20/18 09:46	03/26/18 13:03	1

Lab Sample ID: LCS 580-269440/2-A
Matrix: Solid
Analysis Batch: 269570

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269440

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	500	561		mg/Kg		112	70 - 125
Motor Oil (>C24-C36)	500	598	*	mg/Kg		120	70 - 119

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	97		50 - 150

Lab Sample ID: LCS 580-269440/2-A
Matrix: Solid
Analysis Batch: 269637

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269440

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	500	454		mg/Kg		91	70 - 125
Motor Oil (>C24-C36)	500	452		mg/Kg		90	70 - 119

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	87		50 - 150

Lab Sample ID: LCSD 580-269440/3-A
Matrix: Solid
Analysis Batch: 269570

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269440

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	540		mg/Kg		108	70 - 125	4	16
Motor Oil (>C24-C36)	500	575		mg/Kg		115	70 - 119	4	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	100		50 - 150

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-269440/3-A

Matrix: Solid
Analysis Batch: 269637

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA
Prep Batch: 269440

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	500	474		mg/Kg		95	70 - 125	4	16
Motor Oil (>C24-C36)	500	472		mg/Kg		94	70 - 119	4	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	86		50 - 150

Lab Sample ID: 580-75845-42 DU

Matrix: Solid
Analysis Batch: 269570

Client Sample ID: UST-SB03-15-16.5-03.14.18

Prep Type: Total/NA
Prep Batch: 269440

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
#2 Diesel (C10-C24)	ND		ND		mg/Kg	☼	NC	35
Motor Oil (>C24-C36)	ND *		ND *		mg/Kg	☼	20	35

Surrogate	DU %Recovery	DU Qualifier	Limits
<i>o</i> -Terphenyl	85		50 - 150

Lab Sample ID: 580-75845-42 DU

Matrix: Solid
Analysis Batch: 269868

Client Sample ID: UST-SB03-15-16.5-03.14.18

Prep Type: Total/NA
Prep Batch: 269440

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Mineral oil	ND		ND		mg/Kg	☼	NC	35

Lab Sample ID: MB 580-269652/1-A

Matrix: Water
Analysis Batch: 269637

Client Sample ID: Method Blank

Prep Type: Total/NA
Prep Batch: 269652

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		03/22/18 11:06	03/22/18 18:12	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		03/22/18 11:06	03/22/18 18:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	84		50 - 150	03/22/18 11:06	03/22/18 18:12	1

Lab Sample ID: MB 580-269652/1-A

Matrix: Water
Analysis Batch: 269868

Client Sample ID: Method Blank

Prep Type: Total/NA
Prep Batch: 269652

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mineral oil	ND		0.35		mg/L		03/22/18 11:06	03/26/18 19:07	1

Lab Sample ID: LCS 580-269652/2-A

Matrix: Water
Analysis Batch: 269637

Client Sample ID: Lab Control Sample

Prep Type: Total/NA
Prep Batch: 269652

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	2.00	1.45		mg/L		72	59 - 112

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-269652/2-A
Matrix: Water
Analysis Batch: 269637

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269652

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (>C24-C36)	2.00	1.83		mg/L		92	64 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
<i>o-Terphenyl</i>	91		50 - 150				

Lab Sample ID: LCSD 580-269652/3-A
Matrix: Water
Analysis Batch: 269637

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269652

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.64		mg/L		82	59 - 112	12	16
Motor Oil (>C24-C36)	2.00	1.83		mg/L		92	64 - 120	0	17
Surrogate	%Recovery	LCSD Qualifier	Limits						
<i>o-Terphenyl</i>	81		50 - 150						

Method: D 2216 - Percent Moisture

Lab Sample ID: 580-75845-4 DU
Matrix: Solid
Analysis Batch: 269525

Client Sample ID: EY-SG07-CSB
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	88.0		88.5		%		0.6	20
Percent Moisture	12.0		11.5		%		5	20

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: EY-SG07-CSB
Date Collected: 03/13/18 10:55
Date Received: 03/14/18 13:05

Lab Sample ID: 580-75845-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 16:20	TTN	TAL SEA

Client Sample ID: EY-SG07-CSB
Date Collected: 03/13/18 10:55
Date Received: 03/14/18 13:05

Lab Sample ID: 580-75845-4
Matrix: Solid
Percent Solids: 88.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269570	03/21/18 22:41	TL1	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 15:44	ADB	TAL SEA

Client Sample ID: EY-SG08-CSB
Date Collected: 03/13/18 12:08
Date Received: 03/14/18 13:05

Lab Sample ID: 580-75845-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 16:20	TTN	TAL SEA

Client Sample ID: EY-SG08-CSB
Date Collected: 03/13/18 12:08
Date Received: 03/14/18 13:05

Lab Sample ID: 580-75845-9
Matrix: Solid
Percent Solids: 82.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269637	03/22/18 17:06	ADB	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 16:05	ADB	TAL SEA

Client Sample ID: EY-SG23-CSB
Date Collected: 03/13/18 15:40
Date Received: 03/14/18 13:05

Lab Sample ID: 580-75845-16
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 16:20	TTN	TAL SEA

Client Sample ID: EY-SG23-CSB
Date Collected: 03/13/18 15:40
Date Received: 03/14/18 13:05

Lab Sample ID: 580-75845-16
Matrix: Solid
Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: EY-SG23-CSB

Lab Sample ID: 580-75845-16

Date Collected: 03/13/18 15:40

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	269570	03/21/18 23:22	TL1	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 16:45	ADB	TAL SEA

Client Sample ID: SW-02

Lab Sample ID: 580-75845-17

Date Collected: 03/13/18 14:33

Matrix: Solid

Date Received: 03/14/18 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 16:20	TTN	TAL SEA

Client Sample ID: SW-02

Lab Sample ID: 580-75845-17

Date Collected: 03/13/18 14:33

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 74.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269846	03/26/18 09:17	TTN	TAL SEA
Total/NA	Analysis	8082A		1	269971	03/27/18 10:32	Y1W	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269637	03/22/18 17:28	ADB	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 17:05	ADB	TAL SEA

Client Sample ID: RNS-03

Lab Sample ID: 580-75845-18

Date Collected: 03/13/18 09:12

Matrix: Water

Date Received: 03/14/18 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			269894	03/26/18 13:34	APR	TAL SEA
Total/NA	Analysis	8082A		1	269971	03/27/18 12:28	Y1W	TAL SEA
Total/NA	Prep	3510C			269652	03/22/18 11:06	NDB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269637	03/22/18 19:41	ADB	TAL SEA
Total/NA	Prep	3510C			269652	03/22/18 11:06	NDB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 20:28	ADB	TAL SEA

Client Sample ID: RNS-04

Lab Sample ID: 580-75845-19

Date Collected: 03/13/18 16:05

Matrix: Water

Date Received: 03/14/18 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			269894	03/26/18 13:34	APR	TAL SEA
Total/NA	Analysis	8082A		1	269971	03/27/18 12:47	Y1W	TAL SEA
Total/NA	Prep	3510C			269652	03/22/18 11:06	NDB	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: RNS-04

Lab Sample ID: 580-75845-19

Date Collected: 03/13/18 16:05

Matrix: Water

Date Received: 03/14/18 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	269637	03/22/18 20:04	ADB	TAL SEA
Total/NA	Prep	3510C			269652	03/22/18 11:06	NDB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 20:48	ADB	TAL SEA

Client Sample ID: EY-SG20-CSB

Lab Sample ID: 580-75845-24

Date Collected: 03/13/18 11:10

Matrix: Solid

Date Received: 03/14/18 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 16:20	TTN	TAL SEA

Client Sample ID: EY-SG20-CSB

Lab Sample ID: 580-75845-24

Date Collected: 03/13/18 11:10

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 89.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269570	03/22/18 00:23	TL1	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 17:26	ADB	TAL SEA

Client Sample ID: UST-SB02-22.5-24-03.13.18

Lab Sample ID: 580-75845-31

Date Collected: 03/13/18 16:45

Matrix: Solid

Date Received: 03/14/18 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 16:20	TTN	TAL SEA

Client Sample ID: UST-SB02-22.5-24-03.13.18

Lab Sample ID: 580-75845-31

Date Collected: 03/13/18 16:45

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 89.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			269401	03/19/18 14:37	DSO	TAL SEA
Total/NA	Analysis	8260C		1	269490	03/21/18 00:15	W1T	TAL SEA
Total/NA	Prep	3546			269435	03/20/18 09:30	TTN	TAL SEA
Total/NA	Analysis	8270D SIM		1	269518	03/20/18 19:21	T1W	TAL SEA
Total/NA	Prep	3546			269343	03/19/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	269421	03/19/18 20:45	TL1	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269570	03/22/18 01:04	TL1	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 17:46	ADB	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: UST-SB01-12.5-14-03.13.18

Lab Sample ID: 580-75845-33

Date Collected: 03/13/18 14:00

Matrix: Solid

Date Received: 03/14/18 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 16:20	TTN	TAL SEA

Client Sample ID: UST-SB01-12.5-14-03.13.18

Lab Sample ID: 580-75845-33

Date Collected: 03/13/18 14:00

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 90.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			269401	03/19/18 14:37	DSO	TAL SEA
Total/NA	Analysis	8260C		1	269490	03/21/18 00:42	W1T	TAL SEA
Total/NA	Prep	3546			269435	03/20/18 09:30	TTN	TAL SEA
Total/NA	Analysis	8270D SIM		1	269518	03/20/18 19:45	T1W	TAL SEA
Total/NA	Prep	3546			269343	03/19/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	269421	03/19/18 21:02	TL1	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269570	03/22/18 01:24	TL1	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 18:06	ADB	TAL SEA

Client Sample ID: RNS-5

Lab Sample ID: 580-75845-35

Date Collected: 03/13/18 18:42

Matrix: Water

Date Received: 03/14/18 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	269820	03/24/18 22:36	W1T	TAL SEA
Total/NA	Prep	3510C			269492	03/20/18 13:51	NDB	TAL SEA
Total/NA	Analysis	8270D SIM		1	269518	03/20/18 20:35	T1W	TAL SEA
Total/NA	Prep	3510C			269894	03/26/18 13:34	APR	TAL SEA
Total/NA	Analysis	8082A		1	270056	03/28/18 08:56	Y1W	TAL SEA
Total/NA	Prep	3510C			269652	03/22/18 11:06	NDB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269637	03/22/18 20:26	ADB	TAL SEA
Total/NA	Prep	3510C			269652	03/22/18 11:06	NDB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 21:09	ADB	TAL SEA

Client Sample ID: TB-SOIL

Lab Sample ID: 580-75845-36

Date Collected: 03/13/18 00:01

Matrix: Solid

Date Received: 03/14/18 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			269401	03/19/18 14:37	DSO	TAL SEA
Total/NA	Analysis	8260C		1	269490	03/21/18 01:08	W1T	TAL SEA

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Client Sample ID: TB-WATER

Lab Sample ID: 580-75845-37

Date Collected: 03/13/18 00:01

Matrix: Water

Date Received: 03/14/18 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	269820	03/25/18 23:04	W1T	TAL SEA

Client Sample ID: RNS-06

Lab Sample ID: 580-75845-41

Date Collected: 03/14/18 12:15

Matrix: Water

Date Received: 03/14/18 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	269820	03/25/18 23:33	W1T	TAL SEA
Total/NA	Prep	3510C			269492	03/20/18 13:51	NDB	TAL SEA
Total/NA	Analysis	8270D SIM		1	269518	03/20/18 20:59	T1W	TAL SEA
Total/NA	Prep	3510C			269894	03/26/18 13:34	APR	TAL SEA
Total/NA	Analysis	8082A		1	270056	03/28/18 09:16	Y1W	TAL SEA
Total/NA	Prep	3510C			269652	03/22/18 11:06	NDB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269637	03/22/18 20:48	ADB	TAL SEA
Total/NA	Prep	3510C			269652	03/22/18 11:06	NDB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 21:29	ADB	TAL SEA

Client Sample ID: UST-SB03-15-16.5-03.14.18

Lab Sample ID: 580-75845-42

Date Collected: 03/14/18 08:40

Matrix: Solid

Date Received: 03/14/18 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 16:20	TTN	TAL SEA

Client Sample ID: UST-SB03-15-16.5-03.14.18

Lab Sample ID: 580-75845-42

Date Collected: 03/14/18 08:40

Matrix: Solid

Date Received: 03/14/18 13:05

Percent Solids: 87.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			269401	03/19/18 14:37	DSO	TAL SEA
Total/NA	Analysis	8260C		1	269490	03/21/18 01:34	W1T	TAL SEA
Total/NA	Prep	3546			269435	03/20/18 09:30	TTN	TAL SEA
Total/NA	Analysis	8270D SIM		1	269518	03/20/18 20:10	T1W	TAL SEA
Total/NA	Prep	3546			269343	03/19/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	269421	03/19/18 21:19	TL1	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269570	03/22/18 01:45	TL1	TAL SEA
Total/NA	Prep	3546			269440	03/20/18 09:46	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 18:26	ADB	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75845-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-75845-4	EY-SG07-CSB	Solid	03/13/18 10:55	03/14/18 13:05
580-75845-9	EY-SG08-CSB	Solid	03/13/18 12:08	03/14/18 13:05
580-75845-16	EY-SG23-CSB	Solid	03/13/18 15:40	03/14/18 13:05
580-75845-17	SW-02	Solid	03/13/18 14:33	03/14/18 13:05
580-75845-18	RNS-03	Water	03/13/18 09:12	03/14/18 13:05
580-75845-19	RNS-04	Water	03/13/18 16:05	03/14/18 13:05
580-75845-24	EY-SG20-CSB	Solid	03/13/18 11:10	03/14/18 13:05
580-75845-31	UST-SB02-22.5-24-03.13.18	Solid	03/13/18 16:45	03/14/18 13:05
580-75845-33	UST-SB01-12.5-14-03.13.18	Solid	03/13/18 14:00	03/14/18 13:05
580-75845-35	RNS-5	Water	03/13/18 18:42	03/14/18 13:05
580-75845-36	TB-SOIL	Solid	03/13/18 00:01	03/14/18 13:05
580-75845-37	TB-WATER	Water	03/13/18 00:01	03/14/18 13:05
580-75845-41	RNS-06	Water	03/14/18 12:15	03/14/18 13:05
580-75845-42	UST-SB03-15-16.5-03.14.18	Solid	03/14/18 08:40	03/14/18 13:05

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

Loc: 580
75845

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: Owen Pulloff		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.4											
Client Contact: Suzanne Dolberg		Phone: 503 421 1443		E-Mail: sheri.cruz@testamericainc.com				Page: Page 4 of 33											
Company: ERM-West				Analysis Requested				Job #:											
Address: 1218 3rd Ave Suite 1412		Due Date Requested:		<table border="1"> <tr> <td>Field Filtered Sample (Yes or No)</td> <td>Perform MS/MS (Yes or No)</td> <td>8082A - NWTPH_Dx</td> <td>8082A - 82700_SIM - NWTPH_Dx</td> <td>8260C - BTEX</td> <td>8010C, 7471A, NWTPH_Dx</td> <td>8082A - PCBs, standard list</td> <td>8020A, 7470A</td> <td>NWTPH_Dx - Northwest - DRO/RO</td> <td>8260C - BTEX</td> </tr> </table>				Field Filtered Sample (Yes or No)	Perform MS/MS (Yes or No)	8082A - NWTPH_Dx	8082A - 82700_SIM - NWTPH_Dx	8260C - BTEX	8010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX	Preservation Codes:	
Field Filtered Sample (Yes or No)	Perform MS/MS (Yes or No)	8082A - NWTPH_Dx	8082A - 82700_SIM - NWTPH_Dx					8260C - BTEX	8010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX						
City: Seattle		TAT Requested (days):						Therm. ID: 185 Cor 0.3 Unc 0.4		Cooler Dsc: 19 green		Wet/Packs Packing: Wet		Custody Seal: Yes No <input type="checkbox"/> at					
State, Zip: WA, 98101		PO #: 0435302.03						Other:		J - LI Water		V - MCAA		K - EDTA		W - pH 4-5			
Phone: 425-214-0462(Tel)		WO #:						L - EDA		Z - other (specify)									
Email: suzanne.dolberg@erm.com		Project #: 58012210																	
Project Name: Cushman Phase II ESA		SSOW#:																	
Site:																			
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Field Filtered Sample (Yes or No)		Perform MS/MS (Yes or No)		Total Number of Containers		Special Instructions/Note:			
EY-SG00-SB01		3/13/18		1505		G		Solid		X		X		X		Hold			
EY-SG00-SB02		3/13/18		1515		G		Solid		X		X		X		Hold			
EY-SG00-SB05		3/13/18		1530		G		Solid		X		X		X		Hold			
EY-SG07-CSB		3/13/18		1055		C		Solid		X		X		X		Run TAT, hold PCBs			
EY-SG07-SB01		3/13/18		1032		G		Solid		X		X		X		Hold			
EY-SG07-SB02		3/13/18		1040		G		Solid		X		X		X		Hold			
EY-SG07-SB03		3/13/18		1048		G		Solid		X		X		X		Hold			
EY-SG07-SB04		3/13/18		1055		G		Solid		X		X		X		Hold			
EY-SG08-CSB		3/13/18		1208		C		Solid		X		X		X		Run TAT hold PCBs			
EY-SG08-SB01		3/13/18		11:15		G		Solid		X		X		X		Hold			
EY-SG08-SB02		3/13/18		1135		G		Solid		X		X		X		Hold			
Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)															
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months															
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:															
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:													
Relinquished by: Janga Pattys		Date/Time: 3/14/18 12:30		Company: ERM		Received by: Whe		Date/Time: 3/14/18 1230		Company: JA Sea									
Relinquished by: Whe		Date/Time: 3/14/18 1305		Company: JA Sea		Received by: B Saer		Date/Time: 3/14/18 1305		Company: JA Sea									
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:															

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: Owen Ruloff		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.5									
Client Contact: Suzanne Dolberg		Phone: 503 421 1443		E-Mail: sheri.cruz@testamericainc.com				Page: Page 5 of 33									
Company: ERM-West				Analysis Requested				Job #:									
Address: 1218 3rd Ave Suite 1412		Due Date Requested:		Therm. ID 125 Cor 0.3 Unc 0.4 Cooler Dsc: Ignen Wet Packs Packing: Wet Low Custody Seal: Yes ___ No ___		U - Acetone V - MCAA W - pH 4-5 Z - other (specify)		Other:									
City: Seattle		TAT Requested (days):															
State, Zip: WA, 98101		PO #: 0435302.03															
Phone: 425-214-0462(Tel)		WO #:															
Email: suzanne.dolberg@erm.com		Project Name: Cushman Phase II ESA		Project #: 58012210													
Site:		SSOW#:															
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Performs MS/MSD (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D, SIM, NWTPH_Dx	8260C - BTEX	8010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX	Total Number of containers	Special Instructions/Note:
				Preservation Code		N	N	F	N	N	D	A	A				
EY-SG08-SB03		3/13/18	11:41	G	Solid	X											1 Hold
EY-SG08-SB04		3/13/18	11:58	G	Solid	X											1 Hold
EY-SG08-SB05		3/13/18	12:08	G	Solid	X											1 Hold
EY-SG09-SB08 EY-SG23-9804		3/13/18	15:40	G	Solid	X											1 Hold
EY-SG09-SB01 EY-SG23-CSB		3/13/18	19:40	C	Solid	X											1 Run TPH, hold PCBs
EY-SG09-SB02 SW-02		3/13/18	14:33	G	Solid	X											1 Run TPH, hold PCBs
EY-SG09-SB03 RNS-03		3/13/18	09:12	G	Water Solid						X		X				4 Run TPH + PCBs
EY-SG09-SB04 RNS-04		3/13/18	16:05	G	Water Solid						X		X				4
EY-SG10-SB01					Solid												
EY-SG10-SB02					Solid												
EY-SG10-SB03					Solid												
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)											
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months											
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:											
Empty Kit Relinquished by:			Date:			Time:			Method of Shipment:								
Relinquished by: <i>Janya Patton</i>			Date/Time: 3/14/18 12:30			Company: ERM			Received by: <i>AK</i>								
Relinquished by: <i>AK</i>			Date/Time: 3/14/18 13:05			Company: DASE			Received by: <i>B. Jansen</i>								
Relinquished by:			Date/Time:			Company:			Received by:								
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:													

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sample: Owen Rydloff		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.10		
Client Contact: Suzanne Dolberg		Phone: 503 421 1443		E-Mail: sheri.cruz@testamericainc.com				Page: Page 10 of 33		
Company: ERM-West						Analysis Requested		Job #:		
Address: 1218 3rd Ave Suite 1412		Due Date Requested:						Therm. ID: RS Cor - 0.2 Unc 0.4		
City: Seattle		TAT Requested (days):						Cooler Dsc: 19 green		
State, Zip: WA, 98101								Wet/Packs Packing: Wet		
Phone: 425-214-0462(Tel)		PO #: 0435302.03						Car Custody Seal: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Email: suzanne.dolberg@erm.com		WO #:						ydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:		
Project Name: Cushman Phase II ESA		Project #: 58012210								
Site:		SSOW#:								
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of containers		Special Instructions/Note:
				Preservation Code		X	X			
EY-SG20-SB02	3/13/18	0948	G	Solid		X				Hold
EY-SG20-SB03	3/13/18	0954	G	Solid		X				Hold
EY-SG20-SB04	3/13/18	1110	G	Solid		X				Hold
EY-SG21-SB01 EY-SG20-SB 01	3/13/18	0939	G	Solid		X				Hold
EY-SG21-SB02 EY-SG20-CSB	3/13/18	1110	C	Solid		X				Run TPH - hold PCB
EY-SG21-SB03				Solid						
SW42				Solid						
EY-SG22-CSB	3/13/18	1352	C	Solid		X				Hold
EY-SG22-SB01	3/13/18	1342	G	Solid		X				Hold
EY-SG22-SB02	3/13/18	1347	G	Solid		X				Hold
EY-SG22-SB03	3/13/18	1352	G	Solid		X				Hold
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:					
Empty Kit Relinquished by:			Date:	Time:	Method of Shipment:					
Relinquished by:		Date/Time: 3/14/18 12:30	Company: ERM	Received by:		Date/Time: 3/14/18 1230	Company:			
Relinquished by:		Date/Time: 3/14/18 1:05	Company: TASA	Received by:		Date/Time: 3/14/18 1305	Company:			
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:	Company:			
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:							

Client: **ERM** Client Contact: **Suzanne Dolberg** Date: **3/13/18** Chain of Custody Number: **36680**
Address: **1218 3rd Ave Suite 1412** Telephone Number (Area Code)/Fax Number: **425 214 0462** Lab Number: _____
City: **Seattle** State: **WA** Zip Code: **98101** Sampler: **Renee Holt** Lab Contact: **Sheri Cruz** Analysis (Attach list if more space is needed): _____
Project Name and Location (State): **Cushman Phase II ESA** Billing Contact: _____ Page _____ of _____
Contract/Purchase Order/Quote No.: **049307 03**

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							Number	Bottles	Special Instructions/ Conditions of Receipt		
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	CH4				602A, 822D - STM	NW/TPH-DX	BTEX
UST-SB02-10-31-07.18.18	3/13/18	1730				X	X						X	X	X	X	2	Hold
UST-SB02-10-11.5-07.18.18	3/13/18	1530				X	X						X	X	X	X	2	Hold
UST-SB02-22.5-24-03.13.18	3/13/18	1645				X	X						X	X	X	X	2	Run
UST-SB03-7.0-7.5-03.13.18	3/13/18	1600				X	X						X	X	X	X	2	HOLD
UST-SB01-12.5-14-03.13.18	3/13/18	1400				X	X						X	X	X	X	2	Run
UST-SB01-25-26.5-03.13.18	3/13/18	1500				X	X						X	X	X	X	2	HOLD
RNS-05	3/13/18	18:42	X						4			2				X	6	Run
RNS-05	3/13/18	18:42	X									3					3	Run
TB-	3/13/18	---	X									1					1	Run
UST-SB03-35-36.5-03.14.18	3/14/18	11:05				X	X						X	X	X	X	2	Hold
UST-SB03-25-26.5-03.14.18	3/14/18	9:15				X	X						X	X	X	X	2	Hold
UST-SB03-30-31.5-03.14.18	3/14/18	12:15				X	X						X	X	X	X	2	Hold

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal: Return To Client Disposal By Lab Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify): _____

1. Relinquished By: Tanya Battye Sign/Print: <i>Tanya Battye</i> Date: 3/14/18 Time: 12:30	1. Received By: R. Galt Sign/Print: <i>R. Galt</i> Date: 3/14/18 Time: 12:30
2. Relinquished By: W. J. ... Sign/Print: <i>W. J. ...</i> Date: 3/14/18 Time: 13:05	2. Received By: R. Galt Sign/Print: <i>R. Galt</i> Date: 3/14/18 Time: 13:05
3. Relinquished By: _____ Sign/Print: _____ Date: _____ Time: _____	3. Received By: _____ Sign/Print: _____ Date: _____ Time: _____

Comments: **Therm. ID: RS Cor: 0.3 Unc: 0.4**
Cooler Disc: green
Wet/Packs Packing: white

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information				Sampler: <i>Tanya Battip</i>	Lab PM: Cruz, Sheri L	Carrier Tracking No(s):	COC No: 580-27907-9206.33									
Client Contact: Suzanne Dolberg				Phone:	E-Mail: sheri.cruz@testamericainc.com		Page: Page 33 of 33									
Company: ERM-West				Analysis Requested			Job #:									
Address: 1218 3rd Ave Suite 1412				Due Date Requested:			Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)									
City: Seattle				TAT Requested (days):												
State, Zip: WA, 98101				PO #: 0435302.03												
Phone: 425-214-0462(Tel)				WO #:												
Email: suzanne.dolberg@erm.com				Project #: 58012210												
Project Name: Cushman Phase II ESA				SSOW#:												
Site: <i>Cushman</i>							Other:									
Sample Identification											Special Instructions/Note:					
			Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No)						Total Number of Containers			
					Preservation Code		N	N	F	N	N	D	A	A		
RNS-06			3/14/18	12:15	G	Water		✓								2
RNS-07			3/14/18	12:15	G	Water			✓							3
RNS-08			3/14/18	12:15	G	Water				✓						1 only 250 mL provided
RNS-09			3/14/18	12:15	G	Water							✓			1 only 250 mL provided
RNS-10	VST-5803-B-110.5-03.14.18		3/14/18	8:40	G	Water SOIL		✓	✓							2 Run
RNS-11						Water										
Possible Hazard Identification							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)									
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological							<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months									
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:												
Empty Kit Relinquished by:				Date:		Time:			Method of Shipment:							
Relinquished by: <i>Tanya Battip</i>			Date/Time: 3/14/18 12:30		Company: ERM			Received by: <i>[Signature]</i>			Date/Time: 3/14/18 12:30		Company: TASA			
Relinquished by: <i>[Signature]</i>			Date/Time: 3/14/18 1305		Company: TASA			Received by: <i>[Signature]</i>			Date/Time: 3/14/18 1305		Company:			
Relinquished by:			Date/Time:		Company:			Received by:			Date/Time:		Company:			
Custody Seals Intact: Δ Yes Δ No			Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:											

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Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-75845-1

Login Number: 75845
List Number: 1
Creator: Gall, Brandon A

List Source: TestAmerica Seattle

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



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.


TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-75874-1

Client Project/Site: Cushman Phase II ESA

For:
ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
3/30/2018 3:53:08 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

LINKS

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results through
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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Job ID: 580-75874-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-75874-1

Comments

No additional comments.

Receipt

The samples were received on 3/15/2018 3:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 6.3° C and 7.3° C.

Receipt Exceptions

The following samples were submitted for analysis; however, they were not listed on the Chain-of-Custody (COC): EY-SG09-CSB (580-75874-60), EY-SG09-SB01 (580-75874-61), EY-SG09-SB02 (580-75874-62) and EY-SG09-SB03 (580-75874-63) The samples are added to the COC and to the login without analyses assigned.

The seventh (last) page of the chain of custody was not relinquished by the client.

3/21/18 per phone conversation with Owen, sample 580-75875-31 (RNS-05) should be changed to RNS-09.

One of the two coolers was received at the laboratory outside the required temperature criteria: EY-SG10-SB04 (580-75874-1), EY-SG10-SB05 (580-75874-2), EY-SG10-SB01 (580-75874-3), EY-SG10-SB02 (580-75874-4), EY-SG10-SB03 (580-75874-5), EY-SG10-SB06 (580-75874-6), EY-SG10-CSB (580-75874-7), SW-01 (580-75874-8), SW-03 (580-75874-9), EY-SG12-CSB (580-75874-10), EY-SG12-SB01 (580-75874-11), EY-SG12-SB02 (580-75874-12), EY-SG12-SB03 (580-75874-13), EY-SG13-CSB (580-75874-14), EY-SG13-SB01 (580-75874-15), EY-SG13-SB02 (580-75874-16), EY-SG13-SB03 (580-75874-17), EY-SG13-SB04 (580-75874-18), EY-SG14-CSB (580-75874-19), EY-SG14-SB01 (580-75874-20), EY-SG14-SB02 (580-75874-21), EY-SG25-CSB (580-75874-22), EY-SG25-SB01 (580-75874-23), EY-SG25-SB02 (580-75874-24), EY-SG25-SB03 (580-75874-25), EY-SG26-CSB (580-75874-26), EY-SG26-SB01 (580-75874-27), EY-SG26-SB02 (580-75874-28), EY-SG26-SB03 (580-75874-29), EY-SG14-SB03 (580-75874-30), RNS-09 (580-75874-31), EY-SG12-SB04 (580-75874-32), EY-SG27-SB01 (580-75874-33), EY-SG28-CSB (580-75874-34), EY-SG28-SB01 (580-75874-35), EY-SG28-SB02 (580-75874-36), EY-SG28-SB03 (580-75874-37), EY-SG29-CSB (580-75874-38), EY-SG29-SB01 (580-75874-39), EY-SG29-SB02 (580-75874-40), EY-SG29-SB03 (580-75874-41), EY-SG30-CSB (580-75874-42), EY-SG30-SB01 (580-75874-43), EY-SG15-CSB (580-75874-44), EY-SG15-SB01 (580-75874-45), EY-SG15-SB02 (580-75874-46), EY-SG27-CSB (580-75874-47), EY-SG16-CSB (580-75874-48), EY-SG16-SB01 (580-75874-49), EY-SG16-SB02 (580-75874-50), EY-SG16-SB03 (580-75874-51), EY-SG30-SB02 (580-75874-52), EY-SG30-SB03 (580-75874-53), EY-SG27-SB02 (580-75874-54), EY-SG31-SB01 (580-75874-55), EY-SG31-SB02 (580-75874-56), EY-SG31-SB03 (580-75874-57), EY-SG31-SB03 (580-75874-58), RNS-07 (580-75874-59), EY-SG09-CSB (580-75874-60), EY-SG09-SB01 (580-75874-61), EY-SG09-SB02 (580-75874-62), EY-SG09-SB03 (580-75874-63), EY-SG18-CSB (580-75874-64), EY-SG18-SB01 (580-75874-65), EY-SG18-SB02 (580-75874-66), EY-SG18-SB03 (580-75874-67), EY-SG19-CSB (580-75874-68), EY-SG19-SB01 (580-75874-69), EY-SG19-SB02 (580-75874-70) and EY-SG19-SB03 (580-75874-71).

GC Semi VOA

Method(s) 8082, 8082A: The continuing calibration verification (CCV) associated with batch 580-269791 recovered above the upper control limit for PCB-1232, PCB-1248, PCB-1242, PCB-1016 and PCB-1260. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: (CCV 580-269791/10), (CCV 580-269791/8), (CCV 580-269791/9), (CCVIS 580-269791/12), and (MB 580-269706/1-A).

Method(s) 8082, 8082A: The following continuing calibration verification (CCV) standard associated with batch 580-269791 recovered outside acceptance criteria for %D for surrogate DCB Decachlorobiphenyl. Since the %Rec is within the acceptance criteria for the surrogate in the CCV and associated samples, the data have been reported. The following sample is impacted: (CCVIS 580-269791/12)

Method(s) 8082, 8082A: The continuing calibration verification (CCV) associated with batch 580-269793 recovered above the upper control limit for PCB-1232, PCB-1248, PCB-1242, PCB-1016 and PCB-1260. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: EY-SG09-SB01 (580-75874-61), EY-SG09-SB02 (580-75874-62), EY-SG09-SB03 (580-75874-63), (CCV 580-269793/10) and (CCV 580-269793/11).

Method(s) 8082A: The continuing calibration verification (CCV) associated with 580-269971 recovered high and outside the control limits

Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Job ID: 580-75874-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

for PCB-1260 and PCB-1016 on one column. Results are confirmed on both columns and reported from the passing column. The following sample is impacted: (CCV 580-269971/28).

Method(s) 8082A: The continuing calibration verification (CCV) associated with batch 580-270056 recovered above the upper control limit for PCB-1221, PCB-1016, and PCB-1260. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: RNS-09 (580-75874-31), RNS-07 (580-75874-59), (CCV 580-270056/15) and (CCVIS 580-270056/16).

Method(s) 8082A: The continuing calibration verification (CCV) associated with batch 580-270131 recovered above the upper control limit for PCB-1232, PCB-1248, PCB-1242, PCB-1260 and PCB-1016. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: RNS-09 (580-75874-31), RNS-07 (580-75874-59), (CCV 580-270131/10), (CCV 580-270131/8), (CCV 580-270131/9), (CCVIS 580-270131/12) and (MB 580-269894/1-A).

Method(s) NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-269782 recovered above the upper control limit for #2 Diesel (C10-C24) and Motor Oil (>C24-C36). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: EY-SG10-CSB (580-75874-7), EY-SG12-CSB (580-75874-10), EY-SG13-CSB (580-75874-14), EY-SG14-CSB (580-75874-19), EY-SG25-CSB (580-75874-22), EY-SG28-CSB (580-75874-34), EY-SG29-CSB (580-75874-38), EY-SG15-CSB (580-75874-44), EY-SG27-CSB (580-75874-47), EY-SG16-CSB (580-75874-48), (CCV 580-269782/13), (CCV 580-269782/41), (CCVRT 580-269782/3) and (580-75874-48 DU).

Method(s) NWTPH-Dx: The Continuing calibration verification (CCV) standard associated with batch 580-269799 recovered outside %Drift acceptance criteria for o-Terphenyl surrogate. The %Recovery is within acceptance criteria for the surrogate in the CCV and associated samples; therefore, the data are qualified and reported. (CCV 580-269799/14), (CCVRT 580-269799/3), (LCS 580-269741/2-A), (LCSD 580-269741/3-A) and (MB 580-269741/1-A)

Method(s) NWTPH-Dx: Continuing calibration verification (CCV) standard associated with batch 580-270006 recovered outside %Drift acceptance criteria for o-Terphenyl surrogate. The %Recovery is within acceptance criteria for the surrogate in the CCV and associated samples where matrix does not interfere; therefore, the data are qualified and reported. SW-01 (580-75874-8), SW-03 (580-75874-9), EY-SG26-CSB (580-75874-26), EY-SG30-CSB (580-75874-42), (CCV 580-270006/14), (CCV 580-270006/45), (CCVRT 580-270006/3), (MB 580-269647/1-A), EY-SG26-SB01 (580-75874-27), EY-SG26-SB02 (580-75874-28), EY-SG26-SB03 (580-75874-29), (CCV 580-270006/34), (LCS 580-269946/2-A), (LCSD 580-269946/3-A), (MB 580-269946/1-A) and (580-75874-27 DU)

Method(s) NWTPH-Dx: Continuing calibration verification (CCV) standard associated with batch 580-270159 recovered outside %Drift acceptance criteria for o-Terphenyl surrogate. The %Recovery is within acceptance criteria for the surrogate in the CCV and associated samples; therefore, the data are qualified and reported. EY-SG30-SB01 (580-75874-43), EY-SG16-SB02 (580-75874-50), EY-SG16-SB03 (580-75874-51), (CCV 580-270159/14), and (MB 580-270084/1-A).

Method(s) NWTPH-Dx: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: EY-SG30-CSB (580-75874-42) and RNS-07 (580-75874-59).

Method(s) NWTPH-Dx: In analytical batch 580-269863, the following CCV contained o-Terphenyl at -15.3%D. This passes the 15%D criteria by virtue of rounding; therefore, the flags have been removed and the data reported. Affected Samples: RNS-09 (580-75874-31[1.0]), RNS-07 (580-75874-59[1.0]) and (CCV 580-269863/14)

Method(s) NWTPH-Dx: The following sample was diluted to bring the concentration of target analytes within the calibration range: RNS-07 (580-75874-59). Elevated reporting limits (RLs) are provided.

Method(s) NWTPH-Dx: Surrogate recovery for the following samples were outside control limits: EY-SG26-SB01 (580-75874-27) and (580-75874-27 DU). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) NWTPH-Dx: The sample duplicate (DUP) precision for preparation batch 580-269946 and analytical batch 580-270006 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Job ID: 580-75874-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

Method(s) NWTPH-Dx: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for preparation batch 580-270084 and analytical batch 580-270159 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

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

General Chemistry

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

Organic Prep

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



Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
F3	Duplicate RPD exceeds the control limit

Glossary

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

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG10-CSB

Lab Sample ID: 580-75874-7

Date Collected: 03/14/18 10:25

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 87.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		56		mg/Kg	☼	03/22/18 10:19	03/24/18 02:13	1
Motor Oil (>C24-C36)	ND		56		mg/Kg	☼	03/22/18 10:19	03/24/18 02:13	1
Mineral oil	ND		56		mg/Kg	☼	03/22/18 10:19	03/29/18 21:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	93		50 - 150				03/22/18 10:19	03/24/18 02:13	1
<i>o</i> -Terphenyl	80		50 - 150				03/22/18 10:19	03/29/18 21:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.0		0.1		%			03/20/18 17:12	1
Percent Moisture	13.0		0.1		%			03/20/18 17:12	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: SW-01

Date Collected: 03/14/18 14:00

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-8

Matrix: Solid

Percent Solids: 81.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	260		58		mg/Kg	☼	03/22/18 10:19	03/24/18 02:35	1
Motor Oil (>C24-C36)	120		58		mg/Kg	☼	03/22/18 10:19	03/24/18 02:35	1
Mineral oil	320		58		mg/Kg	☼	03/22/18 10:19	03/28/18 00:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	83		50 - 150				03/22/18 10:19	03/24/18 02:35	1
<i>o</i> -Terphenyl	73		50 - 150				03/22/18 10:19	03/28/18 00:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.6		0.1		%			03/20/18 17:12	1
Percent Moisture	18.4		0.1		%			03/20/18 17:12	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: SW-03

Date Collected: 03/14/18 14:35

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-9

Matrix: Solid

Percent Solids: 81.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	330		57		mg/Kg	☼	03/22/18 10:19	03/24/18 02:56	1
Motor Oil (>C24-C36)	240		57		mg/Kg	☼	03/22/18 10:19	03/24/18 02:56	1
Mineral oil	440		57		mg/Kg	☼	03/22/18 10:19	03/28/18 08:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	82		50 - 150				03/22/18 10:19	03/24/18 02:56	1
<i>o</i> -Terphenyl	72		50 - 150				03/22/18 10:19	03/28/18 08:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.5		0.1		%			03/20/18 17:12	1
Percent Moisture	18.5		0.1		%			03/20/18 17:12	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG12-CSB

Lab Sample ID: 580-75874-10

Date Collected: 03/14/18 11:35

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 89.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		54		mg/Kg	☼	03/22/18 10:19	03/24/18 03:18	1
Motor Oil (>C24-C36)	ND		54		mg/Kg	☼	03/22/18 10:19	03/24/18 03:18	1
Mineral oil	ND		54		mg/Kg	☼	03/22/18 10:19	03/29/18 22:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	89		50 - 150	03/22/18 10:19	03/24/18 03:18	1
<i>o</i> -Terphenyl	79		50 - 150	03/22/18 10:19	03/29/18 22:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.3		0.1		%			03/20/18 17:12	1
Percent Moisture	10.7		0.1		%			03/20/18 17:12	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG13-CSB

Lab Sample ID: 580-75874-14

Date Collected: 03/14/18 12:40

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 86.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		56		mg/Kg	☼	03/22/18 10:19	03/24/18 03:40	1
Motor Oil (>C24-C36)	ND		56		mg/Kg	☼	03/22/18 10:19	03/24/18 03:40	1
Mineral oil	ND		56		mg/Kg	☼	03/22/18 10:19	03/29/18 22:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	88		50 - 150				03/22/18 10:19	03/24/18 03:40	1
<i>o</i> -Terphenyl	76		50 - 150				03/22/18 10:19	03/29/18 22:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.0		0.1		%			03/20/18 17:12	1
Percent Moisture	14.0		0.1		%			03/20/18 17:12	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG14-CSB

Lab Sample ID: 580-75874-19

Date Collected: 03/14/18 15:55

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 85.1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		56		mg/Kg	☼	03/22/18 10:19	03/24/18 04:02	1
Motor Oil (>C24-C36)	ND		56		mg/Kg	☼	03/22/18 10:19	03/24/18 04:02	1
Mineral oil	ND		56		mg/Kg	☼	03/22/18 10:19	03/29/18 22:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	96		50 - 150	03/22/18 10:19	03/24/18 04:02	1
<i>o</i> -Terphenyl	74		50 - 150	03/22/18 10:19	03/29/18 22:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.1		0.1		%			03/20/18 17:12	1
Percent Moisture	14.9		0.1		%			03/20/18 17:12	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG25-CSB

Lab Sample ID: 580-75874-22

Date Collected: 03/14/18 16:45

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 90.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	03/22/18 10:19	03/24/18 04:24	1
Motor Oil (>C24-C36)	ND		52		mg/Kg	☼	03/22/18 10:19	03/24/18 04:24	1
Mineral oil	ND		52		mg/Kg	☼	03/22/18 10:19	03/29/18 23:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	98		50 - 150	03/22/18 10:19	03/24/18 04:24	1
<i>o</i> -Terphenyl	74		50 - 150	03/22/18 10:19	03/29/18 23:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.6		0.1		%			03/20/18 17:12	1
Percent Moisture	9.4		0.1		%			03/20/18 17:12	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG26-CSB

Lab Sample ID: 580-75874-26

Date Collected: 03/14/18 17:26

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 90.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	2700		52		mg/Kg	☼	03/22/18 10:19	03/24/18 04:46	1
Motor Oil (>C24-C36)	800		52		mg/Kg	☼	03/22/18 10:19	03/24/18 04:46	1
Mineral oil	3000		52		mg/Kg	☼	03/22/18 10:19	03/28/18 08:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	106		50 - 150				03/22/18 10:19	03/24/18 04:46	1
<i>o</i> -Terphenyl	131		50 - 150				03/22/18 10:19	03/28/18 08:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.5		0.1		%			03/20/18 17:12	1
Percent Moisture	9.5		0.1		%			03/20/18 17:12	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG26-SB01

Lab Sample ID: 580-75874-27

Date Collected: 03/14/18 17:10

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 91.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	4500		51		mg/Kg	☼	03/27/18 09:28	03/28/18 11:54	1
Motor Oil (>C24-C36)	1200		51		mg/Kg	☼	03/27/18 09:28	03/28/18 11:54	1
Mineral oil	5200		51		mg/Kg	☼	03/27/18 09:28	03/28/18 11:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	170	X	50 - 150	03/27/18 09:28	03/28/18 11:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	91.3		0.1		%			03/26/18 16:13	1
Percent Moisture	8.7		0.1		%			03/26/18 16:13	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG26-SB02

Lab Sample ID: 580-75874-28

Date Collected: 03/14/18 17:18

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 91.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		51		mg/Kg	☼	03/27/18 09:28	03/28/18 12:35	1
Motor Oil (>C24-C36)	ND		51		mg/Kg	☼	03/27/18 09:28	03/28/18 12:35	1
Mineral oil	ND		51		mg/Kg	☼	03/27/18 09:28	03/28/18 12:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	80		50 - 150	03/27/18 09:28	03/28/18 12:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	91.4		0.1		%			03/26/18 16:13	1
Percent Moisture	8.6		0.1		%			03/26/18 16:13	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG26-SB03

Lab Sample ID: 580-75874-29

Date Collected: 03/14/18 17:26

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 91.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	03/27/18 09:28	03/28/18 12:55	1
Motor Oil (>C24-C36)	ND		52		mg/Kg	☼	03/27/18 09:28	03/28/18 12:55	1
Mineral oil	ND		52		mg/Kg	☼	03/27/18 09:28	03/28/18 12:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	78		50 - 150	03/27/18 09:28	03/28/18 12:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	91.3		0.1		%			03/26/18 16:13	1
Percent Moisture	8.7		0.1		%			03/26/18 16:13	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: RNS-09

Date Collected: 03/14/18 16:20

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-31

Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.46		ug/L		03/26/18 13:34	03/28/18 09:35	1
PCB-1221	ND		0.46		ug/L		03/26/18 13:34	03/28/18 09:35	1
PCB-1232	ND		0.46		ug/L		03/26/18 13:34	03/28/18 09:35	1
PCB-1242	ND		0.46		ug/L		03/26/18 13:34	03/28/18 09:35	1
PCB-1248	ND		0.46		ug/L		03/26/18 13:34	03/28/18 09:35	1
PCB-1254	ND		0.46		ug/L		03/26/18 13:34	03/28/18 09:35	1
PCB-1260	ND		0.46		ug/L		03/26/18 13:34	03/28/18 09:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	67		38 - 134	03/26/18 13:34	03/28/18 09:35	1
Tetrachloro-m-xylene	60		54 - 115	03/26/18 13:34	03/28/18 09:35	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		03/23/18 10:19	03/26/18 19:22	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		03/23/18 10:19	03/26/18 19:22	1
Mineral oil	ND		0.35		mg/L		03/23/18 10:19	03/26/18 22:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	53		50 - 150	03/23/18 10:19	03/26/18 19:22	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG28-CSB

Lab Sample ID: 580-75874-34

Date Collected: 03/15/18 11:33

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 85.9

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		56		mg/Kg	☼	03/22/18 10:19	03/24/18 05:08	1
Motor Oil (>C24-C36)	ND		56		mg/Kg	☼	03/22/18 10:19	03/24/18 05:08	1
Mineral oil	ND		56		mg/Kg	☼	03/22/18 10:19	03/29/18 23:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	91		50 - 150	03/22/18 10:19	03/24/18 05:08	1
<i>o</i> -Terphenyl	77		50 - 150	03/22/18 10:19	03/29/18 23:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.9		0.1		%			03/20/18 17:12	1
Percent Moisture	14.1		0.1		%			03/20/18 17:12	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG29-CSB

Lab Sample ID: 580-75874-38

Date Collected: 03/15/18 13:48

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 89.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	03/22/18 10:19	03/24/18 05:29	1
Motor Oil (>C24-C36)	ND		52		mg/Kg	☼	03/22/18 10:19	03/24/18 05:29	1
Mineral oil	ND		52		mg/Kg	☼	03/22/18 10:19	03/29/18 23:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	78		50 - 150	03/22/18 10:19	03/24/18 05:29	1
<i>o</i> -Terphenyl	66		50 - 150	03/22/18 10:19	03/29/18 23:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.5		0.1		%			03/20/18 17:12	1
Percent Moisture	10.5		0.1		%			03/20/18 17:12	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG30-CSB

Lab Sample ID: 580-75874-42

Date Collected: 03/15/18 14:33

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 68.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	130		71		mg/Kg	☼	03/22/18 10:19	03/28/18 09:13	1
Motor Oil (>C24-C36)	110		71		mg/Kg	☼	03/22/18 10:19	03/28/18 09:13	1
Mineral oil	170		71		mg/Kg	☼	03/22/18 10:19	03/28/18 09:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	74		50 - 150	03/22/18 10:19	03/28/18 09:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	68.4		0.1		%			03/22/18 16:29	1
Percent Moisture	31.6		0.1		%			03/22/18 16:29	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG30-SB01

Lab Sample ID: 580-75874-43

Date Collected: 03/15/18 14:22

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 88.7

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		55		mg/Kg	☼	03/28/18 13:34	03/29/18 19:48	1
Motor Oil (>C24-C36)	ND		55		mg/Kg	☼	03/28/18 13:34	03/29/18 19:48	1
Mineral oil	ND		55		mg/Kg	☼	03/28/18 13:34	03/29/18 19:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	82		50 - 150				03/28/18 13:34	03/29/18 19:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.7		0.1		%			03/28/18 12:25	1
Percent Moisture	11.3		0.1		%			03/28/18 12:25	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG15-CSB

Lab Sample ID: 580-75874-44

Date Collected: 03/15/18 09:38

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 88.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		54		mg/Kg	☼	03/22/18 10:19	03/24/18 06:35	1
Motor Oil (>C24-C36)	ND		54		mg/Kg	☼	03/22/18 10:19	03/24/18 06:35	1
Mineral oil	ND		54		mg/Kg	☼	03/22/18 10:19	03/30/18 00:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	91		50 - 150	03/22/18 10:19	03/24/18 06:35	1
<i>o</i> -Terphenyl	75		50 - 150	03/22/18 10:19	03/30/18 00:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.2		0.1		%			03/20/18 17:12	1
Percent Moisture	11.8		0.1		%			03/20/18 17:12	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG27-CSB

Lab Sample ID: 580-75874-47

Date Collected: 03/15/18 10:23

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 87.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		53		mg/Kg	☼	03/22/18 10:19	03/24/18 06:56	1
Motor Oil (>C24-C36)	ND		53		mg/Kg	☼	03/22/18 10:19	03/24/18 06:56	1
Mineral oil	ND		53		mg/Kg	☼	03/22/18 10:19	03/30/18 00:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	89		50 - 150				03/22/18 10:19	03/24/18 06:56	1
<i>o</i> -Terphenyl	76		50 - 150				03/22/18 10:19	03/30/18 00:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.6		0.1		%			03/20/18 17:12	1
Percent Moisture	12.4		0.1		%			03/20/18 17:12	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG16-CSB

Lab Sample ID: 580-75874-48

Date Collected: 03/15/18 13:18

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 89.1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		54		mg/Kg	☼	03/22/18 10:19	03/24/18 07:18	1
Motor Oil (>C24-C36)	ND		54		mg/Kg	☼	03/22/18 10:19	03/24/18 07:18	1
Mineral oil	ND		54		mg/Kg	☼	03/22/18 10:19	03/30/18 01:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	86		50 - 150	03/22/18 10:19	03/24/18 07:18	1
<i>o</i> -Terphenyl	74		50 - 150	03/22/18 10:19	03/30/18 01:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.1		0.1		%			03/20/18 17:12	1
Percent Moisture	10.9		0.1		%			03/20/18 17:12	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG16-SB02

Lab Sample ID: 580-75874-50

Date Collected: 03/15/18 13:05

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 89.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		54		mg/Kg	☼	03/28/18 13:34	03/29/18 20:29	1
Motor Oil (>C24-C36)	ND		54		mg/Kg	☼	03/28/18 13:34	03/29/18 20:29	1
Mineral oil	ND		54		mg/Kg	☼	03/28/18 13:34	03/29/18 20:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	77		50 - 150	03/28/18 13:34	03/29/18 20:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.4		0.1		%			03/28/18 12:25	1
Percent Moisture	10.6		0.1		%			03/28/18 12:25	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG16-SB03

Lab Sample ID: 580-75874-51

Date Collected: 03/15/18 13:18

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 88.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		56		mg/Kg	☼	03/28/18 13:34	03/29/18 20:09	1
Motor Oil (>C24-C36)	ND		56		mg/Kg	☼	03/28/18 13:34	03/29/18 20:09	1
Mineral oil	ND		56		mg/Kg	☼	03/28/18 13:34	03/29/18 20:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	82		50 - 150	03/28/18 13:34	03/29/18 20:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.4		0.1		%			03/28/18 12:25	1
Percent Moisture	11.6		0.1		%			03/28/18 12:25	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG31-CSB

Lab Sample ID: 580-75874-58

Date Collected: 03/15/18 15:03

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 88.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		55		mg/Kg	☼	03/22/18 11:19	03/28/18 14:37	1
Motor Oil (>C24-C36)	ND		55		mg/Kg	☼	03/22/18 11:19	03/28/18 14:37	1
Mineral oil	65		55		mg/Kg	☼	03/22/18 11:19	03/28/18 14:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	77		50 - 150	03/22/18 11:19	03/28/18 14:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.4		0.1		%			03/20/18 17:12	1
Percent Moisture	11.6		0.1		%			03/20/18 17:12	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: RNS-07

Date Collected: 03/15/18 15:24

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-59

Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.46		ug/L		03/26/18 13:34	03/28/18 09:54	1
PCB-1221	ND		0.46		ug/L		03/26/18 13:34	03/28/18 09:54	1
PCB-1232	ND		0.46		ug/L		03/26/18 13:34	03/28/18 09:54	1
PCB-1242	ND		0.46		ug/L		03/26/18 13:34	03/28/18 09:54	1
PCB-1248	ND		0.46		ug/L		03/26/18 13:34	03/28/18 09:54	1
PCB-1254	ND		0.46		ug/L		03/26/18 13:34	03/28/18 09:54	1
PCB-1260	ND		0.46		ug/L		03/26/18 13:34	03/28/18 09:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	57		38 - 134	03/26/18 13:34	03/28/18 09:54	1
Tetrachloro-m-xylene	62		54 - 115	03/26/18 13:34	03/28/18 09:54	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.44		0.11		mg/L		03/23/18 10:19	03/26/18 19:50	1
Mineral oil	1.9		0.36		mg/L		03/23/18 10:19	03/26/18 23:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	54		50 - 150	03/23/18 10:19	03/26/18 19:50	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil (>C24-C36)	6.4		1.1		mg/L		03/23/18 10:19	03/27/18 20:37	3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	53		50 - 150	03/23/18 10:19	03/27/18 20:37	3

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG09-CSB

Lab Sample ID: 580-75874-60

Date Collected: 03/14/18 09:10

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 86.0

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg	☼	03/22/18 16:18	03/24/18 04:06	1
PCB-1221	ND		0.020		mg/Kg	☼	03/22/18 16:18	03/24/18 04:06	1
PCB-1232	ND		0.020		mg/Kg	☼	03/22/18 16:18	03/24/18 04:06	1
PCB-1242	ND		0.020		mg/Kg	☼	03/22/18 16:18	03/24/18 04:06	1
PCB-1248	ND		0.020		mg/Kg	☼	03/22/18 16:18	03/24/18 04:06	1
PCB-1254	ND		0.020		mg/Kg	☼	03/22/18 16:18	03/24/18 04:06	1
PCB-1260	ND		0.020		mg/Kg	☼	03/22/18 16:18	03/24/18 04:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	81		25 - 149	03/22/18 16:18	03/24/18 04:06	1
Tetrachloro-m-xylene	75		35 - 130	03/22/18 16:18	03/24/18 04:06	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		55		mg/Kg	☼	03/22/18 11:19	03/28/18 14:57	1
Motor Oil (>C24-C36)	ND		55		mg/Kg	☼	03/22/18 11:19	03/28/18 14:57	1
Mineral oil	ND		55		mg/Kg	☼	03/22/18 11:19	03/28/18 14:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	82		50 - 150	03/22/18 11:19	03/28/18 14:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.0		0.1		%			03/20/18 17:12	1
Percent Moisture	14.0		0.1		%			03/20/18 17:12	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG09-SB01

Lab Sample ID: 580-75874-61

Date Collected: 03/14/18 08:42

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 84.7

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:23	1
PCB-1221	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:23	1
PCB-1232	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:23	1
PCB-1242	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:23	1
PCB-1248	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:23	1
PCB-1254	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:23	1
PCB-1260	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	82		25 - 149	03/22/18 16:18	03/24/18 04:23	1
Tetrachloro-m-xylene	85		35 - 130	03/22/18 16:18	03/24/18 04:23	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		55		mg/Kg	☼	03/22/18 11:19	03/28/18 15:17	1
Motor Oil (>C24-C36)	ND		55		mg/Kg	☼	03/22/18 11:19	03/28/18 15:17	1
Mineral oil	ND		55		mg/Kg	☼	03/22/18 11:19	03/28/18 15:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	80		50 - 150	03/22/18 11:19	03/28/18 15:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.7		0.1		%			03/20/18 17:12	1
Percent Moisture	15.3		0.1		%			03/20/18 17:12	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG09-SB02

Lab Sample ID: 580-75874-62

Date Collected: 03/14/18 09:03

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 86.7

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:40	1
PCB-1221	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:40	1
PCB-1232	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:40	1
PCB-1242	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:40	1
PCB-1248	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:40	1
PCB-1254	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:40	1
PCB-1260	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	79		25 - 149	03/22/18 16:18	03/24/18 04:40	1
Tetrachloro-m-xylene	75		35 - 130	03/22/18 16:18	03/24/18 04:40	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		55		mg/Kg	☼	03/22/18 11:19	03/28/18 15:37	1
Motor Oil (>C24-C36)	ND		55		mg/Kg	☼	03/22/18 11:19	03/28/18 15:37	1
Mineral oil	ND		55		mg/Kg	☼	03/22/18 11:19	03/28/18 15:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	86		50 - 150	03/22/18 11:19	03/28/18 15:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.7		0.1		%			03/20/18 17:12	1
Percent Moisture	13.3		0.1		%			03/20/18 17:12	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG09-SB03

Lab Sample ID: 580-75874-63

Date Collected: 03/14/18 09:10

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 86.3

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:56	1
PCB-1221	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:56	1
PCB-1232	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:56	1
PCB-1242	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:56	1
PCB-1248	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:56	1
PCB-1254	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:56	1
PCB-1260	ND		0.023		mg/Kg	☼	03/22/18 16:18	03/24/18 04:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	85		25 - 149	03/22/18 16:18	03/24/18 04:56	1
Tetrachloro-m-xylene	76		35 - 130	03/22/18 16:18	03/24/18 04:56	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		54		mg/Kg	☼	03/22/18 11:19	03/28/18 15:58	1
Motor Oil (>C24-C36)	ND		54		mg/Kg	☼	03/22/18 11:19	03/28/18 15:58	1
Mineral oil	ND		54		mg/Kg	☼	03/22/18 11:19	03/28/18 15:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	82		50 - 150	03/22/18 11:19	03/28/18 15:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.3		0.1		%			03/20/18 17:12	1
Percent Moisture	13.7		0.1		%			03/20/18 17:12	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG18-CSB

Lab Sample ID: 580-75874-64

Date Collected: 03/15/18 16:15

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 89.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	03/22/18 11:19	03/28/18 16:18	1
Motor Oil (>C24-C36)	ND		52		mg/Kg	☼	03/22/18 11:19	03/28/18 16:18	1
Mineral oil	ND		52		mg/Kg	☼	03/22/18 11:19	03/28/18 16:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	83		50 - 150	03/22/18 11:19	03/28/18 16:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.3		0.1		%			03/20/18 17:12	1
Percent Moisture	10.7		0.1		%			03/20/18 17:12	1



QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-269706/1-A
Matrix: Solid
Analysis Batch: 269791

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269706

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		03/22/18 16:18	03/23/18 17:45	1
PCB-1016	ND		0.020		mg/Kg		03/22/18 16:18	03/23/18 17:45	1
PCB-1221	ND		0.020		mg/Kg		03/22/18 16:18	03/23/18 17:45	1
PCB-1221	ND		0.020		mg/Kg		03/22/18 16:18	03/23/18 17:45	1
PCB-1232	ND		0.020		mg/Kg		03/22/18 16:18	03/23/18 17:45	1
PCB-1232	ND		0.020		mg/Kg		03/22/18 16:18	03/23/18 17:45	1
PCB-1242	ND		0.020		mg/Kg		03/22/18 16:18	03/23/18 17:45	1
PCB-1242	ND		0.020		mg/Kg		03/22/18 16:18	03/23/18 17:45	1
PCB-1248	ND		0.020		mg/Kg		03/22/18 16:18	03/23/18 17:45	1
PCB-1248	ND		0.020		mg/Kg		03/22/18 16:18	03/23/18 17:45	1
PCB-1254	ND		0.020		mg/Kg		03/22/18 16:18	03/23/18 17:45	1
PCB-1254	ND		0.020		mg/Kg		03/22/18 16:18	03/23/18 17:45	1
PCB-1260	ND		0.020		mg/Kg		03/22/18 16:18	03/23/18 17:45	1
PCB-1260	ND		0.020		mg/Kg		03/22/18 16:18	03/23/18 17:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	117		25 - 149	03/22/18 16:18	03/23/18 17:45	1
DCB Decachlorobiphenyl	117		25 - 149	03/22/18 16:18	03/23/18 17:45	1
Tetrachloro-m-xylene	94		35 - 130	03/22/18 16:18	03/23/18 17:45	1
Tetrachloro-m-xylene	89		35 - 130	03/22/18 16:18	03/23/18 17:45	1

Lab Sample ID: LCS 580-269706/2-A
Matrix: Solid
Analysis Batch: 269791

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269706

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	0.100	0.109		mg/Kg		109	69 - 126
PCB-1016	0.100	0.103		mg/Kg		103	69 - 126
PCB-1260	0.100	0.121		mg/Kg		121	68 - 136
PCB-1260	0.100	0.119		mg/Kg		119	68 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	126		25 - 149
DCB Decachlorobiphenyl	123		25 - 149
Tetrachloro-m-xylene	103		35 - 130
Tetrachloro-m-xylene	95		35 - 130

Lab Sample ID: MB 580-269894/1-A
Matrix: Water
Analysis Batch: 269971

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269894

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.45		ug/L		03/26/18 13:34	03/27/18 11:30	1
PCB-1221	ND		0.45		ug/L		03/26/18 13:34	03/27/18 11:30	1
PCB-1232	ND		0.45		ug/L		03/26/18 13:34	03/27/18 11:30	1
PCB-1242	ND		0.45		ug/L		03/26/18 13:34	03/27/18 11:30	1
PCB-1248	ND		0.45		ug/L		03/26/18 13:34	03/27/18 11:30	1

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: MB 580-269894/1-A
Matrix: Water
Analysis Batch: 269971

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269894

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
PCB-1254	ND		0.45		ug/L		03/26/18 13:34	03/27/18 11:30	1
PCB-1260	ND		0.45		ug/L		03/26/18 13:34	03/27/18 11:30	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
DCB Decachlorobiphenyl	68		38 - 134			03/26/18 13:34	03/27/18 11:30	1	
Tetrachloro-m-xylene	56		54 - 115			03/26/18 13:34	03/27/18 11:30	1	

Lab Sample ID: MB 580-269894/1-A
Matrix: Water
Analysis Batch: 270131

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269894

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
PCB-1016	ND		0.45		ug/L		03/26/18 13:34	03/29/18 01:25	1
PCB-1221	ND		0.45		ug/L		03/26/18 13:34	03/29/18 01:25	1
PCB-1232	ND		0.45		ug/L		03/26/18 13:34	03/29/18 01:25	1
PCB-1242	ND		0.45		ug/L		03/26/18 13:34	03/29/18 01:25	1
PCB-1248	ND		0.45		ug/L		03/26/18 13:34	03/29/18 01:25	1
PCB-1254	ND		0.45		ug/L		03/26/18 13:34	03/29/18 01:25	1
PCB-1260	ND		0.45		ug/L		03/26/18 13:34	03/29/18 01:25	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
DCB Decachlorobiphenyl	120		38 - 134			03/26/18 13:34	03/29/18 01:25	1	
Tetrachloro-m-xylene	69		54 - 115			03/26/18 13:34	03/29/18 01:25	1	

Lab Sample ID: LCS 580-269894/2-A
Matrix: Water
Analysis Batch: 269971

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269894

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1260	1.00	0.767		ug/L		77	55 - 132
Surrogate	%Recovery	Qualifier	Limits			%Rec	Limits
DCB Decachlorobiphenyl	70		38 - 134				
Tetrachloro-m-xylene	58		54 - 115				

Lab Sample ID: LCS 580-269894/2-A
Matrix: Water
Analysis Batch: 270131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269894

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1260	1.00	1.05		ug/L		105	55 - 132
Surrogate	%Recovery	Qualifier	Limits			%Rec	Limits
DCB Decachlorobiphenyl	119		38 - 134				
Tetrachloro-m-xylene	69		54 - 115				

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Lab Sample ID: LCSD 580-269894/3-A
Matrix: Water
Analysis Batch: 269971

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269894

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit	
PCB-1016	1.00	0.781		ug/L		78	60 - 121	7	20	
PCB-1260	1.00	0.830		ug/L		83	55 - 132	8	22	
		LCSD	LCSD							
Surrogate	%Recovery	Qualifier	Limits							
DCB Decachlorobiphenyl	51		38 - 134							
Tetrachloro-m-xylene	62		54 - 115							

Lab Sample ID: LCSD 580-269894/3-A
Matrix: Water
Analysis Batch: 270131

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269894

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit	
PCB-1016	1.00	0.949		ug/L		95	60 - 121	12	20	
PCB-1260	1.00	1.16		ug/L		116	55 - 132	10	22	
		LCSD	LCSD							
Surrogate	%Recovery	Qualifier	Limits							
DCB Decachlorobiphenyl	109		38 - 134							
Tetrachloro-m-xylene	73		54 - 115							

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-269647/1-A
Matrix: Solid
Analysis Batch: 269782

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269647

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/22/18 10:19	03/23/18 22:12	1	
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/22/18 10:19	03/23/18 22:12	1	
Mineral oil	ND		50		mg/Kg		03/22/18 10:19	03/23/18 22:12	1	
		MB	MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
o-Terphenyl	104		50 - 150				03/22/18 10:19	03/23/18 22:12	1	

Lab Sample ID: MB 580-269647/1-A
Matrix: Solid
Analysis Batch: 270006

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269647

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/22/18 10:19	03/27/18 20:42	1	
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/22/18 10:19	03/27/18 20:42	1	
Mineral oil	ND		50		mg/Kg		03/22/18 10:19	03/27/18 20:42	1	
		MB	MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
o-Terphenyl	80		50 - 150				03/22/18 10:19	03/27/18 20:42	1	

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-269647/1-A
Matrix: Solid
Analysis Batch: 270159

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269647

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/22/18 10:19	03/29/18 21:30	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/22/18 10:19	03/29/18 21:30	1
Mineral oil	ND		50		mg/Kg		03/22/18 10:19	03/29/18 21:30	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	82		50 - 150	03/22/18 10:19	03/29/18 21:30	1

Lab Sample ID: LCS 580-269647/2-A
Matrix: Solid
Analysis Batch: 269782

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269647

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	500	487		mg/Kg		97	70 - 125
Motor Oil (>C24-C36)	500	482		mg/Kg		96	70 - 119

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	93		50 - 150

Lab Sample ID: LCSD 580-269647/3-A
Matrix: Solid
Analysis Batch: 269782

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269647

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	506		mg/Kg		101	70 - 125	4	16
Motor Oil (>C24-C36)	500	497		mg/Kg		99	70 - 119	3	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	91		50 - 150

Lab Sample ID: 580-75874-48 DU
Matrix: Solid
Analysis Batch: 269782

Client Sample ID: EY-SG16-CSB
Prep Type: Total/NA
Prep Batch: 269647

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
#2 Diesel (C10-C24)	ND		ND		mg/Kg	☼	NC	35
Motor Oil (>C24-C36)	ND		ND		mg/Kg	☼	NC	35

Surrogate	DU %Recovery	DU Qualifier	Limits
<i>o</i> -Terphenyl	94		50 - 150

Lab Sample ID: 580-75874-48 DU
Matrix: Solid
Analysis Batch: 270159

Client Sample ID: EY-SG16-CSB
Prep Type: Total/NA
Prep Batch: 269647

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Mineral oil	ND		ND		mg/Kg	☼	19	35

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: 580-75874-48 DU
Matrix: Solid
Analysis Batch: 270159

Client Sample ID: EY-SG16-CSB
Prep Type: Total/NA
Prep Batch: 269647

Surrogate	<i>DU</i> %Recovery	<i>DU</i> Qualifier	Limits
<i>o</i> -Terphenyl	85		50 - 150

Lab Sample ID: MB 580-269655/1-A
Matrix: Solid
Analysis Batch: 270006

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269655

Analyte	<i>MB</i> Result	<i>MB</i> Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/22/18 11:19	03/28/18 14:16	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/22/18 11:19	03/28/18 14:16	1
Mineral oil	ND		50		mg/Kg		03/22/18 11:19	03/28/18 14:16	1

Surrogate	<i>MB</i> %Recovery	<i>MB</i> Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	82		50 - 150	03/22/18 11:19	03/28/18 14:16	1

Lab Sample ID: MB 580-269741/1-A
Matrix: Water
Analysis Batch: 269799

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269741

Analyte	<i>MB</i> Result	<i>MB</i> Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		03/23/18 10:19	03/23/18 19:15	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		03/23/18 10:19	03/23/18 19:15	1

Surrogate	<i>MB</i> %Recovery	<i>MB</i> Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	63		50 - 150	03/23/18 10:19	03/23/18 19:15	1

Lab Sample ID: MB 580-269741/1-A
Matrix: Water
Analysis Batch: 269868

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269741

Analyte	<i>MB</i> Result	<i>MB</i> Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mineral oil	ND		0.35		mg/L		03/23/18 10:19	03/26/18 21:49	1

Lab Sample ID: LCS 580-269741/2-A
Matrix: Water
Analysis Batch: 269799

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269741

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.34		mg/L		67	59 - 112
Motor Oil (>C24-C36)	2.00	1.39		mg/L		70	64 - 120

Surrogate	<i>LCS</i> %Recovery	<i>LCS</i> Qualifier	Limits
<i>o</i> -Terphenyl	65		50 - 150

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-269741/3-A
Matrix: Water
Analysis Batch: 269799

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269741

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.35		mg/L		68	59 - 112	1	16
Motor Oil (>C24-C36)	2.00	1.43		mg/L		72	64 - 120	3	17
		LCSD LCSD							
Surrogate	%Recovery	Qualifier	Limits						
<i>o</i> -Terphenyl	65		50 - 150						

Lab Sample ID: MB 580-269946/1-A
Matrix: Solid
Analysis Batch: 270006

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269946

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/27/18 09:28	03/28/18 10:54	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/27/18 09:28	03/28/18 10:54	1
Mineral oil	ND		50		mg/Kg		03/27/18 09:28	03/28/18 10:54	1
		MB MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	83		50 - 150				03/27/18 09:28	03/28/18 10:54	1

Lab Sample ID: LCS 580-269946/2-A
Matrix: Solid
Analysis Batch: 270006

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269946

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)	500	463		mg/Kg		93	70 - 125		
Motor Oil (>C24-C36)	500	471		mg/Kg		94	70 - 119		
		LCS LCS							
Surrogate	%Recovery	Qualifier	Limits						
<i>o</i> -Terphenyl	77		50 - 150						

Lab Sample ID: LCSD 580-269946/3-A
Matrix: Solid
Analysis Batch: 270006

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269946

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	483		mg/Kg		97	70 - 125	4	16
Motor Oil (>C24-C36)	500	493		mg/Kg		99	70 - 119	5	16
		LCSD LCSD							
Surrogate	%Recovery	Qualifier	Limits						
<i>o</i> -Terphenyl	78		50 - 150						

Lab Sample ID: 580-75874-27 DU
Matrix: Solid
Analysis Batch: 270006

Client Sample ID: EY-SG26-SB01
Prep Type: Total/NA
Prep Batch: 269946

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
#2 Diesel (C10-C24)	4500		6180		mg/Kg	☼	31	35
Motor Oil (>C24-C36)	1200		1710	F3	mg/Kg	☼	37	35

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: 580-75874-27 DU
Matrix: Solid
Analysis Batch: 270006

Client Sample ID: EY-SG26-SB01
Prep Type: Total/NA
Prep Batch: 269946

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mineral oil	5200		7180		mg/Kg	☒	31	35
Surrogate	%Recovery	DU Qualifier	Limits					
<i>o</i> -Terphenyl	12	X	50 - 150					

Lab Sample ID: MB 580-270084/1-A
Matrix: Solid
Analysis Batch: 270159

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270084

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/28/18 13:34	03/29/18 17:47	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/28/18 13:34	03/29/18 17:47	1
Mineral oil	ND		50		mg/Kg		03/28/18 13:34	03/29/18 17:47	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	85		50 - 150				03/28/18 13:34	03/29/18 17:47	1

Lab Sample ID: MB 580-270084/1-A
Matrix: Solid
Analysis Batch: 270178

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270084

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/28/18 13:34	03/29/18 18:41	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/28/18 13:34	03/29/18 18:41	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	95		50 - 150				03/28/18 13:34	03/29/18 18:41	1

Lab Sample ID: LCS 580-270084/2-A
Matrix: Solid
Analysis Batch: 270178

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270084

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	500	466		mg/Kg		93	70 - 125
Motor Oil (>C24-C36)	500	477		mg/Kg		95	70 - 119
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
<i>o</i> -Terphenyl	91		50 - 150				

Lab Sample ID: LCSD 580-270084/3-A
Matrix: Solid
Analysis Batch: 270178

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270084

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	455		mg/Kg		91	70 - 125	2	16
Motor Oil (>C24-C36)	500	470		mg/Kg		94	70 - 119	1	16

TestAmerica Seattle

QC Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-270084/3-A
 Matrix: Solid
 Analysis Batch: 270178

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 270084

Surrogate	<i>LCSD</i> %Recovery	<i>LCSD</i> Qualifier	Limits
<i>o</i> -Terphenyl	92		50 - 150

Method: D 2216 - Percent Moisture

Lab Sample ID: 580-75874-58 DU
 Matrix: Solid
 Analysis Batch: 269525

Client Sample ID: EY-SG31-CSB
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU		Unit	D	RPD	RPD Limit
			Result	Qualifier				
Percent Solids	88.4		88.3		%		0.1	20
Percent Moisture	11.6		11.7		%		1	20

Lab Sample ID: 580-75874-64 DU
 Matrix: Solid
 Analysis Batch: 269525

Client Sample ID: EY-SG18-CSB
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU		Unit	D	RPD	RPD Limit
			Result	Qualifier				
Percent Solids	89.3		88.6		%		0.8	20
Percent Moisture	10.7		11.4		%		6	20

Lab Sample ID: 580-75874-27 DU
 Matrix: Solid
 Analysis Batch: 269909

Client Sample ID: EY-SG26-SB01
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU		Unit	D	RPD	RPD Limit
			Result	Qualifier				
Percent Solids	91.3		91.7		%		0.4	20
Percent Moisture	8.7		8.3		%		4	20

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG10-CSB

Date Collected: 03/14/18 10:25

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-7

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG10-CSB

Date Collected: 03/14/18 10:25

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-7

Matrix: Solid

Percent Solids: 87.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269782	03/24/18 02:13	W1T	TAL SEA
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/29/18 21:50	ADB	TAL SEA

Client Sample ID: SW-01

Date Collected: 03/14/18 14:00

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-8

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: SW-01

Date Collected: 03/14/18 14:00

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-8

Matrix: Solid

Percent Solids: 81.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269782	03/24/18 02:35	W1T	TAL SEA
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270006	03/28/18 00:04	ADB	TAL SEA

Client Sample ID: SW-03

Date Collected: 03/14/18 14:35

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-9

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: SW-03

Date Collected: 03/14/18 14:35

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-9

Matrix: Solid

Percent Solids: 81.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: SW-03

Date Collected: 03/14/18 14:35

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-9

Matrix: Solid

Percent Solids: 81.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	269782	03/24/18 02:56	W1T	TAL SEA
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270006	03/28/18 08:33	ADB	TAL SEA

Client Sample ID: EY-SG12-CSB

Date Collected: 03/14/18 11:35

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-10

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG12-CSB

Date Collected: 03/14/18 11:35

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-10

Matrix: Solid

Percent Solids: 89.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269782	03/24/18 03:18	W1T	TAL SEA
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/29/18 22:10	ADB	TAL SEA

Client Sample ID: EY-SG13-CSB

Date Collected: 03/14/18 12:40

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-14

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG13-CSB

Date Collected: 03/14/18 12:40

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-14

Matrix: Solid

Percent Solids: 86.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269782	03/24/18 03:40	W1T	TAL SEA
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/29/18 22:31	ADB	TAL SEA

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG14-CSB

Lab Sample ID: 580-75874-19

Date Collected: 03/14/18 15:55

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG14-CSB

Lab Sample ID: 580-75874-19

Date Collected: 03/14/18 15:55

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 85.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269782	03/24/18 04:02	W1T	TAL SEA
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/29/18 22:51	ADB	TAL SEA

Client Sample ID: EY-SG25-CSB

Lab Sample ID: 580-75874-22

Date Collected: 03/14/18 16:45

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG25-CSB

Lab Sample ID: 580-75874-22

Date Collected: 03/14/18 16:45

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 90.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269782	03/24/18 04:24	W1T	TAL SEA
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/29/18 23:11	ADB	TAL SEA

Client Sample ID: EY-SG26-CSB

Lab Sample ID: 580-75874-26

Date Collected: 03/14/18 17:26

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG26-CSB

Lab Sample ID: 580-75874-26

Date Collected: 03/14/18 17:26

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 90.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG26-CSB

Lab Sample ID: 580-75874-26

Date Collected: 03/14/18 17:26

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 90.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	269782	03/24/18 04:46	W1T	TAL SEA
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270006	03/28/18 08:53	ADB	TAL SEA

Client Sample ID: EY-SG26-SB01

Lab Sample ID: 580-75874-27

Date Collected: 03/14/18 17:10

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269909	03/26/18 16:13	TTN	TAL SEA

Client Sample ID: EY-SG26-SB01

Lab Sample ID: 580-75874-27

Date Collected: 03/14/18 17:10

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 91.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269946	03/27/18 09:28	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270006	03/28/18 11:54	ADB	TAL SEA

Client Sample ID: EY-SG26-SB02

Lab Sample ID: 580-75874-28

Date Collected: 03/14/18 17:18

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269909	03/26/18 16:13	TTN	TAL SEA

Client Sample ID: EY-SG26-SB02

Lab Sample ID: 580-75874-28

Date Collected: 03/14/18 17:18

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 91.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269946	03/27/18 09:28	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270006	03/28/18 12:35	ADB	TAL SEA

Client Sample ID: EY-SG26-SB03

Lab Sample ID: 580-75874-29

Date Collected: 03/14/18 17:26

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269909	03/26/18 16:13	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG26-SB03

Lab Sample ID: 580-75874-29

Date Collected: 03/14/18 17:26

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 91.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269946	03/27/18 09:28	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270006	03/28/18 12:55	ADB	TAL SEA

Client Sample ID: RNS-09

Lab Sample ID: 580-75874-31

Date Collected: 03/14/18 16:20

Matrix: Water

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			269894	03/26/18 13:34	APR	TAL SEA
Total/NA	Analysis	8082A		1	270056	03/28/18 09:35	Y1W	TAL SEA
Total/NA	Prep	3510C			269741	03/23/18 10:19	NDB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269863	03/26/18 19:22	W1T	TAL SEA
Total/NA	Prep	3510C			269741	03/23/18 10:19	NDB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 22:49	ADB	TAL SEA

Client Sample ID: EY-SG28-CSB

Lab Sample ID: 580-75874-34

Date Collected: 03/15/18 11:33

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG28-CSB

Lab Sample ID: 580-75874-34

Date Collected: 03/15/18 11:33

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 85.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269782	03/24/18 05:08	W1T	TAL SEA
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/29/18 23:31	ADB	TAL SEA

Client Sample ID: EY-SG29-CSB

Lab Sample ID: 580-75874-38

Date Collected: 03/15/18 13:48

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG29-CSB

Lab Sample ID: 580-75874-38

Date Collected: 03/15/18 13:48

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 89.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269782	03/24/18 05:29	W1T	TAL SEA
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/29/18 23:51	ADB	TAL SEA

Client Sample ID: EY-SG30-CSB

Lab Sample ID: 580-75874-42

Date Collected: 03/15/18 14:33

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269676	03/22/18 16:29	TTN	TAL SEA

Client Sample ID: EY-SG30-CSB

Lab Sample ID: 580-75874-42

Date Collected: 03/15/18 14:33

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 68.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270006	03/28/18 09:13	ADB	TAL SEA

Client Sample ID: EY-SG30-SB01

Lab Sample ID: 580-75874-43

Date Collected: 03/15/18 14:22

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270077	03/28/18 12:25	TTN	TAL SEA

Client Sample ID: EY-SG30-SB01

Lab Sample ID: 580-75874-43

Date Collected: 03/15/18 14:22

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 88.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270084	03/28/18 13:34	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/29/18 19:48	ADB	TAL SEA

Client Sample ID: EY-SG15-CSB

Lab Sample ID: 580-75874-44

Date Collected: 03/15/18 09:38

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG15-CSB

Lab Sample ID: 580-75874-44

Date Collected: 03/15/18 09:38

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 88.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269782	03/24/18 06:35	W1T	TAL SEA
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/30/18 00:12	ADB	TAL SEA

Client Sample ID: EY-SG27-CSB

Lab Sample ID: 580-75874-47

Date Collected: 03/15/18 10:23

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG27-CSB

Lab Sample ID: 580-75874-47

Date Collected: 03/15/18 10:23

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 87.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269782	03/24/18 06:56	W1T	TAL SEA
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/30/18 00:32	ADB	TAL SEA

Client Sample ID: EY-SG16-CSB

Lab Sample ID: 580-75874-48

Date Collected: 03/15/18 13:18

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG16-CSB

Lab Sample ID: 580-75874-48

Date Collected: 03/15/18 13:18

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 89.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269782	03/24/18 07:18	W1T	TAL SEA
Total/NA	Prep	3546			269647	03/22/18 10:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/30/18 01:12	ADB	TAL SEA

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG16-SB02

Lab Sample ID: 580-75874-50

Date Collected: 03/15/18 13:05

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270077	03/28/18 12:25	TTN	TAL SEA

Client Sample ID: EY-SG16-SB02

Lab Sample ID: 580-75874-50

Date Collected: 03/15/18 13:05

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 89.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270084	03/28/18 13:34	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/29/18 20:29	ADB	TAL SEA

Client Sample ID: EY-SG16-SB03

Lab Sample ID: 580-75874-51

Date Collected: 03/15/18 13:18

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270077	03/28/18 12:25	TTN	TAL SEA

Client Sample ID: EY-SG16-SB03

Lab Sample ID: 580-75874-51

Date Collected: 03/15/18 13:18

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270084	03/28/18 13:34	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/29/18 20:09	ADB	TAL SEA

Client Sample ID: EY-SG31-CSB

Lab Sample ID: 580-75874-58

Date Collected: 03/15/18 15:03

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG31-CSB

Lab Sample ID: 580-75874-58

Date Collected: 03/15/18 15:03

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270006	03/28/18 14:37	ADB	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: RNS-07

Date Collected: 03/15/18 15:24

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-59

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			269894	03/26/18 13:34	APR	TAL SEA
Total/NA	Analysis	8082A		1	270056	03/28/18 09:54	Y1W	TAL SEA
Total/NA	Prep	3510C			269741	03/23/18 10:19	NDB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269863	03/26/18 19:50	W1T	TAL SEA
Total/NA	Prep	3510C	DL		269741	03/23/18 10:19	NDB	TAL SEA
Total/NA	Analysis	NWTPH-Dx	DL	3	270012	03/27/18 20:37	W1T	TAL SEA
Total/NA	Prep	3510C			269741	03/23/18 10:19	NDB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269868	03/26/18 23:09	ADB	TAL SEA

Client Sample ID: EY-SG09-CSB

Date Collected: 03/14/18 09:10

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-60

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG09-CSB

Date Collected: 03/14/18 09:10

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-60

Matrix: Solid

Percent Solids: 86.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269706	03/22/18 16:18	APR	TAL SEA
Total/NA	Analysis	8082A		1	269793	03/24/18 04:06	TL1	TAL SEA
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270006	03/28/18 14:57	ADB	TAL SEA

Client Sample ID: EY-SG09-SB01

Date Collected: 03/14/18 08:42

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-61

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG09-SB01

Date Collected: 03/14/18 08:42

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-61

Matrix: Solid

Percent Solids: 84.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269706	03/22/18 16:18	APR	TAL SEA
Total/NA	Analysis	8082A		1	269793	03/24/18 04:23	TL1	TAL SEA
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270006	03/28/18 15:17	ADB	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG09-SB02

Lab Sample ID: 580-75874-62

Date Collected: 03/14/18 09:03

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG09-SB02

Lab Sample ID: 580-75874-62

Date Collected: 03/14/18 09:03

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 86.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269706	03/22/18 16:18	APR	TAL SEA
Total/NA	Analysis	8082A		1	269793	03/24/18 04:40	TL1	TAL SEA
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270006	03/28/18 15:37	ADB	TAL SEA

Client Sample ID: EY-SG09-SB03

Lab Sample ID: 580-75874-63

Date Collected: 03/14/18 09:10

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG09-SB03

Lab Sample ID: 580-75874-63

Date Collected: 03/14/18 09:10

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 86.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269706	03/22/18 16:18	APR	TAL SEA
Total/NA	Analysis	8082A		1	269793	03/24/18 04:56	TL1	TAL SEA
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270006	03/28/18 15:58	ADB	TAL SEA

Client Sample ID: EY-SG18-CSB

Lab Sample ID: 580-75874-64

Date Collected: 03/15/18 16:15

Matrix: Solid

Date Received: 03/15/18 15:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269525	03/20/18 17:12	TTN	TAL SEA

Client Sample ID: EY-SG18-CSB

Lab Sample ID: 580-75874-64

Date Collected: 03/15/18 16:15

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 89.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Client Sample ID: EY-SG18-CSB

Lab Sample ID: 580-75874-64

Date Collected: 03/15/18 16:15

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 89.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	270006	03/28/18 16:18	ADB	TAL SEA

Laboratory References:

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

- 1
- 2
- 3
- 4
- 5
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Accreditation/Certification Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids



Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-75874-7	EY-SG10-CSB	Solid	03/14/18 10:25	03/15/18 15:30
580-75874-8	SW-01	Solid	03/14/18 14:00	03/15/18 15:30
580-75874-9	SW-03	Solid	03/14/18 14:35	03/15/18 15:30
580-75874-10	EY-SG12-CSB	Solid	03/14/18 11:35	03/15/18 15:30
580-75874-14	EY-SG13-CSB	Solid	03/14/18 12:40	03/15/18 15:30
580-75874-19	EY-SG14-CSB	Solid	03/14/18 15:55	03/15/18 15:30
580-75874-22	EY-SG25-CSB	Solid	03/14/18 16:45	03/15/18 15:30
580-75874-26	EY-SG26-CSB	Solid	03/14/18 17:26	03/15/18 15:30
580-75874-27	EY-SG26-SB01	Solid	03/14/18 17:10	03/15/18 15:30
580-75874-28	EY-SG26-SB02	Solid	03/14/18 17:18	03/15/18 15:30
580-75874-29	EY-SG26-SB03	Solid	03/14/18 17:26	03/15/18 15:30
580-75874-31	RNS-09	Water	03/14/18 16:20	03/15/18 15:30
580-75874-34	EY-SG28-CSB	Solid	03/15/18 11:33	03/15/18 15:30
580-75874-38	EY-SG29-CSB	Solid	03/15/18 13:48	03/15/18 15:30
580-75874-42	EY-SG30-CSB	Solid	03/15/18 14:33	03/15/18 15:30
580-75874-43	EY-SG30-SB01	Solid	03/15/18 14:22	03/15/18 15:30
580-75874-44	EY-SG15-CSB	Solid	03/15/18 09:38	03/15/18 15:30
580-75874-47	EY-SG27-CSB	Solid	03/15/18 10:23	03/15/18 15:30
580-75874-48	EY-SG16-CSB	Solid	03/15/18 13:18	03/15/18 15:30
580-75874-50	EY-SG16-SB02	Solid	03/15/18 13:05	03/15/18 15:30
580-75874-51	EY-SG16-SB03	Solid	03/15/18 13:18	03/15/18 15:30
580-75874-58	EY-SG31-CSB	Solid	03/15/18 15:03	03/15/18 15:30
580-75874-59	RNS-07	Water	03/15/18 15:24	03/15/18 15:30
580-75874-60	EY-SG09-CSB	Solid	03/14/18 09:10	03/15/18 15:30
580-75874-61	EY-SG09-SB01	Solid	03/14/18 08:42	03/15/18 15:30
580-75874-62	EY-SG09-SB02	Solid	03/14/18 09:03	03/15/18 15:30
580-75874-63	EY-SG09-SB03	Solid	03/14/18 09:10	03/15/18 15:30
580-75874-64	EY-SG18-CSB	Solid	03/15/18 16:15	03/15/18 15:30

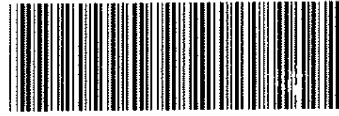
TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <u>ORnd/off</u>		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.6	
Client Contact: Suzanne Dolberg		Phone: <u>203 421 1443</u>		E-Mail: sheri.cruz@testamericainc.com				Page: Page 6 of 33	
Company: ERM-West		Due Date Requested:		Analysis Requested				Job #: <u>75874</u>	
Address: 1218 3rd Ave Suite 1412		TAT Requested (days):		 580-75874 Chain of Custody				Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)	
City: Seattle						Total Number of Containers				Other:
State, Zip: WA, 98101		PO #: 0435302.03		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No)					
Phone: 425-214-0462(Tel)		WO #:		8082A, NWTPH_Dx 8082A, 8270D, SIM, NWTPH_Dx 8260C - BTEX 8010C, 7471A, NWTPH_Dx 8082A - PCBs, standard list 8020A, 7470A NWTPH_Dx - Northwest - DRO/IRRO 8260C - BTEX					
Email: suzanne.dolberg@erm.com		Project #: 58012210							
Project Name: Cushman Phase II ESA		SSOW#:							
Site:									
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	
								Preservation Code:	
								N N F N N D A A	
-1 EY-SG10-SB04		3/14/18		0945		G		Solid	
-2 EY-SG10-SB05		3/14/18		1005		G		Solid	
-3 EY-SG10-SB01 EY-SG10-SB01		3/14/18		0948		G		Solid	
-4 EY-SG10-SB01 EY-SG10-SB02		3/14/18		0952		G		Solid	
-5 EY-SG10-SB02 EY-SG10-SB03		3/14/18		0955		G		Solid	
-6 EY-SG10-SB03 EY-SG10-SB06		3/14/18		1025		G		Solid	
-7 EY-SG10-SB04 EY-SG10-CSB		3/14/18		1025		C		Solid	
-8 EY-SG10-SB05 SW-01		3/14/18		1400		G		Solid	
-9 EY-SG10-SB06 SW-03		3/14/18		1435		G		Solid	
-10 EY-SG12-CSB		3/14/18		1135		C		Solid	
-11 EY-SG12-SB01		3/14/18		0955		G		Solid	
Possible Hazard Identification		<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)								Special Instructions/QC Requirements:	
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:			
Relinquished by: <u>Chen Ruffalo</u>		Date/Time: <u>3/15/18 1930</u>		Company: <u>ERM</u>		Received by: <u>[Signature]</u>		Date/Time: <u>3/15/18 1530</u> Company: <u>TA-SEN</u>	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Therm. ID <u>A7</u> Cor <u>7.3°</u> Unc <u>7.5°</u>		Cooler Dsc: <u>lg Blue</u>		Wet/Packs Packing: <u>Bubble</u>	

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Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Owen Rudloff	Lab PM: Cruz, Sheri L	Carrier Tracking No(s):	COC No: 580-27907-9206.7
Client Contact: Suzanne Dolberg	Phone: 603 421 1443	E-Mail: sheri.cruz@testamericainc.com		Page: Page 7 of 33

Company: ERM-West	Analysis Requested			Job #: 75874
-------------------	---------------------------	--	--	---------------------

Address: 1218 3rd Ave Suite 1412	Due Date Requested:	<table border="1"> <tr><td>Field Filtered Sample (Yes or No)</td></tr> <tr><td>Perform MS/MSD (Yes or No)</td></tr> <tr><td>8082A, NWTPH_Dx</td></tr> <tr><td>8082A, 8270D_SIM, NWTPH_Dx</td></tr> <tr><td>8269C - BTEX</td></tr> <tr><td>6010C, 7471A, NWTPH_Dx</td></tr> <tr><td>8082A - PCBs, standard list</td></tr> <tr><td>6020A, 7470A</td></tr> <tr><td>NWTPH_Dx - Northwest - DROIRRO</td></tr> <tr><td>8269C - BTEX</td></tr> </table>	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8269C - BTEX	6010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	6020A, 7470A	NWTPH_Dx - Northwest - DROIRRO	8269C - BTEX	<table border="1"> <tr><td>Total Number of containers</td></tr> </table>	Total Number of containers	Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)
Field Filtered Sample (Yes or No)															
Perform MS/MSD (Yes or No)															
8082A, NWTPH_Dx															
8082A, 8270D_SIM, NWTPH_Dx															
8269C - BTEX															
6010C, 7471A, NWTPH_Dx															
8082A - PCBs, standard list															
6020A, 7470A															
NWTPH_Dx - Northwest - DROIRRO															
8269C - BTEX															
Total Number of containers															
City: Seattle	TAT Requested (days):														
State, Zip: WA, 98101	PO #: 0435302.03														
Phone: 425-214-0462(Tel)	WO #:														
Email: suzanne.dolberg@erm.com	Project #: 58012210														
Project Name: Cushman Phase II ESA	SSOW#:														

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8269C - BTEX	6010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	6020A, 7470A	NWTPH_Dx - Northwest - DROIRRO	8269C - BTEX	Total Number of containers	Special Instructions/Note:
-12 EY-SG12-SB02	3/14	1111	G	Solid	X											Hold
-13 EY-SG12-SB03	3/14	1130	G	Solid	X											Hold
-14 EY-SG13-CSB	3/14	1240	C	Solid	X											Run TPH, Hold PCB
-15 EY-SG13-SB01	3/14	1203	G	Solid	X											Hold
-16 EY-SG13-SB02	3/14	1222	G	Solid	X											Hold
-17 EY-SG13-SB03	3/14	1230	G	Solid	X											Hold
-18 EY-SG13-SB04	3/14	1240	G	Solid	X											Hold
EY-SG13-SB05	3/14	1159	G	Solid	X											
-19 EY-SG14-CSB	3/14	1555	C	Solid	X											Run TPH, hold PCB
-20 EY-SG14-SB01	3/14	1530	G	Solid	X											Hold
-21 EY-SG14-SB02	3/14	1540	G	Solid	X											Hold

Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: <i>[Signature]</i>	Date/Time: 3/19/18 1530	Company: ERM	Received by: <i>[Signature]</i>
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
--------------------------------------------------------------------------------	-------------------	---------------------------------------------

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Tacoma, WA 98424
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Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information Client Contact: Suzanne Dolberg Company: ERM-West Address: 1218 3rd Ave Suite 1412 City: Seattle State, Zip: WA, 98101 Phone: 425-214-0462(Tel) Email: suzanne.dolberg@erm.com Project Name: Cushman Phase II ESA Site:			Sample: Owen Rudloff Phone: 503 421 1443 Lab PM: Cruz, Sheri L E-Mail: sheri.cruz@testamericainc.com			Carrier Tracking No(s): COC No: 580-27907-9206.12 Page: Page 12 of 33 Job #: 75874											
Due Date Requested: TAT Requested (days): PO #: 0435302.03 WO #: Project #: 58012210 SSOW#:			Analysis Requested 8062A, NWTPH_Dx 8062A, 8270D, SIM, NWTPH_Dx 8280C - BTEX 6010C, 7471A, NWTPH_Dx 8082A - PCBs, standard list 8020A, 7470A NWTPH_Dx - Northwest - DRO/IRRO 8280C - BTEX				Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:										
Sample Identification					Field Filtered Sample (Yes or No) Perform MSHMSD (Yes or No) 8062A, NWTPH_Dx 8062A, 8270D, SIM, NWTPH_Dx 8280C - BTEX 6010C, 7471A, NWTPH_Dx 8082A - PCBs, standard list 8020A, 7470A NWTPH_Dx - Northwest - DRO/IRRO 8280C - BTEX		Total Number of containers Special Instructions/Note:										
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	X	X	N	N	F	N	N	D	A	A			
				Preservation Code:	X	X	N	N	F	N	N	D	A	A			
-22 EY-SG25-CSB	3/14/18	1645	C	Solid		X											Run TPH, hold D
-23 EY-SG25-SB01	3/14/18	1830	G	Solid		X											hold
-24 EY-SG25-SB02	3/14	1640	G	Solid		X											hold
-25 EY-SG25-SB03	3/14	1645	G	Solid		X											hold
-26 EY-SG26-CSB	3/14	1726	C	Solid		X											Run TPH, hold PCB
-27 EY-SG26-SB01	3/14	1710	G	Solid		X											hold
-28 EY-SG26-SB02	3/14	1718	G	Solid		X											hold
-29 EY-SG26-SB03	3/14	1728	G	Solid		X											hold
-30 EY-SG27-CSB EY-SG14-SB03	3/14	1555	G	Solid		X											hold
-31 EY-SG27-SB01 RNS-05	3/14/18	1620	G	Solid						X			X				Run TPH + PCBs
-32 EY-SG27-SB02 EY-SG12-SB04	3/14/18	1126	G	Solid		X											hold

Non-Hazard
 Flammable
 Skin Irritant
 Poison B
 Unknown
 Radiological

Return To Client
 Disposal By Lab
 Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) _____

Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____

Relinquished by: Owen Rudloff	Date/Time: 3/14/18 1530	Company: _____	Received by: SHS	Date/Time: 3/15/18 1530	Company: SHS/EA
Relinquished by: _____	Date/Time: _____	Company: _____	Received by: _____	Date/Time: _____	Company: _____
Relinquished by: _____	Date/Time: _____	Company: _____	Received by: _____	Date/Time: _____	Company: _____

Custody Seals Intact: Yes No
 Custody Seal No.: _____
 Cooler Temperature(s) °C and Other Remarks: _____

Client: **ERM** Client Contact: **Suzanne Dolberg** Date: **3/15/18** Chain of Custody Number: **36681**
 Address: **1218 3rd Ave Suite 1412** Telephone Number (Area Code)/Fax Number: **425 24 0462** Lab Number: _____
 City: **Seattle** State: **WA** Zip Code: **98101** Sampler: **Owen Rudloff** Lab Contact: **Sheri Cruz** Page: **1** of **1**

Project Name and Location (State): **Cushman Phase II ESA** Billing Contact: _____ Analysis (Attach list if more space is needed): _____
 Contract/Purchase Order/Quote No.: **0439302.03** Special Instructions/Conditions of Receipt: **75874**

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							# Bottles	Special Instructions/Conditions of Receipt		
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc2	NaOH				
62 EY-SG27-SB02 -54	3/15	1023				X											1 hold
63 EY-SG31-SB01 -55	3/15	1455				X											↓ Run TPH, hold PCB Run wofb
64 EY-SG31-SB02 -56	3/15	1457				X											
65 EY-SG31-SB03 -57	3/15	1503				X											
66 EY-SG31-CSB -58	3/15	1503				X											
67 PMS-07 -59	3/15	1924				X	X		X								
3/15/18 EY-SG09-CSB -60	3/14	0910															
-SB01 -61	3/14	0842															
-SB02 -62	3/14	0903															
-SB03 -63	3/14	0910															

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal: Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify): _____

1. Relinquished By Sign/Print: Owen Rudloff	Date: 3/15/18	Time: 1530	1. Received By Sign/Print: [Signature]	Date: 3/15/18	Time: 1530
2. Relinquished By Sign/Print: _____	Date: _____	Time: _____	2. Received By Sign/Print: _____	Date: _____	Time: _____
3. Relinquished By Sign/Print: _____	Date: _____	Time: _____	3. Received By Sign/Print: _____	Date: _____	Time: _____

Comments: _____

Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-75874-1

Login Number: 75874

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom X

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



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.


TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-75874-2

Client Project/Site: Cushman Phase II ESA

For:
ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
4/6/2018 4:13:21 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Table of Contents

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Sample Summary	9
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Receipt Checklists	17

Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-2

Job ID: 580-75874-2

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-75874-2

Comments

No additional comments.

Receipt

The samples were received on 3/15/2018 3:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 6.3° C and 7.3° C.

Receipt Exceptions

The seventh (last) page of the chain of custody was not relinquished by the client.

One of the two coolers was received at the laboratory outside the required temperature criteria:

GC Semi VOA

Method(s) 8082A: The continuing calibration verification (CCV) associated with batch 580-270585 recovered above the upper control limit for PCB-1232, PCB-1248, PCB-1242, PCB-1016, and PCB-1260. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: (CCV 580-270585/10), (CCV 580-270585/8), (CCV 580-270585/9) and (CCVIS 580-270585/12).

Method(s) 8082A: The following continuing calibration verification (CCV) standard associated with batch 580-270585 recovered outside acceptance criteria for %D for surrogate Tetrachloro-m-xylene DCB Decachlorobiphenyl. Since the %Rec is within the acceptance criteria for the surrogate in the CCV and associated samples, the data have been reported. The following sample is impacted: (CCVIS 580-270585/12)

Method(s) 8082A: The continuing calibration verification (CCV) associated with 580-270708 recovered high and outside the control limits for PCB-1016 and PCB-1260 on one column. Results are confirmed on both columns and reported from the passing column. The following sample is impacted: (CCVIS 580-270708/16).

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

Organic Prep

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

Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-2

Glossary

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

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-2

Client Sample ID: EY-SG26-SB01

Lab Sample ID: 580-75874-27

Date Collected: 03/14/18 17:10

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 91.3

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.021		mg/Kg	☼	03/30/18 09:28	04/05/18 13:06	1
PCB-1221	ND		0.021		mg/Kg	☼	03/30/18 09:28	04/05/18 13:06	1
PCB-1232	ND		0.021		mg/Kg	☼	03/30/18 09:28	04/05/18 13:06	1
PCB-1242	ND		0.021		mg/Kg	☼	03/30/18 09:28	04/05/18 13:06	1
PCB-1248	ND		0.021		mg/Kg	☼	03/30/18 09:28	04/05/18 13:06	1
PCB-1254	ND		0.021		mg/Kg	☼	03/30/18 09:28	04/05/18 13:06	1
PCB-1260	0.25		0.021		mg/Kg	☼	03/30/18 09:28	04/05/18 13:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>DCB Decachlorobiphenyl</i>	96		25 - 149	03/30/18 09:28	04/05/18 13:06	1
<i>Tetrachloro-m-xylene</i>	73		35 - 130	03/30/18 09:28	04/05/18 13:06	1

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-2

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-270230/1-A
Matrix: Solid
Analysis Batch: 270585

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270230

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		03/30/18 09:28	04/04/18 14:44	1
PCB-1221	ND		0.020		mg/Kg		03/30/18 09:28	04/04/18 14:44	1
PCB-1232	ND		0.020		mg/Kg		03/30/18 09:28	04/04/18 14:44	1
PCB-1242	ND		0.020		mg/Kg		03/30/18 09:28	04/04/18 14:44	1
PCB-1248	ND		0.020		mg/Kg		03/30/18 09:28	04/04/18 14:44	1
PCB-1254	ND		0.020		mg/Kg		03/30/18 09:28	04/04/18 14:44	1
PCB-1260	ND		0.020		mg/Kg		03/30/18 09:28	04/04/18 14:44	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	119		25 - 149				03/30/18 09:28	04/04/18 14:44	1
Tetrachloro-m-xylene	100		35 - 130				03/30/18 09:28	04/04/18 14:44	1

Lab Sample ID: MB 580-270230/1-A
Matrix: Solid
Analysis Batch: 270708

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270230

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		03/30/18 09:28	04/05/18 11:29	1
PCB-1221	ND		0.020		mg/Kg		03/30/18 09:28	04/05/18 11:29	1
PCB-1232	ND		0.020		mg/Kg		03/30/18 09:28	04/05/18 11:29	1
PCB-1242	ND		0.020		mg/Kg		03/30/18 09:28	04/05/18 11:29	1
PCB-1248	ND		0.020		mg/Kg		03/30/18 09:28	04/05/18 11:29	1
PCB-1254	ND		0.020		mg/Kg		03/30/18 09:28	04/05/18 11:29	1
PCB-1260	ND		0.020		mg/Kg		03/30/18 09:28	04/05/18 11:29	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	122		25 - 149				03/30/18 09:28	04/05/18 11:29	1
Tetrachloro-m-xylene	101		35 - 130				03/30/18 09:28	04/05/18 11:29	1

Lab Sample ID: LCS 580-270230/2-A
Matrix: Solid
Analysis Batch: 270585

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270230

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	0.100	0.102		mg/Kg		102	69 - 126
PCB-1260	0.100	0.114		mg/Kg		114	68 - 136
Surrogate	%Recovery	LCS Qualifier	Limits				
DCB Decachlorobiphenyl	120		25 - 149				
Tetrachloro-m-xylene	103		35 - 130				

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-2

Client Sample ID: EY-SG26-SB01

Lab Sample ID: 580-75874-27

Date Collected: 03/14/18 17:10

Matrix: Solid

Date Received: 03/15/18 15:30

Percent Solids: 91.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546	RA		270230	03/30/18 09:28	TTN	TAL SEA
Total/NA	Analysis	8082A	RA	1	270708	04/05/18 13:06	Y1W	TAL SEA

Laboratory References:

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



Accreditation/Certification Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-2

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

Analysis Method	Prep Method	Matrix	Analyte
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- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-75874-27	EY-SG26-SB01	Solid	03/14/18 17:10	03/15/18 15:30

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

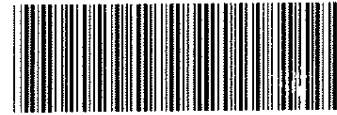
TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: <u>ORnd/off</u>	Lab PM: Cruz, Sheri L	Carrier Tracking No(s):	COC No: 580-27907-9206.6
Client Contact: Suzanne Dolberg	Phone: <u>203 421 1443</u>	E-Mail: sheri.cruz@testamericainc.com		Page: Page 6 of 33
Company: ERM-West				Job #: <u>75874</u>

Address: 1218 3rd Ave Suite 1412	Due Date Requested:
City: Seattle	TAT Requested (days):
State, Zip: WA, 98101	PO #: 0435302.03
Phone: 425-214-0462(Tel)	WO #:
Email: suzanne.dolberg@erm.com	Project #: 58012210
Project Name: Cushman Phase II ESA	SSOW#:
Site:	

Analysis Requested



580-75874 Chain of Custody

Preservation Codes:

- | | |
|-------------------|-----------------------|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2O3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - pH 4-5 |
| L - EDA | Z - other (specify) |

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)												Total Number of Containers	Special Instructions/Note:
					Perform MS/MSD (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D, SIM, NWTPH_Dx	8260C - BTEX	8010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH_Dx - Northwest - DRO/IRRO	8260C - BTEX					
EY-SG10-SB04	3/14/18	0945	G	Solid	X													Hold
EY-SG10-SB05	3/14/18	1005	G	Solid	X													Hold
EY-SG10-SB01 EY-SG10-SB01	3/14/18	0948	G	Solid	X													Hold
EY-SG10-SB01 EY-SG10-SB02	3/14/18	0952	G	Solid	X													Hold
EY-SG10-SB02 EY-SG10-SB03	3/14/18	0955	G	Solid	X													Hold
EY-SG10-SB03 EY-SG10-SB06	3/14/18	1025	G	Solid	X													Hold
EY-SG10-SB04 EY-SG10-CSB	3/14/18	1025	C	Solid	X													Run TPH, hold PCB
EY-SG10-SB05 SW-01	3/14/18	1400	G	Solid							X							Run TPH, hold PCB
EY-SG10-SB06 SW-03	3/14/18	1435	G	Solid							X							Run TPH, hold PCB
EY-SG12-CSB	3/14/18	1135	C	Solid							X							Run TPH, hold PCB
EY-SG12-SB01	3/14/18	1055	G	Solid	X													Hold

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: <u>Chen Ruffalo</u>	Date/Time: <u>3/15/18 1930</u>	Company: <u>ERM</u>	Received by: <u>ISA</u>
Relinquished by:	Date/Time:	Company:	Date/Time: <u>3/15/18 1530</u>
Relinquished by:	Date/Time:	Company:	Date/Time:
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Therm. ID <u>A7</u> Cor <u>7.3°</u> Unc <u>7.5°</u> Cooler Dsc: <u>lg blue</u> Wet/Packs Packing: <u>Bubble</u>	

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Owen Rudloff	Lab PM: Cruz, Sheri L	Carrier Tracking No(s):	COC No: 580-27907-9206.7
Client Contact: Suzanne Dolberg	Phone: 603 421 1443	E-Mail: sheri.cruz@testamericainc.com		Page: Page 7 of 33

Company: ERM-West	Analysis Requested	Job #: 75874
-------------------	--------------------	---------------------

Address: 1218 3rd Ave Suite 1412	Due Date Requested:	<table border="1"> <tr> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>8082A, NWTPH_Dx</th> <th>8082A, 8270D_SIM, NWTPH_Dx</th> <th>8269C - BTEX</th> <th>6010C, 7471A, NWTPH_Dx</th> <th>8082A - PCBs, standard list</th> <th>6020A, 7470A</th> <th>NWTPH_Dx - Northwest - DROIRRO</th> <th>8269C - BTEX</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8269C - BTEX	6010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	6020A, 7470A	NWTPH_Dx - Northwest - DROIRRO	8269C - BTEX										
Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)		8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8269C - BTEX	6010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	6020A, 7470A	NWTPH_Dx - Northwest - DROIRRO	8269C - BTEX												
City: Seattle	TAT Requested (days):																					
State, Zip: WA, 98101	PO #: 0435302.03																					
Phone: 425-214-0462(Tel)	WO #:																					
Email: suzanne.dolberg@erm.com	Project #: 58012210																					
Project Name: Cushman Phase II ESA	SSOW#:																					
Site:																						

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8269C - BTEX	6010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	6020A, 7470A	NWTPH_Dx - Northwest - DROIRRO	8269C - BTEX	Total Number of containers	Special Instructions/Note:
EY-SG12-SB02	3/14	1111	G	Solid	X											Hold
EY-SG12-SB03	3/14	1130	G	Solid	X											Hold
EY-SG13-CSB	9/14	1240	C	Solid	X											Run TPH, Hold PCB
EY-SG13-SB01	9/14	1203	G	Solid	X											Hold
EY-SG13-SB02	3/14	1222	G	Solid	X											Hold
EY-SG13-SB03	3/14	1230	G	Solid	X											Hold
EY-SG13-SB04	9/14	1240	G	Solid	X											Hold
EY-SG13-SB05	9/14	1159	G	Solid	X											
EY-SG14-CSB	9/14	1555	C	Solid	X											Run TPH, hold PCB
EY-SG14-SB01	3/14	1530	G	Solid	X											Hold
EY-SG14-SB02	3/14	1540	G	Solid	X											Hold

Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: <i>[Signature]</i>	Date/Time: 3/15/14 1530	Company: ERM	Received by: <i>[Signature]</i>
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
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TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sample: Owen Rudloff		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.12			
Client Contact: Suzanne Dolberg		Phone: 503 421 1443		E-Mail: sheri.cruz@testamericainc.com				Page 12 of 33			
Company: ERM-West		Due Date Requested:		Analysis Requested Field Filtered Sample (Yes or No) <input type="checkbox"/> Perform MS/MSD (Yes or No) <input type="checkbox"/> 8082A, NWTPH_Dx <input type="checkbox"/> 8082A, 8270D_SIM, NWTPH_Dx <input type="checkbox"/> 8280C - BTEX <input type="checkbox"/> 6010C, 7471A, NWTPH_Dx <input type="checkbox"/> 8082A - PCBs, standard list <input type="checkbox"/> 8020A, 7470A <input type="checkbox"/> NWTPH_Dx - Northwest - DRO/RO <input type="checkbox"/> 8280C - BTEX <input type="checkbox"/>		Job #: 75874		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)			
Address: 1218 3rd Ave Suite 1412		TAT Requested (days):				Total Number of containers:				Other:	
City: Seattle		PO #: 0435302.03									
State, Zip: WA, 98101		WO #:									
Phone: 425-214-0462(Tel)		Project #: 58012210									
Email: suzanne.dolberg@erm.com		SSOW#:									
Project Name: Cushman Phase II ESA											
Site:											
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)			
								Preservation Code:			
								X X N N F N N D A A			
-22	EY-SG25-CSB	3/14/18	1645	C	Solid				Run TPH, hold D		
-23	EY-SG25-SB01	3/14/18	1630	G	Solid				hold		
-24	EY-SG25-SB02	3/14	1640	G	Solid				hold		
-25	EY-SG25-SB03	3/14	1645	G	Solid				hold		
-26	EY-SG26-CSB	3/14	1726	C	Solid				Run TPH, hold PCB		
-27	EY-SG26-SB01	3/14	1710	G	Solid				hold		
-28	EY-SG26-SB02	3/14	1718	G	Solid				hold		
-29	EY-SG26-SB03	3/14	1726	G	Solid				hold		
-30	EY-SG27-CSB EY-SG14-SB03	3/14	1555	G	Solid				hold		
-31	EY-SG27-SB01 RNS-05	3/14/18	1620	G	Solid			X X	Run TPH + PCBs		
-32	EY-SG27-SB02 EY-SG12-SB04	3/14/18	1126	G	Solid				hold		
Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:							
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:					
Relinquished by: Owen Rudloff		Date/Time: 3/19 1530		Company:		Received by: ESH		Date/Time: 3/19/18 1530			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:							

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Cruz, Sheri L	Lab PM: Cruz, Sheri L	Carrier Tracking No(s):	COC No: 580-27907-9206.13
Client Contact: Suzanne Dolberg	Phone:	E-Mail: sheri.cruz@testamericainc.com		Page: Page 13 of 33

Company: ERM-West	Analysis Requested	Job #: 75874
----------------------	--------------------	-----------------

Address: 1218 3rd Ave Suite 1412	Due Date Requested:	<table border="1"> <tr> <td>Field Filtered Sample (Yes or No)</td> <td>8082A, NWTPH_Dx</td> <td>8082A, 8270D_SIM, NWTPH_Dx</td> <td>8260C - BTEX</td> <td>8010C, 7471A, NWTPH_Dx</td> <td>8082A - PCBs, standard list</td> <td>8020A, 7470A</td> <td>NWTPH_Dx - Northwest - DROI/RO</td> <td>8260C - BTEX</td> </tr> </table>	Field Filtered Sample (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8260C - BTEX	8010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH_Dx - Northwest - DROI/RO	8260C - BTEX	Preservation Codes:	
Field Filtered Sample (Yes or No)	8082A, NWTPH_Dx		8082A, 8270D_SIM, NWTPH_Dx	8260C - BTEX	8010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH_Dx - Northwest - DROI/RO	8260C - BTEX				
City: Seattle	TAT Requested (days):		<table border="1"> <tr> <td>Field Number of containers</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Field Number of containers									A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA
Field Number of containers													
State, Zip: WA, 98101	PO #: 0435302.03			M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)									
Phone: 425-214-0462(Tel)	WO #:												
Email: suzanne.dolberg@erm.com	Project #: 58012210												
Project Name: Cushman Phase II ESA	SSOW#:												
Site:													

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wasteroll, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8260C - BTEX	8010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH_Dx - Northwest - DROI/RO	8260C - BTEX	Total Number of containers	Special Instructions/Note:
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- 33
- 34
- 35
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- 41
- 42
- 43

EY-SG27-CSB EY-SG27-SB01	3/15	1010	G	Solid	X									X	h
EY-SG28-CSB	3/15	1133	C	Solid	X										Run TPH, h PCB
EY-SG28-SB01	3/15	1113	G	Solid	X										h
EY-SG28-SB02	3/15	1122	G	Solid	X										h
EY-SG28-SB03	3/15	1133	G	Solid	X										h
EY-SG29-CSB	3/15	1348	C	Solid	X										Run TPH, h PCB
EY-SG29-SB01	3/15	1339	G	Solid	X										h
EY-SG29-SB02	3/15	1342	G	Solid	X										h
EY-SG29-SB03	3/15	1348	G	Solid	X										h
EY-SG30-CSB	3/15	1433	C	Solid	X										Run TPH, h PCB
EY-SG30-SB01	3/15	1422	G	Solid	X										h

Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: <i>Owen R. [Signature]</i>	Date/Time: 3/15 1930	Company:	Received by: <i>[Signature]</i>
Relinquished by:	Date/Time:	Company:	Date/Time: 3/15/14 1530
Relinquished by:	Date/Time:	Company:	Company: TAS/EA
Relinquished by:	Date/Time:	Company:	Company:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:	

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler:		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.8			
Client Contact: Suzanne Dolberg		Phone:		E-Mail: sheri.cruz@testamericainc.com				Page: Page 8 of 33			
Company: ERM-West				Analysis Requested				Job #: 75874			
Address: 1218 3rd Ave Suite 1412		Due Date Requested:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of Containers		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)	
City: Seattle		TAT Requested (days):									
State, Zip: WA, 98101		PO #: 0435302.03									
Phone: 425-214-0462(Tel)		WO #:									
Email: suzanne.dolberg@erm.com		Project #: 58012210									
Project Name: Cushman Phase II ESA		SSOW#:									
Site:											
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=air)		Preservation Code:	
EY-SG14-SB03		3/14		1555		G		Solid			
-44 EY-SG15-CSB		3/15		0938		C		Solid		Run TPH, h PCB	
-45 EY-SG15-SB01		3/15		0934		G		Solid		h	
-46 EY-SG15-SB02		3/15		0938		G		Solid		h	
-47 EY-SG15-SB02 EY-SG27-CSB		3/15		1023		C		Solid		Run TPH, h PCB	
-48 EY-SG16-CSB		3/15		1318		C		Solid		Run TPH, h PCB	
-49 EY-SG16-SB01		3/15		1300		G		Solid		h	
-50 EY-SG16-SB02		3/15		1309		G		Solid		h	
-51 EY-SG16-SB03		3/15		1318		G		Solid		h	
-52 EY-SG16-SB01 EY-SG30-SB02		3/15		1427		G		Solid		h	
-53 EY-SG17-SB02 EY-SG30-SB03		3/15		1433		G		Solid		h	
Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:							
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:					
Relinquished by: <i>[Signature]</i>		Date/Time: 3/15/18 1930		Company: ERM		Received by: <i>[Signature]</i>		Date/Time: 3/15/18 1530		Company: T.A.S.E.A	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks							

Client ERM		Client Contact Suzanne Dolberg		Date 3/15/18	Chain of Custody Number 36681
Address 1218 3rd Ave Suite 1412		Telephone Number (Area Code)/Fax Number 425 24 0462		Lab Number	Page 1 of 1

City Seattle	State WA	Zip Code 98101	Sampler Owen Rudloff	Lab Contact Sheri Cruz	Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt 75874
Project Name and Location (State) Cushman Phase II ESA			Billing Contact			

Contract/Purchase Order/Quote No. **0439302.03**

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							# Bottles			
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH					
62 EY-SG27-SB02 -54	3/15	1023				X											1 hold
63 EY-SG31-SB01 -55	3/15	1455				X											
64 EY-SG31-SB02 -56	3/15	1457				X											
65 EY-SG31-SB03 -57	3/15	1503				X											
66 EY-SG31-CSB -58	3/15	1503				X											Run TPH, hold PCB
67 PMS-07 -59	3/15	1924				X	X		X								Run wofb
3/15/18 EY-SG09-CSB -60	3/14	0910															
-SB01 -61	3/14	0842															
-SB02 -62	3/14	0903															
-SB03 -63	3/14	0910															

Cooler <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Archive For _____ Months	Disposal By Lab (A fee may be assessed if samples are retained longer than 1 month)
---------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------

Turn Around Time Required (business days) <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 10 Days <input type="checkbox"/> 15 Days <input type="checkbox"/> Other _____	QC Requirements (Specify)
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------

1. Relinquished By Sign/Print Owen Rudloff	Date 3/15/18	Time 1530	1. Received By Sign/Print Francisco Luna Jr	Date 3/15/18	Time 1530
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



Client Information		Sampler: <i>Owen Rudloff</i>		Lab PM: Cruz, Sheri L		Carrier Tracking No(s)		COC No: 580-27907-9206.9	
Client Contact: Suzanne Dolberg		Phone: <i>503 421 1443</i>		E-Mail: sheri.cruz@testamericainc.com				Page: Page 9 of 33	
Company: ERM-West				Analysis Requested				Job #: <i>75874</i>	
Address: 121B 3rd Ave Suite 1412		Due Date Requested:		Field Filtered Sample (Yes or No)		Total Number of Containers		Preservation Codes:	
City: Seattle		TAT Requested (days):		Perform MS/MSA (Yes or No)				A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)	
State, Zip: WA, 98101		PO #: 0435302.03		8092A, NWTPH, Dx					
Phone: 425-214-0462(Tel)		WO #:		8082A, 8270D, SIM, NWTPH, Dx					
Email: suzanne.dolberg@erm.com		Project #: 58012210		8260C - BTEX					
Project Name: Cushman Phase II ESA		SSOW#:		8010C, 7471A, NWTPH, Dx					
Site:				8082A - PCBs, standard list					
				8020A, 7470A					
				NWTPH, Dx - Northwest - DFO/RO					
				8260C - BTEX					
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	
								Field Filtered Sample (Yes or No)	
								Preservation Code	
								N N F N N D A A	
<i>EY</i>						Solid			
<i>EY-SG17-SB03</i>						Solid			
<i>EY-SG18-CSB -64</i>		<i>3/15</i>		<i>1615</i>		C		Solid	
<i>EY-SG18-SB01 -65</i>		<i>3/15</i>		<i>1534</i>		G		Solid	
<i>EY-SG18-SB02 -66</i>		<i>3/15</i>		<i>1804</i>		G		Solid	
<i>EY-SG18-SB03 -67</i>		<i>3/15</i>		<i>1811</i>		G		Solid	
<i>EY-SG19-CSB -68</i>		<i>3/15</i>		<i>1545</i>		G		Solid	
<i>EY-SG19-SB01 -69</i>		<i>3/15</i>		<i>1534</i>		G		Solid	
<i>EY-SG19-SB02 -70</i>		<i>3/15</i>		<i>1542</i>		G		Solid	
<i>EY-SG19-SB03 -71</i>		<i>3/15</i>		<i>1549</i>		G		Solid	
<i>EY-SG20-CSB</i>		<i>3/13/18</i>				C		Solid	
<i>EY-SG20-SB01</i>		<i>3/13/18</i>		<i>939</i>		G		Solid	
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months				
Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:				
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
						<i>[Signature]</i>		<i>3/15/18 1530</i>	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:					

Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-75874-2

Login Number: 75874

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom X

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.


TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-75874-4

Client Project/Site: Cushman Phase II ESA

For:
ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
4/9/2018 1:28:04 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

LINKS

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results through
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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-4

Job ID: 580-75874-4

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-75874-4

Comments

No additional comments.

Receipt

The samples were received on 3/15/2018 3:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 6.3° C and 7.3° C.

Receipt Exceptions

The seventh (last) page of the chain of custody was not relinquished by the client.

One of the two coolers was received at the laboratory outside the required temperature criteria.

GC Semi VOA

Method(s) 8082, 8082A: The continuing calibration verification (CCV) associated with batch 580-270129 recovered above the upper control limit for PCB-1232, PCB-1248, PCB-1016 and PCB-1260. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: (CCV 580-270129/10), (CCV 580-270129/8), (CCV 580-270129/9) and (CCVIS 580-270129/12).

Method(s) 8082, 8082A: The following continuing calibration verification (CCV) standard associated with batch 580-270129 recovered outside acceptance criteria for %D for surrogate DCB Decachlorobiphenyl and Tetrachloro-m-xylene. Since the %Rec is within the acceptance criteria for the surrogate in the CCV and associated samples, the data have been reported. The following sample is impacted: (CCVIS 580-270129/12)

Method(s) 8082A: The following continuing calibration verification (CCV) standard associated with batch 580-270809 recovered outside acceptance criteria for %D for surrogate DCB Decachlorobiphenyl on the primary column only. Since the %Rec is within the acceptance criteria for the surrogate in the CCV and associated samples, the data have been reported. The following samples are impacted: (CCV 580-270809/22) and (CCVIS 580-270809/16)

Method(s) 8082A: The continuing calibration verification (CCV) associated with batch 580-270809 recovered above the upper control limit for PCB-1248, PCB-1016 and PCB-1260. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: SW-01 (580-75874-8), (CCV 580-270809/13), (CCV 580-270809/22) and (CCVIS 580-270809/16).

Method(s) 8082A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 580-269943 and analytical batch 580-270809 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 8082A: The matrix spike (MS) recoveries for preparation batch 580-269943 and analytical batch 580-270129 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

Organic Prep

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

Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-4

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

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

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-4

Client Sample ID: SW-01

Date Collected: 03/14/18 14:00

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-8

Matrix: Solid

Percent Solids: 81.6

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND	F1	0.023		mg/Kg	☼	03/27/18 09:21	04/06/18 14:39	1
PCB-1221	ND		0.023		mg/Kg	☼	03/27/18 09:21	04/06/18 14:39	1
PCB-1232	ND		0.023		mg/Kg	☼	03/27/18 09:21	04/06/18 14:39	1
PCB-1242	ND		0.023		mg/Kg	☼	03/27/18 09:21	04/06/18 14:39	1
PCB-1248	ND		0.023		mg/Kg	☼	03/27/18 09:21	04/06/18 14:39	1
PCB-1254	ND		0.023		mg/Kg	☼	03/27/18 09:21	04/06/18 14:39	1
PCB-1260	ND	F1	0.023		mg/Kg	☼	03/27/18 09:21	04/06/18 14:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	75		25 - 149	03/27/18 09:21	04/06/18 14:39	1
Tetrachloro-m-xylene	68		35 - 130	03/27/18 09:21	04/06/18 14:39	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-4

Client Sample ID: SW-03

Date Collected: 03/14/18 14:35

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-9

Matrix: Solid

Percent Solids: 81.5

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.024		mg/Kg	☼	03/27/18 09:21	03/28/18 15:39	1
PCB-1221	ND		0.024		mg/Kg	☼	03/27/18 09:21	03/28/18 15:39	1
PCB-1232	ND		0.024		mg/Kg	☼	03/27/18 09:21	03/28/18 15:39	1
PCB-1242	ND		0.024		mg/Kg	☼	03/27/18 09:21	03/28/18 15:39	1
PCB-1248	ND		0.024		mg/Kg	☼	03/27/18 09:21	03/28/18 15:39	1
PCB-1254	ND		0.024		mg/Kg	☼	03/27/18 09:21	03/28/18 15:39	1
PCB-1260	ND		0.024		mg/Kg	☼	03/27/18 09:21	03/28/18 15:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	84		25 - 149	03/27/18 09:21	03/28/18 15:39	1
Tetrachloro-m-xylene	72		35 - 130	03/27/18 09:21	03/28/18 15:39	1

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-4

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-269943/1-A
Matrix: Solid
Analysis Batch: 270129

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269943

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		03/27/18 09:21	03/28/18 14:15	1
PCB-1221	ND		0.020		mg/Kg		03/27/18 09:21	03/28/18 14:15	1
PCB-1232	ND		0.020		mg/Kg		03/27/18 09:21	03/28/18 14:15	1
PCB-1242	ND		0.020		mg/Kg		03/27/18 09:21	03/28/18 14:15	1
PCB-1248	ND		0.020		mg/Kg		03/27/18 09:21	03/28/18 14:15	1
PCB-1254	ND		0.020		mg/Kg		03/27/18 09:21	03/28/18 14:15	1
PCB-1260	ND		0.020		mg/Kg		03/27/18 09:21	03/28/18 14:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	111		25 - 149	03/27/18 09:21	03/28/18 14:15	1
Tetrachloro-m-xylene	93		35 - 130	03/27/18 09:21	03/28/18 14:15	1

Lab Sample ID: MB 580-269943/1-A
Matrix: Solid
Analysis Batch: 270809

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269943

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		03/27/18 09:21	04/06/18 15:38	1
PCB-1221	ND		0.020		mg/Kg		03/27/18 09:21	04/06/18 15:38	1
PCB-1232	ND		0.020		mg/Kg		03/27/18 09:21	04/06/18 15:38	1
PCB-1242	ND		0.020		mg/Kg		03/27/18 09:21	04/06/18 15:38	1
PCB-1248	ND		0.020		mg/Kg		03/27/18 09:21	04/06/18 15:38	1
PCB-1254	ND		0.020		mg/Kg		03/27/18 09:21	04/06/18 15:38	1
PCB-1260	ND		0.020		mg/Kg		03/27/18 09:21	04/06/18 15:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	107		25 - 149	03/27/18 09:21	04/06/18 15:38	1
Tetrachloro-m-xylene	80		35 - 130	03/27/18 09:21	04/06/18 15:38	1

Lab Sample ID: LCS 580-269943/2-A
Matrix: Solid
Analysis Batch: 270129

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269943

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	0.100	0.112		mg/Kg		112	69 - 126
PCB-1260	0.100	0.125		mg/Kg		125	68 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	134		25 - 149
Tetrachloro-m-xylene	109		35 - 130

Lab Sample ID: 580-75874-8 MS
Matrix: Solid
Analysis Batch: 270809

Client Sample ID: SW-01
Prep Type: Total/NA
Prep Batch: 269943

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
PCB-1016	ND	F1	0.119	0.0757	F1	mg/Kg	☼	64	69 - 126

TestAmerica Seattle

QC Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-4

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: 580-75874-8 MS
Matrix: Solid
Analysis Batch: 270809

Client Sample ID: SW-01
Prep Type: Total/NA
Prep Batch: 269943
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
PCB-1260	ND	F1	0.119	0.0951	F1	mg/Kg	☒	63	68 - 136
Surrogate									
	%Recovery	MS Qualifier	MS	Limits					
DCB Decachlorobiphenyl	77			25 - 149					
Tetrachloro-m-xylene	73			35 - 130					

Lab Sample ID: 580-75874-8 MSD
Matrix: Solid
Analysis Batch: 270809

Client Sample ID: SW-01
Prep Type: Total/NA
Prep Batch: 269943
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
PCB-1016	ND	F1	0.120	0.0751	F1	mg/Kg	☒	62	69 - 126	1	17
PCB-1260	ND	F1	0.120	0.103		mg/Kg	☒	69	68 - 136	8	21
Surrogate											
	%Recovery	MSD Qualifier	MSD	Limits							
DCB Decachlorobiphenyl	78			25 - 149							
Tetrachloro-m-xylene	70			35 - 130							

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-4

Client Sample ID: SW-01

Date Collected: 03/14/18 14:00

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-8

Matrix: Solid

Percent Solids: 81.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269943	03/27/18 09:21	TTN	TAL SEA
Total/NA	Analysis	8082A		1	270809	04/06/18 14:39	Y1W	TAL SEA

Client Sample ID: SW-03

Date Collected: 03/14/18 14:35

Date Received: 03/15/18 15:30

Lab Sample ID: 580-75874-9

Matrix: Solid

Percent Solids: 81.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269943	03/27/18 09:21	TTN	TAL SEA
Total/NA	Analysis	8082A		1	270129	03/28/18 15:39	TL1	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-4

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

Analysis Method	Prep Method	Matrix	Analyte
-----------------	-------------	--------	---------

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75874-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-75874-8	SW-01	Solid	03/14/18 14:00	03/15/18 15:30
580-75874-9	SW-03	Solid	03/14/18 14:35	03/15/18 15:30

1

2

3

4

5

6

7

8

9

10

11

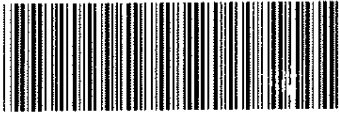
TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <u>ORnd/off</u>	Lab PM: Cruz, Sheri L	Carrier Tracking No(s):	COC No: 580-27907-9206.6																								
Client Contact: Suzanne Dolberg		Phone: <u>203 421 1443</u>	E-Mail: sheri.cruz@testamericainc.com		Page: Page 6 of 33																								
Company: ERM-West		Analysis Requested  580-75874 Chain of Custody			Job #: <u>75874</u>																								
Address: 1218 3rd Ave Suite 1412					Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)																								
City: Seattle		Due Date Requested:		Special Instructions/Note: Total Number of containers:																									
State, Zip: WA, 98101		TAT Requested (days):																											
Phone: 425-214-0462(Tel)		PO #: 0435302.03																											
Email: suzanne.dolberg@erm.com		WO #:																											
Project Name: Cushman Phase II ESA		Project #: 58012210		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> 8082A, NWTPH_Dx 8082A, 8270D, SIM, NWTPH_Dx 8260C - BTEX 8010C, 7471A, NWTPH_Dx 8082A - PCBs, standard list 8020A, 7470A NWTPH_Dx - Northwest - DROIRRO 8260C - BTEX																									
Site:		SSOW#:																											
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		8082A, NWTPH_Dx		8082A, 8270D, SIM, NWTPH_Dx		8260C - BTEX		8010C, 7471A, NWTPH_Dx		8082A - PCBs, standard list		8020A, 7470A		NWTPH_Dx - Northwest - DROIRRO		8260C - BTEX		Total Number of containers:		Special Instructions/Note:	
EY-SG10-SB04		3/14/18	0948	G	Solid																								Hold
EY-SG10-SB05		3/14/18	1005	G	Solid																								Hold
EY-SG10-SB01 EY-SG10-SB01		3/14/18	0948	G	Solid																								Hold
EY-SG10-SB01 EY-SG10-SB02		3/14/18	0952	G	Solid																								Hold
EY-SG10-SB02 EY-SG10-SB03		3/14/18	0955	G	Solid																								Hold
EY-SG10-SB03 EY-SG10-SB06		3/14/18	1025	G	Solid																								Hold
EY-SG10-SB04 EY-SG10-CSB		3/14/18	1025	C	Solid																								Run TPH, hold PCB
EY-SG10-SB05 SW-01		3/14/18	1400	G	Solid																								Run TPH, hold PCB
EY-SG10-SB06 SW-03		3/14/18	1435	G	Solid																								Run TPH, hold PCB
EY-SG12-CSB		3/14/18	1135	C	Solid																								Run TPH, hold PCB
EY-SG12-SB01		3/14/18	1055	G	Solid																								Hold
Possible Hazard Identification		<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological										Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																	
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:																											
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:																							
Relinquished by: <u>Chen Ruffalo</u>		Date/Time: <u>3/15/18 1930</u>		Company: <u>ERM</u>		Received by: <u>SSA</u>		Date/Time: <u>3/15/18 1530</u>		Company: <u>TA-SEN</u>																			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:																			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:																			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Therm. ID <u>A7</u> Cor <u>7.3°</u> Unc <u>7.5°</u>		Cooler Desc: <u>lg blue</u>		Wet/Packs Packing: <u>Bubble</u>		Therm. ID <u>A2</u> Cor <u>6.3°</u> Unc <u>6.5°</u>		Cooler Desc: <u>lg green</u>		Wet/Packs Packing: <u>Bubble</u>															

TestAmerica Seattle

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Tacoma, WA 98424
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Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: Owen Rudloff		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.7	
Client Contact: Suzanne Dolberg		Phone: 603 421 1443		E-Mail: sheri.cruz@testamericainc.com				Page: Page 7 of 33	
Company: ERM-West								Job #: 75874	

Address: 1218 3rd Ave Suite 1412		Due Date Requested:		Analysis Requested						Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)	
City: Seattle		TAT Requested (days):									
State, Zip: WA, 98101		PO #:									
Phone: 425-214-0462(Tel)		WO #:									
Email: suzanne.dolberg@erm.com		Project #:									
Project Name: Cushman Phase II ESA		SSOW#:									

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested												Total Number of containers	Special Instructions/Note:
							8082A, NWTPH_Dx	8082A, 8270D_SiM, NWTPH_Dx	8269C - BTEX	6010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	6020A, 7470A	NWTPH_Dx - Northwest - DROIRRO	8269C - BTEX						
EY-SG12-SB02	3/14	1111	G	Solid			N	N	F	N	N	D	A	A			Hold			
EY-SG12-SB03	3/14	1130	G	Solid			X										Hold			
EY-SG13-CSB	9/14	1240	C	Solid			X										Run TPH, Hold PCB			
EY-SG13-SB01	9/14	1203	G	Solid			X										Hold			
EY-SG13-SB02	3/14	1222	G	Solid			X										Hold			
EY-SG13-SB03	3/14	1230	G	Solid			X										Hold			
EY-SG13-SB04	9/14	1240	G	Solid			X										Hold			
EY-SG13-SB05	9/14	1109	G	Solid																
EY-SG14-CSB	9/14	1555	C	Solid			X										Run TPH, hold PCB			
EY-SG14-SB01	3/14	1530	G	Solid			X										Hold			
EY-SG14-SB02	3/14	1540	G	Solid			X										Hold			

Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:			

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: <i>Owen Rudloff</i>		Date/Time: 3/19/18 1530		Company: ERM		Received by: [Signature]	
Relinquished by:		Date/Time:		Company:		Received by:	
Relinquished by:		Date/Time:		Company:		Received by:	

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
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Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sample: Owen Rudloff		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.12			
Client Contact: Suzanne Dolberg		Phone: 503 421 1443		E-Mail: sheri.cruz@testamericainc.com				Page 12 of 33			
Company: ERM-West		Due Date Requested:		Analysis Requested Field Filtered Sample (Yes or No) <input type="checkbox"/> Perform MS/MSD (Yes or No) <input type="checkbox"/> 8082A, NWTPH_Dx <input type="checkbox"/> 8082A, 8270D_SIM, NWTPH_Dx <input type="checkbox"/> 8280C - BTEX <input type="checkbox"/> 6010C, 7471A, NWTPH_Dx <input type="checkbox"/> 8082A - PCBs, standard list <input type="checkbox"/> 8020A, 7470A <input type="checkbox"/> NWTPH_Dx - Northwest - DRO/RO <input type="checkbox"/> 8280C - BTEX <input type="checkbox"/>		Job #: 75874		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)			
Address: 1218 3rd Ave Suite 1412		TAT Requested (days):				Total Number of containers:				Other:	
City: Seattle		PO #: 0435302.03									
State, Zip: WA, 98101		WO #:									
Phone: 425-214-0462(Tel)		Project #: 58012210									
Email: suzanne.dolberg@erm.com		SSOW#:									
Project Name: Cushman Phase II ESA											
Site:											
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)			
								Preservation Code:			
								X X N N F N N D A A			
-22	EY-SG25-CSB	3/14/18	1645	C	Solid	X			Run TPH, hold D		
-23	EY-SG25-SB01	3/14/18	1630	G	Solid	X			hold		
-24	EY-SG25-SB02	3/14	1640	G	Solid	X			hold		
-25	EY-SG25-SB03	3/14	1645	G	Solid	X			hold		
-26	EY-SG26-CSB	3/14	1726	C	Solid	X			Run TPH, hold PCB		
-27	EY-SG26-SB01	3/14	1710	G	Solid	X			hold		
-28	EY-SG26-SB02	3/14	1718	G	Solid	X			hold		
-29	EY-SG26-SB03	3/14	1726	G	Solid	X			hold		
-30	EY-SG27-CSB EY-SG14-SB03	3/14	1555	G	Solid	X			hold		
-31	EY-SG27-SB01 RNS-05	3/14/18	1620	G	Solid		X	X	Run TPH + PCBs		
-32	EY-SG27-SB02 EY-SG12-SB04	3/14/18	1126	G	Solid	X			hold		
Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:							
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:					
Relinquished by: Owen Rudloff		Date/Time: 3/19 1530		Company:		Received by: ESH		Date/Time: 3/19/18 1530			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:							

TestAmerica Seattle

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Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:	
Client Contact: Suzanne Dolberg		Phone:		Cruz, Sheri L				580-27907-9206.13	
Company: ERM-West		Due Date Requested:		E-Mail: sheri.cruz@testamericainc.com				Page: Page 13 of 33	
Address: 1218 3rd Ave Suite 1412		TAT Requested (days):		Project Name: Cushman Phase II ESA		Project #: 58012210		Job #: 75874	
City: Seattle		PO #: 0435302.03		Site: SSOW#				Preservation Codes:	
State, Zip: WA, 98101		WO #						A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)	
Phone: 425-214-0462(Tel)		Email: suzanne.dolberg@erm.com		Analysis Requested				Other:	
Field Filtered Sample (Yes or No)		Perform MS/MS (Yes or No)		8082A, NWTPH_Dx		8082A, 8270D_SIM, NWTPH_Dx		8260C - BTEX	
8082A, NWTPH_Dx		8082A, 8270D_SIM, NWTPH_Dx		8260C - BTEX		8010C, 7471A, NWTPH_Dx		8082A - PCBs, standard list	
				6020A, 7470A		NWTPH_Dx - Northwest - DROIRRO		8260C - BTEX	
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=wasteroll, BT=Tissue, A=Air)	
								Total Number of containers	
								Special Instructions/Note:	
- 33 EY-SG27-SB01 EY-SG27-SB01		3/15		1010		G		Solid	
- 34 EY-SG28-CSB		3/15		1133		C		Solid	
- 35 EY-SG28-SB01		3/15		1113		G		Solid	
- 36 EY-SG28-SB02		3/15		1122		G		Solid	
- 37 EY-SG28-SB03		3/15		1133		G		Solid	
- 38 EY-SG29-CSB		3/15		1348		C		Solid	
- 39 EY-SG29-SB01		3/15		1339		G		Solid	
- 40 EY-SG29-SB02		3/15		1342		G		Solid	
- 41 EY-SG29-SB03		3/15		1348		G		Solid	
- 42 EY-SG30-CSB		3/15		1433		C		Solid	
- 43 EY-SG30-SB01		3/15		1422		G		Solid	
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months							
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:							
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:			
Relinquished by: <i>Owen R. [Signature]</i>		Date/Time: 3/15 1930		Company:		Received by: <i>[Signature]</i>		Date/Time: 3/15/14 1530	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:						Cooler Temperature(s) °C and Other Remarks:	



TestAmerica Seattle

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Tacoma, WA 98424
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Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information				Sampler:		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.8	
Client Contact: Suzanne Dolberg				Phone:		E-Mail: sheri.cruz@testamericainc.com				Page: Page 8 of 33	
Company: ERM-West						Analysis Requested					
Address: 1218 3rd Ave Suite 1412				Due Date Requested:						Job #: 75874	
City: Seattle				TAT Requested (days):						Preservation Codes:	
State, Zip: WA, 98101				PO #: 0435302.03						A - HCL M - Hexane	
Phone: 425-214-0462(Tel)				WO #:						B - NaOH N - None	
Email: suzanne.dolberg@erm.com				Project #: 58012210						C - Zn Acetate O - AsNaO2	
Project Name: Cushman Phase II ESA				SSOW#:						D - Nitric Acid P - Na2O4S	
Site:										E - NaHSO4 Q - Na2SO3	
										F - MeOH R - Na2S2O3	
										G - Amchlor S - H2SO4	
										H - Ascorbic Acid T - TSP Dodecahydrate	
										I - Ice U - Acetone	
										J - DI Water V - MCAA	
										K - EDTA W - pH 4-5	
										L - EDA Z - other (specify)	
										Other:	
										Total Number of containers	

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=air)	Field Filtered Sample (Yes or No)												Total Number of containers	Special Instructions/Note:	
					8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8260C - BTEX	8010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	6020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX							
EY-SG14-SB03	3/14	1555	G	Solid	X	N	N	F	N	N	D	A	A						
-44 EY-SG15-CSB	3/15	0938	C	Solid		X													Run TPH, h PCB
-45 EY-SG15-SB01	3/15	0934	G	Solid		X													h
-46 EY-SG15-SB02	3/15	0938	G	Solid		X													h
-47 EY-SG15-SB07 EY-SG27-CSB	3/15	1023	C	Solid		X													Run TPH, h PCB
-48 EY-SG16-CSB	3/15	1318	C	Solid		X													Run TPH, h PCB
-49 EY-SG16-SB01	3/15	1300	G	Solid		X													h
-50 EY-SG16-SB02	3/15	1309	G	Solid		X													n
-51 EY-SG16-SB03	3/15	1318	G	Solid		X													h
-52 EY-SG14-SB01 EY-SG30-SB02	3/15	1427	G	Solid		X													h
-53 EY-SG17-SB02 EY-SG30-SB03	3/15	1433	G	Solid		X													r

Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
<input type="checkbox"/> Non-Hazard	<input type="checkbox"/> Flammable	<input type="checkbox"/> Skin Irritant	<input type="checkbox"/> Poison B	<input type="checkbox"/> Unknown	<input type="checkbox"/> Radiological	<input type="checkbox"/> Return To Client		<input type="checkbox"/> Disposal By Lab		<input type="checkbox"/> Archive For _____ Months	
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:							
Empty Kit Relinquished by:				Date:		Time:		Method of Shipment:			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
		3/15/18 1930		ERM				3/15/18 1530		T.A.S.E.A	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks							



Client: **ERM** Client Contact: **Suzanne Dolberg** Date: **3/15/18** Chain of Custody Number: **36681**
Address: **1218 3rd Ave Suite 1412** Telephone Number (Area Code)/Fax Number: **425 24 0462** Lab Number: _____
City: **Seattle** State: **WA** Zip Code: **98101** Sampler: **Owen Rudloff** Lab Contact: **Sheri Cruz** Page: **1** of **1**

Project Name and Location (State): **Cushman Phase II ESA** Billing Contact: _____ Analysis (Attach list if more space is needed): _____
Contract/Purchase Order/Quote No.: **0439302.03** Special Instructions/Conditions of Receipt: **75874**

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							# Bottles	Special Instructions/Conditions of Receipt		
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH					
62 EY-SG27-SB02 -54	3/15	1023				X											1 hold
63 EY-SG31-SB01 -55	3/15	1455				X											↓ Run TPH, hold PCB Run wofb
64 EY-SG31-SB02 -56	3/15	1457				X											
65 EY-SG31-SB03 -57	3/15	1503				X											
66 EY-SG31-CSB -58	3/15	1503				X											
67 PMS-07 -59	3/15	1924				X	X		X								
3/15/18 EY-SG09-CSB -60	3/14	0910															
-SB01 -61	3/14	0842															
-SB02 -62	3/14	0903															
-SB03 -63	3/14	0910															

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal: Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify): _____

1. Relinquished By Sign/Print: Owen Rudloff	Date: 3/15/18	Time: 1530	1. Received By Sign/Print: [Signature] / Francisco Luna Jr.	Date: 3/15/18	Time: 1530
2. Relinquished By Sign/Print: _____	Date: _____	Time: _____	2. Received By Sign/Print: _____	Date: _____	Time: _____
3. Relinquished By Sign/Print: _____	Date: _____	Time: _____	3. Received By Sign/Print: _____	Date: _____	Time: _____

Comments: _____

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



Client Information		Sampler: <u>OWen Rudloff</u>		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.9																																											
Client Contact: Suzanne Dolberg		Phone: 503 421 1443		E-Mail: sheri.cruz@testamericainc.com				Page: Page 9 of 33																																											
Company: ERM-West				Analysis Requested						Job #: 75874																																									
Address: 121B 3rd Ave Suite 1412		Due Date Requested:		<table border="1"> <tr><td colspan="10">Field Filtered Sample (Yes or No)</td></tr> <tr><td colspan="10">Perform MS/MS (Yes or No)</td></tr> <tr><td colspan="1">8092A, NWTPH_Dx</td><td colspan="1">8082A, 8270D_SIM, NWTPH_Dx</td><td colspan="1">8260C - BTEX</td><td colspan="1">8010C, 7471A, NWTPH_Dx</td><td colspan="1">8082A - PCBs, standard list</td><td colspan="1">8020A, 7470A</td><td colspan="1">NWTPH_Dx - Northwest - DRO/RO</td><td colspan="1">8260C - BTEX</td><td colspan="2">Total Number of containers</td></tr> <tr><td>N</td><td>N</td><td>F</td><td>N</td><td>N</td><td>D</td><td>A</td><td>A</td><td colspan="2">X</td></tr> </table>						Field Filtered Sample (Yes or No)										Perform MS/MS (Yes or No)										8092A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8260C - BTEX	8010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX	Total Number of containers		N	N	F	N	N	D	A	A	X		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Field Filtered Sample (Yes or No)																																																			
Perform MS/MS (Yes or No)																																																			
8092A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8260C - BTEX	8010C, 7471A, NWTPH_Dx							8082A - PCBs, standard list	8020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX	Total Number of containers																																					
N	N	F	N							N	D	A	A	X																																					
City: Seattle		TAT Requested (days):		Other:																																															
State, Zip: WA, 98101		PO #: 0435302.03																																																	
Phone: 425-214-0462(Tel)		WO #:																																																	
Email: suzanne.dolberg@erm.com		Project #: 58012210																																																	
Project Name: Cushman Phase II ESA		SSOW#:																																																	
Site:																																																			
Sample Identification				Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code	Special Instructions/Note:																																										
EY-SG17-SB03							Solid																																												
EY-SG18-CSB -64				3/15	1615	C	Solid	X	Ann TPA, hold PED																																										
EY-SG18-SB01 -65				3/15	1534	G	Solid	X	h																																										
EY-SG18-SB02 -66				3/15	1804	G	Solid	X	h																																										
EY-SG18-SB03 -67				3/15	1811	G	Solid	X	h																																										
EY-SG19-CSB -68				3/15	1545	G	Solid	X	h																																										
EY-SG19-SB01 -69				3/15	1534	G	Solid	X	h																																										
EY-SG19-SB02 -70				3/15	1542	G	Solid	X	h																																										
EY-SG19-SB03 -71				3/15	1549	G	Solid	X	h																																										
EY-SG20-CSB				3/13/18		C	Solid																																												
EY-SG20-SB01				3/13/18	939	G	Solid																																												
Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																																															
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																																															
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Relinquished by:		Date/Time:		Company:		Received by:		Date/Time: 3/5/18 1530																																											
Relinquished by:		Date/Time:		Company:		Received by:		Company: TASE/1																																											
Relinquished by:		Date/Time:		Company:		Received by:		Company:																																											
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:																																															

Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-75874-4

Login Number: 75874

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom X

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

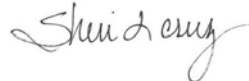
TestAmerica Job ID: 580-75905-1

Client Project/Site: Cushman Phase II ESA
Revision: 1

For:

ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
4/2/2018 4:26:43 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

LINKS

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results through
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Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary	28
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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Job ID: 580-75905-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-75905-1

Comments

No additional comments.

Receipt

The samples were received on 3/16/2018 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.9° C and 16.3° C. Samples were submitted same day as collection and chilling per method.

Receipt Exceptions

The following samples were logged in error. No samples were submitted, They do not exist. Chain of custody listed them but none were received. EY-SG03- (580-75905-24) and EY-SG03- (580-75905-25)

The following sample was submitted but was not written on the chain of custody(COC). It has been added to the COC and to the login without analysis assigned. EY-SG18-SB04 (580-75905-33).

3/21/18 per phone conversation with Owen, sample 580-75905-11 put all analyses on hold.

GC Semi VOA

Method(s) 8082A: The continuing calibration verification (CCV) associated with batch 580-270131 recovered above the upper control limit for PCB-1232, PCB-1248, PCB-1242, PCB-1260 and PCB-1016. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: RNS-08 (580-75905-10), (CCB 580-270131/13), (CCV 580-270131/10), (CCV 580-270131/8), (CCV 580-270131/9), (CCV 580-270131/34), (CCVIS 580-270131/12) and (MB 580-269894/1-A).

Method(s) 8082A: The following continuing calibration verification (CCV) standard associated with batch 580-270131 recovered above and outside acceptance criteria for %D for surrogate DCB Decachlorobiphenyl and Tetrachloro-m-xylene, samples are ND so data has been reported. The following sample is impacted: (CCVIS 580-270131/12)

Method(s) 8082A: The continuing calibration verification (CCV) associated with 580-269971 recovered high and outside the control limits for PCB-1260 and PCB-1016 on one column. Results are confirmed on both columns and reported from the passing column. The following sample is impacted: (CCV 580-269971/28).

Method(s) NWTPH-Dx: Continuing calibration verification (CCV) standard associated with batch 580-269995 recovered outside %Drift acceptance criteria for o-Terphenyl surrogate. The %Recovery is within acceptance criteria for the surrogate in the CCV and associated samples where matrix does not interfere; therefore, the data are qualified and reported. EY-SG37-CSB (580-75905-14), EY-SG38-CSB (580-75905-15), EY-SG36-CSB (580-75905-23), EY-SG02-CSB (580-75905-26), EY-SG17-CSB (580-75905-27), EY-SG21-CSB (580-75905-28), EY-SG39-CSB (580-75905-29), EY-SG03-CSB (580-75905-32), (CCV 580-269995/25), (CCV 580-269995/41) and (580-75905-A-32-B DU)

Method(s) NWTPH-Dx: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: EY-SG37-CSB (580-75905-14), EY-SG36-CSB (580-75905-23), EY-SG03-SB01 (580-75905-30), EY-SG03-SB02 (580-75905-31), (580-75905-30 DU), EY-SG03-CSB (580-75905-32) and (580-75905-32 DU).

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

Metals

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

General Chemistry

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

Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Job ID: 580-75905-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

Organic Prep

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

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Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Glossary

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

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: RNS-08

Date Collected: 03/16/18 11:10

Date Received: 03/16/18 17:30

Lab Sample ID: 580-75905-10

Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.46		ug/L		03/26/18 13:34	03/29/18 04:29	1
PCB-1221	ND		0.46		ug/L		03/26/18 13:34	03/29/18 04:29	1
PCB-1232	ND		0.46		ug/L		03/26/18 13:34	03/29/18 04:29	1
PCB-1242	ND		0.46		ug/L		03/26/18 13:34	03/29/18 04:29	1
PCB-1248	ND		0.46		ug/L		03/26/18 13:34	03/29/18 04:29	1
PCB-1254	ND		0.46		ug/L		03/26/18 13:34	03/29/18 04:29	1
PCB-1260	ND		0.46		ug/L		03/26/18 13:34	03/29/18 04:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	100		38 - 134	03/26/18 13:34	03/29/18 04:29	1
Tetrachloro-m-xylene	76		54 - 115	03/26/18 13:34	03/29/18 04:29	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		03/22/18 11:06	03/22/18 21:10	1
Motor Oil (>C24-C36)	ND		0.36		mg/L		03/22/18 11:06	03/22/18 21:10	1
Mineral oil	ND		0.36		mg/L		03/22/18 11:06	03/30/18 05:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	80		50 - 150	03/22/18 11:06	03/22/18 21:10	1
o-Terphenyl	79		50 - 150	03/22/18 11:06	03/30/18 05:35	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: EY-SG37-CSB

Lab Sample ID: 580-75905-14

Date Collected: 03/16/18 14:28

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 84.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	84		57		mg/Kg	☼	03/22/18 11:19	03/28/18 06:11	1
Motor Oil (>C24-C36)	ND		57		mg/Kg	☼	03/22/18 11:19	03/28/18 06:11	1
Mineral oil	130		57		mg/Kg	☼	03/22/18 11:19	03/30/18 01:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	82		50 - 150	03/22/18 11:19	03/28/18 06:11	1
<i>o</i> -Terphenyl	88		50 - 150	03/22/18 11:19	03/30/18 01:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.8		0.1		%			03/22/18 14:51	1
Percent Moisture	15.2		0.1		%			03/22/18 14:51	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: EY-SG38-CSB

Lab Sample ID: 580-75905-15

Date Collected: 03/16/18 13:47

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 89.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	03/22/18 11:19	03/28/18 06:33	1
Motor Oil (>C24-C36)	ND		52		mg/Kg	☼	03/22/18 11:19	03/28/18 06:33	1
Mineral oil	ND		52		mg/Kg	☼	03/22/18 11:19	03/30/18 02:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	82		50 - 150	03/22/18 11:19	03/28/18 06:33	1
<i>o</i> -Terphenyl	85		50 - 150	03/22/18 11:19	03/30/18 02:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.2		0.1		%			03/22/18 14:51	1
Percent Moisture	10.8		0.1		%			03/22/18 14:51	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: EY-SG36-CSB

Lab Sample ID: 580-75905-23

Date Collected: 03/16/18 14:55

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 88.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	61		53		mg/Kg	☼	03/22/18 11:19	03/28/18 06:55	1
Motor Oil (>C24-C36)	ND		53		mg/Kg	☼	03/22/18 11:19	03/28/18 06:55	1
Mineral oil	99		53		mg/Kg	☼	03/22/18 11:19	03/30/18 02:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	86		50 - 150				03/22/18 11:19	03/28/18 06:55	1
<i>o</i> -Terphenyl	86		50 - 150				03/22/18 11:19	03/30/18 02:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.2		0.1		%			03/22/18 14:51	1
Percent Moisture	11.8		0.1		%			03/22/18 14:51	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: EY-SG02-CSB

Lab Sample ID: 580-75905-26

Date Collected: 03/16/18 10:57

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 85.7

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		56		mg/Kg	☼	03/22/18 11:19	03/28/18 07:17	1
Motor Oil (>C24-C36)	ND		56		mg/Kg	☼	03/22/18 11:19	03/28/18 07:17	1
Mineral oil	ND		56		mg/Kg	☼	03/22/18 11:19	03/30/18 02:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	71		50 - 150				03/22/18 11:19	03/28/18 07:17	1
<i>o</i> -Terphenyl	81		50 - 150				03/22/18 11:19	03/30/18 02:52	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.5		2.5		mg/Kg	☼	03/22/18 12:07	03/23/18 10:37	1
Barium	100		0.42		mg/Kg	☼	03/22/18 12:07	03/23/18 10:37	1
Cadmium	ND		0.84		mg/Kg	☼	03/22/18 12:07	03/23/18 10:37	1
Chromium	34		1.1		mg/Kg	☼	03/22/18 12:07	03/23/18 10:37	1
Lead	15		1.3		mg/Kg	☼	03/22/18 12:07	03/23/18 10:37	1
Selenium	ND		4.2		mg/Kg	☼	03/22/18 12:07	03/23/18 10:37	1
Silver	ND		2.1		mg/Kg	☼	03/22/18 12:07	03/23/18 10:37	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.052		0.024		mg/Kg	☼	03/22/18 10:13	03/22/18 16:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.7		0.1		%			03/22/18 14:51	1
Percent Moisture	14.3		0.1		%			03/22/18 14:51	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: EY-SG17-CSB

Lab Sample ID: 580-75905-27

Date Collected: 03/16/18 09:45

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 89.7

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		51		mg/Kg	☼	03/22/18 11:19	03/28/18 07:39	1
Motor Oil (>C24-C36)	ND		51		mg/Kg	☼	03/22/18 11:19	03/28/18 07:39	1
Mineral oil	ND		51		mg/Kg	☼	03/22/18 11:19	03/30/18 03:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	71		50 - 150				03/22/18 11:19	03/28/18 07:39	1
<i>o</i> -Terphenyl	81		50 - 150				03/22/18 11:19	03/30/18 03:13	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	60		3.1		mg/Kg	☼	03/22/18 12:07	03/23/18 10:40	1
Barium	77		0.51		mg/Kg	☼	03/22/18 12:07	03/23/18 10:40	1
Cadmium	ND		1.0		mg/Kg	☼	03/22/18 12:07	03/23/18 10:40	1
Chromium	29		1.3		mg/Kg	☼	03/22/18 12:07	03/23/18 10:40	1
Lead	20		1.5		mg/Kg	☼	03/22/18 12:07	03/23/18 10:40	1
Selenium	ND		5.1		mg/Kg	☼	03/22/18 12:07	03/23/18 10:40	1
Silver	ND		2.6		mg/Kg	☼	03/22/18 12:07	03/23/18 10:40	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.044		0.027		mg/Kg	☼	03/22/18 10:13	03/22/18 16:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.7		0.1		%			03/22/18 14:51	1
Percent Moisture	10.3		0.1		%			03/22/18 14:51	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: EY-SG21-CSB

Lab Sample ID: 580-75905-28

Date Collected: 03/16/18 10:20

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 86.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		55		mg/Kg	☼	03/22/18 11:19	03/28/18 08:44	1
Motor Oil (>C24-C36)	ND		55		mg/Kg	☼	03/22/18 11:19	03/28/18 08:44	1
Mineral oil	ND		55		mg/Kg	☼	03/22/18 11:19	03/30/18 03:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	74		50 - 150				03/22/18 11:19	03/28/18 08:44	1
<i>o</i> -Terphenyl	82		50 - 150				03/22/18 11:19	03/30/18 03:53	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.1		2.8		mg/Kg	☼	03/22/18 12:07	03/23/18 10:43	1
Barium	120		0.47		mg/Kg	☼	03/22/18 12:07	03/23/18 10:43	1
Cadmium	ND		0.94		mg/Kg	☼	03/22/18 12:07	03/23/18 10:43	1
Chromium	35		1.2		mg/Kg	☼	03/22/18 12:07	03/23/18 10:43	1
Lead	8.5		1.4		mg/Kg	☼	03/22/18 12:07	03/23/18 10:43	1
Selenium	ND		4.7		mg/Kg	☼	03/22/18 12:07	03/23/18 10:43	1
Silver	ND		2.3		mg/Kg	☼	03/22/18 12:07	03/23/18 10:43	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.055		0.024		mg/Kg	☼	03/22/18 10:13	03/22/18 16:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.5		0.1		%			03/22/18 14:51	1
Percent Moisture	13.5		0.1		%			03/22/18 14:51	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: EY-SG39-CSB

Lab Sample ID: 580-75905-29

Date Collected: 03/16/18 09:09

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 87.1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		56		mg/Kg	☼	03/22/18 11:19	03/28/18 08:22	1
Motor Oil (>C24-C36)	ND		56		mg/Kg	☼	03/22/18 11:19	03/28/18 08:22	1
Mineral oil	ND		56		mg/Kg	☼	03/22/18 11:19	03/30/18 03:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	74		50 - 150				03/22/18 11:19	03/28/18 08:22	1
<i>o</i> -Terphenyl	82		50 - 150				03/22/18 11:19	03/30/18 03:33	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	23		2.8		mg/Kg	☼	03/22/18 12:07	03/23/18 10:46	1
Barium	97		0.47		mg/Kg	☼	03/22/18 12:07	03/23/18 10:46	1
Cadmium	1.2		0.93		mg/Kg	☼	03/22/18 12:07	03/23/18 10:46	1
Chromium	31		1.2		mg/Kg	☼	03/22/18 12:07	03/23/18 10:46	1
Lead	24		1.4		mg/Kg	☼	03/22/18 12:07	03/23/18 10:46	1
Selenium	ND		4.7		mg/Kg	☼	03/22/18 12:07	03/23/18 10:46	1
Silver	ND		2.3		mg/Kg	☼	03/22/18 12:07	03/23/18 10:46	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.053		0.030		mg/Kg	☼	03/22/18 10:13	03/22/18 16:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.1		0.1		%			03/22/18 14:51	1
Percent Moisture	12.9		0.1		%			03/22/18 14:51	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: EY-SG03-SB01

Lab Sample ID: 580-75905-30

Date Collected: 03/16/18 15:20

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 88.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	1800		54		mg/Kg	☼	03/29/18 15:08	03/30/18 17:27	1
Motor Oil (>C24-C36)	1400		54		mg/Kg	☼	03/29/18 15:08	03/30/18 17:27	1
Mineral oil	2500		54		mg/Kg	☼	03/29/18 15:08	04/02/18 12:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	80		50 - 150	03/29/18 15:08	03/30/18 17:27	1
<i>o</i> -Terphenyl	109		50 - 150	03/29/18 15:08	04/02/18 12:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.4		0.1		%			03/29/18 16:42	1
Percent Moisture	11.6		0.1		%			03/29/18 16:42	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: EY-SG03-SB02

Lab Sample ID: 580-75905-31

Date Collected: 03/16/18 15:30

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 87.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	2200		54		mg/Kg	☼	03/29/18 15:08	03/30/18 18:12	1
Motor Oil (>C24-C36)	1100		54		mg/Kg	☼	03/29/18 15:08	03/30/18 18:12	1
Mineral oil	2900		54		mg/Kg	☼	03/29/18 15:08	04/02/18 13:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	79		50 - 150	03/29/18 15:08	03/30/18 18:12	1
<i>o</i> -Terphenyl	122		50 - 150	03/29/18 15:08	04/02/18 13:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.2		0.1		%	-		03/29/18 16:42	1
Percent Moisture	12.8		0.1		%	-		03/29/18 16:42	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: EY-SG03-CSB

Lab Sample ID: 580-75905-32

Date Collected: 03/16/18 15:30

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 89.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	1500		52		mg/Kg	☼	03/22/18 11:19	03/28/18 09:06	1
Motor Oil (>C24-C36)	740		52		mg/Kg	☼	03/22/18 11:19	03/28/18 09:06	1
Mineral oil	2300		52		mg/Kg	☼	03/22/18 11:19	03/30/18 04:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	89		50 - 150				03/22/18 11:19	03/28/18 09:06	1
<i>o</i> -Terphenyl	104		50 - 150				03/22/18 11:19	03/30/18 04:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.2		0.1		%			03/22/18 14:51	1
Percent Moisture	10.8		0.1		%			03/22/18 14:51	1



QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-269894/1-A
Matrix: Water
Analysis Batch: 270131

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269894

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.45		ug/L		03/26/18 13:34	03/29/18 01:25	1
PCB-1221	ND		0.45		ug/L		03/26/18 13:34	03/29/18 01:25	1
PCB-1232	ND		0.45		ug/L		03/26/18 13:34	03/29/18 01:25	1
PCB-1242	ND		0.45		ug/L		03/26/18 13:34	03/29/18 01:25	1
PCB-1248	ND		0.45		ug/L		03/26/18 13:34	03/29/18 01:25	1
PCB-1254	ND		0.45		ug/L		03/26/18 13:34	03/29/18 01:25	1
PCB-1260	ND		0.45		ug/L		03/26/18 13:34	03/29/18 01:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	120		38 - 134	03/26/18 13:34	03/29/18 01:25	1
Tetrachloro-m-xylene	69		54 - 115	03/26/18 13:34	03/29/18 01:25	1

Lab Sample ID: LCS 580-269894/2-A
Matrix: Water
Analysis Batch: 270131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269894

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	1.00	0.845		ug/L		84	60 - 121
PCB-1260	1.00	1.05		ug/L		105	55 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	119		38 - 134
Tetrachloro-m-xylene	69		54 - 115

Lab Sample ID: LCSD 580-269894/3-A
Matrix: Water
Analysis Batch: 270131

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269894

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
PCB-1016	1.00	0.949		ug/L		95	60 - 121	12	20
PCB-1260	1.00	1.16		ug/L		116	55 - 132	10	22

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl	109		38 - 134
Tetrachloro-m-xylene	73		54 - 115

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-269652/1-A
Matrix: Water
Analysis Batch: 269637

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269652

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		03/22/18 11:06	03/22/18 18:12	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		03/22/18 11:06	03/22/18 18:12	1

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-269652/1-A
Matrix: Water
Analysis Batch: 269637

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269652

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	84		50 - 150	03/22/18 11:06	03/22/18 18:12	1

Lab Sample ID: MB 580-269652/1-A
Matrix: Water
Analysis Batch: 270159

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269652

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		03/22/18 11:06	03/30/18 05:15	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		03/22/18 11:06	03/30/18 05:15	1
Mineral oil	ND		0.35		mg/L		03/22/18 11:06	03/30/18 05:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	85		50 - 150	03/22/18 11:06	03/30/18 05:15	1

Lab Sample ID: LCS 580-269652/2-A
Matrix: Water
Analysis Batch: 269637

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269652

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.45		mg/L		72	59 - 112
Motor Oil (>C24-C36)	2.00	1.83		mg/L		92	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	91		50 - 150

Lab Sample ID: LCSD 580-269652/3-A
Matrix: Water
Analysis Batch: 269637

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269652

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.64		mg/L		82	59 - 112	12	16
Motor Oil (>C24-C36)	2.00	1.83		mg/L		92	64 - 120	0	17

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	81		50 - 150

Lab Sample ID: 580-75905-32 DU
Matrix: Solid
Analysis Batch: 269995

Client Sample ID: EY-SG03-CSB
Prep Type: Total/NA
Prep Batch: 269655

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
#2 Diesel (C10-C24)	1500		1370		mg/Kg	☼	9	35
Motor Oil (>C24-C36)	740		802		mg/Kg	☼	8	35

Surrogate	DU %Recovery	DU Qualifier	Limits
<i>o</i> -Terphenyl	87		50 - 150

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: 580-75905-32 DU
Matrix: Solid
Analysis Batch: 270159

Client Sample ID: EY-SG03-CSB
Prep Type: Total/NA
Prep Batch: 269655

Analyte	Sample	Sample	DU		Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
#2 Diesel (C10-C24)	1800		1560		mg/Kg	☼	15	35	
Motor Oil (>C24-C36)	950		924		mg/Kg	☼	2	35	
Mineral oil	2300		1970		mg/Kg	☼	14	35	

Surrogate	DU		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	102		50 - 150

Lab Sample ID: MB 580-270193/1-A
Matrix: Solid
Analysis Batch: 270227

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270193

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/29/18 15:08	03/30/18 16:19	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/29/18 15:08	03/30/18 16:19	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>o</i> -Terphenyl	97		50 - 150	03/29/18 15:08	03/30/18 16:19	1

Lab Sample ID: MB 580-270193/1-A
Matrix: Solid
Analysis Batch: 270364

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270193

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mineral oil	ND		50		mg/Kg		03/29/18 15:08	04/02/18 12:28	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>o</i> -Terphenyl	88		50 - 150	03/29/18 15:08	04/02/18 12:28	1

Lab Sample ID: LCS 580-270193/2-A
Matrix: Solid
Analysis Batch: 270227

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270193

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec.	Limits
		Result	Qualifier					
#2 Diesel (C10-C24)	500	455		mg/Kg		91	70 - 125	
Motor Oil (>C24-C36)	500	447		mg/Kg		89	70 - 119	

Surrogate	LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	101		50 - 150

Lab Sample ID: LCSD 580-270193/3-A
Matrix: Solid
Analysis Batch: 270227

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270193

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
		Result	Qualifier							
#2 Diesel (C10-C24)	500	455		mg/Kg		91	70 - 125	0	16	
Motor Oil (>C24-C36)	500	453		mg/Kg		91	70 - 119	1	16	

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-270193/3-A
Matrix: Solid
Analysis Batch: 270227

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270193

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	98		50 - 150

Lab Sample ID: 580-75905-30 DU
Matrix: Solid
Analysis Batch: 270227

Client Sample ID: EY-SG03-SB01
Prep Type: Total/NA
Prep Batch: 270193

Analyte	Sample Result	Sample Qualifier	DU	DU	Unit	D	RPD	Limit
			Result	Qualifier				
#2 Diesel (C10-C24)	1800		1430		mg/Kg	☼	23	35
Motor Oil (>C24-C36)	1400		1110		mg/Kg	☼	24	35

Surrogate	DU	DU	Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	83		50 - 150

Lab Sample ID: 580-75905-30 DU
Matrix: Solid
Analysis Batch: 270364

Client Sample ID: EY-SG03-SB01
Prep Type: Total/NA
Prep Batch: 270193

Analyte	Sample Result	Sample Qualifier	DU	DU	Unit	D	RPD	Limit
			Result	Qualifier				
Mineral oil	2500		2050		mg/Kg	☼	20	35

Surrogate	DU	DU	Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	93		50 - 150

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 580-269662/14-A
Matrix: Solid
Analysis Batch: 269751

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269662

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		3.0		mg/Kg		03/22/18 12:07	03/23/18 09:56	1
Barium	ND		0.50		mg/Kg		03/22/18 12:07	03/23/18 09:56	1
Cadmium	ND		1.0		mg/Kg		03/22/18 12:07	03/23/18 09:56	1
Chromium	ND		1.3		mg/Kg		03/22/18 12:07	03/23/18 09:56	1
Lead	ND		1.5		mg/Kg		03/22/18 12:07	03/23/18 09:56	1
Selenium	ND		5.0		mg/Kg		03/22/18 12:07	03/23/18 09:56	1
Silver	ND		2.5		mg/Kg		03/22/18 12:07	03/23/18 09:56	1

Lab Sample ID: LCS 580-269662/15-A
Matrix: Solid
Analysis Batch: 269751

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269662

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	200	191		mg/Kg		96	80 - 120
Cadmium	5.00	4.52		mg/Kg		90	80 - 120
Chromium	20.0	19.0		mg/Kg		95	80 - 120

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 580-269662/15-A
Matrix: Solid
Analysis Batch: 269751

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269662

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Lead	50.0	45.4		mg/Kg		91	80 - 120
Selenium	200	173		mg/Kg		87	80 - 120
Silver	30.0	28.5		mg/Kg		95	80 - 120

Lab Sample ID: LCSD 580-269662/16-A
Matrix: Solid
Analysis Batch: 269751

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269662

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	200	178		mg/Kg		89	80 - 120	1	20
Barium	200	192		mg/Kg		96	80 - 120	1	20
Cadmium	5.00	4.50		mg/Kg		90	80 - 120	0	20
Chromium	20.0	19.4		mg/Kg		97	80 - 120	2	20
Lead	50.0	45.2		mg/Kg		90	80 - 120	0	20
Selenium	200	172		mg/Kg		86	80 - 120	1	20
Silver	30.0	28.3		mg/Kg		94	80 - 120	1	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 580-269642/21-A
Matrix: Solid
Analysis Batch: 269714

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269642

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.030		mg/Kg		03/22/18 10:13	03/22/18 15:51	1

Lab Sample ID: LCS 580-269642/22-A
Matrix: Solid
Analysis Batch: 269714

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269642

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.167	0.149		mg/Kg		89	80 - 120

Lab Sample ID: LCSD 580-269642/23-A
Matrix: Solid
Analysis Batch: 269714

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 269642

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	0.167	0.149		mg/Kg		89	80 - 120	0	20

Method: D 2216 - Percent Moisture

Lab Sample ID: 580-75905-32 DU
Matrix: Solid
Analysis Batch: 269676

Client Sample ID: EY-SG03-CSB
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Percent Solids	89.2		88.6		%		0.6	20
Percent Moisture	10.8		11.4		%		5	20

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: RNS-08

Date Collected: 03/16/18 11:10

Date Received: 03/16/18 17:30

Lab Sample ID: 580-75905-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			269894	03/26/18 13:34	APR	TAL SEA
Total/NA	Analysis	8082A		1	270131	03/29/18 04:29	TL1	TAL SEA
Total/NA	Prep	3510C			269652	03/22/18 11:06	NDB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269637	03/22/18 21:10	ADB	TAL SEA
Total/NA	Prep	3510C			269652	03/22/18 11:06	NDB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/30/18 05:35	ADB	TAL SEA

Client Sample ID: EY-SG37-CSB

Date Collected: 03/16/18 14:28

Date Received: 03/16/18 17:30

Lab Sample ID: 580-75905-14

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269676	03/22/18 14:51	TTN	TAL SEA

Client Sample ID: EY-SG37-CSB

Date Collected: 03/16/18 14:28

Date Received: 03/16/18 17:30

Lab Sample ID: 580-75905-14

Matrix: Solid

Percent Solids: 84.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269995	03/28/18 06:11	ADB	TAL SEA
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/30/18 01:52	ADB	TAL SEA

Client Sample ID: EY-SG38-CSB

Date Collected: 03/16/18 13:47

Date Received: 03/16/18 17:30

Lab Sample ID: 580-75905-15

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269676	03/22/18 14:51	TTN	TAL SEA

Client Sample ID: EY-SG38-CSB

Date Collected: 03/16/18 13:47

Date Received: 03/16/18 17:30

Lab Sample ID: 580-75905-15

Matrix: Solid

Percent Solids: 89.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269995	03/28/18 06:33	ADB	TAL SEA
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/30/18 02:12	ADB	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: EY-SG36-CSB

Lab Sample ID: 580-75905-23

Date Collected: 03/16/18 14:55

Matrix: Solid

Date Received: 03/16/18 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269676	03/22/18 14:51	TTN	TAL SEA

Client Sample ID: EY-SG36-CSB

Lab Sample ID: 580-75905-23

Date Collected: 03/16/18 14:55

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 88.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269995	03/28/18 06:55	ADB	TAL SEA
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/30/18 02:32	ADB	TAL SEA

Client Sample ID: EY-SG02-CSB

Lab Sample ID: 580-75905-26

Date Collected: 03/16/18 10:57

Matrix: Solid

Date Received: 03/16/18 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269676	03/22/18 14:51	TTN	TAL SEA

Client Sample ID: EY-SG02-CSB

Lab Sample ID: 580-75905-26

Date Collected: 03/16/18 10:57

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 85.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269995	03/28/18 07:17	ADB	TAL SEA
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/30/18 02:52	ADB	TAL SEA
Total/NA	Prep	3050B			269662	03/22/18 12:07	PAB	TAL SEA
Total/NA	Analysis	6010C		1	269751	03/23/18 10:37	HJM	TAL SEA
Total/NA	Prep	7471A			269642	03/22/18 10:13	ASJ	TAL SEA
Total/NA	Analysis	7471A		1	269714	03/22/18 16:38	FCW	TAL SEA

Client Sample ID: EY-SG17-CSB

Lab Sample ID: 580-75905-27

Date Collected: 03/16/18 09:45

Matrix: Solid

Date Received: 03/16/18 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269676	03/22/18 14:51	TTN	TAL SEA

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: EY-SG17-CSB

Lab Sample ID: 580-75905-27

Date Collected: 03/16/18 09:45

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 89.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269995	03/28/18 07:39	ADB	TAL SEA
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/30/18 03:13	ADB	TAL SEA
Total/NA	Prep	3050B			269662	03/22/18 12:07	PAB	TAL SEA
Total/NA	Analysis	6010C		1	269751	03/23/18 10:40	HJM	TAL SEA
Total/NA	Prep	7471A			269642	03/22/18 10:13	ASJ	TAL SEA
Total/NA	Analysis	7471A		1	269714	03/22/18 16:40	FCW	TAL SEA

Client Sample ID: EY-SG21-CSB

Lab Sample ID: 580-75905-28

Date Collected: 03/16/18 10:20

Matrix: Solid

Date Received: 03/16/18 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269676	03/22/18 14:51	TTN	TAL SEA

Client Sample ID: EY-SG21-CSB

Lab Sample ID: 580-75905-28

Date Collected: 03/16/18 10:20

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269995	03/28/18 08:44	ADB	TAL SEA
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/30/18 03:53	ADB	TAL SEA
Total/NA	Prep	3050B			269662	03/22/18 12:07	PAB	TAL SEA
Total/NA	Analysis	6010C		1	269751	03/23/18 10:43	HJM	TAL SEA
Total/NA	Prep	7471A			269642	03/22/18 10:13	ASJ	TAL SEA
Total/NA	Analysis	7471A		1	269714	03/22/18 16:43	FCW	TAL SEA

Client Sample ID: EY-SG39-CSB

Lab Sample ID: 580-75905-29

Date Collected: 03/16/18 09:09

Matrix: Solid

Date Received: 03/16/18 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269676	03/22/18 14:51	TTN	TAL SEA

Client Sample ID: EY-SG39-CSB

Lab Sample ID: 580-75905-29

Date Collected: 03/16/18 09:09

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 87.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: EY-SG39-CSB

Lab Sample ID: 580-75905-29

Date Collected: 03/16/18 09:09

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 87.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	269995	03/28/18 08:22	ADB	TAL SEA
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/30/18 03:33	ADB	TAL SEA
Total/NA	Prep	3050B			269662	03/22/18 12:07	PAB	TAL SEA
Total/NA	Analysis	6010C		1	269751	03/23/18 10:46	HJM	TAL SEA
Total/NA	Prep	7471A			269642	03/22/18 10:13	ASJ	TAL SEA
Total/NA	Analysis	7471A		1	269714	03/22/18 16:45	FCW	TAL SEA

Client Sample ID: EY-SG03-SB01

Lab Sample ID: 580-75905-30

Date Collected: 03/16/18 15:20

Matrix: Solid

Date Received: 03/16/18 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: EY-SG03-SB01

Lab Sample ID: 580-75905-30

Date Collected: 03/16/18 15:20

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/30/18 17:27	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 12:48	ERZ	TAL SEA

Client Sample ID: EY-SG03-SB02

Lab Sample ID: 580-75905-31

Date Collected: 03/16/18 15:30

Matrix: Solid

Date Received: 03/16/18 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: EY-SG03-SB02

Lab Sample ID: 580-75905-31

Date Collected: 03/16/18 15:30

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 87.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/30/18 18:12	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 13:29	ERZ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Client Sample ID: EY-SG03-CSB

Lab Sample ID: 580-75905-32

Date Collected: 03/16/18 15:30

Matrix: Solid

Date Received: 03/16/18 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	269676	03/22/18 14:51	TTN	TAL SEA

Client Sample ID: EY-SG03-CSB

Lab Sample ID: 580-75905-32

Date Collected: 03/16/18 15:30

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 89.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	269995	03/28/18 09:06	ADB	TAL SEA
Total/NA	Prep	3546			269655	03/22/18 11:19	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/30/18 04:14	ADB	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3050B	Solid	Arsenic
6010C	3050B	Solid	Barium
6010C	3050B	Solid	Cadmium
6010C	3050B	Solid	Chromium
6010C	3050B	Solid	Lead
6010C	3050B	Solid	Selenium
6010C	3050B	Solid	Silver
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

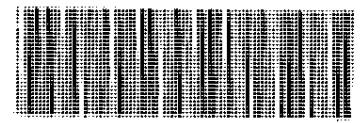
Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-75905-10	RNS-08	Water	03/16/18 11:10	03/16/18 17:30
580-75905-14	EY-SG37-CSB	Solid	03/16/18 14:28	03/16/18 17:30
580-75905-15	EY-SG38-CSB	Solid	03/16/18 13:47	03/16/18 17:30
580-75905-23	EY-SG36-CSB	Solid	03/16/18 14:55	03/16/18 17:30
580-75905-26	EY-SG02-CSB	Solid	03/16/18 10:57	03/16/18 17:30
580-75905-27	EY-SG17-CSB	Solid	03/16/18 09:45	03/16/18 17:30
580-75905-28	EY-SG21-CSB	Solid	03/16/18 10:20	03/16/18 17:30
580-75905-29	EY-SG39-CSB	Solid	03/16/18 09:09	03/16/18 17:30
580-75905-30	EY-SG03-SB01	Solid	03/16/18 15:20	03/16/18 17:30
580-75905-31	EY-SG03-SB02	Solid	03/16/18 15:30	03/16/18 17:30
580-75905-32	EY-SG03-CSB	Solid	03/16/18 15:30	03/16/18 17:30

Chain of Custody Record



580-75905 Chain of Custody

Client Information	Sampler: <u>Oven Rudloff</u>	Lab PM: Cruz, Sheri L	COC No: 580-27907-9206.18
Client Contact: Suzanne Dolberg	Phone: <u>503 4211443</u>	E-Mail: sheri.cruz@testamericainc.com	Page: Page 18 of 33
Company: ERM-West	Address: 1218 3rd Ave Suite 1412		Job #: <u>75905</u>

Due Date Requested:	TAT Requested (days):	Analysis Requested	
PO #: 0435302.03	WO #:	Field Filtered Sample (Yes or No)	Preservation Codes:
Project #: 58012210	SSOW#:	Perform MS/MS? (Yes or No)	A - HCL M - Hexane
		8082A, NWTPH_Dx	B - NaOH N - None
		8082A, 8270D_SIM, NWTPH_Dx	C - Zn Acetate O - AsNaO2
		8260C - BTEX	D - Nitric Acid P - Na2O4S
		6010C, 7471A, NWTPH_Dx	E - NaHSO4 Q - Na2SO3
		8082A - PCBs, standard list	F - MeOH R - Na2S2O3
		8020A, 7470A	G - Amchlor S - H2SO4
		NWTPH_Dx - Northwest - DRO/RO	H - Ascorbic Acid T - TSP Dodecahydrate
		8260C - BTEX	I - Ice U - Acetone
			J - DI Water V - MCAA
			K - EDTA W - pH 4-5
			L - EDA Z - other (specify)
			Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MS? (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8260C - BTEX	6010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX	Total Number of containers	Special Instructions/Note:
EY-SG39-SB04	3/16	0909	G	Solid	X											hold
WY-SG01-CSB EY-SG17-SB01	3/16	0935	G	Solid	X											↓ run TPH and PCB
WY-SG01-SB01 EY-SG17-SB02	3/16	0946	G	Solid	X											
WY-SG01-SB02 EY-SG17-SB03	3/16	0945	G	Solid	X											
WY-SG01-SB03 EY-SG21-SB01	3/16	1000	G	Solid	X											
WY-SG01-SB04 EY-SG21-SB02	3/16	1015	G	Solid	X											
WY-SG02-SB EY-SG21-SB03	3/16	1020	G	Solid	X											
WY-SG02-SB01 EY-SG02-SB01	3/16	1053	G	Solid	X											
WY-SG02-SB02 EY-SG02-SB02	3/16	1057	G	Solid	X											
WY-SG02-SB03 RNS-C8	3/16	1110	G	WATER					X		X					
WY-SG02-SB04 EY-SG36-SB03	3/16	1453	G	Solid	X											

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: <u>Oven Rudloff</u>	Date/Time: <u>3/16/18 1730</u>	Company: <u>ERM</u>	Received by: <u>Tom Blanty</u>
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Therm. ID <u>A2</u> Cor <u>16.50</u> Unc <u>16.50</u>	Therm. ID <u>A2</u> Cor <u>17.00</u> Unc <u>17.00</u>
		Cooler Dsc: <u>Light Blue</u>	Cooler Dsc: <u>Light Green</u>
		Wet/Packs Packing: <u>but</u>	Wet/Packs Packing: <u>but</u>
		Custody Seal: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Custody Seal: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler <i>awen Rudloff</i>		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.17									
Client Contact: Suzanne Dolberg		Phone: <i>503 421 1443</i>		E-Mail: sheri.cruz@testamericainc.com				Page: Page 17 of 33									
Company: ERM-West		Due Date Requested:		Analysis Requested				Job #: <i>75905</i>									
Address: 1218 3rd Ave Suite 1412		TAT Requested (days):		<table border="1"> <tr> <td>Field Filtered Sample (Yes or No)</td> <td>Perform MS/MSD (Yes or No)</td> <td>8082A, NWTPH_Dx</td> <td>8082A, 8270D_SIM, NWTPH_Dx</td> <td>8260C - BTEX</td> <td>6010C, 7471A, NWTPH_Dx</td> <td>8082A - PCBs, standard list</td> <td>6020A, 7470A</td> <td>NWTPH_Dx - Northwest - DRO/RO</td> <td>8260C - BTEX</td> </tr> </table>		Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8260C - BTEX	6010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	6020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX	Preservation Codes:	
Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx			8260C - BTEX	6010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	6020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX						
City: Seattle		PO #: 0435302.03				A - HCL		M - Hexane		B - NaOH		N - None					
State, Zip: WA, 98101		WO #:				C - Zn Acetate		O - AsNaO2		D - Nitric Acid		P - Na2O4S					
Phone: 425-214-0462(Tel)		Project #: 58012210				E - NaHSO4		Q - Na2SO3		F - MeOH		R - Na2S2O3					
Email: suzanne.dolberg@erm.com		SSOW#:				G - Amchlor		S - H2SO4		H - Amchlor		T - TSP Dodecahydrate					
Project Name: Cushman Phase II ESA				I - Ice		U - Acetone		J - DI Water		V - MCAA							
Site:				K - EDTA		W - pH 4-5		L - EDA		Z - other (specify)							
				Other:													
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Special Instructions/Note:							
EY-SG37-SB02 <i>EY-SG37-SB01</i>		<i>3/16</i>		<i>1424</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG37-SB03 <i>EY-SG37-SB02</i>		<i>3/16</i>		<i>1428</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG37-SB04 <i>EY-SG37-CSB</i>		<i>3/16</i>		<i>1428</i>		<i>C</i>		<i>Solid</i>		<i>Run TPH, hold PCB</i>							
EY-SG38-CSB		<i>3/16</i>		<i>1347</i>		<i>C</i>		<i>Solid</i>		<i>hold</i>							
EY-SG38-SB01		<i>3/16</i>		<i>1342</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG38-SB02		<i>3/16</i>		<i>1347</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG38-SB03 <i>EY-SG36-SB01</i>		<i>3/16</i>		<i>1440</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG38-SB04 <i>EY-SG36-SB02</i>		<i>3/16</i>		<i>1450</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG39-SB01		<i>3/16</i>		<i>0850</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG39-SB02		<i>3/16</i>		<i>0855</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG39-SB03		<i>3/16</i>		<i>0902</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)											
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months											
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:											
Empty Kit Relinquished by:				Date:		Time:		Method of Shipment:									
Relinquished by: <i>awen Rudloff</i>		Date/Time: <i>3/16 1730</i>		Company: ERM		Received by: <i>Tom Hunt</i>		Date/Time: <i>3/16/18 1730</i>		Company: TA-Sea							
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:							
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:							
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:													

TestAmerica Seattle
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 Tacoma, WA 98424
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Chain of Custody Record

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

Client Information			Sampler: <u>Owen Rudloff</u>		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.31																									
Client Contact: Suzanne Dolberg			Phone: <u>503 421 1443</u>		E-Mail: sheri.cruz@testamericainc.com				Page: Page 31 of 33																									
Company: ERM-West					Analysis Requested						Job #: <u>75905</u>																							
Address: 1218 3rd Ave Suite 1412			Due Date Requested:		<table border="1"> <tr> <td>Field Filtered Sample (Yes or No)</td> <td>Perform MS/MS (Yes or No)</td> <td>8082A, NWTPH_Dx</td> <td>8082A, 8270D_SIM, NWTPH_Dx</td> <td>8260C - BTEX</td> <td>8010C, 7471A, NWTPH_Dx</td> <td>8082A - PCBs, standard list</td> <td>8020A, 7470A</td> <td>NWTPH_Dx - Northwest - DRO/RO</td> <td>8260C - BTEX</td> <td>Total Number of Containers</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						Field Filtered Sample (Yes or No)	Perform MS/MS (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8260C - BTEX	8010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX	Total Number of Containers												Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:	
Field Filtered Sample (Yes or No)	Perform MS/MS (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8260C - BTEX							8010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX	Total Number of Containers																		
City: Seattle			TAT Requested (days):																															
State, Zip: WA, 98101																																		
Phone: 425-214-0462(Tel)			PO #: 0435302.03																															
Email: suzanne.dolberg@erm.com			WO #:																															
Project Name: Cushman Phase II ESA			Project #: 58012210																															
Site:			SSOW#:																															
Sample Identification			Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)																									
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									Total Number of Containers																									
									Special Instructions/Note:																									
EY-SB03 EY-SG36-BD			3/16		1455		C		Solid																									
EY-SB03			3/16						Solid																									
EY-SB03			3/16						Solid																									
EY-SG02-CSB			3/16		1657		C		Solid																									
EY-SG17-CSB			3/16		0945		C		Solid																									
EY-SG21-CSB			3/16		1620		C		Solid																									
EY-SG39-CSB			3/16		0909		C		Solid																									
EY-SG05-CSB EY-SG03-SB01			3/16		1520		G		Solid																									
EY-SG07-CSB EY-SG03-SB02			3/16		1530		G		Solid																									
EY-SG12-CSB EY-SG03-CSB			3/16		1530		C		Solid																									
EY-SG14-CSB EY-SG18-SB04			3/15		1615		C		Solid																									
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																												
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																												
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:																												
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:																											
Relinquished by: <u>Owen Rudloff</u>			Date/Time: 3/16/18 1730		Company: ERM		Received by: <u>Tom Blum</u>		Date/Time: 3/16/18 1730		Company:																							
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:																							
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:																							
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:																														

Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-75905-1

Login Number: 75905

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom X

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

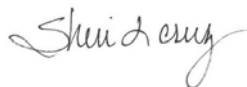
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-75905-2

Client Project/Site: Cushman Phase II ESA

For:
ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
4/4/2018 11:26:15 AM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Table of Contents

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Sample Summary	14
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Receipt Checklists	18

Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-2

Job ID: 580-75905-2

Laboratory: TestAmerica Seattle

Narrative

**Job Narrative
580-75905-2**

Comments

3/30/18 samples 11, 12, 13, 18 and 19 activated by email for NWTPH-Dx.

Receipt

The samples were received on 3/16/2018 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.9° C and 16.3° C.

GC Semi VOA

Method(s) NWTPH-Dx: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: EY-SG36-SB03 (580-75905-11), EY-SG37-SB02 (580-75905-13), and EY-SG36-SB01 (580-75905-18).

Method(s) NWTPH-Dx: Flag was removed manually for Motor Oil (>C24-C36) due to CCV passing criteria, 15.2 % rounds to +15%. (CCV 580-270464/34)

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

General Chemistry

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

Organic Prep

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



Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-2

Glossary

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

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-2

Client Sample ID: EY-SG36-SB03

Lab Sample ID: 580-75905-11

Date Collected: 03/16/18 14:55

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 85.7

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	630		56		mg/Kg	☼	03/30/18 15:54	04/03/18 21:20	1
Motor Oil (>C24-C36)	340		56		mg/Kg	☼	03/30/18 15:54	04/03/18 21:20	1
Mineral oil	790		56		mg/Kg	☼	03/30/18 15:54	04/03/18 21:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	100		50 - 150				03/30/18 15:54	04/03/18 21:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.7		0.1		%			03/30/18 16:38	1
Percent Moisture	14.3		0.1		%			03/30/18 16:38	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-2

Client Sample ID: EY-SG37-SB01

Lab Sample ID: 580-75905-12

Date Collected: 03/16/18 14:24

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 88.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		53		mg/Kg	☼	03/30/18 15:54	04/03/18 21:41	1
Motor Oil (>C24-C36)	ND		53		mg/Kg	☼	03/30/18 15:54	04/03/18 21:41	1
Mineral oil	ND		53		mg/Kg	☼	03/30/18 15:54	04/03/18 21:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	83		50 - 150	03/30/18 15:54	04/03/18 21:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.4		0.1		%			03/30/18 16:38	1
Percent Moisture	11.6		0.1		%			03/30/18 16:38	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-2

Client Sample ID: EY-SG37-SB02

Lab Sample ID: 580-75905-13

Date Collected: 03/16/18 14:28

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 85.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	420		56		mg/Kg	☼	03/30/18 15:54	04/03/18 22:01	1
Motor Oil (>C24-C36)	260		56		mg/Kg	☼	03/30/18 15:54	04/03/18 22:01	1
Mineral oil	540		56		mg/Kg	☼	03/30/18 15:54	04/03/18 22:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	93		50 - 150				03/30/18 15:54	04/03/18 22:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.4		0.1		%			03/30/18 16:38	1
Percent Moisture	14.6		0.1		%			03/30/18 16:38	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-2

Client Sample ID: EY-SG36-SB01

Lab Sample ID: 580-75905-18

Date Collected: 03/16/18 14:40

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 85.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	90		56		mg/Kg	☼	03/30/18 15:54	04/03/18 22:21	1
Motor Oil (>C24-C36)	70		56		mg/Kg	☼	03/30/18 15:54	04/03/18 22:21	1
Mineral oil	120		56		mg/Kg	☼	03/30/18 15:54	04/03/18 22:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	88		50 - 150	03/30/18 15:54	04/03/18 22:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.3		0.1		%			03/30/18 16:38	1
Percent Moisture	14.7		0.1		%			03/30/18 16:38	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-2

Client Sample ID: EY-SG36-SB02

Lab Sample ID: 580-75905-19

Date Collected: 03/16/18 14:50

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 87.7

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	03/30/18 15:54	04/03/18 22:41	1
Motor Oil (>C24-C36)	ND		52		mg/Kg	☼	03/30/18 15:54	04/03/18 22:41	1
Mineral oil	ND		52		mg/Kg	☼	03/30/18 15:54	04/03/18 22:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	83		50 - 150	03/30/18 15:54	04/03/18 22:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.7		0.1		%			03/30/18 16:38	1
Percent Moisture	12.3		0.1		%			03/30/18 16:38	1



QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-270306/1-A
Matrix: Solid
Analysis Batch: 270464

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270306

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/30/18 15:54	04/03/18 13:32	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/30/18 15:54	04/03/18 13:32	1
Mineral oil	ND		50		mg/Kg		03/30/18 15:54	04/03/18 13:32	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	87		50 - 150	03/30/18 15:54	04/03/18 13:32	1

Lab Sample ID: LCS 580-270306/2-A
Matrix: Solid
Analysis Batch: 270464

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270306

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	500	493		mg/Kg		99	70 - 125
Motor Oil (>C24-C36)	500	507		mg/Kg		101	70 - 119

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	82		50 - 150

Lab Sample ID: LCSD 580-270306/3-A
Matrix: Solid
Analysis Batch: 270464

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270306

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	521		mg/Kg		104	70 - 125	5	16
Motor Oil (>C24-C36)	500	534		mg/Kg		107	70 - 119	5	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	85		50 - 150

Lab Sample ID: 580-75905-19 DU
Matrix: Solid
Analysis Batch: 270464

Client Sample ID: EY-SG36-SB02
Prep Type: Total/NA
Prep Batch: 270306

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
#2 Diesel (C10-C24)	ND		ND		mg/Kg	☼	NC	35
Motor Oil (>C24-C36)	ND		ND		mg/Kg	☼	NC	35
Mineral oil	ND		ND		mg/Kg	☼	NC	35

Surrogate	DU %Recovery	DU Qualifier	Limits
<i>o</i> -Terphenyl	77		50 - 150

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-2

Client Sample ID: EY-SG36-SB03

Date Collected: 03/16/18 14:55

Date Received: 03/16/18 17:30

Lab Sample ID: 580-75905-11

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: EY-SG36-SB03

Date Collected: 03/16/18 14:55

Date Received: 03/16/18 17:30

Lab Sample ID: 580-75905-11

Matrix: Solid

Percent Solids: 85.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 21:20	CJ	TAL SEA

Client Sample ID: EY-SG37-SB01

Date Collected: 03/16/18 14:24

Date Received: 03/16/18 17:30

Lab Sample ID: 580-75905-12

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: EY-SG37-SB01

Date Collected: 03/16/18 14:24

Date Received: 03/16/18 17:30

Lab Sample ID: 580-75905-12

Matrix: Solid

Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 21:41	CJ	TAL SEA

Client Sample ID: EY-SG37-SB02

Date Collected: 03/16/18 14:28

Date Received: 03/16/18 17:30

Lab Sample ID: 580-75905-13

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: EY-SG37-SB02

Date Collected: 03/16/18 14:28

Date Received: 03/16/18 17:30

Lab Sample ID: 580-75905-13

Matrix: Solid

Percent Solids: 85.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 22:01	CJ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-2

Client Sample ID: EY-SG36-SB01

Lab Sample ID: 580-75905-18

Date Collected: 03/16/18 14:40

Matrix: Solid

Date Received: 03/16/18 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: EY-SG36-SB01

Lab Sample ID: 580-75905-18

Date Collected: 03/16/18 14:40

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 22:21	CJ	TAL SEA

Client Sample ID: EY-SG36-SB02

Lab Sample ID: 580-75905-19

Date Collected: 03/16/18 14:50

Matrix: Solid

Date Received: 03/16/18 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: EY-SG36-SB02

Lab Sample ID: 580-75905-19

Date Collected: 03/16/18 14:50

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 87.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 22:41	CJ	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

Client: ERM-West

TestAmerica Job ID: 580-75905-2

Project/Site: Cushman Phase II ESA

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-2

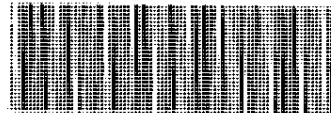
Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-75905-11	EY-SG36-SB03	Solid	03/16/18 14:55	03/16/18 17:30
580-75905-12	EY-SG37-SB01	Solid	03/16/18 14:24	03/16/18 17:30
580-75905-13	EY-SG37-SB02	Solid	03/16/18 14:28	03/16/18 17:30
580-75905-18	EY-SG36-SB01	Solid	03/16/18 14:40	03/16/18 17:30
580-75905-19	EY-SG36-SB02	Solid	03/16/18 14:50	03/16/18 17:30

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

580-75905 Chain of Custody

Client Information	Sampler: <u>oven Rndloff</u>	Lab PM: Cruz, Sheri L	COC No: 580-27907-9206.18
Client Contact: Suzanne Dolberg	Phone: <u>503 4211443</u>	E-Mail: sheri.cruz@testamericainc.com	Page: Page 18 of 33
Company: ERM-West	Address: 1218 3rd Ave Suite 1412		Job #: <u>75905</u>

Due Date Requested:	Analysis Requested	
TAT Requested (days):	Field Filtered Sample (Yes or No)	Preservation Codes:
PO #: 0435302.03	Perform MS/MS? (Yes or No)	A - HCL M - Hexane
WO #:	8082A, NWTPH_Dx	B - NaOH N - None
Project Name: Cushman Phase II ESA	8082A, 8270D_SIM, NWTPH_Dx	C - Zn Acetate O - AsNaO2
Site:	8260C - BTEX	D - Nitric Acid P - Na2O4S
	6010C, 7471A, NWTPH_Dx	E - NaHSO4 Q - Na2SO3
	8082A - PCBs, standard list	F - MeOH R - Na2S2O3
	8020A, 7470A	G - Amchlor S - H2SO4
	NWTPH_Dx - Northwest - DRO/RO	H - Ascorbic Acid T - TSP Dodecahydrate
	8260C - BTEX	I - Ice U - Acetone
		J - DI Water V - MCAA
		K - EDTA W - pH 4-5
		L - EDA Z - other (specify)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MS? (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8260C - BTEX	6010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX	Total Number of Containers	Special Instructions/Note:
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-1	EY-SG39-SB04	3/16	0909	G	Solid	X										hold
-2	WY-SG01-CSB EY-SG17-SB01	3/16	0935	G	Solid	X										↓ run TPH and PCB
-3	WY-SG01-SB01 EY-SG17-SB02	3/16	0946	G	Solid	X										
-4	WY-SG01-SB02 EY-SG17-SB03	3/16	0945	G	Solid	X										
-5	WY-SG01-SB03 EY-SG21-SB01	3/16	1000	G	Solid	X										
-6	WY-SG01-SB04 EY-SG21-SB02	3/16	1015	G	Solid	X										
-7	WY-SG02-SB EY-SG21-SB03	3/16	1020	G	Solid	X										
-8	WY-SG02-SB01 EY-SG02-SB01	3/16	1093	G	Solid	X										
-9	WY-SG02-SB02 EY-SG02-SB02	3/16	1057	G	Solid	X										
-10	WY-SG02-SB03 RNS-C8	3/16	1110	G	WATER				X			X				
-11	WY-SG02-SB04 EY-SG36-SB03	3/16	1453	G	Solid	X										

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: <u>Oven Rndloff</u>	Date/Time: <u>3/16/18 1730</u>	Company: <u>ERM</u>	Received by: <u>Tom Slattery</u>
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:

Therm. ID A2 Cor 16.50 Unc 16.50 Therm. ID A2 Cor 0.70 Unc 1.10
 Cooler Dsc: Light Blue Cooler Dsc: Light Green
 Wet/Packs Packing: but Wet/Packs Packing: but
 Custody Seal: Yes No Custody Seal: Yes No

Custody Seals Intact:	Custody Seal No.:
<input type="checkbox"/> Yes <input type="checkbox"/> No	

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <i>awen Rudloff</i>		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.17									
Client Contact: Suzanne Dolberg		Phone: <i>603 421 1443</i>		E-Mail: sheri.cruz@testamericainc.com				Page: Page 17 of 33									
Company: ERM-West		Due Date Requested:		Analysis Requested				Job #: <i>75905</i>									
Address: 1218 3rd Ave Suite 1412		TAT Requested (days):		<table border="1"> <tr> <td>Field Filtered Sample (Yes or No)</td> <td>Perform MS/MSD (Yes or No)</td> <td>8082A, NWTPH_Dx</td> <td>8082A, 8270D_SIM, NWTPH_Dx</td> <td>8260C - BTEX</td> <td>6010C, 7471A, NWTPH_Dx</td> <td>8082A - PCBs, standard list</td> <td>6020A, 7470A</td> <td>NWTPH_Dx - Northwest - DRO/RO</td> <td>8260C - BTEX</td> </tr> </table>		Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8260C - BTEX	6010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	6020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX	Preservation Codes:	
Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx			8260C - BTEX	6010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	6020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8260C - BTEX						
City: Seattle		PO #: 0435302.03				A - HCL		M - Hexane		B - NaOH		N - None					
State, Zip: WA, 98101		WO #:				C - Zn Acetate		O - AsNaO2		D - Nitric Acid		P - Na2O4S					
Phone: 425-214-0462(Tel)		Project #: 58012210				E - NaHSO4		Q - Na2SO3		F - MeOH		R - Na2S2O3					
Email: suzanne.dolberg@erm.com		SSOW#:				G - Amchlor		S - H2SO4		H - Ascorbic Acid		T - TSP Dodecahydrate					
Project Name: Cushman Phase II ESA				I - Ice		U - Acetone		J - DI Water		V - MCAA							
Site:				K - EDTA		W - pH 4-5		L - EDA		Z - other (specify)							
				Other:													
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Special Instructions/Note:							
EY-SG37-SB02 <i>EY-SG37-SB01</i>		<i>3/16</i>		<i>1424</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG37-SB03 <i>EY-SG37-SB02</i>		<i>3/16</i>		<i>1428</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG37-SB04 <i>EY-SG37-CSB</i>		<i>3/16</i>		<i>1428</i>		<i>C</i>		<i>Solid</i>		<i>Run TPH, hold PCB</i>							
EY-SG38-CSB		<i>3/16</i>		<i>1347</i>		<i>C</i>		<i>Solid</i>		<i>hold</i>							
EY-SG38-SB01		<i>3/16</i>		<i>1342</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG38-SB02		<i>3/16</i>		<i>1347</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG38-SB03 <i>EY-SG36-SB01</i>		<i>3/16</i>		<i>1440</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG38-SB04 <i>EY-SG36-SB02</i>		<i>3/16</i>		<i>1450</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG39-SB01		<i>3/16</i>		<i>0850</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG39-SB02		<i>3/16</i>		<i>0855</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
EY-SG39-SB03		<i>3/16</i>		<i>0902</i>		<i>G</i>		<i>Solid</i>		<i>hold</i>							
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)											
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months											
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:											
Empty Kit Relinquished by:				Date:		Time:		Method of Shipment:									
Relinquished by: <i>awen Rudloff</i>				Date/Time: <i>3/16 1730</i>		Company: <i>ERM</i>		Received by: <i>Tom Huntz</i>		Date/Time: <i>3/16/18 1730</i>		Company: <i>TA-Sec</i>					
Relinquished by:				Date/Time:		Company:		Received by:		Date/Time:		Company:					
Relinquished by:				Date/Time:		Company:		Received by:		Date/Time:		Company:					
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:													

Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-75905-2

Login Number: 75905

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom X

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



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.


TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-75905-4

Client Project/Site: Cushman Phase II ESA

For:
ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
4/12/2018 1:14:29 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-4

Job ID: 580-75905-4

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-75905-4

Comments

4/3/18 samples 30 and 31 activated for 8082 PCBs by email.

Receipt

The samples were received on 3/16/2018 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.9° C and 16.3° C.

Receipt Exceptions

The following "samples" were logged in in error. No samples were submitted, They do not exist. EY-SG03- (580-75905-24) and EY-SG03- (580-75905-25)

The following sample was submitted but was not written on the chain of custody(COC). It has been added to the COC and to the login without analysis assigned. EY-SG18-SB04 (580-75905-33)

GC Semi VOA

Method(s) 608, 8082A: The continuing calibration verification (CCV) associated with batch 580-271116 recovered above the upper control limit for PCB-1232 and PCB-1248. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: EY-SG03-SB01 (580-75905-30), EY-SG03-SB02 (580-75905-31), (CCV 580-271116/8) and (CCV 580-271116/9).

Method(s) 8082A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 580-270908 and analytical batch 580-271116 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

Organic Prep

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

Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-4

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

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

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-4

Client Sample ID: EY-SG03-SB01

Lab Sample ID: 580-75905-30

Date Collected: 03/16/18 15:20

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 88.4

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 15:09	1
PCB-1221	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 15:09	1
PCB-1232	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 15:09	1
PCB-1242	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 15:09	1
PCB-1248	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 15:09	1
PCB-1254	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 15:09	1
PCB-1260	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 15:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	96		25 - 149	04/09/18 10:24	04/11/18 15:09	1
Tetrachloro-m-xylene	66		35 - 130	04/09/18 10:24	04/11/18 15:09	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-4

Client Sample ID: EY-SG03-SB02

Lab Sample ID: 580-75905-31

Date Collected: 03/16/18 15:30

Matrix: Solid

Date Received: 03/16/18 17:30

Percent Solids: 87.2

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND	F1	0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 15:26	1
PCB-1221	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 15:26	1
PCB-1232	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 15:26	1
PCB-1242	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 15:26	1
PCB-1248	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 15:26	1
PCB-1254	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 15:26	1
PCB-1260	0.041		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 15:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>DCB Decachlorobiphenyl</i>	96		25 - 149	04/09/18 10:24	04/11/18 15:26	1
<i>Tetrachloro-m-xylene</i>	65		35 - 130	04/09/18 10:24	04/11/18 15:26	1

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-4

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-270908/1-A
Matrix: Solid
Analysis Batch: 271116

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270908

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1221	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1232	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1242	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1248	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1254	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1260	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	102		25 - 149	04/09/18 10:24	04/11/18 13:11	1
Tetrachloro-m-xylene	86		35 - 130	04/09/18 10:24	04/11/18 13:11	1

Lab Sample ID: LCS 580-270908/2-A
Matrix: Solid
Analysis Batch: 271116

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270908

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	0.100	0.0904		mg/Kg		90	69 - 126
PCB-1260	0.100	0.110		mg/Kg		110	68 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	110		25 - 149
Tetrachloro-m-xylene	90		35 - 130

Lab Sample ID: 580-75905-31 MS
Matrix: Solid
Analysis Batch: 271116

Client Sample ID: EY-SG03-SB02
Prep Type: Total/NA
Prep Batch: 270908

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
PCB-1016	ND	F1	0.114	0.0652	F1	mg/Kg	☼	57	69 - 126
PCB-1260	0.041		0.114	0.134		mg/Kg	☼	81	68 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
DCB Decachlorobiphenyl	93		25 - 149
Tetrachloro-m-xylene	66		35 - 130

Lab Sample ID: 580-75905-31 MSD
Matrix: Solid
Analysis Batch: 271116

Client Sample ID: EY-SG03-SB02
Prep Type: Total/NA
Prep Batch: 270908

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
PCB-1016	ND	F1	0.113	0.0575	F1	mg/Kg	☼	51	69 - 126	12	17
PCB-1260	0.041		0.113	0.130		mg/Kg	☼	79	68 - 136	3	21

Surrogate	MSD %Recovery	MSD Qualifier	Limits
DCB Decachlorobiphenyl	95		25 - 149
Tetrachloro-m-xylene	63		35 - 130

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-4

Client Sample ID: EY-SG03-SB01

Date Collected: 03/16/18 15:20

Date Received: 03/16/18 17:30

Lab Sample ID: 580-75905-30

Matrix: Solid

Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270908	04/09/18 10:24	KMS	TAL SEA
Total/NA	Analysis	8082A		1	271116	04/11/18 15:09	Y1W	TAL SEA

Client Sample ID: EY-SG03-SB02

Date Collected: 03/16/18 15:30

Date Received: 03/16/18 17:30

Lab Sample ID: 580-75905-31

Matrix: Solid

Percent Solids: 87.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270908	04/09/18 10:24	KMS	TAL SEA
Total/NA	Analysis	8082A		1	271116	04/11/18 15:26	Y1W	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-4

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

Analysis Method	Prep Method	Matrix	Analyte
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Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-75905-4

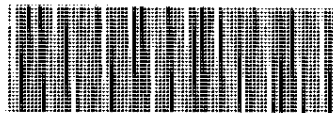
Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-75905-30	EY-SG03-SB01	Solid	03/16/18 15:20	03/16/18 17:30
580-75905-31	EY-SG03-SB02	Solid	03/16/18 15:30	03/16/18 17:30

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TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

580-75905 Chain of Custody

Client Information		Sampler: <u>over Rndloff</u>		Lab PM: Cruz, Sheri L		COC No: 580-27907-9206.18	
Client Contact: Suzanne Dolberg		Phone: <u>503 4211443</u>		E-Mail: sheri.cruz@testamericainc.com		Page: Page 18 of 33	
Company: ERM-West		Address: 1218 3rd Ave Suite 1412		City: Seattle		State, Zip: WA, 98101	
Phone: 425-214-0462(Tel)		PO #: 0435302.03		WO #:		Project Name: Cushman Phase II ESA	
Email: suzanne.dolberg@erm.com		Project #: 58012210		SSOW#:		Site:	
Analysis Requested		Due Date Requested:		TAT Requested (days):		Job #: <u>75905</u>	
Field Filtered Sample (Yes or No)		Perform MS/MS? (Yes or No)		8082A, NWTPH_Dx		8082A, 8270D_SIM, NWTPH_Dx	
				8260C - BTEX		6010C, 7471A, NWTPH_Dx	
				8082A - PCBs, standard list		8020A, 7470A	
				NWTPH_Dx - Northwest - DRO/RO		8260C - BTEX	
Total Number of Containers		Preservation Codes:		A - HCL		M - Hexane	
		B - NaOH		N - None		O - AsNaO2	
		C - Zn Acetate		P - Na2O4S		Q - Na2SO3	
		D - Nitric Acid		R - Na2S2O3		S - H2SO4	
		E - NaHSO4		T - TSP Dodecahydrate		U - Acetone	
		F - MeOH		V - MCAA		W - pH 4-5	
		G - Amchlor		X - other (specify)		Z - other (specify)	
		H - Ascorbic Acid					
		I - Ice					
		J - DI Water					
		K - EDTA					
		L - EDA					
Other:		Special Instructions/Note:					
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)	
						Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	
						Preservation Code	
						Field Filtered Sample (Yes or No)	
						Perform MS/MS? (Yes or No)	
						8082A, NWTPH_Dx	
						8082A, 8270D_SIM, NWTPH_Dx	
						8260C - BTEX	
						6010C, 7471A, NWTPH_Dx	
						8082A - PCBs, standard list	
						8020A, 7470A	
						NWTPH_Dx - Northwest - DRO/RO	
						8260C - BTEX	
						Total Number of Containers	
						Special Instructions/Note:	
-1 EY-SG39-SB04		3/16		0909		G Solid	
-2 WY-SG01-CSB EY-SG17-SB01		3/16		0935		G Solid	
-3 WY-SG01-SB01 EY-SG17-SB02		3/16		0946		G Solid	
-4 WY-SG01-SB02 EY-SG17-SB03		3/16		0945		G Solid	
-5 WY-SG01-SB03 EY-SG21-SB01		3/16		1000		G Solid	
-6 WY-SG01-SB04 EY-SG21-SB02		3/16		1015		G Solid	
-7 WY-SG02-SB EY-SG21-SB03		3/16		1020		G Solid	
-8 WY-SG02-SB01 EY-SG02-SB01		3/16		1093		G Solid	
-9 WY-SG02-SB02 EY-SG02-SB02		3/16		1057		G Solid	
-10 WY-SG02-SB03 RNS-C8		3/16		1110		G WASTE	
-11 WY-SG02-SB04 EY-SG36-SB03		3/16		1453		G Solid	
Possible Hazard Identification		<input type="checkbox"/> Non-Hazard		<input type="checkbox"/> Flammable		<input type="checkbox"/> Skin Irritant	
		<input type="checkbox"/> Poison B		<input type="checkbox"/> Unknown		<input type="checkbox"/> Radiological	
Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		<input type="checkbox"/> Return To Client		<input type="checkbox"/> Disposal By Lab	
				<input type="checkbox"/> Archive For		Months	
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: <u>over Rndloff</u>		Date/Time: 3/16/18 1730		Company: ERM		Received by: <u>Tom Slattery</u>	
Relinquished by:		Date/Time:		Company:		Date/Time: 3/16/18 1730	
Relinquished by:		Date/Time:		Company:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Therm. ID <u>A2</u> Cor <u>16.50</u> Unc <u>16.50</u>		Therm. ID <u>A2</u> Cor <u>17.00</u> Unc <u>17.00</u>	
		Cooler Dsc: <u>Light Blue</u>		Cooler Dsc: <u>Light Green</u>		Wet/Packs Packing: <u>but</u>	
		Wet/Packs Packing: <u>but</u>		Wet/Packs Packing: <u>but</u>		Custody Seal: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <i>awen Rudloff</i>		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.17																																																																																																																																																																																																																	
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G - Amchlor	S - H2SO4																																																																																																																																																																																																																								
H - Ascorbic Acid	T - TSP Dodecahydrate																																																																																																																																																																																																																								
I - Ice	U - Acetone																																																																																																																																																																																																																								
J - DI Water	V - MCAA																																																																																																																																																																																																																								
K - EDTA	W - pH 4-5																																																																																																																																																																																																																								
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Email: suzanne.dolberg@erm.com		Project #:		SSOW#:																																																																																																																																																																																																																					
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Possible Hazard Identification

Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:

Date:

Time:

Method of Shipment:

Relinquished by: *awen Rudloff*

Date/Time: *3/16 1730*

Company: *ERM*

Received by: *Tom Hunt*

Date/Time: *3/16/18 1730*

Company: *TA-Sea*

Relinquished by:

Date/Time:

Company:

Received by:

Date/Time:

Company:

Relinquished by:

Date/Time:

Company:

Received by:

Date/Time:

Company:

Custody Seals Intact: Yes No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <u>Owen Rudloff</u>		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.31									
Client Contact: Suzanne Dolberg		Phone: <u>503 421 1443</u>		E-Mail: sheri.cruz@testamericainc.com				Page: Page 31 of 33									
Company: ERM-West						Analysis Requested		Job #: <u>75905</u>									
Address: 1218 3rd Ave Suite 1412		Due Date Requested:						Preservation Codes:									
City: Seattle		TAT Requested (days):						A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)									
State, Zip: WA, 98101		PO #: 0435302.03		WO #:				Other:									
Phone: 425-214-0462(Tel)		Project #: 58012210		SSOW#:													
Email: suzanne.dolberg@erm.com		Project Name: Cushman Phase II ESA															
Site:																	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSO (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8250C - BTEX	8010C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	8020A, 7470A	NWTPH_Dx - Northwest - DRO/RO	8250C - BTEX	Total Number of Containers	Special Instructions/Note:
								N	N	F	N	N	D	A	A		
-24 EY-SB03 EY-SG36-BD		3/16	1455	C	Solid			X									Run TPA, hold PCB
EY-SB03		3/16			Solid												
EY-SB03		3/16			Solid												
-26 EY-SG02-CSB		3/16	1657	C	Solid						X						Run TPA, metals
EY-SG17-CSB		3/16	0945	C	Solid						X						
-28 EY-SG21-CSB		3/16	1620	C	Solid						X						
EY-SG39-CSB		3/16	0909	C	Solid						X						
-30 WY-SG05-CSB EY-SG03-SB01		3/16	1520	G	Solid												hold
WY-SG07-CSB EY-SG03-SB02		3/16	1530	G	Solid												hold
-32 WY-SG12-CSB EY-SG03-CSB		3/16	1530	C	Solid												Run TPA, hold PCB
-33 WY-SG14-CSB EY-SG18-SB04		3/15	1615		Solid												
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)											
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months											
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:											
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:										
Relinquished by: <u>Owen Rudloff</u>			Date/Time: 3/16/18 1730		Company: ERM		Received by: <u>Tom Blum</u>		Date/Time: 3/16/18 1730		Company:						
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:						
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:						
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks:											

Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-75905-4

Login Number: 75905

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom X

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



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

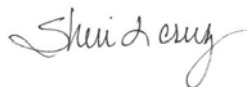
TestAmerica Job ID: 580-76096-1

Client Project/Site: Cushman Phase II ESA

For:

ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
4/11/2018 6:02:08 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Job ID: 580-76096-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-76096-1

Comments

Client called 3/27/18 to change analyses for samples on chain of custody. All the samples FOCB-SB01-5', FOCB-SB02-5', FOCB-SB03-5', and FOCB-SB04-5' to please run for NWTPH-Dx, 8082, 8270 SIM, and 8260. Also need RNS-09 to run NWTPH-Dx and metals and hold PCBs. RNS-12 to run NWTPH-Dx and hold PCBs.

Client emailed on 3/27/18 after hours to change SW04 through SW17 to run only NWTPH-Dx and hold PCBs.

4/2/18 per phone call with Suzanne, change RNS-09 to RNS-10. Same date and time collected. Same analysis on hold.

Receipt

The samples were received on 3/27/2018 1:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 1.7° C.

Receipt Exceptions

A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

1-40ml HCL VOA vial(Water Trip Blank)

2-40ml VOA vials w/10ml MeOH(Soil Trip Blank)

GC/MS VOA

Method(s) 8260C: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch preparation batch 580-270427 and analytical batch 580-270429 recovered outside control limits for the following analytes: Benzene, m-Xylene & p-Xylene, o-Xylene, Toluene and Ethylbenzene .

Method(s) 8260C: The laboratory control sample duplicate (LCSD) for preparation batch 580-270427 and analytical batch 580-270429 recovered outside control limits for the following analytes: m-Xylene & p-Xylene. This analyte was biased high in the LCSD and was not detected in the associated samples; therefore, the data have been reported.

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

GC/MS Semi VOA

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

GC Semi VOA

Method(s) 8082A: The continuing calibration verification (CCV) associated with batch 580-270585 recovered above the upper control limit for PCB-1232, PCB-1248, PCB-1242, PCB-1016, and PCB-1260. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: FOCB-SB01-5' (580-76096-31), FOCB-SB02-5' (580-76096-32), FOCB-SB04-5' (580-76096-34), (CCV 580-270585/10), (CCV 580-270585/8), (CCV 580-270585/9) and (CCVIS 580-270585/12).

Method(s) 8082A: The following continuing calibration verification (CCV) standard associated with batch 580-270585 recovered outside acceptance criteria for %D for surrogate Tetrachloro-m-xylene DCB Decachlorobiphenyl. Since the %Rec is within the acceptance criteria for the surrogate in the CCV and associated samples, the data have been reported. The following sample is impacted: (CCVIS 580-270585/12)

Method(s) 8082A: The continuing calibration verification (CCV) associated with 580-270708 recovered high and outside the control limits for PCB-1016 and PCB-1260 on one column. Results are confirmed on both columns and reported from the passing column. The following sample is impacted: (CCVIS 580-270708/16).

Method(s) 8082A: The following sample contained more than one Aroclor with insufficient separation to quantify individually. The PCBs present are quantified as the predominant Aroclor: FOCB-SB03-5' (580-76096-33).

Method(s) 8082A: The following sample was diluted to bring the concentration of target analytes within the calibration range: FOCB-SB03-5' (580-76096-33). Elevated reporting limits (RLs) are provided.

Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Job ID: 580-76096-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

Method(s) NWTPH-Dx: Continuing calibration verification (CCV) standard associated with batch 580-270159 recovered outside %Drift acceptance criteria for o-Terphenyl surrogate. The %Recovery is within acceptance criteria for the surrogate in the CCV and associated samples; therefore, the data are qualified and reported. WY-SG06-CSB (580-76096-15), WY-SG05-CSB (580-76096-20), WY-SG14-CSB (580-76096-24), WY-SG13-CSB (580-76096-30), (CCV 580-270159/14), (MB 580-270084/1-A) and (580-76096-15 DU)

Method(s) NWTPH-Dx: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for preparation batch 580-270084 and analytical batch 580-270159 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Method(s) NWTPH-Dx: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch preparation batch 580-270554 and analytical batch 580-270745 recovered outside control limits for the following analytes: #2 Diesel (C10-C24) and Motor Oil (>C24-C36). The individual recoveries met acceptance criteria.

Method(s) NWTPH-Dx: Surrogate recovery for the following sample was outside control limits: SW04 (580-76096-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) NWTPH-Dx: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: SW04 (580-76096-1), SW06 (580-76096-3), SW12 (580-76096-9), SW14 (580-76096-11) and WY-SG13-CSB (580-76096-30).

Method(s) NWTPH-Dx: Surrogate o-Terphenyl recovery for the following sample was outside control limits: RNS-12 (580-76096-38). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

Metals

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

General Chemistry

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

Organic Prep

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

Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits
*	LCS or LCSD is outside acceptance limits.

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.
*	RPD of the LCS and LCSD exceeds the control limits

Metals

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

Glossary

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

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW04

Date Collected: 03/26/18 10:15

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-1

Matrix: Solid

Percent Solids: 82.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	6300		58		mg/Kg	☼	03/29/18 15:08	03/30/18 18:35	1
Motor Oil (>C24-C36)	990		58		mg/Kg	☼	03/29/18 15:08	03/30/18 18:35	1
Mineral oil	7500		58		mg/Kg	☼	03/29/18 15:08	04/02/18 14:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	0	X	50 - 150	03/29/18 15:08	03/30/18 18:35	1
<i>o</i> -Terphenyl	179	X	50 - 150	03/29/18 15:08	04/02/18 14:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82.6		0.1		%	-		03/29/18 16:42	1
Percent Moisture	17.4		0.1		%	-		03/29/18 16:42	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW05

Date Collected: 03/26/18 10:45

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-2

Matrix: Solid

Percent Solids: 85.7

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		56		mg/Kg	☼	03/29/18 15:08	03/30/18 18:57	1
Motor Oil (>C24-C36)	ND		56		mg/Kg	☼	03/29/18 15:08	03/30/18 18:57	1
Mineral oil	ND		56		mg/Kg	☼	03/29/18 15:08	04/02/18 14:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	93		50 - 150				03/29/18 15:08	03/30/18 18:57	1
<i>o</i> -Terphenyl	86		50 - 150				03/29/18 15:08	04/02/18 14:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.7		0.1		%			03/29/18 16:42	1
Percent Moisture	14.3		0.1		%			03/29/18 16:42	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW06

Date Collected: 03/26/18 11:15

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-3

Matrix: Solid

Percent Solids: 77.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	440		63		mg/Kg	☼	03/29/18 15:08	03/30/18 19:19	1
Motor Oil (>C24-C36)	280		63		mg/Kg	☼	03/29/18 15:08	03/30/18 19:19	1
Mineral oil	620		63		mg/Kg	☼	03/29/18 15:08	04/02/18 14:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	88		50 - 150				03/29/18 15:08	03/30/18 19:19	1
<i>o</i> -Terphenyl	74		50 - 150				03/29/18 15:08	04/02/18 14:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	77.6		0.1		%			03/29/18 16:42	1
Percent Moisture	22.4		0.1		%			03/29/18 16:42	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW07

Date Collected: 03/26/18 11:45

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-4

Matrix: Solid

Percent Solids: 86.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		53		mg/Kg	☼	03/29/18 15:08	03/30/18 19:42	1
Motor Oil (>C24-C36)	ND		53		mg/Kg	☼	03/29/18 15:08	03/30/18 19:42	1
Mineral oil	ND		53		mg/Kg	☼	03/29/18 15:08	04/02/18 15:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	91		50 - 150	03/29/18 15:08	03/30/18 19:42	1
<i>o</i> -Terphenyl	84		50 - 150	03/29/18 15:08	04/02/18 15:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.8		0.1		%	-		03/29/18 16:42	1
Percent Moisture	13.2		0.1		%	-		03/29/18 16:42	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW08
Date Collected: 03/26/18 14:30
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-5
Matrix: Solid
Percent Solids: 81.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		59		mg/Kg	☼	03/29/18 15:08	03/30/18 20:26	1
Motor Oil (>C24-C36)	ND		59		mg/Kg	☼	03/29/18 15:08	03/30/18 20:26	1
Mineral oil	ND		59		mg/Kg	☼	03/29/18 15:08	04/02/18 15:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	92		50 - 150	03/29/18 15:08	03/30/18 20:26	1
<i>o</i> -Terphenyl	83		50 - 150	03/29/18 15:08	04/02/18 15:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.3		0.1		%			03/29/18 16:42	1
Percent Moisture	18.7		0.1		%			03/29/18 16:42	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW09
Date Collected: 03/26/18 14:00
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-6
Matrix: Solid
Percent Solids: 84.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		58		mg/Kg	☼	03/29/18 15:08	03/30/18 20:48	1
Motor Oil (>C24-C36)	ND		58		mg/Kg	☼	03/29/18 15:08	03/30/18 20:48	1
Mineral oil	ND		58		mg/Kg	☼	03/29/18 15:08	04/02/18 15:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	94		50 - 150				03/29/18 15:08	03/30/18 20:48	1
<i>o</i> -Terphenyl	84		50 - 150				03/29/18 15:08	04/02/18 15:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.5		0.1		%			03/29/18 16:42	1
Percent Moisture	15.5		0.1		%			03/29/18 16:42	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW10

Date Collected: 03/26/18 14:15

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-7

Matrix: Solid

Percent Solids: 84.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		56		mg/Kg	☼	03/29/18 15:08	03/30/18 21:10	1
Motor Oil (>C24-C36)	ND		56		mg/Kg	☼	03/29/18 15:08	03/30/18 21:10	1
Mineral oil	ND		56		mg/Kg	☼	03/29/18 15:08	04/02/18 16:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	92		50 - 150	03/29/18 15:08	03/30/18 21:10	1
<i>o</i> -Terphenyl	85		50 - 150	03/29/18 15:08	04/02/18 16:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.2		0.1		%	-		03/29/18 16:42	1
Percent Moisture	15.8		0.1		%	-		03/29/18 16:42	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW11
Date Collected: 03/26/18 14:50
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-8
Matrix: Solid
Percent Solids: 83.7

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		54		mg/Kg	☼	03/29/18 15:08	03/30/18 21:32	1
Motor Oil (>C24-C36)	ND		54		mg/Kg	☼	03/29/18 15:08	03/30/18 21:32	1
Mineral oil	ND		54		mg/Kg	☼	03/29/18 15:08	04/02/18 16:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	91		50 - 150	03/29/18 15:08	03/30/18 21:32	1
<i>o</i> -Terphenyl	82		50 - 150	03/29/18 15:08	04/02/18 16:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.7		0.1		%			03/29/18 16:42	1
Percent Moisture	16.3		0.1		%			03/29/18 16:42	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW12

Date Collected: 03/26/18 15:20

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-9

Matrix: Solid

Percent Solids: 79.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	1200		60		mg/Kg	☼	03/29/18 15:08	03/30/18 21:54	1
Motor Oil (>C24-C36)	780		60		mg/Kg	☼	03/29/18 15:08	03/30/18 21:54	1
Mineral oil	1700		60		mg/Kg	☼	03/29/18 15:08	04/02/18 16:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	90		50 - 150	03/29/18 15:08	03/30/18 21:54	1
<i>o</i> -Terphenyl	81		50 - 150	03/29/18 15:08	04/02/18 16:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	79.8		0.1		%			03/29/18 16:42	1
Percent Moisture	20.2		0.1		%			03/29/18 16:42	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW13
Date Collected: 03/26/18 15:30
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-10
Matrix: Solid
Percent Solids: 80.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		53		mg/Kg	☼	03/29/18 15:08	03/30/18 22:16	1
Motor Oil (>C24-C36)	ND		53		mg/Kg	☼	03/29/18 15:08	03/30/18 22:16	1
Mineral oil	ND		53		mg/Kg	☼	03/29/18 15:08	04/02/18 17:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	90		50 - 150	03/29/18 15:08	03/30/18 22:16	1
<i>o</i> -Terphenyl	83		50 - 150	03/29/18 15:08	04/02/18 17:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.0		0.1		%			03/29/18 16:42	1
Percent Moisture	20.0		0.1		%			03/29/18 16:42	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW14

Date Collected: 03/26/18 15:45

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-11

Matrix: Solid

Percent Solids: 85.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	350		57		mg/Kg	☼	03/29/18 15:08	03/30/18 22:39	1
Motor Oil (>C24-C36)	180		57		mg/Kg	☼	03/29/18 15:08	03/30/18 22:39	1
Mineral oil	490		57		mg/Kg	☼	03/29/18 15:08	04/02/18 17:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	92		50 - 150	03/29/18 15:08	03/30/18 22:39	1
<i>o</i> -Terphenyl	88		50 - 150	03/29/18 15:08	04/02/18 17:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.6		0.1		%			03/29/18 16:42	1
Percent Moisture	14.4		0.1		%			03/29/18 16:42	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW15
Date Collected: 03/26/18 16:05
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-12
Matrix: Solid
Percent Solids: 85.7

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		56		mg/Kg	☼	03/29/18 15:08	03/30/18 23:01	1
Motor Oil (>C24-C36)	ND		56		mg/Kg	☼	03/29/18 15:08	03/30/18 23:01	1
Mineral oil	ND		56		mg/Kg	☼	03/29/18 15:08	04/02/18 18:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	89		50 - 150				03/29/18 15:08	03/30/18 23:01	1
<i>o</i> -Terphenyl	81		50 - 150				03/29/18 15:08	04/02/18 18:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.7		0.1		%			03/29/18 16:42	1
Percent Moisture	14.3		0.1		%			03/29/18 16:42	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: WY-SG06-CSB

Lab Sample ID: 580-76096-15

Date Collected: 03/26/18 16:20

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 89.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		51		mg/Kg	☼	03/28/18 13:34	03/29/18 18:07	1
Motor Oil (>C24-C36)	ND		51		mg/Kg	☼	03/28/18 13:34	03/29/18 18:07	1
Mineral oil	ND		51		mg/Kg	☼	03/28/18 13:34	03/29/18 18:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	81		50 - 150	03/28/18 13:34	03/29/18 18:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.0		0.1		%			03/28/18 14:19	1
Percent Moisture	11.0		0.1		%			03/28/18 14:19	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: WY-SG05-CSB

Lab Sample ID: 580-76096-20

Date Collected: 03/26/18 16:50

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 86.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		53		mg/Kg	☼	03/28/18 13:34	03/29/18 18:47	1
Motor Oil (>C24-C36)	ND		53		mg/Kg	☼	03/28/18 13:34	03/29/18 18:47	1
Mineral oil	ND		53		mg/Kg	☼	03/28/18 13:34	03/29/18 18:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	78		50 - 150				03/28/18 13:34	03/29/18 18:47	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	11		2.8		mg/Kg	☼	03/29/18 13:44	03/30/18 09:39	1
Barium	100		0.46		mg/Kg	☼	03/29/18 13:44	03/30/18 09:39	1
Cadmium	0.94		0.92		mg/Kg	☼	03/29/18 13:44	03/30/18 09:39	1
Chromium	31		1.2		mg/Kg	☼	03/29/18 13:44	03/30/18 09:39	1
Lead	17		1.4		mg/Kg	☼	03/29/18 13:44	03/30/18 09:39	1
Selenium	ND		4.6		mg/Kg	☼	03/29/18 13:44	03/30/18 09:39	1
Silver	ND		2.3		mg/Kg	☼	03/29/18 13:44	03/30/18 09:39	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.065		0.027		mg/Kg	☼	03/29/18 10:04	03/29/18 13:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.4		0.1		%			03/28/18 14:19	1
Percent Moisture	13.6		0.1		%			03/28/18 14:19	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: WY-SG14-CSB

Lab Sample ID: 580-76096-24

Date Collected: 03/26/18 15:25

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 87.1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		54		mg/Kg	☼	03/28/18 13:34	03/29/18 19:08	1
Motor Oil (>C24-C36)	ND		54		mg/Kg	☼	03/28/18 13:34	03/29/18 19:08	1
Mineral oil	ND		54		mg/Kg	☼	03/28/18 13:34	03/29/18 19:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	80		50 - 150				03/28/18 13:34	03/29/18 19:08	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.4		2.8		mg/Kg	☼	03/29/18 13:44	03/30/18 10:03	1
Barium	110		0.46		mg/Kg	☼	03/29/18 13:44	03/30/18 10:03	1
Cadmium	1.0		0.93		mg/Kg	☼	03/29/18 13:44	03/30/18 10:03	1
Chromium	32		1.2		mg/Kg	☼	03/29/18 13:44	03/30/18 10:03	1
Lead	59		1.4		mg/Kg	☼	03/29/18 13:44	03/30/18 10:03	1
Selenium	ND		4.6		mg/Kg	☼	03/29/18 13:44	03/30/18 10:03	1
Silver	ND		2.3		mg/Kg	☼	03/29/18 13:44	03/30/18 10:03	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.046		0.027		mg/Kg	☼	03/29/18 10:04	03/29/18 13:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.1		0.1		%			03/28/18 14:19	1
Percent Moisture	12.9		0.1		%			03/28/18 14:19	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW16
Date Collected: 03/26/18 16:45
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-25
Matrix: Solid
Percent Solids: 85.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		54		mg/Kg	☼	03/29/18 15:08	03/30/18 23:22	1
Motor Oil (>C24-C36)	ND		54		mg/Kg	☼	03/29/18 15:08	03/30/18 23:22	1
Mineral oil	ND		54		mg/Kg	☼	03/29/18 15:08	04/02/18 18:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	90		50 - 150				03/29/18 15:08	03/30/18 23:22	1
<i>o</i> -Terphenyl	84		50 - 150				03/29/18 15:08	04/02/18 18:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.2		0.1		%			03/29/18 16:42	1
Percent Moisture	14.8		0.1		%			03/29/18 16:42	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW17
Date Collected: 03/26/18 17:00
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-26
Matrix: Solid
Percent Solids: 80.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		62		mg/Kg	☼	03/29/18 15:08	03/31/18 00:28	1
Motor Oil (>C24-C36)	ND		62		mg/Kg	☼	03/29/18 15:08	03/31/18 00:28	1
Mineral oil	ND		62		mg/Kg	☼	03/29/18 15:08	04/02/18 19:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	90		50 - 150				03/29/18 15:08	03/31/18 00:28	1
<i>o</i> -Terphenyl	81		50 - 150				03/29/18 15:08	04/02/18 19:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.0		0.1		%			03/29/18 16:42	1
Percent Moisture	20.0		0.1		%			03/29/18 16:42	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: WY-SG13-CSB

Lab Sample ID: 580-76096-30

Date Collected: 03/26/18 11:20

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 84.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	250		56		mg/Kg	☼	03/28/18 13:34	03/29/18 19:28	1
Motor Oil (>C24-C36)	100		56		mg/Kg	☼	03/28/18 13:34	03/29/18 19:28	1
Mineral oil	300		56		mg/Kg	☼	03/28/18 13:34	03/29/18 19:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	85		50 - 150	03/28/18 13:34	03/29/18 19:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.3		0.1		%			03/28/18 14:19	1
Percent Moisture	15.7		0.1		%			03/28/18 14:19	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: FOCB-SB01-5'

Lab Sample ID: 580-76096-31

Date Collected: 03/26/18 11:50

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 82.0

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	*	35		ug/Kg		04/02/18 16:51	04/02/18 19:08	1
Toluene	ND	*	260		ug/Kg		04/02/18 16:51	04/02/18 19:08	1
Ethylbenzene	ND	*	70		ug/Kg		04/02/18 16:51	04/02/18 19:08	1
m-Xylene & p-Xylene	ND	*	350		ug/Kg		04/02/18 16:51	04/02/18 19:08	1
o-Xylene	ND	*	70		ug/Kg		04/02/18 16:51	04/02/18 19:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		75 - 120	04/02/18 16:51	04/02/18 19:08	1
Trifluorotoluene (Surr)	111		60 - 150	04/02/18 16:51	04/02/18 19:08	1
4-Bromofluorobenzene (Surr)	104		47 - 150	04/02/18 16:51	04/02/18 19:08	1
Dibromofluoromethane (Surr)	103		80 - 118	04/02/18 16:51	04/02/18 19:08	1
1,2-Dichloroethane-d4 (Surr)	98		80 - 121	04/02/18 16:51	04/02/18 19:08	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
2-Methylnaphthalene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Acenaphthene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Acenaphthylene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Anthracene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Benzo[a]anthracene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Benzo[a]pyrene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Benzo[b]fluoranthene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Benzo[g,h,i]perylene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Benzo[k]fluoranthene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Chrysene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Dibenz(a,h)anthracene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Fluoranthene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Fluorene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Indeno[1,2,3-cd]pyrene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Naphthalene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Phenanthrene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1
Pyrene	ND		5.9		ug/Kg	☼	03/30/18 09:39	03/30/18 16:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	101		68 - 138	03/30/18 09:39	03/30/18 16:32	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.023		mg/Kg	☼	03/30/18 09:28	04/04/18 15:18	1
PCB-1221	ND		0.023		mg/Kg	☼	03/30/18 09:28	04/04/18 15:18	1
PCB-1232	ND		0.023		mg/Kg	☼	03/30/18 09:28	04/04/18 15:18	1
PCB-1242	ND		0.023		mg/Kg	☼	03/30/18 09:28	04/04/18 15:18	1
PCB-1248	ND		0.023		mg/Kg	☼	03/30/18 09:28	04/04/18 15:18	1
PCB-1254	ND		0.023		mg/Kg	☼	03/30/18 09:28	04/04/18 15:18	1
PCB-1260	ND		0.023		mg/Kg	☼	03/30/18 09:28	04/04/18 15:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	87		25 - 149	03/30/18 09:28	04/04/18 15:18	1
Tetrachloro-m-xylene	74		35 - 130	03/30/18 09:28	04/04/18 15:18	1

TestAmerica Seattle

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: FOCB-SB01-5'

Lab Sample ID: 580-76096-31

Date Collected: 03/26/18 11:50

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 82.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		58		mg/Kg	☼	03/29/18 15:08	03/31/18 00:50	1
Motor Oil (>C24-C36)	ND		58		mg/Kg	☼	03/29/18 15:08	03/31/18 00:50	1
Mineral oil	ND		58		mg/Kg	☼	03/29/18 15:08	04/02/18 19:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	92		50 - 150				03/29/18 15:08	03/31/18 00:50	1
<i>o</i> -Terphenyl	83		50 - 150				03/29/18 15:08	04/02/18 19:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82.0		0.1		%			03/29/18 16:42	1
Percent Moisture	18.0		0.1		%			03/29/18 16:42	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: FOCB-SB02-5'

Lab Sample ID: 580-76096-32

Date Collected: 03/26/18 12:30

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 84.5

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	*	38		ug/Kg		04/02/18 16:51	04/02/18 19:35	1
Toluene	ND	*	290		ug/Kg		04/02/18 16:51	04/02/18 19:35	1
Ethylbenzene	ND	*	76		ug/Kg		04/02/18 16:51	04/02/18 19:35	1
m-Xylene & p-Xylene	ND	*	380		ug/Kg		04/02/18 16:51	04/02/18 19:35	1
o-Xylene	ND	*	76		ug/Kg		04/02/18 16:51	04/02/18 19:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		75 - 120	04/02/18 16:51	04/02/18 19:35	1
Trifluorotoluene (Surr)	110		60 - 150	04/02/18 16:51	04/02/18 19:35	1
4-Bromofluorobenzene (Surr)	100		47 - 150	04/02/18 16:51	04/02/18 19:35	1
Dibromofluoromethane (Surr)	101		80 - 118	04/02/18 16:51	04/02/18 19:35	1
1,2-Dichloroethane-d4 (Surr)	93		80 - 121	04/02/18 16:51	04/02/18 19:35	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
2-Methylnaphthalene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Acenaphthene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Acenaphthylene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Anthracene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Benzo[a]anthracene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Benzo[a]pyrene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Benzo[b]fluoranthene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Benzo[g,h,i]perylene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Benzo[k]fluoranthene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Chrysene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Dibenz(a,h)anthracene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Fluoranthene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Fluorene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Indeno[1,2,3-cd]pyrene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Naphthalene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Phenanthrene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1
Pyrene	ND		5.4		ug/Kg	☼	03/30/18 09:39	03/30/18 17:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	98		68 - 138	03/30/18 09:39	03/30/18 17:46	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.022		mg/Kg	☼	03/30/18 09:28	04/04/18 16:08	1
PCB-1221	ND		0.022		mg/Kg	☼	03/30/18 09:28	04/04/18 16:08	1
PCB-1232	ND		0.022		mg/Kg	☼	03/30/18 09:28	04/04/18 16:08	1
PCB-1242	ND		0.022		mg/Kg	☼	03/30/18 09:28	04/04/18 16:08	1
PCB-1248	ND		0.022		mg/Kg	☼	03/30/18 09:28	04/04/18 16:08	1
PCB-1254	ND		0.022		mg/Kg	☼	03/30/18 09:28	04/04/18 16:08	1
PCB-1260	ND		0.022		mg/Kg	☼	03/30/18 09:28	04/04/18 16:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	92		25 - 149	03/30/18 09:28	04/04/18 16:08	1
Tetrachloro-m-xylene	76		35 - 130	03/30/18 09:28	04/04/18 16:08	1

TestAmerica Seattle

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: FOCB-SB02-5'

Lab Sample ID: 580-76096-32

Date Collected: 03/26/18 12:30

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 84.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		57		mg/Kg	☼	03/29/18 15:08	03/31/18 01:12	1
Motor Oil (>C24-C36)	ND		57		mg/Kg	☼	03/29/18 15:08	03/31/18 01:12	1
Mineral oil	ND		57		mg/Kg	☼	03/29/18 15:08	04/02/18 19:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	90		50 - 150	03/29/18 15:08	03/31/18 01:12	1
<i>o</i> -Terphenyl	82		50 - 150	03/29/18 15:08	04/02/18 19:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.5		0.1		%			03/29/18 16:42	1
Percent Moisture	15.5		0.1		%			03/29/18 16:42	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: FOCB-SB03-5'

Lab Sample ID: 580-76096-33

Date Collected: 03/26/18 14:00

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 84.4

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	*	34		ug/Kg		04/02/18 16:51	04/02/18 20:02	1
Toluene	ND	*	260		ug/Kg		04/02/18 16:51	04/02/18 20:02	1
Ethylbenzene	ND	*	69		ug/Kg		04/02/18 16:51	04/02/18 20:02	1
m-Xylene & p-Xylene	ND	*	340		ug/Kg		04/02/18 16:51	04/02/18 20:02	1
o-Xylene	ND	*	69		ug/Kg		04/02/18 16:51	04/02/18 20:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	94		75 - 120	04/02/18 16:51	04/02/18 20:02	1
Trifluorotoluene (Surr)	109		60 - 150	04/02/18 16:51	04/02/18 20:02	1
4-Bromofluorobenzene (Surr)	106		47 - 150	04/02/18 16:51	04/02/18 20:02	1
Dibromofluoromethane (Surr)	100		80 - 118	04/02/18 16:51	04/02/18 20:02	1
1,2-Dichloroethane-d4 (Surr)	97		80 - 121	04/02/18 16:51	04/02/18 20:02	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
2-Methylnaphthalene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Acenaphthene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Acenaphthylene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Anthracene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Benzo[a]anthracene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Benzo[a]pyrene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Benzo[b]fluoranthene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Benzo[g,h,i]perylene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Benzo[k]fluoranthene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Chrysene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Dibenz(a,h)anthracene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Fluoranthene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Fluorene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Indeno[1,2,3-cd]pyrene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Naphthalene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Phenanthrene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1
Pyrene	ND		5.7		ug/Kg	☼	03/30/18 09:39	03/30/18 18:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	104		68 - 138	03/30/18 09:39	03/30/18 18:10	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.023		mg/Kg	☼	03/30/18 09:28	04/04/18 16:25	1
PCB-1221	ND		0.023		mg/Kg	☼	03/30/18 09:28	04/04/18 16:25	1
PCB-1232	ND		0.023		mg/Kg	☼	03/30/18 09:28	04/04/18 16:25	1
PCB-1242	ND		0.023		mg/Kg	☼	03/30/18 09:28	04/04/18 16:25	1
PCB-1248	ND		0.023		mg/Kg	☼	03/30/18 09:28	04/04/18 16:25	1
PCB-1260	ND		0.023		mg/Kg	☼	03/30/18 09:28	04/04/18 16:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	103		25 - 149	03/30/18 09:28	04/04/18 16:25	1
Tetrachloro-m-xylene	83		35 - 130	03/30/18 09:28	04/04/18 16:25	1

TestAmerica Seattle

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: FOCB-SB03-5'

Lab Sample ID: 580-76096-33

Date Collected: 03/26/18 14:00

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 84.4

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1254	3.2		0.23		mg/Kg	☼	03/30/18 09:28	04/05/18 12:46	10

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		56		mg/Kg	☼	03/29/18 15:08	03/31/18 01:34	1
Motor Oil (>C24-C36)	ND		56		mg/Kg	☼	03/29/18 15:08	03/31/18 01:34	1
Mineral oil	ND		56		mg/Kg	☼	03/29/18 15:08	04/02/18 20:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	90		50 - 150	03/29/18 15:08	03/31/18 01:34	1
<i>o</i> -Terphenyl	84		50 - 150	03/29/18 15:08	04/02/18 20:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.4		0.1		%			03/29/18 16:42	1
Percent Moisture	15.6		0.1		%			03/29/18 16:42	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: FOCB-SB04-5'

Lab Sample ID: 580-76096-34

Date Collected: 03/26/18 14:30

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 88.4

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	*	37		ug/Kg		04/02/18 16:51	04/02/18 20:29	1
Toluene	ND	*	280		ug/Kg		04/02/18 16:51	04/02/18 20:29	1
Ethylbenzene	ND	*	74		ug/Kg		04/02/18 16:51	04/02/18 20:29	1
m-Xylene & p-Xylene	ND	*	370		ug/Kg		04/02/18 16:51	04/02/18 20:29	1
o-Xylene	ND	*	74		ug/Kg		04/02/18 16:51	04/02/18 20:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		75 - 120	04/02/18 16:51	04/02/18 20:29	1
Trifluorotoluene (Surr)	110		60 - 150	04/02/18 16:51	04/02/18 20:29	1
4-Bromofluorobenzene (Surr)	105		47 - 150	04/02/18 16:51	04/02/18 20:29	1
Dibromofluoromethane (Surr)	100		80 - 118	04/02/18 16:51	04/02/18 20:29	1
1,2-Dichloroethane-d4 (Surr)	102		80 - 121	04/02/18 16:51	04/02/18 20:29	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
2-Methylnaphthalene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Acenaphthene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Acenaphthylene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Anthracene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Benzo[a]anthracene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Benzo[a]pyrene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Benzo[b]fluoranthene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Benzo[g,h,i]perylene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Benzo[k]fluoranthene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Chrysene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Dibenz(a,h)anthracene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Fluoranthene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Fluorene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Indeno[1,2,3-cd]pyrene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Naphthalene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Phenanthrene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1
Pyrene	ND		5.5		ug/Kg	☼	03/30/18 09:39	03/30/18 18:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	102		68 - 138	03/30/18 09:39	03/30/18 18:35	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.022		mg/Kg	☼	03/30/18 09:28	04/04/18 16:41	1
PCB-1221	ND		0.022		mg/Kg	☼	03/30/18 09:28	04/04/18 16:41	1
PCB-1232	ND		0.022		mg/Kg	☼	03/30/18 09:28	04/04/18 16:41	1
PCB-1242	ND		0.022		mg/Kg	☼	03/30/18 09:28	04/04/18 16:41	1
PCB-1248	ND		0.022		mg/Kg	☼	03/30/18 09:28	04/04/18 16:41	1
PCB-1254	ND		0.022		mg/Kg	☼	03/30/18 09:28	04/04/18 16:41	1
PCB-1260	ND		0.022		mg/Kg	☼	03/30/18 09:28	04/04/18 16:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	106		25 - 149	03/30/18 09:28	04/04/18 16:41	1
Tetrachloro-m-xylene	88		35 - 130	03/30/18 09:28	04/04/18 16:41	1

TestAmerica Seattle

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: FOCB-SB04-5'

Lab Sample ID: 580-76096-34

Date Collected: 03/26/18 14:30

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 88.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		55		mg/Kg	☼	03/29/18 15:08	03/31/18 01:56	1
Motor Oil (>C24-C36)	ND		55		mg/Kg	☼	03/29/18 15:08	03/31/18 01:56	1
Mineral oil	ND		55		mg/Kg	☼	03/29/18 15:08	04/02/18 20:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	91		50 - 150	03/29/18 15:08	03/31/18 01:56	1
<i>o</i> -Terphenyl	83		50 - 150	03/29/18 15:08	04/02/18 20:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.4		0.1		%			03/29/18 16:42	1
Percent Moisture	11.6		0.1		%			03/29/18 16:42	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: RNS-10

Date Collected: 03/26/18 17:20

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-37

Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND	*	0.11		mg/L		04/04/18 09:36	04/06/18 02:47	1
Motor Oil (>C24-C36)	ND	*	0.36		mg/L		04/04/18 09:36	04/06/18 02:47	1
Mineral oil	ND		0.36		mg/L		04/04/18 09:36	04/10/18 14:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	77		50 - 150				04/04/18 09:36	04/06/18 02:47	1
<i>o</i> -Terphenyl	60		50 - 150				04/04/18 09:36	04/10/18 14:34	1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050		mg/L		03/30/18 10:21	04/02/18 14:49	5
Barium	0.017		0.0060		mg/L		03/30/18 10:21	04/02/18 14:49	5
Cadmium	ND		0.0020		mg/L		03/30/18 10:21	04/02/18 14:49	5
Chromium	0.0035		0.0020		mg/L		03/30/18 10:21	04/02/18 14:49	5
Lead	0.0063		0.0040		mg/L		03/30/18 10:21	04/02/18 14:49	5
Selenium	ND		0.040		mg/L		03/30/18 10:21	04/02/18 14:49	5
Silver	ND		0.0020		mg/L		03/30/18 10:21	04/02/18 14:49	5

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00030		mg/L		03/29/18 09:26	03/29/18 13:18	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: RNS-12
Date Collected: 03/27/18 09:00
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-38
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND	*	0.11		mg/L		04/04/18 09:36	04/06/18 03:09	1
Motor Oil (>C24-C36)	ND	*	0.35		mg/L		04/04/18 09:36	04/06/18 03:09	1
Mineral oil	ND		0.35		mg/L		04/04/18 09:36	04/10/18 15:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	61		50 - 150				04/04/18 09:36	04/06/18 03:09	1
<i>o</i> -Terphenyl	46	X	50 - 150				04/04/18 09:36	04/10/18 15:18	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: Trip Blank(water)

Lab Sample ID: 580-76096-39

Date Collected: 03/26/18 00:01

Matrix: Water

Date Received: 03/27/18 13:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			04/05/18 19:42	1
Toluene	ND		2.0		ug/L			04/05/18 19:42	1
Ethylbenzene	ND		3.0		ug/L			04/05/18 19:42	1
m-Xylene & p-Xylene	ND		3.0		ug/L			04/05/18 19:42	1
o-Xylene	ND		2.0		ug/L			04/05/18 19:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		80 - 122		04/05/18 19:42	1
Trifluorotoluene (Surr)	116		80 - 120		04/05/18 19:42	1
4-Bromofluorobenzene (Surr)	102		75 - 125		04/05/18 19:42	1
Dibromofluoromethane (Surr)	107		77 - 120		04/05/18 19:42	1
1,2-Dichloroethane-d4 (Surr)	107		80 - 126		04/05/18 19:42	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: Trip Blank(Soil)

Lab Sample ID: 580-76096-40

Date Collected: 03/26/18 00:01

Matrix: Solid

Date Received: 03/27/18 13:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		20		ug/Kg		04/02/18 16:51	04/03/18 19:50	1
Toluene	ND		150		ug/Kg		04/02/18 16:51	04/03/18 19:50	1
Ethylbenzene	ND		40		ug/Kg		04/02/18 16:51	04/03/18 19:50	1
m-Xylene & p-Xylene	ND		200		ug/Kg		04/02/18 16:51	04/03/18 19:50	1
o-Xylene	ND		40		ug/Kg		04/02/18 16:51	04/03/18 19:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		75 - 120	04/02/18 16:51	04/02/18 18:42	1
Toluene-d8 (Surr)	101		75 - 120	04/02/18 16:51	04/03/18 19:50	1
Trifluorotoluene (Surr)	107		60 - 150	04/02/18 16:51	04/02/18 18:42	1
Trifluorotoluene (Surr)	105		60 - 150	04/02/18 16:51	04/03/18 19:50	1
4-Bromofluorobenzene (Surr)	103		47 - 150	04/02/18 16:51	04/02/18 18:42	1
4-Bromofluorobenzene (Surr)	100		47 - 150	04/02/18 16:51	04/03/18 19:50	1
Dibromofluoromethane (Surr)	100		80 - 118	04/02/18 16:51	04/02/18 18:42	1
Dibromofluoromethane (Surr)	102		80 - 118	04/02/18 16:51	04/03/18 19:50	1
1,2-Dichloroethane-d4 (Surr)	92		80 - 121	04/02/18 16:51	04/02/18 18:42	1
1,2-Dichloroethane-d4 (Surr)	107		80 - 121	04/02/18 16:51	04/03/18 19:50	1

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-270427/1-A
Matrix: Solid
Analysis Batch: 270429

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270427

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		20		ug/Kg		04/02/18 16:51	04/02/18 17:16	1
Toluene	ND		150		ug/Kg		04/02/18 16:51	04/02/18 17:16	1
Ethylbenzene	ND		40		ug/Kg		04/02/18 16:51	04/02/18 17:16	1
m-Xylene & p-Xylene	ND		200		ug/Kg		04/02/18 16:51	04/02/18 17:16	1
o-Xylene	ND		40		ug/Kg		04/02/18 16:51	04/02/18 17:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		75 - 120	04/02/18 16:51	04/02/18 17:16	1
Trifluorotoluene (Surr)	109		60 - 150	04/02/18 16:51	04/02/18 17:16	1
4-Bromofluorobenzene (Surr)	107		47 - 150	04/02/18 16:51	04/02/18 17:16	1
Dibromofluoromethane (Surr)	102		80 - 118	04/02/18 16:51	04/02/18 17:16	1
1,2-Dichloroethane-d4 (Surr)	98		80 - 121	04/02/18 16:51	04/02/18 17:16	1

Lab Sample ID: MB 580-270427/1-A
Matrix: Solid
Analysis Batch: 270532

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270427

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		20		ug/Kg		04/02/18 16:51	04/03/18 18:30	1
Toluene	ND		150		ug/Kg		04/02/18 16:51	04/03/18 18:30	1
Ethylbenzene	ND		40		ug/Kg		04/02/18 16:51	04/03/18 18:30	1
m-Xylene & p-Xylene	ND		200		ug/Kg		04/02/18 16:51	04/03/18 18:30	1
o-Xylene	ND		40		ug/Kg		04/02/18 16:51	04/03/18 18:30	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		75 - 120	04/02/18 16:51	04/03/18 18:30	1
Trifluorotoluene (Surr)	95		60 - 150	04/02/18 16:51	04/03/18 18:30	1
4-Bromofluorobenzene (Surr)	98		47 - 150	04/02/18 16:51	04/03/18 18:30	1
Dibromofluoromethane (Surr)	94		80 - 118	04/02/18 16:51	04/03/18 18:30	1
1,2-Dichloroethane-d4 (Surr)	105		80 - 121	04/02/18 16:51	04/03/18 18:30	1

Lab Sample ID: LCS 580-270427/2-A
Matrix: Solid
Analysis Batch: 270429

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270427

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzene	800	798		ug/Kg		100	79 - 135
Toluene	800	788		ug/Kg		98	80 - 125
Ethylbenzene	800	781		ug/Kg		98	80 - 127
m-Xylene & p-Xylene	800	811		ug/Kg		101	80 - 128
o-Xylene	800	774		ug/Kg		97	80 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	99		75 - 120
Trifluorotoluene (Surr)	105		60 - 150
4-Bromofluorobenzene (Surr)	99		47 - 150
Dibromofluoromethane (Surr)	104		80 - 118

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

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

Lab Sample ID: LCS 580-270427/2-A
Matrix: Solid
Analysis Batch: 270429

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270427

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		80 - 121

Lab Sample ID: LCS 580-270427/2-A
Matrix: Solid
Analysis Batch: 270532

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270427

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	800	789		ug/Kg		99	79 - 135
Toluene	800	774		ug/Kg		97	80 - 125
Ethylbenzene	800	802		ug/Kg		100	80 - 127
m-Xylene & p-Xylene	800	847		ug/Kg		106	80 - 128
o-Xylene	800	832		ug/Kg		104	80 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	97		75 - 120
Trifluorotoluene (Surr)	106		60 - 150
4-Bromofluorobenzene (Surr)	103		47 - 150
Dibromofluoromethane (Surr)	104		80 - 118
1,2-Dichloroethane-d4 (Surr)	104		80 - 121

Lab Sample ID: LCSD 580-270427/3-A
Matrix: Solid
Analysis Batch: 270429

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270427

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	800	955	*	ug/Kg		119	79 - 135	18	10
Toluene	800	961	*	ug/Kg		120	80 - 125	20	16
Ethylbenzene	800	1010	*	ug/Kg		126	80 - 127	25	10
m-Xylene & p-Xylene	800	1040	*	ug/Kg		130	80 - 128	25	13
o-Xylene	800	974	*	ug/Kg		122	80 - 125	23	14

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	97		75 - 120
Trifluorotoluene (Surr)	103		60 - 150
4-Bromofluorobenzene (Surr)	103		47 - 150
Dibromofluoromethane (Surr)	96		80 - 118
1,2-Dichloroethane-d4 (Surr)	92		80 - 121

Lab Sample ID: LCSD 580-270427/3-A
Matrix: Solid
Analysis Batch: 270532

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270427

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	800	820		ug/Kg		102	79 - 135	4	10
Toluene	800	750		ug/Kg		94	80 - 125	3	16
Ethylbenzene	800	835		ug/Kg		104	80 - 127	4	10
m-Xylene & p-Xylene	800	857		ug/Kg		107	80 - 128	1	13

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

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

Lab Sample ID: LCSD 580-270427/3-A
Matrix: Solid
Analysis Batch: 270532

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270427

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
o-Xylene	800	818		ug/Kg		102	80 - 125	2	14
Surrogate	%Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	89		75 - 120						
Trifluorotoluene (Surr)	109		60 - 150						
4-Bromofluorobenzene (Surr)	100		47 - 150						
Dibromofluoromethane (Surr)	108		80 - 118						
1,2-Dichloroethane-d4 (Surr)	105		80 - 121						

Lab Sample ID: MB 580-270724/5
Matrix: Water
Analysis Batch: 270724

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			04/05/18 16:50	1
Toluene	ND		2.0		ug/L			04/05/18 16:50	1
Ethylbenzene	ND		3.0		ug/L			04/05/18 16:50	1
m-Xylene & p-Xylene	ND		3.0		ug/L			04/05/18 16:50	1
o-Xylene	ND		2.0		ug/L			04/05/18 16:50	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		80 - 122					04/05/18 16:50	1
Trifluorotoluene (Surr)	111		80 - 120					04/05/18 16:50	1
4-Bromofluorobenzene (Surr)	102		75 - 125					04/05/18 16:50	1
Dibromofluoromethane (Surr)	111		77 - 120					04/05/18 16:50	1
1,2-Dichloroethane-d4 (Surr)	109		80 - 126					04/05/18 16:50	1

Lab Sample ID: LCS 580-270724/6
Matrix: Water
Analysis Batch: 270724

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	11.2		ug/L		112	75 - 120
Toluene	10.0	10.7		ug/L		107	75 - 120
Ethylbenzene	10.0	10.4		ug/L		104	75 - 120
m-Xylene & p-Xylene	10.0	10.4		ug/L		104	75 - 120
o-Xylene	10.0	11.0		ug/L		110	74 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	99		80 - 122				
Trifluorotoluene (Surr)	112		80 - 120				
4-Bromofluorobenzene (Surr)	100		75 - 125				
Dibromofluoromethane (Surr)	109		77 - 120				
1,2-Dichloroethane-d4 (Surr)	104		80 - 126				

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

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

Lab Sample ID: LCSD 580-270724/7
Matrix: Water
Analysis Batch: 270724

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.3		ug/L		103	75 - 120	9	14
Toluene	10.0	9.94		ug/L		99	75 - 120	7	13
Ethylbenzene	10.0	9.70		ug/L		97	75 - 120	7	14
m-Xylene & p-Xylene	10.0	9.61		ug/L		96	75 - 120	8	14
o-Xylene	10.0	10.1		ug/L		101	74 - 120	8	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	99		80 - 122
Trifluorotoluene (Surr)	112		80 - 120
4-Bromofluorobenzene (Surr)	100		75 - 125
Dibromofluoromethane (Surr)	109		77 - 120
1,2-Dichloroethane-d4 (Surr)	106		80 - 126

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-270232/1-A
Matrix: Solid
Analysis Batch: 270269

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270232

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
2-Methylnaphthalene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Acenaphthene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Acenaphthylene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Anthracene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Benzo[a]anthracene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Benzo[a]pyrene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Benzo[b]fluoranthene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Benzo[g,h,i]perylene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Benzo[k]fluoranthene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Chrysene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Dibenz(a,h)anthracene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Fluoranthene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Fluorene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Indeno[1,2,3-cd]pyrene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Naphthalene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Phenanthrene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1
Pyrene	ND		5.0		ug/Kg		03/30/18 09:39	03/30/18 15:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	108		68 - 138	03/30/18 09:39	03/30/18 15:42	1

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-270232/2-A
Matrix: Solid
Analysis Batch: 270269

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270232

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1-Methylnaphthalene	1000	871		ug/Kg		87	71 - 120
2-Methylnaphthalene	1000	878		ug/Kg		88	75 - 120
Acenaphthene	1000	843		ug/Kg		84	68 - 120
Acenaphthylene	1000	882		ug/Kg		88	68 - 120
Anthracene	1000	898		ug/Kg		90	73 - 125
Benzo[a]anthracene	1000	940		ug/Kg		94	66 - 120
Benzo[a]pyrene	1000	932		ug/Kg		93	72 - 124
Benzo[b]fluoranthene	1000	990		ug/Kg		99	63 - 121
Benzo[g,h,i]perylene	1000	964		ug/Kg		96	63 - 124
Benzo[k]fluoranthene	1000	871		ug/Kg		87	63 - 129
Chrysene	1000	853		ug/Kg		85	69 - 120
Dibenz(a,h)anthracene	1000	919		ug/Kg		92	70 - 125
Fluoranthene	1000	912		ug/Kg		91	65 - 125
Fluorene	1000	887		ug/Kg		89	66 - 121
Indeno[1,2,3-cd]pyrene	1000	913		ug/Kg		91	65 - 121
Naphthalene	1000	839		ug/Kg		84	70 - 120
Phenanthrene	1000	821		ug/Kg		82	73 - 120
Pyrene	1000	873		ug/Kg		87	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	101		68 - 138

Lab Sample ID: 580-76096-31 MS
Matrix: Solid
Analysis Batch: 270269

Client Sample ID: FOCB-SB01-5'
Prep Type: Total/NA
Prep Batch: 270232

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1-Methylnaphthalene	ND		1190	990		ug/Kg	☼	83	71 - 120
2-Methylnaphthalene	ND		1190	1000		ug/Kg	☼	84	75 - 120
Acenaphthene	ND		1190	950		ug/Kg	☼	80	68 - 120
Acenaphthylene	ND		1190	961		ug/Kg	☼	81	68 - 120
Anthracene	ND		1190	984		ug/Kg	☼	83	73 - 125
Benzo[a]anthracene	ND		1190	1020		ug/Kg	☼	86	66 - 120
Benzo[a]pyrene	ND		1190	976		ug/Kg	☼	82	72 - 124
Benzo[b]fluoranthene	ND		1190	1010		ug/Kg	☼	85	63 - 121
Benzo[g,h,i]perylene	ND		1190	977		ug/Kg	☼	82	63 - 124
Benzo[k]fluoranthene	ND		1190	1010		ug/Kg	☼	85	63 - 129
Chrysene	ND		1190	972		ug/Kg	☼	82	69 - 120
Dibenz(a,h)anthracene	ND		1190	976		ug/Kg	☼	82	70 - 125
Fluoranthene	ND		1190	1040		ug/Kg	☼	88	65 - 125
Fluorene	ND		1190	991		ug/Kg	☼	83	66 - 121
Indeno[1,2,3-cd]pyrene	ND		1190	991		ug/Kg	☼	84	65 - 121
Naphthalene	ND		1190	950		ug/Kg	☼	80	70 - 120
Phenanthrene	ND		1190	928		ug/Kg	☼	78	73 - 120
Pyrene	ND		1190	991		ug/Kg	☼	83	64 - 120

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 580-76096-31 MS
Matrix: Solid
Analysis Batch: 270269

Client Sample ID: FOCB-SB01-5'
Prep Type: Total/NA
Prep Batch: 270232

Surrogate	%Recovery	MS MS Qualifier	Limits
Terphenyl-d14	97		68 - 138

Lab Sample ID: 580-76096-31 MSD
Matrix: Solid
Analysis Batch: 270269

Client Sample ID: FOCB-SB01-5'
Prep Type: Total/NA
Prep Batch: 270232

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1-Methylnaphthalene	ND		1180	912		ug/Kg	*	77	71 - 120	8	40
2-Methylnaphthalene	ND		1180	944		ug/Kg	*	80	75 - 120	6	40
Acenaphthene	ND		1180	918		ug/Kg	*	78	68 - 120	3	40
Acenaphthylene	ND		1180	937		ug/Kg	*	80	68 - 120	2	40
Anthracene	ND		1180	937		ug/Kg	*	80	73 - 125	5	40
Benzo[a]anthracene	ND		1180	997		ug/Kg	*	85	66 - 120	2	40
Benzo[a]pyrene	ND		1180	926		ug/Kg	*	79	72 - 124	5	40
Benzo[b]fluoranthene	ND		1180	951		ug/Kg	*	81	63 - 121	6	40
Benzo[g,h,i]perylene	ND		1180	938		ug/Kg	*	80	63 - 124	4	40
Benzo[k]fluoranthene	ND		1180	947		ug/Kg	*	80	63 - 129	6	40
Chrysene	ND		1180	905		ug/Kg	*	77	69 - 120	7	40
Dibenz(a,h)anthracene	ND		1180	935		ug/Kg	*	79	70 - 125	4	40
Fluoranthene	ND		1180	979		ug/Kg	*	83	65 - 125	6	40
Fluorene	ND		1180	949		ug/Kg	*	81	66 - 121	4	40
Indeno[1,2,3-cd]pyrene	ND		1180	946		ug/Kg	*	80	65 - 121	5	40
Naphthalene	ND		1180	898		ug/Kg	*	76	70 - 120	6	40
Phenanthrene	ND		1180	869		ug/Kg	*	74	73 - 120	7	40
Pyrene	ND		1180	930		ug/Kg	*	79	64 - 120	6	40

Surrogate	%Recovery	MSD MSD Qualifier	Limits
Terphenyl-d14	92		68 - 138

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-270230/1-A
Matrix: Solid
Analysis Batch: 270585

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270230

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		03/30/18 09:28	04/04/18 14:44	1
PCB-1221	ND		0.020		mg/Kg		03/30/18 09:28	04/04/18 14:44	1
PCB-1232	ND		0.020		mg/Kg		03/30/18 09:28	04/04/18 14:44	1
PCB-1242	ND		0.020		mg/Kg		03/30/18 09:28	04/04/18 14:44	1
PCB-1248	ND		0.020		mg/Kg		03/30/18 09:28	04/04/18 14:44	1
PCB-1254	ND		0.020		mg/Kg		03/30/18 09:28	04/04/18 14:44	1
PCB-1260	ND		0.020		mg/Kg		03/30/18 09:28	04/04/18 14:44	1

Surrogate	%Recovery	MB MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	119		25 - 149	03/30/18 09:28	04/04/18 14:44	1
Tetrachloro-m-xylene	100		35 - 130	03/30/18 09:28	04/04/18 14:44	1

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Lab Sample ID: MB 580-270230/1-A
Matrix: Solid
Analysis Batch: 270708

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270230

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		03/30/18 09:28	04/05/18 11:29	1
PCB-1221	ND		0.020		mg/Kg		03/30/18 09:28	04/05/18 11:29	1
PCB-1232	ND		0.020		mg/Kg		03/30/18 09:28	04/05/18 11:29	1
PCB-1242	ND		0.020		mg/Kg		03/30/18 09:28	04/05/18 11:29	1
PCB-1248	ND		0.020		mg/Kg		03/30/18 09:28	04/05/18 11:29	1
PCB-1254	ND		0.020		mg/Kg		03/30/18 09:28	04/05/18 11:29	1
PCB-1260	ND		0.020		mg/Kg		03/30/18 09:28	04/05/18 11:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	122		25 - 149	03/30/18 09:28	04/05/18 11:29	1
Tetrachloro-m-xylene	101		35 - 130	03/30/18 09:28	04/05/18 11:29	1

Lab Sample ID: LCS 580-270230/2-A
Matrix: Solid
Analysis Batch: 270585

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270230

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	0.100	0.102		mg/Kg		102	69 - 126
PCB-1260	0.100	0.114		mg/Kg		114	68 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	120		25 - 149
Tetrachloro-m-xylene	103		35 - 130

Lab Sample ID: 580-76096-31 MS
Matrix: Solid
Analysis Batch: 270585

Client Sample ID: FOCB-SB01-5'
Prep Type: Total/NA
Prep Batch: 270230

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	ND		0.117	0.0940		mg/Kg	☼	80	69 - 126
PCB-1260	ND		0.117	0.105		mg/Kg	☼	90	68 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
DCB Decachlorobiphenyl	90		25 - 149
Tetrachloro-m-xylene	79		35 - 130

Lab Sample ID: 580-76096-31 MSD
Matrix: Solid
Analysis Batch: 270585

Client Sample ID: FOCB-SB01-5'
Prep Type: Total/NA
Prep Batch: 270230

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	ND		0.118	0.0949		mg/Kg	☼	80	69 - 126	1	17
PCB-1260	ND		0.118	0.110		mg/Kg	☼	93	68 - 136	5	21

Surrogate	MSD %Recovery	MSD Qualifier	Limits
DCB Decachlorobiphenyl	90		25 - 149
Tetrachloro-m-xylene	82		35 - 130

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-270084/1-A
Matrix: Solid
Analysis Batch: 270159

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270084

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/28/18 13:34	03/29/18 17:47	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/28/18 13:34	03/29/18 17:47	1
Mineral oil	ND		50		mg/Kg		03/28/18 13:34	03/29/18 17:47	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	85		50 - 150				03/28/18 13:34	03/29/18 17:47	1

Lab Sample ID: MB 580-270084/1-A
Matrix: Solid
Analysis Batch: 270178

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270084

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/28/18 13:34	03/29/18 18:41	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/28/18 13:34	03/29/18 18:41	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	95		50 - 150				03/28/18 13:34	03/29/18 18:41	1

Lab Sample ID: LCS 580-270084/2-A
Matrix: Solid
Analysis Batch: 270178

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270084

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
#2 Diesel (C10-C24)	500	466		mg/Kg		93	70 - 125		
Motor Oil (>C24-C36)	500	477		mg/Kg		95	70 - 119		
Surrogate	%Recovery	LCS Qualifier	Limits						
<i>o</i> -Terphenyl	91		50 - 150						

Lab Sample ID: LCSD 580-270084/3-A
Matrix: Solid
Analysis Batch: 270178

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270084

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	500	455		mg/Kg		91	70 - 125	2	16
Motor Oil (>C24-C36)	500	470		mg/Kg		94	70 - 119	1	16
Surrogate	%Recovery	LCSD Qualifier	Limits						
<i>o</i> -Terphenyl	92		50 - 150						

Lab Sample ID: 580-76096-15 DU
Matrix: Solid
Analysis Batch: 270159

Client Sample ID: WY-SG06-CSB
Prep Type: Total/NA
Prep Batch: 270084

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
#2 Diesel (C10-C24)	ND		ND		mg/Kg	☼	NC	35
Motor Oil (>C24-C36)	ND		ND	F5	mg/Kg	☼	43	35

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: 580-76096-15 DU
Matrix: Solid
Analysis Batch: 270159

Client Sample ID: WY-SG06-CSB
Prep Type: Total/NA
Prep Batch: 270084

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Mineral oil	ND		ND		mg/Kg	*	16	35
Surrogate	%Recovery	DU Qualifier	Limits					
<i>o</i> -Terphenyl	84		50 - 150					

Lab Sample ID: MB 580-270193/1-A
Matrix: Solid
Analysis Batch: 270227

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270193

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/29/18 15:08	03/30/18 16:19	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/29/18 15:08	03/30/18 16:19	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	97		50 - 150				03/29/18 15:08	03/30/18 16:19	1

Lab Sample ID: MB 580-270193/1-A
Matrix: Solid
Analysis Batch: 270364

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270193

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mineral oil	ND		50		mg/Kg		03/29/18 15:08	04/02/18 12:28	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	88		50 - 150				03/29/18 15:08	04/02/18 12:28	1

Lab Sample ID: LCS 580-270193/2-A
Matrix: Solid
Analysis Batch: 270227

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270193

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	455		mg/Kg		91	70 - 125
Motor Oil (>C24-C36)	500	447		mg/Kg		89	70 - 119
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
<i>o</i> -Terphenyl	101		50 - 150				

Lab Sample ID: LCSD 580-270193/3-A
Matrix: Solid
Analysis Batch: 270227

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270193

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
#2 Diesel (C10-C24)	500	455		mg/Kg		91	70 - 125	0	16
Motor Oil (>C24-C36)	500	453		mg/Kg		91	70 - 119	1	16
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
<i>o</i> -Terphenyl	98		50 - 150						

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Lab Sample ID: 580-76096-25 DU
Matrix: Solid
Analysis Batch: 270227

Client Sample ID: SW16
Prep Type: Total/NA
Prep Batch: 270193

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
#2 Diesel (C10-C24)	ND		ND		mg/Kg	☒	NC	35
Motor Oil (>C24-C36)	ND		ND		mg/Kg	☒	NC	35
Surrogate	%Recovery	DU Qualifier	Limits					
<i>o-Terphenyl</i>	90		50 - 150					

Lab Sample ID: 580-76096-25 DU
Matrix: Solid
Analysis Batch: 270364

Client Sample ID: SW16
Prep Type: Total/NA
Prep Batch: 270193

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Mineral oil	ND		ND		mg/Kg	☒	NC	35
Surrogate	%Recovery	DU Qualifier	Limits					
<i>o-Terphenyl</i>	80		50 - 150					

Lab Sample ID: MB 580-270554/1-A
Matrix: Water
Analysis Batch: 270745

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270554

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11		mg/L		04/04/18 09:36	04/05/18 21:16	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		04/04/18 09:36	04/05/18 21:16	1
Surrogate	%Recovery	MB Qualifier	Limits		Prepared		Analyzed		Dil Fac
<i>o-Terphenyl</i>	74		50 - 150		04/04/18 09:36		04/05/18 21:16		1

Lab Sample ID: LCS 580-270554/2-A
Matrix: Water
Analysis Batch: 270745

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270554

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (>C24-C36)	2.00	1.75		mg/L		87	64 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
<i>o-Terphenyl</i>	79		50 - 150				

Lab Sample ID: LCSD 580-270554/3-A
Matrix: Water
Analysis Batch: 270745

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270554

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Motor Oil (>C24-C36)	2.00	1.41	*	mg/L		71	64 - 120	21	17
Surrogate	%Recovery	LCSD Qualifier	Limits						
<i>o-Terphenyl</i>	65		50 - 150						

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 580-270174/21-A
Matrix: Solid
Analysis Batch: 270273

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270174

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		3.0		mg/Kg		03/29/18 13:44	03/30/18 09:30	1
Barium	ND		0.50		mg/Kg		03/29/18 13:44	03/30/18 09:30	1
Cadmium	ND		1.0		mg/Kg		03/29/18 13:44	03/30/18 09:30	1
Chromium	ND		1.3		mg/Kg		03/29/18 13:44	03/30/18 09:30	1
Lead	ND		1.5		mg/Kg		03/29/18 13:44	03/30/18 09:30	1
Selenium	ND		5.0		mg/Kg		03/29/18 13:44	03/30/18 09:30	1
Silver	ND		2.5		mg/Kg		03/29/18 13:44	03/30/18 09:30	1

Lab Sample ID: LCS 580-270174/22-A
Matrix: Solid
Analysis Batch: 270273

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270174

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	200	184		mg/Kg		92	80 - 120
Barium	200	195		mg/Kg		97	80 - 120
Cadmium	5.00	4.70		mg/Kg		94	80 - 120
Chromium	20.0	19.9		mg/Kg		100	80 - 120
Lead	50.0	46.9		mg/Kg		94	80 - 120
Selenium	200	181		mg/Kg		90	80 - 120
Silver	30.0	29.3		mg/Kg		98	80 - 120

Lab Sample ID: LCSD 580-270174/23-A
Matrix: Solid
Analysis Batch: 270273

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270174

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Arsenic	200	185		mg/Kg		93	80 - 120	1	20
Barium	200	198		mg/Kg		99	80 - 120	2	20
Cadmium	5.00	4.76		mg/Kg		95	80 - 120	1	20
Chromium	20.0	20.2		mg/Kg		101	80 - 120	2	20
Lead	50.0	47.5		mg/Kg		95	80 - 120	1	20
Selenium	200	180		mg/Kg		90	80 - 120	0	20
Silver	30.0	29.9		mg/Kg		100	80 - 120	2	20

Lab Sample ID: 580-76096-20 MS
Matrix: Solid
Analysis Batch: 270273

Client Sample ID: WY-SG05-CSB
Prep Type: Total/NA
Prep Batch: 270174

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Arsenic	11		176	173		mg/Kg	☼	92	80 - 120
Barium	100		176	249		mg/Kg	☼	84	80 - 120
Cadmium	0.94		4.39	5.13		mg/Kg	☼	95	80 - 120
Chromium	31		17.6	45.5		mg/Kg	☼	83	80 - 120
Lead	17		43.9	58.8		mg/Kg	☼	95	80 - 120
Selenium	ND		176	155		mg/Kg	☼	88	80 - 120
Silver	ND		26.3	26.1		mg/Kg	☼	97	80 - 120

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 580-76096-20 MSD
Matrix: Solid
Analysis Batch: 270273

Client Sample ID: WY-SG05-CSB
Prep Type: Total/NA
Prep Batch: 270174

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	11		189	184		mg/Kg	☼	92	80 - 120	6	20
Barium	100		189	274		mg/Kg	☼	91	80 - 120	10	20
Cadmium	0.94		4.72	5.54		mg/Kg	☼	98	80 - 120	8	20
Chromium	31		18.9	52.0		mg/Kg	☼	112	80 - 120	13	20
Lead	17		47.2	65.2		mg/Kg	☼	102	80 - 120	10	20
Selenium	ND		189	163		mg/Kg	☼	87	80 - 120	5	20
Silver	ND		28.3	27.6		mg/Kg	☼	95	80 - 120	6	20

Lab Sample ID: 580-76096-20 DU
Matrix: Solid
Analysis Batch: 270273

Client Sample ID: WY-SG05-CSB
Prep Type: Total/NA
Prep Batch: 270174

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Arsenic	11		16.1	F3	mg/Kg	☼	40	20
Barium	100		86.0		mg/Kg	☼	18	20
Cadmium	0.94		ND		mg/Kg	☼	NC	20
Chromium	31		27.6		mg/Kg	☼	11	20
Lead	17		25.4	F3	mg/Kg	☼	40	20
Selenium	ND		ND		mg/Kg	☼	NC	20
Silver	ND		ND		mg/Kg	☼	NC	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 580-270247/20-A
Matrix: Water
Analysis Batch: 270419

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 270247

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050		mg/L		03/30/18 10:21	04/02/18 13:06	5
Barium	ND		0.0060		mg/L		03/30/18 10:21	04/02/18 13:06	5
Cadmium	ND		0.0020		mg/L		03/30/18 10:21	04/02/18 13:06	5
Chromium	ND		0.0020		mg/L		03/30/18 10:21	04/02/18 13:06	5
Lead	ND		0.0040		mg/L		03/30/18 10:21	04/02/18 13:06	5
Selenium	ND		0.040		mg/L		03/30/18 10:21	04/02/18 13:06	5
Silver	ND		0.0020		mg/L		03/30/18 10:21	04/02/18 13:06	5

Lab Sample ID: LCS 580-270247/21-A
Matrix: Water
Analysis Batch: 270419

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 270247

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	4.00	4.05		mg/L		101	80 - 120
Barium	4.00	4.13		mg/L		103	80 - 120
Cadmium	0.100	0.101		mg/L		101	80 - 120
Chromium	0.400	0.405		mg/L		101	80 - 120
Lead	1.00	1.02		mg/L		102	80 - 120
Selenium	4.00	4.02		mg/L		101	80 - 120
Silver	0.600	0.629		mg/L		105	80 - 120

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-270247/22-A
Matrix: Water
Analysis Batch: 270419

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 270247

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Arsenic	4.00	4.02		mg/L		100	80 - 120	1	20
Barium	4.00	4.07		mg/L		102	80 - 120	2	20
Cadmium	0.100	0.102		mg/L		102	80 - 120	2	20
Chromium	0.400	0.407		mg/L		102	80 - 120	1	20
Lead	1.00	1.01		mg/L		101	80 - 120	1	20
Selenium	4.00	3.97		mg/L		99	80 - 120	1	20
Silver	0.600	0.630		mg/L		105	80 - 120	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 580-270138/19-A
Matrix: Water
Analysis Batch: 270183

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270138

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00030		mg/L		03/29/18 09:26	03/29/18 12:35	1

Lab Sample ID: LCS 580-270138/20-A
Matrix: Water
Analysis Batch: 270183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270138

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00200	0.00204		mg/L		102	80 - 120

Lab Sample ID: LCSD 580-270138/21-A
Matrix: Water
Analysis Batch: 270183

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270138

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Mercury	0.00200	0.00196		mg/L		98	80 - 120	4	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 580-270142/10-A
Matrix: Solid
Analysis Batch: 270183

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270142

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.030		mg/Kg		03/29/18 10:04	03/29/18 13:31	1

Lab Sample ID: LCS 580-270142/11-A
Matrix: Solid
Analysis Batch: 270183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270142

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.167	0.161		mg/Kg		96	80 - 120

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 580-270142/12-A
Matrix: Solid
Analysis Batch: 270183

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270142

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.167	0.162		mg/Kg		97	80 - 120	1	20

Lab Sample ID: 580-76096-20 MS
Matrix: Solid
Analysis Batch: 270183

Client Sample ID: WY-SG05-CSB
Prep Type: Total/NA
Prep Batch: 270142

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.065		0.164	0.238		mg/Kg	☼	105	80 - 120		

Lab Sample ID: 580-76096-20 MSD
Matrix: Solid
Analysis Batch: 270183

Client Sample ID: WY-SG05-CSB
Prep Type: Total/NA
Prep Batch: 270142

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.065		0.149	0.217		mg/Kg	☼	102	80 - 120	10	20

Lab Sample ID: 580-76096-20 DU
Matrix: Solid
Analysis Batch: 270183

Client Sample ID: WY-SG05-CSB
Prep Type: Total/NA
Prep Batch: 270142

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.065			0.0560		mg/Kg	☼			15	20

Method: D 2216 - Percent Moisture

Lab Sample ID: 580-76096-32 DU
Matrix: Solid
Analysis Batch: 270213

Client Sample ID: FOCB-SB02-5'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Percent Solids	84.5			83.1		%				2	20
Percent Moisture	15.5			16.9		%				9	20

Lab Sample ID: 580-76096-34 DU
Matrix: Solid
Analysis Batch: 270213

Client Sample ID: FOCB-SB04-5'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Percent Solids	88.4			88.1		%				0.4	20
Percent Moisture	11.6			11.9		%				3	20

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW04
Date Collected: 03/26/18 10:15
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: SW04
Date Collected: 03/26/18 10:15
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-1
Matrix: Solid
Percent Solids: 82.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/30/18 18:35	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 14:09	ERZ	TAL SEA

Client Sample ID: SW05
Date Collected: 03/26/18 10:45
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: SW05
Date Collected: 03/26/18 10:45
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-2
Matrix: Solid
Percent Solids: 85.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/30/18 18:57	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 14:30	ERZ	TAL SEA

Client Sample ID: SW06
Date Collected: 03/26/18 11:15
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: SW06
Date Collected: 03/26/18 11:15
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-3
Matrix: Solid
Percent Solids: 77.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW06

Date Collected: 03/26/18 11:15

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-3

Matrix: Solid

Percent Solids: 77.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	270227	03/30/18 19:19	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 14:50	ERZ	TAL SEA

Client Sample ID: SW07

Date Collected: 03/26/18 11:45

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: SW07

Date Collected: 03/26/18 11:45

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-4

Matrix: Solid

Percent Solids: 86.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/30/18 19:42	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 15:10	ERZ	TAL SEA

Client Sample ID: SW08

Date Collected: 03/26/18 14:30

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: SW08

Date Collected: 03/26/18 14:30

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-5

Matrix: Solid

Percent Solids: 81.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/30/18 20:26	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 15:31	ERZ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW09
Date Collected: 03/26/18 14:00
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: SW09
Date Collected: 03/26/18 14:00
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-6
Matrix: Solid
Percent Solids: 84.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/30/18 20:48	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 15:51	ERZ	TAL SEA

Client Sample ID: SW10
Date Collected: 03/26/18 14:15
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: SW10
Date Collected: 03/26/18 14:15
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-7
Matrix: Solid
Percent Solids: 84.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/30/18 21:10	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 16:11	ERZ	TAL SEA

Client Sample ID: SW11
Date Collected: 03/26/18 14:50
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: SW11
Date Collected: 03/26/18 14:50
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-8
Matrix: Solid
Percent Solids: 83.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW11

Date Collected: 03/26/18 14:50
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-8

Matrix: Solid
Percent Solids: 83.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	270227	03/30/18 21:32	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 16:32	ERZ	TAL SEA

Client Sample ID: SW12

Date Collected: 03/26/18 15:20
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-9

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: SW12

Date Collected: 03/26/18 15:20
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-9

Matrix: Solid
Percent Solids: 79.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/30/18 21:54	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 16:52	ERZ	TAL SEA

Client Sample ID: SW13

Date Collected: 03/26/18 15:30
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-10

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: SW13

Date Collected: 03/26/18 15:30
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-10

Matrix: Solid
Percent Solids: 80.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/30/18 22:16	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 17:12	ERZ	TAL SEA

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW14
Date Collected: 03/26/18 15:45
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-11
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: SW14
Date Collected: 03/26/18 15:45
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-11
Matrix: Solid
Percent Solids: 85.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/30/18 22:39	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 17:53	ERZ	TAL SEA

Client Sample ID: SW15
Date Collected: 03/26/18 16:05
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-12
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: SW15
Date Collected: 03/26/18 16:05
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-12
Matrix: Solid
Percent Solids: 85.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/30/18 23:01	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 18:14	ERZ	TAL SEA

Client Sample ID: WY-SG06-CSB
Date Collected: 03/26/18 16:20
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-15
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270077	03/28/18 14:19	TTN	TAL SEA

Client Sample ID: WY-SG06-CSB
Date Collected: 03/26/18 16:20
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-15
Matrix: Solid
Percent Solids: 89.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270084	03/28/18 13:34	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: WY-SG06-CSB

Lab Sample ID: 580-76096-15

Date Collected: 03/26/18 16:20

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 89.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	270159	03/29/18 18:07	ADB	TAL SEA

Client Sample ID: WY-SG05-CSB

Lab Sample ID: 580-76096-20

Date Collected: 03/26/18 16:50

Matrix: Solid

Date Received: 03/27/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270077	03/28/18 14:19	TTN	TAL SEA

Client Sample ID: WY-SG05-CSB

Lab Sample ID: 580-76096-20

Date Collected: 03/26/18 16:50

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 86.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270084	03/28/18 13:34	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/29/18 18:47	ADB	TAL SEA
Total/NA	Prep	3050B			270174	03/29/18 13:44	ASJ	TAL SEA
Total/NA	Analysis	6010C		1	270273	03/30/18 09:39	HJM	TAL SEA
Total/NA	Prep	7471A			270142	03/29/18 10:04	ASJ	TAL SEA
Total/NA	Analysis	7471A		1	270183	03/29/18 13:42	FCW	TAL SEA

Client Sample ID: WY-SG14-CSB

Lab Sample ID: 580-76096-24

Date Collected: 03/26/18 15:25

Matrix: Solid

Date Received: 03/27/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270077	03/28/18 14:19	TTN	TAL SEA

Client Sample ID: WY-SG14-CSB

Lab Sample ID: 580-76096-24

Date Collected: 03/26/18 15:25

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 87.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270084	03/28/18 13:34	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270159	03/29/18 19:08	ADB	TAL SEA
Total/NA	Prep	3050B			270174	03/29/18 13:44	ASJ	TAL SEA
Total/NA	Analysis	6010C		1	270273	03/30/18 10:03	HJM	TAL SEA
Total/NA	Prep	7471A			270142	03/29/18 10:04	ASJ	TAL SEA
Total/NA	Analysis	7471A		1	270183	03/29/18 13:52	FCW	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: SW16

Date Collected: 03/26/18 16:45

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-25

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: SW16

Date Collected: 03/26/18 16:45

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-25

Matrix: Solid

Percent Solids: 85.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/30/18 23:22	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 18:34	ERZ	TAL SEA

Client Sample ID: SW17

Date Collected: 03/26/18 17:00

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-26

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: SW17

Date Collected: 03/26/18 17:00

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-26

Matrix: Solid

Percent Solids: 80.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/31/18 00:28	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 19:14	ERZ	TAL SEA

Client Sample ID: WY-SG13-CSB

Date Collected: 03/26/18 11:20

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-30

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270077	03/28/18 14:19	TTN	TAL SEA

Client Sample ID: WY-SG13-CSB

Date Collected: 03/26/18 11:20

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-30

Matrix: Solid

Percent Solids: 84.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270084	03/28/18 13:34	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: WY-SG13-CSB

Lab Sample ID: 580-76096-30

Date Collected: 03/26/18 11:20

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 84.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	270159	03/29/18 19:28	ADB	TAL SEA

Client Sample ID: FOCB-SB01-5'

Lab Sample ID: 580-76096-31

Date Collected: 03/26/18 11:50

Matrix: Solid

Date Received: 03/27/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			270427	04/02/18 16:51	DSO	TAL SEA
Total/NA	Analysis	8260C		1	270429	04/02/18 19:08	TL1	TAL SEA
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: FOCB-SB01-5'

Lab Sample ID: 580-76096-31

Date Collected: 03/26/18 11:50

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 82.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270232	03/30/18 09:39	TTN	TAL SEA
Total/NA	Analysis	8270D SIM		1	270269	03/30/18 16:32	ERZ	TAL SEA
Total/NA	Prep	3546			270230	03/30/18 09:28	TTN	TAL SEA
Total/NA	Analysis	8082A		1	270585	04/04/18 15:18	Y1W	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/31/18 00:50	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 19:35	ERZ	TAL SEA

Client Sample ID: FOCB-SB02-5'

Lab Sample ID: 580-76096-32

Date Collected: 03/26/18 12:30

Matrix: Solid

Date Received: 03/27/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			270427	04/02/18 16:51	DSO	TAL SEA
Total/NA	Analysis	8260C		1	270429	04/02/18 19:35	TL1	TAL SEA
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: FOCB-SB02-5'

Lab Sample ID: 580-76096-32

Date Collected: 03/26/18 12:30

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 84.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270232	03/30/18 09:39	TTN	TAL SEA
Total/NA	Analysis	8270D SIM		1	270269	03/30/18 17:46	ERZ	TAL SEA
Total/NA	Prep	3546			270230	03/30/18 09:28	TTN	TAL SEA
Total/NA	Analysis	8082A		1	270585	04/04/18 16:08	Y1W	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West

TestAmerica Job ID: 580-76096-1

Project/Site: Cushman Phase II ESA

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/31/18 01:12	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 19:55	ERZ	TAL SEA

Client Sample ID: FOCB-SB03-5'

Lab Sample ID: 580-76096-33

Date Collected: 03/26/18 14:00

Matrix: Solid

Date Received: 03/27/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			270427	04/02/18 16:51	DSO	TAL SEA
Total/NA	Analysis	8260C		1	270429	04/02/18 20:02	TL1	TAL SEA
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: FOCB-SB03-5'

Lab Sample ID: 580-76096-33

Date Collected: 03/26/18 14:00

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 84.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270232	03/30/18 09:39	TTN	TAL SEA
Total/NA	Analysis	8270D SIM		1	270269	03/30/18 18:10	ERZ	TAL SEA
Total/NA	Prep	3546	DL		270230	03/30/18 09:28	TTN	TAL SEA
Total/NA	Analysis	8082A	DL	10	270708	04/05/18 12:46	Y1W	TAL SEA
Total/NA	Prep	3546			270230	03/30/18 09:28	TTN	TAL SEA
Total/NA	Analysis	8082A		1	270585	04/04/18 16:25	Y1W	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/31/18 01:34	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 20:15	ERZ	TAL SEA

Client Sample ID: FOCB-SB04-5'

Lab Sample ID: 580-76096-34

Date Collected: 03/26/18 14:30

Matrix: Solid

Date Received: 03/27/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			270427	04/02/18 16:51	DSO	TAL SEA
Total/NA	Analysis	8260C		1	270429	04/02/18 20:29	TL1	TAL SEA
Total/NA	Analysis	D 2216		1	270213	03/29/18 16:42	TTN	TAL SEA

Client Sample ID: FOCB-SB04-5'

Lab Sample ID: 580-76096-34

Date Collected: 03/26/18 14:30

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270232	03/30/18 09:39	TTN	TAL SEA
Total/NA	Analysis	8270D SIM		1	270269	03/30/18 18:35	ERZ	TAL SEA
Total/NA	Prep	3546			270230	03/30/18 09:28	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: FOCB-SB04-5'

Lab Sample ID: 580-76096-34

Date Collected: 03/26/18 14:30

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8082A		1	270585	04/04/18 16:41	Y1W	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270227	03/31/18 01:56	ADB	TAL SEA
Total/NA	Prep	3546			270193	03/29/18 15:08	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270364	04/02/18 20:35	ERZ	TAL SEA

Client Sample ID: RNS-10

Lab Sample ID: 580-76096-37

Date Collected: 03/26/18 17:20

Matrix: Water

Date Received: 03/27/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			270554	04/04/18 09:36	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270745	04/06/18 02:47	ADB	TAL SEA
Total/NA	Prep	3510C			270554	04/04/18 09:36	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271090	04/10/18 14:34	ERZ	TAL SEA
Total Recoverable	Prep	3005A			270247	03/30/18 10:21	ASJ	TAL SEA
Total Recoverable	Analysis	6020A		5	270419	04/02/18 14:49	FCW	TAL SEA
Total/NA	Prep	7470A			270138	03/29/18 09:26	ASJ	TAL SEA
Total/NA	Analysis	7470A		1	270183	03/29/18 13:18	FCW	TAL SEA

Client Sample ID: RNS-12

Lab Sample ID: 580-76096-38

Date Collected: 03/27/18 09:00

Matrix: Water

Date Received: 03/27/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			270554	04/04/18 09:36	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270745	04/06/18 03:09	ADB	TAL SEA
Total/NA	Prep	3510C			270554	04/04/18 09:36	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271090	04/10/18 15:18	ERZ	TAL SEA

Client Sample ID: Trip Blank(water)

Lab Sample ID: 580-76096-39

Date Collected: 03/26/18 00:01

Matrix: Water

Date Received: 03/27/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	270724	04/05/18 19:42	D1R	TAL SEA

Client Sample ID: Trip Blank(Soil)

Lab Sample ID: 580-76096-40

Date Collected: 03/26/18 00:01

Matrix: Solid

Date Received: 03/27/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			270427	04/02/18 16:51	DSO	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Client Sample ID: Trip Blank(Soil)

Lab Sample ID: 580-76096-40

Date Collected: 03/26/18 00:01

Matrix: Solid

Date Received: 03/27/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	270429	04/02/18 18:42	TL1	TAL SEA
Total/NA	Prep	5035			270427	04/02/18 16:51	DSO	TAL SEA
Total/NA	Analysis	8260C		1	270532	04/03/18 19:50	DSO	TAL SEA

Laboratory References:

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



Accreditation/Certification Summary

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3050B	Solid	Arsenic
6010C	3050B	Solid	Barium
6010C	3050B	Solid	Cadmium
6010C	3050B	Solid	Chromium
6010C	3050B	Solid	Lead
6010C	3050B	Solid	Selenium
6010C	3050B	Solid	Silver
6020A	3005A	Water	Arsenic
6020A	3005A	Water	Barium
6020A	3005A	Water	Cadmium
6020A	3005A	Water	Chromium
6020A	3005A	Water	Lead
6020A	3005A	Water	Selenium
6020A	3005A	Water	Silver
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids



Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-76096-1	SW04	Solid	03/26/18 10:15	03/27/18 13:45
580-76096-2	SW05	Solid	03/26/18 10:45	03/27/18 13:45
580-76096-3	SW06	Solid	03/26/18 11:15	03/27/18 13:45
580-76096-4	SW07	Solid	03/26/18 11:45	03/27/18 13:45
580-76096-5	SW08	Solid	03/26/18 14:30	03/27/18 13:45
580-76096-6	SW09	Solid	03/26/18 14:00	03/27/18 13:45
580-76096-7	SW10	Solid	03/26/18 14:15	03/27/18 13:45
580-76096-8	SW11	Solid	03/26/18 14:50	03/27/18 13:45
580-76096-9	SW12	Solid	03/26/18 15:20	03/27/18 13:45
580-76096-10	SW13	Solid	03/26/18 15:30	03/27/18 13:45
580-76096-11	SW14	Solid	03/26/18 15:45	03/27/18 13:45
580-76096-12	SW15	Solid	03/26/18 16:05	03/27/18 13:45
580-76096-15	WY-SG06-CSB	Solid	03/26/18 16:20	03/27/18 13:45
580-76096-20	WY-SG05-CSB	Solid	03/26/18 16:50	03/27/18 13:45
580-76096-24	WY-SG14-CSB	Solid	03/26/18 15:25	03/27/18 13:45
580-76096-25	SW16	Solid	03/26/18 16:45	03/27/18 13:45
580-76096-26	SW17	Solid	03/26/18 17:00	03/27/18 13:45
580-76096-30	WY-SG13-CSB	Solid	03/26/18 11:20	03/27/18 13:45
580-76096-31	FOCB-SB01-5'	Solid	03/26/18 11:50	03/27/18 13:45
580-76096-32	FOCB-SB02-5'	Solid	03/26/18 12:30	03/27/18 13:45
580-76096-33	FOCB-SB03-5'	Solid	03/26/18 14:00	03/27/18 13:45
580-76096-34	FOCB-SB04-5'	Solid	03/26/18 14:30	03/27/18 13:45
580-76096-37	RNS-10	Water	03/26/18 17:20	03/27/18 13:45
580-76096-38	RNS-12	Water	03/27/18 09:00	03/27/18 13:45
580-76096-39	Trip Blank(water)	Water	03/26/18 00:01	03/27/18 13:45
580-76096-40	Trip Blank(Soil)	Solid	03/26/18 00:01	03/27/18 13:45

Client: ERM Client Contact: Suzanne Dolberg Date: 3/27/18 Chain of Custody Number: 37744
Address: 1218 3rd Ave Suite 1412 Telephone Number (Area Code)/Fax Number: 425 214 0462 Lab Number: _____
City: Seattle State: WA Zip Code: 98101 Sampler: Owen Rudloff Lab Contact: Sheri Cruz Page _____ of _____

Project Name and Location (State): Cushman Phase II Billing Contact: _____ Analysis (Attach list if more space is needed): _____
Contract/Purchase Order/Quote No.: 0435302.03 Matrix: _____ Containers & Preservatives: _____
Special Instructions/Conditions of Receipt: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							Special Instructions/Conditions of Receipt				
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ MeOH						
SW04	3/26/18	1015				✓	✓											call + ask
SW05		1045				✓	✓											
SW06		1115				✓	✓											
SW07		1145				✓	✓											
SW08		1430				✓	✓											
SW09		1400				✓	✓											
SW10		1415				✓	✓											
SW11		1450				✓	✓											
SW12		1520				✓	✓											
SW13		1530				✓	✓											
SW14		1545				✓	✓											
SW15		1605				✓	✓											

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify): _____

1. Relinquished By: Owen Rudloff Sign/Print: Owen Rudloff Date: 3/27 Time: 1345
1. Received By: Francisco Luna, Jr Sign/Print: Francisco Luna, Jr Date: 3/27/18 Time: 1345
2. Relinquished By: _____ Sign/Print: _____ Date: _____ Time: _____
2. Received By: _____ Sign/Print: _____ Date: _____ Time: _____
3. Relinquished By: _____ Sign/Print: _____ Date: _____ Time: _____
3. Received By: _____ Sign/Print: _____ Date: _____ Time: _____

Comments: _____
DISTRIBUTION: WHITE - Stays with th
580-76096 Chain of Custody
Therm. ID A2 Cor. 7.0 Unc. 1.0
Cooler Dsc: lg Green
Wet/Packs Packing: Bubble
Custody Seal: Yes No
Therm. ID A7 Cor. 0.0 Unc. 1.0
Cooler Dsc: lg Blue
Wet/Packs Packing: Bubble
Custody Seal: Yes No

Rush

Short Hold

Chain of Custody Record

Client ERM		Client Contact Suzanne Dalberg		Date 3/27/18	Chain of Custody Number 37763
Address 1218 3rd Ave Suite 1410 1412		Telephone Number (Area Code)/Fax Number 425 214 0462		Lab Number	Page _____ of _____

City Seattle	State WA	Zip Code 98101	Sampler Owen Rudloff	Lab Contact Sheri Cruz	Analysis (Attach list if more space is needed)
Project Name and Location (State) Cushman Phase II			Billing Contact		

Contract/Purchase Order/Quote No. **0435302.03**

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							NWTPH-Dx	SOS2-g	G010-7041	# bottles	Special Instructions/ Conditions of Receipt
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH						
WY-5606-SB03	3/26	1605				✓	✓											1 hold
" - SB04	"	1615				✓	✓											"
" CSB		1620				✓	✓											Run NWTPH, hold PCBs
WY-5605-SB01		1630				✓	✓											hold
" SB02		1635				✓	✓											hold
SB03		1640				✓	✓											hold
SB04		1645				✓	✓											hold
CSB		1650				✓	✓											Run NWTPH, metals, hold PCBs
WY-5614-SB01		1500				✓	✓											hold
" SB02		1510				✓	✓											hold
SB03		1520				✓	✓											hold
CSB		1525				✓	✓											Run NWTPH, metals, hold PCBs

Cooler <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	(A fee may be assessed if samples are retained longer than 1 month)
---------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------

Turn Around Time Required (business days)
 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____

1. Relinquished By Sign/Print		Date	Time	1. Received By Sign/Print		Date	Time
<i>Owen Rudloff</i>		3/27	1345	<i>Francis Luan, Jr</i>		3/27/18	1345
2. Relinquished By Sign/Print		Date	Time	2. Received By Sign/Print		Date	Time
3. Relinquished By Sign/Print		Date	Time	3. Received By Sign/Print		Date	Time

Comments

Client **ERM** Client Contact **Suzanne Dolberg** Date **3/27/18** Chain of Custody Number **37745**
 Address **1218 3rd Ave Suite 1412** Telephone Number (Area Code)/Fax Number **425 214 0462** Lab Number _____
 City **Seattle** State **WA** Zip Code **98101** Sampler **Owen Rudloff** Lab Contact **Sheri Cruz** Page _____ of _____

Project Name and Location (State) **Cushman Phase II** Billing Contact _____ Analysis (Attach list if more space is needed)
 Contract/Purchase Order/Quote No. **0435302.03** Matrix _____ Containers & Preservatives _____
 Special Instructions/Conditions of Receipt _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix					Containers & Preservatives							#	beALS	Special Instructions/Conditions of Receipt		
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc	MeOH	Acid				Cl ₂ /Cl ⁻	
SW16	3/26/18	1645				✓	✓											1	Call + ask
SW17	3/26/18	1700				✓	✓											1	'
WY-SCD-SB01	"	1100				✓	✓												hold
" SB02	"	1005				✓	✓												'
" SB03	"	1110				✓	✓												'
" CSB	"	1120				✓	✓												Run MWT PH, hold PCBs
FOCB-SB01-5'		1150				✓	✓					✓						6	Run 1 ch, 1 unpres, hold 2+2
FOCB-SB02-9'		1230				✓	✓					✓						6	'
FOCB-SB03-5'		1400				✓	✓					✓						6	'
FOCB-SB04-5'		1430				✓	✓					✓						6	'
WY-SC06-SB01		1545				✓	✓												hold
" SB02		1675 1555				✓	✓												hold

Cooler Yes No Cooler Temp: _____ Possible Hazard Identification Non-Hazard Flammable Skin Irritant Poison B Unknown
 Sample Disposal Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days) 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify)

1. Relinquished By Sign/Print Owen Rudloff	Date 3/27/18	Time 1345	1. Received By Sign/Print Francisco Lang, Jr	Date 3/27/18	Time 1345
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments _____

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: Cruz, Sheri L		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.1																							
Client Contact: Suzanne Dolberg		Phone:		E-Mail: sheri.cruz@testamericainc.com				Page: Page 1 of 33																							
Company: ERM-West				Analysis Requested						Job #:																					
Address: 1218 3rd Ave Suite 1412		Due Date Requested:		<table border="1"> <tr> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>8082A, NWTPH_Dx</th> <th>8082A, 8270D_SIM, NWTPH_Dx</th> <th>8260C - BTEX</th> <th>6018C, 7471A, NWTPH_Dx</th> <th>8082A - PCBs, standard list</th> <th>6020A, 7470A</th> <th>NWTPH_Dx - Northwest - DRO/IRRO</th> <th>8260C - BTEX</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx	8260C - BTEX	6018C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	6020A, 7470A	NWTPH_Dx - Northwest - DRO/IRRO	8260C - BTEX											Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)	
Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8082A, NWTPH_Dx	8082A, 8270D_SIM, NWTPH_Dx							8260C - BTEX	6018C, 7471A, NWTPH_Dx	8082A - PCBs, standard list	6020A, 7470A	NWTPH_Dx - Northwest - DRO/IRRO	8260C - BTEX																
City: Seattle		TAT Requested (days):								Other:																					
State, Zip: WA, 98101																															
Phone: 425-214-0462(Tel)		PO #: 0435302.03																													
Email: suzanne.dolberg@erm.com		WO #:																													
Project Name: Cushman Phase II ESA		Project #: 58012210																													
Site:		SSOW#:																													
Sample Identification		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/liq, BT=Tissue, A=Air)	Total Number of containers				Special Instructions/Note:																					
				Preservation Code:		X	X	N	N	F	N	N	D	A	A																
EY-SG01-668 --- RNS-09		3/26/18	1720	G	W Solid		✓	✓												Run Metals NWTPH, hold PCBs											
EY-SG01-8801 --- RNS-12		3/27/18	0900	G	W Solid		✓													Run PAH NWTPH, hold PCBs											
EY-SG01-SB02					Solid																										
EY-SG01-SB03					Solid																										
EY-SG01-SB04					Solid																										
EY-SG01-SB05					Solid																										
EY-SG01-SB06					Solid																										
EY-SG02-SB01					Solid																										
EY-SG02-SB02					Solid																										
EY-SG02-SB03					Solid																										
EY-SG02-SB04					Solid																										
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																									
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																									
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:																									
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:																								
Relinquished by: <i>Cheryl Ruckelshaus</i>			Date/Time: 3/27 1345		Company: ERM		Received by: <i>[Signature]</i>		Date/Time: 3/27/18 1345		Company: TA-SEA																				
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:																				
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:																				
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks:																									

Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-76096-1

Login Number: 76096

List Source: TestAmerica Seattle

List Number: 1

Creator: Gall, Brandon A

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



TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.


TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-76096-2

Client Project/Site: Cushman Phase II ESA

For:
ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
4/12/2018 2:26:45 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-2

Job ID: 580-76096-2

Laboratory: TestAmerica Seattle

Narrative

**Job Narrative
580-76096-2**

Comments

No additional comments.

Receipt

The samples were received on 3/27/2018 1:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 1.7° C.

Receipt Exceptions

A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

1-40ml HCL VOA vial(Water Trip Blank)

2-40ml VOA vials w/10ml MeOH(Soil Trip Blank)

GC Semi VOA

Method(s) NWTPH-Dx: The following sample was diluted to bring the concentration of target analytes within the calibration range: WY-SG13-SB03 (580-76096-29) at 3.0. Elevated reporting limits (RLs) are provided.

Method(s) NWTPH-Dx: The sample duplicate (DUP) precision for preparation batch 580-270552 and analytical batch 580-271090 was outside control limits. Sample non-homogeneity is suspected.

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

General Chemistry

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

Organic Prep

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

Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-2

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.
F3	Duplicate RPD exceeds the control limit

Glossary

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

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-2

Client Sample ID: WY-SG13-SB01

Lab Sample ID: 580-76096-27

Date Collected: 03/26/18 11:00

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 84.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		55		mg/Kg	☼	04/04/18 08:53	04/10/18 17:24	1
Motor Oil (>C24-C36)	140		55		mg/Kg	☼	04/04/18 08:53	04/10/18 17:24	1
Mineral oil	99		55		mg/Kg	☼	04/04/18 08:53	04/10/18 17:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	70		50 - 150				04/04/18 08:53	04/10/18 17:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.6		0.1		%			04/09/18 14:57	1
Percent Moisture	15.4		0.1		%			04/09/18 14:57	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-2

Client Sample ID: WY-SG13-SB02

Lab Sample ID: 580-76096-28

Date Collected: 03/26/18 11:05

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 84.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		57		mg/Kg	☼	04/04/18 08:53	04/10/18 18:23	1
Motor Oil (>C24-C36)	ND		57		mg/Kg	☼	04/04/18 08:53	04/10/18 18:23	1
Mineral oil	ND		57		mg/Kg	☼	04/04/18 08:53	04/10/18 18:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	74		50 - 150	04/04/18 08:53	04/10/18 18:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.3		0.1		%			04/09/18 14:57	1
Percent Moisture	15.7		0.1		%			04/09/18 14:57	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-2

Client Sample ID: WY-SG13-SB03

Lab Sample ID: 580-76096-29

Date Collected: 03/26/18 11:10

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 84.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	1000		170		mg/Kg	☼	04/04/18 08:53	04/10/18 18:52	3
Motor Oil (>C24-C36)	250		170		mg/Kg	☼	04/04/18 08:53	04/10/18 18:52	3
Mineral oil	1200		170		mg/Kg	☼	04/04/18 08:53	04/10/18 18:52	3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	106		50 - 150	04/04/18 08:53	04/10/18 18:52	3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.8		0.1		%			04/09/18 14:57	1
Percent Moisture	15.2		0.1		%			04/09/18 14:57	1

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-270552/1-A
Matrix: Solid
Analysis Batch: 271090

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270552

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		04/04/18 08:53	04/10/18 15:56	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		04/04/18 08:53	04/10/18 15:56	1
Mineral oil	ND		50		mg/Kg		04/04/18 08:53	04/10/18 15:56	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	77		50 - 150	04/04/18 08:53	04/10/18 15:56	1

Lab Sample ID: LCS 580-270552/2-A
Matrix: Solid
Analysis Batch: 271090

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270552

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	500	477		mg/Kg		95	70 - 125
Motor Oil (>C24-C36)	500	440		mg/Kg		88	70 - 119

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	89		50 - 150

Lab Sample ID: LCSD 580-270552/3-A
Matrix: Solid
Analysis Batch: 271090

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270552

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	494		mg/Kg		99	70 - 125	4	16
Motor Oil (>C24-C36)	500	451		mg/Kg		90	70 - 119	2	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	93		50 - 150

Lab Sample ID: 580-76096-27 DU
Matrix: Solid
Analysis Batch: 271090

Client Sample ID: WY-SG13-SB01
Prep Type: Total/NA
Prep Batch: 270552

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
#2 Diesel (C10-C24)	ND		ND		mg/Kg	☼	NC	35
Motor Oil (>C24-C36)	140		74.6	F3	mg/Kg	☼	58	35
Mineral oil	99		ND	F5	mg/Kg	☼	63	35

Surrogate	DU %Recovery	DU Qualifier	Limits
<i>o</i> -Terphenyl	73		50 - 150

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-2

Method: D 2216 - Percent Moisture

Lab Sample ID: 580-76096-29 DU
Matrix: Solid
Analysis Batch: 270944

Client Sample ID: WY-SG13-SB03
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	84.8		82.8		%		2	20
Percent Moisture	15.2		17.2		%		12	20

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Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-2

Client Sample ID: WY-SG13-SB01

Date Collected: 03/26/18 11:00

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-27

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA

Client Sample ID: WY-SG13-SB01

Date Collected: 03/26/18 11:00

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-27

Matrix: Solid

Percent Solids: 84.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270552	04/04/18 08:53	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271090	04/10/18 17:24	ERZ	TAL SEA

Client Sample ID: WY-SG13-SB02

Date Collected: 03/26/18 11:05

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-28

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA

Client Sample ID: WY-SG13-SB02

Date Collected: 03/26/18 11:05

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-28

Matrix: Solid

Percent Solids: 84.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270552	04/04/18 08:53	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271090	04/10/18 18:23	ERZ	TAL SEA

Client Sample ID: WY-SG13-SB03

Date Collected: 03/26/18 11:10

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-29

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA

Client Sample ID: WY-SG13-SB03

Date Collected: 03/26/18 11:10

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-29

Matrix: Solid

Percent Solids: 84.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270552	04/04/18 08:53	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		3	271090	04/10/18 18:52	ERZ	TAL SEA

Laboratory References:

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

TestAmerica Seattle

Accreditation/Certification Summary

Client: ERM-West

TestAmerica Job ID: 580-76096-2

Project/Site: Cushman Phase II ESA

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids



Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-76096-27	WY-SG13-SB01	Solid	03/26/18 11:00	03/27/18 13:45
580-76096-28	WY-SG13-SB02	Solid	03/26/18 11:05	03/27/18 13:45
580-76096-29	WY-SG13-SB03	Solid	03/26/18 11:10	03/27/18 13:45

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Rush

Short Hold

Chain of Custody Record

Client: **ERM** Client Contact: **Suzanne Dalberg** Date: **3/27/18** Chain of Custody Number: **37763**
 Address: **1218 3rd Ave Suite 1410 1412** Telephone Number (Area Code)/Fax Number: **425 214 0462** Lab Number: _____
 City: **Seattle** State: **WA** Zip Code: **98101** Sampler: **Owen Rudloff** Lab Contact: **Sheri Cruz** Page _____ of _____
 Project Name and Location (State): **Cushman Phase II** Billing Contact: _____ Analysis (Attach list if more space is needed): _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							Analysis	# bottles	Special Instructions/ Conditions of Receipt	
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	NWTPH-Dx				8082-4	6010-7041
WY-5606-SB03	3/26	1605				✓	✓							✓	✓		1 hold
" - SB04	"	1615				✓	✓							✓	✓		"
" CSB		1620				✓	✓							✓	✓		Run NWTPH, hold PCBs
WY-5605-SB01		1630				✓	✓							✓	✓		hold
" SB02		1635				✓	✓							✓	✓		hold
SB03		1640				✓	✓							✓	✓		hold
SB04		1645				✓	✓							✓	✓		hold
CSB		1650				✓	✓							✓	✓	✓	Run NWTPH, metals, hold PCBs
WY-5614-SB01		1500				✓	✓							✓	✓		hold
" SB02		1510				✓	✓							✓	✓		hold
SB03		1520				✓	✓							✓	✓		hold
CSB		1525				✓	✓							✓	✓	✓	Run NWTPH, metals, hold PCBs

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Return To Client Archive For _____ Months Sample Disposal: Disposal By Lab (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify): _____

1. Relinquished By Sign/Print: Owen Rudloff Date: 3/27 Time: 1345	1. Received By Sign/Print: Francis Luau, Jr Date: 3/27/18 Time: 1345
2. Relinquished By Sign/Print: _____ Date: _____ Time: _____	2. Received By Sign/Print: _____ Date: _____ Time: _____
3. Relinquished By Sign/Print: _____ Date: _____ Time: _____	3. Received By Sign/Print: _____ Date: _____ Time: _____

Comments: _____

Client ERM	Client Contact Suzanne Dolberg	Date 3/27/18	Chain of Custody Number 37745
Address 1218 3rd Ave Suite 1412	Telephone Number (Area Code)/Fax Number 425 214 0462	Lab Number	Page _____ of _____

City Seattle	State WA	Zip Code 98101	Sampler Owen Rudloff	Lab Contact Sheri Cruz	Analysis (Attach list if more space is needed)
Project Name and Location (State) Cushman Phase II			Billing Contact		Special Instructions/ Conditions of Receipt

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix					Containers & Preservatives							# bottles				
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc	MeOH	Acetic acid			UWTPH-Dx	9082A	
SW16	3/26/18	1645				✓	✓											1	Call + ask
SW17	3/26/18	1700				✓	✓											1	'
WY-SCD-SB01	"	1100				✓	✓												hold
" SB02	"	1005				✓	✓												'
" SB03	"	1110				✓	✓												'
" CSB	"	1120				✓	✓												Run MWT PH, hold PCBs
FOCB-SB01-5'		1150				✓	✓					✓						6	Run 1 ch, 1 unpres, hold 2+2
FOCB-SB02-9'		1230				✓	✓					✓						6	'
FOCB-SB03-5'		1400				✓	✓					✓						6	'
FOCB-SB04-5'		1430				✓	✓					✓						6	'
WY-SC06-SB01		1545				✓	✓												hold
" SB02		1675 1555				✓	✓												hold

Cooler <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Archive For _____ Months	<input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Disposal By Lab	(A fee may be assessed if samples are retained longer than 1 month)
---------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------	---------------------------------------------------------------------

Turn Around Time Required (business days) <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 10 Days <input type="checkbox"/> 15 Days <input type="checkbox"/> Other _____	QC Requirements (Specify)
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------

1. Relinquished By Sign/Print Owen Rudloff	Date 3/27/18	Time 1345	1. Received By Sign/Print Francisco Lang, Jr	Date 3/27/18	Time 1345
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information				Sampler: Cruz, Sheri L		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.1																			
Client Contact: Suzanne Dolberg				Phone:		E-Mail: sheri.cruz@testamericainc.com				Page: Page 1 of 33																			
Company: ERM-West				Analysis Requested								Job #:																	
Address: 1218 3rd Ave Suite 1412				Due Date Requested:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of Containers		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)																	
City: Seattle				TAT Requested (days):																									
State, Zip: WA, 98101				PO #: 0435302.03																									
Phone: 425-214-0462(Tel)				WO #:																									
Email: suzanne.dolberg@erm.com				Project #: 58012210		8082A, NWTPH_Dx		8082A, 8270D_SIM, NWTPH_Dx		8260C - BTEX		6018C, 7471A, NWTPH_Dx		8082A - PCBs, standard list		6020A, 7470A		NWTPH_Dx - Northwest - DRO/IRRO		8260C - BTEX									
Project Name: Cushman Phase II ESA				SSOW#																									
Site:																													
Sample Identification				Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/liq, BT=Tissue, A=Air)		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of Containers		Special Instructions/Note:											
EY-SG01-668				R/S-09		3/26/18 1720		G		W Solid		N		N		F		N		N		D		A		A		9 Run ^{SC} Metals, NWTPH, hold PCBs	
EY-SG01-8801				R/S-12		3/27/18 0900		G		W Solid		V														9 Run ^{SC} PAH, NWTPH, hold PCBs			
EY-SG01-SB02										Solid																			
EY-SG01-SB03										Solid																			
EY-SG01-SB04										Solid																			
EY-SG01-SB05										Solid																			
EY-SG01-SB06										Solid																			
EY-SG02-SB01										Solid																			
EY-SG02-SB02										Solid																			
EY-SG02-SB03										Solid																			
EY-SG02-SB04										Solid																			
Possible Hazard Identification								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological								<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																					
Deliverable Requested: I, II, III, IV, Other (specify)								Special Instructions/QC Requirements:																					
Empty Kit Relinquished by:				Date:				Time:				Method of Shipment:																	
Relinquished by: <i>Cheryl Ruckelshaus</i>				Date/Time: 3/27 1345				Company: ERM				Received by: <i>[Signature]</i>																	
Relinquished by:				Date/Time:				Company:				Received by:																	
Relinquished by:				Date/Time:				Company:				Received by:																	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:																									



Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-76096-2

Login Number: 76096
List Number: 1
Creator: Gall, Brandon A

List Source: TestAmerica Seattle

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



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-76096-3

Client Project/Site: Cushman Phase II ESA

For:

ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
4/12/2018 2:37:19 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-3

Job ID: 580-76096-3

Laboratory: TestAmerica Seattle

Narrative

**Job Narrative
580-76096-3**

Comments

No additional comments.

Receipt

The samples were received on 3/27/2018 1:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 1.7° C.

Receipt Exceptions

A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

1-40ml HCL VOA vial(Water Trip Blank)

2-40ml VOA vials w/10ml MeOH(Soil Trip Blank)

GC Semi VOA

Method(s) 608, 8082A: The continuing calibration verification (CCV) associated with batch 580-271116 recovered above the upper control limit for PCB-1232 and PCB-1248. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: SW04 (580-76096-1), SW06 (580-76096-3), SW12 (580-76096-9), SW14 (580-76096-11), (CCV 580-271116/8), (CCV 580-271116/9) and (580-75905-A-31-B).

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

Organic Prep

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

Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-3

Glossary

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

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-3

Client Sample ID: SW04

Date Collected: 03/26/18 10:15

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-1

Matrix: Solid

Percent Solids: 82.6

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 16:33	1
PCB-1221	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 16:33	1
PCB-1232	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 16:33	1
PCB-1242	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 16:33	1
PCB-1248	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 16:33	1
PCB-1254	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 16:33	1
PCB-1260	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 16:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	83		25 - 149	04/09/18 10:24	04/11/18 16:33	1
Tetrachloro-m-xylene	65		35 - 130	04/09/18 10:24	04/11/18 16:33	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-3

Client Sample ID: SW06

Date Collected: 03/26/18 11:15

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-3

Matrix: Solid

Percent Solids: 77.6

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.024		mg/Kg	☼	04/09/18 10:24	04/11/18 16:50	1
PCB-1221	ND		0.024		mg/Kg	☼	04/09/18 10:24	04/11/18 16:50	1
PCB-1232	ND		0.024		mg/Kg	☼	04/09/18 10:24	04/11/18 16:50	1
PCB-1242	ND		0.024		mg/Kg	☼	04/09/18 10:24	04/11/18 16:50	1
PCB-1248	ND		0.024		mg/Kg	☼	04/09/18 10:24	04/11/18 16:50	1
PCB-1254	ND		0.024		mg/Kg	☼	04/09/18 10:24	04/11/18 16:50	1
PCB-1260	0.049		0.024		mg/Kg	☼	04/09/18 10:24	04/11/18 16:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>DCB Decachlorobiphenyl</i>	84		25 - 149	04/09/18 10:24	04/11/18 16:50	1
<i>Tetrachloro-m-xylene</i>	66		35 - 130	04/09/18 10:24	04/11/18 16:50	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-3

Client Sample ID: SW12
Date Collected: 03/26/18 15:20
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-9
Matrix: Solid
Percent Solids: 79.8

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.023		mg/Kg	☼	04/09/18 10:24	04/11/18 17:07	1
PCB-1221	ND		0.023		mg/Kg	☼	04/09/18 10:24	04/11/18 17:07	1
PCB-1232	ND		0.023		mg/Kg	☼	04/09/18 10:24	04/11/18 17:07	1
PCB-1242	ND		0.023		mg/Kg	☼	04/09/18 10:24	04/11/18 17:07	1
PCB-1248	ND		0.023		mg/Kg	☼	04/09/18 10:24	04/11/18 17:07	1
PCB-1254	ND		0.023		mg/Kg	☼	04/09/18 10:24	04/11/18 17:07	1
PCB-1260	0.44		0.023		mg/Kg	☼	04/09/18 10:24	04/11/18 17:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>DCB Decachlorobiphenyl</i>	81		25 - 149	04/09/18 10:24	04/11/18 17:07	1
<i>Tetrachloro-m-xylene</i>	62		35 - 130	04/09/18 10:24	04/11/18 17:07	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-3

Client Sample ID: SW14
Date Collected: 03/26/18 15:45
Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-11
Matrix: Solid
Percent Solids: 85.6

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 17:41	1
PCB-1221	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 17:41	1
PCB-1232	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 17:41	1
PCB-1242	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 17:41	1
PCB-1248	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 17:41	1
PCB-1254	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 17:41	1
PCB-1260	0.032		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 17:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>DCB Decachlorobiphenyl</i>	93		25 - 149	04/09/18 10:24	04/11/18 17:41	1
<i>Tetrachloro-m-xylene</i>	73		35 - 130	04/09/18 10:24	04/11/18 17:41	1



QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-3

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-270908/1-A
Matrix: Solid
Analysis Batch: 271116

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270908

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1221	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1232	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1242	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1248	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1254	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1260	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	102		25 - 149	04/09/18 10:24	04/11/18 13:11	1
Tetrachloro-m-xylene	86		35 - 130	04/09/18 10:24	04/11/18 13:11	1

Lab Sample ID: LCS 580-270908/2-A
Matrix: Solid
Analysis Batch: 271116

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270908

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	0.100	0.0904		mg/Kg		90	69 - 126
PCB-1260	0.100	0.110		mg/Kg		110	68 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	110		25 - 149
Tetrachloro-m-xylene	90		35 - 130

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-3

Client Sample ID: SW04

Date Collected: 03/26/18 10:15

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-1

Matrix: Solid

Percent Solids: 82.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270908	04/09/18 10:24	KMS	TAL SEA
Total/NA	Analysis	8082A		1	271116	04/11/18 16:33	Y1W	TAL SEA

Client Sample ID: SW06

Date Collected: 03/26/18 11:15

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-3

Matrix: Solid

Percent Solids: 77.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270908	04/09/18 10:24	KMS	TAL SEA
Total/NA	Analysis	8082A		1	271116	04/11/18 16:50	Y1W	TAL SEA

Client Sample ID: SW12

Date Collected: 03/26/18 15:20

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-9

Matrix: Solid

Percent Solids: 79.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270908	04/09/18 10:24	KMS	TAL SEA
Total/NA	Analysis	8082A		1	271116	04/11/18 17:07	Y1W	TAL SEA

Client Sample ID: SW14

Date Collected: 03/26/18 15:45

Date Received: 03/27/18 13:45

Lab Sample ID: 580-76096-11

Matrix: Solid

Percent Solids: 85.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270908	04/09/18 10:24	KMS	TAL SEA
Total/NA	Analysis	8082A		1	271116	04/11/18 17:41	Y1W	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-3

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

Analysis Method	Prep Method	Matrix	Analyte
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- 1
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Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-76096-1	SW04	Solid	03/26/18 10:15	03/27/18 13:45
580-76096-3	SW06	Solid	03/26/18 11:15	03/27/18 13:45
580-76096-9	SW12	Solid	03/26/18 15:20	03/27/18 13:45
580-76096-11	SW14	Solid	03/26/18 15:45	03/27/18 13:45

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Rush

Short Hold

Chain of Custody Record

Client **ERM** Client Contact **Suzanne Dalberg** Date **3/27/18** Chain of Custody Number **37763**
 Address **1218 3rd Ave Suite 1410 1412** Telephone Number (Area Code)/Fax Number **425 214 0462** Lab Number _____
 City **Seattle** State **WA** Zip Code **98101** Sampler **Owen Rudloff** Lab Contact **Sheri Cruz** Page _____ of _____
 Project Name and Location (State) **Cushman Phase II** Billing Contact _____ Analysis (Attach list if more space is needed)

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							Analysis	Special Instructions/ Conditions of Receipt	
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	WT/PL/Dx			# bottles
WY-5606-SB03	3/26	1605				✓	✓							✓	✓	1 hold
" - SB04	"	1615				✓	✓							✓	✓	"
" CSB		1620				✓	✓							✓	✓	Run NWTPH, hold PCBs
WY-5605-SB01		1630				✓	✓							✓	✓	hold
" SB02		1635				✓	✓							✓	✓	hold
SB03		1640				✓	✓							✓	✓	hold
SB04		1645				✓	✓							✓	✓	hold
CSB		1650				✓	✓							✓	✓	Run NWTPH, metals, hold PCBs
WY-5614-SB01		1500				✓	✓							✓	✓	hold
" SB02		1510				✓	✓							✓	✓	hold
SB03		1520				✓	✓							✓	✓	hold
CSB		1525				✓	✓							✓	✓	Run NWTPH, metals, hold PCBs

Cooler Yes No Cooler Temp: _____ Possible Hazard Identification Non-Hazard Flammable Skin Irritant Poison B Unknown Return To Client Archive For _____ Months Sample Disposal Disposal By Lab (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days) 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify)

1. Relinquished By Sign/Print Owen Rudloff	Date 3/27	Time 1345	1. Received By Sign/Print Francis Luau, Jr	Date 3/27/18	Time 1345
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments _____

Client **ERM** Client Contact **Suzanne Dolberg** Date **3/27/18** Chain of Custody Number **37745**
 Address **1218 3rd Ave Suite 1412** Telephone Number (Area Code)/Fax Number **425 214 0462** Lab Number _____
 City **Seattle** State **WA** Zip Code **98101** Sampler **Owen Rudloff** Lab Contact **Sheri Cruz** Page _____ of _____

Project Name and Location (State) **Cushman Phase II** Billing Contact _____ Analysis (Attach list if more space is needed)
 Contract/Purchase Order/Quote No. **0435302.03** Matrix _____ Containers & Preservatives _____
 Special Instructions/Conditions of Receipt _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix					Containers & Preservatives							# bottles	Special Instructions/Conditions of Receipt			
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc	MeOH	Acet			Cit. off		
SW16	3/26/18	1645				✓	✓											1	Call + ask
SW17	3/26/18	1700				✓	✓											1	'
WY-SCD-SB01	"	1100				✓	✓												hold
" SB02	"	1005				✓	✓												'
" SB03	"	1110				✓	✓												'
" CSB	"	1120				✓	✓												Run MWT PH, hold PCBs
FOCB-SB01-5'		1150				✓	✓					✓						6	Run 1 ch, off + 1 unpres, hold 2+2
FOCB-SB02-9'		1230				✓	✓					✓						6	'
FOCB-SB03-5'		1400				✓	✓					✓						6	'
FOCB-SB04-5'		1430				✓	✓					✓						6	'
WY-SC06-SB01		1545				✓	✓												hold
" SB02		1675 1555				✓	✓												hold

Cooler Yes No Cooler Temp: _____ Possible Hazard Identification Non-Hazard Flammable Skin Irritant Poison B Unknown
 Sample Disposal Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days) 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify) _____

1. Relinquished By Sign/Print Owen Rudloff	Date 3/27/18	Time 1345	1. Received By Sign/Print Francisco Lang, Jr	Date 3/27/18	Time 1345
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments _____

Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-76096-3

Login Number: 76096

List Source: TestAmerica Seattle

List Number: 1

Creator: Gall, Brandon A

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-76096-5

Client Project/Site: Cushman Phase II ESA

For:

ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
4/23/2018 1:46:45 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-5

Job ID: 580-76096-5

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-76096-5

Comments

4/12/18 sample WY-SG13-SB03 (580-76096-29) was activated for PCBs by email.

Receipt

The samples were received on 3/27/2018 1:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 1.7° C.

Receipt Exceptions

A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

1-40ml HCL VOA vial(Water Trip Blank)

2-40ml VOA vials w/10ml MeOH(Soil Trip Blank)

GC Semi VOA

Method(s) 8082A: The following sample was diluted to bring the concentration of target analytes within the calibration range: WY-SG13-SB03 (580-76096-29). Elevated reporting limits (RLs) are provided.

Method(s) 8082A: The following sample(s) contained more than one Aroclor with insufficient separation to quantify individually. The PCBs present are quantified as the predominant Aroclor: WY-SG13-SB03 (580-76096-29).

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

Organic Prep

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

Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-5

Glossary

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

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-5

Client Sample ID: WY-SG13-SB03

Lab Sample ID: 580-76096-29

Date Collected: 03/26/18 11:10

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 84.8

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.024		mg/Kg	☼	04/18/18 09:03	04/19/18 05:14	1
PCB-1221	ND		0.024		mg/Kg	☼	04/18/18 09:03	04/19/18 05:14	1
PCB-1232	ND		0.024		mg/Kg	☼	04/18/18 09:03	04/19/18 05:14	1
PCB-1242	ND		0.024		mg/Kg	☼	04/18/18 09:03	04/19/18 05:14	1
PCB-1248	ND		0.024		mg/Kg	☼	04/18/18 09:03	04/19/18 05:14	1
PCB-1254	ND		0.024		mg/Kg	☼	04/18/18 09:03	04/19/18 05:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	78		25 - 149	04/18/18 09:03	04/19/18 05:14	1
Tetrachloro-m-xylene	63		35 - 130	04/18/18 09:03	04/19/18 05:14	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1260	2.2		0.24		mg/Kg	☼	04/18/18 09:03	04/20/18 17:27	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	54		25 - 149	04/18/18 09:03	04/20/18 17:27	10
Tetrachloro-m-xylene	45		35 - 130	04/18/18 09:03	04/20/18 17:27	10

QC Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-5

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-271627/1-A
Matrix: Solid
Analysis Batch: 271730

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 271627

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		04/18/18 09:03	04/18/18 21:54	1
PCB-1221	ND		0.020		mg/Kg		04/18/18 09:03	04/18/18 21:54	1
PCB-1232	ND		0.020		mg/Kg		04/18/18 09:03	04/18/18 21:54	1
PCB-1242	ND		0.020		mg/Kg		04/18/18 09:03	04/18/18 21:54	1
PCB-1248	ND		0.020		mg/Kg		04/18/18 09:03	04/18/18 21:54	1
PCB-1254	ND		0.020		mg/Kg		04/18/18 09:03	04/18/18 21:54	1
PCB-1260	ND		0.020		mg/Kg		04/18/18 09:03	04/18/18 21:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	78		25 - 149	04/18/18 09:03	04/18/18 21:54	1
Tetrachloro-m-xylene	72		35 - 130	04/18/18 09:03	04/18/18 21:54	1

Lab Sample ID: LCS 580-271627/2-A
Matrix: Solid
Analysis Batch: 271730

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 271627

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	0.100	0.0716		mg/Kg		72	69 - 126
PCB-1260	0.100	0.0794		mg/Kg		79	68 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	73		25 - 149
Tetrachloro-m-xylene	69		35 - 130

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-5

Client Sample ID: WY-SG13-SB03

Lab Sample ID: 580-76096-29

Date Collected: 03/26/18 11:10

Matrix: Solid

Date Received: 03/27/18 13:45

Percent Solids: 84.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271627	04/18/18 09:03	KMS	TAL SEA
Total/NA	Analysis	8082A		1	271730	04/19/18 05:14	TL1	TAL SEA
Total/NA	Prep	3546	DL		271627	04/18/18 09:03	KMS	TAL SEA
Total/NA	Analysis	8082A	DL	10	271877	04/20/18 17:27	TL1	TAL SEA

Laboratory References:

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



Accreditation/Certification Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-5

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

Analysis Method	Prep Method	Matrix	Analyte
-----------------	-------------	--------	---------

- 1
- 2
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Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76096-5

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-76096-29	WY-SG13-SB03	Solid	03/26/18 11:10	03/27/18 13:45

- 1
- 2
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- 4
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Client ERM Client Contact Suzanne Dolberg Date 3/27/18 Chain of Custody Number 37744
Address 1218 3rd Ave Suite 1412 Telephone Number (Area Code)/Fax Number 425 214 0462 Lab Number _____
City Seattle State WA Zip Code 98101 Sampler Owen Rudloff Lab Contact Sheri Cruz Page _____ of _____

Project Name and Location (State) Cushman Phase II Billing Contact _____ Analysis (Attach list if more space is needed)
Contract/Purchase Order/Quote No. 0435302.03 Matrix _____ Containers & Preservatives _____

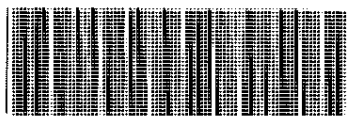
Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives						Special Instructions/ Conditions of Receipt				
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ MeOH					
SW04	3/26/18	1015				✓	✓								✓	✓	1 call + ask
SW05		1045				✓	✓										
SW06		1115				✓	✓										
SW07		1145				✓	✓										
SW08		1430				✓	✓										
SW09		1400				✓	✓										
SW10		1415				✓	✓										
SW11		1450				✓	✓										
SW12		1520				✓	✓										
SW13		1530				✓	✓										
SW14		1545				✓	✓										
SW15		1605				✓	✓										

Cooler Yes No Cooler Temp: _____ Possible Hazard Identification Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days) 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify)

1. Relinquished By Sign/Print Owen Rudloff Owen Rudloff Date 3/27 Time 1345 1. Received By Sign/Print Francisco Luna, Jr Date 3/27/18 Time 1345
2. Relinquished By Sign/Print _____ Date _____ Time _____ 2. Received By Sign/Print _____ Date _____ Time _____
3. Relinquished By Sign/Print _____ Date _____ Time _____ 3. Received By Sign/Print _____ Date _____ Time _____

Comments _____ Therm. ID A2 Cori. 7° Uncl. 9° Cooler Dsc: lg Green Wet/Packs Packing: Bubble
Therm. ID A7 Cori. 8° Uncl. 10° Cooler Dsc: lg Blue Wet/Packs Packing: Bubble



Rush

Short Hold

Chain of Custody Record

Client: **ERM** Client Contact: **Suzanne Dalberg** Date: **3/27/18** Chain of Custody Number: **37763**
 Address: **1218 3rd Ave Suite 1410 1412** Telephone Number (Area Code)/Fax Number: **425 214 0462** Lab Number: _____
 City: **Seattle** State: **WA** Zip Code: **98101** Sampler: **Owen Rudloff** Lab Contact: **Sheri Cruz** Page _____ of _____
 Project Name and Location (State): **Cushman Phase II** Billing Contact: _____ Analysis (Attach list if more space is needed): _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							Analysis	# bottles	Special Instructions/ Conditions of Receipt	
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	NWTPH-Dx				8082-4	6010-7041
WY-5606-SB03	3/26	1605				✓	✓										1 hold
" - SB04	"	1615				✓	✓										"
" CSB		1620				✓	✓										Run NWTPH, hold PCBs
WY-5605-SB01		1630				✓	✓										hold
" SB02		1635				✓	✓										hold
SB03		1640				✓	✓										hold
SB04		1645				✓	✓										hold
CSB		1650				✓	✓										Run NWTPH, metals, hold PCBs
WY-5614-SB01		1500				✓	✓										hold
" SB02		1510				✓	✓										hold
SB03		1520				✓	✓										hold
CSB		1525				✓	✓										Run NWTPH, metals, hold PCBs

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Return To Client Archive For _____ Months Sample Disposal: Disposal By Lab (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify): _____

1. Relinquished By Sign/Print: Owen Rudloff Date: 3/27 Time: 1345	1. Received By Sign/Print: Francis Luau, Jr Date: 3/27/18 Time: 1345
2. Relinquished By Sign/Print: _____ Date: _____ Time: _____	2. Received By Sign/Print: _____ Date: _____ Time: _____
3. Relinquished By Sign/Print: _____ Date: _____ Time: _____	3. Received By Sign/Print: _____ Date: _____ Time: _____

Comments: _____

Client **ERM** Client Contact **Suzanne Dolberg** Date **3/27/18** Chain of Custody Number **37745**
 Address **1218 3rd Ave Suite 1412** Telephone Number (Area Code)/Fax Number **425 214 0462** Lab Number _____
 City **Seattle** State **WA** Zip Code **98101** Sampler **Owen Rudloff** Lab Contact **Sheri Cruz** Page _____ of _____

Project Name and Location (State) **Cushman Phase II** Billing Contact _____ Analysis (Attach list if more space is needed)
 Contract/Purchase Order/Quote No. **0435302.03** Matrix _____ Containers & Preservatives _____
 Sample I.D. and Location/Description (Containers for each sample may be combined on one line) Date Time

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix					Containers & Preservatives							# bottles	Special Instructions/ Conditions of Receipt		
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc2	MeOH	Acetic acid				
SW16	3/26/18	1645				✓	✓										1	Call + ask
SW17	3/26/18	1700				✓	✓										1	'
WY-SCD-SB01	"	1100				✓	✓											hold
" SB02	"	1005				✓	✓											'
" SB03	"	1110				✓	✓											'
" CSB	"	1120				✓	✓											Run MWT PH, hold PCBs
FOCB-SB01-5'		1150				✓	✓					✓					6	Run 1 ch, 1 unpres, hold 2+2
FOCB-SB02-9'		1230				✓	✓					✓					6	'
FOCB-SB03-5'		1400				✓	✓					✓					6	'
FOCB-SB04-5'		1430				✓	✓					✓					6	'
WY-SC06-SB01		1545				✓	✓											hold
" SB02		1675 1555				✓	✓											hold

Cooler Yes No Cooler Temp: _____ Possible Hazard Identification Non-Hazard Flammable Skin Irritant Poison B Unknown
 Sample Disposal Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days) 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify)

1. Relinquished By Sign/Print Owen Rudloff	Date 3/27/18	Time 1345	1. Received By Sign/Print Francisco Lang, Jr	Date 3/27/18	Time 1345
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments _____

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information				Sampler: Cruz, Sheri L		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-27907-9206.1			
Client Contact: Suzanne Dolberg				Phone:		E-Mail: sheri.cruz@testamericainc.com				Page: Page 1 of 33			
Company: ERM-West				Analysis Requested								Job #:	
Address: 1218 3rd Ave Suite 1412				Due Date Requested:		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 8082A, NWTPH_Dx 8082A, 8270D_SIM, NWTPH_Dx 8260C - BTEX 6018C, 7471A, NWTPH_Dx 8082A - PCBs, standard list 6020A, 7470A NWTPH_Dx - Northwest - DRO/IRRO 8260C - BTEX		Total Number of Containers		Preservation Codes:			
City: Seattle				TAT Requested (days):						A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA			
State, Zip: WA, 98101				PO #: 0435302.03						M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)			
Phone: 425-214-0462(Tel)				WO #:						Other:			
Email: suzanne.dolberg@erm.com				Project #: 58012210									
Project Name: Cushman Phase II ESA				SSOW#:									
Site:													
Sample Identification				Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/liq, BT=tissue, A=air)			
										Preservation Code:			
EY-SG01-668				R/S-09		3/26/18 1720		G W		Solid			
EY-SG01-8801				R/S-12		3/27/18 0900		G W		Solid			
EY-SG01-SB02										Solid			
EY-SG01-SB03										Solid			
EY-SG01-SB04										Solid			
EY-SG01-SB05										Solid			
EY-SG01-SB06										Solid			
EY-SG02-SB01										Solid			
EY-SG02-SB02										Solid			
EY-SG02-SB03										Solid			
EY-SG02-SB04										Solid			
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:							
Empty Kit Relinquished by:				Date:		Time:		Method of Shipment:					
Relinquished by: <i>Cheryl Ruckelshaus</i>				Date/Time: 3/27 1345		Company: ERM		Received by: <i>[Signature]</i>		Date/Time: 3/27/18 1345			
Relinquished by:				Date/Time:		Company:		Received by:		Date/Time:			
Relinquished by:				Date/Time:		Company:		Received by:		Date/Time:			
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:									

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SC
Run Metals, NWTPH, hold PCBs
SC
Run PAH, NWTPH, hold PCBs

Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-76096-5

Login Number: 76096

List Source: TestAmerica Seattle

List Number: 1

Creator: Gall, Brandon A

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



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.


TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-76187-1

Client Project/Site: Cushman Phase II ESA

For:
ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
4/17/2018 12:55:15 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Job ID: 580-76187-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-76187-1

Comments

Per phone call on 4/2/18 with Suzanne, change RNS-09 to RNS-17. Same date and time and analysis on hold.

Receipt

The samples were received on 3/28/2018 5:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.8° C, 4.0° C and 6.1° C.

Receipt Exceptions

A large number of samples were received (including a trip blank) that were not listed on the chain of custody (COC). The last page of the COC was filled up with no room for the rest of the samples. The client was submitted a list of the remaining samples and has been requested a COC be submitted representing the remaining samples.

WY-SG12-CSB (580-76187-84), SW25 (580-76187-85), SW28 (580-76187-86), SW20 (580-76187-87), SW21 (580-76187-88), SW24 (580-76187-89), SW23 (580-76187-90), RNS-13 (580-76187-91), RNS-14 (580-76187-92), RNS-09 (580-76187-93), SW-19 (580-76187-94), SW-30 (580-76187-95), SW-22 (580-76187-96), SW-29 (580-76187-97), SW-26 (580-76187-98), SW-27 (580-76187-99), SW-18 (580-76187-100) and SW-31 (580-76187-101)

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): SW-32 (580-76187-70), SW-34 (580-76187-72), SW-39 (580-76187-77), SW-41 (580-76187-79) and EY-SG06-CSB (580-76187-80).

The container label of sample -70 lists the sampling time 0825, while the COC lists 0830.

The container label of sample -72 lists no sampling time.

The container label of sample -77 lists the sampling time 1134, while the COC lists 1130.

The container label of sample -79 lists no sampling time or date.

The container label of sample -80 lists the sampling time 1400, while the COC lists 1445

The samples are logged in per COC.

GC/MS VOA

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 580-270768 recovered above the upper control limit for m-Xylene & p-Xylene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: FOCB-SB03-1.5' (580-76187-33), FOCB-SB02-1.5' (580-76187-34), FOCB-SB01-1.5' (580-76187-35), FOCB-SB04-1.5' (580-76187-36) and (CCVIS 580-270768/3).

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

GC/MS Semi VOA

Method(s) 8270D SIM: The DFTPP tune for analytical batch 270752 had Benzidine tailing at 2.4. Data is qualified and reported. (DFTPP 580-270752/2)

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

GC Semi VOA

Method(s) 8082A: The continuing calibration verification (CCV) associated with batch 580-271051 recovered above the upper control limit for PCB-1248. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: (CCV 580-271051/9).

Method(s) 8082A: For the following CCVIS, the %D of DCB Decachlorobiphenyl is at 20.3%. This is acceptable and within the +/-20%D limit for the method by virtue of rounding. Since the %Rec is within the acceptance criteria for the surrogate in the CCV and associated samples, the data have been reported. The following sample is impacted: (CCVIS 580-271051/12)

Method(s) 608, 8082A: The continuing calibration verification (CCV) associated with batch 580-271116 recovered above the upper control limit for PCB-1232 and PCB-1248. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: (CCV 580-271116/8) and (CCV 580-271116/9).

Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Job ID: 580-76187-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

Method(s) 8082A: Surrogate Tetrachloro-m-xylene recovery for the following sample was outside control limits: SMP-01 (580-76187-69). Evidence of matrix interference is present and surrogate DCB Decachlorobiphenyl was within range; therefore, re-extraction and/or re-analysis was not performed.

Method(s) 8082A: The following sample was diluted to bring the concentration of target analytes within the calibration range: FO CB-SB03-1.5' (580-76187-33). Elevated reporting limits (RLs) are provided.

Method(s) NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-270575 recovered above the upper control limit for Mineral oil. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: SW-42 (580-76187-58), SW-43 (580-76187-59), SW-44 (580-76187-60), SW-32 (580-76187-70), SW-33 (580-76187-71), SW-34 (580-76187-72), SW-35 (580-76187-73), SW-37 (580-76187-75), SW-38 (580-76187-76), SW-39 (580-76187-77), SW-40 (580-76187-78), SW-41 (580-76187-79), EY-SG06-CSB (580-76187-80), SW25 (580-76187-85), SW28 (580-76187-86), SW20 (580-76187-87), SW21 (580-76187-88), SW24 (580-76187-89), (CCV 580-270575/25), (CCV 580-270575/29), (CCVRT 580-270575/3), (580-76187-58 DU) and (580-76187-89 DU).

Method(s) NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-270782 recovered above the upper control limit for #2 Diesel (C10-C24) and Motor Oil (>C24-C36). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: SW-29 (580-76187-97), SW-26 (580-76187-98), SW-27 (580-76187-99), SW-18 (580-76187-100), SW-31 (580-76187-101), (CCV 580-270782/14), (CCV 580-270782/25) and (CCVRT 580-270782/3).

Method(s) NWTPH-Dx: The continuing calibration verification (CCV) standard associated with batch 580-270782 recovered outside %Drift acceptance criteria for o-Terphenyl surrogate. The %Recovery is within acceptance criteria for the surrogate in the CCV and associated samples; therefore, the data are qualified and reported. (CCV 580-270782/14), (CCV 580-270782/25) and (CCVRT 580-270782/3)

Method(s) NWTPH-Dx: Continuing calibration verification (CCV) standard associated with batch 580-271389 recovered outside %Drift acceptance criteria for o-Terphenyl surrogate. The %Recovery is within acceptance criteria for the surrogate in the CCV and associated samples; therefore, the data are qualified and reported. RNS-15 (580-76187-81), RNS-16 (580-76187-82), RNS-13 (580-76187-91), RNS-14 (580-76187-92), (CCV 580-271389/16), (LCS 580-271293/2-A), (LCSD 580-271293/3-A) and (MB 580-271293/1-A)

Method(s) NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-270782 recovered above the upper control limit for Mineral oil. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: SW-29 (580-76187-97), SW-26 (580-76187-98), SW-27 (580-76187-99), SW-18 (580-76187-100), SW-31 (580-76187-101), (CCV 580-270782/15), (CCV 580-270782/4) and (MB 580-270552/1-A).

Method(s) NWTPH-Dx: Flag was removed manually for Motor Oil (>C24-C36) due to CCV passing criteria, 15.2 % rounds to +15%. (CCV 580-270464/34)

Method(s) NWTPH-Dx: The following samples were extracted with low MB/LCS/LCSD analyte and surrogate recoveries in analytical batch 580-270888. The re-extraction event occurred outside of sample hold time; therefore both data sets are reported, with the original extraction reported as primary data and the re-extraction as secondary data. Both sets confirmed non detects. RNS-15 (580-76187-81), RNS-16 (580-76187-82), RNS-13 (580-76187-91), RNS-14 (580-76187-92), (LCS 580-270796/2-A) and (LCSD 580-270796/3-A)

Method(s) NWTPH-Dx: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch preparation batch 580-270554 and analytical batch 580-270745 recovered outside control limits for the following analytes: #2 Diesel (C10-C24) and Motor Oil (>C24-C36): 580-76187-69 (SMP-01)

Method(s) NWTPH-Dx: The laboratory control sample duplicate (LCSD) for preparation batch 580-270552 and analytical batch 580-270782 recovered outside control limits for the following analyte: Motor Oil (>C24-C36). This analyte was biased high in the LCSD and was not detected in the associated samples; therefore, the data have been reported.

Method(s) NWTPH-Dx: The sample duplicate (DUP) precision for preparation batch 580-270680 and analytical batch 580-270849 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Job ID: 580-76187-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

Method(s) NWTPH-Dx: The sample duplicate (DUP) precision for preparation batch 580-270552 and analytical batch 580-271090 was outside control limits. Sample non-homogeneity is suspected.

Method(s) NWTPH-Dx: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: WY-SG04-CSB (580-76187-5), WY-SG08-CSB (580-76187-21), WY-SG02-CSB (580-76187-27), WY-SG01-CSB (580-76187-32), FOCB-SB03-1.5' (580-76187-33), WY-SG09-CSB (580-76187-38), WY-SG10-CSB (580-76187-48), WY-SG11-CSB (580-76187-53), EY-SG01-CSB (580-76187-63), EY-SG05-CSB (580-76187-66), SMP-01 (580-76187-69 and (580-76187-5 DU).

Method(s) NWTPH-Dx: The following samples were diluted to bring the concentration of target analytes within the calibration range: EY-SG01-CSB (580-76187-63), EY-SG05-CSB (580-76187-66) and SW23 (580-76187-90) at 2.0, 5.0 and 2.0. Elevated reporting limits (RLs) are provided.

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

Metals

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

General Chemistry

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

Organic Prep

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

Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

GC Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
X	Surrogate is outside control limits
*	RPD of the LCS and LCSD exceeds the control limits
H	Sample was prepped or analyzed beyond the specified holding time

General Chemistry

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

Glossary

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

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: WY-SG04-CSB

Lab Sample ID: 580-76187-5

Date Collected: 03/27/18 09:22

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 84.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		57		mg/Kg	☼	03/30/18 15:54	04/03/18 15:14	1
Motor Oil (>C24-C36)	78		57		mg/Kg	☼	03/30/18 15:54	04/03/18 15:14	1
Mineral oil	68		57		mg/Kg	☼	03/30/18 15:54	04/03/18 15:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	82		50 - 150				03/30/18 15:54	04/03/18 15:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.3		0.1		%			03/30/18 16:38	1
Percent Moisture	15.7		0.1		%			03/30/18 16:38	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: WY-SG03-CSB

Lab Sample ID: 580-76187-10

Date Collected: 03/27/18 10:12

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 82.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	480		56		mg/Kg	☼	03/30/18 15:54	04/03/18 15:55	1
Motor Oil (>C24-C36)	790		56		mg/Kg	☼	03/30/18 15:54	04/03/18 15:55	1
Mineral oil	740		56		mg/Kg	☼	03/30/18 15:54	04/03/18 15:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	74		50 - 150				03/30/18 15:54	04/03/18 15:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82.0		0.1		%			03/30/18 16:38	1
Percent Moisture	18.0		0.1		%			03/30/18 16:38	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: WY-SG08-CSB

Lab Sample ID: 580-76187-21

Date Collected: 03/27/18 14:20

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 86.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	140		55		mg/Kg	☼	03/30/18 15:54	04/03/18 16:15	1
Motor Oil (>C24-C36)	130		55		mg/Kg	☼	03/30/18 15:54	04/03/18 16:15	1
Mineral oil	190		55		mg/Kg	☼	03/30/18 15:54	04/03/18 16:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	89		50 - 150	03/30/18 15:54	04/03/18 16:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.5		0.1		%			03/30/18 16:38	1
Percent Moisture	13.5		0.1		%			03/30/18 16:38	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: WY-SG02-CSB

Lab Sample ID: 580-76187-27

Date Collected: 03/27/18 11:15

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 80.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	1300		58		mg/Kg	☼	03/30/18 15:54	04/03/18 17:16	1
Motor Oil (>C24-C36)	580		58		mg/Kg	☼	03/30/18 15:54	04/03/18 17:16	1
Mineral oil	1500		58		mg/Kg	☼	03/30/18 15:54	04/03/18 17:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	99		50 - 150	03/30/18 15:54	04/03/18 17:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.0		0.1		%			03/30/18 16:38	1
Percent Moisture	20.0		0.1		%			03/30/18 16:38	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: WY-SG01-CSB

Lab Sample ID: 580-76187-32

Date Collected: 03/27/18 11:40

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 81.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	310		59		mg/Kg	☼	03/30/18 15:54	04/03/18 17:37	1
Motor Oil (>C24-C36)	160		59		mg/Kg	☼	03/30/18 15:54	04/03/18 17:37	1
Mineral oil	380		59		mg/Kg	☼	03/30/18 15:54	04/03/18 17:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	84		50 - 150	03/30/18 15:54	04/03/18 17:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.2		0.1		%			03/30/18 16:38	1
Percent Moisture	18.8		0.1		%			03/30/18 16:38	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: FOCB-SB03-1.5'

Lab Sample ID: 580-76187-33

Date Collected: 03/28/18 11:17

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 87.0

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		41		ug/Kg	☼	04/04/18 18:14	04/06/18 00:20	1
Toluene	ND		310		ug/Kg	☼	04/04/18 18:14	04/06/18 00:20	1
Ethylbenzene	ND		81		ug/Kg	☼	04/04/18 18:14	04/06/18 00:20	1
m-Xylene & p-Xylene	ND		410		ug/Kg	☼	04/04/18 18:14	04/06/18 00:20	1
o-Xylene	ND		81		ug/Kg	☼	04/04/18 18:14	04/06/18 00:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	90		75 - 120	04/04/18 18:14	04/06/18 00:20	1
Trifluorotoluene (Surr)	115		60 - 150	04/04/18 18:14	04/06/18 00:20	1
4-Bromofluorobenzene (Surr)	103		47 - 150	04/04/18 18:14	04/06/18 00:20	1
Dibromofluoromethane (Surr)	108		80 - 118	04/04/18 18:14	04/06/18 00:20	1
1,2-Dichloroethane-d4 (Surr)	100		80 - 121	04/04/18 18:14	04/06/18 00:20	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
2-Methylnaphthalene	ND	F1	5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Acenaphthene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Acenaphthylene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Anthracene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Benzo[a]anthracene	16		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Benzo[a]pyrene	13		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Benzo[b]fluoranthene	24		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Benzo[g,h,i]perylene	9.7		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Benzo[k]fluoranthene	6.1		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Chrysene	22		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Dibenz(a,h)anthracene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Fluoranthene	37		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Fluorene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Indeno[1,2,3-cd]pyrene	13		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Naphthalene	8.1		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Phenanthrene	27	F1	5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1
Pyrene	39		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 22:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	105		68 - 138	04/02/18 14:25	04/03/18 22:14	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 13:45	1
PCB-1221	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 13:45	1
PCB-1232	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 13:45	1
PCB-1242	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 13:45	1
PCB-1248	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 13:45	1
PCB-1260	ND		0.022		mg/Kg	☼	04/09/18 10:24	04/11/18 13:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	117		25 - 149	04/09/18 10:24	04/11/18 13:45	1
Tetrachloro-m-xylene	92		35 - 130	04/09/18 10:24	04/11/18 13:45	1

TestAmerica Seattle

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: FOCB-SB03-1.5'

Lab Sample ID: 580-76187-33

Date Collected: 03/28/18 11:17

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 87.0

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1254	1.1		0.22		mg/Kg	☼	04/09/18 10:24	04/11/18 17:24	10

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		54		mg/Kg	☼	03/30/18 15:54	04/03/18 17:57	1
Motor Oil (>C24-C36)	56		54		mg/Kg	☼	03/30/18 15:54	04/03/18 17:57	1
Mineral oil	ND		54		mg/Kg	☼	03/30/18 15:54	04/03/18 17:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	84		50 - 150	03/30/18 15:54	04/03/18 17:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.0		0.1		%			03/30/18 16:38	1
Percent Moisture	13.0		0.1		%			03/30/18 16:38	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: FOCB-SB02-1.5'

Lab Sample ID: 580-76187-34

Date Collected: 03/28/18 11:20

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 84.8

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		52		ug/Kg	☼	04/04/18 18:14	04/06/18 00:47	1
Toluene	ND		390		ug/Kg	☼	04/04/18 18:14	04/06/18 00:47	1
Ethylbenzene	ND		100		ug/Kg	☼	04/04/18 18:14	04/06/18 00:47	1
m-Xylene & p-Xylene	ND		520		ug/Kg	☼	04/04/18 18:14	04/06/18 00:47	1
o-Xylene	ND		100		ug/Kg	☼	04/04/18 18:14	04/06/18 00:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		75 - 120	04/04/18 18:14	04/06/18 00:47	1
Trifluorotoluene (Surr)	102		60 - 150	04/04/18 18:14	04/06/18 00:47	1
4-Bromofluorobenzene (Surr)	104		47 - 150	04/04/18 18:14	04/06/18 00:47	1
Dibromofluoromethane (Surr)	101		80 - 118	04/04/18 18:14	04/06/18 00:47	1
1,2-Dichloroethane-d4 (Surr)	115		80 - 121	04/04/18 18:14	04/06/18 00:47	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
2-Methylnaphthalene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Acenaphthene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Acenaphthylene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Anthracene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Benzo[a]anthracene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Benzo[a]pyrene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Benzo[b]fluoranthene	7.5		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Benzo[g,h,i]perylene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Benzo[k]fluoranthene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Chrysene	6.6		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Dibenz(a,h)anthracene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Fluoranthene	10		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Fluorene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Indeno[1,2,3-cd]pyrene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Naphthalene	ND		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Phenanthrene	5.5		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1
Pyrene	6.1		5.5		ug/Kg	☼	04/02/18 14:25	04/03/18 23:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	98		68 - 138	04/02/18 14:25	04/03/18 23:27	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.021		mg/Kg	☼	04/09/18 10:24	04/11/18 14:19	1
PCB-1221	ND		0.021		mg/Kg	☼	04/09/18 10:24	04/11/18 14:19	1
PCB-1232	ND		0.021		mg/Kg	☼	04/09/18 10:24	04/11/18 14:19	1
PCB-1242	ND		0.021		mg/Kg	☼	04/09/18 10:24	04/11/18 14:19	1
PCB-1248	ND		0.021		mg/Kg	☼	04/09/18 10:24	04/11/18 14:19	1
PCB-1254	ND		0.021		mg/Kg	☼	04/09/18 10:24	04/11/18 14:19	1
PCB-1260	ND		0.021		mg/Kg	☼	04/09/18 10:24	04/11/18 14:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	104		25 - 149	04/09/18 10:24	04/11/18 14:19	1
Tetrachloro-m-xylene	84		35 - 130	04/09/18 10:24	04/11/18 14:19	1

TestAmerica Seattle

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: FOCB-SB02-1.5'

Lab Sample ID: 580-76187-34

Date Collected: 03/28/18 11:20

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 84.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		57		mg/Kg	☼	03/30/18 15:54	04/03/18 18:17	1
Motor Oil (>C24-C36)	ND		57		mg/Kg	☼	03/30/18 15:54	04/03/18 18:17	1
Mineral oil	ND		57		mg/Kg	☼	03/30/18 15:54	04/03/18 18:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	81		50 - 150				03/30/18 15:54	04/03/18 18:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.8		0.1		%			03/30/18 16:38	1
Percent Moisture	15.2		0.1		%			03/30/18 16:38	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: FOCB-SB01-1.5'

Lab Sample ID: 580-76187-35

Date Collected: 03/28/18 11:40

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 84.3

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		39		ug/Kg	☼	04/04/18 18:14	04/06/18 01:13	1
Toluene	ND		290		ug/Kg	☼	04/04/18 18:14	04/06/18 01:13	1
Ethylbenzene	ND		78		ug/Kg	☼	04/04/18 18:14	04/06/18 01:13	1
m-Xylene & p-Xylene	ND		390		ug/Kg	☼	04/04/18 18:14	04/06/18 01:13	1
o-Xylene	ND		78		ug/Kg	☼	04/04/18 18:14	04/06/18 01:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		75 - 120	04/04/18 18:14	04/06/18 01:13	1
Trifluorotoluene (Surr)	106		60 - 150	04/04/18 18:14	04/06/18 01:13	1
4-Bromofluorobenzene (Surr)	105		47 - 150	04/04/18 18:14	04/06/18 01:13	1
Dibromofluoromethane (Surr)	103		80 - 118	04/04/18 18:14	04/06/18 01:13	1
1,2-Dichloroethane-d4 (Surr)	115		80 - 121	04/04/18 18:14	04/06/18 01:13	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
2-Methylnaphthalene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Acenaphthene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Acenaphthylene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Anthracene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Benzo[a]anthracene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Benzo[a]pyrene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Benzo[b]fluoranthene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Benzo[g,h,i]perylene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Benzo[k]fluoranthene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Chrysene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Dibenz(a,h)anthracene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Fluoranthene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Fluorene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Indeno[1,2,3-cd]pyrene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Naphthalene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Phenanthrene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1
Pyrene	ND		5.4		ug/Kg	☼	04/02/18 14:25	04/03/18 23:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	104		68 - 138	04/02/18 14:25	04/03/18 23:52	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.021		mg/Kg	☼	04/09/18 10:24	04/11/18 14:35	1
PCB-1221	ND		0.021		mg/Kg	☼	04/09/18 10:24	04/11/18 14:35	1
PCB-1232	ND		0.021		mg/Kg	☼	04/09/18 10:24	04/11/18 14:35	1
PCB-1242	ND		0.021		mg/Kg	☼	04/09/18 10:24	04/11/18 14:35	1
PCB-1248	ND		0.021		mg/Kg	☼	04/09/18 10:24	04/11/18 14:35	1
PCB-1254	ND		0.021		mg/Kg	☼	04/09/18 10:24	04/11/18 14:35	1
PCB-1260	ND		0.021		mg/Kg	☼	04/09/18 10:24	04/11/18 14:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	109		25 - 149	04/09/18 10:24	04/11/18 14:35	1
Tetrachloro-m-xylene	82		35 - 130	04/09/18 10:24	04/11/18 14:35	1

TestAmerica Seattle

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: FOCB-SB01-1.5'

Lab Sample ID: 580-76187-35

Date Collected: 03/28/18 11:40

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 84.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		55		mg/Kg	☼	03/30/18 15:54	04/03/18 18:38	1
Motor Oil (>C24-C36)	ND		55		mg/Kg	☼	03/30/18 15:54	04/03/18 18:38	1
Mineral oil	ND		55		mg/Kg	☼	03/30/18 15:54	04/03/18 18:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	83		50 - 150	03/30/18 15:54	04/03/18 18:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.3		0.1		%			03/30/18 16:38	1
Percent Moisture	15.7		0.1		%			03/30/18 16:38	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: FOCB-SB04-1.5'

Lab Sample ID: 580-76187-36

Date Collected: 03/28/18 11:50

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 87.4

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		39		ug/Kg	☼	04/04/18 18:14	04/06/18 01:39	1
Toluene	ND		290		ug/Kg	☼	04/04/18 18:14	04/06/18 01:39	1
Ethylbenzene	ND		79		ug/Kg	☼	04/04/18 18:14	04/06/18 01:39	1
m-Xylene & p-Xylene	ND		390		ug/Kg	☼	04/04/18 18:14	04/06/18 01:39	1
o-Xylene	ND		79		ug/Kg	☼	04/04/18 18:14	04/06/18 01:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		75 - 120	04/04/18 18:14	04/06/18 01:39	1
Trifluorotoluene (Surr)	106		60 - 150	04/04/18 18:14	04/06/18 01:39	1
4-Bromofluorobenzene (Surr)	115		47 - 150	04/04/18 18:14	04/06/18 01:39	1
Dibromofluoromethane (Surr)	101		80 - 118	04/04/18 18:14	04/06/18 01:39	1
1,2-Dichloroethane-d4 (Surr)	103		80 - 121	04/04/18 18:14	04/06/18 01:39	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	6.0		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
2-Methylnaphthalene	9.7		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Acenaphthene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Acenaphthylene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Anthracene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Benzo[a]anthracene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Benzo[a]pyrene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Benzo[b]fluoranthene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Benzo[g,h,i]perylene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Benzo[k]fluoranthene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Chrysene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Dibenz(a,h)anthracene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Fluoranthene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Fluorene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Indeno[1,2,3-cd]pyrene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Naphthalene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Phenanthrene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1
Pyrene	ND		5.3		ug/Kg	☼	04/02/18 14:25	04/04/18 00:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	102		68 - 138	04/02/18 14:25	04/04/18 00:16	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.023		mg/Kg	☼	04/09/18 10:24	04/11/18 14:52	1
PCB-1221	ND		0.023		mg/Kg	☼	04/09/18 10:24	04/11/18 14:52	1
PCB-1232	ND		0.023		mg/Kg	☼	04/09/18 10:24	04/11/18 14:52	1
PCB-1242	ND		0.023		mg/Kg	☼	04/09/18 10:24	04/11/18 14:52	1
PCB-1248	ND		0.023		mg/Kg	☼	04/09/18 10:24	04/11/18 14:52	1
PCB-1254	ND		0.023		mg/Kg	☼	04/09/18 10:24	04/11/18 14:52	1
PCB-1260	ND		0.023		mg/Kg	☼	04/09/18 10:24	04/11/18 14:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	112		25 - 149	04/09/18 10:24	04/11/18 14:52	1
Tetrachloro-m-xylene	84		35 - 130	04/09/18 10:24	04/11/18 14:52	1

TestAmerica Seattle

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: FOCB-SB04-1.5'

Lab Sample ID: 580-76187-36

Date Collected: 03/28/18 11:50

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 87.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		53		mg/Kg	☼	03/30/18 15:54	04/03/18 18:58	1
Motor Oil (>C24-C36)	ND		53		mg/Kg	☼	03/30/18 15:54	04/03/18 18:58	1
Mineral oil	ND		53		mg/Kg	☼	03/30/18 15:54	04/03/18 18:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	81		50 - 150	03/30/18 15:54	04/03/18 18:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.4		0.1		%			03/30/18 16:38	1
Percent Moisture	12.6		0.1		%			03/30/18 16:38	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: WY-SG09-CSB

Lab Sample ID: 580-76187-38

Date Collected: 03/27/18 15:05

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 86.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	220		53		mg/Kg	☼	03/30/18 15:54	04/03/18 19:19	1
Motor Oil (>C24-C36)	240		53		mg/Kg	☼	03/30/18 15:54	04/03/18 19:19	1
Mineral oil	310		53		mg/Kg	☼	03/30/18 15:54	04/03/18 19:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	78		50 - 150				03/30/18 15:54	04/03/18 19:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.5		0.1		%			03/30/18 16:38	1
Percent Moisture	13.5		0.1		%			03/30/18 16:38	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: WY-SG15-CSB

Lab Sample ID: 580-76187-43

Date Collected: 03/27/18 15:47

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 81.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		58		mg/Kg	☼	03/30/18 15:54	04/03/18 19:39	1
Motor Oil (>C24-C36)	ND		58		mg/Kg	☼	03/30/18 15:54	04/03/18 19:39	1
Mineral oil	ND		58		mg/Kg	☼	03/30/18 15:54	04/03/18 19:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	80		50 - 150	03/30/18 15:54	04/03/18 19:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.3		0.1		%			03/30/18 16:38	1
Percent Moisture	18.7		0.1		%			03/30/18 16:38	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: WY-SG10-CSB

Lab Sample ID: 580-76187-48

Date Collected: 03/28/18 08:58

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 83.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	270		59		mg/Kg	☼	03/30/18 15:54	04/03/18 19:59	1
Motor Oil (>C24-C36)	320		59		mg/Kg	☼	03/30/18 15:54	04/03/18 19:59	1
Mineral oil	370		59		mg/Kg	☼	03/30/18 15:54	04/03/18 19:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	73		50 - 150				03/30/18 15:54	04/03/18 19:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.0		0.1		%			03/30/18 16:38	1
Percent Moisture	17.0		0.1		%			03/30/18 16:38	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: WY-SG11-CSB

Lab Sample ID: 580-76187-53

Date Collected: 03/28/18 09:35

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 84.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	290		54		mg/Kg	☼	03/30/18 15:54	04/03/18 21:00	1
Motor Oil (>C24-C36)	220		54		mg/Kg	☼	03/30/18 15:54	04/03/18 21:00	1
Mineral oil	380		54		mg/Kg	☼	03/30/18 15:54	04/03/18 21:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	88		50 - 150				03/30/18 15:54	04/03/18 21:00	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	71		2.6		mg/Kg	☼	04/05/18 09:24	04/05/18 19:05	1
Barium	94		0.43		mg/Kg	☼	04/05/18 09:24	04/05/18 19:05	1
Cadmium	ND		0.85		mg/Kg	☼	04/05/18 09:24	04/05/18 19:05	1
Chromium	32		1.1		mg/Kg	☼	04/05/18 09:24	04/05/18 19:05	1
Lead	20		1.3		mg/Kg	☼	04/05/18 09:24	04/05/18 19:05	1
Selenium	ND		4.3		mg/Kg	☼	04/05/18 09:24	04/05/18 19:05	1
Silver	ND		2.1		mg/Kg	☼	04/05/18 09:24	04/05/18 19:05	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.14		0.028		mg/Kg	☼	04/02/18 11:17	04/02/18 16:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.0		0.1		%			03/30/18 16:38	1
Percent Moisture	16.0		0.1		%			03/30/18 16:38	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-42

Date Collected: 03/28/18 12:20

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-58

Matrix: Solid

Percent Solids: 84.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		58		mg/Kg	☼	04/02/18 14:51	04/04/18 00:52	1
Motor Oil (>C24-C36)	ND		58		mg/Kg	☼	04/02/18 14:51	04/04/18 00:52	1
Mineral oil	ND		58		mg/Kg	☼	04/02/18 14:51	04/04/18 14:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	80		50 - 150	04/02/18 14:51	04/04/18 00:52	1
<i>o</i> -Terphenyl	106		50 - 150	04/02/18 14:51	04/04/18 14:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.0		0.1		%			04/02/18 15:48	1
Percent Moisture	16.0		0.1		%			04/02/18 15:48	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-43

Date Collected: 03/28/18 12:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-59

Matrix: Solid

Percent Solids: 84.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		54		mg/Kg	☼	04/02/18 14:51	04/04/18 01:47	1
Motor Oil (>C24-C36)	ND		54		mg/Kg	☼	04/02/18 14:51	04/04/18 01:47	1
Mineral oil	ND		54		mg/Kg	☼	04/02/18 14:51	04/04/18 15:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	79		50 - 150	04/02/18 14:51	04/04/18 01:47	1
<i>o</i> -Terphenyl	98		50 - 150	04/02/18 14:51	04/04/18 15:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.8		0.1		%			04/02/18 15:48	1
Percent Moisture	15.2		0.1		%			04/02/18 15:48	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-44

Date Collected: 03/28/18 15:00

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-60

Matrix: Solid

Percent Solids: 85.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		57		mg/Kg	☼	04/02/18 14:51	04/04/18 02:14	1
Motor Oil (>C24-C36)	ND		57		mg/Kg	☼	04/02/18 14:51	04/04/18 02:14	1
Mineral oil	ND		57		mg/Kg	☼	04/02/18 14:51	04/04/18 15:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	78		50 - 150	04/02/18 14:51	04/04/18 02:14	1
<i>o</i> -Terphenyl	105		50 - 150	04/02/18 14:51	04/04/18 15:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.6		0.1		%			04/02/18 15:48	1
Percent Moisture	14.4		0.1		%			04/02/18 15:48	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: EY-SG01-CSB

Lab Sample ID: 580-76187-63

Date Collected: 03/28/18 14:45

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 85.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	450		55		mg/Kg	☼	04/02/18 14:51	04/04/18 02:41	1
Motor Oil (>C24-C36)	370		55		mg/Kg	☼	04/02/18 14:51	04/04/18 02:41	1
Mineral oil	780		55		mg/Kg	☼	04/02/18 14:51	04/12/18 12:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	82		50 - 150				04/02/18 14:51	04/04/18 02:41	1
<i>o</i> -Terphenyl	85		50 - 150				04/02/18 14:51	04/11/18 06:05	2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.3		0.1		%	-		04/02/18 15:48	1
Percent Moisture	14.7		0.1		%	-		04/02/18 15:48	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: EY-SG05-CSB

Lab Sample ID: 580-76187-66

Date Collected: 03/28/18 14:20

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 88.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	1300		52		mg/Kg	☼	04/02/18 14:51	04/04/18 03:09	1
Motor Oil (>C24-C36)	760		52		mg/Kg	☼	04/02/18 14:51	04/04/18 03:09	1
Mineral oil	6200		160		mg/Kg	☼	04/02/18 14:51	04/12/18 12:43	3
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	87		50 - 150				04/02/18 14:51	04/04/18 03:09	1
<i>o</i> -Terphenyl	94		50 - 150				04/02/18 14:51	04/11/18 06:33	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.4		0.1		%			04/02/18 15:48	1
Percent Moisture	11.6		0.1		%			04/02/18 15:48	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SMP-01

Date Collected: 03/28/18 15:40

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-69

Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.46		ug/L		04/05/18 10:13	04/10/18 17:14	1
PCB-1221	ND		0.46		ug/L		04/05/18 10:13	04/10/18 17:14	1
PCB-1232	ND		0.46		ug/L		04/05/18 10:13	04/10/18 17:14	1
PCB-1242	ND		0.46		ug/L		04/05/18 10:13	04/10/18 17:14	1
PCB-1248	ND		0.46		ug/L		04/05/18 10:13	04/10/18 17:14	1
PCB-1254	ND		0.46		ug/L		04/05/18 10:13	04/10/18 17:14	1
PCB-1260	ND		0.46		ug/L		04/05/18 10:13	04/10/18 17:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	77		38 - 134	04/05/18 10:13	04/10/18 17:14	1
Tetrachloro-m-xylene	53	X	54 - 115	04/05/18 10:13	04/10/18 17:14	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.20	*	0.11		mg/L		04/04/18 09:36	04/11/18 07:01	1
Motor Oil (>C24-C36)	ND	*	0.35		mg/L		04/04/18 09:36	04/11/18 07:01	1
Mineral oil	0.38		0.35		mg/L		04/04/18 09:36	04/11/18 07:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	56		50 - 150	04/04/18 09:36	04/11/18 07:01	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-32

Date Collected: 03/28/18 08:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-70

Matrix: Solid

Percent Solids: 81.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		59		mg/Kg	☼	04/02/18 14:51	04/04/18 04:33	1
Motor Oil (>C24-C36)	ND		59		mg/Kg	☼	04/02/18 14:51	04/04/18 04:33	1
Mineral oil	ND		59		mg/Kg	☼	04/02/18 14:51	04/04/18 16:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	78		50 - 150				04/02/18 14:51	04/04/18 04:33	1
<i>o</i> -Terphenyl	96		50 - 150				04/02/18 14:51	04/04/18 16:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.8		0.1		%			04/02/18 15:48	1
Percent Moisture	18.2		0.1		%			04/02/18 15:48	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-33

Date Collected: 03/28/18 08:45

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-71

Matrix: Solid

Percent Solids: 82.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		55		mg/Kg	☼	04/02/18 14:51	04/04/18 05:01	1
Motor Oil (>C24-C36)	ND		55		mg/Kg	☼	04/02/18 14:51	04/04/18 05:01	1
Mineral oil	ND		55		mg/Kg	☼	04/02/18 14:51	04/04/18 16:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	75		50 - 150				04/02/18 14:51	04/04/18 05:01	1
<i>o</i> -Terphenyl	94		50 - 150				04/02/18 14:51	04/04/18 16:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82.3		0.1		%			04/02/18 15:48	1
Percent Moisture	17.7		0.1		%			04/02/18 15:48	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-34

Date Collected: 03/28/18 09:10

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-72

Matrix: Solid

Percent Solids: 88.9

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	04/02/18 14:51	04/04/18 05:28	1
Motor Oil (>C24-C36)	ND		52		mg/Kg	☼	04/02/18 14:51	04/04/18 05:28	1
Mineral oil	ND		52		mg/Kg	☼	04/02/18 14:51	04/04/18 17:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	78		50 - 150				04/02/18 14:51	04/04/18 05:28	1
<i>o</i> -Terphenyl	96		50 - 150				04/02/18 14:51	04/04/18 17:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.9		0.1		%			04/02/18 15:48	1
Percent Moisture	11.1		0.1		%			04/02/18 15:48	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-35

Date Collected: 03/28/18 09:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-73

Matrix: Solid

Percent Solids: 77.9

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		59		mg/Kg	☼	04/02/18 14:51	04/04/18 05:56	1
Motor Oil (>C24-C36)	ND		59		mg/Kg	☼	04/02/18 14:51	04/04/18 05:56	1
Mineral oil	ND		59		mg/Kg	☼	04/02/18 14:51	04/04/18 17:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	73		50 - 150				04/02/18 14:51	04/04/18 05:56	1
<i>o</i> -Terphenyl	89		50 - 150				04/02/18 14:51	04/04/18 17:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	77.9		0.1		%			04/02/18 15:48	1
Percent Moisture	22.1		0.1		%			04/02/18 15:48	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-36

Date Collected: 03/28/18 10:40

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-74

Matrix: Solid

Percent Solids: 87.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		54		mg/Kg	☼	04/05/18 09:37	04/07/18 01:39	1
Motor Oil (>C24-C36)	ND		54		mg/Kg	☼	04/05/18 09:37	04/07/18 01:39	1
Mineral oil	ND		54		mg/Kg	☼	04/05/18 09:37	04/12/18 13:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	93		50 - 150	04/05/18 09:37	04/07/18 01:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.0		0.1		%			04/05/18 16:46	1
Percent Moisture	13.0		0.1		%			04/05/18 16:46	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-37

Date Collected: 03/28/18 10:50

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-75

Matrix: Solid

Percent Solids: 80.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		60		mg/Kg	☼	04/02/18 14:51	04/04/18 06:24	1
Motor Oil (>C24-C36)	ND		60		mg/Kg	☼	04/02/18 14:51	04/04/18 06:24	1
Mineral oil	ND		60		mg/Kg	☼	04/02/18 14:51	04/04/18 18:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	73		50 - 150				04/02/18 14:51	04/04/18 06:24	1
<i>o</i> -Terphenyl	89		50 - 150				04/02/18 14:51	04/04/18 18:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.4		0.1		%			04/02/18 15:48	1
Percent Moisture	19.6		0.1		%			04/02/18 15:48	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-38

Date Collected: 03/28/18 11:05

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-76

Matrix: Solid

Percent Solids: 78.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		59		mg/Kg	☼	04/02/18 14:51	04/04/18 06:52	1
Motor Oil (>C24-C36)	ND		59		mg/Kg	☼	04/02/18 14:51	04/04/18 06:52	1
Mineral oil	ND		59		mg/Kg	☼	04/02/18 14:51	04/04/18 18:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	75		50 - 150	04/02/18 14:51	04/04/18 06:52	1
<i>o</i> -Terphenyl	98		50 - 150	04/02/18 14:51	04/04/18 18:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	78.4		0.1		%			04/02/18 15:48	1
Percent Moisture	21.6		0.1		%			04/02/18 15:48	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-39

Date Collected: 03/28/18 11:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-77

Matrix: Solid

Percent Solids: 77.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		61		mg/Kg	☼	04/02/18 14:51	04/04/18 07:19	1
Motor Oil (>C24-C36)	ND		61		mg/Kg	☼	04/02/18 14:51	04/04/18 07:19	1
Mineral oil	ND		61		mg/Kg	☼	04/02/18 14:51	04/04/18 18:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	69		50 - 150	04/02/18 14:51	04/04/18 07:19	1
<i>o</i> -Terphenyl	86		50 - 150	04/02/18 14:51	04/04/18 18:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	77.2		0.1		%			04/02/18 15:48	1
Percent Moisture	22.8		0.1		%			04/02/18 15:48	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-40

Date Collected: 03/28/18 11:34

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-78

Matrix: Solid

Percent Solids: 79.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		59		mg/Kg	☼	04/02/18 14:51	04/04/18 07:47	1
Motor Oil (>C24-C36)	ND		59		mg/Kg	☼	04/02/18 14:51	04/04/18 07:47	1
Mineral oil	ND		59		mg/Kg	☼	04/02/18 14:51	04/04/18 19:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	73		50 - 150	04/02/18 14:51	04/04/18 07:47	1
<i>o</i> -Terphenyl	89		50 - 150	04/02/18 14:51	04/04/18 19:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	79.8		0.1		%			04/02/18 15:48	1
Percent Moisture	20.2		0.1		%			04/02/18 15:48	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-41

Date Collected: 03/28/18 11:55

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-79

Matrix: Solid

Percent Solids: 82.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		56		mg/Kg	☼	04/02/18 14:51	04/04/18 08:14	1
Motor Oil (>C24-C36)	ND		56		mg/Kg	☼	04/02/18 14:51	04/04/18 08:14	1
Mineral oil	ND		56		mg/Kg	☼	04/02/18 14:51	04/04/18 19:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	67		50 - 150	04/02/18 14:51	04/04/18 08:14	1
<i>o</i> -Terphenyl	83		50 - 150	04/02/18 14:51	04/04/18 19:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82.8		0.1		%			04/02/18 15:48	1
Percent Moisture	17.2		0.1		%			04/02/18 15:48	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: EY-SG06-CSB

Lab Sample ID: 580-76187-80

Date Collected: 03/28/18 14:45

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 86.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	04/02/18 14:51	04/04/18 09:36	1
Motor Oil (>C24-C36)	61		52		mg/Kg	☼	04/02/18 14:51	04/04/18 09:36	1
Mineral oil	ND		52		mg/Kg	☼	04/02/18 14:51	04/04/18 19:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	72		50 - 150				04/02/18 14:51	04/04/18 09:36	1
<i>o</i> -Terphenyl	95		50 - 150				04/02/18 14:51	04/04/18 19:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.4		0.1		%			04/02/18 15:48	1
Percent Moisture	13.6		0.1		%			04/02/18 15:48	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: RNS-15

Date Collected: 03/28/18 15:10

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-81

Matrix: Water

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.041		ug/L		04/03/18 09:14	04/05/18 17:07	1
2-Methylnaphthalene	ND		0.030		ug/L		04/03/18 09:14	04/05/18 17:07	1
1-Methylnaphthalene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 17:07	1
Acenaphthylene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 17:07	1
Acenaphthene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 17:07	1
Fluorene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 17:07	1
Phenanthrene	0.032		0.020		ug/L		04/03/18 09:14	04/05/18 17:07	1
Anthracene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 17:07	1
Fluoranthene	0.064		0.020		ug/L		04/03/18 09:14	04/05/18 17:07	1
Pyrene	0.077		0.020		ug/L		04/03/18 09:14	04/05/18 17:07	1
Benzo[a]anthracene	0.034		0.020		ug/L		04/03/18 09:14	04/05/18 17:07	1
Chrysene	0.035		0.020		ug/L		04/03/18 09:14	04/05/18 17:07	1
Benzo[b]fluoranthene	0.043		0.020		ug/L		04/03/18 09:14	04/05/18 17:07	1
Benzo[k]fluoranthene	ND		0.030		ug/L		04/03/18 09:14	04/05/18 17:07	1
Benzo[a]pyrene	0.032		0.020		ug/L		04/03/18 09:14	04/05/18 17:07	1
Indeno[1,2,3-cd]pyrene	0.029		0.020		ug/L		04/03/18 09:14	04/05/18 17:07	1
Dibenz(a,h)anthracene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 17:07	1
Benzo[g,h,i]perylene	0.021		0.020		ug/L		04/03/18 09:14	04/05/18 17:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	81		53 - 112	04/03/18 09:14	04/05/18 17:07	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.46		ug/L		04/05/18 10:13	04/10/18 17:30	1
PCB-1221	ND		0.46		ug/L		04/05/18 10:13	04/10/18 17:30	1
PCB-1232	ND		0.46		ug/L		04/05/18 10:13	04/10/18 17:30	1
PCB-1242	ND		0.46		ug/L		04/05/18 10:13	04/10/18 17:30	1
PCB-1248	ND		0.46		ug/L		04/05/18 10:13	04/10/18 17:30	1
PCB-1254	ND		0.46		ug/L		04/05/18 10:13	04/10/18 17:30	1
PCB-1260	ND		0.46		ug/L		04/05/18 10:13	04/10/18 17:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	42		38 - 134	04/05/18 10:13	04/10/18 17:30	1
Tetrachloro-m-xylene	104		54 - 115	04/05/18 10:13	04/10/18 17:30	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND	*	0.11		mg/L		04/06/18 09:58	04/08/18 17:20	1
#2 Diesel (C10-C24)	ND	H	0.11		mg/L		04/13/18 09:33	04/13/18 20:15	1
Motor Oil (>C24-C36)	ND	*	0.35		mg/L		04/06/18 09:58	04/08/18 17:20	1
Motor Oil (>C24-C36)	ND	H	0.36		mg/L		04/13/18 09:33	04/13/18 20:15	1
Mineral oil	ND		0.35		mg/L		04/06/18 09:58	04/12/18 14:05	1
Mineral oil	ND	H	0.36		mg/L		04/13/18 09:33	04/13/18 20:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	57		50 - 150	04/06/18 09:58	04/08/18 17:20	1
o-Terphenyl	77		50 - 150	04/13/18 09:33	04/13/18 20:15	1

TestAmerica Seattle

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: RNS-16

Date Collected: 03/28/18 15:20

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-82

Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND	*	0.11		mg/L		04/06/18 09:58	04/08/18 17:42	1
#2 Diesel (C10-C24)	ND	H	0.11		mg/L		04/13/18 09:33	04/13/18 20:35	1
Motor Oil (>C24-C36)	ND	*	0.36		mg/L		04/06/18 09:58	04/08/18 17:42	1
Motor Oil (>C24-C36)	ND	H	0.35		mg/L		04/13/18 09:33	04/13/18 20:35	1
Mineral oil	ND		0.36		mg/L		04/06/18 09:58	04/12/18 14:25	1
Mineral oil	ND	H	0.35		mg/L		04/13/18 09:33	04/13/18 20:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	62		50 - 150	04/06/18 09:58	04/08/18 17:42	1
<i>o</i> -Terphenyl	78		50 - 150	04/13/18 09:33	04/13/18 20:35	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW25
Date Collected: 03/27/18 14:50
Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-85
Matrix: Solid
Percent Solids: 80.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		60		mg/Kg	☼	04/02/18 14:51	04/04/18 10:04	1
Motor Oil (>C24-C36)	ND		60		mg/Kg	☼	04/02/18 14:51	04/04/18 10:04	1
Mineral oil	ND		60		mg/Kg	☼	04/02/18 14:51	04/04/18 20:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	71		50 - 150				04/02/18 14:51	04/04/18 10:04	1
<i>o</i> -Terphenyl	87		50 - 150				04/02/18 14:51	04/04/18 20:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.2		0.1		%			04/02/18 15:48	1
Percent Moisture	19.8		0.1		%			04/02/18 15:48	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW28

Date Collected: 03/27/18 15:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-86

Matrix: Solid

Percent Solids: 78.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		58		mg/Kg	☼	04/02/18 14:51	04/04/18 10:32	1
Motor Oil (>C24-C36)	ND		58		mg/Kg	☼	04/02/18 14:51	04/04/18 10:32	1
Mineral oil	ND		58		mg/Kg	☼	04/02/18 14:51	04/04/18 20:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	76		50 - 150	04/02/18 14:51	04/04/18 10:32	1
<i>o</i> -Terphenyl	94		50 - 150	04/02/18 14:51	04/04/18 20:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	78.8		0.1		%			04/02/18 15:48	1
Percent Moisture	21.2		0.1		%			04/02/18 15:48	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW20
Date Collected: 03/27/18 10:30
Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-87
Matrix: Solid
Percent Solids: 86.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		54		mg/Kg	☼	04/02/18 14:51	04/04/18 10:59	1
Motor Oil (>C24-C36)	ND		54		mg/Kg	☼	04/02/18 14:51	04/04/18 10:59	1
Mineral oil	ND		54		mg/Kg	☼	04/02/18 14:51	04/04/18 20:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	75		50 - 150	04/02/18 14:51	04/04/18 10:59	1
<i>o</i> -Terphenyl	95		50 - 150	04/02/18 14:51	04/04/18 20:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.3		0.1		%			04/02/18 15:48	1
Percent Moisture	13.7		0.1		%			04/02/18 15:48	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW21

Date Collected: 03/27/18 11:00

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-88

Matrix: Solid

Percent Solids: 80.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		58		mg/Kg	☼	04/02/18 14:51	04/04/18 11:27	1
Motor Oil (>C24-C36)	ND		58		mg/Kg	☼	04/02/18 14:51	04/04/18 11:27	1
Mineral oil	ND		58		mg/Kg	☼	04/02/18 14:51	04/04/18 21:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	76		50 - 150	04/02/18 14:51	04/04/18 11:27	1
<i>o</i> -Terphenyl	93		50 - 150	04/02/18 14:51	04/04/18 21:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.5		0.1		%			04/02/18 15:48	1
Percent Moisture	19.5		0.1		%			04/02/18 15:48	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW24

Date Collected: 03/27/18 14:40

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-89

Matrix: Solid

Percent Solids: 81.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		57		mg/Kg	☼	04/02/18 14:51	04/04/18 11:55	1
Motor Oil (>C24-C36)	ND		57		mg/Kg	☼	04/02/18 14:51	04/04/18 11:55	1
Mineral oil	ND		57		mg/Kg	☼	04/02/18 14:51	04/04/18 21:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	76		50 - 150	04/02/18 14:51	04/04/18 11:55	1
<i>o</i> -Terphenyl	99		50 - 150	04/02/18 14:51	04/04/18 21:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.3		0.1		%			04/02/18 15:50	1
Percent Moisture	18.7		0.1		%			04/02/18 15:50	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW23

Date Collected: 03/27/18 11:50

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-90

Matrix: Solid

Percent Solids: 82.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	640		120		mg/Kg	☼	04/04/18 08:53	04/10/18 20:18	2
Motor Oil (>C24-C36)	240		120		mg/Kg	☼	04/04/18 08:53	04/10/18 20:18	2
Mineral oil	790		120		mg/Kg	☼	04/04/18 08:53	04/10/18 20:18	2
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	77		50 - 150				04/04/18 08:53	04/10/18 20:18	2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82.0		0.1		%			04/05/18 16:46	1
Percent Moisture	18.0		0.1		%			04/05/18 16:46	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: RNS-13

Date Collected: 03/27/18 16:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-91

Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND	*	0.11		mg/L		04/06/18 09:58	04/08/18 18:04	1
#2 Diesel (C10-C24)	0.11	H	0.11		mg/L		04/13/18 09:33	04/13/18 20:55	1
Motor Oil (>C24-C36)	ND	*	0.35		mg/L		04/06/18 09:58	04/08/18 18:04	1
Motor Oil (>C24-C36)	ND	H	0.35		mg/L		04/13/18 09:33	04/13/18 20:55	1
Mineral oil	ND		0.35		mg/L		04/06/18 09:58	04/12/18 14:45	1
Mineral oil	ND	H	0.35		mg/L		04/13/18 09:33	04/13/18 20:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	54		50 - 150	04/06/18 09:58	04/08/18 18:04	1
<i>o</i> -Terphenyl	77		50 - 150	04/13/18 09:33	04/13/18 20:55	1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050		mg/L		04/02/18 14:58	04/03/18 13:12	5
Barium	ND		0.0060		mg/L		04/02/18 14:58	04/03/18 13:12	5
Cadmium	ND		0.0020		mg/L		04/02/18 14:58	04/03/18 13:12	5
Chromium	ND		0.0020		mg/L		04/02/18 14:58	04/03/18 13:12	5
Lead	0.0069		0.0040		mg/L		04/02/18 14:58	04/03/18 13:12	5
Selenium	ND		0.040		mg/L		04/02/18 14:58	04/03/18 13:12	5
Silver	ND		0.0020		mg/L		04/02/18 14:58	04/03/18 13:12	5

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00030		mg/L		04/02/18 09:50	04/02/18 14:07	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: RNS-14

Date Collected: 03/27/18 16:40

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-92

Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND	*	0.11		mg/L		04/06/18 09:58	04/08/18 18:26	1
#2 Diesel (C10-C24)	ND	H	0.11		mg/L		04/13/18 09:33	04/13/18 21:16	1
Motor Oil (>C24-C36)	ND	*	0.35		mg/L		04/06/18 09:58	04/08/18 18:26	1
Motor Oil (>C24-C36)	ND	H	0.35		mg/L		04/13/18 09:33	04/13/18 21:16	1
Mineral oil	ND		0.35		mg/L		04/06/18 09:58	04/12/18 15:06	1
Mineral oil	ND	H	0.35		mg/L		04/13/18 09:33	04/13/18 21:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	53		50 - 150				04/06/18 09:58	04/08/18 18:26	1
<i>o</i> -Terphenyl	80		50 - 150				04/13/18 09:33	04/13/18 21:16	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-19

Date Collected: 03/27/18 10:15

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-94

Matrix: Solid

Percent Solids: 80.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		57		mg/Kg	☼	04/04/18 08:53	04/10/18 20:46	1
Motor Oil (>C24-C36)	ND		57		mg/Kg	☼	04/04/18 08:53	04/10/18 20:46	1
Mineral oil	ND		57		mg/Kg	☼	04/04/18 08:53	04/10/18 20:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	78		50 - 150	04/04/18 08:53	04/10/18 20:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.5		0.1		%			04/05/18 16:46	1
Percent Moisture	19.5		0.1		%			04/05/18 16:46	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-30

Date Collected: 03/27/18 16:05

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-95

Matrix: Solid

Percent Solids: 80.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	210		58		mg/Kg	☼	04/04/18 08:53	04/10/18 21:14	1
Motor Oil (>C24-C36)	ND		58		mg/Kg	☼	04/04/18 08:53	04/10/18 21:14	1
Mineral oil	250		58		mg/Kg	☼	04/04/18 08:53	04/10/18 21:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	81		50 - 150	04/04/18 08:53	04/10/18 21:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.3		0.1		%			04/05/18 16:46	1
Percent Moisture	19.7		0.1		%			04/05/18 16:46	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-22

Date Collected: 03/27/18 11:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-96

Matrix: Solid

Percent Solids: 83.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	340		58		mg/Kg	☼	04/04/18 08:53	04/10/18 21:42	1
Motor Oil (>C24-C36)	59		58		mg/Kg	☼	04/04/18 08:53	04/10/18 21:42	1
Mineral oil	380		58		mg/Kg	☼	04/04/18 08:53	04/10/18 21:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	80		50 - 150				04/04/18 08:53	04/10/18 21:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.0		0.1		%			04/05/18 16:46	1
Percent Moisture	17.0		0.1		%			04/05/18 16:46	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-29

Date Collected: 03/27/18 15:40

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-97

Matrix: Solid

Percent Solids: 83.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		55		mg/Kg	☼	04/04/18 08:53	04/07/18 00:02	1
Motor Oil (>C24-C36)	ND	*	55		mg/Kg	☼	04/04/18 08:53	04/07/18 00:02	1
Mineral oil	ND		55		mg/Kg	☼	04/04/18 08:53	04/07/18 00:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	96		50 - 150	04/04/18 08:53	04/07/18 00:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.8		0.1		%			04/05/18 16:46	1
Percent Moisture	16.2		0.1		%			04/05/18 16:46	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-26

Date Collected: 03/27/18 15:00

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-98

Matrix: Solid

Percent Solids: 80.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		59		mg/Kg	☼	04/04/18 08:53	04/07/18 00:23	1
Motor Oil (>C24-C36)	ND	*	59		mg/Kg	☼	04/04/18 08:53	04/07/18 00:23	1
Mineral oil	ND		59		mg/Kg	☼	04/04/18 08:53	04/07/18 00:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	82		50 - 150				04/04/18 08:53	04/07/18 00:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.8		0.1		%			04/05/18 16:46	1
Percent Moisture	19.2		0.1		%			04/05/18 16:46	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-27

Date Collected: 03/27/18 15:10

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-99

Matrix: Solid

Percent Solids: 81.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		58		mg/Kg	☼	04/04/18 08:53	04/07/18 00:43	1
Motor Oil (>C24-C36)	ND	*	58		mg/Kg	☼	04/04/18 08:53	04/07/18 00:43	1
Mineral oil	ND		58		mg/Kg	☼	04/04/18 08:53	04/07/18 00:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	91		50 - 150				04/04/18 08:53	04/07/18 00:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.6		0.1		%			04/05/18 16:46	1
Percent Moisture	18.4		0.1		%			04/05/18 16:46	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-18

Date Collected: 03/27/18 10:00

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-100

Matrix: Solid

Percent Solids: 87.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	04/04/18 08:53	04/07/18 01:03	1
Motor Oil (>C24-C36)	ND	*	52		mg/Kg	☼	04/04/18 08:53	04/07/18 01:03	1
Mineral oil	ND		52		mg/Kg	☼	04/04/18 08:53	04/07/18 01:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	88		50 - 150	04/04/18 08:53	04/07/18 01:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.0		0.1		%			04/05/18 16:46	1
Percent Moisture	13.0		0.1		%			04/05/18 16:46	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-31

Date Collected: 03/27/18 16:20

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-101

Matrix: Solid

Percent Solids: 83.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		55		mg/Kg	☼	04/04/18 08:53	04/07/18 01:24	1
Motor Oil (>C24-C36)	ND	*	55		mg/Kg	☼	04/04/18 08:53	04/07/18 01:24	1
Mineral oil	ND		55		mg/Kg	☼	04/04/18 08:53	04/07/18 01:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	90		50 - 150				04/04/18 08:53	04/07/18 01:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.4		0.1		%			04/05/18 16:46	1
Percent Moisture	16.6		0.1		%			04/05/18 16:46	1

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-270659/1-A

Matrix: Solid

Analysis Batch: 270768

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 270659

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		20		ug/Kg		04/04/18 18:14	04/05/18 18:33	1
Toluene	ND		150		ug/Kg		04/04/18 18:14	04/05/18 18:33	1
Ethylbenzene	ND		40		ug/Kg		04/04/18 18:14	04/05/18 18:33	1
m-Xylene & p-Xylene	ND		200		ug/Kg		04/04/18 18:14	04/05/18 18:33	1
o-Xylene	ND		40		ug/Kg		04/04/18 18:14	04/05/18 18:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		75 - 120	04/04/18 18:14	04/05/18 18:33	1
Trifluorotoluene (Surr)	106		60 - 150	04/04/18 18:14	04/05/18 18:33	1
4-Bromofluorobenzene (Surr)	103		47 - 150	04/04/18 18:14	04/05/18 18:33	1
Dibromofluoromethane (Surr)	104		80 - 118	04/04/18 18:14	04/05/18 18:33	1
1,2-Dichloroethane-d4 (Surr)	103		80 - 121	04/04/18 18:14	04/05/18 18:33	1

Lab Sample ID: LCS 580-270659/2-A

Matrix: Solid

Analysis Batch: 270768

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 270659

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzene	800	975		ug/Kg		122	79 - 135
Toluene	800	879		ug/Kg		110	80 - 125
Ethylbenzene	800	886		ug/Kg		111	80 - 127
m-Xylene & p-Xylene	800	922		ug/Kg		115	80 - 128
o-Xylene	800	880		ug/Kg		110	80 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	99		75 - 120
Trifluorotoluene (Surr)	104		60 - 150
4-Bromofluorobenzene (Surr)	93		47 - 150
Dibromofluoromethane (Surr)	109		80 - 118
1,2-Dichloroethane-d4 (Surr)	112		80 - 121

Lab Sample ID: LCSD 580-270659/3-A

Matrix: Solid

Analysis Batch: 270768

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 270659

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Benzene	800	905		ug/Kg		113	79 - 135	7	10
Toluene	800	795		ug/Kg		99	80 - 125	10	16
Ethylbenzene	800	872		ug/Kg		109	80 - 127	2	10
m-Xylene & p-Xylene	800	870		ug/Kg		109	80 - 128	6	13
o-Xylene	800	784		ug/Kg		98	80 - 125	12	14

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	92		75 - 120
Trifluorotoluene (Surr)	110		60 - 150
4-Bromofluorobenzene (Surr)	95		47 - 150
Dibromofluoromethane (Surr)	107		80 - 118

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

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

Lab Sample ID: LCSD 580-270659/3-A
Matrix: Solid
Analysis Batch: 270768

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270659

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	112		80 - 121

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-270410/1-A
Matrix: Solid
Analysis Batch: 270496

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270410

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2-Methylnaphthalene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
1-Methylnaphthalene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Acenaphthylene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Acenaphthene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Anthracene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Benzo[a]anthracene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Chrysene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Fluoranthene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Benzo[b]fluoranthene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Fluorene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Benzo[k]fluoranthene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Benzo[a]pyrene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Naphthalene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Indeno[1,2,3-cd]pyrene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Phenanthrene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Dibenz(a,h)anthracene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Pyrene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Benzo[g,h,i]perylene	ND		5.0		ug/Kg		04/02/18 14:25	04/03/18 14:04	1
Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac			
	%Recovery	Qualifier							
Terphenyl-d14	108		68 - 138	04/02/18 14:25	04/03/18 14:04	1			

Lab Sample ID: LCS 580-270410/2-A
Matrix: Solid
Analysis Batch: 270496

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270410

Analyte	Spike Added	LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
2-Methylnaphthalene	1000	857		ug/Kg		86	75 - 120
1-Methylnaphthalene	1000	845		ug/Kg		84	71 - 120
Acenaphthylene	1000	824		ug/Kg		82	68 - 120
Acenaphthene	1000	791		ug/Kg		79	68 - 120
Anthracene	1000	863		ug/Kg		86	73 - 125
Benzo[a]anthracene	1000	887		ug/Kg		89	66 - 120
Chrysene	1000	812		ug/Kg		81	69 - 120
Fluoranthene	1000	889		ug/Kg		89	65 - 125
Benzo[b]fluoranthene	1000	944		ug/Kg		94	63 - 121
Fluorene	1000	839		ug/Kg		84	66 - 121
Benzo[k]fluoranthene	1000	840		ug/Kg		84	63 - 129

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-270410/2-A
Matrix: Solid
Analysis Batch: 270496

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270410

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]pyrene	1000	893		ug/Kg		89	72 - 124
Naphthalene	1000	814		ug/Kg		81	70 - 120
Indeno[1,2,3-cd]pyrene	1000	924		ug/Kg		92	65 - 121
Phenanthrene	1000	778		ug/Kg		78	73 - 120
Dibenz(a,h)anthracene	1000	875		ug/Kg		87	70 - 125
Pyrene	1000	846		ug/Kg		85	64 - 120
Benzo[g,h,i]perylene	1000	920		ug/Kg		92	63 - 124
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
Terphenyl-d14	104		68 - 138				

Lab Sample ID: 580-76187-33 MS
Matrix: Solid
Analysis Batch: 270509

Client Sample ID: FOCB-SB03-1.5'
Prep Type: Total/NA
Prep Batch: 270410

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
2-Methylnaphthalene	ND	F1	1110	812	F1	ug/Kg	☼	73	75 - 120
1-Methylnaphthalene	ND		1110	804		ug/Kg	☼	73	71 - 120
Acenaphthylene	ND		1110	814		ug/Kg	☼	73	68 - 120
Acenaphthene	ND		1110	779		ug/Kg	☼	70	68 - 120
Anthracene	ND		1110	834		ug/Kg	☼	75	73 - 125
Benzo[a]anthracene	16		1110	878		ug/Kg	☼	78	66 - 120
Chrysene	22		1110	822		ug/Kg	☼	72	69 - 120
Fluoranthene	37		1110	901		ug/Kg	☼	78	65 - 125
Benzo[b]fluoranthene	24		1110	831		ug/Kg	☼	73	63 - 121
Fluorene	ND		1110	820		ug/Kg	☼	74	66 - 121
Benzo[k]fluoranthene	6.1		1110	800		ug/Kg	☼	72	63 - 129
Benzo[a]pyrene	13		1110	817		ug/Kg	☼	73	72 - 124
Naphthalene	8.1		1110	778		ug/Kg	☼	70	70 - 120
Indeno[1,2,3-cd]pyrene	13		1110	838		ug/Kg	☼	75	65 - 121
Phenanthrene	27	F1	1110	775	F1	ug/Kg	☼	68	73 - 120
Dibenz(a,h)anthracene	ND		1110	776		ug/Kg	☼	70	70 - 125
Pyrene	39		1110	876		ug/Kg	☼	76	64 - 120
Benzo[g,h,i]perylene	9.7		1110	781		ug/Kg	☼	70	63 - 124
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14	91		68 - 138						

Lab Sample ID: 580-76187-33 MSD
Matrix: Solid
Analysis Batch: 270509

Client Sample ID: FOCB-SB03-1.5'
Prep Type: Total/NA
Prep Batch: 270410

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
2-Methylnaphthalene	ND	F1	1060	853		ug/Kg	☼	80	75 - 120	5	40
1-Methylnaphthalene	ND		1060	848		ug/Kg	☼	80	71 - 120	5	40
Acenaphthylene	ND		1060	864		ug/Kg	☼	81	68 - 120	6	40
Acenaphthene	ND		1060	830		ug/Kg	☼	78	68 - 120	6	40
Anthracene	ND		1060	878		ug/Kg	☼	82	73 - 125	5	40

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 580-76187-33 MSD
Matrix: Solid
Analysis Batch: 270509

Client Sample ID: FOCB-SB03-1.5'
Prep Type: Total/NA
Prep Batch: 270410

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	
Benzo[a]anthracene	16		1060	915		ug/Kg	☼	85	66 - 120	4	40
Chrysene	22		1060	835		ug/Kg	☼	77	69 - 120	2	40
Fluoranthene	37		1060	929		ug/Kg	☼	84	65 - 125	3	40
Benzo[b]fluoranthene	24		1060	858		ug/Kg	☼	79	63 - 121	3	40
Fluorene	ND		1060	859		ug/Kg	☼	81	66 - 121	5	40
Benzo[k]fluoranthene	6.1		1060	824		ug/Kg	☼	77	63 - 129	3	40
Benzo[a]pyrene	13		1060	852		ug/Kg	☼	79	72 - 124	4	40
Naphthalene	8.1		1060	822		ug/Kg	☼	77	70 - 120	5	40
Indeno[1,2,3-cd]pyrene	13		1060	854		ug/Kg	☼	79	65 - 121	2	40
Phenanthrene	27	F1	1060	805		ug/Kg	☼	73	73 - 120	4	40
Dibenz(a,h)anthracene	ND		1060	795		ug/Kg	☼	75	70 - 125	2	40
Pyrene	39		1060	894		ug/Kg	☼	81	64 - 120	2	40
Benzo[g,h,i]perylene	9.7		1060	819		ug/Kg	☼	76	63 - 124	5	40
Surrogate		MSD	MSD								
<i>Terphenyl-d14</i>		%Recovery	Qualifier	Limits							
		98		68 - 138							

Lab Sample ID: MB 580-270441/1-A
Matrix: Water
Analysis Batch: 270752

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270441

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2-Methylnaphthalene	ND		0.030		ug/L		04/03/18 09:14	04/05/18 15:29	1
1-Methylnaphthalene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 15:29	1
Acenaphthylene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 15:29	1
Acenaphthene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 15:29	1
Anthracene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 15:29	1
Benzo[a]anthracene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 15:29	1
Chrysene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 15:29	1
Fluoranthene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 15:29	1
Benzo[b]fluoranthene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 15:29	1
Fluorene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 15:29	1
Benzo[k]fluoranthene	ND		0.030		ug/L		04/03/18 09:14	04/05/18 15:29	1
Benzo[a]pyrene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 15:29	1
Naphthalene	ND		0.040		ug/L		04/03/18 09:14	04/05/18 15:29	1
Indeno[1,2,3-cd]pyrene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 15:29	1
Phenanthrene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 15:29	1
Dibenz(a,h)anthracene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 15:29	1
Pyrene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 15:29	1
Benzo[g,h,i]perylene	ND		0.020		ug/L		04/03/18 09:14	04/05/18 15:29	1
Surrogate		MB	MB						
<i>Terphenyl-d14</i>		%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
		85		53 - 112			04/03/18 09:14	04/05/18 15:29	1

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-270441/2-A
Matrix: Water
Analysis Batch: 270752

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270441

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2-Methylnaphthalene	4.00	2.82		ug/L		70	61 - 120
1-Methylnaphthalene	4.00	2.77		ug/L		69	57 - 120
Acenaphthylene	4.00	2.83		ug/L		71	63 - 120
Acenaphthene	4.00	2.73		ug/L		68	62 - 120
Anthracene	4.00	3.02		ug/L		75	69 - 120
Benzo[a]anthracene	4.00	3.22		ug/L		80	71 - 120
Chrysene	4.00	2.98		ug/L		74	64 - 120
Fluoranthene	4.00	3.20		ug/L		80	70 - 120
Benzo[b]fluoranthene	4.00	3.37		ug/L		84	66 - 120
Fluorene	4.00	2.87		ug/L		72	68 - 120
Benzo[k]fluoranthene	4.00	3.06		ug/L		77	68 - 120
Benzo[a]pyrene	4.00	3.16		ug/L		79	76 - 120
Naphthalene	4.00	2.69		ug/L		67	62 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.27		ug/L		82	63 - 120
Phenanthrene	4.00	2.76		ug/L		69	65 - 120
Dibenz(a,h)anthracene	4.00	3.01		ug/L		75	60 - 125
Pyrene	4.00	3.09		ug/L		77	69 - 120
Benzo[g,h,i]perylene	4.00	3.10		ug/L		77	61 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	92		53 - 112

Lab Sample ID: LCSD 580-270441/3-A
Matrix: Water
Analysis Batch: 270752

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270441

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
2-Methylnaphthalene	4.00	3.18		ug/L		79	61 - 120	12	16
1-Methylnaphthalene	4.00	3.17		ug/L		79	57 - 120	13	17
Acenaphthylene	4.00	3.18		ug/L		80	63 - 120	12	13
Acenaphthene	4.00	3.06		ug/L		76	62 - 120	11	13
Anthracene	4.00	3.39		ug/L		85	69 - 120	12	17
Benzo[a]anthracene	4.00	3.60		ug/L		90	71 - 120	11	16
Chrysene	4.00	3.34		ug/L		83	64 - 120	11	16
Fluoranthene	4.00	3.61		ug/L		90	70 - 120	12	20
Benzo[b]fluoranthene	4.00	3.84		ug/L		96	66 - 120	13	20
Fluorene	4.00	3.18		ug/L		80	68 - 120	10	12
Benzo[k]fluoranthene	4.00	3.44		ug/L		86	68 - 120	12	20
Benzo[a]pyrene	4.00	3.55		ug/L		89	76 - 120	12	17
Naphthalene	4.00	3.02		ug/L		76	62 - 120	11	15
Indeno[1,2,3-cd]pyrene	4.00	3.57		ug/L		89	63 - 120	9	15
Phenanthrene	4.00	3.08		ug/L		77	65 - 120	11	15
Dibenz(a,h)anthracene	4.00	3.36		ug/L		84	60 - 125	11	15
Pyrene	4.00	3.41		ug/L		85	69 - 120	10	17
Benzo[g,h,i]perylene	4.00	3.51		ug/L		88	61 - 120	12	16

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 580-270441/3-A
Matrix: Water
Analysis Batch: 270752

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270441

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	100		53 - 112

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-270692/1-A
Matrix: Water
Analysis Batch: 271116

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270692

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.45		ug/L		04/05/18 10:13	04/11/18 12:55	1
PCB-1221	ND		0.45		ug/L		04/05/18 10:13	04/11/18 12:55	1
PCB-1232	ND		0.45		ug/L		04/05/18 10:13	04/11/18 12:55	1
PCB-1242	ND		0.45		ug/L		04/05/18 10:13	04/11/18 12:55	1
PCB-1248	ND		0.45		ug/L		04/05/18 10:13	04/11/18 12:55	1
PCB-1254	ND		0.45		ug/L		04/05/18 10:13	04/11/18 12:55	1
PCB-1260	ND		0.45		ug/L		04/05/18 10:13	04/11/18 12:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	84		38 - 134	04/05/18 10:13	04/11/18 12:55	1
Tetrachloro-m-xylene	57		54 - 115	04/05/18 10:13	04/11/18 12:55	1

Lab Sample ID: LCS 580-270692/4-A
Matrix: Water
Analysis Batch: 271051

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270692

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	1.00	0.666		ug/L		67	60 - 121
PCB-1260	1.00	0.693		ug/L		69	55 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	72		38 - 134
Tetrachloro-m-xylene	62		54 - 115

Lab Sample ID: LCSD 580-270692/5-A
Matrix: Water
Analysis Batch: 271051

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270692

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
PCB-1016	1.00	0.727		ug/L		73	60 - 121	9	20
PCB-1260	1.00	0.780		ug/L		78	55 - 132	12	22

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl	77		38 - 134
Tetrachloro-m-xylene	62		54 - 115

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: MB 580-270908/1-A
Matrix: Solid
Analysis Batch: 271116

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270908

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1221	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1232	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1242	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1248	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1254	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
PCB-1260	ND		0.020		mg/Kg		04/09/18 10:24	04/11/18 13:11	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	102		25 - 149				04/09/18 10:24	04/11/18 13:11	1
Tetrachloro-m-xylene	86		35 - 130				04/09/18 10:24	04/11/18 13:11	1

Lab Sample ID: LCS 580-270908/2-A
Matrix: Solid
Analysis Batch: 271116

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270908

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	0.100	0.0904		mg/Kg		90	69 - 126
PCB-1260	0.100	0.110		mg/Kg		110	68 - 136
Surrogate	%Recovery	LCS Qualifier	Limits				
DCB Decachlorobiphenyl	110		25 - 149				
Tetrachloro-m-xylene	90		35 - 130				

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-270306/1-A
Matrix: Solid
Analysis Batch: 270464

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270306

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		03/30/18 15:54	04/03/18 13:32	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		03/30/18 15:54	04/03/18 13:32	1
Mineral oil	ND		50		mg/Kg		03/30/18 15:54	04/03/18 13:32	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	87		50 - 150				03/30/18 15:54	04/03/18 13:32	1

Lab Sample ID: LCS 580-270306/2-A
Matrix: Solid
Analysis Batch: 270464

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270306

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	493		mg/Kg		99	70 - 125
Motor Oil (>C24-C36)	500	507		mg/Kg		101	70 - 119

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-270306/2-A
Matrix: Solid
Analysis Batch: 270464

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270306

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	82		50 - 150

Lab Sample ID: LCSD 580-270306/3-A
Matrix: Solid
Analysis Batch: 270464

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270306

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	521		mg/Kg		104	70 - 125	5	16
Motor Oil (>C24-C36)	500	534		mg/Kg		107	70 - 119	5	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	85		50 - 150

Lab Sample ID: 580-76187-5 DU
Matrix: Solid
Analysis Batch: 270464

Client Sample ID: WY-SG04-CSB
Prep Type: Total/NA
Prep Batch: 270306

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
#2 Diesel (C10-C24)	ND		ND		mg/Kg	☼	3	35
Motor Oil (>C24-C36)	78		74.4		mg/Kg	☼	5	35
Mineral oil	68		70.5		mg/Kg	☼	4	35

Surrogate	DU %Recovery	DU Qualifier	Limits
<i>o</i> -Terphenyl	84		50 - 150

Lab Sample ID: MB 580-270413/1-A
Matrix: Solid
Analysis Batch: 270505

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270413

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		04/02/18 14:51	04/03/18 23:29	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		04/02/18 14:51	04/03/18 23:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	77		50 - 150	04/02/18 14:51	04/03/18 23:29	1

Lab Sample ID: MB 580-270413/1-A
Matrix: Solid
Analysis Batch: 270575

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270413

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		04/02/18 14:51	04/04/18 14:02	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		04/02/18 14:51	04/04/18 14:02	1
Mineral oil	ND		50		mg/Kg		04/02/18 14:51	04/04/18 14:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	102		50 - 150	04/02/18 14:51	04/04/18 14:02	1

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Lab Sample ID: LCS 580-270413/2-A
Matrix: Solid
Analysis Batch: 270505

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270413
%Rec. Limits

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	500	471		mg/Kg		94	70 - 125
Motor Oil (>C24-C36)	500	554		mg/Kg		111	70 - 119
Surrogate	%Recovery		LCS Qualifier	Limits			
<i>o</i> -Terphenyl	91			50 - 150			

Lab Sample ID: LCSD 580-270413/3-A
Matrix: Solid
Analysis Batch: 270505

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270413
%Rec. RPD Limit

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	500	494		mg/Kg		99	70 - 125	5	16
Motor Oil (>C24-C36)	500	521		mg/Kg		104	70 - 119	6	16
Surrogate	%Recovery		LCSD Qualifier	Limits					
<i>o</i> -Terphenyl	97			50 - 150					

Lab Sample ID: 580-76187-58 DU
Matrix: Solid
Analysis Batch: 270505

Client Sample ID: SW-42
Prep Type: Total/NA
Prep Batch: 270413
RPD Limit

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
#2 Diesel (C10-C24)	ND		ND		mg/Kg	☼	NC	35
Motor Oil (>C24-C36)	ND		ND		mg/Kg	☼	13	35
Surrogate	%Recovery		DU Qualifier	Limits				
<i>o</i> -Terphenyl	75			50 - 150				

Lab Sample ID: 580-76187-58 DU
Matrix: Solid
Analysis Batch: 270575

Client Sample ID: SW-42
Prep Type: Total/NA
Prep Batch: 270413
RPD Limit

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Mineral oil	ND		ND		mg/Kg	☼	NC	35
Surrogate	%Recovery		DU Qualifier	Limits				
<i>o</i> -Terphenyl	103			50 - 150				

Lab Sample ID: 580-76187-89 DU
Matrix: Solid
Analysis Batch: 270505

Client Sample ID: SW24
Prep Type: Total/NA
Prep Batch: 270413
RPD Limit

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
#2 Diesel (C10-C24)	ND		ND		mg/Kg	☼	NC	35
Motor Oil (>C24-C36)	ND		ND		mg/Kg	☼	2	35
Surrogate	%Recovery		DU Qualifier	Limits				
<i>o</i> -Terphenyl	78			50 - 150				

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: 580-76187-89 DU
Matrix: Solid
Analysis Batch: 270575

Client Sample ID: SW24
Prep Type: Total/NA
Prep Batch: 270413

Analyte	Sample	Sample	DU		Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Mineral oil	ND		ND		mg/Kg	☼	NC	35
DU DU								
Surrogate	%Recovery	Qualifier	Limits					
<i>o</i> -Terphenyl	93		50 - 150					

Lab Sample ID: MB 580-270552/1-A
Matrix: Solid
Analysis Batch: 270782

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270552

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		50		mg/Kg		04/04/18 08:53	04/06/18 19:34	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		04/04/18 08:53	04/06/18 19:34	1
Mineral oil	ND		50		mg/Kg		04/04/18 08:53	04/06/18 19:34	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac		
<i>o</i> -Terphenyl	99		50 - 150		04/04/18 08:53	04/06/18 19:34	1		

Lab Sample ID: MB 580-270552/1-A
Matrix: Solid
Analysis Batch: 271090

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270552

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		50		mg/Kg		04/04/18 08:53	04/10/18 15:56	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		04/04/18 08:53	04/10/18 15:56	1
Mineral oil	ND		50		mg/Kg		04/04/18 08:53	04/10/18 15:56	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac		
<i>o</i> -Terphenyl	77		50 - 150		04/04/18 08:53	04/10/18 15:56	1		

Lab Sample ID: LCS 580-270552/2-A
Matrix: Solid
Analysis Batch: 270782

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270552

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
#2 Diesel (C10-C24)	500	536		mg/Kg		107	70 - 125
Motor Oil (>C24-C36)	500	589		mg/Kg		118	70 - 119
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
<i>o</i> -Terphenyl	102		50 - 150				

Lab Sample ID: LCS 580-270552/2-A
Matrix: Solid
Analysis Batch: 271090

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270552

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
#2 Diesel (C10-C24)	500	477		mg/Kg		95	70 - 125
Motor Oil (>C24-C36)	500	440		mg/Kg		88	70 - 119

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	89		50 - 150

Lab Sample ID: LCSD 580-270552/3-A
Matrix: Solid
Analysis Batch: 270782

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270552

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
#2 Diesel (C10-C24)	500	579		mg/Kg		116	70 - 125	8	16	
Motor Oil (>C24-C36)	500	637	*	mg/Kg		127	70 - 119	8	16	

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	106		50 - 150

Lab Sample ID: LCSD 580-270552/3-A
Matrix: Solid
Analysis Batch: 271090

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270552

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
#2 Diesel (C10-C24)	500	494		mg/Kg		99	70 - 125	4	16	
Motor Oil (>C24-C36)	500	451		mg/Kg		90	70 - 119	2	16	

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	93		50 - 150

Lab Sample ID: MB 580-270554/1-A
Matrix: Water
Analysis Batch: 270745

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270554

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11		mg/L		04/04/18 09:36	04/05/18 21:16	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		04/04/18 09:36	04/05/18 21:16	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>o</i> -Terphenyl	74		50 - 150	04/04/18 09:36	04/05/18 21:16	1

Lab Sample ID: LCS 580-270554/2-A
Matrix: Water
Analysis Batch: 270745

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270554

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	RPD
#2 Diesel (C10-C24)	2.00	1.49		mg/L		74	59 - 112	
Motor Oil (>C24-C36)	2.00	1.75		mg/L		87	64 - 120	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	79		50 - 150

Lab Sample ID: LCSD 580-270554/3-A
Matrix: Water
Analysis Batch: 270745

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270554

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
#2 Diesel (C10-C24)	2.00	1.22	*	mg/L		61	59 - 112	20	16	
Motor Oil (>C24-C36)	2.00	1.41	*	mg/L		71	64 - 120	21	17	

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	65		50 - 150

Lab Sample ID: MB 580-270680/1-A
Matrix: Solid
Analysis Batch: 270849

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270680

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		04/05/18 09:37	04/06/18 21:57	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		04/05/18 09:37	04/06/18 21:57	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	105		50 - 150	04/05/18 09:37	04/06/18 21:57	1

Lab Sample ID: MB 580-270680/1-A
Matrix: Solid
Analysis Batch: 271185

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270680

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mineral oil	ND		50		mg/Kg		04/05/18 09:37	04/12/18 13:03	1

Lab Sample ID: LCS 580-270680/2-A
Matrix: Solid
Analysis Batch: 270849

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270680

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	490		mg/Kg		98	70 - 125
Motor Oil (>C24-C36)	500	500		mg/Kg		100	70 - 119

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	98		50 - 150

Lab Sample ID: LCSD 580-270680/3-A
Matrix: Solid
Analysis Batch: 270849

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270680

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	482		mg/Kg		96	70 - 125	2	16
Motor Oil (>C24-C36)	500	491		mg/Kg		98	70 - 119	2	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	93		50 - 150

Lab Sample ID: MB 580-270796/1-A
Matrix: Water
Analysis Batch: 270888

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270796

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		04/06/18 09:58	04/08/18 12:37	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		04/06/18 09:58	04/08/18 12:37	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	38	X	50 - 150	04/06/18 09:58	04/08/18 12:37	1

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-270796/1-A
Matrix: Water
Analysis Batch: 271185

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270796

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mineral oil	ND		0.35		mg/L		04/06/18 09:58	04/12/18 13:44	1

Lab Sample ID: LCS 580-270796/2-A
Matrix: Water
Analysis Batch: 270888

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270796

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	2.00	0.783	*	mg/L		39	59 - 112
Motor Oil (>C24-C36)	2.00	0.862	*	mg/L		43	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	38	X	50 - 150

Lab Sample ID: LCSD 580-270796/3-A
Matrix: Water
Analysis Batch: 270888

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270796

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	0.797	*	mg/L		40	59 - 112	2	16
Motor Oil (>C24-C36)	2.00	0.918	*	mg/L		46	64 - 120	6	17

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	46	X	50 - 150

Lab Sample ID: MB 580-271293/1-A
Matrix: Water
Analysis Batch: 271389

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 271293

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		04/13/18 09:33	04/13/18 19:14	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		04/13/18 09:33	04/13/18 19:14	1
Mineral oil	ND		0.35		mg/L		04/13/18 09:33	04/13/18 19:14	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	83		50 - 150	04/13/18 09:33	04/13/18 19:14	1

Lab Sample ID: LCS 580-271293/2-A
Matrix: Water
Analysis Batch: 271389

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 271293

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	2.00	1.63		mg/L		82	59 - 112
Motor Oil (>C24-C36)	2.00	1.68		mg/L		84	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	88		50 - 150

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-271293/3-A
Matrix: Water
Analysis Batch: 271389

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 271293

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.67		mg/L		83	59 - 112	2	16
Motor Oil (>C24-C36)	2.00	1.80		mg/L		90	64 - 120	7	17

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl	97		50 - 150

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 580-270678/21-A
Matrix: Solid
Analysis Batch: 270774

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270678

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		3.0		mg/Kg		04/05/18 09:24	04/05/18 17:58	1
Barium	ND		0.50		mg/Kg		04/05/18 09:24	04/05/18 17:58	1
Cadmium	ND		1.0		mg/Kg		04/05/18 09:24	04/05/18 17:58	1
Chromium	ND		1.3		mg/Kg		04/05/18 09:24	04/05/18 17:58	1
Lead	ND		1.5		mg/Kg		04/05/18 09:24	04/05/18 17:58	1
Selenium	ND		5.0		mg/Kg		04/05/18 09:24	04/05/18 17:58	1
Silver	ND		2.5		mg/Kg		04/05/18 09:24	04/05/18 17:58	1

Lab Sample ID: LCS 580-270678/22-A
Matrix: Solid
Analysis Batch: 270774

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270678

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	200	181		mg/Kg		90	80 - 120
Barium	200	190		mg/Kg		95	80 - 120
Cadmium	5.00	4.57		mg/Kg		91	80 - 120
Chromium	20.0	18.9		mg/Kg		95	80 - 120
Lead	50.0	46.5		mg/Kg		93	80 - 120
Selenium	200	179		mg/Kg		89	80 - 120
Silver	30.0	27.9		mg/Kg		93	80 - 120

Lab Sample ID: LCSD 580-270678/23-A
Matrix: Solid
Analysis Batch: 270774

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270678

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	200	188		mg/Kg		94	80 - 120	4	20
Barium	200	199		mg/Kg		99	80 - 120	5	20
Cadmium	5.00	4.78		mg/Kg		96	80 - 120	4	20
Chromium	20.0	19.8		mg/Kg		99	80 - 120	5	20
Lead	50.0	48.4		mg/Kg		97	80 - 120	4	20
Selenium	200	185		mg/Kg		93	80 - 120	4	20
Silver	30.0	29.4		mg/Kg		98	80 - 120	5	20

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 580-270414/19-A
Matrix: Water
Analysis Batch: 270545

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 270414

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050		mg/L		04/02/18 14:59	04/03/18 11:31	5
Barium	ND		0.0060		mg/L		04/02/18 14:59	04/03/18 11:31	5
Cadmium	ND		0.0020		mg/L		04/02/18 14:59	04/03/18 11:31	5
Chromium	ND		0.0020		mg/L		04/02/18 14:59	04/03/18 11:31	5
Lead	ND		0.0040		mg/L		04/02/18 14:59	04/03/18 11:31	5
Selenium	ND		0.040		mg/L		04/02/18 14:59	04/03/18 11:31	5
Silver	ND		0.0020		mg/L		04/02/18 14:59	04/03/18 11:31	5

Lab Sample ID: LCS 580-270414/20-A
Matrix: Water
Analysis Batch: 270545

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 270414

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	4.00	4.05		mg/L		101	80 - 120
Barium	4.00	3.97		mg/L		99	80 - 120
Cadmium	0.100	0.103		mg/L		103	80 - 120
Chromium	0.400	0.405		mg/L		101	80 - 120
Lead	1.00	0.972		mg/L		97	80 - 120
Selenium	4.00	4.15		mg/L		104	80 - 120
Silver	0.600	0.607		mg/L		101	80 - 120

Lab Sample ID: LCSD 580-270414/21-A
Matrix: Water
Analysis Batch: 270545

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 270414

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Arsenic	4.00	4.00		mg/L		100	80 - 120	1	20
Barium	4.00	3.89		mg/L		97	80 - 120	2	20
Cadmium	0.100	0.101		mg/L		101	80 - 120	2	20
Chromium	0.400	0.397		mg/L		99	80 - 120	2	20
Lead	1.00	0.960		mg/L		96	80 - 120	1	20
Selenium	4.00	4.03		mg/L		101	80 - 120	3	20
Silver	0.600	0.608		mg/L		101	80 - 120	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 580-270359/14-A
Matrix: Water
Analysis Batch: 270423

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270359

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00030		mg/L		04/02/18 09:50	04/02/18 14:00	1

Lab Sample ID: LCS 580-270359/15-A
Matrix: Water
Analysis Batch: 270423

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270359

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00200	0.00198		mg/L		99	80 - 120

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Lab Sample ID: LCSD 580-270359/16-A
Matrix: Water
Analysis Batch: 270423

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270359

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.00200	0.00190		mg/L		95	80 - 120	4	20

Lab Sample ID: 580-76187-91 MS
Matrix: Water
Analysis Batch: 270423

Client Sample ID: RNS-13
Prep Type: Total/NA
Prep Batch: 270359

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00200	0.00194		mg/L		97	80 - 120		

Lab Sample ID: 580-76187-91 MSD
Matrix: Water
Analysis Batch: 270423

Client Sample ID: RNS-13
Prep Type: Total/NA
Prep Batch: 270359

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00200	0.00190		mg/L		95	80 - 120	2	20

Lab Sample ID: 580-76187-91 DU
Matrix: Water
Analysis Batch: 270423

Client Sample ID: RNS-13
Prep Type: Total/NA
Prep Batch: 270359

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	ND		ND		mg/L		NC	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 580-270379/22-A
Matrix: Solid
Analysis Batch: 270435

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270379

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.030		mg/Kg		04/02/18 11:17	04/02/18 15:59	1

Lab Sample ID: LCS 580-270379/23-A
Matrix: Solid
Analysis Batch: 270435

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270379

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.167	0.150		mg/Kg		90	80 - 120		

Lab Sample ID: LCSD 580-270379/24-A
Matrix: Solid
Analysis Batch: 270435

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 270379

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.167	0.143		mg/Kg		86	80 - 120	4	20

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Method: D 2216 - Percent Moisture

Lab Sample ID: 580-76187-32 DU
Matrix: Solid
Analysis Batch: 270313

Client Sample ID: WY-SG01-CSB
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU	DU	Unit	D	RPD	RPD
			Result	Qualifier				Limit
Percent Solids	81.2		73.6		%		10	20
Percent Moisture	18.8		26.4	F3	%		33	20

Lab Sample ID: 580-76187-48 DU
Matrix: Solid
Analysis Batch: 270313

Client Sample ID: WY-SG10-CSB
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU	DU	Unit	D	RPD	RPD
			Result	Qualifier				Limit
Percent Solids	83.0		84.9		%		2	20
Percent Moisture	17.0		15.1		%		12	20

Lab Sample ID: 580-76187-75 DU
Matrix: Solid
Analysis Batch: 270422

Client Sample ID: SW-37
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU	DU	Unit	D	RPD	RPD
			Result	Qualifier				Limit
Percent Solids	80.4		79.8		%		0.8	20
Percent Moisture	19.6		20.2		%		3	20

Lab Sample ID: 580-76187-98 DU
Matrix: Solid
Analysis Batch: 270761

Client Sample ID: SW-26
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU	DU	Unit	D	RPD	RPD
			Result	Qualifier				Limit
Percent Solids	80.8		80.6		%		0.2	20
Percent Moisture	19.2		19.4		%		0.8	20

Lab Sample ID: 580-76187-100 DU
Matrix: Solid
Analysis Batch: 270761

Client Sample ID: SW-18
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU	DU	Unit	D	RPD	RPD
			Result	Qualifier				Limit
Percent Solids	87.0		86.4		%		0.7	20
Percent Moisture	13.0		13.6		%		4	20

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: WY-SG04-CSB

Date Collected: 03/27/18 09:22

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: WY-SG04-CSB

Date Collected: 03/27/18 09:22

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-5

Matrix: Solid

Percent Solids: 84.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 15:14	CJ	TAL SEA

Client Sample ID: WY-SG03-CSB

Date Collected: 03/27/18 10:12

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-10

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: WY-SG03-CSB

Date Collected: 03/27/18 10:12

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-10

Matrix: Solid

Percent Solids: 82.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 15:55	CJ	TAL SEA

Client Sample ID: WY-SG08-CSB

Date Collected: 03/27/18 14:20

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-21

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: WY-SG08-CSB

Date Collected: 03/27/18 14:20

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-21

Matrix: Solid

Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 16:15	CJ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: WY-SG02-CSB

Lab Sample ID: 580-76187-27

Date Collected: 03/27/18 11:15

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: WY-SG02-CSB

Lab Sample ID: 580-76187-27

Date Collected: 03/27/18 11:15

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 80.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 17:16	CJ	TAL SEA

Client Sample ID: WY-SG01-CSB

Lab Sample ID: 580-76187-32

Date Collected: 03/27/18 11:40

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: WY-SG01-CSB

Lab Sample ID: 580-76187-32

Date Collected: 03/27/18 11:40

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 81.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 17:37	CJ	TAL SEA

Client Sample ID: FOCB-SB03-1.5'

Lab Sample ID: 580-76187-33

Date Collected: 03/28/18 11:17

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: FOCB-SB03-1.5'

Lab Sample ID: 580-76187-33

Date Collected: 03/28/18 11:17

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 87.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			270659	04/04/18 18:14	DSO	TAL SEA
Total/NA	Analysis	8260C		1	270768	04/06/18 00:20	D1R	TAL SEA
Total/NA	Prep	3546			270410	04/02/18 14:25	TTN	TAL SEA
Total/NA	Analysis	8270D SIM		1	270509	04/03/18 22:14	ERZ	TAL SEA
Total/NA	Prep	3546			270908	04/09/18 10:24	KMS	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: FOCB-SB03-1.5'

Lab Sample ID: 580-76187-33

Date Collected: 03/28/18 11:17

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 87.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8082A		1	271116	04/11/18 13:45	Y1W	TAL SEA
Total/NA	Prep	3546	DL		270908	04/09/18 10:24	KMS	TAL SEA
Total/NA	Analysis	8082A	DL	10	271116	04/11/18 17:24	Y1W	TAL SEA
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 17:57	CJ	TAL SEA

Client Sample ID: FOCB-SB02-1.5'

Lab Sample ID: 580-76187-34

Date Collected: 03/28/18 11:20

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: FOCB-SB02-1.5'

Lab Sample ID: 580-76187-34

Date Collected: 03/28/18 11:20

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 84.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			270659	04/04/18 18:14	DSO	TAL SEA
Total/NA	Analysis	8260C		1	270768	04/06/18 00:47	D1R	TAL SEA
Total/NA	Prep	3546			270410	04/02/18 14:25	TTN	TAL SEA
Total/NA	Analysis	8270D SIM		1	270509	04/03/18 23:27	ERZ	TAL SEA
Total/NA	Prep	3546			270908	04/09/18 10:24	KMS	TAL SEA
Total/NA	Analysis	8082A		1	271116	04/11/18 14:19	Y1W	TAL SEA
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 18:17	CJ	TAL SEA

Client Sample ID: FOCB-SB01-1.5'

Lab Sample ID: 580-76187-35

Date Collected: 03/28/18 11:40

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: FOCB-SB01-1.5'

Lab Sample ID: 580-76187-35

Date Collected: 03/28/18 11:40

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 84.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			270659	04/04/18 18:14	DSO	TAL SEA
Total/NA	Analysis	8260C		1	270768	04/06/18 01:13	D1R	TAL SEA
Total/NA	Prep	3546			270410	04/02/18 14:25	TTN	TAL SEA
Total/NA	Analysis	8270D SIM		1	270509	04/03/18 23:52	ERZ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West

TestAmerica Job ID: 580-76187-1

Project/Site: Cushman Phase II ESA

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270908	04/09/18 10:24	KMS	TAL SEA
Total/NA	Analysis	8082A		1	271116	04/11/18 14:35	Y1W	TAL SEA
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 18:38	CJ	TAL SEA

Client Sample ID: FOCB-SB04-1.5'

Lab Sample ID: 580-76187-36

Date Collected: 03/28/18 11:50

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: FOCB-SB04-1.5'

Lab Sample ID: 580-76187-36

Date Collected: 03/28/18 11:50

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 87.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			270659	04/04/18 18:14	DSO	TAL SEA
Total/NA	Analysis	8260C		1	270768	04/06/18 01:39	D1R	TAL SEA
Total/NA	Prep	3546			270410	04/02/18 14:25	TTN	TAL SEA
Total/NA	Analysis	8270D SIM		1	270509	04/04/18 00:16	ERZ	TAL SEA
Total/NA	Prep	3546			270908	04/09/18 10:24	KMS	TAL SEA
Total/NA	Analysis	8082A		1	271116	04/11/18 14:52	Y1W	TAL SEA
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 18:58	CJ	TAL SEA

Client Sample ID: WY-SG09-CSB

Lab Sample ID: 580-76187-38

Date Collected: 03/27/18 15:05

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: WY-SG09-CSB

Lab Sample ID: 580-76187-38

Date Collected: 03/27/18 15:05

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 19:19	CJ	TAL SEA

Client Sample ID: WY-SG15-CSB

Lab Sample ID: 580-76187-43

Date Collected: 03/27/18 15:47

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: WY-SG15-CSB

Date Collected: 03/27/18 15:47

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-43

Matrix: Solid

Percent Solids: 81.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 19:39	CJ	TAL SEA

Client Sample ID: WY-SG10-CSB

Date Collected: 03/28/18 08:58

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-48

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: WY-SG10-CSB

Date Collected: 03/28/18 08:58

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-48

Matrix: Solid

Percent Solids: 83.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 19:59	CJ	TAL SEA

Client Sample ID: WY-SG11-CSB

Date Collected: 03/28/18 09:35

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-53

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270313	03/30/18 16:38	TTN	TAL SEA

Client Sample ID: WY-SG11-CSB

Date Collected: 03/28/18 09:35

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-53

Matrix: Solid

Percent Solids: 84.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270306	03/30/18 15:54	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270464	04/03/18 21:00	CJ	TAL SEA
Total/NA	Prep	3050B			270678	04/05/18 09:24	ASJ	TAL SEA
Total/NA	Analysis	6010C		1	270774	04/05/18 19:05	HJM	TAL SEA
Total/NA	Prep	7471A			270379	04/02/18 11:17	ASJ	TAL SEA
Total/NA	Analysis	7471A		1	270435	04/02/18 16:46	FCW	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-42

Date Collected: 03/28/18 12:20

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-58

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW-42

Date Collected: 03/28/18 12:20

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-58

Matrix: Solid

Percent Solids: 84.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 00:52	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 14:23	CJ	TAL SEA

Client Sample ID: SW-43

Date Collected: 03/28/18 12:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-59

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW-43

Date Collected: 03/28/18 12:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-59

Matrix: Solid

Percent Solids: 84.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 01:47	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 15:03	CJ	TAL SEA

Client Sample ID: SW-44

Date Collected: 03/28/18 15:00

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-60

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW-44

Date Collected: 03/28/18 15:00

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-60

Matrix: Solid

Percent Solids: 85.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-44

Lab Sample ID: 580-76187-60

Date Collected: 03/28/18 15:00

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 85.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 02:14	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 15:24	CJ	TAL SEA

Client Sample ID: EY-SG01-CSB

Lab Sample ID: 580-76187-63

Date Collected: 03/28/18 14:45

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: EY-SG01-CSB

Lab Sample ID: 580-76187-63

Date Collected: 03/28/18 14:45

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 02:41	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		2	271090	04/11/18 06:05	ERZ	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271185	04/12/18 12:22	ADB	TAL SEA

Client Sample ID: EY-SG05-CSB

Lab Sample ID: 580-76187-66

Date Collected: 03/28/18 14:20

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: EY-SG05-CSB

Lab Sample ID: 580-76187-66

Date Collected: 03/28/18 14:20

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 03:09	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		5	271090	04/11/18 06:33	ERZ	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		3	271185	04/12/18 12:43	ADB	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SMP-01

Date Collected: 03/28/18 15:40

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-69

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			270692	04/05/18 10:13	APR	TAL SEA
Total/NA	Analysis	8082A		1	271051	04/10/18 17:14	TL1	TAL SEA
Total/NA	Prep	3510C			270554	04/04/18 09:36	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271090	04/11/18 07:01	ERZ	TAL SEA

Client Sample ID: SW-32

Date Collected: 03/28/18 08:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-70

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW-32

Date Collected: 03/28/18 08:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-70

Matrix: Solid

Percent Solids: 81.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 04:33	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 16:25	CJ	TAL SEA

Client Sample ID: SW-33

Date Collected: 03/28/18 08:45

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-71

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW-33

Date Collected: 03/28/18 08:45

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-71

Matrix: Solid

Percent Solids: 82.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 05:01	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 16:45	CJ	TAL SEA

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-34

Date Collected: 03/28/18 09:10

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-72

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW-34

Date Collected: 03/28/18 09:10

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-72

Matrix: Solid

Percent Solids: 88.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 05:28	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 17:06	CJ	TAL SEA

Client Sample ID: SW-35

Date Collected: 03/28/18 09:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-73

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW-35

Date Collected: 03/28/18 09:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-73

Matrix: Solid

Percent Solids: 77.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 05:56	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 17:47	CJ	TAL SEA

Client Sample ID: SW-36

Date Collected: 03/28/18 10:40

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-74

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

Client Sample ID: SW-36

Date Collected: 03/28/18 10:40

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-74

Matrix: Solid

Percent Solids: 87.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270680	04/05/18 09:37	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-36

Lab Sample ID: 580-76187-74

Date Collected: 03/28/18 10:40

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 87.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	270849	04/07/18 01:39	CJ	TAL SEA
Total/NA	Prep	3546			270680	04/05/18 09:37	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271185	04/12/18 13:24	ADB	TAL SEA

Client Sample ID: SW-37

Lab Sample ID: 580-76187-75

Date Collected: 03/28/18 10:50

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW-37

Lab Sample ID: 580-76187-75

Date Collected: 03/28/18 10:50

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 80.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 06:24	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 18:07	CJ	TAL SEA

Client Sample ID: SW-38

Lab Sample ID: 580-76187-76

Date Collected: 03/28/18 11:05

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW-38

Lab Sample ID: 580-76187-76

Date Collected: 03/28/18 11:05

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 78.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 06:52	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 18:28	CJ	TAL SEA

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-39

Date Collected: 03/28/18 11:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-77

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW-39

Date Collected: 03/28/18 11:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-77

Matrix: Solid

Percent Solids: 77.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 07:19	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 18:48	CJ	TAL SEA

Client Sample ID: SW-40

Date Collected: 03/28/18 11:34

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-78

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW-40

Date Collected: 03/28/18 11:34

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-78

Matrix: Solid

Percent Solids: 79.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 07:47	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 19:08	CJ	TAL SEA

Client Sample ID: SW-41

Date Collected: 03/28/18 11:55

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-79

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW-41

Date Collected: 03/28/18 11:55

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-79

Matrix: Solid

Percent Solids: 82.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-41

Lab Sample ID: 580-76187-79

Date Collected: 03/28/18 11:55

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 82.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 08:14	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 19:29	CJ	TAL SEA

Client Sample ID: EY-SG06-CSB

Lab Sample ID: 580-76187-80

Date Collected: 03/28/18 14:45

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: EY-SG06-CSB

Lab Sample ID: 580-76187-80

Date Collected: 03/28/18 14:45

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 86.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 09:36	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 19:49	CJ	TAL SEA

Client Sample ID: RNS-15

Lab Sample ID: 580-76187-81

Date Collected: 03/28/18 15:10

Matrix: Water

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			270441	04/03/18 09:14	MRG	TAL SEA
Total/NA	Analysis	8270D SIM		1	270752	04/05/18 17:07	T1W	TAL SEA
Total/NA	Prep	3510C			270692	04/05/18 10:13	APR	TAL SEA
Total/NA	Analysis	8082A		1	271051	04/10/18 17:30	TL1	TAL SEA
Total/NA	Prep	3510C			270796	04/06/18 09:58	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270888	04/08/18 17:20	T1W	TAL SEA
Total/NA	Prep	3510C			270796	04/06/18 09:58	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271185	04/12/18 14:05	ADB	TAL SEA
Total/NA	Prep	3510C			271293	04/13/18 09:33	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271389	04/13/18 20:15	ADB	TAL SEA

Client Sample ID: RNS-16

Lab Sample ID: 580-76187-82

Date Collected: 03/28/18 15:20

Matrix: Water

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			270796	04/06/18 09:58	KMS	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: RNS-16

Lab Sample ID: 580-76187-82

Date Collected: 03/28/18 15:20

Matrix: Water

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	270888	04/08/18 17:42	T1W	TAL SEA
Total/NA	Prep	3510C			270796	04/06/18 09:58	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271185	04/12/18 14:25	ADB	TAL SEA
Total/NA	Prep	3510C			271293	04/13/18 09:33	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271389	04/13/18 20:35	ADB	TAL SEA

Client Sample ID: SW25

Lab Sample ID: 580-76187-85

Date Collected: 03/27/18 14:50

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW25

Lab Sample ID: 580-76187-85

Date Collected: 03/27/18 14:50

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 80.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 10:04	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 20:09	CJ	TAL SEA

Client Sample ID: SW28

Lab Sample ID: 580-76187-86

Date Collected: 03/27/18 15:30

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW28

Lab Sample ID: 580-76187-86

Date Collected: 03/27/18 15:30

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 78.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 10:32	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 20:30	CJ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW20
Date Collected: 03/27/18 10:30
Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-87
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW20
Date Collected: 03/27/18 10:30
Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-87
Matrix: Solid
Percent Solids: 86.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 10:59	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 20:50	CJ	TAL SEA

Client Sample ID: SW21
Date Collected: 03/27/18 11:00
Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-88
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:48	TTN	TAL SEA

Client Sample ID: SW21
Date Collected: 03/27/18 11:00
Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-88
Matrix: Solid
Percent Solids: 80.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 11:27	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 21:30	CJ	TAL SEA

Client Sample ID: SW24
Date Collected: 03/27/18 14:40
Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-89
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270422	04/02/18 15:50	TTN	TAL SEA

Client Sample ID: SW24
Date Collected: 03/27/18 14:40
Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-89
Matrix: Solid
Percent Solids: 81.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW24

Date Collected: 03/27/18 14:40

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-89

Matrix: Solid

Percent Solids: 81.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	270505	04/04/18 11:55	ADB	TAL SEA
Total/NA	Prep	3546			270413	04/02/18 14:51	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270575	04/04/18 21:51	CJ	TAL SEA

Client Sample ID: SW23

Date Collected: 03/27/18 11:50

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-90

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

Client Sample ID: SW23

Date Collected: 03/27/18 11:50

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-90

Matrix: Solid

Percent Solids: 82.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270552	04/04/18 08:53	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		2	271090	04/10/18 20:18	ERZ	TAL SEA

Client Sample ID: RNS-13

Date Collected: 03/27/18 16:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-91

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			270796	04/06/18 09:58	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270888	04/08/18 18:04	T1W	TAL SEA
Total/NA	Prep	3510C			270796	04/06/18 09:58	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271185	04/12/18 14:45	ADB	TAL SEA
Total/NA	Prep	3510C			271293	04/13/18 09:33	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271389	04/13/18 20:55	ADB	TAL SEA
Total Recoverable	Prep	3005A			270414	04/02/18 14:58	ASJ	TAL SEA
Total Recoverable	Analysis	6020A		5	270545	04/03/18 13:12	FCW	TAL SEA
Total/NA	Prep	7470A			270359	04/02/18 09:50	ASJ	TAL SEA
Total/NA	Analysis	7470A		1	270423	04/02/18 14:07	FCW	TAL SEA

Client Sample ID: RNS-14

Date Collected: 03/27/18 16:40

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-92

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			270796	04/06/18 09:58	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270888	04/08/18 18:26	T1W	TAL SEA
Total/NA	Prep	3510C			270796	04/06/18 09:58	KMS	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: RNS-14

Date Collected: 03/27/18 16:40

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-92

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	271185	04/12/18 15:06	ADB	TAL SEA
Total/NA	Prep	3510C			271293	04/13/18 09:33	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271389	04/13/18 21:16	ADB	TAL SEA

Client Sample ID: SW-19

Date Collected: 03/27/18 10:15

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-94

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

Client Sample ID: SW-19

Date Collected: 03/27/18 10:15

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-94

Matrix: Solid

Percent Solids: 80.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270552	04/04/18 08:53	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271090	04/10/18 20:46	ERZ	TAL SEA

Client Sample ID: SW-30

Date Collected: 03/27/18 16:05

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-95

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

Client Sample ID: SW-30

Date Collected: 03/27/18 16:05

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-95

Matrix: Solid

Percent Solids: 80.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270552	04/04/18 08:53	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271090	04/10/18 21:14	ERZ	TAL SEA

Client Sample ID: SW-22

Date Collected: 03/27/18 11:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-96

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-22

Date Collected: 03/27/18 11:30

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-96

Matrix: Solid

Percent Solids: 83.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270552	04/04/18 08:53	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271090	04/10/18 21:42	ERZ	TAL SEA

Client Sample ID: SW-29

Date Collected: 03/27/18 15:40

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-97

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

Client Sample ID: SW-29

Date Collected: 03/27/18 15:40

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-97

Matrix: Solid

Percent Solids: 83.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270552	04/04/18 08:53	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270782	04/07/18 00:02	T1W	TAL SEA

Client Sample ID: SW-26

Date Collected: 03/27/18 15:00

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-98

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

Client Sample ID: SW-26

Date Collected: 03/27/18 15:00

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-98

Matrix: Solid

Percent Solids: 80.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270552	04/04/18 08:53	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270782	04/07/18 00:23	T1W	TAL SEA

Client Sample ID: SW-27

Date Collected: 03/27/18 15:10

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-99

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Client Sample ID: SW-27

Date Collected: 03/27/18 15:10

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-99

Matrix: Solid

Percent Solids: 81.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270552	04/04/18 08:53	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270782	04/07/18 00:43	T1W	TAL SEA

Client Sample ID: SW-18

Date Collected: 03/27/18 10:00

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-100

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

Client Sample ID: SW-18

Date Collected: 03/27/18 10:00

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-100

Matrix: Solid

Percent Solids: 87.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270552	04/04/18 08:53	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270782	04/07/18 01:03	T1W	TAL SEA

Client Sample ID: SW-31

Date Collected: 03/27/18 16:20

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-101

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

Client Sample ID: SW-31

Date Collected: 03/27/18 16:20

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-101

Matrix: Solid

Percent Solids: 83.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			270552	04/04/18 08:53	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	270782	04/07/18 01:24	T1W	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3050B	Solid	Arsenic
6010C	3050B	Solid	Barium
6010C	3050B	Solid	Cadmium
6010C	3050B	Solid	Chromium
6010C	3050B	Solid	Lead
6010C	3050B	Solid	Selenium
6010C	3050B	Solid	Silver
6020A	3005A	Water	Arsenic
6020A	3005A	Water	Barium
6020A	3005A	Water	Cadmium
6020A	3005A	Water	Chromium
6020A	3005A	Water	Lead
6020A	3005A	Water	Selenium
6020A	3005A	Water	Silver
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids



Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-76187-5	WY-SG04-CSB	Solid	03/27/18 09:22	03/28/18 17:45
580-76187-10	WY-SG03-CSB	Solid	03/27/18 10:12	03/28/18 17:45
580-76187-21	WY-SG08-CSB	Solid	03/27/18 14:20	03/28/18 17:45
580-76187-27	WY-SG02-CSB	Solid	03/27/18 11:15	03/28/18 17:45
580-76187-32	WY-SG01-CSB	Solid	03/27/18 11:40	03/28/18 17:45
580-76187-33	FOCB-SB03-1.5'	Solid	03/28/18 11:17	03/28/18 17:45
580-76187-34	FOCB-SB02-1.5'	Solid	03/28/18 11:20	03/28/18 17:45
580-76187-35	FOCB-SB01-1.5'	Solid	03/28/18 11:40	03/28/18 17:45
580-76187-36	FOCB-SB04-1.5'	Solid	03/28/18 11:50	03/28/18 17:45
580-76187-38	WY-SG09-CSB	Solid	03/27/18 15:05	03/28/18 17:45
580-76187-43	WY-SG15-CSB	Solid	03/27/18 15:47	03/28/18 17:45
580-76187-48	WY-SG10-CSB	Solid	03/28/18 08:58	03/28/18 17:45
580-76187-53	WY-SG11-CSB	Solid	03/28/18 09:35	03/28/18 17:45
580-76187-58	SW-42	Solid	03/28/18 12:20	03/28/18 17:45
580-76187-59	SW-43	Solid	03/28/18 12:30	03/28/18 17:45
580-76187-60	SW-44	Solid	03/28/18 15:00	03/28/18 17:45
580-76187-63	EY-SG01-CSB	Solid	03/28/18 14:45	03/28/18 17:45
580-76187-66	EY-SG05-CSB	Solid	03/28/18 14:20	03/28/18 17:45
580-76187-69	SMP-01	Water	03/28/18 15:40	03/28/18 17:45
580-76187-70	SW-32	Solid	03/28/18 08:30	03/28/18 17:45
580-76187-71	SW-33	Solid	03/28/18 08:45	03/28/18 17:45
580-76187-72	SW-34	Solid	03/28/18 09:10	03/28/18 17:45
580-76187-73	SW-35	Solid	03/28/18 09:30	03/28/18 17:45
580-76187-74	SW-36	Solid	03/28/18 10:40	03/28/18 17:45
580-76187-75	SW-37	Solid	03/28/18 10:50	03/28/18 17:45
580-76187-76	SW-38	Solid	03/28/18 11:05	03/28/18 17:45
580-76187-77	SW-39	Solid	03/28/18 11:30	03/28/18 17:45
580-76187-78	SW-40	Solid	03/28/18 11:34	03/28/18 17:45
580-76187-79	SW-41	Solid	03/28/18 11:55	03/28/18 17:45
580-76187-80	EY-SG06-CSB	Solid	03/28/18 14:45	03/28/18 17:45
580-76187-81	RNS-15	Water	03/28/18 15:10	03/28/18 17:45
580-76187-82	RNS-16	Water	03/28/18 15:20	03/28/18 17:45
580-76187-85	SW25	Solid	03/27/18 14:50	03/28/18 17:45
580-76187-86	SW28	Solid	03/27/18 15:30	03/28/18 17:45
580-76187-87	SW20	Solid	03/27/18 10:30	03/28/18 17:45
580-76187-88	SW21	Solid	03/27/18 11:00	03/28/18 17:45
580-76187-89	SW24	Solid	03/27/18 14:40	03/28/18 17:45
580-76187-90	SW23	Solid	03/27/18 11:50	03/28/18 17:45
580-76187-91	RNS-13	Water	03/27/18 16:30	03/28/18 17:45
580-76187-92	RNS-14	Water	03/27/18 16:40	03/28/18 17:45
580-76187-94	SW-19	Solid	03/27/18 10:15	03/28/18 17:45
580-76187-95	SW-30	Solid	03/27/18 16:05	03/28/18 17:45
580-76187-96	SW-22	Solid	03/27/18 11:30	03/28/18 17:45
580-76187-97	SW-29	Solid	03/27/18 15:40	03/28/18 17:45
580-76187-98	SW-26	Solid	03/27/18 15:00	03/28/18 17:45
580-76187-99	SW-27	Solid	03/27/18 15:10	03/28/18 17:45
580-76187-100	SW-18	Solid	03/27/18 10:00	03/28/18 17:45
580-76187-101	SW-31	Solid	03/27/18 16:20	03/28/18 17:45

Client: UWA ERM Client Contact: Suzanne Poleburg Date: 3/27/18 Chain of Custody Number: 37748
Address: _____ Telephone Number (Area Code)/Fax Number: _____ Lab Number: 76187 Page _____ of _____

City: _____ State: _____ Zip Code: _____ Sampler: _____ Lab Contact: _____
Project Name and Location (State): _____ Billing Contact: _____
Contract/Purchase Order/Quote No.: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Unpres.	Containers & Preservatives					NUTRI-Dx/HO	R-PS 9052	PM-5 9270-51M	STEX 9260	Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt
			Air	Aqueous	Sed.	Soil		H2SO4	HNO3	HCl	NaOH	ZnAc2/NaOH						
-25 WY-SB02-SB03	3/27/18	1110				X	X											hold
WY-SB02-SB04	3/27/18	1112				X	X											↓
-27 WY-SB02-C9B	3/27/18	1115				X	X											Run TPH, hold PCB
WY-SB01-SB01	3/27/18	1130				X	X											hold
-29 WY-SB01-SB02	3/27/18	1133				X	X											↓
WY-SB01-SB03	3/27/18	1135				X	X											↓
-31 WY-SB01-SB04	3/27/18	1139				X	X											↓
WY-SB01-C9B	3/27/18	1140				X	X											Run TPH hold PCB
-33 FOCB-SB03-1.5'	3/28/18	1114				X	X					X	X	X	X			Run 1 of each, hold 2
FOCB-SB02-1.5'	3/28/18	1120				X	X					X	X	X	X			↓
-35 FOCB-SB01-1.5'	3/28/18	1140				X	X					X	X	X	X			↓
FOCB-SB04-1.5'	3/28/18	1150				X	X					X	X	X	X			↓

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal: Return To Client Archive For _____ Months Disposal By Lab (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify): _____

1. Relinquished By: Cheryl D. Lohr Date: 3/28 Time: 1745 1. Received By: Tom Blankinship Date: 3/26/18 Time: 1745
2. Relinquished By: _____ Date: _____ Time: _____ 2. Received By: _____ Date: _____ Time: _____

3. Therm. ID A2 Cor 3.80 Unc 4.00 Cooler Dsc: Lg Blue Wet/Packs Packing: cardboard Custody Seal: Yes No
3. R Therm. ID A2 Cor 4.00 Unc 4.20 Cooler Dsc: Lg Blue Wet/Packs Packing: bag Custody Seal: Yes No
3. R Therm. ID A2 Cor 6.10 Unc 6.30 Cooler Dsc: Lg Blue Wet/Packs Packing: bag Custody Seal: Yes No

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:	
Client Contact: Suzanne Dolberg		Phone:		Cruz, Sheri L				580-27907-9206.21	
Company: ERM-West		Address: 1218 3rd Ave Suite 1412		Due Date Requested:		Analysis Requested		Job #: 76187	
City: Seattle		State, Zip: WA, 98101		TAT Requested (days):		Field Filtered Sample (Yes or No)		Preservation Codes:	
Phone: 425-214-0462(Tel)		Email: suzanne.dolberg@erm.com		PO #: 0435302.03		Perform. Method (Yes or No)		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA	
Project Name: Cushman Phase II ESA		Project #: 58012210		WO #:		8082A, NWTPH_Dx		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Site:		SSOW#:				8082A, B270D, SIM, NWTPH_Dx		Other:	
						8260C - BTEX			
						6010C, 7471A, NWTPH_Dx			
						8082A - PCBs, standard list			
						6020A, 7470A			
						NWTPH_Dx - Northwest - DROIRRO			
						8260C - BTEX			
								Total Number of containers	
								Special Instructions/Note:	
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	
								Preservation Code:	
								N N F N N D A A	
-59 WY-SG07-SB03 SW-42		3/25		1220		G		Solid	
WY-SG07-SB04 SW-43				1230		G		Solid	
WY-SG08-CSB SW-44				1500		G		Solid	
-61 WY-SG08-SB01 EY-SG01-SB01				1430		G		Solid	
WY-SG08-SB02 EY-SG01-SB02				1440		G		Solid	
-63 WY-SG08-SB03 EY-SG01-CSB				1445		C		Solid	
WY-SG08-SB04 EY-SG05-SB01				1408		G		Solid	
-65 WY-SG09-CSB EY-SG05-SB02				1415		G		Solid	
WY-SG09-SB01 EY-SG05-CSB				1420		C		Solid	
-67 WY-SG09-SB02 EY-SG06-SB01				1350		G		Solid	
WY-SG09-SB03 EY-SG06-SB02				1355		G		Solid	
Possible Hazard Identification		<input type="checkbox"/> Non-Hazard		<input type="checkbox"/> Flammable		<input type="checkbox"/> Skin Irritant		<input type="checkbox"/> Poison B	
		<input type="checkbox"/> Unknown		<input type="checkbox"/> Radiological					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		<input type="checkbox"/> Return To Client		<input type="checkbox"/> Disposal By Lab		<input type="checkbox"/> Archive For		Months	
Deliverable Requested: I, II, III, IV, Other (specify)								Special Instructions/QC Requirements:	
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:			
Relinquished by: <i>[Signature]</i>		Date/Time: 3/28 1745		Company: GRM		Received by: <i>[Signature]</i>		Date/Time: 3/28/18 1745	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks:			

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Tacoma, WA 98424
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Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:	
Client Contact: Suzanne Dolberg		Phone:		Cruc, Sheri L				580-27907-9206.22	
Company: ERM-West		Due Date Requested:		E-Mail: sheri.cruz@testamericainc.com				Page: Page 22 of 33	
Address: 1218 3rd Ave Suite 1412		TAT Requested (days):		Project Name: Cushman Phase II ESA		Project #: 58012210		Job #: 76187	
City: Seattle		PO #: 0435302.03		Site: SSOW#				Preservation Codes:	
State Zip: WA, 98101		WO #:						A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)	
Phone: 425-214-0462(Tel)		Email: suzanne.dolberg@erm.com						Other:	
Analysis Requested									
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		8082A, NWTPH_Dx		8082A, 8270D, SIM, NWTPH_Dx		8260C - BTEX	
				8010C, 7471A, NWTPH_Dx		8082A - PCBs, standard list		6020A, 7470A	
				NWTPH_Dx - Northwest - DROIRRO		8260C - BTEX			
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil)	
						BT=Tissue, AA=Air			
						Preservation Code:		Special Instructions/Note:	
-81 WY-SG08-SB04 EY-SG06-CSB		3/28		1445		C		Solid	
-82 WY-SG10-SB06 RNS-15		3/28		1510		G		W Solid	
WY-SG10-SB07 RNS-16		3/28		1520		G		W Solid	
-83 WY-SG10-SB07 WY-SG07-CSB		3/27		1345				Solid	
-84 WY-SG10-SB03 WY-SG12-CSB		3/28		1037				Solid	
-85 WY-SG10-SB04 SW25		3/27		1450				Solid	
-86 WY-SG11-CSB SW28		3/27		1530				Solid	
-87 WY-SG11-SB01 SW20		3/27		1030				Solid	
-88 WY-SG11-SB02 SW21		3/27		1100				Solid	
-89 WY-SG11-SB03 SW24		3/27		1440				Solid	
-90 WY-SG11-SB04 SW23		3/27		1150				Solid	
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:				
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:		
Relinquished by: <i>Chris R. Rindolf</i>			Date/Time: 3/28 1745		Company: ERM		Received by: <i>Tom [Signature]</i>		
Relinquished by:			Date/Time:		Company:		Received by:		
Relinquished by:			Date/Time:		Company:		Received by:		
Custody Seals Intact:		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:					
Δ Yes Δ No									

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Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:											
Client Contact: Suzanne Dolberg		Phone:		Cruz, Sheri L				580-27907-9206.23											
Company: ERM-West		Due Date Requested:		E-Mail: sheri.cruz@testamericainc.com				Page: Page 23 of 33											
Address: 1218 3rd Ave Suite 1412		TAT Requested (days):		Analysis Requested				Job #:											
City: Seattle		PO #: 0435302.03		Field Filtered (Sample Type or No)				Preservation Codes:											
State, Zip: WA, 98101		W/O #:		8082A, NWTPH_Dx				A - HCL M - Hexane											
Phone: 425-214-0462(Tel)		Project #: 58012210		8082A, 8270D_SIM, NWTPH_Dx				B - NaOH N - None											
Email: suzanne.dolberg@erm.com		SSOW#:		8280C - BTEX				C - Zn Acetate O - AsNaO2											
Project Name: Cushman Phase II ESA				8010C, 7471A, NWTPH_Dx				D - Nitric Acid P - Na2O4S											
Site:				8082A - PCBs, standard list				E - NaHSO4 Q - Na2SO3											
				8020A, 7470A				F - MeOH R - Na2S2O3											
				NWTPH_Dx - Northwest - DRO/IRRO				G - Amchlor S - H2SO4											
				8280C - BTEX				H - Ascorbic Acid T - TSP Dodecahydrate											
								I - Ice U - Acetone											
								J - DI Water V - MCAA											
								K - EDTA W - pH 4-5											
								L - EDA Z - other (specify)											
								Other:											
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=wast/oil, BT=Tissue, An=Air)											
								Field Filtered (Sample Type or No)											
								Total Number of containers											
								Special Instructions/Note:											
-91	WA-SC12-SB01	RNS-13	3/27	1630	G	W	Solid	X	X	N	N	F	N	N	D	A	A		5 Run Metals + TPH, hold PCBs
	WA-SC12-SB02	RNS-14	3/27	1640	G	W	Solid				✓								4 Run TPH, hold PCBs
-93	WA-SC13-SB03	RNS-09	3/28	1720	G	W	Solid							✓					1 Hold
	WA-SC12-SB04	SW-19	3/27	1015	G		Solid												refer to table
-95	WA-SC13-SB05	SW-30		1605			Solid												
	WA-SC13-SB01	SW-22		1130			Solid												
-97	WA-SC13-SB03	SW-29		1540			Solid												
	WA-SC13-SB03	SW-28		1500			Solid												
-99	WA-SC14-SB01	SW-27		1510			Solid												
	WA-SC14-SB02	SW-18		1000			Solid												
-101	WA-SC14-SB03	SW-31		1820		✓	Solid												
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)													
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months													
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:													
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:													
Relinquished by: <i>Chris Rudloff</i>		Date/Time: 3/30/2018		Company: ERM		Received by: <i>Tom [Signature]</i>		Date/Time: 3/30/18 1310		Company: TA-Sea									
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:									
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:															

Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-76187-1

Login Number: 76187

List Number: 1

Creator: Blankinship, Tom X

List Source: TestAmerica Seattle

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310


TestAmerica Job ID: 580-76187-2

Client Project/Site: Cushman Phase II ESA

For:

ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
4/19/2018 1:09:26 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Job ID: 580-76187-2

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-76187-2

Comments

No additional comments.

Receipt

The samples were received on 3/28/2018 5:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.8° C, 4.0° C and 6.1° C.

Receipt Exceptions

A large number of samples were received (including a trip blank) that were not listed on the chain of custody (COC). The last page of the COC was filled up with no room for the rest of the samples. The client was submitted a list of the remaining samples and has been requested a COC be submitted representing the remaining samples.

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): SW-32 (580-76187-70), SW-34 (580-76187-72), SW-39 (580-76187-77), SW-41 (580-76187-79) and EY-SG06-CSB (580-76187-80).

The container label of sample -70 lists the sampling time 0825, while the COC lists 0830.

The container label of sample -72 lists no sampling time.

The container label of sample -77 lists the sampling time 1134, while the COC lists 1130.

The container label of sample -79 lists no sampling time or date.

The container label of sample -80 lists the sampling time 1400, while the COC lists 1445

The samples are logged in per COC.

GC Semi VOA

Method(s) NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-271185 recovered above the upper control limit for Mineral oil. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: WY-SG03-SB01 (580-76187-6), WY-SG03-SB02 (580-76187-7), WY-SG03-SB04 (580-76187-9), WY-SG02-SB01 (580-76187-11), WY-SG02-SB03 (580-76187-25), WY-SG02-SB04 (580-76187-26), (CCV 580-271185/24) and (CCV 580-271185/35).

Method(s) NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-271185 recovered above the upper control limit for Motor Oil (>C24-C36) and #2 Diesel (C10-C24). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: WY-SG03-SB01 (580-76187-6), WY-SG03-SB02 (580-76187-7), (CCV 580-271185/25), (CCV 580-271185/36), (LCS 580-271005/2-A), (LCSD 580-271005/3-A) and (MB 580-271005/1-A).

Method(s) NWTPH-Dx: Continuing calibration verification (CCV) standard associated with batch 580-271383 recovered outside %Drift acceptance criteria for o-Terphenyl surrogate. The %Recovery is within acceptance criteria for the surrogate in the CCV and associated samples; therefore, the data are qualified and reported. Only the first CCV in this analytical sequence is affected by this issue and only brackets the MB, LCS, and LCSD for this job. (CCVRT 580-271383/3)

Method(s) NWTPH-Dx: CCV %D flags were manually removed from the following samples due to non-bracketing CCV. WY-SG03-SB03 (580-76187-8), WY-SG03-SB04 (580-76187-9), WY-SG02-SB01 (580-76187-11), WY-SG02-SB02 (580-76187-12), WY-SG02-SB03 (580-76187-25), WY-SG02-SB04 (580-76187-26), EY-SG05-SB01 (580-76187-64), and EY-SG05-SB02 (580-76187-65).

Method(s) NWTPH-Dx: The following samples were diluted due to the nature of the sample matrix: WY-SG03-SB03 (580-76187-8) and WY-SG02-SB02 (580-76187-12). Elevated reporting limits (RLs) are provided.

Method(s) NWTPH-Dx: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: WY-SG03-SB03 (580-76187-8), WY-SG02-SB02 (580-76187-12), EY-SG05-SB01 (580-76187-64) and EY-SG05-SB02 (580-76187-65).

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

General Chemistry

Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Job ID: 580-76187-2 (Continued)

Laboratory: TestAmerica Seattle (Continued)

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

Organic Prep

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

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Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Glossary

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

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Client Sample ID: WY-SG03-SB01

Lab Sample ID: 580-76187-6

Date Collected: 03/27/18 09:55

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 82.9

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		57		mg/Kg	☼	04/10/18 11:50	04/12/18 21:12	1
Motor Oil (>C24-C36)	ND		57		mg/Kg	☼	04/10/18 11:50	04/12/18 21:12	1
Mineral oil	ND		57		mg/Kg	☼	04/10/18 11:50	04/12/18 21:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	94		50 - 150	04/10/18 11:50	04/12/18 21:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82.9		0.1		%			04/05/18 17:06	1
Percent Moisture	17.1		0.1		%			04/05/18 17:06	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Client Sample ID: WY-SG03-SB02

Lab Sample ID: 580-76187-7

Date Collected: 03/27/18 10:00

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 84.1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		57		mg/Kg	☼	04/10/18 11:50	04/12/18 21:33	1
Motor Oil (>C24-C36)	ND		57		mg/Kg	☼	04/10/18 11:50	04/12/18 21:33	1
Mineral oil	ND		57		mg/Kg	☼	04/10/18 11:50	04/12/18 21:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	94		50 - 150	04/10/18 11:50	04/12/18 21:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.1		0.1		%			04/05/18 17:06	1
Percent Moisture	15.9		0.1		%			04/05/18 17:06	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Client Sample ID: WY-SG03-SB03

Lab Sample ID: 580-76187-8

Date Collected: 03/27/18 10:05

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 80.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	3000		590		mg/Kg	☼	04/10/18 11:50	04/14/18 08:47	10
Motor Oil (>C24-C36)	4200		590		mg/Kg	☼	04/10/18 11:50	04/14/18 08:47	10
Mineral oil	4600		590		mg/Kg	☼	04/10/18 11:50	04/18/18 13:05	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	79		50 - 150	04/10/18 11:50	04/14/18 08:47	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.2		0.1		%			04/05/18 17:06	1
Percent Moisture	19.8		0.1		%			04/05/18 17:06	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Client Sample ID: WY-SG03-SB04

Lab Sample ID: 580-76187-9

Date Collected: 03/27/18 10:10

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 85.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		57		mg/Kg	☼	04/10/18 11:50	04/14/18 09:09	1
Motor Oil (>C24-C36)	ND		57		mg/Kg	☼	04/10/18 11:50	04/14/18 09:09	1
Mineral oil	ND		57		mg/Kg	☼	04/10/18 11:50	04/12/18 22:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	95		50 - 150				04/10/18 11:50	04/12/18 22:13	1
<i>o</i> -Terphenyl	79		50 - 150				04/10/18 11:50	04/14/18 09:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.3		0.1		%			04/05/18 17:06	1
Percent Moisture	14.7		0.1		%			04/05/18 17:06	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Client Sample ID: WY-SG02-SB01

Lab Sample ID: 580-76187-11

Date Collected: 03/27/18 11:05

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 84.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		56		mg/Kg	☼	04/10/18 11:50	04/14/18 09:31	1
Motor Oil (>C24-C36)	ND		56		mg/Kg	☼	04/10/18 11:50	04/14/18 09:31	1
Mineral oil	ND		56		mg/Kg	☼	04/10/18 11:50	04/12/18 22:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	94		50 - 150	04/10/18 11:50	04/12/18 22:33	1
<i>o</i> -Terphenyl	79		50 - 150	04/10/18 11:50	04/14/18 09:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.2		0.1		%			04/05/18 16:46	1
Percent Moisture	15.8		0.1		%			04/05/18 16:46	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Client Sample ID: WY-SG02-SB02

Lab Sample ID: 580-76187-12

Date Collected: 03/27/18 11:08

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 57.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	11000		400		mg/Kg	☼	04/10/18 11:50	04/14/18 09:52	5
Motor Oil (>C24-C36)	4100		400		mg/Kg	☼	04/10/18 11:50	04/14/18 09:52	5
Mineral oil	14000		400		mg/Kg	☼	04/10/18 11:50	04/18/18 13:25	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	81		50 - 150	04/10/18 11:50	04/14/18 09:52	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	57.8		0.1		%			04/05/18 16:46	1
Percent Moisture	42.2		0.1		%			04/05/18 16:46	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Client Sample ID: WY-SG02-SB03

Lab Sample ID: 580-76187-25

Date Collected: 03/27/18 11:10

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 80.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		62		mg/Kg	☼	04/10/18 11:50	04/14/18 10:14	1
Motor Oil (>C24-C36)	73		62		mg/Kg	☼	04/10/18 11:50	04/14/18 10:14	1
Mineral oil	ND		62		mg/Kg	☼	04/10/18 11:50	04/12/18 23:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	91		50 - 150				04/10/18 11:50	04/12/18 23:13	1
<i>o</i> -Terphenyl	79		50 - 150				04/10/18 11:50	04/14/18 10:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.2		0.1		%			04/05/18 16:46	1
Percent Moisture	19.8		0.1		%			04/05/18 16:46	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Client Sample ID: WY-SG02-SB04

Lab Sample ID: 580-76187-26

Date Collected: 03/27/18 11:12

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 80.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		60		mg/Kg	☼	04/10/18 11:50	04/14/18 10:36	1
Motor Oil (>C24-C36)	ND		60		mg/Kg	☼	04/10/18 11:50	04/14/18 10:36	1
Mineral oil	ND		60		mg/Kg	☼	04/10/18 11:50	04/12/18 23:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	92		50 - 150	04/10/18 11:50	04/12/18 23:34	1
<i>o</i> -Terphenyl	80		50 - 150	04/10/18 11:50	04/14/18 10:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.6		0.1		%			04/05/18 16:46	1
Percent Moisture	19.4		0.1		%			04/05/18 16:46	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Client Sample ID: EY-SG05-SB01

Lab Sample ID: 580-76187-64

Date Collected: 03/28/18 14:08

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 87.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	1300		54		mg/Kg	☼	04/10/18 11:50	04/14/18 10:58	1
Motor Oil (>C24-C36)	850		54		mg/Kg	☼	04/10/18 11:50	04/14/18 10:58	1
Mineral oil	1700		54		mg/Kg	☼	04/10/18 11:50	04/18/18 13:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	83		50 - 150	04/10/18 11:50	04/14/18 10:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.3		0.1		%			04/05/18 16:46	1
Percent Moisture	12.7		0.1		%			04/05/18 16:46	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Client Sample ID: EY-SG05-SB02

Lab Sample ID: 580-76187-65

Date Collected: 03/28/18 14:15

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 86.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	520		57		mg/Kg	☼	04/10/18 11:50	04/14/18 11:20	1
Motor Oil (>C24-C36)	400		57		mg/Kg	☼	04/10/18 11:50	04/14/18 11:20	1
Mineral oil	730		57		mg/Kg	☼	04/10/18 11:50	04/18/18 14:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	66		50 - 150				04/10/18 11:50	04/14/18 11:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.8		0.1		%			04/05/18 16:46	1
Percent Moisture	13.2		0.1		%			04/05/18 16:46	1

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-271005/1-A
Matrix: Solid
Analysis Batch: 271185

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 271005

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		04/10/18 11:50	04/12/18 17:29	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		04/10/18 11:50	04/12/18 17:29	1
Mineral oil	ND		50		mg/Kg		04/10/18 11:50	04/12/18 17:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	91		50 - 150	04/10/18 11:50	04/12/18 17:29	1

Lab Sample ID: MB 580-271005/1-A
Matrix: Solid
Analysis Batch: 271383

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 271005

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		04/10/18 11:50	04/14/18 05:31	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		04/10/18 11:50	04/14/18 05:31	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	81		50 - 150	04/10/18 11:50	04/14/18 05:31	1

Lab Sample ID: LCS 580-271005/2-A
Matrix: Solid
Analysis Batch: 271185

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 271005

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	500	539		mg/Kg		108	70 - 125
Motor Oil (>C24-C36)	500	567		mg/Kg		113	70 - 119

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	101		50 - 150

Lab Sample ID: LCS 580-271005/2-A
Matrix: Solid
Analysis Batch: 271383

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 271005

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	500	430		mg/Kg		86	70 - 125
Motor Oil (>C24-C36)	500	438		mg/Kg		88	70 - 119

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	75		50 - 150

Lab Sample ID: LCSD 580-271005/3-A
Matrix: Solid
Analysis Batch: 271185

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 271005

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	500	514		mg/Kg		103	70 - 125	5	16
Motor Oil (>C24-C36)	500	529		mg/Kg		106	70 - 119	7	16

TestAmerica Seattle

QC Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Surrogate	<i>LCS</i> D %Recovery	<i>LCS</i> D Qualifier	Limits
<i>o</i> -Terphenyl	93		50 - 150

Lab Sample ID: LCSD 580-271005/3-A
Matrix: Solid
Analysis Batch: 271383

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 271005

Analyte	Spike Added	<i>LCS</i> D Result	<i>LCS</i> D Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	440		mg/Kg		88	70 - 125	2	16
Motor Oil (>C24-C36)	500	453		mg/Kg		91	70 - 119	3	16

Surrogate	<i>LCS</i> D %Recovery	<i>LCS</i> D Qualifier	Limits
<i>o</i> -Terphenyl	77		50 - 150

Method: D 2216 - Percent Moisture

Lab Sample ID: 580-76187-6 DU
Matrix: Solid
Analysis Batch: 270761

Client Sample ID: WY-SG03-SB01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	82.9		83.4		%		0.6	20
Percent Moisture	17.1		16.6		%		3	20

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Client Sample ID: WY-SG03-SB01

Date Collected: 03/27/18 09:55

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-6

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 17:06	TTN	TAL SEA

Client Sample ID: WY-SG03-SB01

Date Collected: 03/27/18 09:55

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-6

Matrix: Solid

Percent Solids: 82.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271185	04/12/18 21:12	ADB	TAL SEA

Client Sample ID: WY-SG03-SB02

Date Collected: 03/27/18 10:00

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-7

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 17:06	TTN	TAL SEA

Client Sample ID: WY-SG03-SB02

Date Collected: 03/27/18 10:00

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-7

Matrix: Solid

Percent Solids: 84.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271185	04/12/18 21:33	ADB	TAL SEA

Client Sample ID: WY-SG03-SB03

Date Collected: 03/27/18 10:05

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-8

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 17:06	TTN	TAL SEA

Client Sample ID: WY-SG03-SB03

Date Collected: 03/27/18 10:05

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-8

Matrix: Solid

Percent Solids: 80.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		10	271383	04/14/18 08:47	ADB	TAL SEA
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		10	271668	04/18/18 13:05	ADB	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Client Sample ID: WY-SG03-SB04

Lab Sample ID: 580-76187-9

Date Collected: 03/27/18 10:10

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 17:06	TTN	TAL SEA

Client Sample ID: WY-SG03-SB04

Lab Sample ID: 580-76187-9

Date Collected: 03/27/18 10:10

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271383	04/14/18 09:09	ADB	TAL SEA
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271185	04/12/18 22:13	ADB	TAL SEA

Client Sample ID: WY-SG02-SB01

Lab Sample ID: 580-76187-11

Date Collected: 03/27/18 11:05

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

Client Sample ID: WY-SG02-SB01

Lab Sample ID: 580-76187-11

Date Collected: 03/27/18 11:05

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 84.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271383	04/14/18 09:31	ADB	TAL SEA
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271185	04/12/18 22:33	ADB	TAL SEA

Client Sample ID: WY-SG02-SB02

Lab Sample ID: 580-76187-12

Date Collected: 03/27/18 11:08

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

Client Sample ID: WY-SG02-SB02

Lab Sample ID: 580-76187-12

Date Collected: 03/27/18 11:08

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 57.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Client Sample ID: WY-SG02-SB02

Lab Sample ID: 580-76187-12

Date Collected: 03/27/18 11:08

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 57.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		5	271383	04/14/18 09:52	ADB	TAL SEA
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		5	271668	04/18/18 13:25	ADB	TAL SEA

Client Sample ID: WY-SG02-SB03

Lab Sample ID: 580-76187-25

Date Collected: 03/27/18 11:10

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

Client Sample ID: WY-SG02-SB03

Lab Sample ID: 580-76187-25

Date Collected: 03/27/18 11:10

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 80.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271383	04/14/18 10:14	ADB	TAL SEA
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271185	04/12/18 23:13	ADB	TAL SEA

Client Sample ID: WY-SG02-SB04

Lab Sample ID: 580-76187-26

Date Collected: 03/27/18 11:12

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

Client Sample ID: WY-SG02-SB04

Lab Sample ID: 580-76187-26

Date Collected: 03/27/18 11:12

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 80.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271383	04/14/18 10:36	ADB	TAL SEA
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271185	04/12/18 23:34	ADB	TAL SEA

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Client Sample ID: EY-SG05-SB01

Lab Sample ID: 580-76187-64

Date Collected: 03/28/18 14:08

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

Client Sample ID: EY-SG05-SB01

Lab Sample ID: 580-76187-64

Date Collected: 03/28/18 14:08

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 87.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271383	04/14/18 10:58	ADB	TAL SEA
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271668	04/18/18 13:46	ADB	TAL SEA

Client Sample ID: EY-SG05-SB02

Lab Sample ID: 580-76187-65

Date Collected: 03/28/18 14:15

Matrix: Solid

Date Received: 03/28/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	270761	04/05/18 16:46	TTN	TAL SEA

Client Sample ID: EY-SG05-SB02

Lab Sample ID: 580-76187-65

Date Collected: 03/28/18 14:15

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 86.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271383	04/14/18 11:20	ADB	TAL SEA
Total/NA	Prep	3546			271005	04/10/18 11:50	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271668	04/18/18 14:06	ADB	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids



Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-76187-6	WY-SG03-SB01	Solid	03/27/18 09:55	03/28/18 17:45
580-76187-7	WY-SG03-SB02	Solid	03/27/18 10:00	03/28/18 17:45
580-76187-8	WY-SG03-SB03	Solid	03/27/18 10:05	03/28/18 17:45
580-76187-9	WY-SG03-SB04	Solid	03/27/18 10:10	03/28/18 17:45
580-76187-11	WY-SG02-SB01	Solid	03/27/18 11:05	03/28/18 17:45
580-76187-12	WY-SG02-SB02	Solid	03/27/18 11:08	03/28/18 17:45
580-76187-25	WY-SG02-SB03	Solid	03/27/18 11:10	03/28/18 17:45
580-76187-26	WY-SG02-SB04	Solid	03/27/18 11:12	03/28/18 17:45
580-76187-64	EY-SG05-SB01	Solid	03/28/18 14:08	03/28/18 17:45
580-76187-65	EY-SG05-SB02	Solid	03/28/18 14:15	03/28/18 17:45



Client: ERM Client Contact: Suzanne Doleburg suzanne.doleburg@erm.com Date: 3/27/18 Chain of Custody Number: 37746
 Address: 1218 3rd Ave Suite 1412 Telephone Number (Area Code)/Fax Number: 206.330.9398 Lab Number: 76187 Page of

City: Seattle State: WA Zip Code: 98101 Sampler: Justin Dauphinais Lab Contact: Sheri Cruz Analysis (Attach list if more space is needed):
 Project Name and Location (State): TPU Cushman Phase II Billing Contact:

Contract/Purchase Order/Quote No.: 0435302 Matrix: Containers & Preservatives: Special Instructions/Conditions of Receipt:

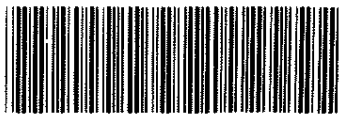
Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix					Containers & Preservatives						Analysis	Special Instructions/Conditions of Receipt		
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc2	NaOH				
-1 WY-S604-SB01	3/27/18	0910				X	X										hold
WY-S604-SB02	3/27/18	0915				X	X										
-3 WY-S604-SB03	3/27/18	0917				X	X										
WY-S604-SB04	3/27/18	0920				X	X										
-5 WY-S604-CSB	3/27/18	0922				X	X										Run TPH, hold PCB
WY-S603-SB01	3/27/18	0955															hold
-7 WY-S603-SB02	3/27/18	1000				X	X										
WY-S603-SB03	3/27/18	1005				X	X										
-9 WY-S603-SB04	3/27/18	1010				X	X										
WY-S603-CSB	3/27/18	1012				X	X										Run TPH, hold PCB
-11 WY-S602-SB01	3/27/18	1105				X	X										hold
WY-S602-SB02	3/27/18	1108				X	X										hold

Cooler: Yes No Cooler Temp: Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal: Disposal By Lab Return To Client Archive For Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other QC Requirements (Specify):

1. Relinquished By Sign/Print: <u>Chris Doleburg</u>	Date: <u>3/28</u> Time: <u>1745</u>	1. Received By Sign/Print: <u>Tom Stankovic</u>	Date: <u>3/28/18</u> Time: <u>1745</u>
2. Relinquished By Sign/Print: <u> </u>	Date: <u> </u> Time: <u> </u>	2. Received By Sign/Print: <u> </u>	Date: <u> </u> Time: <u> </u>
3. Relinquished By Sign/Print: <u> </u>	Date: <u> </u> Time: <u> </u>	3. Received By Sign/Print: <u> </u>	Date: <u> </u> Time: <u> </u>

Comments:



TestAmerica

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Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

Rush
 Short Hold

Chain of Custody Record

Client: ERM Client Contact: Suzanne Daleburg suzanne.daleburg@erm.com Date: 3/27/2018 Chain of Custody Number: 37747
Address: 1218 3rd Ave Suite 1412 Telephone Number (Area Code)/Fax Number: _____ Lab Number: 76187 Page _____ of _____

City: Seattle State: WA Zip Code: 98101 Sampler: Justin Daugherty Lab Contact: _____
Project Name and Location (State): Cushman Phase II Billing Contact: _____
Contract/Purchase Order/Quote No.: _____ Analysis (Attach list if more space is needed): _____
Special Instructions/Conditions of Receipt: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives						NMPH-DX/HO PCBs S082 Metals 600/747	Special Instructions/Conditions of Receipt			
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH					
-13 WY-SB07-SB01	3/29/18	1320				X	X										1 hold
WY-SB07-SB02	3/29/18	1338				X	X										Run TPT hold PCB hold
-15 WY-SB07-SB03	3/29/18	1340				X	X										
WY-SB07-SB04	3/29/18	1342				X	X										
-17 WY-SB08-SB01	3/29/18	1410				X	X										
WY-SB08-SB02	3/27/18	1412				X	X										
-19 WY-SB08-SB03	3/27/18	1415				X	X										
WY-SB08-SB04	3/27/18	1417				X	X										
-21 WY-SB08-CSB	3/27/18	1420				X	X										
WY-SB09-SB01	3/27/18	1455				X	X										
-22-23 WY-SB09-SB02	3/27/18	1458				X	X										
WY-SB09-SB03	3/27/18	1500				X	X										

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal: Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify): _____

1. Relinquished By Sign/Print: <u>[Signature]</u> Date: <u>3/28</u> Time: <u>1745</u>	1. Received By Sign/Print: <u>[Signature]</u> Date: <u>3/28/18</u> Time: <u>1745</u>
2. Relinquished By Sign/Print: _____ Date: _____ Time: _____	2. Received By Sign/Print: _____ Date: _____ Time: _____
3. Relinquished By Sign/Print: _____ Date: _____ Time: _____	3. Received By Sign/Print: _____ Date: _____ Time: _____

Comments: _____

Client: UWA ERM Client Contact: Suzanne Poleburg Date: 3/27/18 Chain of Custody Number: 37748
 Address: _____ Telephone Number (Area Code)/Fax Number: _____ Lab Number: 76187 Page _____ of _____

City: _____ State: _____ Zip Code: _____ Sampler: _____ Lab Contact: _____
 Project Name and Location (State): _____ Billing Contact: _____
 Contract/Purchase Order/Quote No.: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Unpres.	Containers & Preservatives					Analysis (Attach list if more space is needed)	Special Instructions/Conditions of Receipt	
			Air	Aqueous	Sed.	Soil		H2SO4	HNO3	HCl	NaOH	ZnAc2/NaOH			
-25 WY-SB02-SB03	3/27/18	1110				X	X								hold
WY-SB02-SB04	3/27/18	1112				X	X								↓
-27 WY-SB02-C9B	3/27/18	1115				X	X							✓	Run TPH, hold PCB
WY-SB01-SB01	3/27/18	1130				X	X								hold
-29 WY-SB01-SB02	3/27/18	1133				X	X								↓
WY-SB01-SB03	3/27/18	1135				X	X								
-31 WY-SB01-SB04	3/27/18	1137				X	X								↓
WY-SB01-C9B	3/27/18	1140				X	X							✓	Run TPH hold PCB
-33 FOCB-SB03-1.5'	3/28/18	1114				X	X					X	X	X	Run 1 of each, hold 2
FOCB-SB02-1.5'	3/28/18	1120				X	X					X	X	X	↓
-35 FOCB-SB01-1.5'	3/28/18	1140				X	X					X	X	X	6
FOCB-SB04-1.5'	3/28/18	1150				X	X					X	X	X	6

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal: Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify): _____

1. Relinquished By: Chen Dendler Date: 3/28 Time: 1745 1. Received By: Tom Blankinship Date: 3/26/18 Time: 1745
 2. Relinquished By: _____ Date: _____ Time: _____ 2. Received By: _____ Date: _____ Time: _____

3. Therm. ID A2 Cor 3.80 Unc 4.00 Cooler Dsc: Lg Blue Wet/Packs Packing: cardboard Custody Seal: Yes No
 3. R Therm. ID A2 Cor 4.00 Unc 4.20 Cooler Dsc: Lg Blue Wet/Packs Packing: bag Custody Seal: Yes No
 3. R Therm. ID A2 Cor 6.10 Unc 6.30 Cooler Dsc: Lg Blue Wet/Packs Packing: bag Custody Seal: Yes No

TestAmerica Seattle

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Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:	
Client Contact: Suzanne Dolberg		Phone:		E-Mail: sheri.cruz@testamericainc.com				580-27907-9206.21	
Company: ERM-West		Address: 1218 3rd Ave Suite 1412		Due Date Requested:		Analysis Requested		Job #: 76187	
City: Seattle		State, Zip: WA, 98101		TAT Requested (days):		Field Filtered Sample (Yes or No)		Preservation Codes:	
Phone: 425-214-0462(Tel)		Email: suzanne.dolberg@erm.com		PO #: 0435302.03		Perform. M3/M3.0 (Yes or No)		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA	
Project Name: Cushman Phase II ESA		Project #: 58012210		WO #:		8082A, NWTPH_Dx		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Site:		SSOW#:				8082A, B270D, SIM, NWTPH_Dx		Other:	
						8260C - BTEX			
						6010C, 7471A, NWTPH_Dx			
						8082A - PCBs, standard list			
						6020A, 7470A			
						NWTPH_Dx - Northwest - DROIRRO			
						8260C - BTEX			
								Total Number of containers	
								Special Instructions/Note:	
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	
								Preservation Code:	
								N N F N N D A A	
-59 WY-SG07-SB03 SW-42		3/25		1220		G		Solid	
WY-SG07-SB04 SW-43				1230		G		Solid	
WY-SG08-CSB SW-44				1500		G		Solid	
-61 WY-SG08-SB01 EY-SG01-SB01				1430		G		Solid	
WY-SG08-SB02 EY-SG01-SB02				1440		G		Solid	
-63 WY-SG08-SB03 EY-SG01-CSB				1445		C		Solid	
WY-SG08-SB04 EY-SG05-SB01				1408		G		Solid	
-65 WY-SG09-CSB EY-SG05-SB02				1415		G		Solid	
WY-SG09-SB01 EY-SG05-CSB				1420		C		Solid	
-67 WY-SG09-SB02 EY-SG06-SB01				1350		G		Solid	
WY-SG09-SB03 EY-SG06-SB02				1355		G		Solid	
Possible Hazard Identification		<input type="checkbox"/> Non-Hazard		<input type="checkbox"/> Flammable		<input type="checkbox"/> Skin Irritant		<input type="checkbox"/> Poison B	
		<input type="checkbox"/> Unknown		<input type="checkbox"/> Radiological					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		<input type="checkbox"/> Return To Client		<input type="checkbox"/> Disposal By Lab		<input type="checkbox"/> Archive For		Months	
Deliverable Requested: I, II, III, IV, Other (specify)								Special Instructions/QC Requirements:	
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:			
Relinquished by: <i>[Signature]</i>		Date/Time: 3/28 1745		Company: GRM		Received by: <i>[Signature]</i>		Date/Time: 3/28/18 1745	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks:			

TestAmerica Seattle

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Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:									
Client Contact: Suzanne Dolberg		Phone:		Cruz, Sheri L				580-27907-9206.23									
Company: ERM-West		Due Date Requested:		E-Mail: sheri.cruz@testamericainc.com				Page: Page 23 of 33									
Address: 1218 3rd Ave Suite 1412		TAT Requested (days):		Analysis Requested				Job #:									
City: Seattle		PO #: 0435302.03		Field Filtered (Sample Type or No)				Preservation Codes:									
State, Zip: WA, 98101		WO #:		8082A, NWTPH_Dx				A - HCL M - Hexane									
Phone: 425-214-0462(Tel)		Project #: 58012210		8082A, 8270D_SIM, NWTPH_Dx				B - NaOH N - None									
Email: suzanne.dolberg@erm.com		SSOW#:		8280C - BTEX				C - Zn Acetate O - AsNaO2									
Project Name: Cushman Phase II ESA				8010C, 7471A, NWTPH_Dx				D - Nitric Acid P - Na2O4S									
Site:				8082A - PCBs, standard list				E - NaHSO4 Q - Na2SO3									
				8020A, 7470A				F - MeOH R - Na2S2O3									
				NWTPH_Dx - Northwest - DRO/IRRO				G - Amchlor S - H2SO4									
				8280C - BTEX				H - Ascorbic Acid T - TSP Dodecahydrate									
								I - Ice U - Acetone									
								J - DI Water V - MCAA									
								K - EDTA W - pH 4-5									
								L - EDA Z - other (specify)									
								Other:									
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=wast/oil, BT=Tissue, An=Air)									
								Field Filtered (Sample Type or No)									
								Total Number of containers									
								Special Instructions/Note:									
-91	WA-SC12-SB01 RNS-13	3/27	1630	G	W Solid	X	N	N	F	N	N	D	A	A		5	Run Metals + TPH, hold PCBs
	WA-SC12-SB02 RNS-14	3/27	1640	G	W Solid											4	Run TPH, hold PCBs
-93	WA-SC13-SB03 RNS-09	3/28	1720	G	W Solid											1	Hold
	WA-SC12-SB04 SW-19	3/27	1015	G	Solid												refer to table
-95	WA-SC13-SB05 SW-30		1605		Solid												
	WA-SC13-SB01 SW-22		1130		Solid												
-97	WA-SC13-SB03 SW-29		1540		Solid												
	WA-SC13-SB03 SW-28		1500		Solid												
-99	WA-SC14-SB01 SW-27		1510		Solid												
	WA-SC14-SB02 SW-18		1000		Solid												
-101	WA-SC14-SB03 SW-31		1620		Solid												
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)											
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months											
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:											
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:										
Relinquished by: <i>Chris Rudloff</i>			Date/Time: 3/30/2018		Company: ERM		Received by: <i>Tom [Signature]</i>		Date/Time: 3/30/18 1310		Company: TA-Sea						
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:						
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:						
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:													

Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-76187-2

Login Number: 76187

List Number: 1

Creator: Blankinship, Tom X

List Source: TestAmerica Seattle

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310


TestAmerica Job ID: 580-76187-3

Client Project/Site: Cushman Phase II ESA

For:

ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
4/23/2018 1:49:45 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

LINKS

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results through
TotalAccess

Have a Question?



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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-3

Job ID: 580-76187-3

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-76187-3

Comments

No additional comments.

Receipt

The samples were received on 3/28/2018 5:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.8° C, 4.0° C and 6.1° C.

Receipt Exceptions

A large number of samples were received (including a trip blank) that were not listed on the chain of custody (COC). The last page of the COC was filled up with no room for the rest of the samples. The client was submitted a list of the remaining samples and has been requested a COC be submitted representing the remaining samples.

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): SW-32 (580-76187-70), SW-34 (580-76187-72), SW-39 (580-76187-77), SW-41 (580-76187-79) and EY-SG06-CSB (580-76187-80).

The container label of sample -70 lists the sampling time 0825, while the COC lists 0830.

The container label of sample -72 lists no sampling time.

The container label of sample -77 lists the sampling time 1134, while the COC lists 1130.

The container label of sample -79 lists no sampling time or date.

The container label of sample -80 lists the sampling time 1400, while the COC lists 1445

The samples are logged in per COC.

GC Semi VOA

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

Organic Prep

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

Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-3

Glossary

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

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-3

Client Sample ID: SW23

Date Collected: 03/27/18 11:50

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-90

Matrix: Solid

Percent Solids: 82.0

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.024		mg/Kg	☼	04/18/18 09:03	04/19/18 05:32	1
PCB-1221	ND		0.024		mg/Kg	☼	04/18/18 09:03	04/19/18 05:32	1
PCB-1232	ND		0.024		mg/Kg	☼	04/18/18 09:03	04/19/18 05:32	1
PCB-1242	ND		0.024		mg/Kg	☼	04/18/18 09:03	04/19/18 05:32	1
PCB-1248	ND		0.024		mg/Kg	☼	04/18/18 09:03	04/19/18 05:32	1
PCB-1254	ND		0.024		mg/Kg	☼	04/18/18 09:03	04/19/18 05:32	1
PCB-1260	ND		0.024		mg/Kg	☼	04/18/18 09:03	04/19/18 05:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	75		25 - 149	04/18/18 09:03	04/19/18 05:32	1
Tetrachloro-m-xylene	63		35 - 130	04/18/18 09:03	04/19/18 05:32	1



QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-3

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-271627/1-A
Matrix: Solid
Analysis Batch: 271730

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 271627

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		04/18/18 09:03	04/18/18 21:54	1
PCB-1221	ND		0.020		mg/Kg		04/18/18 09:03	04/18/18 21:54	1
PCB-1232	ND		0.020		mg/Kg		04/18/18 09:03	04/18/18 21:54	1
PCB-1242	ND		0.020		mg/Kg		04/18/18 09:03	04/18/18 21:54	1
PCB-1248	ND		0.020		mg/Kg		04/18/18 09:03	04/18/18 21:54	1
PCB-1254	ND		0.020		mg/Kg		04/18/18 09:03	04/18/18 21:54	1
PCB-1260	ND		0.020		mg/Kg		04/18/18 09:03	04/18/18 21:54	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	78		25 - 149				04/18/18 09:03	04/18/18 21:54	1
Tetrachloro-m-xylene	72		35 - 130				04/18/18 09:03	04/18/18 21:54	1

Lab Sample ID: LCS 580-271627/2-A
Matrix: Solid
Analysis Batch: 271730

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 271627

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	0.100	0.0716		mg/Kg		72	69 - 126
PCB-1260	0.100	0.0794		mg/Kg		79	68 - 136
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
DCB Decachlorobiphenyl	73		25 - 149				
Tetrachloro-m-xylene	69		35 - 130				

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-3

Client Sample ID: SW23

Lab Sample ID: 580-76187-90

Date Collected: 03/27/18 11:50

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 82.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271627	04/18/18 09:03	KMS	TAL SEA
Total/NA	Analysis	8082A		1	271730	04/19/18 05:32	TL1	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-3

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

Analysis Method	Prep Method	Matrix	Analyte
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Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-76187-90	SW23	Solid	03/27/18 11:50	03/28/18 17:45

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Rush

Short Hold

Chain of Custody Record

Client: **ERM** Client Contact: **Suzanne Doleburg** *suzanne.doleburg@erm.com* Date: **3/27/18** Chain of Custody Number: **37746**
Address: **1218 3rd Ave Suite 1412** Telephone Number (Area Code)/Fax Number: **206.330.9398** Lab Number: **76187** Page **_____** of **_____**

City: **Seattle** State: **WA** Zip Code: **98101** Sampler: **Justin Dauphinais** Lab Contact: **Sheri Cruz** Analysis (Attach list if more space is needed):
Project Name and Location (State): **TPU Cushman Phase II** Billing Contact:
Contract/Purchase Order/Quote No.: **0435302**

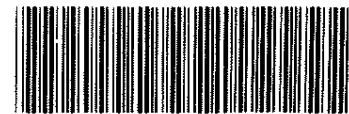
Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix					Containers & Preservatives						Special Instructions/ Conditions of Receipt		
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc2	NaOH			
-1 WY-S604-SB01	3/27/18	0910				X	X									hold
WY-S604-SB02	3/27/18	0915				X	X									
-3 WY-S604-SB03	3/27/18	0917				X	X									
WY-S604-SB04	3/27/18	0920				X	X									
-5 WY-S604-CSB	3/27/18	0922				X	X								Run TPH, hold PCB	
WY-S603-SB01	3/27/18	0955													hold	
-7 WY-S603-SB02	3/27/18	1000				X	X									
WY-S603-SB03	3/27/18	1005				X	X									
-9 WY-S603-SB04	3/27/18	1010				X	X									
WY-S603-CSB	3/27/18	1012				X	X								Run TPH, hold PCB	
-11 WY-S602-SB01	3/27/18	1105				X	X								hold	
WY-S602-SB02	3/27/18	1108				X	X									

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal: Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify): _____

1. Relinquished By: *Chris Doleburg* Date: **3/28** Time: **1745** 1. Received By: *Tom Stankovic* Date: **3/28/18** Time: **1745**
2. Relinquished By: _____ Date: _____ Time: _____ 2. Received By: _____ Date: _____ Time: _____
3. Relinquished By: _____ Date: _____ Time: _____ 3. Received By: _____ Date: _____ Time: _____

Comments: _____



580-76187 Chain of Custody

TAL-8274-580 (0210) 4/23/2018

Client ERM		Client Contact Suzanne Daleburg <i>suzanne.daleburg@erm.com</i>		Date 3/27/2018	Chain of Custody Number 37747
Address 1218 3rd Ave Suite 1412		Telephone Number (Area Code)/Fax Number		Lab Number 76187	Page of

City Seattle	State WA	Zip Code 98101	Sampler Justin Daugherty	Lab Contact	Analysis (Attach list if more space is needed)
Project Name and Location (State) Cushman Phase II			Billing Contact		

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives						NMPH-D4/HO	PCBs 5052	Metals 600/747	Special Instructions/ Conditions of Receipt	
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH					
-13 WY-SB07-SB01	3/27/18	1320				X	X										1 hold
WY-SB07-SB02	3/27/18	1338				X	X										↓ Run TPH hold PCB hold ↓
-15 WY-SB07-SB03	3/27/18	1340				X	X										
WY-SB07-SB04	3/27/18	1342				X	X										
-17 WY-SB08-SB01	3/27/18	1410				X	X										
WY-SB08-SB02	3/27/18	1412				X	X										
-19 WY-SB08-SB03	3/27/18	1415				X	X										
WY-SB08-SB04	3/27/18	1417				X	X										
-21 WY-SB08-CSB	3/27/18	1420				X	X										
WY-SB09-SB01	3/27/18	1455				X	X										
-22-23 WY-SB09-SB02	3/27/18	1458				X	X										
WY-SB09-SB03	3/27/18	1500				X	X										

Cooler <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Archive For _____ Months	<input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Disposal By Lab
---------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------

Turn Around Time Required (business days) <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 10 Days <input type="checkbox"/> 15 Days <input type="checkbox"/> Other _____	QC Requirements (Specify)
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------

1. Relinquished By <i>Justin Daugherty</i>	Date 3/28	Time 1745	1. Received By <i>Tom Blanks</i>	Date 3/28/18	Time 1745
2. Relinquished By _____	Date _____	Time _____	2. Received By _____	Date _____	Time _____
3. Relinquished By _____	Date _____	Time _____	3. Received By _____	Date _____	Time _____

Comments

Rush

Short Hold

**Chain of
Custody Record**

Client: UWA ERM Client Contact: Suzanne Poleburg Date: 3/27/18 Chain of Custody Number: 37748
Address: _____ Telephone Number (Area Code)/Fax Number: _____ Lab Number: 76187 Page _____ of _____

City: _____ State: _____ Zip Code: _____ Sampler: _____ Lab Contact: _____
Project Name and Location (State): _____ Billing Contact: _____ Analysis (Attach list if more space is needed): _____
Contract/Purchase Order/Quote No.: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Unpres.	Containers & Preservatives					NUTRI-Dx/HO	R-PS 9052	PM-5 9270-51M	STEX 9260	Special Instructions/ Conditions of Receipt
			Air	Aqueous	Sed.	Soil		H2SO4	HNO3	HCl	NaOH	ZnAc2/NaOH					
-25 WY-SB02-SB03	3/27/18	1110				X	X										hold
WY-SB02-SB04	3/27/18	1112				X	X										↓
-27 WY-SB02-C9B	3/27/18	1115				X	X						✓				Run TPH, hold PCB
WY-SB01-SB01	3/27/18	1130				X	X										hold
-29 WY-SB01-SB02	3/27/18	1133				X	X										↓
WY-SB01-SB03	3/27/18	1135				X	X										↓
-31 WY-SB01-SB04	3/27/18	1139				X	X										↓
WY-SB01-C9B	3/27/18	1140				X	X						✓				Run TPH hold PCB
-33 FOCB-SB03-1.5'	3/28/18	1114				X	X						X	X	X	X	Run 1 of each, hold 2
FOCB-SB02-1.5'	3/28/18	1120				X	X						X	X	X	X	↓
-35 FOCB-SB01-1.5'	3/28/18	1140				X	X						X	X	X	X	6
FOCB-SB04-1.5'	3/28/18	1150				X	X						X	X	X	X	6

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal: Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify): _____

1. Relinquished By: Chen Dendler Date: 3/28 Time: 1745 1. Received By: Tom Blankinship Date: 3/26/18 Time: 1745
2. Relinquished By: _____ Date: _____ Time: _____ 2. Received By: _____ Date: _____ Time: _____

3. Therm. ID A2 Cor 3.80 Unc 4.00 Cooler Dsc: Lg Blue Wet/Packs Packing: cardboard Custody Seal: Yes No
3. R Therm. ID A2 Cor 4.00 Unc 4.20 Cooler Dsc: Lg Blue Wet/Packs Packing: bva Custody Seal: Yes No
3. R Therm. ID A2 Cor 6.10 Unc 6.30 Cooler Dsc: Lg Blue Wet/Packs Packing: bva Custody Seal: Yes No

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:											
Client Contact: Suzanne Dolberg		Phone:		Cruz, Sheri L				580-27907-9206.23											
Company: ERM-West		Due Date Requested:		E-Mail: sheri.cruz@testamericainc.com				Page: Page 23 of 33											
Address: 1218 3rd Ave Suite 1412		TAT Requested (days):		Analysis Requested				Job #:											
City: Seattle		PO #: 0435302.03		Field Filtered (Sample Type or No)				Preservation Codes:											
State, Zip: WA, 98101		WO #:		8082A, NWTPH_Dx				A - HCL M - Hexane											
Phone: 425-214-0462(Tel)		Project #: 58012210		8082A, 8270D_SIM, NWTPH_Dx				B - NaOH N - None											
Email: suzanne.dolberg@erm.com		SSOW#:		8280C - BTEX				C - Zn Acetate O - AsNaO2											
Project Name: Cushman Phase II ESA				8010C, 7471A, NWTPH_Dx				D - Nitric Acid P - Na2O4S											
Site:				8082A - PCBs, standard list				E - NaHSO4 Q - Na2SO3											
				8020A, 7470A				F - MeOH R - Na2S2O3											
				NWTPH_Dx - Northwest - DRO/IRRO				G - Amchlor S - H2SO4											
				8280C - BTEX				H - Ascorbic Acid T - TSP Dodecahydrate											
								I - Ice U - Acetone											
								J - DI Water V - MCAA											
								K - EDTA W - pH 4-5											
								L - EDA Z - other (specify)											
								Other:											
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=wast/oil, BT=Tissue, An=Air)											
								Field Filtered (Sample Type or No)											
								Total Number of containers											
								Special Instructions/Note:											
-91	WA-SC12-SB01 RNS-13	3/27	1630	G	W Solid	X	N	N	F	N	N	D	A	A					5 Run Metals + TPH, hold PCBs
	WA-SC12-SB02 RNS-14	3/27	1640	G	W Solid														4 Run TPH, hold PCBs
-93	WA-SC13-SB03 RNS-09	3/28	1720	G	W Solid														1 Hold
	WA-SC12-SB04 SW-19	3/27	1015	G	Solid														refer to table
-95	WA-SC13-SB05 SW-30		1605		Solid														
	WA-SC13-SB01 SW-22		1130		Solid														
-97	WA-SC13-SB09 SW-29		1540		Solid														
	WA-SC13-SB09 SW-28		1500		Solid														
-99	WA-SC14-SB01 SW-27		1510		Solid														
	WA-SC14-SB02 SW-18		1000		Solid														
-101	WA-SC14-SB03 SW-31		1820		Solid														
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)													
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months													
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:													
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:												
Relinquished by: <i>Chris Rudloff</i>			Date/Time: 3/30/2018		Company: ERM		Received by: <i>Tom Hunt</i>		Date/Time: 3/30/18 1310		Company: TA-Sea								
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:								
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:								
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:															

Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-76187-3

Login Number: 76187

List Number: 1

Creator: Blankinship, Tom X

List Source: TestAmerica Seattle

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

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310


TestAmerica Job ID: 580-76187-5

Client Project/Site: Cushman Phase II ESA

For:

ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Suzanne Dolberg



Authorized for release by:
5/2/2018 11:05:47 AM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-5

Job ID: 580-76187-5

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-76187-5

Comments

PCBs were added for the following samples on 4/19/18: WY-SG03-SB03 (580-76187-8) and WY-SG02-SB02 (580-76187-12).

Receipt

The samples were received on 3/28/2018 5:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.8° C, 4.0° C and 6.1° C.

Receipt Exceptions

A large number of samples were received (including a trip blank) that were not listed on the chain of custody (COC). The last page of the COC was filled up with no room for the rest of the samples. The client was submitted a list of the remaining samples and has been requested a COC be submitted representing the remaining samples.

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): SW-32 (580-76187-70), SW-34 (580-76187-72), SW-39 (580-76187-77), SW-41 (580-76187-79) and EY-SG06-CSB (580-76187-80).

The container label of sample -70 lists the sampling time 0825, while the COC lists 0830.

The container label of sample -72 lists no sampling time.

The container label of sample -77 lists the sampling time 1134, while the COC lists 1130.

The container label of sample -79 lists no sampling time or date.

The container label of sample -80 lists the sampling time 1400, while the COC lists 1445

The samples are logged in per COC.

GC Semi VOA

Method(s) 8082A: The continuing calibration verification (CCV) associated with 580-272666 recovered high and outside the control limits for PCB-1232 on the confirmation column only. Results are confirmed on both columns and reported from the primary column which meets acceptance criteria. The following sample is impacted: (CCV 580-272666/12).

Method(s) 8082A: The following continuing calibration verification (CCV) standard associated with batch 580-272666 recovered outside acceptance criteria for %D for surrogate DCB Decachlorobiphenyl on the confirmation column only. Since the %Rec is within the acceptance criteria for the surrogate in the CCV and associated samples, the data have been reported. The following sample is impacted: (CCVIS 580-272666/16)

Method(s) 8082A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 580-272548 and analytical batch 580-272666 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

Organic Prep

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

Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-5

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

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

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-5

Client Sample ID: WY-SG03-SB03

Lab Sample ID: 580-76187-8

Date Collected: 03/27/18 10:05

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 80.2

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND	F1	0.023		mg/Kg	☼	04/30/18 10:38	05/01/18 15:27	1
PCB-1221	ND		0.023		mg/Kg	☼	04/30/18 10:38	05/01/18 15:27	1
PCB-1232	ND		0.023		mg/Kg	☼	04/30/18 10:38	05/01/18 15:27	1
PCB-1242	ND		0.023		mg/Kg	☼	04/30/18 10:38	05/01/18 15:27	1
PCB-1248	ND		0.023		mg/Kg	☼	04/30/18 10:38	05/01/18 15:27	1
PCB-1254	ND		0.023		mg/Kg	☼	04/30/18 10:38	05/01/18 15:27	1
PCB-1260	0.044	F1	0.023		mg/Kg	☼	04/30/18 10:38	05/01/18 15:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>DCB Decachlorobiphenyl</i>	59		25 - 149	04/30/18 10:38	05/01/18 15:27	1
<i>Tetrachloro-m-xylene</i>	54		35 - 130	04/30/18 10:38	05/01/18 15:27	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-5

Client Sample ID: WY-SG02-SB02

Lab Sample ID: 580-76187-12

Date Collected: 03/27/18 11:08

Matrix: Solid

Date Received: 03/28/18 17:45

Percent Solids: 57.8

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.033		mg/Kg	☼	04/30/18 10:38	05/01/18 16:21	1
PCB-1221	ND		0.033		mg/Kg	☼	04/30/18 10:38	05/01/18 16:21	1
PCB-1232	ND		0.033		mg/Kg	☼	04/30/18 10:38	05/01/18 16:21	1
PCB-1242	ND		0.033		mg/Kg	☼	04/30/18 10:38	05/01/18 16:21	1
PCB-1248	ND		0.033		mg/Kg	☼	04/30/18 10:38	05/01/18 16:21	1
PCB-1254	ND		0.033		mg/Kg	☼	04/30/18 10:38	05/01/18 16:21	1
PCB-1260	0.042		0.033		mg/Kg	☼	04/30/18 10:38	05/01/18 16:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>DCB Decachlorobiphenyl</i>	59		25 - 149	04/30/18 10:38	05/01/18 16:21	1
<i>Tetrachloro-m-xylene</i>	50		35 - 130	04/30/18 10:38	05/01/18 16:21	1

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-5

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-272548/1-A
Matrix: Solid
Analysis Batch: 272666

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 272548

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		04/30/18 10:38	05/01/18 14:52	1
PCB-1221	ND		0.020		mg/Kg		04/30/18 10:38	05/01/18 14:52	1
PCB-1232	ND		0.020		mg/Kg		04/30/18 10:38	05/01/18 14:52	1
PCB-1242	ND		0.020		mg/Kg		04/30/18 10:38	05/01/18 14:52	1
PCB-1248	ND		0.020		mg/Kg		04/30/18 10:38	05/01/18 14:52	1
PCB-1254	ND		0.020		mg/Kg		04/30/18 10:38	05/01/18 14:52	1
PCB-1260	ND		0.020		mg/Kg		04/30/18 10:38	05/01/18 14:52	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	65		25 - 149	04/30/18 10:38	05/01/18 14:52	1
Tetrachloro-m-xylene	68		35 - 130	04/30/18 10:38	05/01/18 14:52	1

Lab Sample ID: LCS 580-272548/2-A
Matrix: Solid
Analysis Batch: 272666

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 272548

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	0.100	0.0812		mg/Kg		81	69 - 126
PCB-1260	0.100	0.0851		mg/Kg		85	68 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	82		25 - 149
Tetrachloro-m-xylene	79		35 - 130

Lab Sample ID: 580-76187-8 MS
Matrix: Solid
Analysis Batch: 272666

Client Sample ID: WY-SG03-SB03
Prep Type: Total/NA
Prep Batch: 272548

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
PCB-1016	ND	F1	0.120	0.0609	F1	mg/Kg	☼	51	69 - 126
PCB-1260	0.044	F1	0.120	0.107	F1	mg/Kg	☼	52	68 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
DCB Decachlorobiphenyl	60		25 - 149
Tetrachloro-m-xylene	54		35 - 130

Lab Sample ID: 580-76187-8 MSD
Matrix: Solid
Analysis Batch: 272666

Client Sample ID: WY-SG03-SB03
Prep Type: Total/NA
Prep Batch: 272548

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
PCB-1016	ND	F1	0.120	0.0636	F1	mg/Kg	☼	53	69 - 126	4	17
PCB-1260	0.044	F1	0.120	0.107	F1	mg/Kg	☼	52	68 - 136	0	21

Surrogate	MSD %Recovery	MSD Qualifier	Limits
DCB Decachlorobiphenyl	60		25 - 149
Tetrachloro-m-xylene	56		35 - 130

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-5

Client Sample ID: WY-SG03-SB03

Date Collected: 03/27/18 10:05

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-8

Matrix: Solid

Percent Solids: 80.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			272548	04/30/18 10:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	272666	05/01/18 15:27	TL1	TAL SEA

Client Sample ID: WY-SG02-SB02

Date Collected: 03/27/18 11:08

Date Received: 03/28/18 17:45

Lab Sample ID: 580-76187-12

Matrix: Solid

Percent Solids: 57.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			272548	04/30/18 10:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	272666	05/01/18 16:21	TL1	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-5

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

Analysis Method	Prep Method	Matrix	Analyte
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Sample Summary

Client: ERM-West
Project/Site: Cushman Phase II ESA

TestAmerica Job ID: 580-76187-5

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-76187-8	WY-SG03-SB03	Solid	03/27/18 10:05	03/28/18 17:45
580-76187-12	WY-SG02-SB02	Solid	03/27/18 11:08	03/28/18 17:45

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Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-76187-5

Login Number: 76187

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom X

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



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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.


TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-79852-1

Client Project/Site: Cushman Phase IIB ESA
Revision: 1

For:
ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Matt Crandell



Authorized for release by:
9/26/2018 4:47:53 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

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Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Job ID: 580-79852-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-79852-1

Comments

Revised report 9/25/18 to remove the LCS/LCSD *qualifiers for Diesel in method NWTPH-Dx. LCS 580-283008 is within acceptable reporting limits in re-analysis. Samples 1-5 are being * qualified in batch 283286 and or 283112 for diesel but recoveries are 76% and acceptable. Supervisor manually removed the qualifiers.

Receipt

The samples were received on 8/23/2018 2:57 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.4° C and 3.6° C.

GC Semi VOA

Method(s) 8082A: The continuing calibration verification (CCV) associated with 580-283194 recovered high and outside the control limits for PCB-1232, PCB-1248, PCB-1254 and PCB-1260 on the confirmation column only. Results are confirmed on both columns and reported from the primary column which meets acceptance criteria. The following samples are impacted: RNS-20 (580-79852-30), RNS-21 (580-79852-31), RNS-22 (580-79852-32), (CCV 580-283194/6), (CCV 580-283194/7), (CCV 580-283194/9) and (CCVIS 580-283194/10).

Method(s) 8082A: The continuing calibration verification (CCV) associated with 580-284279 recovered high and outside the control limits for PCB-1232, PCB-1248, PCB-1242, PCB-1254, PCB-1016 and PCB-1260 on the confirmation column only. Results are confirmed on both columns and reported from the passing column. The following samples are impacted: FOCB-SB06-10 (580-79852-5), FOCB-SB06-5 (580-79852-6), FOCB-SB07-5 (580-79852-18), FOCB-SB07-8.5 (580-79852-20), FOCB-SB08-5 (580-79852-26), FOCB-SB08-10 (580-79852-28), (CCV 580-284279/4), (CCV 580-284279/5), (CCV 580-284279/6), (CCV 580-284279/7) and (CCVIS 580-284279/8).

Method(s) 8082A: The following continuing calibration verification (CCV) standard associated with batch 580-284279 recovered outside acceptance criteria for %D for surrogate Tetrachloro-m-xylene and DCB Decachlorobiphenyl. Since the %Rec is within the acceptance criteria for the surrogate in the CCV and associated samples, the data have been reported. The following samples are impacted: (CCVIS 580-284279/19) and (CCVIS 580-284279/8)

Method(s) 8082, 8082A: The continuing calibration verification (CCV) associated with 580-284362 recovered high and outside the control limits for PCB-1232, PCB-1242, and PCB-1248 on one column. Results are confirmed on both columns and reported from the passing column. The following samples are impacted: FOCB-SB06-5 (580-79852-6), (CCV 580-284362/5), (CCV 580-284362/6) and (CCV 580-284362/7).

Method(s) 8082, 8082A: The following CCV standard recovered outside acceptance criteria for %D for surrogate Tetrachloro-m-xylene. Since the %Rec is within the acceptance criteria for the surrogate in the CCV and associated samples, the data have been reported. (CCVIS 580-284362/9)

Method(s) 8082A: The following sample was diluted to bring the concentration of target analytes within the calibration range: FOCB-SB06-5 (580-79852-6). Elevated reporting limits (RLs) are provided.

Method(s) NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-283128 recovered above the upper control limit for #2 Diesel (C10-C24). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: (CCV 580-283128/35).

Method(s) NWTPH-Dx: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: EY-SG05-SB07-1.5 (580-79852-1), EY-SG03-SB10-1.5 (580-79852-2), and EY-SG05-SB09-1.5 (580-79852-4).

Method(s) NWTPH-Dx: The following sample was diluted due to the nature of the sample matrix: EY-SG05-SB11-2.0 (580-79852-3). Elevated reporting limits (RLs) are provided.

Method(s) NWTPH-Dx: Surrogate recovery for the following samples were outside control limits: EY-SG03-SB09-5 (580-79852-13) and

Case Narrative

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

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Laboratory: TestAmerica Seattle (Continued)

EY-SG03-SB09-10 (580-79852-24). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) NWTPH-Dx: The following samples were diluted to bring the concentration of target analytes within the calibration range: EY-SG04-SB07-2.0 (580-79852-9), EY-SG03-SB09-5 (580-79852-13), EY-SG03-SB09-10 (580-79852-24) and (580-79852-A-9-D DU). Elevated reporting limits (RLs) are provided.

Method(s) NWTPH-Dx: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: EY-SG04-SB07-2.0 (580-79852-9), EY-SG03-SB09-5 (580-79852-13), EY-SG03-SB09-10 (580-79852-24) and (580-79852-A-9-D DU).

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

General Chemistry

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

Organic Prep

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

Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Glossary

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

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: EY-SG05-SB07-1.5

Lab Sample ID: 580-79852-1

Date Collected: 08/20/18 10:50

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 91.9

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	81		51		mg/Kg	☼	08/31/18 14:57	09/04/18 15:50	1
Motor Oil (>C24-C36)	180		51		mg/Kg	☼	08/31/18 14:57	09/04/18 15:50	1
Mineral oil	170		51		mg/Kg	☼	08/31/18 14:57	09/04/18 15:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	78		50 - 150				08/31/18 14:57	09/04/18 15:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	91.9		0.1		%			08/29/18 20:04	1
Percent Moisture	8.1		0.1		%			08/29/18 20:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: EY-SG03-SB10-1.5

Lab Sample ID: 580-79852-2

Date Collected: 08/20/18 11:30

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 90.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		51		mg/Kg	☼	08/31/18 14:57	09/04/18 16:18	1
Motor Oil (>C24-C36)	190		51		mg/Kg	☼	08/31/18 14:57	09/04/18 16:18	1
Mineral oil	120		51		mg/Kg	☼	08/31/18 14:57	09/04/18 16:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	71		50 - 150				08/31/18 14:57	09/04/18 16:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.8		0.1		%			08/29/18 20:04	1
Percent Moisture	9.2		0.1		%			08/29/18 20:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: EY-SG05-SB11-2.0

Lab Sample ID: 580-79852-3

Date Collected: 08/20/18 12:10

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 84.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	660		55		mg/Kg	☼	08/31/18 14:57	09/04/18 16:45	1
Motor Oil (>C24-C36)	190		55		mg/Kg	☼	08/31/18 14:57	09/04/18 16:45	1
Mineral oil	800		110		mg/Kg	☼	08/31/18 14:57	09/05/18 13:48	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	83		50 - 150	08/31/18 14:57	09/04/18 16:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.3		0.1		%			08/29/18 20:04	1
Percent Moisture	15.7		0.1		%			08/29/18 20:04	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: EY-SG05-SB09-1.5

Lab Sample ID: 580-79852-4

Date Collected: 08/20/18 13:20

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 90.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	97		53		mg/Kg	☼	08/31/18 14:57	09/04/18 18:09	1
Motor Oil (>C24-C36)	560		53		mg/Kg	☼	08/31/18 14:57	09/04/18 18:09	1
Mineral oil	380		53		mg/Kg	☼	08/31/18 14:57	09/04/18 18:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	73		50 - 150	08/31/18 14:57	09/04/18 18:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.3		0.1		%			08/29/18 20:04	1
Percent Moisture	9.7		0.1		%			08/29/18 20:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: FOCB-SB06-10

Lab Sample ID: 580-79852-5

Date Collected: 08/20/18 13:40

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 93.1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/18/18 23:39	1
PCB-1221	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/18/18 23:39	1
PCB-1232	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/18/18 23:39	1
PCB-1242	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/18/18 23:39	1
PCB-1248	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/18/18 23:39	1
PCB-1254	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/18/18 23:39	1
PCB-1260	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/18/18 23:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	92		54 - 142	09/13/18 16:56	09/18/18 23:39	1
Tetrachloro-m-xylene	90		58 - 122	09/13/18 16:56	09/18/18 23:39	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	08/31/18 14:57	09/04/18 18:37	1
Motor Oil (>C24-C36)	ND		52		mg/Kg	☼	08/31/18 14:57	09/04/18 18:37	1
Mineral oil	ND		52		mg/Kg	☼	08/31/18 14:57	09/04/18 18:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	76		50 - 150	08/31/18 14:57	09/04/18 18:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	93.1		0.1		%			08/29/18 20:40	1
Percent Moisture	6.9		0.1		%			08/29/18 20:40	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: FOCB-SB06-5

Lab Sample ID: 580-79852-6

Date Collected: 08/20/18 13:25

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 85.9

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.022		mg/Kg	☼	09/13/18 16:56	09/19/18 00:29	1
PCB-1221	ND		0.022		mg/Kg	☼	09/13/18 16:56	09/19/18 00:29	1
PCB-1232	ND		0.022		mg/Kg	☼	09/13/18 16:56	09/19/18 00:29	1
PCB-1242	ND		0.022		mg/Kg	☼	09/13/18 16:56	09/19/18 00:29	1
PCB-1248	ND		0.022		mg/Kg	☼	09/13/18 16:56	09/19/18 00:29	1
PCB-1260	ND		0.022		mg/Kg	☼	09/13/18 16:56	09/19/18 00:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	87		54 - 142	09/13/18 16:56	09/19/18 00:29	1
Tetrachloro-m-xylene	89		58 - 122	09/13/18 16:56	09/19/18 00:29	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1254	2.1		0.22		mg/Kg	☼	09/13/18 16:56	09/19/18 20:04	10

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		57		mg/Kg	☼	09/01/18 13:57	09/05/18 22:04	1
Motor Oil (>C24-C36)	ND		57		mg/Kg	☼	09/01/18 13:57	09/05/18 22:04	1
Mineral oil	ND		57		mg/Kg	☼	09/01/18 13:57	09/05/18 22:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	76		50 - 150	09/01/18 13:57	09/05/18 22:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.9		0.1		%			08/29/18 20:40	1
Percent Moisture	14.1		0.1		%			08/29/18 20:40	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: EY-SG05-SB08-1.5

Lab Sample ID: 580-79852-8

Date Collected: 08/20/18 15:15

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 94.9

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg	☼	09/01/18 13:57	09/05/18 22:33	1
Motor Oil (>C24-C36)	ND		50		mg/Kg	☼	09/01/18 13:57	09/05/18 22:33	1
Mineral oil	ND		50		mg/Kg	☼	09/01/18 13:57	09/05/18 22:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	81		50 - 150	09/01/18 13:57	09/05/18 22:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.9		0.1		%			08/29/18 20:40	1
Percent Moisture	5.1		0.1		%			08/29/18 20:40	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: EY-SG04-SB07-2.0

Lab Sample ID: 580-79852-9

Date Collected: 08/20/18 15:30

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 89.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	1100		56		mg/Kg	☒	09/01/18 13:57	09/05/18 23:02	1
Motor Oil (>C24-C36)	810		56		mg/Kg	☒	09/01/18 13:57	09/05/18 23:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	83		50 - 150				09/01/18 13:57	09/05/18 23:02	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mineral oil	1800		280		mg/Kg	☒	09/01/18 13:57	09/06/18 12:11	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	72		50 - 150				09/01/18 13:57	09/06/18 12:11	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.0		0.1		%			08/29/18 20:40	1
Percent Moisture	11.0		0.1		%			08/29/18 20:40	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: EY-SG03-SB07-10.0

Lab Sample ID: 580-79852-12

Date Collected: 08/21/18 12:55

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 82.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		59		mg/Kg	☼	09/01/18 13:57	09/06/18 00:00	1
Motor Oil (>C24-C36)	ND		59		mg/Kg	☼	09/01/18 13:57	09/06/18 00:00	1
Mineral oil	ND		59		mg/Kg	☼	09/01/18 13:57	09/06/18 00:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	79		50 - 150	09/01/18 13:57	09/06/18 00:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82.5		0.1		%			08/29/18 20:40	1
Percent Moisture	17.5		0.1		%			08/29/18 20:40	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: EY-SG03-SB09-5

Lab Sample ID: 580-79852-13

Date Collected: 08/21/18 14:28

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 84.9

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	6300		57		mg/Kg	☼	09/01/18 13:57	09/06/18 01:53	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>o-Terphenyl</i>	9	X	50 - 150				09/01/18 13:57	09/06/18 01:53	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil (>C24-C36)	1400		850		mg/Kg	☼	09/01/18 13:57	09/06/18 13:07	15
Mineral oil	6800		850		mg/Kg	☼	09/01/18 13:57	09/06/18 13:07	15
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>o-Terphenyl</i>	128		50 - 150				09/01/18 13:57	09/06/18 13:07	15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.9		0.1		%			08/29/18 20:40	1
Percent Moisture	15.1		0.1		%			08/29/18 20:40	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: EY-SG03-SB07-5

Lab Sample ID: 580-79852-15

Date Collected: 08/21/18 11:01

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 84.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		55		mg/Kg	☼	09/01/18 13:57	09/06/18 02:21	1
Motor Oil (>C24-C36)	ND		55		mg/Kg	☼	09/01/18 13:57	09/06/18 02:21	1
Mineral oil	ND		55		mg/Kg	☼	09/01/18 13:57	09/06/18 02:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	78		50 - 150	09/01/18 13:57	09/06/18 02:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.4		0.1		%			08/29/18 20:40	1
Percent Moisture	15.6		0.1		%			08/29/18 20:40	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: FOCB-SB07-5

Lab Sample ID: 580-79852-18

Date Collected: 08/21/18 13:20

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 90.9

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 00:46	1
PCB-1221	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 00:46	1
PCB-1232	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 00:46	1
PCB-1242	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 00:46	1
PCB-1248	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 00:46	1
PCB-1254	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 00:46	1
PCB-1260	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 00:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	86		54 - 142	09/13/18 16:56	09/19/18 00:46	1
Tetrachloro-m-xylene	87		58 - 122	09/13/18 16:56	09/19/18 00:46	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		51		mg/Kg	☼	09/01/18 13:57	09/06/18 02:50	1
Motor Oil (>C24-C36)	ND		51		mg/Kg	☼	09/01/18 13:57	09/06/18 02:50	1
Mineral oil	ND		51		mg/Kg	☼	09/01/18 13:57	09/06/18 02:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150	09/01/18 13:57	09/06/18 02:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.9		0.1		%			08/29/18 20:40	1
Percent Moisture	9.1		0.1		%			08/29/18 20:40	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: FOCB-SB07-8.5

Lab Sample ID: 580-79852-20

Date Collected: 08/21/18 13:35

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 91.9

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:03	1
PCB-1221	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:03	1
PCB-1232	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:03	1
PCB-1242	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:03	1
PCB-1248	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:03	1
PCB-1254	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:03	1
PCB-1260	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	91		54 - 142	09/13/18 16:56	09/19/18 01:03	1
Tetrachloro-m-xylene	93		58 - 122	09/13/18 16:56	09/19/18 01:03	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	09/01/18 13:57	09/06/18 03:18	1
Motor Oil (>C24-C36)	ND		52		mg/Kg	☼	09/01/18 13:57	09/06/18 03:18	1
Mineral oil	ND		52		mg/Kg	☼	09/01/18 13:57	09/06/18 03:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	82		50 - 150	09/01/18 13:57	09/06/18 03:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	91.9		0.1		%			08/29/18 20:40	1
Percent Moisture	8.1		0.1		%			08/29/18 20:40	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: EY-SG03-SB08-5

Lab Sample ID: 580-79852-23

Date Collected: 08/21/18 13:33

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 83.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		57		mg/Kg	☼	09/01/18 13:57	09/06/18 03:46	1
Motor Oil (>C24-C36)	ND		57		mg/Kg	☼	09/01/18 13:57	09/06/18 03:46	1
Mineral oil	ND		57		mg/Kg	☼	09/01/18 13:57	09/06/18 03:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	79		50 - 150	09/01/18 13:57	09/06/18 03:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.5		0.1		%			08/29/18 20:40	1
Percent Moisture	16.5		0.1		%			08/29/18 20:40	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: EY-SG03-SB09-10

Lab Sample ID: 580-79852-24

Date Collected: 08/21/18 15:09

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 85.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	5100		55		mg/Kg	☼	09/01/18 13:57	09/06/18 04:14	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>o-Terphenyl</i>	2	X	50 - 150				09/01/18 13:57	09/06/18 04:14	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil (>C24-C36)	1400		830		mg/Kg	☼	09/01/18 13:57	09/06/18 14:04	15
Mineral oil	6000		830		mg/Kg	☼	09/01/18 13:57	09/06/18 14:04	15
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>o-Terphenyl</i>	127		50 - 150				09/01/18 13:57	09/06/18 14:04	15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.8		0.1		%			08/29/18 20:40	1
Percent Moisture	14.2		0.1		%			08/29/18 20:40	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: FOCB-SB08-5

Lab Sample ID: 580-79852-26

Date Collected: 08/21/18 15:45

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 90.8

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:19	1
PCB-1221	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:19	1
PCB-1232	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:19	1
PCB-1242	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:19	1
PCB-1248	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:19	1
PCB-1254	0.046		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:19	1
PCB-1260	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>DCB Decachlorobiphenyl</i>	93		54 - 142	09/13/18 16:56	09/19/18 01:19	1
<i>Tetrachloro-m-xylene</i>	83		58 - 122	09/13/18 16:56	09/19/18 01:19	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		52		mg/Kg	☼	09/01/18 13:57	09/06/18 04:42	1
Motor Oil (>C24-C36)	ND		52		mg/Kg	☼	09/01/18 13:57	09/06/18 04:42	1
Mineral oil	ND		52		mg/Kg	☼	09/01/18 13:57	09/06/18 04:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	81		50 - 150	09/01/18 13:57	09/06/18 04:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.8		0.1		%			08/29/18 20:40	1
Percent Moisture	9.2		0.1		%			08/29/18 20:40	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: FOCB-SB08-10

Lab Sample ID: 580-79852-28

Date Collected: 08/21/18 16:25

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 95.5

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:36	1
PCB-1221	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:36	1
PCB-1232	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:36	1
PCB-1242	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:36	1
PCB-1248	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:36	1
PCB-1254	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:36	1
PCB-1260	ND		0.021		mg/Kg	☼	09/13/18 16:56	09/19/18 01:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	85		54 - 142	09/13/18 16:56	09/19/18 01:36	1
Tetrachloro-m-xylene	83		58 - 122	09/13/18 16:56	09/19/18 01:36	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		49		mg/Kg	☼	09/01/18 13:57	09/06/18 05:10	1
Motor Oil (>C24-C36)	ND		49		mg/Kg	☼	09/01/18 13:57	09/06/18 05:10	1
Mineral oil	ND		49		mg/Kg	☼	09/01/18 13:57	09/06/18 05:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	79		50 - 150	09/01/18 13:57	09/06/18 05:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.5		0.1		%			08/29/18 20:40	1
Percent Moisture	4.5		0.1		%			08/29/18 20:40	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: RNS-19

Date Collected: 08/21/18 10:30

Date Received: 08/23/18 14:57

Lab Sample ID: 580-79852-29

Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		08/26/18 14:00	08/27/18 20:00	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		08/26/18 14:00	08/27/18 20:00	1
Mineral oil	ND		0.35		mg/L		08/26/18 14:00	08/27/18 20:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	67		50 - 150				08/26/18 14:00	08/27/18 20:00	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: RNS-20

Date Collected: 08/21/18 11:40

Date Received: 08/23/18 14:57

Lab Sample ID: 580-79852-30

Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.63		ug/L		09/02/18 15:24	09/04/18 23:13	1
PCB-1221	ND		0.63		ug/L		09/02/18 15:24	09/04/18 23:13	1
PCB-1232	ND		0.63		ug/L		09/02/18 15:24	09/04/18 23:13	1
PCB-1242	ND		0.63		ug/L		09/02/18 15:24	09/04/18 23:13	1
PCB-1248	ND		0.63		ug/L		09/02/18 15:24	09/04/18 23:13	1
PCB-1254	ND		0.63		ug/L		09/02/18 15:24	09/04/18 23:13	1
PCB-1260	ND		0.63		ug/L		09/02/18 15:24	09/04/18 23:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	71		38 - 140	09/02/18 15:24	09/04/18 23:13	1
Tetrachloro-m-xylene	74		40 - 120	09/02/18 15:24	09/04/18 23:13	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.14		mg/L		08/26/18 14:00	08/27/18 20:28	1
Motor Oil (>C24-C36)	ND		0.44		mg/L		08/26/18 14:00	08/27/18 20:28	1
Mineral oil	ND		0.44		mg/L		08/26/18 14:00	08/27/18 20:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	67		50 - 150	08/26/18 14:00	08/27/18 20:28	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: RNS-21

Date Collected: 08/21/18 13:50

Date Received: 08/23/18 14:57

Lab Sample ID: 580-79852-31

Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.46		ug/L		09/02/18 15:24	09/04/18 23:30	1
PCB-1221	ND		0.46		ug/L		09/02/18 15:24	09/04/18 23:30	1
PCB-1232	ND		0.46		ug/L		09/02/18 15:24	09/04/18 23:30	1
PCB-1242	ND		0.46		ug/L		09/02/18 15:24	09/04/18 23:30	1
PCB-1248	ND		0.46		ug/L		09/02/18 15:24	09/04/18 23:30	1
PCB-1254	ND		0.46		ug/L		09/02/18 15:24	09/04/18 23:30	1
PCB-1260	ND		0.46		ug/L		09/02/18 15:24	09/04/18 23:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	72		38 - 140	09/02/18 15:24	09/04/18 23:30	1
Tetrachloro-m-xylene	74		40 - 120	09/02/18 15:24	09/04/18 23:30	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12		mg/L		08/26/18 14:00	08/27/18 20:57	1
Motor Oil (>C24-C36)	ND		0.37		mg/L		08/26/18 14:00	08/27/18 20:57	1
Mineral oil	ND		0.37		mg/L		08/26/18 14:00	08/27/18 20:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	71		50 - 150	08/26/18 14:00	08/27/18 20:57	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: RNS-22

Date Collected: 08/21/18 17:30

Date Received: 08/23/18 14:57

Lab Sample ID: 580-79852-32

Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.46		ug/L		09/02/18 15:24	09/04/18 23:47	1
PCB-1221	ND		0.46		ug/L		09/02/18 15:24	09/04/18 23:47	1
PCB-1232	ND		0.46		ug/L		09/02/18 15:24	09/04/18 23:47	1
PCB-1242	ND		0.46		ug/L		09/02/18 15:24	09/04/18 23:47	1
PCB-1248	ND		0.46		ug/L		09/02/18 15:24	09/04/18 23:47	1
PCB-1254	ND		0.46		ug/L		09/02/18 15:24	09/04/18 23:47	1
PCB-1260	ND		0.46		ug/L		09/02/18 15:24	09/04/18 23:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	69		38 - 140	09/02/18 15:24	09/04/18 23:47	1
Tetrachloro-m-xylene	71		40 - 120	09/02/18 15:24	09/04/18 23:47	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.15		mg/L		08/26/18 14:00	08/27/18 21:25	1
Motor Oil (>C24-C36)	ND		0.46		mg/L		08/26/18 14:00	08/27/18 21:25	1
Mineral oil	ND		0.46		mg/L		08/26/18 14:00	08/27/18 21:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	71		50 - 150	08/26/18 14:00	08/27/18 21:25	1

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-283088/1-A
Matrix: Water
Analysis Batch: 283194

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 283088

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.45		ug/L		09/02/18 15:24	09/04/18 21:32	1
PCB-1221	ND		0.45		ug/L		09/02/18 15:24	09/04/18 21:32	1
PCB-1232	ND		0.45		ug/L		09/02/18 15:24	09/04/18 21:32	1
PCB-1242	ND		0.45		ug/L		09/02/18 15:24	09/04/18 21:32	1
PCB-1248	ND		0.45		ug/L		09/02/18 15:24	09/04/18 21:32	1
PCB-1254	ND		0.45		ug/L		09/02/18 15:24	09/04/18 21:32	1
PCB-1260	ND		0.45		ug/L		09/02/18 15:24	09/04/18 21:32	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	86		38 - 140	09/02/18 15:24	09/04/18 21:32	1
Tetrachloro-m-xylene	94		40 - 120	09/02/18 15:24	09/04/18 21:32	1

Lab Sample ID: LCS 580-283088/2-A
Matrix: Water
Analysis Batch: 283194

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 283088

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	1.00	0.986		ug/L		99	50 - 121
PCB-1260	1.00	1.03		ug/L		103	55 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	71		38 - 140
Tetrachloro-m-xylene	70		40 - 120

Lab Sample ID: LCSD 580-283088/3-A
Matrix: Water
Analysis Batch: 283194

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 283088

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
PCB-1016	1.00	0.958		ug/L		96	50 - 121	3	25
PCB-1260	1.00	1.06		ug/L		106	55 - 132	3	22

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl	75		38 - 140
Tetrachloro-m-xylene	70		40 - 120

Lab Sample ID: MB 580-283946/1-A
Matrix: Solid
Analysis Batch: 284279

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 283946

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.020		mg/Kg		09/13/18 16:56	09/18/18 20:52	1
PCB-1221	ND		0.020		mg/Kg		09/13/18 16:56	09/18/18 20:52	1
PCB-1232	ND		0.020		mg/Kg		09/13/18 16:56	09/18/18 20:52	1
PCB-1242	ND		0.020		mg/Kg		09/13/18 16:56	09/18/18 20:52	1
PCB-1248	ND		0.020		mg/Kg		09/13/18 16:56	09/18/18 20:52	1
PCB-1254	ND		0.020		mg/Kg		09/13/18 16:56	09/18/18 20:52	1

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: MB 580-283946/1-A
Matrix: Solid
Analysis Batch: 284279

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 283946

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1260	ND		0.020		mg/Kg		09/13/18 16:56	09/18/18 20:52	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	99		54 - 142	09/13/18 16:56	09/18/18 20:52	1
Tetrachloro-m-xylene	89		58 - 122	09/13/18 16:56	09/18/18 20:52	1

Lab Sample ID: LCS 580-283946/2-A
Matrix: Solid
Analysis Batch: 284279

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 283946

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	0.100	0.102		mg/Kg		102	64 - 120
PCB-1260	0.100	0.104		mg/Kg		104	63 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	101		54 - 142
Tetrachloro-m-xylene	95		58 - 122

Lab Sample ID: 580-79852-5 MS
Matrix: Solid
Analysis Batch: 284279

Client Sample ID: FOCB-SB06-10
Prep Type: Total/NA
Prep Batch: 283946

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
PCB-1016	ND		0.101	0.100		mg/Kg	☼	99	64 - 120
PCB-1260	ND		0.101	0.0988		mg/Kg	☼	97	63 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
DCB Decachlorobiphenyl	91		54 - 142
Tetrachloro-m-xylene	86		58 - 122

Lab Sample ID: 580-79852-5 MSD
Matrix: Solid
Analysis Batch: 284279

Client Sample ID: FOCB-SB06-10
Prep Type: Total/NA
Prep Batch: 283946

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
PCB-1016	ND		0.102	0.121		mg/Kg	☼	118	64 - 120	19	21
PCB-1260	ND		0.102	0.106		mg/Kg	☼	104	63 - 130	7	25

Surrogate	MSD %Recovery	MSD Qualifier	Limits
DCB Decachlorobiphenyl	93		54 - 142
Tetrachloro-m-xylene	95		58 - 122

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-282502/1-A
Matrix: Water
Analysis Batch: 282534

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 282502

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		08/26/18 14:00	08/27/18 18:09	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		08/26/18 14:00	08/27/18 18:09	1
Mineral oil	ND		0.35		mg/L		08/26/18 14:00	08/27/18 18:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	80		50 - 150	08/26/18 14:00	08/27/18 18:09	1

Lab Sample ID: LCS 580-282502/2-A
Matrix: Water
Analysis Batch: 282534

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 282502

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	2.00	1.49		mg/L		75	50 - 120
Motor Oil (>C24-C36)	2.00	1.74		mg/L		87	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	83		50 - 150

Lab Sample ID: LCSD 580-282502/3-A
Matrix: Water
Analysis Batch: 282534

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 282502

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.50		mg/L		75	50 - 120	1	26
Motor Oil (>C24-C36)	2.00	1.77		mg/L		88	64 - 120	2	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	82		50 - 150

Lab Sample ID: MB 580-283008/1-A
Matrix: Solid
Analysis Batch: 283112

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 283008

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		08/31/18 14:57	09/04/18 12:35	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		08/31/18 14:57	09/04/18 12:35	1
Mineral oil	ND		50		mg/Kg		08/31/18 14:57	09/04/18 12:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	69		50 - 150	08/31/18 14:57	09/04/18 12:35	1

Lab Sample ID: LCS 580-283008/2-A
Matrix: Solid
Analysis Batch: 283112

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 283008

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Motor Oil (>C24-C36)	500	377		mg/Kg		75	70 - 129

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	78		50 - 150

Lab Sample ID: LCSD 580-283008/3-A
Matrix: Solid
Analysis Batch: 283112

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 283008

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	373		mg/Kg		75	70 - 125	1	16
Motor Oil (>C24-C36)	500	409		mg/Kg		82	70 - 129	13	16

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	80		50 - 150

Lab Sample ID: MB 580-283066/1-A
Matrix: Solid
Analysis Batch: 283286

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 283066

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50		mg/Kg		09/01/18 13:57	09/05/18 20:35	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		09/01/18 13:57	09/05/18 20:35	1
Mineral oil	ND		50		mg/Kg		09/01/18 13:57	09/05/18 20:35	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	82		50 - 150	09/01/18 13:57	09/05/18 20:35	1

Lab Sample ID: LCS 580-283066/2-A
Matrix: Solid
Analysis Batch: 283286

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 283066

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	423		mg/Kg		85	70 - 125
Motor Oil (>C24-C36)	500	454		mg/Kg		91	70 - 129

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	94		50 - 150

Lab Sample ID: LCSD 580-283066/3-A
Matrix: Solid
Analysis Batch: 283286

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 283066

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	418		mg/Kg		84	70 - 125	1	16
Motor Oil (>C24-C36)	500	448		mg/Kg		90	70 - 129	1	16

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	91		50 - 150

Lab Sample ID: 580-79852-9 DU
Matrix: Solid
Analysis Batch: 283286

Client Sample ID: EY-SG04-SB07-2.0
Prep Type: Total/NA
Prep Batch: 283066

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
#2 Diesel (C10-C24)	1100		1120		mg/Kg	☼	2	35

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: 580-79852-9 DU
Matrix: Solid
Analysis Batch: 283286

Client Sample ID: EY-SG04-SB07-2.0
Prep Type: Total/NA
Prep Batch: 283066

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Motor Oil (>C24-C36)	810		780		mg/Kg	✘	4	35
		<i>DU</i>	<i>DU</i>					
Surrogate	%Recovery	Qualifier	Limits					
<i>o-Terphenyl</i>	88		50 - 150					

Lab Sample ID: 580-79852-12 DU
Matrix: Solid
Analysis Batch: 283286

Client Sample ID: EY-SG03-SB07-10.0
Prep Type: Total/NA
Prep Batch: 283066

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
#2 Diesel (C10-C24)	ND		ND		mg/Kg	✘	NC	35
Motor Oil (>C24-C36)	ND		ND		mg/Kg	✘	NC	35
Mineral oil	ND		ND		mg/Kg	✘	NC	35
		<i>DU</i>	<i>DU</i>					
Surrogate	%Recovery	Qualifier	Limits					
<i>o-Terphenyl</i>	80		50 - 150					

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) - DL

Lab Sample ID: 580-79852-9 DU
Matrix: Solid
Analysis Batch: 283338

Client Sample ID: EY-SG04-SB07-2.0
Prep Type: Total/NA
Prep Batch: 283066

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Mineral oil - DL	1800		1620		mg/Kg	✘	8	35
		<i>DU</i>	<i>DU</i>					
Surrogate	%Recovery	Qualifier	Limits					
<i>o-Terphenyl - DL</i>	91		50 - 150					

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) - RA

Lab Sample ID: LCS 580-283008/2-A
Matrix: Solid
Analysis Batch: 283216

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 283008

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24) - RA	500	378		mg/Kg		76	70 - 125

Method: D 2216 - Percent Moisture

Lab Sample ID: 580-79852-28 DU
Matrix: Solid
Analysis Batch: 282839

Client Sample ID: FOCB-SB08-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Percent Solids	95.5		95.7		%		0.2	20
Percent Moisture	4.5		4.3		%		5	20

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: EY-SG05-SB07-1.5

Date Collected: 08/20/18 10:50

Date Received: 08/23/18 14:57

Lab Sample ID: 580-79852-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282838	08/29/18 20:04	JCM	TAL SEA

Client Sample ID: EY-SG05-SB07-1.5

Date Collected: 08/20/18 10:50

Date Received: 08/23/18 14:57

Lab Sample ID: 580-79852-1

Matrix: Solid

Percent Solids: 91.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283008	08/31/18 14:57	SPS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283112	09/04/18 15:50	AEK	TAL SEA

Client Sample ID: EY-SG03-SB10-1.5

Date Collected: 08/20/18 11:30

Date Received: 08/23/18 14:57

Lab Sample ID: 580-79852-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282838	08/29/18 20:04	JCM	TAL SEA

Client Sample ID: EY-SG03-SB10-1.5

Date Collected: 08/20/18 11:30

Date Received: 08/23/18 14:57

Lab Sample ID: 580-79852-2

Matrix: Solid

Percent Solids: 90.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283008	08/31/18 14:57	SPS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283112	09/04/18 16:18	AEK	TAL SEA

Client Sample ID: EY-SG05-SB11-2.0

Date Collected: 08/20/18 12:10

Date Received: 08/23/18 14:57

Lab Sample ID: 580-79852-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282838	08/29/18 20:04	JCM	TAL SEA

Client Sample ID: EY-SG05-SB11-2.0

Date Collected: 08/20/18 12:10

Date Received: 08/23/18 14:57

Lab Sample ID: 580-79852-3

Matrix: Solid

Percent Solids: 84.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283008	08/31/18 14:57	SPS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283112	09/04/18 16:45	AEK	TAL SEA
Total/NA	Prep	3546			283008	08/31/18 14:57	SPS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		2	283216	09/05/18 13:48	CJ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: EY-SG05-SB09-1.5

Lab Sample ID: 580-79852-4

Date Collected: 08/20/18 13:20

Matrix: Solid

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282838	08/29/18 20:04	JCM	TAL SEA

Client Sample ID: EY-SG05-SB09-1.5

Lab Sample ID: 580-79852-4

Date Collected: 08/20/18 13:20

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 90.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283008	08/31/18 14:57	SPS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283112	09/04/18 18:09	AEK	TAL SEA

Client Sample ID: FOCB-SB06-10

Lab Sample ID: 580-79852-5

Date Collected: 08/20/18 13:40

Matrix: Solid

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282839	08/29/18 20:40	JCM	TAL SEA

Client Sample ID: FOCB-SB06-10

Lab Sample ID: 580-79852-5

Date Collected: 08/20/18 13:40

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 93.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283946	09/13/18 16:56	BAH	TAL SEA
Total/NA	Analysis	8082A		1	284279	09/18/18 23:39	TL1	TAL SEA
Total/NA	Prep	3546			283008	08/31/18 14:57	SPS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283112	09/04/18 18:37	AEK	TAL SEA

Client Sample ID: FOCB-SB06-5

Lab Sample ID: 580-79852-6

Date Collected: 08/20/18 13:25

Matrix: Solid

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282839	08/29/18 20:40	JCM	TAL SEA

Client Sample ID: FOCB-SB06-5

Lab Sample ID: 580-79852-6

Date Collected: 08/20/18 13:25

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 85.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283946	09/13/18 16:56	BAH	TAL SEA
Total/NA	Analysis	8082A		1	284279	09/19/18 00:29	TL1	TAL SEA
Total/NA	Prep	3546	DL		283946	09/13/18 16:56	BAH	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: FOCB-SB06-5

Lab Sample ID: 580-79852-6

Date Collected: 08/20/18 13:25

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 85.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8082A	DL	10	284362	09/19/18 20:04	CJB	TAL SEA
Total/NA	Prep	3546			283066	09/01/18 13:57	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283286	09/05/18 22:04	AEK	TAL SEA

Client Sample ID: EY-SG05-SB08-1.5

Lab Sample ID: 580-79852-8

Date Collected: 08/20/18 15:15

Matrix: Solid

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282839	08/29/18 20:40	JCM	TAL SEA

Client Sample ID: EY-SG05-SB08-1.5

Lab Sample ID: 580-79852-8

Date Collected: 08/20/18 15:15

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 94.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283066	09/01/18 13:57	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283286	09/05/18 22:33	AEK	TAL SEA

Client Sample ID: EY-SG04-SB07-2.0

Lab Sample ID: 580-79852-9

Date Collected: 08/20/18 15:30

Matrix: Solid

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282839	08/29/18 20:40	JCM	TAL SEA

Client Sample ID: EY-SG04-SB07-2.0

Lab Sample ID: 580-79852-9

Date Collected: 08/20/18 15:30

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 89.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283066	09/01/18 13:57	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283286	09/05/18 23:02	AEK	TAL SEA
Total/NA	Prep	3546	DL		283066	09/01/18 13:57	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx	DL	5	283338	09/06/18 12:11	W1T	TAL SEA

Client Sample ID: EY-SG03-SB07-10.0

Lab Sample ID: 580-79852-12

Date Collected: 08/21/18 12:55

Matrix: Solid

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282839	08/29/18 20:40	JCM	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: EY-SG03-SB07-10.0

Lab Sample ID: 580-79852-12

Date Collected: 08/21/18 12:55

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 82.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283066	09/01/18 13:57	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283286	09/06/18 00:00	AEK	TAL SEA

Client Sample ID: EY-SG03-SB09-5

Lab Sample ID: 580-79852-13

Date Collected: 08/21/18 14:28

Matrix: Solid

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282839	08/29/18 20:40	JCM	TAL SEA

Client Sample ID: EY-SG03-SB09-5

Lab Sample ID: 580-79852-13

Date Collected: 08/21/18 14:28

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 84.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283066	09/01/18 13:57	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283286	09/06/18 01:53	AEK	TAL SEA
Total/NA	Prep	3546	DL		283066	09/01/18 13:57	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx	DL	15	283338	09/06/18 13:07	W1T	TAL SEA

Client Sample ID: EY-SG03-SB07-5

Lab Sample ID: 580-79852-15

Date Collected: 08/21/18 11:01

Matrix: Solid

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282839	08/29/18 20:40	JCM	TAL SEA

Client Sample ID: EY-SG03-SB07-5

Lab Sample ID: 580-79852-15

Date Collected: 08/21/18 11:01

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 84.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283066	09/01/18 13:57	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283286	09/06/18 02:21	AEK	TAL SEA

Client Sample ID: FOCB-SB07-5

Lab Sample ID: 580-79852-18

Date Collected: 08/21/18 13:20

Matrix: Solid

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282839	08/29/18 20:40	JCM	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: FOCB-SB07-5

Lab Sample ID: 580-79852-18

Date Collected: 08/21/18 13:20

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 90.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283946	09/13/18 16:56	BAH	TAL SEA
Total/NA	Analysis	8082A		1	284279	09/19/18 00:46	TL1	TAL SEA
Total/NA	Prep	3546			283066	09/01/18 13:57	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283286	09/06/18 02:50	AEK	TAL SEA

Client Sample ID: FOCB-SB07-8.5

Lab Sample ID: 580-79852-20

Date Collected: 08/21/18 13:35

Matrix: Solid

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282839	08/29/18 20:40	JCM	TAL SEA

Client Sample ID: FOCB-SB07-8.5

Lab Sample ID: 580-79852-20

Date Collected: 08/21/18 13:35

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 91.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283946	09/13/18 16:56	BAH	TAL SEA
Total/NA	Analysis	8082A		1	284279	09/19/18 01:03	TL1	TAL SEA
Total/NA	Prep	3546			283066	09/01/18 13:57	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283286	09/06/18 03:18	AEK	TAL SEA

Client Sample ID: EY-SG03-SB08-5

Lab Sample ID: 580-79852-23

Date Collected: 08/21/18 13:33

Matrix: Solid

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282839	08/29/18 20:40	JCM	TAL SEA

Client Sample ID: EY-SG03-SB08-5

Lab Sample ID: 580-79852-23

Date Collected: 08/21/18 13:33

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 83.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283066	09/01/18 13:57	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283286	09/06/18 03:46	AEK	TAL SEA

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: EY-SG03-SB09-10

Lab Sample ID: 580-79852-24

Date Collected: 08/21/18 15:09

Matrix: Solid

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282839	08/29/18 20:40	JCM	TAL SEA

Client Sample ID: EY-SG03-SB09-10

Lab Sample ID: 580-79852-24

Date Collected: 08/21/18 15:09

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 85.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283066	09/01/18 13:57	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283286	09/06/18 04:14	AEK	TAL SEA
Total/NA	Prep	3546	DL		283066	09/01/18 13:57	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx	DL	15	283338	09/06/18 14:04	W1T	TAL SEA

Client Sample ID: FOCB-SB08-5

Lab Sample ID: 580-79852-26

Date Collected: 08/21/18 15:45

Matrix: Solid

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282839	08/29/18 20:40	JCM	TAL SEA

Client Sample ID: FOCB-SB08-5

Lab Sample ID: 580-79852-26

Date Collected: 08/21/18 15:45

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 90.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283946	09/13/18 16:56	BAH	TAL SEA
Total/NA	Analysis	8082A		1	284279	09/19/18 01:19	TL1	TAL SEA
Total/NA	Prep	3546			283066	09/01/18 13:57	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283286	09/06/18 04:42	AEK	TAL SEA

Client Sample ID: FOCB-SB08-10

Lab Sample ID: 580-79852-28

Date Collected: 08/21/18 16:25

Matrix: Solid

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	282839	08/29/18 20:40	JCM	TAL SEA

Client Sample ID: FOCB-SB08-10

Lab Sample ID: 580-79852-28

Date Collected: 08/21/18 16:25

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 95.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283946	09/13/18 16:56	BAH	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Client Sample ID: FOCB-SB08-10

Lab Sample ID: 580-79852-28

Date Collected: 08/21/18 16:25

Matrix: Solid

Date Received: 08/23/18 14:57

Percent Solids: 95.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8082A		1	284279	09/19/18 01:36	TL1	TAL SEA
Total/NA	Prep	3546			283066	09/01/18 13:57	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283286	09/06/18 05:10	AEK	TAL SEA

Client Sample ID: RNS-19

Lab Sample ID: 580-79852-29

Date Collected: 08/21/18 10:30

Matrix: Water

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			282502	08/26/18 14:00	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	282534	08/27/18 20:00	CJ	TAL SEA

Client Sample ID: RNS-20

Lab Sample ID: 580-79852-30

Date Collected: 08/21/18 11:40

Matrix: Water

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			283088	09/02/18 15:24	JCM	TAL SEA
Total/NA	Analysis	8082A		1	283194	09/04/18 23:13	TL1	TAL SEA
Total/NA	Prep	3510C			282502	08/26/18 14:00	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	282534	08/27/18 20:28	CJ	TAL SEA

Client Sample ID: RNS-21

Lab Sample ID: 580-79852-31

Date Collected: 08/21/18 13:50

Matrix: Water

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			283088	09/02/18 15:24	JCM	TAL SEA
Total/NA	Analysis	8082A		1	283194	09/04/18 23:30	TL1	TAL SEA
Total/NA	Prep	3510C			282502	08/26/18 14:00	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	282534	08/27/18 20:57	CJ	TAL SEA

Client Sample ID: RNS-22

Lab Sample ID: 580-79852-32

Date Collected: 08/21/18 17:30

Matrix: Water

Date Received: 08/23/18 14:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			283088	09/02/18 15:24	JCM	TAL SEA
Total/NA	Analysis	8082A		1	283194	09/04/18 23:47	TL1	TAL SEA
Total/NA	Prep	3510C			282502	08/26/18 14:00	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	282534	08/27/18 21:25	CJ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Laboratory References:

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

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Accreditation/Certification Summary

Client: ERM-West

TestAmerica Job ID: 580-79852-1

Project/Site: Cushman Phase IIB ESA

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Sample Summary

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79852-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79852-1	EY-SG05-SB07-1.5	Solid	08/20/18 10:50	08/23/18 14:57
580-79852-2	EY-SG03-SB10-1.5	Solid	08/20/18 11:30	08/23/18 14:57
580-79852-3	EY-SG05-SB11-2.0	Solid	08/20/18 12:10	08/23/18 14:57
580-79852-4	EY-SG05-SB09-1.5	Solid	08/20/18 13:20	08/23/18 14:57
580-79852-5	FOCB-SB06-10	Solid	08/20/18 13:40	08/23/18 14:57
580-79852-6	FOCB-SB06-5	Solid	08/20/18 13:25	08/23/18 14:57
580-79852-8	EY-SG05-SB08-1.5	Solid	08/20/18 15:15	08/23/18 14:57
580-79852-9	EY-SG04-SB07-2.0	Solid	08/20/18 15:30	08/23/18 14:57
580-79852-12	EY-SG03-SB07-10.0	Solid	08/21/18 12:55	08/23/18 14:57
580-79852-13	EY-SG03-SB09-5	Solid	08/21/18 14:28	08/23/18 14:57
580-79852-15	EY-SG03-SB07-5	Solid	08/21/18 11:01	08/23/18 14:57
580-79852-18	FOCB-SB07-5	Solid	08/21/18 13:20	08/23/18 14:57
580-79852-20	FOCB-SB07-8.5	Solid	08/21/18 13:35	08/23/18 14:57
580-79852-23	EY-SG03-SB08-5	Solid	08/21/18 13:33	08/23/18 14:57
580-79852-24	EY-SG03-SB09-10	Solid	08/21/18 15:09	08/23/18 14:57
580-79852-26	FOCB-SB08-5	Solid	08/21/18 15:45	08/23/18 14:57
580-79852-28	FOCB-SB08-10	Solid	08/21/18 16:25	08/23/18 14:57
580-79852-29	RNS-19	Water	08/21/18 10:30	08/23/18 14:57
580-79852-30	RNS-20	Water	08/21/18 11:40	08/23/18 14:57
580-79852-31	RNS-21	Water	08/21/18 13:50	08/23/18 14:57
580-79852-32	RNS-22	Water	08/21/18 17:30	08/23/18 14:57

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



580-79852 Chain of Custody

Loc: 580
79852



Client Information		Sampler: R. Holt	Lab PM: Cruz, Sheri L
Client Contact: Renee Holt		Phone: 508-828-0221	E-Mail: sheri.cruz@testamericainc.com
Company: ERM-West		Page: 1 of 3	
Address: 1218 3rd Ave Suite 1412		Job #:	
City: Seattle		Analysis Requested	
State, Zip: WA, 98101		Due Date Requested: Standard	
Phone: 425-214-0463(Tel)		TAT Requested (days): Standard	
Email: renee.holt@erm.com		PO #: Purchase Order Requested	
Project Name: Cushman Phase IIB ESA		WO #:	
Site: Cushman Tacoma		Project #: 58012883	
		SSOW#:	
Sample Identification		Preservation Codes:	
Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)
Matrix (W=water, S=solid, O=soil/sediment, BT=Tissue, AA=Air)			
WY-SG02-SB05-2.5	8/20/18	1050	G
WY-SG02-SB06-2.5	8/20/18	1130	G
WY-SG02-SB07-2.5	8/20/18	1210	G
WY-SG02-SB08-2.5	8/20/18	1320	G
WY-SG02-SB09-2.5	8/20/18	1340	G
WY-SG02-SB10-2.5	8/20/18	1325	G
WY-SG02-SB05-2.5	8/20/18	1330	G
WY-SG03-SB06-2.5	8/20/18	1515	G
WY-SG03-SB07-2.5	8/20/18	1530	G
WY-SG03-SB08-2.5	8/21/18	1323	G
WY-SG02-SB05-5	8/21/18	1435	G
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements: <i>Please send results/notifications to Suzanne.dolberg@erm.com</i>	
Empty Kit Relinquished by: <i>[Signature]</i>		Date: _____ Time: _____ Method of Shipment: _____	
Relinquished by: <i>[Signature]</i>	Date/Time: 8/22/18 1457	Company: ERM	Received by: <i>[Signature]</i>
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:	

- Preservation Codes:**
- A - HCL
 - B - NaOH
 - C - Zn Acetate
 - D - Nitric Acid
 - E - NaHSO4
 - F - MeOH
 - G - Amchlor
 - H - Ascorbic Acid
 - I - Ice
 - J - DI Water
 - K - EDTA
 - L - EDA
 - M - Hexane
 - N - None
 - O - AsNaO2
 - P - Na2O4S
 - Q - Na2SO3
 - R - Na2S2O3
 - S - H2SO4
 - T - TSP Dodecahydrate
 - U - Acetone
 - V - MCAA
 - W - pH 4-5
 - Z - other (specify)

Therm. ID: **A2** Cor: **3.6** ° Unc: **3.5** °
Cooler Desc: **40 Blnd**
Packing: **Bubble** FedEx: _____
Cust. Seal: Yes _____ No UPS: _____
 Wet/Packs/Dry Ice/None Lab Cour: Other: _____

Therm. ID: **H2** Cor: **3.4** ° Unc: **3.3** °
Cooler Desc: **40 Blnd**
Packing: **Bubble** FedEx: _____
Cust. Seal: Yes _____ No UPS: _____
 Wet/Packs/Dry Ice/None Lab Cour: Other: _____

HOLD
HOLD
HOLD

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information			Sampler: <u>R. Holt, M. Giardella</u>		Lab PM: <u>Cruz, Sheri L</u>		Carrier Tracking No(s):			COC No: <u>580-30240-9907.2</u>		
Client Contact: <u>Renee Holt</u>			Phone: <u>508-828-0221</u>		E-Mail: <u>sheri.cruz@testamericainc.com</u>					Page: <u>Page 2 of 3</u>		
Company: <u>ERM-West</u>			Due Date Requested: <u>Standard</u>		Analysis Requested			Job #:			Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)	
Address: <u>1218 3rd Ave Suite 1412</u>			TAT Requested (days): <u>Standard</u>									
City: <u>Seattle</u>			PO #: <u>Purchase Order Requested</u>									
State, Zip: <u>WA, 98101</u>			WO #:									
Phone: <u>425-214-0463(Tel)</u>			Project #: <u>58012883</u>									
Email: <u>renee.holt@erm.com</u>			SSOW#:									
Project Name: <u>Cushman Phase IIB ESA</u>												
Site: <u>Cushman Tacoma</u>												
Sample Identification			Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)		Special Instructions/Note:	
<u>WY-SG02-SB06-6</u> <u>(MO) EY-SG03-SB07-10.0</u>			<u>8/21/18</u>		<u>1255</u>		<u>G</u>		<u>Solid</u>			
<u>WY-SG02-SB07-6</u> <u>(MO) EY-SG03-SB09-5</u>			<u>8/21/18</u>		<u>1428</u>		<u>G</u>		<u>Solid</u>			
<u>WY-SG02-SB08-5</u> <u>(MO) EY-SG03-SB07-7.5</u>			<u>8/21/18</u>		<u>1245</u>		<u>G</u>		<u>Solid</u>		<u>HOLD</u>	
<u>WY-SG02-SB09-5</u> <u>(MO) EY-SG03-SB07-5</u>			<u>8/21/18</u>		<u>1161</u>		<u>G</u>		<u>Solid</u>			
<u>WY-SG02-SB10-5</u> <u>(MO) EY-SG03-SB07-2.5</u>			<u>8/21/18</u>		<u>1045</u>		<u>G</u>		<u>Solid</u>		<u>HOLD</u>	
<u>WY-SG03-SB06-5</u> <u>(MO) FOCB-SB07 (MO)</u>									<u>Solid</u>		<u>No Sample</u>	
<u>WY-SG03-SB06-6</u> <u>(MO) FOCB-SB07-2.5</u>			<u>8/21/18</u>		<u>1310</u>		<u>G</u>		<u>Solid</u>		<u>HOLD</u>	
<u>WY-SG03-SB07-5</u> <u>(MO) FOCB-SB07-5</u>			<u>8/21/18</u>		<u>1320</u>		<u>G</u>		<u>Solid</u>			
<u>WY-SG03-SB08-5</u> <u>(MO) FOCB-SB07-7.5</u>			<u>8/21/18</u>		<u>1325</u>		<u>G</u>		<u>Solid</u>		<u>HOLD</u>	
<u>WY-SG02-SB06-7.5</u> <u>(MO) FOCB-SB07-8.5</u>			<u>8/21/18</u>		<u>1335</u>		<u>G</u>		<u>Solid</u>			
<u>WY-SG02-SB06-7.5</u> <u>(MO) EY-SG03-SB09-2.5</u>			<u>8/21/18</u>		<u>1415</u>		<u>G</u>		<u>Solid</u>		<u>HOLD</u>	
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:						
Empty Kit Relinquished by:			Date:			Time:			Method of Shipment:			
Relinquished by: <u>RENEE HOLT</u>			Date/Time: <u>8/22/18 1457</u>			Company: <u>ERM</u>			Received by: <u>[Signature]</u>			
Relinquished by:			Date/Time:			Company:			Received by:			
Relinquished by:			Date/Time:			Company:			Received by:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No.:			Cooler Temperature(s) °C and Other Remarks:						

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <i>R. Holt, M. Cordell</i>		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-30240-9907.3													
Client Contact: Renee Holt		Phone: 508-828-6241		E-Mail: sheri.cruz@testamericainc.com				Page: Page 3 of 3													
Company: ERM-West		Due Date Requested: <i>Standard</i>		<table border="1"> <tr> <th colspan="2">Analysis Requested</th> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </table>		Analysis Requested												Job #:		Preservation Codes:	
Analysis Requested																					
Address: 1218 3rd Ave Suite 1412		TAT Requested (days): <i>Standard</i>		A - HCL		M - Hexane		B - NaOH		N - None											
City: Seattle		PO #: Purchase Order Requested		C - Zn Acetate		O - AsNaO2		D - Nitric Acid		P - Na2O4S											
State, Zip: WA, 98101		WO #:		E - NaHSO4		Q - Na2SO3		F - MeOH		R - Na2S2O3											
Phone: 425-214-0463(Tel)		Project #: 58012883		G - Amchlor		S - H2SO4		H - Ascorbic Acid		T - TSP Dodecahydrate											
Email: renee.holt@erm.com		SSOW#:		I - Ice		U - Acetone		J - DI Water		V - MCAA											
Project Name: Cushman Phase IIB ESA				K - EDTA		W - pH 4-5		L - EDTA		Z - other (specify)											
Site: <i>Cushman Tacoma</i>				Other:																	
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=volatile, BT=Trace, AA=As)		Special Instructions/Note:											
WY-SG02-SB07-7.5 (M) EY-SG03-SB08-7.5		8/21/18		1349		G		Solid		X											
WY-SG02-SB08-7.5 (M) EY-SG03-SB08-5		8/21/18		1333		G		Solid		X											
WY-SG02-SB09-7.5 (M) EY-SG03-SB09-10		8/21/18		1509		G		Solid		X											
WY-SG02-SB10-7.5 (M) FOCB-SB08-2.5		8/21/18		1541		G		Solid		X X											
WY-SG02-SB05-7.5 (M) FOCB-SB08-5		8/21/18		1549		G		Solid		X X											
WY-SG02-SB06-7.5 (M) FOCB-SB08-7.5		8/21/18		1615		G		Solid		X X											
WY-SG02-SB07-7.5 (M) FOCB-SB08-10		8/21/18		1625		G		Solid		X X											
WY-SG02-SB08-7.5 (M) RNS-19		8/21/18		1030		G		Solid		X											
WY-SG02-SB05-10 (M) RNS-20		8/21/18		1140		G		Solid		X X											
WY-SG02-SB06-10 (M) RNS-21		8/21/18		1350		G		Solid		X X											
WY-SG02-SB07-10 (M) RNS-22		8/21/18		1730		G		Solid		X X											
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)															
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months															
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:															
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:															
Relinquished by: <i>Parrett</i>		Date/Time: 8/22/18 1457		Company: ERM		Received by: <i>[Signature]</i>		Date/Time: 8/23/18 1457		Company:											
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:											
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:																	

Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-79852-1

Login Number: 79852

List Source: TestAmerica Seattle

List Number: 1

Creator: Hobbs, Kenneth F

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

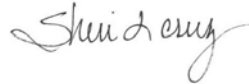
TestAmerica Job ID: 580-79908-1

Client Project/Site: Cushman Phase IIB ESA
Revision: 1

For:

ERM-West
1218 3rd Ave
Suite 1412
Seattle, Washington 98101

Attn: Matt Crandell



Authorized for release by:
10/11/2018 12:45:02 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Job ID: 580-79908-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-79908-1

Comments

Client emailed updated chain of custody to change sample 47 client ID.
Client emailed on 8/27/18 to change sample 580-79908-100(RNS-25 with date of 8/24/18 and time of 13:10) to RNS-27.

Receipt

The samples were received on 8/24/2018 4:05 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.6° C, 0.7° C, 0.8° C and 0.8° C.

Receipt Exceptions

All three containers for the following sample (2-250mL HCl & 1-1L unpreserved) were received about half full. RNS-24 (580-79908-27)

GC Semi VOA

Method(s) NWTPH-Dx: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: SMP-082318 (580-79908-47).

Method(s) NWTPH-Dx: The following sample was diluted due to the nature of the sample matrix: SMP-082318 (580-79908-47). Elevated reporting limits (RLs) are provided.

Method(s) 8082A: The continuing calibration verification (CCV) associated with 580-284114 recovered high and outside the control limits for PCB-1232, PCB-1248, PCB-1242, PCB-1254, PCB-1016 and PCB-1260 on the confirmation column only. Results are confirmed on both columns and reported from the passing column. The following samples are impacted: RNS-24 (580-79908-27), (CCV 580-284114/4), (CCV 580-284114/5), (CCV 580-284114/6), (CCV 580-284114/7) and (CCVIS 580-284114/8).

Method(s) 8082A: The following continuing calibration verification (CCV) standard associated with batch 580-284114 recovered high and outside acceptance criteria for %D for surrogate DCB Decachlorobiphenyl. Since the %Rec is within the acceptance criteria for the surrogate in the CCV and associated samples, the data have been reported. The following sample is impacted: (CCVIS 580-284114/8)

Method(s) 8082A: Due to the high concentration of PCB-1254, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 590-18771 and analytical batch 590-18766 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

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

Metals

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

General Chemistry

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

Organic Prep

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

Definitions/Glossary

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

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

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: FOCB-SB05-5

Lab Sample ID: 580-79908-1

Date Collected: 08/22/18 08:40

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 88.2

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.011		mg/Kg	☼	09/10/18 11:47	09/10/18 14:48	1
PCB-1221	ND		0.011		mg/Kg	☼	09/10/18 11:47	09/10/18 14:48	1
PCB-1232	ND		0.011		mg/Kg	☼	09/10/18 11:47	09/10/18 14:48	1
PCB-1242	ND		0.011		mg/Kg	☼	09/10/18 11:47	09/10/18 14:48	1
PCB-1248	ND		0.011		mg/Kg	☼	09/10/18 11:47	09/10/18 14:48	1
PCB-1254	0.11		0.011		mg/Kg	☼	09/10/18 11:47	09/10/18 14:48	1
PCB-1260	ND	F1	0.011		mg/Kg	☼	09/10/18 11:47	09/10/18 14:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Tetrachloro-m-xylene (Surr)</i>	85		31 - 127	09/10/18 11:47	09/10/18 14:48	1
<i>DCB Decachlorobiphenyl (Surr)</i>	107		20 - 150	09/10/18 11:47	09/10/18 14:48	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/05/18 16:47	09/07/18 13:10	1
Residual Range Organics (RRO) (C25-C36)	ND		28		mg/Kg	☼	09/05/18 16:47	09/07/18 13:10	1
Mineral oil	ND		28		mg/Kg	☼	09/05/18 16:47	09/07/18 13:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	95		50 - 150	09/05/18 16:47	09/07/18 13:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	11.8		0.01		%			09/10/18 10:04	1
Percent Solids	88.2		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: FOCB-SB05-9.5

Lab Sample ID: 580-79908-3

Date Collected: 08/22/18 08:55

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 91.7

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.011		mg/Kg	☼	09/10/18 11:47	09/10/18 15:08	1
PCB-1221	ND		0.011		mg/Kg	☼	09/10/18 11:47	09/10/18 15:08	1
PCB-1232	ND		0.011		mg/Kg	☼	09/10/18 11:47	09/10/18 15:08	1
PCB-1242	ND		0.011		mg/Kg	☼	09/10/18 11:47	09/10/18 15:08	1
PCB-1248	ND		0.011		mg/Kg	☼	09/10/18 11:47	09/10/18 15:08	1
PCB-1254	ND		0.011		mg/Kg	☼	09/10/18 11:47	09/10/18 15:08	1
PCB-1260	ND		0.011		mg/Kg	☼	09/10/18 11:47	09/10/18 15:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene (Surr)	86		31 - 127	09/10/18 11:47	09/10/18 15:08	1
DCB Decachlorobiphenyl (Surr)	94		20 - 150	09/10/18 11:47	09/10/18 15:08	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/05/18 16:47	09/07/18 13:50	1
Residual Range Organics (RRO) (C25-C36)	ND		27		mg/Kg	☼	09/05/18 16:47	09/07/18 13:50	1
Mineral oil	ND		27		mg/Kg	☼	09/05/18 16:47	09/07/18 13:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	100		50 - 150	09/05/18 16:47	09/07/18 13:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.3		0.01		%			09/10/18 10:04	1
Percent Solids	91.7		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: FOCB-SB09-5

Lab Sample ID: 580-79908-5

Date Collected: 08/22/18 09:20

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.3

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.012		mg/Kg	☼	09/10/18 11:47	09/10/18 15:29	1
PCB-1221	ND		0.012		mg/Kg	☼	09/10/18 11:47	09/10/18 15:29	1
PCB-1232	ND		0.012		mg/Kg	☼	09/10/18 11:47	09/10/18 15:29	1
PCB-1242	ND		0.012		mg/Kg	☼	09/10/18 11:47	09/10/18 15:29	1
PCB-1248	ND		0.012		mg/Kg	☼	09/10/18 11:47	09/10/18 15:29	1
PCB-1254	0.029		0.012		mg/Kg	☼	09/10/18 11:47	09/10/18 15:29	1
PCB-1260	ND		0.012		mg/Kg	☼	09/10/18 11:47	09/10/18 15:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene (Surr)	86		31 - 127	09/10/18 11:47	09/10/18 15:29	1
DCB Decachlorobiphenyl (Surr)	91		20 - 150	09/10/18 11:47	09/10/18 15:29	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/05/18 16:47	09/07/18 14:10	1
Residual Range Organics (RRO) (C25-C36)	ND		28		mg/Kg	☼	09/05/18 16:47	09/07/18 14:10	1
Mineral oil	ND		28		mg/Kg	☼	09/05/18 16:47	09/07/18 14:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	97		50 - 150	09/05/18 16:47	09/07/18 14:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14.7		0.01		%			09/10/18 10:04	1
Percent Solids	85.3		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: FOCB-SB09-9.5

Lab Sample ID: 580-79908-7

Date Collected: 08/22/18 09:35

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 93.9

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.010		mg/Kg	☼	09/10/18 11:47	09/10/18 15:49	1
PCB-1221	ND		0.010		mg/Kg	☼	09/10/18 11:47	09/10/18 15:49	1
PCB-1232	ND		0.010		mg/Kg	☼	09/10/18 11:47	09/10/18 15:49	1
PCB-1242	ND		0.010		mg/Kg	☼	09/10/18 11:47	09/10/18 15:49	1
PCB-1248	ND		0.010		mg/Kg	☼	09/10/18 11:47	09/10/18 15:49	1
PCB-1254	ND		0.010		mg/Kg	☼	09/10/18 11:47	09/10/18 15:49	1
PCB-1260	ND		0.010		mg/Kg	☼	09/10/18 11:47	09/10/18 15:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene (Surr)	86		31 - 127	09/10/18 11:47	09/10/18 15:49	1
DCB Decachlorobiphenyl (Surr)	90		20 - 150	09/10/18 11:47	09/10/18 15:49	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/05/18 16:47	09/07/18 14:30	1
Residual Range Organics (RRO) (C25-C36)	ND		26		mg/Kg	☼	09/05/18 16:47	09/07/18 14:30	1
Mineral oil	ND		26		mg/Kg	☼	09/05/18 16:47	09/07/18 14:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	99		50 - 150	09/05/18 16:47	09/07/18 14:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	6.1		0.01		%			09/10/18 10:04	1
Percent Solids	93.9		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG02-SB06-5

Lab Sample ID: 580-79908-8

Date Collected: 08/22/18 10:20

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		12		mg/Kg	☼	09/05/18 16:47	09/07/18 14:50	1
Residual Range Organics (RRO) (C25-C36)	ND		29		mg/Kg	☼	09/05/18 16:47	09/07/18 14:50	1
Mineral oil	ND		29		mg/Kg	☼	09/05/18 16:47	09/07/18 14:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	105		50 - 150				09/05/18 16:47	09/07/18 14:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15.0		0.01		%			09/10/18 10:04	1
Percent Solids	85.0		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG02-SB06-9

Lab Sample ID: 580-79908-10

Date Collected: 08/22/18 10:35

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 93.7

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		10		mg/Kg	☼	09/05/18 16:47	09/07/18 15:10	1
Residual Range Organics (RRO) (C25-C36)	ND		26		mg/Kg	☼	09/05/18 16:47	09/07/18 15:10	1
Mineral oil	ND		26		mg/Kg	☼	09/05/18 16:47	09/07/18 15:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	105		50 - 150				09/05/18 16:47	09/07/18 15:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	6.3		0.01		%			09/10/18 10:04	1
Percent Solids	93.7		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG02-SB07-5

Lab Sample ID: 580-79908-12

Date Collected: 08/22/18 11:30

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/05/18 16:47	09/07/18 16:10	1
Residual Range Organics (RRO) (C25-C36)	ND		29		mg/Kg	☼	09/05/18 16:47	09/07/18 16:10	1
Mineral oil	ND		29		mg/Kg	☼	09/05/18 16:47	09/07/18 16:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	96		50 - 150				09/05/18 16:47	09/07/18 16:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14.7		0.01		%			09/10/18 10:04	1
Percent Solids	85.3		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG02-SB07-9.5

Lab Sample ID: 580-79908-14

Date Collected: 08/22/18 11:40

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 90.7

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/05/18 16:47	09/07/18 16:30	1
Residual Range Organics (RRO) (C25-C36)	ND		27		mg/Kg	☼	09/05/18 16:47	09/07/18 16:30	1
Mineral oil	ND		27		mg/Kg	☼	09/05/18 16:47	09/07/18 16:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	96		50 - 150				09/05/18 16:47	09/07/18 16:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	9.3		0.01		%			09/10/18 10:04	1
Percent Solids	90.7		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG02-SB05-5

Lab Sample ID: 580-79908-16

Date Collected: 08/22/18 13:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 84.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	17		12		mg/Kg	☼	09/05/18 16:47	09/07/18 16:49	1
Residual Range Organics (RRO) (C25-C36)	ND		30		mg/Kg	☼	09/05/18 16:47	09/07/18 16:49	1
Mineral oil	ND		30		mg/Kg	☼	09/05/18 16:47	09/07/18 16:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	97		50 - 150				09/05/18 16:47	09/07/18 16:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15.7		0.01		%			09/10/18 10:04	1
Percent Solids	84.3		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG02-SB05-10

Lab Sample ID: 580-79908-18

Date Collected: 08/22/18 13:10

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 92.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/05/18 16:47	09/07/18 17:09	1
Residual Range Organics (RRO) (C25-C36)	ND		26		mg/Kg	☼	09/05/18 16:47	09/07/18 17:09	1
Mineral oil	ND		26		mg/Kg	☼	09/05/18 16:47	09/07/18 17:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	102		50 - 150				09/05/18 16:47	09/07/18 17:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	7.6		0.01		%			09/10/18 10:04	1
Percent Solids	92.4		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG02-SB09-5

Lab Sample ID: 580-79908-20

Date Collected: 08/22/18 13:35

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 84.7

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	56		11		mg/Kg	☼	09/05/18 16:47	09/07/18 17:28	1
Residual Range Organics (RRO) (C25-C36)	49		28		mg/Kg	☼	09/05/18 16:47	09/07/18 17:28	1
Mineral oil	68		28		mg/Kg	☼	09/05/18 16:47	09/07/18 17:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	100		50 - 150				09/05/18 16:47	09/07/18 17:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15.3		0.01		%			09/10/18 10:04	1
Percent Solids	84.7		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG02-SB09-9

Lab Sample ID: 580-79908-22

Date Collected: 08/22/18 13:50

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 92.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/05/18 16:47	09/07/18 17:48	1
Residual Range Organics (RRO) (C25-C36)	ND		27		mg/Kg	☼	09/05/18 16:47	09/07/18 17:48	1
Mineral oil	ND		27		mg/Kg	☼	09/05/18 16:47	09/07/18 17:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	101		50 - 150				09/05/18 16:47	09/07/18 17:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	7.2		0.01		%			09/10/18 10:04	1
Percent Solids	92.8		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG02-SB08-5

Lab Sample ID: 580-79908-24

Date Collected: 08/22/18 14:25

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 86.1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/05/18 16:47	09/07/18 18:07	1
Residual Range Organics (RRO) (C25-C36)	ND		29		mg/Kg	☼	09/05/18 16:47	09/07/18 18:07	1
Mineral oil	ND		29		mg/Kg	☼	09/05/18 16:47	09/07/18 18:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	95		50 - 150				09/05/18 16:47	09/07/18 18:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	13.9		0.01		%			09/10/18 10:04	1
Percent Solids	86.1		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG02-SB08-9.5

Lab Sample ID: 580-79908-26

Date Collected: 08/22/18 14:35

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 94.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		10		mg/Kg	☼	09/05/18 16:47	09/07/18 18:27	1
Residual Range Organics (RRO) (C25-C36)	ND		26		mg/Kg	☼	09/05/18 16:47	09/07/18 18:27	1
Mineral oil	ND		26		mg/Kg	☼	09/05/18 16:47	09/07/18 18:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	104		50 - 150				09/05/18 16:47	09/07/18 18:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.6		0.01		%			09/10/18 10:04	1
Percent Solids	94.4		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: RNS-24

Date Collected: 08/22/18 15:00

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-27

Matrix: Water

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.46		ug/L		09/14/18 11:43	09/17/18 16:58	1
PCB-1221	ND		0.46		ug/L		09/14/18 11:43	09/17/18 16:58	1
PCB-1232	ND		0.46		ug/L		09/14/18 11:43	09/17/18 16:58	1
PCB-1242	ND		0.46		ug/L		09/14/18 11:43	09/17/18 16:58	1
PCB-1248	ND		0.46		ug/L		09/14/18 11:43	09/17/18 16:58	1
PCB-1254	ND		0.46		ug/L		09/14/18 11:43	09/17/18 16:58	1
PCB-1260	ND		0.46		ug/L		09/14/18 11:43	09/17/18 16:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	64		38 - 140	09/14/18 11:43	09/17/18 16:58	1
Tetrachloro-m-xylene	77		40 - 120	09/14/18 11:43	09/17/18 16:58	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.19		mg/L		09/02/18 10:13	09/05/18 05:53	1
Motor Oil (>C24-C36)	ND		0.62		mg/L		09/02/18 10:13	09/05/18 05:53	1
Mineral oil	ND		0.62		mg/L		09/02/18 10:13	09/05/18 05:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	69		50 - 150	09/02/18 10:13	09/05/18 05:53	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG03-SB05-5

Lab Sample ID: 580-79908-29

Date Collected: 08/22/18 15:25

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 93.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		10		mg/Kg	☼	09/05/18 16:47	09/07/18 18:46	1
Residual Range Organics (RRO) (C25-C36)	ND		26		mg/Kg	☼	09/05/18 16:47	09/07/18 18:46	1
Mineral oil	ND		26		mg/Kg	☼	09/05/18 16:47	09/07/18 18:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	105		50 - 150				09/05/18 16:47	09/07/18 18:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	6.8		0.01		%			09/10/18 10:04	1
Percent Solids	93.2		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG03-SB05-10

Lab Sample ID: 580-79908-31

Date Collected: 08/22/18 15:35

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 94.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/05/18 16:47	09/07/18 19:06	1
Residual Range Organics (RRO) (C25-C36)	ND		26		mg/Kg	☼	09/05/18 16:47	09/07/18 19:06	1
Mineral oil	ND		26		mg/Kg	☼	09/05/18 16:47	09/07/18 19:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	106		50 - 150				09/05/18 16:47	09/07/18 19:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.7		0.01		%			09/10/18 10:04	1
Percent Solids	94.3		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG03-SB07-5

Lab Sample ID: 580-79908-33

Date Collected: 08/23/18 08:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 89.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/06/18 09:47	09/07/18 22:00	1
Residual Range Organics (RRO) (C25-C36)	ND		27		mg/Kg	☼	09/06/18 09:47	09/07/18 22:00	1
Mineral oil	ND		27		mg/Kg	☼	09/06/18 09:47	09/07/18 22:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	110		50 - 150				09/06/18 09:47	09/07/18 22:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	10.5		0.01		%			09/10/18 10:04	1
Percent Solids	89.5		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG03-SB07-10

Lab Sample ID: 580-79908-35

Date Collected: 08/23/18 08:10

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 90.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/06/18 09:47	09/07/18 22:39	1
Residual Range Organics (RRO) (C25-C36)	ND		28		mg/Kg	☼	09/06/18 09:47	09/07/18 22:39	1
Mineral oil	ND		28		mg/Kg	☼	09/06/18 09:47	09/07/18 22:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	92		50 - 150				09/06/18 09:47	09/07/18 22:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	9.6		0.01		%			09/10/18 10:04	1
Percent Solids	90.4		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG03-SB06-5

Lab Sample ID: 580-79908-37

Date Collected: 08/23/18 08:50

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 92.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/06/18 09:47	09/07/18 22:58	1
Residual Range Organics (RRO) (C25-C36)	ND		27		mg/Kg	☼	09/06/18 09:47	09/07/18 22:58	1
Mineral oil	ND		27		mg/Kg	☼	09/06/18 09:47	09/07/18 22:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	85		50 - 150				09/06/18 09:47	09/07/18 22:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.0		0.01		%			09/10/18 10:04	1
Percent Solids	92.0		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG03-SB06-10

Lab Sample ID: 580-79908-39

Date Collected: 08/23/18 09:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 94.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		10		mg/Kg	☼	09/06/18 09:47	09/07/18 23:55	1
Residual Range Organics (RRO) (C25-C36)	ND		26		mg/Kg	☼	09/06/18 09:47	09/07/18 23:55	1
Mineral oil	ND		26		mg/Kg	☼	09/06/18 09:47	09/07/18 23:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	99		50 - 150				09/06/18 09:47	09/07/18 23:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.6		0.01		%			09/10/18 10:04	1
Percent Solids	94.4		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG03-SB06-2

Lab Sample ID: 580-79908-40

Date Collected: 08/23/18 09:40

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 91.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	39		10		mg/Kg	☼	09/06/18 09:47	09/08/18 00:15	1
Residual Range Organics (RRO) (C25-C36)	51		26		mg/Kg	☼	09/06/18 09:47	09/08/18 00:15	1
Mineral oil	66		26		mg/Kg	☼	09/06/18 09:47	09/08/18 00:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	89		50 - 150				09/06/18 09:47	09/08/18 00:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.4		0.01		%			09/10/18 10:04	1
Percent Solids	91.6		0.01		%			09/10/18 10:04	1



Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG16-SB06-5

Lab Sample ID: 580-79908-42

Date Collected: 08/23/18 10:10

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		12		mg/Kg	☼	09/06/18 09:47	09/08/18 00:34	1
Residual Range Organics (RRO) (C25-C36)	ND		29		mg/Kg	☼	09/06/18 09:47	09/08/18 00:34	1
Mineral oil	ND		29		mg/Kg	☼	09/06/18 09:47	09/08/18 00:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	88		50 - 150				09/06/18 09:47	09/08/18 00:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14.9		0.01		%			09/10/18 10:04	1
Percent Solids	85.1		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG16-SB06-9.75

Lab Sample ID: 580-79908-44

Date Collected: 08/23/18 10:25

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 94.5

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/06/18 09:47	09/08/18 00:53	1
Residual Range Organics (RRO) (C25-C36)	ND		26		mg/Kg	☼	09/06/18 09:47	09/08/18 00:53	1
Mineral oil	ND		26		mg/Kg	☼	09/06/18 09:47	09/08/18 00:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	88		50 - 150				09/06/18 09:47	09/08/18 00:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.5		0.01		%			09/10/18 10:04	1
Percent Solids	94.5		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG05-SB06-1.5

Lab Sample ID: 580-79908-45

Date Collected: 08/23/18 10:50

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 95.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	46		10		mg/Kg	☼	09/06/18 09:47	09/08/18 01:13	1
Residual Range Organics (RRO) (C25-C36)	32		26		mg/Kg	☼	09/06/18 09:47	09/08/18 01:13	1
Mineral oil	49		26		mg/Kg	☼	09/06/18 09:47	09/08/18 01:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	91		50 - 150				09/06/18 09:47	09/08/18 01:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	4.4		0.01		%			09/10/18 10:04	1
Percent Solids	95.6		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG05-SB10-1.5

Lab Sample ID: 580-79908-46

Date Collected: 08/23/18 11:20

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 92.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	110		11		mg/Kg	☼	09/06/18 09:47	09/08/18 01:51	1
Residual Range Organics (RRO) (C25-C36)	110		27		mg/Kg	☼	09/06/18 09:47	09/08/18 01:51	1
Mineral oil	150		27		mg/Kg	☼	09/06/18 09:47	09/08/18 01:51	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>o-Terphenyl</i>	<i>84</i>		<i>50 - 150</i>				<i>09/06/18 09:47</i>	<i>09/08/18 01:51</i>	<i>1</i>

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	7.4		0.01		%			09/10/18 10:04	1
Percent Solids	92.6		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SMP-01-082318

Lab Sample ID: 580-79908-47

Date Collected: 08/23/18 12:15

Matrix: Water

Date Received: 08/24/18 16:05

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	5.5		0.12		mg/L		09/02/18 10:13	09/05/18 06:21	1
Motor Oil (>C24-C36)	2.6		0.37		mg/L		09/02/18 10:13	09/05/18 06:21	1
Mineral oil	6.6		1.9		mg/L		09/02/18 10:13	09/05/18 14:16	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	112		50 - 150				09/02/18 10:13	09/05/18 06:21	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG26-SB05-5

Lab Sample ID: 580-79908-49

Date Collected: 08/23/18 13:10

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 86.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		12		mg/Kg	☼	09/06/18 09:47	09/08/18 02:10	1
Residual Range Organics (RRO) (C25-C36)	ND		29		mg/Kg	☼	09/06/18 09:47	09/08/18 02:10	1
Mineral oil	ND		29		mg/Kg	☼	09/06/18 09:47	09/08/18 02:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	91		50 - 150				09/06/18 09:47	09/08/18 02:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14.0		0.01		%			09/10/18 10:04	1
Percent Solids	86.0		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG26-SB05-10

Lab Sample ID: 580-79908-51

Date Collected: 08/23/18 13:20

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 89.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/06/18 09:47	09/08/18 02:29	1
Residual Range Organics (RRO) (C25-C36)	ND		27		mg/Kg	☼	09/06/18 09:47	09/08/18 02:29	1
Mineral oil	ND		27		mg/Kg	☼	09/06/18 09:47	09/08/18 02:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	89		50 - 150				09/06/18 09:47	09/08/18 02:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	10.4		0.01		%			09/10/18 10:04	1
Percent Solids	89.6		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG16-SB08-2.5

Lab Sample ID: 580-79908-52

Date Collected: 08/23/18 14:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 86.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/06/18 09:47	09/08/18 02:49	1
Residual Range Organics (RRO) (C25-C36)	ND		27		mg/Kg	☼	09/06/18 09:47	09/08/18 02:49	1
Mineral oil	ND		27		mg/Kg	☼	09/06/18 09:47	09/08/18 02:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	85		50 - 150				09/06/18 09:47	09/08/18 02:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	13.8		0.01		%			09/10/18 10:04	1
Percent Solids	86.2		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG16-SB08-5

Lab Sample ID: 580-79908-53

Date Collected: 08/23/18 14:05

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 86.9

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	30		11		mg/Kg	☼	09/06/18 09:47	09/08/18 03:46	1
Residual Range Organics (RRO) (C25-C36)	31		28		mg/Kg	☼	09/06/18 09:47	09/08/18 03:46	1
Mineral oil	45		28		mg/Kg	☼	09/06/18 09:47	09/08/18 03:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	91		50 - 150				09/06/18 09:47	09/08/18 03:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	13.1		0.01		%			09/10/18 10:04	1
Percent Solids	86.9		0.01		%			09/10/18 10:04	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG16-SB08-9.5

Lab Sample ID: 580-79908-55

Date Collected: 08/23/18 14:15

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 91.1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/06/18 09:47	09/08/18 04:06	1
Residual Range Organics (RRO) (C25-C36)	ND		27		mg/Kg	☼	09/06/18 09:47	09/08/18 04:06	1
Mineral oil	ND		27		mg/Kg	☼	09/06/18 09:47	09/08/18 04:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	91		50 - 150				09/06/18 09:47	09/08/18 04:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.9		0.01		%			09/10/18 10:04	1
Percent Solids	91.1		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: RNS-25
Date Collected: 08/23/18 15:30
Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-56
Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.13		mg/L		09/02/18 10:13	09/05/18 06:48	1
Motor Oil (>C24-C36)	ND		0.40		mg/L		09/02/18 10:13	09/05/18 06:48	1
Mineral oil	ND		0.40		mg/L		09/02/18 10:13	09/05/18 06:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	74		50 - 150				09/02/18 10:13	09/05/18 06:48	1

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Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG16-SB05-5

Lab Sample ID: 580-79908-58

Date Collected: 08/23/18 15:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 87.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/06/18 09:47	09/08/18 04:25	1
Residual Range Organics (RRO) (C25-C36)	ND		27		mg/Kg	☼	09/06/18 09:47	09/08/18 04:25	1
Mineral oil	ND		27		mg/Kg	☼	09/06/18 09:47	09/08/18 04:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	101		50 - 150				09/06/18 09:47	09/08/18 04:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	12.8		0.01		%			09/10/18 10:04	1
Percent Solids	87.2		0.01		%			09/10/18 10:04	1



Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG16-SB05-9.5

Lab Sample ID: 580-79908-60

Date Collected: 08/23/18 15:15

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 93.9

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		10		mg/Kg	☼	09/06/18 09:47	09/08/18 04:44	1
Residual Range Organics (RRO) (C25-C36)	ND		26		mg/Kg	☼	09/06/18 09:47	09/08/18 04:44	1
Mineral oil	ND		26		mg/Kg	☼	09/06/18 09:47	09/08/18 04:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	92		50 - 150				09/06/18 09:47	09/08/18 04:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	6.1		0.01		%			09/10/18 10:04	1
Percent Solids	93.9		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG16-SB04-5

Lab Sample ID: 580-79908-62

Date Collected: 08/24/18 07:55

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/06/18 09:47	09/08/18 05:04	1
Residual Range Organics (RRO) (C25-C36)	ND		29		mg/Kg	☼	09/06/18 09:47	09/08/18 05:04	1
Mineral oil	ND		29		mg/Kg	☼	09/06/18 09:47	09/08/18 05:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	91		50 - 150				09/06/18 09:47	09/08/18 05:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14.4		0.01		%			09/10/18 10:04	1
Percent Solids	85.6		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG16-SB04-10

Lab Sample ID: 580-79908-64

Date Collected: 08/24/18 08:10

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 93.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		10		mg/Kg	☼	09/06/18 09:47	09/08/18 05:23	1
Residual Range Organics (RRO) (C25-C36)	ND		26		mg/Kg	☼	09/06/18 09:47	09/08/18 05:23	1
Mineral oil	ND		26		mg/Kg	☼	09/06/18 09:47	09/08/18 05:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	85		50 - 150				09/06/18 09:47	09/08/18 05:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	6.6		0.01		%			09/10/18 10:04	1
Percent Solids	93.4		0.01		%			09/10/18 10:04	1

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Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG16-SB07-5

Lab Sample ID: 580-79908-66

Date Collected: 08/24/18 08:50

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 90.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		10		mg/Kg	☼	09/06/18 09:47	09/08/18 09:25	1
Residual Range Organics (RRO) (C25-C36)	ND		26		mg/Kg	☼	09/06/18 09:47	09/08/18 09:25	1
Mineral oil	ND		26		mg/Kg	☼	09/06/18 09:47	09/08/18 09:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	93		50 - 150				09/06/18 09:47	09/08/18 09:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	9.4		0.01		%			09/10/18 10:04	1
Percent Solids	90.6		0.01		%			09/10/18 10:04	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG16-SB07-10

Lab Sample ID: 580-79908-68

Date Collected: 08/24/18 09:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 93.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		10		mg/Kg	☼	09/06/18 09:47	09/08/18 09:44	1
Residual Range Organics (RRO) (C25-C36)	ND		26		mg/Kg	☼	09/06/18 09:47	09/08/18 09:44	1
Mineral oil	ND		26		mg/Kg	☼	09/06/18 09:47	09/08/18 09:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	89		50 - 150				09/06/18 09:47	09/08/18 09:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	6.4		0.01		%			09/10/18 10:04	1
Percent Solids	93.6		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG26-SB07-5

Lab Sample ID: 580-79908-70

Date Collected: 08/24/18 09:38

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 84.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/07/18 11:05	09/08/18 10:24	1
Residual Range Organics (RRO) (C25-C36)	ND		28		mg/Kg	☼	09/07/18 11:05	09/08/18 10:24	1
Mineral oil	ND		28		mg/Kg	☼	09/07/18 11:05	09/08/18 10:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	94		50 - 150				09/07/18 11:05	09/08/18 10:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15.4		0.01		%			09/10/18 10:25	1
Percent Solids	84.6		0.01		%			09/10/18 10:25	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG26-SB07-10

Lab Sample ID: 580-79908-72

Date Collected: 08/24/18 09:45

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 79.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		12		mg/Kg	☼	09/07/18 11:05	09/08/18 12:02	1
Residual Range Organics (RRO) (C25-C36)	ND		31		mg/Kg	☼	09/07/18 11:05	09/08/18 12:02	1
Mineral oil	ND		31		mg/Kg	☼	09/07/18 11:05	09/08/18 12:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	95		50 - 150				09/07/18 11:05	09/08/18 12:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	20.7		0.01		%			09/10/18 10:25	1
Percent Solids	79.3		0.01		%			09/10/18 10:25	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG26-SB08-5

Lab Sample ID: 580-79908-74

Date Collected: 08/24/18 10:15

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 91.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/07/18 11:05	09/08/18 12:21	1
Residual Range Organics (RRO) (C25-C36)	ND		27		mg/Kg	☼	09/07/18 11:05	09/08/18 12:21	1
Mineral oil	ND		27		mg/Kg	☼	09/07/18 11:05	09/08/18 12:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	95		50 - 150				09/07/18 11:05	09/08/18 12:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.7		0.01		%			09/10/18 10:25	1
Percent Solids	91.3		0.01		%			09/10/18 10:25	1

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Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG26-SB08-10

Lab Sample ID: 580-79908-76

Date Collected: 08/24/18 10:25

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 83.2

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/07/18 11:05	09/08/18 12:40	1
Residual Range Organics (RRO) (C25-C36)	ND		29		mg/Kg	☼	09/07/18 11:05	09/08/18 12:40	1
Mineral oil	ND		29		mg/Kg	☼	09/07/18 11:05	09/08/18 12:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	76		50 - 150				09/07/18 11:05	09/08/18 12:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	16.8		0.01		%			09/10/18 10:25	1
Percent Solids	83.2		0.01		%			09/10/18 10:25	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG26-SB04-5

Lab Sample ID: 580-79908-78

Date Collected: 08/24/18 10:50

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.3

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/07/18 11:05	09/08/18 13:00	1
Residual Range Organics (RRO) (C25-C36)	ND		28		mg/Kg	☼	09/07/18 11:05	09/08/18 13:00	1
Mineral oil	ND		28		mg/Kg	☼	09/07/18 11:05	09/08/18 13:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	90		50 - 150				09/07/18 11:05	09/08/18 13:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14.7		0.01		%			09/10/18 10:25	1
Percent Solids	85.3		0.01		%			09/10/18 10:25	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG26-SB04-10

Lab Sample ID: 580-79908-80

Date Collected: 08/24/18 11:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 90.6

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/07/18 11:05	09/08/18 13:19	1
Residual Range Organics (RRO) (C25-C36)	ND		27		mg/Kg	☼	09/07/18 11:05	09/08/18 13:19	1
Mineral oil	ND		27		mg/Kg	☼	09/07/18 11:05	09/08/18 13:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	89		50 - 150				09/07/18 11:05	09/08/18 13:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	9.4		0.01		%			09/10/18 10:25	1
Percent Solids	90.6		0.01		%			09/10/18 10:25	1

Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG26-SB06-5

Lab Sample ID: 580-79908-82

Date Collected: 08/24/18 13:20

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 83.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		12		mg/Kg	☼	09/07/18 11:05	09/08/18 13:39	1
Residual Range Organics (RRO) (C25-C36)	ND		30		mg/Kg	☼	09/07/18 11:05	09/08/18 13:39	1
Mineral oil	ND		30		mg/Kg	☼	09/07/18 11:05	09/08/18 13:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	97		50 - 150				09/07/18 11:05	09/08/18 13:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	16.6		0.01		%			09/10/18 10:25	1
Percent Solids	83.4		0.01		%			09/10/18 10:25	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG26-SB06-10

Lab Sample ID: 580-79908-84

Date Collected: 08/24/18 13:30

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.0

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	40		12		mg/Kg	☼	09/07/18 11:05	09/08/18 13:58	1
Residual Range Organics (RRO) (C25-C36)	80		29		mg/Kg	☼	09/07/18 11:05	09/08/18 13:58	1
Mineral oil	89		29		mg/Kg	☼	09/07/18 11:05	09/08/18 13:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	87		50 - 150				09/07/18 11:05	09/08/18 13:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15.0		0.01		%			09/10/18 10:25	1
Percent Solids	85.0		0.01		%			09/10/18 10:25	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS01-0.2

Lab Sample ID: 580-79908-85

Date Collected: 08/24/18 11:45

Matrix: Solid

Date Received: 08/24/18 16:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.7		0.1		%			09/08/18 11:35	1
Percent Moisture	7.3		0.1		%			09/08/18 11:35	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS01-0.2

Lab Sample ID: 580-79908-85

Date Collected: 08/24/18 11:45

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 92.7

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	20		2.2		mg/Kg	☼	09/07/18 10:07	09/07/18 17:11	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS02-0.2

Lab Sample ID: 580-79908-86

Date Collected: 08/24/18 11:40

Matrix: Solid

Date Received: 08/24/18 16:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.9		0.1		%			09/08/18 11:35	1
Percent Moisture	7.1		0.1		%			09/08/18 11:35	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS02-0.2

Date Collected: 08/24/18 11:40

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-86

Matrix: Solid

Percent Solids: 92.9

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	17		2.4		mg/Kg	☼	09/07/18 10:07	09/07/18 17:37	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS03-0.2

Lab Sample ID: 580-79908-87

Date Collected: 08/24/18 11:50

Matrix: Solid

Date Received: 08/24/18 16:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.8		0.1		%			09/08/18 11:35	1
Percent Moisture	5.2		0.1		%			09/08/18 11:35	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS03-0.2

Date Collected: 08/24/18 11:50

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-87

Matrix: Solid

Percent Solids: 94.8

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.2		2.4		mg/Kg	☼	09/07/18 10:07	09/07/18 17:40	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS04-0.2

Lab Sample ID: 580-79908-88

Date Collected: 08/24/18 11:55

Matrix: Solid

Date Received: 08/24/18 16:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.8		0.1		%			09/08/18 11:35	1
Percent Moisture	4.2		0.1		%			09/08/18 11:35	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS04-0.2

Lab Sample ID: 580-79908-88

Date Collected: 08/24/18 11:55

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 95.8

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	15		2.5		mg/Kg	☒	09/07/18 10:07	09/07/18 17:43	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS05-0.2

Lab Sample ID: 580-79908-89

Date Collected: 08/24/18 12:00

Matrix: Solid

Date Received: 08/24/18 16:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	99.3		0.1		%			09/08/18 11:35	1
Percent Moisture	0.7		0.1		%			09/08/18 11:35	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS05-0.2

Lab Sample ID: 580-79908-89

Date Collected: 08/24/18 12:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 99.3

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.1		2.3		mg/Kg	☒	09/07/18 10:07	09/07/18 17:46	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS06-0.2

Lab Sample ID: 580-79908-90

Date Collected: 08/24/18 12:10

Matrix: Solid

Date Received: 08/24/18 16:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.2		0.1		%			09/08/18 11:35	1
Percent Moisture	4.8		0.1		%			09/08/18 11:35	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS06-0.2

Date Collected: 08/24/18 12:10

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-90

Matrix: Solid

Percent Solids: 95.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	16		2.6		mg/Kg	☼	09/07/18 10:07	09/07/18 17:49	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS07-0.2

Lab Sample ID: 580-79908-91

Date Collected: 08/24/18 12:15

Matrix: Solid

Date Received: 08/24/18 16:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.2		0.1		%			09/08/18 11:35	1
Percent Moisture	5.8		0.1		%			09/08/18 11:35	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS07-0.2

Date Collected: 08/24/18 12:15

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-91

Matrix: Solid

Percent Solids: 94.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	21		2.0		mg/Kg	☼	09/07/18 10:07	09/07/18 17:52	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS08-0.2

Lab Sample ID: 580-79908-92

Date Collected: 08/24/18 07:00

Matrix: Solid

Date Received: 08/24/18 16:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.3		0.1		%			09/08/18 11:35	1
Percent Moisture	7.7		0.1		%			09/08/18 11:35	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS08-0.2

Date Collected: 08/24/18 07:00

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-92

Matrix: Solid

Percent Solids: 92.3

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.5		2.7		mg/Kg	☼	09/07/18 10:07	09/07/18 17:55	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS09-0.2

Lab Sample ID: 580-79908-93

Date Collected: 08/24/18 12:20

Matrix: Solid

Date Received: 08/24/18 16:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	73.8		0.1		%			09/08/18 11:35	1
Percent Moisture	26.2		0.1		%			09/08/18 11:35	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS09-0.2

Date Collected: 08/24/18 12:20

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-93

Matrix: Solid

Percent Solids: 73.8

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	28		2.4		mg/Kg	☼	09/07/18 10:07	09/07/18 17:58	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS10-0.2

Lab Sample ID: 580-79908-94

Date Collected: 08/24/18 12:25

Matrix: Solid

Date Received: 08/24/18 16:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.9		0.1		%			09/08/18 11:35	1
Percent Moisture	4.1		0.1		%			09/08/18 11:35	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS10-0.2

Lab Sample ID: 580-79908-94

Date Collected: 08/24/18 12:25

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 95.9

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.9		2.3		mg/Kg	☼	09/07/18 10:07	09/07/18 18:01	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS11-0.2

Lab Sample ID: 580-79908-95

Date Collected: 08/24/18 12:30

Matrix: Solid

Date Received: 08/24/18 16:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.9		0.1		%			09/08/18 11:35	1
Percent Moisture	7.1		0.1		%			09/08/18 11:35	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS11-0.2

Lab Sample ID: 580-79908-95

Date Collected: 08/24/18 12:30

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 92.8

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	21		2.4		mg/Kg	☒	09/07/18 10:07	09/07/18 18:10	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS12-0.2

Lab Sample ID: 580-79908-96

Date Collected: 08/24/18 12:35

Matrix: Solid

Date Received: 08/24/18 16:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.2		0.1		%			09/08/18 11:35	1
Percent Moisture	10.8		0.1		%			09/08/18 11:35	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS12-0.2

Lab Sample ID: 580-79908-96

Date Collected: 08/24/18 12:35

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 89.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	17		2.7		mg/Kg	☼	09/07/18 10:07	09/07/18 18:14	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS13-0.2

Lab Sample ID: 580-79908-97

Date Collected: 08/24/18 12:40

Matrix: Solid

Date Received: 08/24/18 16:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.3		0.1		%			09/08/18 11:35	1
Percent Moisture	9.7		0.1		%			09/08/18 11:35	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS13-0.2

Date Collected: 08/24/18 12:40

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-97

Matrix: Solid

Percent Solids: 90.3

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	20		2.4		mg/Kg	☼	09/07/18 10:07	09/07/18 18:17	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS14-0.2

Lab Sample ID: 580-79908-98

Date Collected: 08/24/18 12:45

Matrix: Solid

Date Received: 08/24/18 16:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	93.1		0.1		%			09/08/18 11:35	1
Percent Moisture	6.9		0.1		%			09/08/18 11:35	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS14-0.2

Lab Sample ID: 580-79908-98

Date Collected: 08/24/18 12:45

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 93.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.1		2.5		mg/Kg	☼	09/07/18 10:07	09/07/18 18:20	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS15-0.2

Lab Sample ID: 580-79908-99

Date Collected: 08/24/18 12:50

Matrix: Solid

Date Received: 08/24/18 16:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.2		0.1		%			09/08/18 11:35	1
Percent Moisture	7.8		0.1		%			09/08/18 11:35	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS15-0.2

Date Collected: 08/24/18 12:50

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-99

Matrix: Solid

Percent Solids: 92.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	25		2.3		mg/Kg	☒	09/07/18 10:07	09/07/18 18:23	1

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Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: RNS-27
Date Collected: 08/24/18 13:10
Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-100
Matrix: Water

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.060		mg/L		08/31/18 17:01	09/04/18 18:46	1

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Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG04-SB06-5.0

Lab Sample ID: 580-79908-102

Date Collected: 08/22/18 09:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 91.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/05/18 16:47	09/07/18 20:04	1
Residual Range Organics (RRO) (C25-C36)	ND		27		mg/Kg	☼	09/05/18 16:47	09/07/18 20:04	1
Mineral oil	ND		27		mg/Kg	☼	09/05/18 16:47	09/07/18 20:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	100		50 - 150				09/05/18 16:47	09/07/18 20:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.6		0.01		%			09/10/18 10:04	1
Percent Solids	91.4		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG04-SB06-10.0

Lab Sample ID: 580-79908-104

Date Collected: 08/22/18 09:32

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.7

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	11		11		mg/Kg	☼	09/05/18 16:47	09/07/18 20:23	1
Residual Range Organics (RRO) (C25-C36)	ND		28		mg/Kg	☼	09/05/18 16:47	09/07/18 20:23	1
Mineral oil	ND		28		mg/Kg	☼	09/05/18 16:47	09/07/18 20:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	103		50 - 150				09/05/18 16:47	09/07/18 20:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14.3		0.01		%			09/10/18 10:04	1
Percent Solids	85.7		0.01		%			09/10/18 10:04	1

Client Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG03-SB11-5.0

Lab Sample ID: 580-79908-106

Date Collected: 08/22/18 10:42

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 83.4

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	48		12		mg/Kg	☼	09/05/18 16:47	09/07/18 20:43	1
Residual Range Organics (RRO) (C25-C36)	39		30		mg/Kg	☼	09/05/18 16:47	09/07/18 20:43	1
Mineral oil	61		30		mg/Kg	☼	09/05/18 16:47	09/07/18 20:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	102		50 - 150				09/05/18 16:47	09/07/18 20:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	16.6		0.01		%			09/10/18 10:04	1
Percent Solids	83.4		0.01		%			09/10/18 10:04	1

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Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG03-SB11-10.0

Lab Sample ID: 580-79908-108

Date Collected: 08/22/18 11:09

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 87.8

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	09/05/18 16:47	09/07/18 21:02	1
Residual Range Organics (RRO) (C25-C36)	ND		28		mg/Kg	☼	09/05/18 16:47	09/07/18 21:02	1
Mineral oil	ND		28		mg/Kg	☼	09/05/18 16:47	09/07/18 21:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	115		50 - 150				09/05/18 16:47	09/07/18 21:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	12.2		0.01		%			09/10/18 10:04	1
Percent Solids	87.8		0.01		%			09/10/18 10:04	1

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Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: RNS-23

Date Collected: 08/22/18 11:28

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-109

Matrix: Water

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		09/02/18 10:13	09/05/18 07:16	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		09/02/18 10:13	09/05/18 07:16	1
Mineral oil	ND		0.35		mg/L		09/02/18 10:13	09/05/18 07:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	73		50 - 150				09/02/18 10:13	09/05/18 07:16	1

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Client Sample Results

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: RNS-26

Lab Sample ID: 580-79908-112

Date Collected: 08/24/18 13:45

Matrix: Water

Date Received: 08/24/18 16:05

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12		mg/L		09/02/18 10:13	09/05/18 07:44	1
Motor Oil (>C24-C36)	ND		0.38		mg/L		09/02/18 10:13	09/05/18 07:44	1
Mineral oil	ND		0.38		mg/L		09/02/18 10:13	09/05/18 07:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	79		50 - 150				09/02/18 10:13	09/05/18 07:44	1

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- 11
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QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 590-18771/1-A
Matrix: Solid
Analysis Batch: 18766

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18771

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.010		mg/Kg		09/10/18 11:47	09/10/18 13:25	1
PCB-1221	ND		0.010		mg/Kg		09/10/18 11:47	09/10/18 13:25	1
PCB-1232	ND		0.010		mg/Kg		09/10/18 11:47	09/10/18 13:25	1
PCB-1242	ND		0.010		mg/Kg		09/10/18 11:47	09/10/18 13:25	1
PCB-1248	ND		0.010		mg/Kg		09/10/18 11:47	09/10/18 13:25	1
PCB-1254	ND		0.010		mg/Kg		09/10/18 11:47	09/10/18 13:25	1
PCB-1260	ND		0.010		mg/Kg		09/10/18 11:47	09/10/18 13:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene (Surr)	84		31 - 127	09/10/18 11:47	09/10/18 13:25	1
DCB Decachlorobiphenyl (Surr)	91		20 - 150	09/10/18 11:47	09/10/18 13:25	1

Lab Sample ID: LCS 590-18771/2-A
Matrix: Solid
Analysis Batch: 18766

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18771

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	0.0667	0.0580		mg/Kg		87	58 - 150
PCB-1260	0.0667	0.0591		mg/Kg		89	52 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene (Surr)	93		31 - 127
DCB Decachlorobiphenyl (Surr)	98		20 - 150

Lab Sample ID: 580-79908-1 MS
Matrix: Solid
Analysis Batch: 18766

Client Sample ID: FOCB-SB05-5
Prep Type: Total/NA
Prep Batch: 18771

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	ND		0.0752	0.0537		mg/Kg	☼	71	50.6 - 145
PCB-1260	ND	F1	0.0752	0.104	F1	mg/Kg	☼	138	57.6 - 120

Surrogate	MS %Recovery	MS Qualifier	Limits
Tetrachloro-m-xylene (Surr)	79		31 - 127
DCB Decachlorobiphenyl (Surr)	83		20 - 150

Lab Sample ID: 580-79908-1 MSD
Matrix: Solid
Analysis Batch: 18766

Client Sample ID: FOCB-SB05-5
Prep Type: Total/NA
Prep Batch: 18771

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
PCB-1016	ND		0.0744	0.0602		mg/Kg	☼	81	50.6 - 145	11	40
PCB-1260	ND	F1	0.0744	0.115	F1	mg/Kg	☼	155	57.6 - 120	10	27.4

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Tetrachloro-m-xylene (Surr)	84		31 - 127
DCB Decachlorobiphenyl (Surr)	92		20 - 150

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Lab Sample ID: MB 580-283989/1-A
Matrix: Water
Analysis Batch: 284114

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 283989

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.45		ug/L		09/14/18 11:43	09/17/18 14:28	1
PCB-1221	ND		0.45		ug/L		09/14/18 11:43	09/17/18 14:28	1
PCB-1232	ND		0.45		ug/L		09/14/18 11:43	09/17/18 14:28	1
PCB-1242	ND		0.45		ug/L		09/14/18 11:43	09/17/18 14:28	1
PCB-1248	ND		0.45		ug/L		09/14/18 11:43	09/17/18 14:28	1
PCB-1254	ND		0.45		ug/L		09/14/18 11:43	09/17/18 14:28	1
PCB-1260	ND		0.45		ug/L		09/14/18 11:43	09/17/18 14:28	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	116		38 - 140	09/14/18 11:43	09/17/18 14:28	1
Tetrachloro-m-xylene	89		40 - 120	09/14/18 11:43	09/17/18 14:28	1

Lab Sample ID: LCS 580-283989/2-A
Matrix: Water
Analysis Batch: 284114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 283989

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	1.00	0.825		ug/L		83	50 - 121
PCB-1260	1.00	0.948		ug/L		95	55 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	93		38 - 140
Tetrachloro-m-xylene	70		40 - 120

Lab Sample ID: LCSD 580-283989/3-A
Matrix: Water
Analysis Batch: 284114

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 283989

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	1.00	0.940		ug/L		94	50 - 121	13	25
PCB-1260	1.00	1.08		ug/L		108	55 - 132	13	22

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl	97		38 - 140
Tetrachloro-m-xylene	79		40 - 120

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 590-18685/1-A
Matrix: Solid
Analysis Batch: 18725

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18685

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		10		mg/Kg		09/05/18 16:47	09/07/18 12:10	1
Residual Range Organics (RRO) (C25-C36)	ND		25		mg/Kg		09/05/18 16:47	09/07/18 12:10	1
Mineral oil	ND		25		mg/Kg		09/05/18 16:47	09/07/18 12:10	1

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 590-18685/1-A
Matrix: Solid
Analysis Batch: 18725

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18685

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>o</i> -Terphenyl	97		50 - 150	09/05/18 16:47	09/07/18 12:10	1

Lab Sample ID: LCS 590-18685/2-A
Matrix: Solid
Analysis Batch: 18725

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18685

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
Diesel Range Organics (DRO) (C10-C25)	66.7	52.5		mg/Kg		79	50 - 150	
Residual Range Organics (RRO) (C25-C36)	66.7	59.3		mg/Kg		89	50 - 150	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	99		50 - 150

Lab Sample ID: 580-79908-1 DU
Matrix: Solid
Analysis Batch: 18725

Client Sample ID: FOCB-SB05-5
Prep Type: Total/NA
Prep Batch: 18685

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Diesel Range Organics (DRO) (C10-C25)	ND		ND		mg/Kg	☼	NC	40
Residual Range Organics (RRO) (C25-C36)	ND		ND		mg/Kg	☼	2	40
Mineral oil	ND		ND		mg/Kg	☼	0	40

Surrogate	DU DU		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	92		50 - 150

Lab Sample ID: 580-79908-3 DU
Matrix: Solid
Analysis Batch: 18725

Client Sample ID: FOCB-SB05-9.5
Prep Type: Total/NA
Prep Batch: 18685

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Diesel Range Organics (DRO) (C10-C25)	ND		ND		mg/Kg	☼	NC	40
Residual Range Organics (RRO) (C25-C36)	ND		ND		mg/Kg	☼	NC	40
Mineral oil	ND		ND		mg/Kg	☼	NC	40

Surrogate	DU DU		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	98		50 - 150

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 590-18697/1-A
Matrix: Solid
Analysis Batch: 18725

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18697

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		10		mg/Kg		09/06/18 09:47	09/07/18 21:22	1
Residual Range Organics (RRO) (C25-C36)	ND		25		mg/Kg		09/06/18 09:47	09/07/18 21:22	1
Mineral oil	ND		25		mg/Kg		09/06/18 09:47	09/07/18 21:22	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	106		50 - 150				09/06/18 09:47	09/07/18 21:22	1

Lab Sample ID: LCS 590-18697/2-A
Matrix: Solid
Analysis Batch: 18725

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics (DRO) (C10-C25)	66.7	54.6		mg/Kg		82	50 - 150
Residual Range Organics (RRO) (C25-C36)	66.7	62.1		mg/Kg		93	50 - 150
Surrogate	%Recovery	LCS Qualifier	Limits				
<i>o</i> -Terphenyl	108		50 - 150				

Lab Sample ID: 580-79908-33 DU
Matrix: Solid
Analysis Batch: 18725

Client Sample ID: WY-SG03-SB07-5
Prep Type: Total/NA
Prep Batch: 18697

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)	ND		ND		mg/Kg	☼	NC	40
Residual Range Organics (RRO) (C25-C36)	ND		ND		mg/Kg	☼	NC	40
Mineral oil	ND		ND		mg/Kg	☼	NC	40
Surrogate	%Recovery	DU Qualifier	Limits					
<i>o</i> -Terphenyl	91		50 - 150					

Lab Sample ID: 580-79908-45 DU
Matrix: Solid
Analysis Batch: 18725

Client Sample ID: EY-SG05-SB06-1.5
Prep Type: Total/NA
Prep Batch: 18697

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)	46		50.1		mg/Kg	☼	8	40
Residual Range Organics (RRO) (C25-C36)	32		36.9		mg/Kg	☼	13	40
Mineral oil	49		55.2		mg/Kg	☼	11	40
Surrogate	%Recovery	DU Qualifier	Limits					
<i>o</i> -Terphenyl	90		50 - 150					

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Lab Sample ID: MB 590-18736/1-A
Matrix: Solid
Analysis Batch: 18725

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18736

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		10		mg/Kg		09/07/18 11:05	09/08/18 11:23	1
Residual Range Organics (RRO) (C25-C36)	ND		25		mg/Kg		09/07/18 11:05	09/08/18 11:23	1
Mineral oil	ND		25		mg/Kg		09/07/18 11:05	09/08/18 11:23	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	90		50 - 150				09/07/18 11:05	09/08/18 11:23	1

Lab Sample ID: LCS 590-18736/2-A
Matrix: Solid
Analysis Batch: 18725

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18736

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics (DRO) (C10-C25)	66.7	53.7		mg/Kg		80	50 - 150
Residual Range Organics (RRO) (C25-C36)	66.7	61.2		mg/Kg		92	50 - 150
Surrogate	%Recovery	LCS Qualifier	Limits				
<i>o</i> -Terphenyl	92		50 - 150				

Lab Sample ID: LCSD 590-18736/21-A
Matrix: Solid
Analysis Batch: 18725

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 18736

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)	66.7	51.6		mg/Kg		77	50 - 150	4	25
Residual Range Organics (RRO) (C25-C36)	66.7	61.3		mg/Kg		92	50 - 150	0	25
Surrogate	%Recovery	LCSD Qualifier	Limits						
<i>o</i> -Terphenyl	94		50 - 150						

Lab Sample ID: 580-79908-70 DU
Matrix: Solid
Analysis Batch: 18725

Client Sample ID: EY-SG26-SB07-5
Prep Type: Total/NA
Prep Batch: 18736

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)	ND		ND		mg/Kg	☼	NC	40
Residual Range Organics (RRO) (C25-C36)	ND		ND		mg/Kg	☼	13	40
Mineral oil	ND		ND		mg/Kg	☼	10	40
Surrogate	%Recovery	DU Qualifier	Limits					
<i>o</i> -Terphenyl	86		50 - 150					

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-283077/1-A
Matrix: Water
Analysis Batch: 283112

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 283077

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		09/02/18 10:13	09/05/18 03:07	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		09/02/18 10:13	09/05/18 03:07	1
Mineral oil	ND		0.35		mg/L		09/02/18 10:13	09/05/18 03:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	82		50 - 150	09/02/18 10:13	09/05/18 03:07	1

Lab Sample ID: LCS 580-283077/2-A
Matrix: Water
Analysis Batch: 283112

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 283077

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	2.00	1.57		mg/L		79	50 - 120
Motor Oil (>C24-C36)	2.00	1.67		mg/L		84	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	96		50 - 150

Lab Sample ID: LCSD 580-283077/3-A
Matrix: Water
Analysis Batch: 283112

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 283077

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.50		mg/L		75	50 - 120	5	26
Motor Oil (>C24-C36)	2.00	1.60		mg/L		80	64 - 120	5	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	87		50 - 150

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 580-283445/22-A
Matrix: Solid
Analysis Batch: 283595

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 283445

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		3.0		mg/Kg		09/07/18 10:07	09/07/18 17:02	1

Lab Sample ID: LCS 580-283445/23-A
Matrix: Solid
Analysis Batch: 283595

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 283445

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	200	204		mg/Kg		102	80 - 120

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCSD 580-283445/24-A
Matrix: Solid
Analysis Batch: 283595

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 283445

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Arsenic	200	202		mg/Kg		101	80 - 120	1	20

Lab Sample ID: 580-79908-85 MS
Matrix: Solid
Analysis Batch: 283595

Client Sample ID: SS01-0.2
Prep Type: Total/NA
Prep Batch: 283445

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Arsenic	20		151	167		mg/Kg	☼	97	80 - 120

Lab Sample ID: 580-79908-85 MSD
Matrix: Solid
Analysis Batch: 283595

Client Sample ID: SS01-0.2
Prep Type: Total/NA
Prep Batch: 283445

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Arsenic	20		150	164		mg/Kg	☼	96	80 - 120	2	20

Lab Sample ID: 580-79908-85 DU
Matrix: Solid
Analysis Batch: 283595

Client Sample ID: SS01-0.2
Prep Type: Total/NA
Prep Batch: 283445

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	20		21.4		mg/Kg	☼	6	20

Lab Sample ID: MB 580-283028/22-A
Matrix: Water
Analysis Batch: 283208

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 283028

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.060		mg/L		08/31/18 17:01	09/04/18 18:04	1

Lab Sample ID: LCS 580-283028/23-A
Matrix: Water
Analysis Batch: 283208

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 283028

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	4.00	3.57		mg/L		89	80 - 120

Lab Sample ID: LCSD 580-283028/24-A
Matrix: Water
Analysis Batch: 283208

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 283028

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Arsenic	4.00	3.85		mg/L		96	80 - 120	8	20

TestAmerica Seattle

QC Sample Results

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Method: D 2216 - Percent Moisture

Lab Sample ID: 580-79908-96 DU
Matrix: Solid
Analysis Batch: 283542

Client Sample ID: SS12-0.2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU		Unit	D	RPD	RPD Limit
			Result	Qualifier				
Percent Solids	89.2		89.3		%		0.2	20
Percent Moisture	10.8		10.7		%		2	20

Method: Moisture - Percent Moisture

Lab Sample ID: 580-79908-1 DU
Matrix: Solid
Analysis Batch: 18767

Client Sample ID: FOCB-SB05-5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU		Unit	D	RPD	RPD Limit
			Result	Qualifier				
Percent Moisture	11.8		13.5		%		13	20
Percent Solids	88.2		86.5		%		2	20

Lab Sample ID: 580-79908-3 DU
Matrix: Solid
Analysis Batch: 18767

Client Sample ID: FOCB-SB05-9.5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU		Unit	D	RPD	RPD Limit
			Result	Qualifier				
Percent Moisture	8.3		7.9		%		5	20
Percent Solids	91.7		92.1		%		0.5	20

Lab Sample ID: 580-79908-70 DU
Matrix: Solid
Analysis Batch: 18768

Client Sample ID: EY-SG26-SB07-5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU		Unit	D	RPD	RPD Limit
			Result	Qualifier				
Percent Moisture	15.4		15.5		%		0.5	20
Percent Solids	84.6		84.5		%		0.1	20

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: FOCB-SB05-5

Date Collected: 08/22/18 08:40

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: FOCB-SB05-5

Date Collected: 08/22/18 08:40

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-1

Matrix: Solid

Percent Solids: 88.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18771	09/10/18 11:47	NMI	TAL SPK
Total/NA	Analysis	8082A		1	18766	09/10/18 14:48	NMI	TAL SPK
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 13:10	NMI	TAL SPK

Client Sample ID: FOCB-SB05-9.5

Date Collected: 08/22/18 08:55

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: FOCB-SB05-9.5

Date Collected: 08/22/18 08:55

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-3

Matrix: Solid

Percent Solids: 91.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18771	09/10/18 11:47	NMI	TAL SPK
Total/NA	Analysis	8082A		1	18766	09/10/18 15:08	NMI	TAL SPK
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 13:50	NMI	TAL SPK

Client Sample ID: FOCB-SB09-5

Date Collected: 08/22/18 09:20

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: FOCB-SB09-5

Date Collected: 08/22/18 09:20

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-5

Matrix: Solid

Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18771	09/10/18 11:47	NMI	TAL SPK

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: FOCB-SB09-5

Lab Sample ID: 580-79908-5

Date Collected: 08/22/18 09:20

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8082A		1	18766	09/10/18 15:29	NMI	TAL SPK
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 14:10	NMI	TAL SPK

Client Sample ID: FOCB-SB09-9.5

Lab Sample ID: 580-79908-7

Date Collected: 08/22/18 09:35

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: FOCB-SB09-9.5

Lab Sample ID: 580-79908-7

Date Collected: 08/22/18 09:35

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 93.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18771	09/10/18 11:47	NMI	TAL SPK
Total/NA	Analysis	8082A		1	18766	09/10/18 15:49	NMI	TAL SPK
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 14:30	NMI	TAL SPK

Client Sample ID: WY-SG02-SB06-5

Lab Sample ID: 580-79908-8

Date Collected: 08/22/18 10:20

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: WY-SG02-SB06-5

Lab Sample ID: 580-79908-8

Date Collected: 08/22/18 10:20

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 14:50	NMI	TAL SPK

Client Sample ID: WY-SG02-SB06-9

Lab Sample ID: 580-79908-10

Date Collected: 08/22/18 10:35

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG02-SB06-9

Lab Sample ID: 580-79908-10

Date Collected: 08/22/18 10:35

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 93.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 15:10	NMI	TAL SPK

Client Sample ID: WY-SG02-SB07-5

Lab Sample ID: 580-79908-12

Date Collected: 08/22/18 11:30

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: WY-SG02-SB07-5

Lab Sample ID: 580-79908-12

Date Collected: 08/22/18 11:30

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 16:10	NMI	TAL SPK

Client Sample ID: WY-SG02-SB07-9.5

Lab Sample ID: 580-79908-14

Date Collected: 08/22/18 11:40

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: WY-SG02-SB07-9.5

Lab Sample ID: 580-79908-14

Date Collected: 08/22/18 11:40

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 90.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 16:30	NMI	TAL SPK

Client Sample ID: WY-SG02-SB05-5

Lab Sample ID: 580-79908-16

Date Collected: 08/22/18 13:00

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG02-SB05-5

Lab Sample ID: 580-79908-16

Date Collected: 08/22/18 13:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 84.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 16:49	NMI	TAL SPK

Client Sample ID: WY-SG02-SB05-10

Lab Sample ID: 580-79908-18

Date Collected: 08/22/18 13:10

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: WY-SG02-SB05-10

Lab Sample ID: 580-79908-18

Date Collected: 08/22/18 13:10

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 92.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 17:09	NMI	TAL SPK

Client Sample ID: WY-SG02-SB09-5

Lab Sample ID: 580-79908-20

Date Collected: 08/22/18 13:35

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: WY-SG02-SB09-5

Lab Sample ID: 580-79908-20

Date Collected: 08/22/18 13:35

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 84.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 17:28	NMI	TAL SPK

Client Sample ID: WY-SG02-SB09-9

Lab Sample ID: 580-79908-22

Date Collected: 08/22/18 13:50

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG02-SB09-9

Lab Sample ID: 580-79908-22

Date Collected: 08/22/18 13:50

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 92.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 17:48	NMI	TAL SPK

Client Sample ID: WY-SG02-SB08-5

Lab Sample ID: 580-79908-24

Date Collected: 08/22/18 14:25

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: WY-SG02-SB08-5

Lab Sample ID: 580-79908-24

Date Collected: 08/22/18 14:25

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 86.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 18:07	NMI	TAL SPK

Client Sample ID: WY-SG02-SB08-9.5

Lab Sample ID: 580-79908-26

Date Collected: 08/22/18 14:35

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: WY-SG02-SB08-9.5

Lab Sample ID: 580-79908-26

Date Collected: 08/22/18 14:35

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 94.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 18:27	NMI	TAL SPK

Client Sample ID: RNS-24

Lab Sample ID: 580-79908-27

Date Collected: 08/22/18 15:00

Matrix: Water

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			283989	09/14/18 11:43	KS	TAL SEA
Total/NA	Analysis	8082A		1	284114	09/17/18 16:58	CJB	TAL SEA
Total/NA	Prep	3510C			283077	09/02/18 10:13	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283112	09/05/18 05:53	AEK	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG03-SB05-5

Lab Sample ID: 580-79908-29

Date Collected: 08/22/18 15:25

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: WY-SG03-SB05-5

Lab Sample ID: 580-79908-29

Date Collected: 08/22/18 15:25

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 93.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 18:46	NMI	TAL SPK

Client Sample ID: WY-SG03-SB05-10

Lab Sample ID: 580-79908-31

Date Collected: 08/22/18 15:35

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: WY-SG03-SB05-10

Lab Sample ID: 580-79908-31

Date Collected: 08/22/18 15:35

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 94.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 19:06	NMI	TAL SPK

Client Sample ID: WY-SG03-SB07-5

Lab Sample ID: 580-79908-33

Date Collected: 08/23/18 08:00

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: WY-SG03-SB07-5

Lab Sample ID: 580-79908-33

Date Collected: 08/23/18 08:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 89.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 22:00	NMI	TAL SPK

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: WY-SG03-SB07-10

Lab Sample ID: 580-79908-35

Date Collected: 08/23/18 08:10

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: WY-SG03-SB07-10

Lab Sample ID: 580-79908-35

Date Collected: 08/23/18 08:10

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 90.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 22:39	NMI	TAL SPK

Client Sample ID: WY-SG03-SB06-5

Lab Sample ID: 580-79908-37

Date Collected: 08/23/18 08:50

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: WY-SG03-SB06-5

Lab Sample ID: 580-79908-37

Date Collected: 08/23/18 08:50

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 92.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 22:58	NMI	TAL SPK

Client Sample ID: WY-SG03-SB06-10

Lab Sample ID: 580-79908-39

Date Collected: 08/23/18 09:00

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: WY-SG03-SB06-10

Lab Sample ID: 580-79908-39

Date Collected: 08/23/18 09:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 94.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 23:55	NMI	TAL SPK

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG03-SB06-2

Lab Sample ID: 580-79908-40

Date Collected: 08/23/18 09:40

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG03-SB06-2

Lab Sample ID: 580-79908-40

Date Collected: 08/23/18 09:40

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 91.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 00:15	NMI	TAL SPK

Client Sample ID: EY-SG16-SB06-5

Lab Sample ID: 580-79908-42

Date Collected: 08/23/18 10:10

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG16-SB06-5

Lab Sample ID: 580-79908-42

Date Collected: 08/23/18 10:10

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 00:34	NMI	TAL SPK

Client Sample ID: EY-SG16-SB06-9.75

Lab Sample ID: 580-79908-44

Date Collected: 08/23/18 10:25

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG16-SB06-9.75

Lab Sample ID: 580-79908-44

Date Collected: 08/23/18 10:25

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 94.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 00:53	NMI	TAL SPK

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG05-SB06-1.5

Lab Sample ID: 580-79908-45

Date Collected: 08/23/18 10:50

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG05-SB06-1.5

Lab Sample ID: 580-79908-45

Date Collected: 08/23/18 10:50

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 95.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 01:13	NMI	TAL SPK

Client Sample ID: EY-SG05-SB10-1.5

Lab Sample ID: 580-79908-46

Date Collected: 08/23/18 11:20

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG05-SB10-1.5

Lab Sample ID: 580-79908-46

Date Collected: 08/23/18 11:20

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 92.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 01:51	NMI	TAL SPK

Client Sample ID: SMP-01-082318

Lab Sample ID: 580-79908-47

Date Collected: 08/23/18 12:15

Matrix: Water

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			283077	09/02/18 10:13	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283112	09/05/18 06:21	AEK	TAL SEA
Total/NA	Prep	3510C			283077	09/02/18 10:13	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		5	283216	09/05/18 14:16	CJ	TAL SEA

Client Sample ID: EY-SG26-SB05-5

Lab Sample ID: 580-79908-49

Date Collected: 08/23/18 13:10

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG26-SB05-5

Lab Sample ID: 580-79908-49

Date Collected: 08/23/18 13:10

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 86.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 02:10	NMI	TAL SPK

Client Sample ID: EY-SG26-SB05-10

Lab Sample ID: 580-79908-51

Date Collected: 08/23/18 13:20

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG26-SB05-10

Lab Sample ID: 580-79908-51

Date Collected: 08/23/18 13:20

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 89.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 02:29	NMI	TAL SPK

Client Sample ID: EY-SG16-SB08-2.5

Lab Sample ID: 580-79908-52

Date Collected: 08/23/18 14:00

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG16-SB08-2.5

Lab Sample ID: 580-79908-52

Date Collected: 08/23/18 14:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 86.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 02:49	NMI	TAL SPK

Client Sample ID: EY-SG16-SB08-5

Lab Sample ID: 580-79908-53

Date Collected: 08/23/18 14:05

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG16-SB08-5

Lab Sample ID: 580-79908-53

Date Collected: 08/23/18 14:05

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 86.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 03:46	NMI	TAL SPK

Client Sample ID: EY-SG16-SB08-9.5

Lab Sample ID: 580-79908-55

Date Collected: 08/23/18 14:15

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG16-SB08-9.5

Lab Sample ID: 580-79908-55

Date Collected: 08/23/18 14:15

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 91.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 04:06	NMI	TAL SPK

Client Sample ID: RNS-25

Lab Sample ID: 580-79908-56

Date Collected: 08/23/18 15:30

Matrix: Water

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			283077	09/02/18 10:13	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283112	09/05/18 06:48	AEK	TAL SEA

Client Sample ID: EY-SG16-SB05-5

Lab Sample ID: 580-79908-58

Date Collected: 08/23/18 15:00

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG16-SB05-5

Lab Sample ID: 580-79908-58

Date Collected: 08/23/18 15:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 87.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 04:25	NMI	TAL SPK

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG16-SB05-9.5

Lab Sample ID: 580-79908-60

Date Collected: 08/23/18 15:15

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG16-SB05-9.5

Lab Sample ID: 580-79908-60

Date Collected: 08/23/18 15:15

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 93.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 04:44	NMI	TAL SPK

Client Sample ID: EY-SG16-SB04-5

Lab Sample ID: 580-79908-62

Date Collected: 08/24/18 07:55

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG16-SB04-5

Lab Sample ID: 580-79908-62

Date Collected: 08/24/18 07:55

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 05:04	NMI	TAL SPK

Client Sample ID: EY-SG16-SB04-10

Lab Sample ID: 580-79908-64

Date Collected: 08/24/18 08:10

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG16-SB04-10

Lab Sample ID: 580-79908-64

Date Collected: 08/24/18 08:10

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 93.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 05:23	NMI	TAL SPK

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG16-SB07-5

Lab Sample ID: 580-79908-66

Date Collected: 08/24/18 08:50

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG16-SB07-5

Lab Sample ID: 580-79908-66

Date Collected: 08/24/18 08:50

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 90.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 09:25	NMI	TAL SPK

Client Sample ID: EY-SG16-SB07-10

Lab Sample ID: 580-79908-68

Date Collected: 08/24/18 09:00

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG16-SB07-10

Lab Sample ID: 580-79908-68

Date Collected: 08/24/18 09:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 93.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18697	09/06/18 09:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 09:44	NMI	TAL SPK

Client Sample ID: EY-SG26-SB07-5

Lab Sample ID: 580-79908-70

Date Collected: 08/24/18 09:38

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18768	09/10/18 10:25	NMI	TAL SPK

Client Sample ID: EY-SG26-SB07-5

Lab Sample ID: 580-79908-70

Date Collected: 08/24/18 09:38

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 84.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18736	09/07/18 11:05	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 10:24	NMI	TAL SPK

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG26-SB07-10

Lab Sample ID: 580-79908-72

Date Collected: 08/24/18 09:45

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18768	09/10/18 10:25	NMI	TAL SPK

Client Sample ID: EY-SG26-SB07-10

Lab Sample ID: 580-79908-72

Date Collected: 08/24/18 09:45

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 79.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18736	09/07/18 11:05	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 12:02	NMI	TAL SPK

Client Sample ID: EY-SG26-SB08-5

Lab Sample ID: 580-79908-74

Date Collected: 08/24/18 10:15

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18768	09/10/18 10:25	NMI	TAL SPK

Client Sample ID: EY-SG26-SB08-5

Lab Sample ID: 580-79908-74

Date Collected: 08/24/18 10:15

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 91.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18736	09/07/18 11:05	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 12:21	NMI	TAL SPK

Client Sample ID: EY-SG26-SB08-10

Lab Sample ID: 580-79908-76

Date Collected: 08/24/18 10:25

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18768	09/10/18 10:25	NMI	TAL SPK

Client Sample ID: EY-SG26-SB08-10

Lab Sample ID: 580-79908-76

Date Collected: 08/24/18 10:25

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 83.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18736	09/07/18 11:05	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 12:40	NMI	TAL SPK

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG26-SB04-5

Lab Sample ID: 580-79908-78

Date Collected: 08/24/18 10:50

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18768	09/10/18 10:25	NMI	TAL SPK

Client Sample ID: EY-SG26-SB04-5

Lab Sample ID: 580-79908-78

Date Collected: 08/24/18 10:50

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18736	09/07/18 11:05	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 13:00	NMI	TAL SPK

Client Sample ID: EY-SG26-SB04-10

Lab Sample ID: 580-79908-80

Date Collected: 08/24/18 11:00

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18768	09/10/18 10:25	NMI	TAL SPK

Client Sample ID: EY-SG26-SB04-10

Lab Sample ID: 580-79908-80

Date Collected: 08/24/18 11:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 90.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18736	09/07/18 11:05	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 13:19	NMI	TAL SPK

Client Sample ID: EY-SG26-SB06-5

Lab Sample ID: 580-79908-82

Date Collected: 08/24/18 13:20

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18768	09/10/18 10:25	NMI	TAL SPK

Client Sample ID: EY-SG26-SB06-5

Lab Sample ID: 580-79908-82

Date Collected: 08/24/18 13:20

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 83.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18736	09/07/18 11:05	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 13:39	NMI	TAL SPK

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG26-SB06-10

Lab Sample ID: 580-79908-84

Date Collected: 08/24/18 13:30

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18768	09/10/18 10:25	NMI	TAL SPK

Client Sample ID: EY-SG26-SB06-10

Lab Sample ID: 580-79908-84

Date Collected: 08/24/18 13:30

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18736	09/07/18 11:05	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/08/18 13:58	NMI	TAL SPK

Client Sample ID: SS01-0.2

Lab Sample ID: 580-79908-85

Date Collected: 08/24/18 11:45

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	283542	09/08/18 11:35	KMS	TAL SEA

Client Sample ID: SS01-0.2

Lab Sample ID: 580-79908-85

Date Collected: 08/24/18 11:45

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 92.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			283445	09/07/18 10:07	T1H	TAL SEA
Total/NA	Analysis	6010C		1	283595	09/07/18 17:11	HJM	TAL SEA

Client Sample ID: SS02-0.2

Lab Sample ID: 580-79908-86

Date Collected: 08/24/18 11:40

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	283542	09/08/18 11:35	KMS	TAL SEA

Client Sample ID: SS02-0.2

Lab Sample ID: 580-79908-86

Date Collected: 08/24/18 11:40

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 92.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			283445	09/07/18 10:07	T1H	TAL SEA
Total/NA	Analysis	6010C		1	283595	09/07/18 17:37	HJM	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS03-0.2

Lab Sample ID: 580-79908-87

Date Collected: 08/24/18 11:50

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	283542	09/08/18 11:35	KMS	TAL SEA

Client Sample ID: SS03-0.2

Lab Sample ID: 580-79908-87

Date Collected: 08/24/18 11:50

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 94.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			283445	09/07/18 10:07	T1H	TAL SEA
Total/NA	Analysis	6010C		1	283595	09/07/18 17:40	HJM	TAL SEA

Client Sample ID: SS04-0.2

Lab Sample ID: 580-79908-88

Date Collected: 08/24/18 11:55

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	283542	09/08/18 11:35	KMS	TAL SEA

Client Sample ID: SS04-0.2

Lab Sample ID: 580-79908-88

Date Collected: 08/24/18 11:55

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 95.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			283445	09/07/18 10:07	T1H	TAL SEA
Total/NA	Analysis	6010C		1	283595	09/07/18 17:43	HJM	TAL SEA

Client Sample ID: SS05-0.2

Lab Sample ID: 580-79908-89

Date Collected: 08/24/18 12:00

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	283542	09/08/18 11:35	KMS	TAL SEA

Client Sample ID: SS05-0.2

Lab Sample ID: 580-79908-89

Date Collected: 08/24/18 12:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 99.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			283445	09/07/18 10:07	T1H	TAL SEA
Total/NA	Analysis	6010C		1	283595	09/07/18 17:46	HJM	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS06-0.2

Lab Sample ID: 580-79908-90

Date Collected: 08/24/18 12:10

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	283542	09/08/18 11:35	KMS	TAL SEA

Client Sample ID: SS06-0.2

Lab Sample ID: 580-79908-90

Date Collected: 08/24/18 12:10

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 95.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			283445	09/07/18 10:07	T1H	TAL SEA
Total/NA	Analysis	6010C		1	283595	09/07/18 17:49	HJM	TAL SEA

Client Sample ID: SS07-0.2

Lab Sample ID: 580-79908-91

Date Collected: 08/24/18 12:15

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	283542	09/08/18 11:35	KMS	TAL SEA

Client Sample ID: SS07-0.2

Lab Sample ID: 580-79908-91

Date Collected: 08/24/18 12:15

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 94.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			283445	09/07/18 10:07	T1H	TAL SEA
Total/NA	Analysis	6010C		1	283595	09/07/18 17:52	HJM	TAL SEA

Client Sample ID: SS08-0.2

Lab Sample ID: 580-79908-92

Date Collected: 08/24/18 07:00

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	283542	09/08/18 11:35	KMS	TAL SEA

Client Sample ID: SS08-0.2

Lab Sample ID: 580-79908-92

Date Collected: 08/24/18 07:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 92.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			283445	09/07/18 10:07	T1H	TAL SEA
Total/NA	Analysis	6010C		1	283595	09/07/18 17:55	HJM	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS09-0.2

Lab Sample ID: 580-79908-93

Date Collected: 08/24/18 12:20

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	283542	09/08/18 11:35	KMS	TAL SEA

Client Sample ID: SS09-0.2

Lab Sample ID: 580-79908-93

Date Collected: 08/24/18 12:20

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 73.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			283445	09/07/18 10:07	T1H	TAL SEA
Total/NA	Analysis	6010C		1	283595	09/07/18 17:58	HJM	TAL SEA

Client Sample ID: SS10-0.2

Lab Sample ID: 580-79908-94

Date Collected: 08/24/18 12:25

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	283542	09/08/18 11:35	KMS	TAL SEA

Client Sample ID: SS10-0.2

Lab Sample ID: 580-79908-94

Date Collected: 08/24/18 12:25

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 95.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			283445	09/07/18 10:07	T1H	TAL SEA
Total/NA	Analysis	6010C		1	283595	09/07/18 18:01	HJM	TAL SEA

Client Sample ID: SS11-0.2

Lab Sample ID: 580-79908-95

Date Collected: 08/24/18 12:30

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	283542	09/08/18 11:35	KMS	TAL SEA

Client Sample ID: SS11-0.2

Lab Sample ID: 580-79908-95

Date Collected: 08/24/18 12:30

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 92.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			283445	09/07/18 10:07	T1H	TAL SEA
Total/NA	Analysis	6010C		1	283595	09/07/18 18:10	HJM	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS12-0.2

Date Collected: 08/24/18 12:35

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-96

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	283542	09/08/18 11:35	KMS	TAL SEA

Client Sample ID: SS12-0.2

Date Collected: 08/24/18 12:35

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-96

Matrix: Solid

Percent Solids: 89.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			283445	09/07/18 10:07	T1H	TAL SEA
Total/NA	Analysis	6010C		1	283595	09/07/18 18:14	HJM	TAL SEA

Client Sample ID: SS13-0.2

Date Collected: 08/24/18 12:40

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-97

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	283542	09/08/18 11:35	KMS	TAL SEA

Client Sample ID: SS13-0.2

Date Collected: 08/24/18 12:40

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-97

Matrix: Solid

Percent Solids: 90.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			283445	09/07/18 10:07	T1H	TAL SEA
Total/NA	Analysis	6010C		1	283595	09/07/18 18:17	HJM	TAL SEA

Client Sample ID: SS14-0.2

Date Collected: 08/24/18 12:45

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-98

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	283542	09/08/18 11:35	KMS	TAL SEA

Client Sample ID: SS14-0.2

Date Collected: 08/24/18 12:45

Date Received: 08/24/18 16:05

Lab Sample ID: 580-79908-98

Matrix: Solid

Percent Solids: 93.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			283445	09/07/18 10:07	T1H	TAL SEA
Total/NA	Analysis	6010C		1	283595	09/07/18 18:20	HJM	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: SS15-0.2

Lab Sample ID: 580-79908-99

Date Collected: 08/24/18 12:50

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	283542	09/08/18 11:35	KMS	TAL SEA

Client Sample ID: SS15-0.2

Lab Sample ID: 580-79908-99

Date Collected: 08/24/18 12:50

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 92.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			283445	09/07/18 10:07	T1H	TAL SEA
Total/NA	Analysis	6010C		1	283595	09/07/18 18:23	HJM	TAL SEA

Client Sample ID: RNS-27

Lab Sample ID: 580-79908-100

Date Collected: 08/24/18 13:10

Matrix: Water

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			283028	08/31/18 17:01	JKM	TAL SEA
Total Recoverable	Analysis	6010C		1	283208	09/04/18 18:46	HJM	TAL SEA

Client Sample ID: EY-SG04-SB06-5.0

Lab Sample ID: 580-79908-102

Date Collected: 08/22/18 09:00

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG04-SB06-5.0

Lab Sample ID: 580-79908-102

Date Collected: 08/22/18 09:00

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 91.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 20:04	NMI	TAL SPK

Client Sample ID: EY-SG04-SB06-10.0

Lab Sample ID: 580-79908-104

Date Collected: 08/22/18 09:32

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: EY-SG04-SB06-10.0

Lab Sample ID: 580-79908-104

Date Collected: 08/22/18 09:32

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 85.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 20:23	NMI	TAL SPK

Client Sample ID: EY-SG03-SB11-5.0

Lab Sample ID: 580-79908-106

Date Collected: 08/22/18 10:42

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG03-SB11-5.0

Lab Sample ID: 580-79908-106

Date Collected: 08/22/18 10:42

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 83.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 20:43	NMI	TAL SPK

Client Sample ID: EY-SG03-SB11-10.0

Lab Sample ID: 580-79908-108

Date Collected: 08/22/18 11:09

Matrix: Solid

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	18767	09/10/18 10:04	NMI	TAL SPK

Client Sample ID: EY-SG03-SB11-10.0

Lab Sample ID: 580-79908-108

Date Collected: 08/22/18 11:09

Matrix: Solid

Date Received: 08/24/18 16:05

Percent Solids: 87.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			18685	09/05/18 16:47	MO	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	18725	09/07/18 21:02	NMI	TAL SPK

Client Sample ID: RNS-23

Lab Sample ID: 580-79908-109

Date Collected: 08/22/18 11:28

Matrix: Water

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			283077	09/02/18 10:13	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283112	09/05/18 07:16	AEK	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Client Sample ID: RNS-26

Lab Sample ID: 580-79908-112

Date Collected: 08/24/18 13:45

Matrix: Water

Date Received: 08/24/18 16:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			283077	09/02/18 10:13	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	283112	09/05/18 07:44	AEK	TAL SEA

Laboratory References:

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

TAL SPK = TestAmerica Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

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Accreditation/Certification Summary

Client: ERM-West
 Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.				
Analysis Method	Prep Method	Matrix	Analyte	
6010C	3005A	Water	Arsenic	
6010C	3050B	Solid	Arsenic	
D 2216		Solid	Percent Moisture	
D 2216		Solid	Percent Solids	

Laboratory: TestAmerica Spokane

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-025	12-07-18
Nevada	State Program	9	WA012202019-1	07-31-19
Oregon	NELAP	10	4137	12-07-18
Washington	State Program	10	C569	01-06-19

Sample Summary

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79908-1	FOCB-SB05-5	Solid	08/22/18 08:40	08/24/18 16:05
580-79908-3	FOCB-SB05-9.5	Solid	08/22/18 08:55	08/24/18 16:05
580-79908-5	FOCB-SB09-5	Solid	08/22/18 09:20	08/24/18 16:05
580-79908-7	FOCB-SB09-9.5	Solid	08/22/18 09:35	08/24/18 16:05
580-79908-8	WY-SG02-SB06-5	Solid	08/22/18 10:20	08/24/18 16:05
580-79908-10	WY-SG02-SB06-9	Solid	08/22/18 10:35	08/24/18 16:05
580-79908-12	WY-SG02-SB07-5	Solid	08/22/18 11:30	08/24/18 16:05
580-79908-14	WY-SG02-SB07-9.5	Solid	08/22/18 11:40	08/24/18 16:05
580-79908-16	WY-SG02-SB05-5	Solid	08/22/18 13:00	08/24/18 16:05
580-79908-18	WY-SG02-SB05-10	Solid	08/22/18 13:10	08/24/18 16:05
580-79908-20	WY-SG02-SB09-5	Solid	08/22/18 13:35	08/24/18 16:05
580-79908-22	WY-SG02-SB09-9	Solid	08/22/18 13:50	08/24/18 16:05
580-79908-24	WY-SG02-SB08-5	Solid	08/22/18 14:25	08/24/18 16:05
580-79908-26	WY-SG02-SB08-9.5	Solid	08/22/18 14:35	08/24/18 16:05
580-79908-27	RNS-24	Water	08/22/18 15:00	08/24/18 16:05
580-79908-29	WY-SG03-SB05-5	Solid	08/22/18 15:25	08/24/18 16:05
580-79908-31	WY-SG03-SB05-10	Solid	08/22/18 15:35	08/24/18 16:05
580-79908-33	WY-SG03-SB07-5	Solid	08/23/18 08:00	08/24/18 16:05
580-79908-35	WY-SG03-SB07-10	Solid	08/23/18 08:10	08/24/18 16:05
580-79908-37	WY-SG03-SB06-5	Solid	08/23/18 08:50	08/24/18 16:05
580-79908-39	WY-SG03-SB06-10	Solid	08/23/18 09:00	08/24/18 16:05
580-79908-40	EY-SG03-SB06-2	Solid	08/23/18 09:40	08/24/18 16:05
580-79908-42	EY-SG16-SB06-5	Solid	08/23/18 10:10	08/24/18 16:05
580-79908-44	EY-SG16-SB06-9.75	Solid	08/23/18 10:25	08/24/18 16:05
580-79908-45	EY-SG05-SB06-1.5	Solid	08/23/18 10:50	08/24/18 16:05
580-79908-46	EY-SG05-SB10-1.5	Solid	08/23/18 11:20	08/24/18 16:05
580-79908-47	SMP-01-082318	Water	08/23/18 12:15	08/24/18 16:05
580-79908-49	EY-SG26-SB05-5	Solid	08/23/18 13:10	08/24/18 16:05
580-79908-51	EY-SG26-SB05-10	Solid	08/23/18 13:20	08/24/18 16:05
580-79908-52	EY-SG16-SB08-2.5	Solid	08/23/18 14:00	08/24/18 16:05
580-79908-53	EY-SG16-SB08-5	Solid	08/23/18 14:05	08/24/18 16:05
580-79908-55	EY-SG16-SB08-9.5	Solid	08/23/18 14:15	08/24/18 16:05
580-79908-56	RNS-25	Water	08/23/18 15:30	08/24/18 16:05
580-79908-58	EY-SG16-SB05-5	Solid	08/23/18 15:00	08/24/18 16:05
580-79908-60	EY-SG16-SB05-9.5	Solid	08/23/18 15:15	08/24/18 16:05
580-79908-62	EY-SG16-SB04-5	Solid	08/24/18 07:55	08/24/18 16:05
580-79908-64	EY-SG16-SB04-10	Solid	08/24/18 08:10	08/24/18 16:05
580-79908-66	EY-SG16-SB07-5	Solid	08/24/18 08:50	08/24/18 16:05
580-79908-68	EY-SG16-SB07-10	Solid	08/24/18 09:00	08/24/18 16:05
580-79908-70	EY-SG26-SB07-5	Solid	08/24/18 09:38	08/24/18 16:05
580-79908-72	EY-SG26-SB07-10	Solid	08/24/18 09:45	08/24/18 16:05
580-79908-74	EY-SG26-SB08-5	Solid	08/24/18 10:15	08/24/18 16:05
580-79908-76	EY-SG26-SB08-10	Solid	08/24/18 10:25	08/24/18 16:05
580-79908-78	EY-SG26-SB04-5	Solid	08/24/18 10:50	08/24/18 16:05
580-79908-80	EY-SG26-SB04-10	Solid	08/24/18 11:00	08/24/18 16:05
580-79908-82	EY-SG26-SB06-5	Solid	08/24/18 13:20	08/24/18 16:05
580-79908-84	EY-SG26-SB06-10	Solid	08/24/18 13:30	08/24/18 16:05
580-79908-85	SS01-0.2	Solid	08/24/18 11:45	08/24/18 16:05
580-79908-86	SS02-0.2	Solid	08/24/18 11:40	08/24/18 16:05
580-79908-87	SS03-0.2	Solid	08/24/18 11:50	08/24/18 16:05
580-79908-88	SS04-0.2	Solid	08/24/18 11:55	08/24/18 16:05
580-79908-89	SS05-0.2	Solid	08/24/18 12:00	08/24/18 16:05
580-79908-90	SS06-0.2	Solid	08/24/18 12:10	08/24/18 16:05

TestAmerica Seattle

Sample Summary

Client: ERM-West
Project/Site: Cushman Phase IIB ESA

TestAmerica Job ID: 580-79908-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79908-91	SS07-0.2	Solid	08/24/18 12:15	08/24/18 16:05
580-79908-92	SS08-0.2	Solid	08/24/18 07:00	08/24/18 16:05
580-79908-93	SS09-0.2	Solid	08/24/18 12:20	08/24/18 16:05
580-79908-94	SS10-0.2	Solid	08/24/18 12:25	08/24/18 16:05
580-79908-95	SS11-0.2	Solid	08/24/18 12:30	08/24/18 16:05
580-79908-96	SS12-0.2	Solid	08/24/18 12:35	08/24/18 16:05
580-79908-97	SS13-0.2	Solid	08/24/18 12:40	08/24/18 16:05
580-79908-98	SS14-0.2	Solid	08/24/18 12:45	08/24/18 16:05
580-79908-99	SS15-0.2	Solid	08/24/18 12:50	08/24/18 16:05
580-79908-100	RNS-27	Water	08/24/18 13:10	08/24/18 16:05
580-79908-102	EY-SG04-SB06-5.0	Solid	08/22/18 09:00	08/24/18 16:05
580-79908-104	EY-SG04-SB06-10.0	Solid	08/22/18 09:32	08/24/18 16:05
580-79908-106	EY-SG03-SB11-5.0	Solid	08/22/18 10:42	08/24/18 16:05
580-79908-108	EY-SG03-SB11-10.0	Solid	08/22/18 11:09	08/24/18 16:05
580-79908-109	RNS-23	Water	08/22/18 11:28	08/24/18 16:05
580-79908-112	RNS-26	Water	08/24/18 13:45	08/24/18 16:05

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information Client Contact: Renee Holt Company: ERM-West Address: 1218 3rd Ave Suite 1412 City: Seattle State, Zip: WA, 98101 Phone: 425-214-0463(Tel) Email: renee.holt@erm.com Project Name: Cushman Phase IIB ESA Site: Cushman Substation		Sampler: M. Crandell Phone: 360.220.4441	Lab PM: Cruz, Sheri L E-Mail: sheri.cruz@testamericainc.com	Carrier Tracking No(s): Job #: 79908	COC No: 580-30240-9907.4 Page: 1 of 12 Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:								
Analysis Requested Due Date Requested: Standard TAT Requested (days): Standard PO #: Purchase Order Requested WO #: Project #: 58012883 SSOW#:		Barcode: 580-79908 Chain of Custody NMTPH_DK - TPH-KO 8082A - PCBs 9010C - Arsenic											
Sample Identification		Sample Date Sample Time Sample Type (C=Comp, G=grab) Matrix (W=water, S=solid, O=waste/Oil, BT=Tissue, A=Air)	Special Instructions/Note:										
1	WT-5002-SB05-40	FOCB-SB05-5	8/22/18	0840	G	Solid							
	WT-5002-SB05-10	FOCB-SB05-7.5	8/22/18	0845	G	Solid							HOLD
3	WT-5002-SB10-40	FOCB-SB05-9.5	8/22/18	0855	G	Solid							
	WT-5003-SB05-10	FOCB-SB09-2.5	8/24/18	0915	G	Solid							HOLD
5	WT-5003-SB05-40	FOCB-SB09-5	8/22/18	0920	G	Solid							
	WT-5003-SB07-10	FOCB-SB09-7.5	8/22/18	0925	G	Solid							HOLD
7	WT-5003-SB08-40	FOCB-SB09-9.5	8/22/18	0935	G	Solid							
	EX-6603-SB08-2.5	WT-5602-SB06-2.5	8/22/18		G	Solid							HOLD - No Sample
	EY-5003-SB07-2.3	WT-5602-SB06-5		1020	G	Solid							
9	EY-6603-SB08-2.5	WT-5602-SB06-7.5		1030	G	Solid							HOLD
	EX-6603-SB09-2.5	WT-5602-SB06-9		1035	G	Solid							
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify)							Special Instructions/QC Requirements:						
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:							
Relinquished by: Matt Crandell, ERM		Date/Time: 8/24/18, 1605		Company: ERM		Received by: [Signature]		Date/Time: 8-24-18 1605		Company: TASE2			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:									

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <i>M. Crandell</i>		Lab PM: Cruz, Sheri L		Carrier Tracking No(s):		COC No: 580-30240-9907.1											
Client Contact: Renee Holt		Phone: <i>360.220.4441</i>		E-Mail: sheri.cruz@testamericainc.com				Page: 1 of 12 <i>2 of 12</i>											
Company: ERM-West		Due Date Requested: <i>Standard</i>		<table border="1"> <tr> <th colspan="2">Analysis Requested</th> </tr> <tr> <td> </td><td> </td></tr> <tr> <td> </td><td> </td></tr> <tr> <td> </td><td> </td></tr> <tr> <td> </td><td> </td></tr> </table>		Analysis Requested										TAT Requested (days): <i>Standard</i>		Job #: <i>79908</i>	
Analysis Requested																			
Address: 1218 3rd Ave Suite 1412		PO #: Purchase Order Requested		Preservation Codes:															
City: Seattle		WO #:		A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)															
State, Zip: WA, 98101		Project #: 58012883		Other:															
Phone: 425-214-0463(Tel)		SSOW#:																	
Email: renee.holt@erm.com																			
Project Name: Cushman Phase IIB ESA																			
Site: <i>Cushman Tacoma</i>																			
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	NWTPH, Dr. - TPH-MO	8082A PCBs	6010C - Arsenic	Total Number of Containers	Special Instructions/Note:								
<i>-11</i> WY-SG02-SB05-2.5 <i>WY-SG02-SB07-2.5</i>	<i>8/22/18</i>	<i>1125</i>	<i>G</i>	<i>Solid</i>	<i>N</i>	<i>N</i>	<i>X</i>				<i>HOLD</i>								
WY-SG02-SB06-2.5 <i>WY-SG02-SB07-5</i>		<i>1130</i>		<i>Solid</i>			<i>X</i>												
<i>-13</i> WY-SG02-SB07-2.5 <i>WY-SG02-SB07-7.5</i>		<i>1135</i>		<i>Solid</i>			<i>X</i>				<i>HOLD</i>								
WY-SG02-SB08-2.5 <i>WY-SG02-SB07-9.5</i>		<i>1148</i>		<i>Solid</i>			<i>X</i>												
<i>-15</i> WY-SG02-SB09-2.5 <i>WY-SG02-SB05-2.5</i>		<i>1255</i>		<i>Solid</i>			<i>X</i>				<i>HOLD</i>								
WY-SG02-SB10-2.5 <i>WY-SG02-SB05-5</i>		<i>1300</i>		<i>Solid</i>			<i>X</i>												
<i>-17</i> WY-SG02-SB05-2.5 <i>WY-SG02-SB05-7.5</i>		<i>1305</i>		<i>Solid</i>			<i>X</i>				<i>HOLD</i>								
WY-SG02-SB06-2.5 <i>WY-SG02-SB05-10</i>		<i>1310</i>		<i>Solid</i>			<i>X</i>												
<i>-19</i> WY-SG02-SB07-2.5 <i>WY-SG02-SB09-2.5</i>		<i>1330</i>		<i>Solid</i>			<i>X</i>				<i>HOLD</i>								
WY-SG02-SB08-2.5 <i>WY-SG02-SB09-5</i>		<i>1335</i>		<i>Solid</i>			<i>X</i>												
<i>-21</i> WY-SG02-SB09-2.5 <i>WY-SG02-SB09-7.5</i>		<i>1340</i>		<i>Solid</i>			<i>X</i>				<i>HOLD</i>								
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months													
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:													
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:												
Relinquished by: <i>Matt Crandell, ERM</i>			Date/Time: <i>8/27/18, 1605</i>		Company: <i>ERM</i>		Received by: <i>Kenny Hubs</i>		Date/Time: <i>8-24-18 1605</i>		Company: <i>TASEA</i>								
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:								
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:								
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks:													

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <u>M. Crandell</u>		Lab PM: <u>Cruz, Sheri L</u>		Carrier Tracking No(s):		COC No: <u>580-30240-9907.6</u>	
Client Contact: <u>Renee Holt</u>		Phone: <u>360.220.4441</u>		E-Mail: <u>sheri.cruz@testamericainc.com</u>				Page: <u>6 of 47</u> <u>3 of 12</u>	
Company: <u>ERM-West</u>		Due Date Requested: <u>Standard</u>		Analysis Requested				Job #: <u>79908</u>	
Address: <u>1218 3rd Ave Suite 1412</u>		TAT Requested (days): <u>Standard</u>		W/TPH, Dx - TPH-MO 8052A PCBs 8010C - Arsenic		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDTA Z - other (specify)		Other:	
City: <u>Seattle</u>		PO #: <u>Purchase Order Requested</u>							
State, Zip: <u>WA, 98101</u>		WO #:							
Phone: <u>425-214-0463(Tel)</u>		Project #: <u>58012883</u>							
Email: <u>renee.holt@erm.com</u>		SSOW#:							
Project Name: <u>Cushman Phase IIB ESA</u>									
Site: <u>Cushman Tacoma</u>									
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=water/soil, BT=Tissue, An=Air)	
								Special Instructions/Note:	
EY-SG16-SB04-2.5 <u>WY-SG02-SB09-9</u>		<u>8/22/10</u>		<u>1350</u>		<u>G</u>		<u>Solid</u>	
- 23	EY-SG16-SB05-2.5 <u>WY-SG02-SB08-2.5</u>			<u>1420</u>		<u>G</u>		<u>Solid</u>	
	EY-SG16-SB06-2.5 <u>WY-SG02-SB08-5</u>			<u>1425</u>		<u>G</u>		<u>Solid</u>	
- 25	EY-SG16-SB07-2.5 <u>WY-SG02-SB08-7.5</u>			<u>1430</u>		<u>G</u>		<u>Solid</u>	
	EY-SG16-SB08-2.5 <u>WY-SG02-SB08-9.5</u>			<u>1435</u>		<u>G</u>		<u>Solid</u>	
- 27	EY-SG26-SB04-2.5 <u>PNS-24</u>			<u>1500</u>		<u>G</u>		<u>Solid</u>	
	EY-SG26-SB05-2.5 <u>WY-SG03-8-SB05-2.5</u>			<u>1520</u>		<u>G</u>		<u>Solid</u>	
- 29	EY-SG26-SB06-2.5 <u>WY-SG03-8-SB05-5</u>			<u>1525</u>		<u>G</u>		<u>Solid</u>	
	EY-SG26-SB07-2.5 <u>WY-SG03-8-SB05-7.5</u>			<u>1530</u>		<u>G</u>		<u>Solid</u>	
- 31	EY-SG26-SB08-2.5 <u>WY-SG03-8-SB05-10</u>			<u>1535</u>		<u>G</u>		<u>Solid</u>	
	EY-SG03-SB00-5							<u>Solid</u>	
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:				
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:			
Relinquished by: <u>Matt Crandell, ERM</u>		Date/Time: <u>8/24/10 1605</u>		Company: <u>ERM</u>		Received by: <u>[Signature]</u>		Date/Time: <u>8-24-10 1605</u>	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:					

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <u>M. Crandell</u>		Lab PM: <u>Cruz, Sheri L</u>		Carrier Tracking No(s):		COC No: <u>580-30240-9907.7</u>			
Client Contact: <u>Renee Holt</u>		Phone: <u>360.220.4441</u>		E-Mail: <u>sheri.cruz@testamericainc.com</u>				Page: <u>4 of 12</u>			
Company: <u>ERM-West</u>				Analysis Requested				Job #: <u>79908</u>			
Address: <u>1218 3rd Ave Suite 1412</u>		Due Date Requested: <u>Standard</u>						NWTPL, D _x - TPH-RO 8082A PCBs 6010C - Arsenic		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)	
City: <u>Seattle</u>		TAT Requested (days): <u>Standard</u>									
State, Zip: <u>WA, 98101</u>		PO #: Purchase Order Requested									
Phone: <u>425-214-0463(Tel)</u>		WO #:									
Email: <u>renee.holt@erm.com</u>		Project #: <u>58012883</u>									
Project Name: <u>Cushman Phase IIB ESA</u>		SSOW#:		Site: <u>Cushman Tacoma</u>		Other:					
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=water/soil, BT=Tissue, A=Air)			
								Special Instructions/Note:			
- 33	EY-SG03-SB07-5	WY-SG03-SB07-2.5	0755	8/23/18	G	Solid			HOLD		
	EY-SG03-SB08-5	WY-SG03-SB07-5	0800			Solid					
	EY-SG03-SB09-5	WY-SG03-SB07-7.5	0805			Solid			HOLD		
- 35	EY-SG03-SB10-5	WY-SG03-SB07-10	0810			Solid					
	EY-SG03-SB11-5	WY-SG03-SB06-2.5	0845			Solid			HOLD		
- 37	EY-SG04-SB06-5	WY-SG03-SB06-5	0856			Solid					
	EY-SG04-SB07-5	WY-SG03-SB06-7.5	0855			Solid			HOLD		
- 39	EY-SG04-SB08-5	WY-SG03-SB06-10	0900			Solid					
	EY-SG05-SB08-5	WY-SG				Solid			No Sample		
	EY-SG05-SB07-5	EY-SG03-SB06-2	0940	8/23/18	G	Solid					
	EY-SG05-SB08-5					Solid			No sample		
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:						
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:					
Relinquished by: <u>Matt Crandell, ERM</u>		Date/Time: <u>8/24/18 1605</u>		Company: <u>ERM</u>		Received by: <u>[Signature]</u>		Date/Time: <u>8-24-18 1605</u>			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:				10/11/2018 (Rev. 1)			

TestAmerica Seattle

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Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <i>M. Grandelle</i>		Lab PM: <i>Cruz, Sheri L</i>		Carrier Tracking No(s):		COC No: <i>580-30240-9907.10</i>			
Client Contact: <i>Renee Holt</i>		Phone: <i>360.220.4441</i>		E-Mail: <i>sheri.cruz@testamericainc.com</i>				Page: <i>12 of 17</i>			
Company: <i>ERM-West</i>		Due Date Requested: <i>Standard</i>		Analysis Requested				Job #: <i>79908</i>			
Address: <i>1218 3rd Ave Suite 1412</i>		TAT Requested (days): <i>Standard</i>		NWTPH_Dx - TPH-MO 8082A PCBs 8010C - Arsenic				Preservation Codes:			
City: <i>Seattle</i>								A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)		Other:	
State, Zip: <i>WA, 98101</i>		PO #:									
Phone: <i>425-214-0463(Tel)</i>		Purchase Order Requested									
Email: <i>renee.holt@erm.com</i>		WO #:									
Project Name: <i>Cushman Phase IIB ESA</i>		Project #: <i>58012883</i>									
Site:		SSOW#:									
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=soil, BT=Tissue, A=Air)			
								Special Instructions/Note:			
<i>EY-SG06-SB06-7.5</i>		<i>8/24/18</i>		<i>0805</i>		<i>G</i>		<i>Solid</i>			
<i>EY-SG06-SB07-7.5</i>				<i>0810</i>				<i>Solid</i>			
<i>EY-SG05-SB08-7.5</i>				<i>0845</i>				<i>Solid</i>			
<i>EY-SG05-SB09-7.5</i>				<i>0850</i>				<i>Solid</i>			
<i>EY-SG05-SB10-7.5</i>				<i>0855</i>				<i>Solid</i>			
<i>EY-SG05-SB11-7.5</i>				<i>0900</i>				<i>Solid</i>			
<i>EY-SG16-SB04-7.5</i>				<i>0935</i>				<i>Solid</i>			
<i>EY-SG16-SB05-7.5</i>				<i>0938</i>				<i>Solid</i>			
<i>EY-SG16-SB06-7.5</i>				<i>0940</i>				<i>Solid</i>			
<i>EY-SG16-SB07-7.5</i>				<i>0945</i>				<i>Solid</i>			
<i>EY-SG16-SB08-7.5</i>								<i>Solid</i>			
								<i>No Sample</i>			
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:						
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:					
Relinquished by: <i>Matt Grandelle</i>		Date/Time: <i>8/24/18, 1605</i>		Company: <i>ERM</i>		Received by: <i>Kenny Hubs</i>		Date/Time: <i>8-24-18 1605</i>			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		10/11/2018 (Rev. 1)					

TestAmerica Seattle
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 Tacoma, WA 98424
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Chain of Custody Record

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <u>M. Crandell</u>		Lab PM: <u>Cruz, Sheri L</u>		Carrier Tracking No(s):		COC No: <u>580-30240-9907.11</u>	
Client Contact: <u>Renee Holt</u>		Phone: <u>360.220.4441</u>		E-Mail: <u>sheri.cruz@testamericainc.com</u>				Page: <u>11 of 12</u> Page 11 <u>8</u> of <u>12</u>	
Company: <u>ERM-West</u>		Due Date Requested: <u>Standard</u>		Analysis Requested				Job #: <u>79908</u>	
Address: <u>1218 3rd Ave Suite 1412</u>		TAT Requested (days): <u>Standard</u>						Preservation Codes:	
City: <u>Seattle</u>								A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)	
State, Zip: <u>WA, 98101</u>		PO #: <u>58012883</u>		Purchase Order Requested				Other:	
Phone: <u>425-214-0463(Tel)</u>		WO #:							
Email: <u>renee.holt@erm.com</u>		Project #:							
Project Name: <u>Cushman Phase IIB ESA</u>		SSOW#:							
Site: <u>Cushman Tacoma</u>									
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=soil, BT=Tissue, A=Air)	
								NWTPH_Dx - TPH-MO 8082A PCBs 8010C - Arsenic	
								Special Instructions/Note:	
-73	EY-SG26-SB08-7.5	EY-SG26-SB08-2.5	8/24/18	1010	G	Solid			HOLD
	EY-SG26-SB08-7.5	EY-SG26-SB08-5		1015		Solid			
-75	EY-SG26-SB08-7.5	EY-SG26-SB08-7.5		1020		Solid			HOLD
	EY-SG26-SB08-7.5	EY-SG26-SB08-10		1025		Solid			
-77	EY-SG26-SB08-7.5	EY-SG26-SB04-2.5		1045		Solid			HOLD
	EY-SG26-SB08-10	EY-SG26-SB04-5		1050		Solid			
-79	EY-SG26-SB08-10	EY-SG26-SB04-7.5		1055		Solid			HOLD
	EY-SG26-SB08-10	EY-SG26-SB04-10		1100		Solid			
	EY-SG26-SB08-10					Solid			NO Sample
	EY-SG26-SB08-10					Solid			NO Sample
	EY-SG26-SB08-10					Solid			NO Sample

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) _____
 Special Instructions/QC Requirements: _____

Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____

Relinquished by: <u>Mat Crandell</u>	Date/Time: <u>8/24/18, 1605</u>	Company: <u>ERM</u>	Received by: <u>Kenny Hubs</u>	Date/Time: <u>8-24-18 1605</u>	Company: <u>ASee</u>
Relinquished by: _____	Date/Time: _____	Company: _____	Received by: _____	Date/Time: _____	Company: _____
Relinquished by: _____	Date/Time: _____	Company: _____	Received by: _____	Date/Time: _____	Company: _____

Custody Seals Intact: Yes No
 Custody Seal No.: _____
 Cooler Temperature(s) °C and Other Remarks: _____

TestAmerica Seattle

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information			Sampler: <i>M. Crandell</i>	Lab PM: Cruz, Sheri L.	Carrier Tracking No(s):		CDC No: 580-30240-9907.1			
Client Contact: Renee Holt			Phone: <i>360.220.4441</i>	E-Mail: sheri.cruz@testamericainc.com			Page: <i>11 of 12</i>			
Company: ERM-West			Analysis Requested				Job #: <i>79908</i>			
Address: 1218 3rd Ave Suite 1412			Due Date Requested: <i>Standard</i>			Preservation Codes:				
City: Seattle			TAT Requested (days): <i>Standard</i>			A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)				
State, Zip: WA, 98101			PO #: Purchase Order Requested			Other:				
Phone: 425-214-0463(Tel)			WO #:							
Email: renee.holt@erm.com			Project #: 58012883							
Project Name: Cushman Phase IIB ESA			SSOW#:							
Site: <i>Cushman Tacoma</i>										
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=soil, BT=Tissue, An=Air)	NWTPH_Dx - TPH-MO	8082A PCBs	6010C - Arsenic	Special Instructions/Note:		
				Preservation Code:	N	N	N	A	N	D
-101	WY-5604-SB06-2.5	<i>EY-5604-SB06-2.5</i>	<i>8/24/18</i>	<i>8:55</i>	<i>G</i>	<i>Solid</i>	<i>X</i>			<i>HOLD</i>
	WY-5604-SB06-2.5	<i>EY-5604-SB06-5.0</i>		<i>9:00</i>		<i>Solid</i>	<i>X</i>			
-103	WY-5604-SB06-2.5	<i>EY-5604-SB06-7.5</i>		<i>9:15</i>		<i>Solid</i>	<i>X</i>			<i>HOLD</i>
	WY-5604-SB06-2.5	<i>EY-5604-SB06-10.0</i>		<i>9:32</i>		<i>Solid</i>	<i>X</i>			
-105	WY-5603-SB11-2.5	<i>EY-5603-SB11-2.5</i>		<i>10:29</i>		<i>Solid</i>	<i>X</i>			<i>HOLD</i>
	WY-5603-SB11-2.5	<i>EY-5603-SB11-5.0</i>		<i>10:42</i>		<i>Solid</i>	<i>X</i>			
-107	WY-5603-SB11-2.5	<i>EY-5603-SB11-7.5</i>		<i>10:50</i>		<i>Solid</i>	<i>X</i>			<i>HOLD</i>
	WY-5603-SB11-2.5	<i>EY-5603-SB11-10.0</i>		<i>11:09</i>		<i>Solid</i>	<i>X</i>			
-109	WY-5603-SB07-2.5	<i>RNS-23</i>		<i>11:28</i>		<i>Solid</i>	<i>X</i>			
	WY-5603-SB07-2.5	<i>EY-5603-SB11-11.0</i>		<i>13:30</i>		<i>Solid</i>	<i>X</i>			<i>HOLD</i>
-111	WY-5603-SB05-5	<i>FOCB-SB08-11.0</i>		<i>14:10</i>		<i>Solid</i>	<i>X X</i>			<i>HOLD</i>
Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:						
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:						
Relinquished by: <i>Matt Crandell</i>		Date/Time: <i>8/24/18, 1605</i>	Company: <i>ERM</i>	Received by: <i>Kungthwa</i>		Date/Time: <i>8-24-18 1605</i>	Company: <i>TASA</i>			
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:	Company:			
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:	Company:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:								

TestAmerica Seattle

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Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information		Sampler: <i>M. Cranford</i>	Lab PM: Cruz, Sheri L	Carrier Tracking No(s):	COC No: 580-30240-9907.2												
Client Contact: Renee Holt		Phone: <i>360 220 4441</i>	E-Mail: sheri.cruz@testamericainc.com		Page: <i>2 of 12</i>												
Company: ERM-West		Analysis Requested			Job #: <i>79908</i>												
Address: 1218 3rd Ave Suite 1412		Due Date Requested: <i>Standard</i>	<table border="1"> <tr><td>Field Filtered Sample (Yes or No)</td><td></td></tr> <tr><td>Perform H2SO4 (Yes or No)</td><td></td></tr> <tr><td>NWTPH_Dx - TPH-MO</td><td></td></tr> <tr><td>8092A PCBs</td><td></td></tr> <tr><td>8010C - Arsenic</td><td></td></tr> <tr><td>Total Number of Containers</td><td></td></tr> </table>			Field Filtered Sample (Yes or No)		Perform H2SO4 (Yes or No)		NWTPH_Dx - TPH-MO		8092A PCBs		8010C - Arsenic		Total Number of Containers	
Field Filtered Sample (Yes or No)																	
Perform H2SO4 (Yes or No)																	
NWTPH_Dx - TPH-MO																	
8092A PCBs																	
8010C - Arsenic																	
Total Number of Containers																	
City: Seattle		TAT Requested (days): <i>Standard</i>															
State, Zip: WA, 98101		PO #: Purchase Order Requested															
Phone: 425-214-0463(Tel)		WO #:															
Email: renee.holt@erm.com		Project #: 58012883															
Project Name: Cushman Phase IIB ESA		SSOW #:															
Site: <i>Tacoma Cushman</i>					Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)												
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform H2SO4 (Yes or No)	NWTPH_Dx - TPH-MO	8092A PCBs	8010C - Arsenic	Total Number of Containers	Special Instructions/Note:					
WY-SG02-SB07-5 <i>RMS-26</i>		<i>8/24/18</i>	<i>1345</i>	<i>G</i>	<i>Solid</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Therm. ID: A2 Cor: 0.8 • Unc: 0.7 • Cooler Dsc: <i>lg Blue</i> Packing: <i>other</i> FedEx: _____ Cust. Seal: Yes _____ No <i>*</i> UPS: _____ <input checked="" type="checkbox"/> Wet/Packs/Dry Ice/None Lab Cour: _____ Other: <i>Clidro</i></i>					
WY-SG02-SB08-5												<i>Therm. ID: A2 Cor: 0.8 • Unc: 0.7 • Cooler Dsc: <i>lg Blue</i> Packing: <i>other</i> FedEx: _____ Cust. Seal: Yes _____ No <i>*</i> UPS: _____ <input checked="" type="checkbox"/> Wet/Packs/Dry Ice/None Lab Cour: _____ Other: _____</i>					
WY-SG02-SB09-5												<i>Therm. ID: A2 Cor: 0.6 • Unc: 0.5 • Cooler Dsc: <i>lg Green</i> Packing: <i>other</i> FedEx: _____ Cust. Seal: Yes _____ No <i>*</i> UPS: _____ <input checked="" type="checkbox"/> Wet/Packs/Dry Ice/None Lab Cour: _____ Other: _____</i>					
WY-SG02-SB10-5																	
WY-SG03-SB05-5																	
WY-SG03-SB06-5																	
WY-SG03-SB07-5																	
WY-SG03-SB08-5																	
WY-SG02-SB05-7.5																	
WY-SG02-SB06-7.5																	
Possible Hazard Identification		<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological															
Deliverable Requested: I, II, III, IV, Other (specify)		Sample Storage: _____ assessed if samples are retained longer than 1 month <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months															
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:													
Relinquished by: <i>Matt Cranford</i>		Date/Time: <i>8/24/18 1605</i>	Company: <i>ERM</i>	Received by: <i>Tamyah</i>		Date/Time: <i>8/24/18 1605</i>	Company: <i>TASE2</i>										
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:	Company:										
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:	Company:										
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:													

TestAmerica Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

Client Information
 Client Contact: Renee Holt
 Phone: 360.220.4441
 E-Mail: sheri.cruz@testamericainc.com
 Lab Pk: Cruz, Sheri L
 Corner Tracking Note(s):

Company: ERM, West
 Address: 1218 3rd Ave Suite 1412
 City: Seattle
 State, Zip: WA, 98101
 Phone: 425-214-0463 (Tel)
 Email: renee.holt@erm.com
 Project Name: Cushman Phase IIB ESA
 Project #: 58012883
 SSON#:
 Site: Tacoma Cushman

Due Date Requested: Standard
TAT Requested (days): Standard
PO #:
Purchase Order Requested
WO #:
Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Metal, Solid, Organic, etc.)	Lab Pk	Carrier Tracking Note(s)
41 EY-SG16-SB06-2.5	8/23/18	1005	G	Solid	N	
41 EY-SG16-SB06-5		1010		Solid	N	
41 EY-SG16-SB06-7.5		1015		Solid	X	
41 EY-SG16-SB06-10		1025		Solid	X	
41 EY-SG05-SB06-1.5		1050		Solid	X	
41 EY-SG05-SB06-1.5		1120		Solid	X	
41 EY-SG05-SB06-1.5		1215		Solid	X	
41 EY-SG26-SB05-2.5		1150		Solid	X	
41 EY-SG26-SB05-5		1310		Solid	X	
41 EY-SG26-SB05-7.5		1315		Solid	X	
41 EY-SG26-SB05-10		1320		Solid	X	

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological

Special Instructions/ICC Requirements:

Empty Kit Relinquished by:
 Relinquished by: Matt Grandell (ERM)
 Date/Time: 8/27/18 1605
 Company: ERM
 Received by: Penny Hobb
 Date/Time: 8:24:18 16

Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-79908-1

Login Number: 79908

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom X

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

Login Sample Receipt Checklist

Client: ERM-West

Job Number: 580-79908-1

Login Number: 79908
List Number: 2
Creator: Arrington, Randee E

List Source: TestAmerica Spokane
List Creation: 09/05/18 04:32 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	478699, 478697, 478698
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	4.3°, 4.5°, 3.0°
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica Seattle
 5755 8th Street East
 Tacoma, WA 98424
 Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

COC No: 580-30240-9907.16
 Page: 10 of 12
 Job #: 360.220.4441

Carrier Tracking No(s):
 Lab Pkt: M Crandell
 E-Mail: sheri.cruz@testamericainc.com

Client Information
 Client Contact: Renee Holt
 Company: ERM-West
 Address: 1218 3rd Ave Suite 1412
 City: Seattle
 State, Zip: WA, 98101
 Phone: 425-214-0463(Tel)
 Email: renee.holt@erm.com
 Project Name: Cushman Phase IIB ESA
 Site: Cushman Tacoma

Analysis Requested
 Due Date Requested: Standard
 TAT Requested (days): Standard
 PO #: Purchase Order Requested
 WO #:
 Project #: 58012883
 SSOW#:

Preservation Codes:
 A - HCL
 B - NaOH
 C - Zn Acetate
 D - Nitric Acid
 E - NaHSO4
 F - MeOH
 G - Amchlor
 H - Ascorbic Acid
 I - Ice
 J - DI Water
 K - EDTA
 L - EDA
 Other:
 M - Hexane
 N - Hex
 O - AshCO2
 P - Na2CO3
 Q - Na2SO4
 R - Na2S2O3
 S - H2SO4
 T - TSP Dodecahydrate
 U - Acetone
 V - MCAA
 W - pH 4.5
 X - other (specify)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix (W=Water, M=Metal, O=Organic, D=Dioxin, P=PCBs, A=Asbestos)	Field Filtered Sample (Yes or No)	Perform MSMSD (Yes or No)	WTPH_Dx - TPH-MO	8082A PCBs	8010C - Arsenic	Total Number of Containers	Special Instructions/Note:
SS06-0-2	8/24/18	1210	G	Solid	N	N	N	N	N	X	
SS07-0-2		1215		Solid	N	N	N	N	N	X	
SS08-0-2		0700		Solid	N	N	N	N	N	X	
SS09-0-2		1220		Solid	N	N	N	N	N	X	
SS10-0-2		1225		Solid	N	N	N	N	N	X	
SS11-0-2		1230		Solid	N	N	N	N	N	X	
SS12-0-2		1235		Solid	N	N	N	N	N	X	
SS13-0-2		1240		Solid	N	N	N	N	N	X	
SS14-0-2		1245		Solid	N	N	N	N	N	X	
SS15-0-2		1250		Solid	N	N	N	N	N	X	
SS16-0-2		1210		Water	N	N	N	N	N	X	

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, IV, Other (specify)
 Empty Kit Relinquished by: Matt Crandell Date: 8/24/18
 Relinquished by: Date/Time: Company: ERM
 Relinquished by: Date/Time: Company:
 Relinquished by: Date/Time: Company:
 Custody Seals Intact: Yes No
 Custody Seal No.:
 Cooler Temperature(s) °C and Other Remarks:

Special Instructions/QC Requirements:
 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For Months
 Method of Shipment:
 Received by: Date/Time: Company:
 Received by: Date/Time: Company:
 Received by: Date/Time: Company:
 Ver: 08/04/2016

APPENDIX D DATA VALIDATION MEMORANDA

Memorandum

Environmental Resources Management

To: Suzanne Dolberg

From: Rachel James

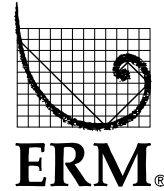
Date: 19 April 2018

Subject: Data Review of Cushman Phase II ESA Samples,
Round 1, March 2018

Project Number: 0435302

Data Packages: TestAmerica Laboratories, Inc. Data Packages 580-75839-1, 580-75845-1, 580-75874-1, 580-75874-2, 580-75874-4, 580-75905-1, 580-75905-2, and 580-75905-4

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Suite 1010
Portland, OR 97204
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(503) 488-5124 (fax)
www.erm.com



The data quality was assessed and any necessary qualifiers were applied following the *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*, January 2017 and *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*, January 2017.

CHAIN-OF-CUSTODY DISCREPANCIES

In laboratory report 580-75839-1, sample UST-SB01-4.0-7.5-3.12.18 was received, but was not listed on the chain of custody. The laboratory logged in the sample per ERM instruction.

In laboratory report 580-75874-1, samples EY-SG09-CSB, EY-SG09-SB01, EY-SG09-SB02, and EY-SG09-SB03 were received, but were not listed on the chain of custody. The laboratory logged in the sample per ERM instruction. Additionally, the seventh (last) page of the chain of custody was not signed as relinquished by ERM for laboratory reports 580-75874-1, 580-75874-2, and 580-75874-4. The samples were hand-delivered and all other pages of the chain of custody were signed.

In laboratory report 580-75905-1, sample EY-SG18-SB04 was received, but was not listed on the chain of custody. The sample was logged in and placed on hold. Additionally, a sample named EY-SG03 was listed on the chain of custody twice, but it was not received. This was an error in chain of custody preparation and the sample does not exist.

CASE NARRATIVE COMMENTS

The laboratory case narrative for report 580-75845-1 described that sample SW-02 contained more than one Aroclor with insufficient separation to quantify individually. However, these detections were below the MRL and the laboratory did not report them. No qualifications were applied.

HOLDING TIME AND PRESERVATION EVALUATION

The samples were prepared and analyzed within the method-prescribed time period from the date of collection. The sample shipments were received at the laboratory within the method-prescribed temperature preservation requirements of less than 6°C with the exceptions noted in Table 1. Coolers associated with lab reports 580-75874-1, 580-75874-2, 580-75874-4, 580-75905-1, 580-75905-2, and 580-75905-4 were received at temperatures greater than 6°C. In all cases, the samples were received within an hour of the last sample collection time and were on ice, demonstrating that the cooling process had begun. No qualifications were necessary.

BLANK EVALUATION

The method blank sample results were nondetected for each of the target analytes. The method blank results indicate that no contaminants were introduced to the samples during processing or analysis in the laboratory.

The rinsate blank sample results were nondetected for each of the target analytes with the exceptions noted in Table 2. TPH analytes were detected at concentrations above the reporting limit in rinsate blank sample RNS-07; however, these analytes were either not detected or detected at concentrations greater than five-times that of the blank in associated samples. Qualifications were not necessary.

CONTINUING CALIBRATION VERIFICATION (CCV) EVALUATION

The continuing calibration verification (CCV) recoveries were within the laboratory's limits of acceptance, with several exceptions. In all cases, no data required qualifications as the CCVs were either high and associated results were nondetected, results were reported from a column with

passing CCV recoveries, or the out of control analyte was a surrogate and the target compounds were within control. The CCVs that did not meet control limits are presented in Table 3.

BLANK SPIKE EVALUATION

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries and RPDs were within the laboratory's limits of acceptance, with one exception noted in Table 4. No data were qualified as the outlier could be verified by another in-control recovery.

MATRIX SPIKE EVALUATION

The matrix spike (MS)/matrix spike duplicate (MSD) recoveries and RPDs were within laboratory limits of acceptance, with the exceptions noted in Table 4. PCB-1016 and PCB-1260 were recovered below the lower control limit in both the MS and MSD samples prepared from SW-02. These analytes were not detected in the parent sample and the results were qualified as estimates at the reporting limit (UJ). PCB-1016 was also recovered below the lower control limit in both the MS and MSD samples prepared from SW-01 and EY-SG03-SB02. The nondetected results in the parent samples were qualified as estimates at the reporting limit (UJ). Additionally, PCB-1260 was recovered below the lower control limit in the MS sample prepared from SW-01, but the MSD recovery was within control limits and qualifications were not necessary. The outliers and associated qualifications can be found in Table 4.

SURROGATE SPIKE EVALUATION

The surrogate recoveries were within acceptable limits with two exceptions. TPH surrogate o-terphenyl was recovered above the upper control limit in sample EY-SG26-SB01 and below the lower control limit in the laboratory duplicate prepared from the same sample. All TPH results for the affected sample were qualified as estimates with no bias (J) due to the high and low surrogate recoveries. The outliers are presented in Table 5.

LABORATORY DUPLICATE EVALUATION

The laboratory prepared several project samples as laboratory duplicates. The RPDs for detected analytes were within the control limits. The acceptable RPDs indicate acceptable laboratory precision.

FIELD DUPLICATE EVALUATION

No field duplicates were submitted.

TPH EVALUATION

The laboratory noted that, "several samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes." The #2 Diesel and Motor Oil results for affected samples were qualified as tentatively identified and estimated (NJ) as shown in Table 6. The #2 Diesel and Motor Oil results in samples EY-SG35-CSB, EY-SG32-CSB, and EY-SG08-CSB and the Motor Oil results in samples EY-WG37-CSB and EY-SG36-CSB were below the MRL and were therefore not qualified.

OVERALL ASSESSMENT

None of the data required rejection. All of the data, including qualified data, can be used for decision-making purposes; however, the limitations indicated by the applied qualifiers should be considered when using the data. The quality of the data generated during this investigation is acceptable for the preparation of technically defensible documents.

Table 1
Samples with Exceeded Preservation Requirements
Cushman
Phase II ESA, Round 1, March 2018
Tacoma, Washington

Lab Package	Sample ID	Analysis Method	Preservation Condition	Limits	ERM Qualifier
580-75874-1 580-75874-2 580-75874-4	All	All	Cooler temps = 6.3°C and 7.3°C	< 6°C	--
580-75905-1 580-75905-2 580-75905-4	All	All	Cooler temp = 16.3°C	< 6°C	--

Lab reports reviewed: 580-75839-1, 580-75845-1, 580-75874-1, 580-75874-2, 580-75874-4, 580-75905-1, 580-75905-2, and 580-75905-4

Table 2
Blank and Associated Suspect Sample Detections
Cushman
Phase II ESA, Round 1, March 2018
Tacoma, Washington

Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
580-75874-1	RNS-07	--	#2 Diesel (C10-C24)	0.44	0.11	mg/L	--
		--	Mineral oil	1.9	0.36	mg/L	--
		--	Motor Oil (>C24-C36)	6.4	1.1	mg/L	--

Lab reports reviewed: 580-75839-1, 580-75845-1, 580-75874-1, 580-75874-2, 580-75874-4, 580-75905-1, 580-75905-2, and 580-75905-4

Key:

mg/L = Milligrams per liter

*Table 3
 Calibration Verification Recoveries Outside of Acceptable Limits
 Cushman
 Phase II ESA, Round 1, March 2018
 Tacoma, Washington*

Lab Package	Sample ID	Associated Sample	Compound	CCV Recovery	Reported Concentration	Units	ERM Qualifier
580-75839-1 580-75845-1	CCVRT 580-269570/3	--	#2 Diesel (C10-C24) Motor Oil (>C24-C36)	High	--	--	--
	CCV 580-269570/14						
	CCV 580-269570/32						
580-75845-1	CCV 580-269421/8	--	PCB-1232 PCB-1242 PCB-1248 PCB-1254 PCB-1260	High	--	--	--
	CCV 580-269421/9						
	CCV 580-269421/10						
	CCV 580-269421/11						
	CCVIS 580-269421/12						
	CCV 580-269421/23	--	Decachlorobiphenyl (surrogate)	Out	--	--	--
	CCVIS 580-269421/12						
	CCV 580-269421/23	--	PCB-1016 PCB-1260	High	--	--	--
	CCV 580-269971/28						
CCV 580-269570/25	--	#2 Diesel (C10-C24) Motor Oil (>C24-C36)	High	--	--	--	

*Table 3
 Calibration Verification Recoveries Outside of Acceptable Limits
 Cushman
 Phase II ESA, Round 1, March 2018
 Tacoma, Washington*

Lab Package	Sample ID	Associated Sample	Compound	CCV Recovery	Reported Concentration	Units	ERM Qualifier
580-75845-1 580-75874-1	CCV 580-270056/15	--	PCB-1016	High	--	--	--
	CCVIS 580-270056/16		PCB-1221 PCB-1260				
580-75874-1	CCV 580-269791/8	--	PCB-1016	High	--	--	--
	CCV 580-269791/9		PCB-1232				
	CCV 580-269791/10		PCB-1242				
	CCVIS 580-269791/12		PCB-1248 PCB-1260				
	CCVIS 580-269791/12	--	Decachlorobiphenyl (surrogate)	Out	--	--	--
	CCV 580-269793/10	--	PCB-1016	High	--	--	--
	CCV 580-269793/11		PCB-1232 PCB-1242 PCB-1248 PCB-1260				
	CCVRT 580-269782/3	--	#2 Diesel (C10-C24) Motor Oil (>C24-C36)	High	--	--	--
	CCV 580-269782/13						
	CCV 580-269782/41						
	CCVRT 580-269799/3	--	o-Terphenyl (surrogate)	Out	--	--	--
	CCVRT 580-270006/3						
	CCV 580-270006/14						
	CCV 580-270006/34						
CCV 580-270006/45							
CCV 580-270159/14							

*Table 3
 Calibration Verification Recoveries Outside of Acceptable Limits
 Cushman
 Phase II ESA, Round 1, March 2018
 Tacoma, Washington*

Lab Package	Sample ID	Associated Sample	Compound	CCV Recovery	Reported Concentration	Units	ERM Qualifier
580-75874-1 580-75905-1	CCV 580-269971/28	--	PCB-1016 PCB-1260	High	--	--	--
	CCV 580-270131/8	--	PCB-1016 PCB-1232 PCB-1242 PCB-1248 PCB-1260	High	--	--	--
	CCV 580-270131/9						
	CCV 580-270131/10						
	CCVIS 580-270131/12						
580-75874-2	CCV 580-270585/8	--	PCB-1016 PCB-1232 PCB-1242 PCB-1248 PCB-1260	High	--	--	--
	CCV 580-270585/9						
	CCV 580-270585/10						
	CCVIS 580-270585/12						
	CCVIS 580-270585/12	--	Decachlorobiphenyl (surrogate) Tetrachloro-m-xylene (surrogate)	High	--	--	--
CCVIS 580-270708/16	--	PCB-1016 PCB-1260	High	--	--	--	
580-75874-4	CCV 580-270129/8	--	PCB-1016 PCB-1232 PCB-1248 PCB-1260	High	--	--	--
	CCV 580-270129/9						
	CCV 580-270129/10						
	CCVIS 580-270129/12						
	CCVIS 580-270129/12	--	Decachlorobiphenyl (surrogate) Tetrachloro-m-xylene (surrogate)	Out	--	--	--
	CCVIS 580-270809/16	--	Decachlorobiphenyl (surrogate)	Out	--	--	--
	CCV 580-270809/22						
	CCV 580-270809/13	--	PCB-1016 PCB-1248 PCB-1260	High	--	--	--
CCVIS 580-270809/16							
CCV 580-270809/22							

*Table 3
 Calibration Verification Recoveries Outside of Acceptable Limits
 Cushman
 Phase II ESA, Round 1, March 2018
 Tacoma, Washington*

Lab Package	Sample ID	Associated Sample	Compound	CCV Recovery	Reported Concentration	Units	ERM Qualifier
580-75905-1	CCVIS 580-270131/12	--	Decachlorobiphenyl (surrogate) Tetrachloro-m-xylene (surrogate)	High	--	--	--
	CCV 580-269995/25	--	o-Terphenyl (surrogate)	Out	--	--	--
	CCV 580-269995/41						
580-75905-4	CCV 580-271116/8	--	PCB-1232 PCB-1248	High	--	--	--
	CCV 580-271116/9						

Lab reports reviewed: 580-75839-1, 580-75845-1, 580-75874-1, 580-75874-2, 580-75874-4, 580-75905-1, 580-75905-2, and 580-75905-4

Key:

CCV = Continuing calibration verification

High = CCV above maximum acceptable limit

Out = CCV outside acceptable limits (high/low unspecified)

Table 4
Spike Recoveries Outside of Acceptable Limits
Cushman
Phase II ESA, Round 1, March 2018
Tacoma, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Result	Units	ERM Qualifier
LCS/LCSD										
580-75839-1 580-75845-1	LCS 580-269440/2-A/ LCSD 580-269440/3-A	--	Motor Oil (>C24-C36)	120/115	70-119	4	16	--	--	--
MS/MSD										
580-75845-1	SW-02 MS/MSD	SW-02	PCB-1016	53/63	69-126	13	17	ND	mg/kg	UJ
			PCB-1260	38/49	68-136	15	21	ND	mg/kg	UJ
580-75845-4	SW-01 MS/MSD	SW-01	PCB-1016	64/62	69-126	1	17	ND	mg/kg	UJ
			PCB-1260	63/69	68-136	8	21	--	--	--
580-75905-4	EY-SG03-SB02 MS/MSD	EY-SG03-SB02	PCB-1016	57/51	69-126	12	17	ND	mg/kg	UJ

Lab reports reviewed: 580-75839-1, 580-75845-1, 580-75874-1, 580-75874-2, 580-75874-4, 580-75905-1, 580-75905-2, and 580-75905-4

Key:

LCS/LCSD = Laboratory control sample/laboratory control sample duplicate

MS/MSD - Matrix spike/matrix spike duplicate

ND = Not detected

RPD = Relative percent difference

UJ = Nondetected, estimated report limit

*Table 5
 Surrogate Recovery Results out of Acceptable Limits
 Cushman
 Phase II ESA, Round 1, March 2018
 Tacoma, Washington*

Lab Package	Sample ID	Method	Surrogate	Recovery (%)	Limit (%)	Affected Analytes	Note	ERM Qualifier
580-75874-1	EY-SG26-SB01	NWTPH-Dx	o-Terphenyl	170	50-150	#2 Diesel (C10-C24) Motor Oil (>C24-C36) Mineral oil	--	J
	EY-SG26-SB01 Lab Duplicate	NWTPH-Dx	o-Terphenyl	12	50-150	--	--	--

Lab reports reviewed: 580-75839-1, 580-75845-1, 580-75874-1, 580-75874-2, 580-75874-4, 580-75905-1, 580-75905-2, and 580-75905-4

Key:

J = Sample result qualified as estimated

Table 6
Suspect TPH Results
Cushman
Phase II ESA, Round 1, March 2018
Tacoma, Washington

Lab Package	Sample ID	Compound	Reported Concentration	Units	ERM Qualifier	Notes
580-75845-1	SW-02	#2 Diesel (C10-C24)	280	mg/kg	NJ	The sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes.
		Motor Oil (>C24-C36)	170	mg/kg	NJ	
580-75874-1	EY-SG30-CSB	#2 Diesel (C10-C24)	130	mg/kg	NJ	The sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes.
		Motor Oil (>C24-C36)	110	mg/kg	NJ	
	RNS-07	#2 Diesel (C10-C24)	0.44	mg/L	NJ	
		Motor Oil (>C24-C36)	1.9	mg/L	NJ	
580-75905-1	EY-SG37-CSB	#2 Diesel (C10-C24)	84	mg/kg	NJ	The sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes.
		Motor Oil (>C24-C36)	ND	mg/kg	--	
	EY-SG36-CSB	#2 Diesel (C10-C24)	61	mg/kg	NJ	
		Motor Oil (>C24-C36)	ND	mg/kg	--	
	EY-SG03-SB01	#2 Diesel (C10-C24)	1,800	mg/kg	NJ	
		Motor Oil (>C24-C36)	1,400	mg/kg	NJ	
	EY-SG03-SB02	#2 Diesel (C10-C24)	2,200	mg/kg	NJ	
		Motor Oil (>C24-C36)	1,100	mg/kg	NJ	
	EY-SG03-CSB	#2 Diesel (C10-C24)	1,500	mg/kg	NJ	
		Motor Oil (>C24-C36)	740	mg/kg	NJ	

*Table 6
Suspect TPH Results
Cushman
Phase II ESA, Round 1, March 2018
Tacoma, Washington*

Lab Package	Sample ID	Compound	Reported Concentration	Units	ERM Qualifier	Notes
580-75905-2	EY-SG36-SB03	#2 Diesel (C10-C24)	630	mg/kg	NJ	The sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes.
		Motor Oil (>C24-C36)	340	mg/kg	NJ	
	EY-SG37-SB02	#2 Diesel (C10-C24)	420	mg/kg	NJ	
		Motor Oil (>C24-C36)	260	mg/kg	NJ	
	EY-SG36-SB01	#2 Diesel (C10-C24)	90	mg/kg	NJ	
		Motor Oil (>C24-C36)	70	mg/kg	NJ	

Lab reports reviewed: 580-75839-1, 580-75845-1, 580-75874-1, 580-75874-2, 580-75874-4, 580-75905-1, 580-75905-2, and 580-75905-4

Key:

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NJ = Tentatively identified and estimated - chromatogram did not resemble the standard hydrocarbon pattern

TPH = Total petroleum hydrocarbons

Memorandum

Environmental Resources Management

To: Suzanne Dolberg

From: Rachel James

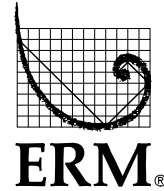
Date: 25 April 2018

Subject: Data Review of Cushman Phase II ESA Samples,
Round 2, March 2018

Project Number: 0435302

Data Packages: TestAmerica Laboratories, Inc. Data Packages 580-76096-1, 580-76096-2, 580-76096-3, 580-76187-1, and 580-76187-2

1001 SW 5th Avenue,
Suite 1010
Portland, OR 97204
(503) 488-5282
(503) 488-5124 (fax)
www.erm.com



The data quality was assessed and any necessary qualifiers were applied following the *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*, January 2017 and *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*, January 2017.

CHAIN-OF-CUSTODY DISCREPANCIES

In laboratory report 580-76096-1, samples Trip Blank(water) and Trip Blank(Soil) were received, but were not listed on the chain of custody. The laboratory logged in the samples for VOC analysis.

In laboratory report 580-76187-1, samples WY-SG12-CSB, SW25, SW28, SW20, SW21, SW24, SW23, RNS-13, RNS-14, RNS-09, SW-19, SW-30, SW-22, SW-29, SW-26, SW-27, SW-18, and SW-31 were received, but were not listed on the chain of custody. The laboratory logged in the samples per ERM instruction. Additionally, the collection time listed on the container labels did not match the time listed on the COC for samples SW-32, SW-34, SW-39, SW-41, and EY-SG06-CSB. The laboratory logged the samples in per the times on the COC.

CASE NARRATIVE COMMENTS

The laboratory case narrative for report 580-76096-1 described that sample FOCB-SB03-5' contained more than one Aroclor with insufficient separation to quantify individually. However, these detections were below the MRL and the laboratory did not report them. No qualifications were applied.

The laboratory case narrative for report 580-76187-1 described that the benzidine tailing factor (a tuning step required for 8270D SIM analysis) exceeded the method control limit of 2.0 at 2.4. Benzidine is used as a probe for base activity; therefore, a high tailing factor indicates that the chromatographic system may not adequately resolve base analytes. All reported PAH analytes are considered base compounds; therefore, all PAH results in associated sample RNS-15 were qualified as estimates (J/UJ). The data is presented in Table 1.

HOLDING TIME AND PRESERVATION EVALUATION

The samples were prepared and analyzed within the method-prescribed time period from the date of collection with the exceptions noted in Table 2. Samples RNS-13, RNS-14, RNS-15, and RNS-16 were reanalyzed due to low LCS/LCSD recoveries in the original batch. The reanalysis occurred one to three days past the 14 day holding time. The results were qualified as estimates with a low bias (J-/UJ) due to the holding time exceedance.

The sample shipments were received at the laboratory within the method-prescribed temperature preservation requirements of less than 6°C with the exception noted in Table 3. One cooler associated with lab reports 580-76187-1 and 580-76187-2 were received at a temperature greater than 6°C. The samples were received within three hours of the last sample collection time and were on ice, demonstrating that the cooling process had begun. No qualifications were necessary.

BLANK EVALUATION

The method blank sample results were nondetected for each of the target analytes. The method blank results indicate that no contaminants were introduced to the samples during processing or analysis in the laboratory.

The trip blank sample results were nondetected for each of the target analytes. No trip blank was included with samples in report 580-76187-1; however, there were no VOC detections in the associated samples and trip blank contamination is not suspected. The trip blank results indicate that no contaminants were introduced to the samples during shipment, handling, and storage.

The rinsate blank sample results were nondetected for each of the target analytes with the exceptions noted in Table 4. In all cases, the analytes detected in rinse blank samples were either not detected in project samples or were detected at concentrations greater than five-times (or ten-times for inorganic analytes) that of the rinse blanks. Qualifications were not necessary.

CONTINUING CALIBRATION VERIFICATION (CCV) EVALUATION

The continuing calibration verification (CCV) recoveries were within the laboratory's limits of acceptance, with several exceptions. In all cases, no data required qualifications as the CCVs were either high and associated results were nondetected, results were reported from a column with passing CCV recoveries, or the out of control analyte was a surrogate and the target compounds were within control. The CCVs that did not meet control limits are presented in Table 5.

BLANK SPIKE EVALUATION

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries and RPDs were within the laboratory's limits of acceptance, with the exceptions noted in Table 6. No data were qualified if the outlier could be verified by another in-control recovery. Sample results associated with the low LCS/LCSD recoveries of #2 Diesel and Motor Oil in batch 580-270796 were qualified as estimates at the reporting limit (UJ) and are also considered non-preferred.

MATRIX SPIKE EVALUATION

The matrix spike (MS)/matrix spike duplicate (MSD) recoveries and RPDs were within laboratory limits of acceptance, with one exception. No data were qualified as the outliers could be verified by an in-control result. The outliers can be found in Table 6.

SURROGATE SPIKE EVALUATION

The surrogate recoveries were within acceptable limits with several exceptions. TPH surrogate o-terphenyl was recovered below the lower

control limit in samples SW04 (analyzed on 3/30/18), RNS-12 (analyzed on 4/10/18), and a method blank and LCS/LCSD sample pair. TPH results in samples SW04 and RNS-12 associated with the low recoveries were qualified as estimates with a low bias (J-/UJ). Data were not qualified for surrogates recovered out of acceptance criteria on method blank or LCS/LCSD. These samples were instead assessed based upon the recovery of target analytes. TPH surrogate o-terphenyl was recovered above the upper control limit in sample SW04 (analyzed on 4/2/18). The associated result was qualified as an estimate with a high bias (J+).

Additionally, PCB surrogate tetrachloro-m-xylene was recovered below the lower control limit in sample SMP-01. All PCBs in this sample were reported as nondetect and were qualified as estimates at the reporting limit (UJ). The surrogate outliers are presented in Table 7.

LABORATORY DUPLICATE EVALUATION

The laboratory prepared several project samples as laboratory duplicates. The RPDs between the primary sample and the duplicate were within laboratory control limits, with the exceptions noted in Table 8. Data did not require qualification when the detections in the primary and duplicate sample were less than five times the reporting limit and the absolute difference between the primary and duplicate detections was less than the reporting limit. The primary results for arsenic and lead in sample WY-SG05-CSB and Motor Oil (>C24-C36) and Mineral Oil in sample WY-SG13-SB01 were qualified as estimates (J) as the detections in the primary and duplicate samples were greater than five times the detection limit and the RPD was above the laboratory control limit.

FIELD DUPLICATE EVALUATION

No field duplicates were submitted.

TPH EVALUATION

The laboratory noted that, "several samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes." The #2 Diesel and Motor Oil results for affected samples were

qualified as tentatively identified and estimated (NJ) as shown in Table 9. The #2 Diesel and Motor Oil results for sample SW04 were already qualified J- due to low surrogate recovery and additional qualifications were not applied. Additionally, the #2 Diesel results in samples WY-SG04-CSB and FOCB-SB03-1.5' and the Motor Oil result in sample SMP-01 were below the MRL and were therefore not qualified.

NON-PREFERRED (DUPLICATE) RESULTS

The laboratory reported two sets of TPH results for samples RNS-13, RNS-14, RNS-15, and RNS-16 in report 580-76187-1 due to low #2 Diesel and Motor Oil LCS/LCSD recoveries in the original batch. The reanalysis batch results were reported out of hold. The #2 Diesel and Motor Oil results in the original batch are considered non-preferred due to the low LCS/LCSD recoveries. The Mineral Oil results in the reanalysis batch are considered non-preferred due to the holding time exceedance. The non-preferred results are presented in Table 10.

OVERALL ASSESSMENT

None of the data required rejection. All of the data, including qualified data, can be used for decision-making purposes; however, the limitations indicated by the applied qualifiers should be considered when using the data. The quality of the data generated during this investigation is acceptable for the preparation of technically defensible documents.

Table 1
Samples with Exceeded Tuning Requirements
Cushman
Phase II ESA, Round 2, March 2018
Tacoma, Washington

Lab Package	Sample ID	Analysis Method	Tuning Condition	Limits	ERM Qualifier
580-76187-1	RNS-15	8270D SIM	Benzidine TF = 2.4	2.0	J/UJ

Lab reports reviewed: 580-76096-1, 580-76096-2, 580-76096-3, 580-76187-1, and 580-76187-2

Key:

J/UJ = Detected results are estimated; nondetected results are estimated at the report limit

TF = Tailing Factor

Table 2
Samples with Exceeded Holding Times
Cushman
Phase II ESA, Round 2, March 2018
Tacoma, Washington

Lab Package	Sample ID	Method	Extraction Holding Time	# of Days Exceeded	Analysis Holding Time	Time Exceeded	ERM Qualifier
580-76187-1	RNS-15 analyzed 4/13/18	NWTPH-Dx	14	1	40	--	UJ
	RNS-16 analyzed 4/13/18	NWTPH-Dx	14	2	40	--	UJ
	RNS-13 analyzed 4/13/18	NWTPH-Dx	14	3	40	--	J-/UJ
	RNS-14 analyzed 4/13/18	NWTPH-Dx	14	3	40	--	UJ

Lab reports reviewed: 580-76096-1, 580-76096-2, 580-76096-3, 580-76187-1, and 580-76187-2

Key:

J-/UJ = Detected results are estimated with low bias; nondetected results are estimated at the report limit

UJ= Estimated nondetected

Table 3
Samples with Exceeded Preservation Requirements
Cushman
Phase II ESA, Round 2, March 2018
Tacoma, Washington

Lab Package	Sample ID	Analysis Method	Preservation Condition	Limits	ERM Qualifier
580-76187-1 580-76187-2	--	--	Cooler temp = 6.1°C	< 6°C	--

Lab reports reviewed: 580-76096-1, 580-76096-2, 580-76096-3, 580-76187-1, and 580-76187-2

Table 4
Blank and Associated Suspect Sample Detections
Cushman
Phase II ESA, Round 2, March 2018
Tacoma, Washington

Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
580-76096-1	RNS-10	--	Barium	0.017	0.0060	mg/L	--
		--	Chromium	0.0035	0.0020	mg/L	--
		--	Lead	0.0063	0.0040	mg/L	--
580-76187-1	RNS-13	--	#2 Diesel (C10-C24)	0.11	0.11	mg/L	--
		--	Lead	0.0069	0.0040	mg/L	--
	RNS-15	--	Phenanthrene	0.032	0.020	µg/L	--
		--	Fluoranthene	0.064	0.020	µg/L	--
		--	Pyrene	0.077	0.020	µg/L	--
		--	Benzo[a]anthracene	0.034	0.020	µg/L	--
		--	Chrysene	0.035	0.020	µg/L	--
		--	Benzo[b]fluoranthene	0.043	0.020	µg/L	--
		--	Benzo[a]pyrene	0.032	0.020	µg/L	--
		--	Indeno[1,2,3-cd]pyrene	0.029	0.020	µg/L	--
--	Benzo[g,h,i]perylene	0.021	0.020	µg/L	--		

Lab reports reviewed: 580-76096-1, 580-76096-2, 580-76096-3, 580-76187-1, and 580-76187-2

Key:

mg/L = Milligrams per liter

µg/L = Micrograms per liter

*Table 5
 Calibration Verification Recoveries Outside of Acceptable Limits
 Cushman
 Phase II ESA, Round 2, March 2018
 Tacoma, Washington*

Lab Package	Sample ID	Associated Sample	Compound	CCV Recovery	Reported Concentration	Units	ERM Qualifier
580-76096-1	CCV 580-270585/8	--	PCB-1016	High	--	--	--
	CCV 580-270585/9		PCB-1232				
	CCV 580-270585/10		PCB-1242				
	CCVIS 580-270585/12		PCB-1248				
	CCVIS 580-270585/12	--	Decachlorobiphenyl (surrogate)	Out	--	--	--
	CCVIS 580-270708/16	--	PCB-1016 PCB-1260	Out	--	--	--
	CCV 580-270159/14	--	o-Terphenyl (surrogate)	Out	--	--	--
580-76096-3	CCV 580-271116/8	--	PCB-1232	High	--	--	--
	CCV 580-271116/9		PCB-1248				
580-76187-1	CCVIS 580-270768/3	--	m-Xylene & p-Xylene	High	--	--	--
	CCV 580-271051/9	--	PCB-1248	High	--	--	--
	CCVIS 580-271051/12	--	Decachlorobiphenyl (surrogate)	Out	--	--	--
	CCV 580-271116/8	--	PCB-1232 PCB-1248	High	--	--	--
	CCV 580-271116/9						
	CCVRT 580-270575/3	--	Mineral Oil	High	--	--	--
	CCV 580-270575/25						
	CCV 580-270575/29						
	CCV 580-270782/4						
CCV 580-270782/15							

Table 5
Calibration Verification Recoveries Outside of Acceptable Limits
Cushman
Phase II ESA, Round 2, March 2018
Tacoma, Washington

Lab Package	Sample ID	Associated Sample	Compound	CCV Recovery	Reported Concentration	Units	ERM Qualifier	
580-76187-1	CCVRT 580-270782/3	--	#2 Diesel (C10-C24) Motor Oil (>C24-C36)	High	--	--	--	
	CCV 580-270782/14							
	CCV 580-270782/25							
	580-76187-1	CCVRT 580-270782/3	--	o-Terphenyl (surrogate)	Out	--	--	--
		CCV 580-270782/14						
		CCV 580-270782/25						
		CCV 580-271389/16						
580-76187-2	CCV 580-271185/24	--	Mineral Oil	High	--	--	--	
	CCV 580-271185/35							
	CCV 580-271185/25	--	#2 Diesel (C10-C24) Motor Oil (>C24-C36)	High	--	--	--	
	CCV 580-271185/36							
	CCVRT 580-271383/3	--	o-Terphenyl (surrogate)	Out	--	--	--	

Lab reports reviewed: 580-76096-1, 580-76096-2, 580-76096-3, 580-76187-1, and 580-76187-2

Key:

CCV = Continuing calibration verification

High = CCV above maximum acceptable limit

Out = CCV outside acceptable limits (high/low unspecified)

Table 6
Spike Recoveries Outside of Acceptable Limits
Cushman
Phase II ESA, Round 2, March 2018
Tacoma, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Result	Units	ERM Qualifier
LCS/LCSD										
580-76096-1	LCS 580-270427/2-A/ LCSD 580-270427/3-A	--	Benzene	99/119	79-135	18	10	--	--	--
		--	Toluene	97/120	80-125	20	16	--	--	--
		--	Ethylbenzene	100/126	80-127	25	10	--	--	--
		--	m-Xylene & p-Xylene	106/130	80-128	25	13	--	--	--
		--	o-Xylene	104/122	80-125	23	14	--	--	--
	LCS 580-270554/2-A/ LCSD 580-270554/3-A	--	#2 Diesel (C10-C24)	74/61	59-112	20	16	--	--	--
		--	Motor Oil (>C24-C36)	87/71	64-120	21	17	--	--	--
580-76187-1	LCS 580-270552/2-A/ LCSD 580-270552/3-A	--	Motor Oil (>C24-C36)	88/127	70-119	8	16	--	--	--
	LCS 580-270554/2-A/ LCSD 580-270554/3-A	--	#2 Diesel (C10-C24)	74/61	59-112	20	16	--	--	--
		--	Motor Oil (>C24-C36)	87/71	64-120	21	17	--	--	--
	LCS 580-270796/2-A/ LCSD 580-270796/3-A	See below	#2 Diesel (C10-C24)	39/40	59-112	2	16	--	--	--
		See below	Motor Oil (>C24-C36)	43/46	64-120	6	17	--	--	--
	--	RNS-15	#2 Diesel (C10-C24)	--	--	--	--	ND	mg/L	UJ
	--	analyzed 4/8/18	Motor Oil (>C24-C36)	--	--	--	--	ND	mg/L	UJ
	--	RNS-16	#2 Diesel (C10-C24)	--	--	--	--	ND	mg/L	UJ
	--	analyzed 4/8/18	Motor Oil (>C24-C36)	--	--	--	--	ND	mg/L	UJ
	--	RNS-13	#2 Diesel (C10-C24)	--	--	--	--	ND	mg/L	UJ
--	analyzed 4/8/18	Motor Oil (>C24-C36)	--	--	--	--	ND	mg/L	UJ	
--	RNS-14	#2 Diesel (C10-C24)	--	--	--	--	ND	mg/L	UJ	
--	analyzed 4/8/18	Motor Oil (>C24-C36)	--	--	--	--	ND	mg/L	UJ	

Table 6
Spike Recoveries Outside of Acceptable Limits
Cushman
Phase II ESA, Round 2, March 2018
Tacoma, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Result	Units	ERM Qualifier
MS/MSD										
580-76187-1	FOCB-SB03-1.5' MS/MSD	FOCB-SB03-1.5'	2-Methylnaphthalene	73/80	75-120	5	40	--	--	--
			Phenanthrene	68/73	73-120	4	40	--	--	--

Lab reports reviewed: 580-76096-1, 580-76096-2, 580-76096-3, 580-76187-1, and 580-76187-2

Key:

LCS/LCSD = Laboratory control sample/laboratory control sample duplicate

MS/MSD - Matrix spike/matrix spike duplicate

ND = Not detected

RPD = Relative percent difference

UJ = Nondetected, estimated report limit

*Table 7
Surrogate Recovery Results out of Acceptable Limits
Cushman
Phase II ESA, Round 2, March 2018
Tacoma, Washington*

Lab Package	Sample ID	Method	Surrogate	Recovery (%)	Limit (%)	Affected Analytes	ERM Qualifier
580-76096-1	SW04 analyzed 3/30/18	NWTPH-Dx	o-Terphenyl	0	50-150	#2 Diesel (C10-C24) Motor Oil (>C24-C36)	J-
	SW04 analyzed 4/2/18	NWTPH-Dx	o-Terphenyl	179	50-150	Mineral Oil	J+
	RNS-12 analyzed 4/10/18	NWTPH-Dx	o-Terphenyl	46	50-150	Mineral Oil	UJ
580-76187-1	SMP-01	8082A	Tetrachloro-m-xylene	53	54-115	All PCBs	UJ
	MB 580-270796/1-A	NWTPH-Dx	o-Terphenyl	38	50-150	--	--
	LCS 580-270796/2-A	NWTPH-Dx	o-Terphenyl	38	50-150	--	--
	LCSD 580-270796/3-A	NWTPH-Dx	o-Terphenyl	46	50-150	--	--

Lab reports reviewed: 580-76096-1, 580-76096-2, 580-76096-3, 580-76187-1, and 580-76187-2

Key:

- J = Sample result qualified as estimated
- J+ = Detected results are estimated with a high bias
- J- = Detected results are estimated with a low bias
- UJ = Nondetected, estimated report limit

Table 8
Lab Duplicate Results and Calculated Relative Percent Differences
Cushman
Phase II ESA, Round 2, March 2018
Tacoma, Washington

Lab Package	Sample ID	Compound	Concentration		Report Limit	Units	RPD (%)	ERM Qualifier
			Sample	Duplicate				
580-76096-1	WY-SG06-CSB	Motor Oil (>C24-C36)	ND	ND	51	mg/kg	43	--
	WY-SG05-CSB	Arsenic	11	16.1	2.8	mg/kg	40	J
		Lead	17	25.4	1.4	mg/kg	40	J
580-76096-2	WY-SG13-SB01	Motor Oil (>C24-C36)	140	74.6	55	mg/kg	58	J
		Mineral Oil	99	ND	55	mg/kg	63	J

Lab reports reviewed: 580-76096-1, 580-76096-2, 580-76096-3, 580-76187-1, and 580-76187-2

Key:

J = Estimated detected result

mg/kg = Milligrams per kilogram

RPD = Relative percent difference

*Table 9
Suspect TPH Results
Cushman
Phase II ESA, Round 2, March 2018
Tacoma, Washington*

Lab Package	Sample ID	Compound	Reported Concentration	Units	ERM Qualifier	Notes
580-76096-1	SW04	#2 Diesel (C10-C24)	3,600	mg/kg	J-	The sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes.
		Motor Oil (>C24-C36)	990	mg/kg	J-	
	SW06	#2 Diesel (C10-C24)	440	mg/kg	NJ	
		Motor Oil (>C24-C36)	280	mg/kg	NJ	
	SW12	#2 Diesel (C10-C24)	1,200	mg/kg	NJ	
		Motor Oil (>C24-C36)	780	mg/kg	NJ	
	SW14	#2 Diesel (C10-C24)	350	mg/kg	NJ	
		Motor Oil (>C24-C36)	180	mg/kg	NJ	
WY-SG13-CSB	#2 Diesel (C10-C24)	250	mg/kg	NJ		
	Motor Oil (>C24-C36)	100	mg/kg	NJ		
580-76187-1	WY-SG04-CSB	#2 Diesel (C10-C24)	ND	mg/kg	--	The sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes.
		Motor Oil (>C24-C36)	78	mg/kg	NJ	
	WY-SG08-CSB	#2 Diesel (C10-C24)	140	mg/kg	NJ	
		Motor Oil (>C24-C36)	130	mg/kg	NJ	
	WY-SG02-CSB	#2 Diesel (C10-C24)	1,300	mg/kg	NJ	
		Motor Oil (>C24-C36)	580	mg/kg	NJ	
	WY-SG01-CSB	#2 Diesel (C10-C24)	310	mg/kg	NJ	
		Motor Oil (>C24-C36)	160	mg/kg	NJ	
	FOCB-SB03-1.5'	#2 Diesel (C10-C24)	ND	mg/kg	--	
		Motor Oil (>C24-C36)	56	mg/kg	NJ	
	WY-SG09-CSB	#2 Diesel (C10-C24)	220	mg/kg	NJ	
		Motor Oil (>C24-C36)	240	mg/kg	NJ	
	WY-SG10-CSB	#2 Diesel (C10-C24)	270	mg/kg	NJ	
		Motor Oil (>C24-C36)	320	mg/kg	NJ	
WY-SG11-CSB	#2 Diesel (C10-C24)	290	mg/kg	NJ		
	Motor Oil (>C24-C36)	220	mg/kg	NJ		

Table 9
Suspect TPH Results
Cushman
Phase II ESA, Round 2, March 2018
Tacoma, Washington

Lab Package	Sample ID	Compound	Reported Concentration	Units	ERM Qualifier	Notes
580-76187-1	EY-SG01-CSB	#2 Diesel (C10-C24)	450	mg/kg	NJ	The sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes.
		Motor Oil (>C24-C36)	370	mg/kg	NJ	
	EY-SG05-CSB	#2 Diesel (C10-C24)	1,300	mg/kg	NJ	
		Motor Oil (>C24-C36)	760	mg/kg	NJ	
	SMP-01	#2 Diesel (C10-C24)	0.20	mg/L	NJ	
		Motor Oil (>C24-C36)	ND	mg/L	--	
580-76187-2	WY-SG03-SB03	#2 Diesel (C10-C24)	3,000	mg/kg	NJ	The sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes.
		Motor Oil (>C24-C36)	4,200	mg/kg	NJ	
	WY-SG02-SB02	#2 Diesel (C10-C24)	11,000	mg/kg	NJ	
		Motor Oil (>C24-C36)	4,100	mg/kg	NJ	
	EY-SG05-SB01	#2 Diesel (C10-C24)	1,300	mg/kg	NJ	
		Motor Oil (>C24-C36)	850	mg/kg	NJ	
	EY-SG05-SB02	#2 Diesel (C10-C24)	520	mg/kg	NJ	
		Motor Oil (>C24-C36)	400	mg/kg	NJ	

Lab reports reviewed: 580-76096-1, 580-76096-2, 580-76096-3, 580-76187-1, and 580-76187-2

Key:

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NJ = Tentatively identified and estimated - chromatogram did not resemble the standard hydrocarbon pattern

TPH = Total petroleum hydrocarbons

Table 10
Samples with Non-Preferred Results
Cushman
Phase II ESA, Round 2, March 2018
Tacoma, Washington

Lab Package	Sample ID	Analysis Method	Analysis Date/Time	Compound	Result	Units
580-76187-1	RNS-15	NWTPH-Dx	4/8/2018 17:20	#2 Diesel (C10-C24)	ND	mg/L
			4/8/2018 17:20	Motor Oil (>C24-C36)	ND	mg/L
			4/13/2018 20:15	Mineral Oil	ND	mg/L
	RNS-16	NWTPH-Dx	4/8/2018 17:42	#2 Diesel (C10-C24)	ND	mg/L
			4/8/2018 17:42	Motor Oil (>C24-C36)	ND	mg/L
			4/13/2018 20:35	Mineral Oil	ND	mg/L
	RNS-13	NWTPH-Dx	4/8/2018 18:04	#2 Diesel (C10-C24)	ND	mg/L
			4/8/2018 18:04	Motor Oil (>C24-C36)	ND	mg/L
			4/13/2018 20:55	Mineral Oil	ND	mg/L
	RNS-14	NWTPH-Dx	4/8/2018 18:26	#2 Diesel (C10-C24)	ND	mg/L
			4/8/2018 18:26	Motor Oil (>C24-C36)	ND	mg/L
			4/13/2018 21:16	Mineral Oil	ND	mg/L

Lab reports reviewed: 580-76096-1, 580-76096-2, 580-76096-3, 580-76187-1, and 580-76187-2

Key:

mg/L = Milligrams per liter

ND = Not detected

Memorandum

**Environmental
Resources
Management**

To: Suzanne Dolberg

From: Rachel James

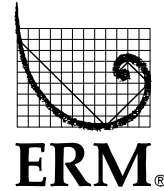
Date: 9 May 2018

Subject: Data Review of Cushman Phase II ESA Samples,
Round 3, March 2018

Project Number: 0435302

Data Packages: TestAmerica Laboratories, Inc. Data Packages 580-
76096-5, 580-76187-3, and 580-76187-5

1001 SW 5th Avenue,
Suite 1010
Portland, OR 97204
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The data quality was assessed and any necessary qualifiers were applied following the *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*, January 2017.

CHAIN-OF-CUSTODY DISCREPANCIES

In laboratory report 580-76096-5, samples Trip Blank(water) and Trip Blank(Soil) were received, but were not listed on the chain of custody. The laboratory logged in the samples for VOC analysis.

CASE NARRATIVE COMMENTS

The laboratory case narrative for report 580-76096-5 described that sample WY-SG13-SB03 contained more than one Aroclor with insufficient separation to quantify individually. The laboratory quantified the PCB result as the predominant Aroclor, PCB-1260. As shown in Table 1, all PCB results for this sample were qualified as estimates (UJ/J) due to the insufficient separation.

HOLDING TIME AND PRESERVATION EVALUATION

The samples were prepared and analyzed within the method-prescribed time period from the date of collection. The sample shipments were received at the laboratory within the method-prescribed temperature preservation requirements of less than 6°C with the exception noted in Table 2. One cooler associated with lab reports 580-76187-3 and 580-76187-5 were received at a temperature greater than 6°C. The samples

were received within three hours of the last sample collection time and were on ice, demonstrating that the cooling process had begun. No qualifications were necessary.

BLANK EVALUATION

The method blank sample results were nondetected for each of the target analytes. The method blank results indicate that no contaminants were introduced to the samples during processing or analysis in the laboratory.

CONTINUING CALIBRATION VERIFICATION (CCV) EVALUATION

The continuing calibration verification (CCV) recoveries were within the laboratory's limits of acceptance, with two exceptions. In both cases, no data required qualifications as the CCVs were either reported from a column with passing CCV recoveries or the out of control analyte was a surrogate and the target compounds were within control. The CCVs that did not meet control limits are presented in Table 3.

BLANK SPIKE EVALUATION

The laboratory control sample (LCS) recoveries were within the laboratory's limits of acceptance. The LCS recoveries indicate acceptable laboratory accuracy.

MATRIX SPIKE EVALUATION

The matrix spike (MS)/matrix spike duplicate (MSD) recoveries and RPDs were within laboratory limits of acceptance, with two exceptions. PCB-1016 and PCB-1260 were recovered below the control limits in the MS/MSD samples prepared from WY-SG03-SB03. The results in the parent sample were qualified as estimates with a low bias (UJ/J-) due to the low recoveries. The outliers can be found in Table 4.

SURROGATE SPIKE EVALUATION

The surrogate recoveries were within acceptable limits. No qualifications were required based on surrogate recoveries. The surrogate recoveries indicate minimal matrix interference in the samples.

FIELD DUPLICATE EVALUATION

No field duplicates were submitted.

OVERALL ASSESSMENT

None of the data required rejection. All of the data, including qualified data, can be used for decision-making purposes; however, the limitations indicated by the applied qualifiers should be considered when using the data. The quality of the data generated during this investigation is acceptable for the preparation of technically defensible documents.

Table 1
Samples with Insufficient Analytical Separation
Cushman
Phase II ESA, Round 3, March 2018
Tacoma, Washington

Lab Package	Sample ID	Method	Compound	Result	Units	ERM Qualifier
580-76096-5	WY-SG13-SB03	8082A	PCB-1016	ND	mg/kg	UJ
			PCB-1221	ND	mg/kg	UJ
			PCB-1232	ND	mg/kg	UJ
			PCB-1242	ND	mg/kg	UJ
			PCB-1248	ND	mg/kg	UJ
			PCB-1254	ND	mg/kg	UJ
			PCB-1260	2.2	mg/kg	J

Lab reports reviewed: 580-76096-5, 580-76187-3, and 580-76187-5

Key:

J = Estimated

mg/kg = Milligrams per kilogram

ND = Not detected

UJ = Nondetected, estimated report limit

Table 2
Samples with Exceeded Preservation Requirements
Cushman
Phase II ESA, Round 3, March 2018
Tacoma, Washington

Lab Package	Sample ID	Analysis Method	Preservation Condition	Limits	ERM Qualifier
580-76187-3 580-76187-5	--	--	Cooler temp = 6.1°C	< 6°C	--

Lab reports reviewed: 580-76096-5, 580-76187-3, and 580-76187-5

*Table 3
 Calibration Verification Recoveries Outside of Acceptable Limits
 Cushman
 Phase II ESA, Round 3, March 2018
 Tacoma, Washington*

Lab Package	Sample ID	Associated Sample	Compound	CCV Recovery	Reported Concentration	Units	ERM Qualifier
580-76096-5	CCV 580-272666/12	--	PCB-1232	High	--	--	--
	CCVIS 580-272666/16	--	Decachlorobiphenyl (surrogate)	Out	--	--	--

Lab reports reviewed: 580-76096-5, 580-76187-3, and 580-76187-5

Key:

CCV = Continuing calibration verification

High = CCV above maximum acceptable limit

Out = CCV outside acceptable limits (high/low unspecified)

Table 4
Spike Recoveries Outside of Acceptable Limits
Cushman
Phase II ESA, Round 3, March 2018
Tacoma, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Result	Units	ERM Qualifier
MS/MSD										
580-76187-5	WY-SG03-SB03 MS/MSD	WY-SG03-SB03	PCB-1016	51/53	69-126	4	17	ND	mg/kg	UJ
			PCB-1260	52/52	68-136	0	21	0.044	mg/kg	J-

Lab reports reviewed: 580-76096-5, 580-76187-3, and 580-76187-5

Key:

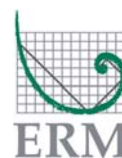
J- = Detected results are estimated with a low bias

MS/MSD - Matrix spike/matrix spike duplicate

ND = Not detected

RPD = Relative percent difference

UJ = Nondetected, estimated report limit

**Memo**

To	Suzanne Dolberg
From	Rachel James
Date	4 October 2018
Reference	0435302
Subject	Data Review of Cushman Phase IIB ESA, August 2018: TestAmerica Laboratories, Inc. Data Packages 580-79852-1 and 580-79908-1.

The data quality was assessed and any necessary qualifiers were applied following the *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*, January 2017 and *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*, January 2017.

CASE NARRATIVE COMMENTS

The laboratory case narrative stated that all three containers for sample RNS-24 were received about half full. Sufficient volume remained to complete the requested analyses and data quality was not impacted.

HOLDING TIME AND PRESERVATION EVALUATION

The samples were prepared and analyzed within the method-prescribed time period from the date of collection. The sample shipments were received at the laboratory within the method-prescribed temperature preservation requirements of less than 6°C. No qualifications were necessary.

BLANK EVALUATION

The method blank and rinse blank sample results were nondetected for each of the target analytes. No data were qualified on the basis of the blank evaluation. The blank results indicate that no contaminants were introduced to the samples during collection activities or during processing or analysis in the laboratory.

CONTINUING CALIBRATION VERIFICATION (CCV) EVALUATION

The continuing calibration verification (CCV) recoveries were within the laboratory's limits of acceptance with several exceptions. CCV recoveries for several PCB compounds on the confirmation column had percent recoveries that were greater than the upper control limits. These PCB compounds were reported from the primary column, which had passing CCV recoveries. No sample data were qualified. Percent recoveries for PCB surrogate compounds tetrachloro-m-xylene and decachlorobiphenyl were outside control limits (high or low was not specified) in some CCV samples. The CCV samples were assessed based upon the recovery of spiked target compounds and qualifications were not applied due to the out of control recovery of surrogate compounds.

Additionally, the #2 Diesel recovery in a CCV sample was high; however, the associated #2 Diesel results were non-detected and qualifications were not necessary. The CCVs that did not meet control limits are presented in Table 1.

BLANK SPIKE EVALUATION

The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) recoveries and RPDs were within the laboratory's limits of acceptance. The LCS recoveries and RPDs indicate acceptable laboratory accuracy and precision.

MATRIX SPIKE EVALUATION

The matrix spike (MS)/matrix spike duplicate (MSD) recoveries and RPDs were within laboratory limits of acceptance with one exception. No data were qualified as the recovery was high and was associated with a non-detect parent sample result. The outlier can be found in Table 2.

SURROGATE SPIKE EVALUATION

The surrogate recoveries were within acceptable limits with two exceptions. NWTPH-Dx surrogate o-terphenyl was recovered below the laboratory limits in samples EY-SG03-SB09-5 and EY-SG03-SB09-10. The associated #2 Diesel results in these samples were qualified as estimates with a low bias (J-) due to the low surrogate recoveries. The outliers are presented in Table 3.

FIELD DUPLICATE EVALUATION

No field duplicates were submitted.

TPH EVALUATION

The laboratory noted that the #2 Diesel hydrocarbon pattern present in several samples were atypical of a standard fuel pattern. The #2 Diesel results for affected samples were qualified as tentatively identified and estimated (NJ) as shown in Table 3. The #2 Diesel results in samples EY-SG03-SB09-5 and EY-SG03-SB09-10 were previously qualified J- due to low surrogate recovery and additional qualification was not applied. The #2 Diesel result in sample EY-SG03-SB10-1.5 was below the MRL and was therefore not qualified.

OVERALL ASSESSMENT

None of the data required rejection. All of the data, including qualified data, can be used for decision-making purposes; however, the limitations indicated by the applied qualifiers should be considered when using the data. The quality of the data generated during this investigation is acceptable for the preparation of technically defensible documents.

Table 1
Calibration Verification Recoveries Outside of Acceptable Limits
Cushman
Phase IIB ESA, August 2018
Tacoma, Washington

Lab Package	Sample ID	Associated Sample	Compound	CCV Recovery	Reported Concentration	Units	ERM Qualifier
580-79852-1	CCV 580-283194/6 (confirmation column)	--	PCB-1232 PCB-1248 PCB-1254 PCB-1260	High	--	--	--
	CCV 580-283194/7 (confirmation column)						
	CCV 580-283194/9 (confirmation column)						
	CCVIS 580-283194/10 (confirmation column)						
	CCV 580-284279/4 (confirmation column)	--	PCB-1232 PCB-1248 PCB-1242 PCB-1254 PCB-1016 PCB-1260	High	--	--	--
	CCV 580-284279/5 (confirmation column)						
	CCV 580-284279/6 (confirmation column)						
	CCV 580-284279/7 (confirmation column)						
	CCVIS 580-284279/8 (confirmation column)						
	CCVIS 580-284279/8	--	Tetrachloro-m-xylene (surrogate)	Out	--	--	--
	CCVIS 580-284279/19		Decachlorobiphenyl (surrogate)				
	CCV 580-284362/5 (column not specified)	--	PCB-1232 PCB-1242 PCB-1248	High	--	--	--
	CCV 580-284362/6 (column not specified)						
	CCV 580-284362/7 (column not specified)						
	CCVIS 580-284362/9	--	Tetrachloro-m-xylene (surrogate)	Out	--	--	--

Table 1
Calibration Verification Recoveries Outside of Acceptable Limits
Cushman
Phase IIB ESA, August 2018
Tacoma, Washington

Lab Package	Sample ID	Associated Sample	Compound	CCV Recovery	Reported Concentration	Units	ERM Qualifier
580-79852-1	CCV 580-283128/35	--	#2 Diesel (C10-C24)	High	--	--	--
580-79908-1	CCV 580-284114/4 (confirmation column)	--	PCB-1232 PCB-1248 PCB-1242 PCB-1254 PCB-1016 PCB-1260	High	--	--	--
	CCV 580-284114/5 (confirmation column)						
	CCV 580-284114/6 (confirmation column)						
	CCV 580-284114/7 (confirmation column)						
	CCVIS 580-284114/8 (confirmation column)						

Lab report reviewed: 580-79908-1

Key:

CCV = Continuing calibration verification

High = CCV above maximum acceptable limit

Out = CCV outside acceptable limits (high/low unspecified)

Table 2
Spike Recoveries Outside of Acceptable Limits
Cushman
Phase IIB ESA, August 2018
Tacoma, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Result	Units	ERM Qualifier
MS/MSD										
580-79908-1	FOCB-SB05-5 MS/MSD	FOCB-SB05-5	PCB-1260	138/155	57.6-120	10	27.4	ND	mg/kg	--

Lab report reviewed: 580-79908-1

Key:

mg/kg = Milligrams per kilogram

MS/MSD - Matrix spike/matrix spike duplicate

ND = Not detected

RPD = Relative percent difference

Table 3
Surrogate Recovery Results out of Acceptable Limits
Cushman
Phase IIB ESA, August 2018
Tacoma, Washington

Lab Package	Sample ID	Method	Surrogate	Recovery (%)	Limit (%)	Affected Analytes	Note	ERM Qualifier
580-79852-1	EY-SG03-SB09-5	NWTPH-Dx	o-Terphenyl	9	50-150	#2 Diesel	DF = 1	J-
	EY-SG03-SB09-10			2	50-150	#2 Diesel	DF = 1	J-

Lab report reviewed: 580-79908-1

Key:

DF = Dilution factor

J- = Detected results are estimated with a low bias

Table 4
Suspect TPH Results
Cushman
Phase IIB ESA, August 2018
Tacoma, Washington

Lab Package	Sample ID	Compound	Reported Concentration	Units	ERM Qualifier	Notes
580-79852-1	EY-SG05-SB07-1.5	#2 Diesel (C10-C24)	81	mg/kg	NJ	The sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes.
	EY-SG03-SB10-1.5		ND	mg/kg	--	
	EY-SG05-SB09-1.5		97	mg/kg	NJ	
	EY-SG04-SB07-2.0		1,100	mg/kg	NJ	
	EY-SG03-SB09-5		6,300	mg/kg	J-	
	EY-SG03-SB09-10		5,100	mg/kg	J-	
580-79908-1	SMP-01-082318	#2 Diesel (C10-C24)	5.5	mg/L	NJ	The sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes.

Lab report reviewed: 580-79908-1

Key:

J- = Detected results are estimated with a low bias

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NJ = Tentatively identified and estimated - chromatogram did not resemble the standard hydrocarbon pattern

TPH = Total petroleum hydrocarbons

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