Independent Cleanup Action Report

Interbay Urban Storage Property

West Armory Way
Seattle, Washington

Prepared for
Interbay Urban Storage, LLC

July 3, 2018
7540-11

HARTCROWSER

Independent Cleanup Action Report

Interbay Urban Storage Property

West Armory Way
Seattle, Washington

Prepared for
Interbay Urban Storage, LLC

July 3, 2018
7540-11

Prepared by

Hart Crowser, Inc.

Marissa Goodman
Environmental Engineer
Marissa.Goodman@hartcrowser.com

Julie K. W. Wukelic
Senior Principal Engineer
Julie.Wukelic@hartcrowser.com

3131 Elliott Avenue, Suite 600
Seattle, Washington 98121
206.324.9530

Contents

TABLES

FIGURES

APPENDIX A

APPENDIX B

Interbay Urban Storage Property

West Armory Way

Seattle, Washington

Executive Summary

The Interbay Urban Storage Property (Site) is located at West Amory Way in Seattle, Washington (Figure 1). The Site is being redeveloped by Interbay Urban Storage, LLC with a four-story self-storage facility.

Since property redevelopment plans involved subsurface excavation and grading, off-site disposal of any discovered impacted soil was determined to be the most effective and permanent cleanup option. Proposed contingency activities were detailed in the site-specific Construction Contingency Plan (CCP, Hart Crowser 2017c).

During redevelopment activities, soil with concentrations of heavy-oil-range petroleum hydrocarbons (TPH-O) above the Model Toxics Control Act (MTCA) Method A cleanup level was discovered. This contaminated soil was removed and disposed of off-site at a Subtitle D landfill.

The site assessments and remedial activities at the Site described in this report were completed in accordance with the CCP and substantive requirements of the MTCA. Compliance with cleanup objectives for all potential exposure pathways (direct contact, soil to groundwater, and soil vapor) have been met, and are discussed in the Compliance with MTCA Requirements section. Based on verification soil sample analytical results collected from impacted soil removal, concentrations of chemicals of concern (COCs) in soil remaining beneath the Site are below MTCA Method A cleanup levels. It is Hart Crowser's opinion that conditions on and beneath the Site do not pose a threat to human health or the environment and no further remedial actions are necessary.

Introduction

On behalf of Interbay Urban Storage, LLC, Hart Crowser oversaw environmental cleanup at the Site located at West Armory Way in Seattle, Washington. Our activities were completed during construction and redevelopment of the property. Remedial activities were completed in accordance with MTCA—Chapter 173-340 WAC—and a site-specific CCP dated May 25, 2017 (Hart Crowser 2017c).

The areas of impacted soil by petroleum hydrocarbons and soil verification samples collected during construction oversight are identified on Figure 2. A generalized subsurface cross section is provided on Figure 3.

General Site Information

Contact Information

The following table summarizes contact information for project personnel.

Table 1 – Contact Information for Responsible Parties

Party	Address	Contact	Contact Numbers
Owner – Interbay Urban Storage, LLC	15115 NE 67th Place Redmond, WA 98052	Joseph Strobele	844-622-5556
Owner's Environmental Representative (OER) – Hart Crowser	3131 Elliott Avenue, Suite 600 Seattle, WA 98121	Julie Wukelic Marissa Goodman	206-324-9530 (main) 206-255-2852 (Julie's cell) 209-312-0424 (Marissa's cell)

Property Description and Location

The Site, located at West Armory Way in the Interbay neighborhood in Seattle, Washington, is approximately 37,900 square feet (0.87 acres) in area, and comprises two King County tax parcels (2325039110 and 2325039109). The Site is bounded by West Armory Way, vacant land, railroad storage, and commercial buildings to the north; West Armory Way, an animal shelter, and a retail store to the east; a parking lot and Whole Foods Market grocery store and shopping center at 2001 15th Avenue West to the south; and the Air National Guard facility (Seattle Armory) and parking at 1600 West Armory Way to the west. The center of the Site is approximately located at latitude 47°38'18.27'' North and longitude 122°22'30.60'' West and is in the southeast quarter of Section 23 in Township 25 North, Range 3 East. The Site is known as "Interbay Self-Storage Facility" with Facility/Site identification number 8086. The Site is also a portion of the "Interbay Redevelopment Property" site with Facility/Site identification number 5497936, cleanup identification number 492, and VCP number NW1782.

According to the King County tax assessor website, the abbreviated legal description of the Site is "Pcl Y Seattle SP#3014806 Rec# 20170705900011 SD SP DAF- Pcl C SE Bla#3007838 Rec#20070830900001 Being Por E 1/2 of E 1/2 of SE 1/4 Sec 23 TGW W 1/2 of W 1/2 of SW 1/4 Sec 24-25-3 LY W of 15th Ave W Less Por For RD thof per REC#20170421000134."

Geology and Hydrogeology

The City of Seattle is in the Puget Sound lowland, characterized by north–south ridges capped by Vashon till. The Interbay neighborhood is between the north-south ridges known as Magnolia to the west and Queen Anne Hill to the east. Our understanding of the geology and hydrogeology of the property is based on investigations conducted by Hart Crowser and others on the property and adjoining sites.

The geology of the Site is mapped as artificial fill. The fill is described as placed on top of Smith Cove Tideflats prior to 1905. The fill is underlain by transitional beds consisting of inter-fingered marine sediments (sand) and lacustrine (sand, silt, or clay) deposits. The fill material was found from the ground surface extending 10 to 13 feet below ground surface (bgs). The fill soils generally consist of sand with

varying percentages of gravel and silt, ranging from absent gravel to gravelly. Alluvial soils below the fill were found at depths ranging from 10 to 13 feet bgs to depths of approximately 36 to 38 feet bgs. Lacustrine soils were found underlying alluvial soils (Hart Crowser 2016a).

Groundwater was encountered between 3 and 10 feet bgs during explorations in 2001 and 2002. The 2016 explorations found groundwater at a depth of 6 feet bgs. Fluctuations in the groundwater conditions may be caused by variations in rainfall, temperature, season, and other factors. Site grades are generally level, ranging from 14 to 15 feet elevation (Hart Crowser 2016a). Based on surrounding area topography, the estimated direction of regional groundwater flow is generally toward the southwest, toward Smith Cove—approximately 0.34 miles (1,800 feet) south-southwest of the Site (Hart Crowser 2016a).

Site History

The Site historically consisted of tideflats and a salt marsh prior to the 1880s. By the early 1900s, the northern parts of Smith Cove were being filled in with soil from regrade operations and garbage, and roads were constructed. Railroad tracks have been maintained through the Site since at least 1905. A railroad spur line extends along the Site on topographic maps from 1908 to 1983.

The 1905 Sanborn map shows the railroad spur line through the Site. The southern part of the Site extends onto the Head House portion of the Portland Cordage rope manufacturing company (the head house is the head of the long walk used in the rope-making process). The 1917 Sanborn map shows two to three railroad spur tracks owned by the Great Northern Rail Road (GNRR) company providing access to the rope manufacturer and Washington Fir Finish Company, located off the Site to the southeast.

Between 1965 and 1969, the head house portion of the cordage building was demolished, and a new building was constructed to the south of the Site. The 1969 aerial photograph shows that the south part of the Site is used for parking.

Between 2006 and 2009, the remaining portion of the cordage building south of the Site was demolished and a new structure built in its place (Whole Foods Market). The Site has been used for parking along Armory Way since the late 1960s.

Site Use

Interbay Urban Storage, LLC recently redeveloped the Site into a four-story self-storage facility with an approximately 21,000-square-foot ground floor footprint, with associated improvements for parking and utilities. Based on the level nature of the Site, mass grading and excavation was relatively minimal, with mass cuts and fills generally less than two feet thick.

Field Investigations

Previous Environmental Investigations

Several environmental site assessments were conducted on, adjacent to, and near the Site prior to redevelopment. However, no historical soil and groundwater samples were collected directly from within the footprint of the Site boundaries prior to redevelopment.

Environmental Site Assessment, J&B and BSNF Parcel, 15th Avenue West, Seattle, Washington. Prepared by Hart Crowser Inc. for South Point Seattle Investments, LLC, November 15, 2002.

This Phase II environmental site assessment was conducted on the Site and the adjacent J&B Parcel in October 2002. Soil and groundwater samples were collected from ten borings, E-1 through E-10. One boring (E-5/G-6) was located on the Site, although no soil or groundwater samples were analyzed from this boring. The soil borings were advanced to a maximum depth of 19 feet below grade. Groundwater monitoring wells were installed in three of the borings on the adjacent parcel.

Field observations indicated a slight odor in only one sample in one boring on the adjacent parcel. No odors were noted in any of the other samples, including boring E-5/G-6 located on the Site. No petroleum hydrocarbons were detected in any of the groundwater samples. Only one soil sample—from boring E-7 to the southwest of the Site below the existing Whole Foods building—had detectable concentrations of TPH-O, diesel-range petroleum hydrocarbons (TPH-D), and carcinogenic polycyclic aromatic hydrocarbons (cPAHs), which were below applicable MTCA Method A cleanup levels for unrestricted land use. No other soil samples analyzed contained any detectable petroleum, volatile organic compound (VOC), or semivolatile organic compound (SVOC) constituents. The E-5/G-6 boring advanced on the Site did not show any indication of environmental concerns.

Preliminary Environmental Assessment Update (Phase I Update), Former Tsubota Steel and J&B/BNSF Property, 15th Avenue West and Armory Way, Seattle, Washington. Prepared by Hart Crowser Inc. for South Point Seattle Investments, LLC, May 28, 2004.

This Phase I environmental site assessment update covered both the Site and the adjoining parcels to the south. A potential for subsurface impacts was identified based on the long history of industrial use of all the parcels, and it was recommended that a CCP be prepared prior to redevelopment. A cleanup action plan/construction contingency plan (CAP/CCP) was prepared for the parcels south of the Site in 2007, prior to redevelopment of those parcels. No significant issues were identified on the Site.

Final Cleanup Action Report, Interbay Redevelopment Project, Seattle, Washington. Prepared by Hart Crowser Inc. for Interbay Urban Investors LLC, October 21, 2010.

This report discussed the cleanup action conducted on the Interbay Redevelopment Project, which included the Site and the area south of the Site, where the cleanup action occurred. No cleanup action was conducted on the Site during redevelopment of the south parcels of the Interbay Redevelopment Project. The report included a discussion of previous environmental investigations, including investigations on and adjacent to the Site. In 2007, an investigation had been conducted on the Seattle Armory site bordering the Site. Groundwater samples were collected and analyzed, and there were no regulatory exceedances for petroleum or VOCs.

No additional environmental investigations were conducted on the Site during the redevelopment of the south parcels of the Interbay Redevelopment Project. The report documented that based on impacted soil and underground storage tank (UST) removals and natural attenuation of petroleum-impacted groundwater, soil and groundwater had been remediated and a No Further Action (NFA) determination was requested. On February 1, 2011, Ecology issued a NFA determination for the Interbay Redevelopment Project site, which includes the current Site (Interbay Urban Storage Property). The NFA letter is presented in Appendix A.

Methane Assessment–Proposed Interbay Urban Storage Facility, Seattle, Washington. Prepared by Herrera for Floyd Snider, November 30, 2016.

This memorandum describes three methane samples collected and analyzed on the Site. No methane was detected in any of the three probes.

Phase I Environmental Site Assessment, Interbay Urban Storage Property, West Armory Way, Seattle, Washington. Prepared by Hart Crowser Inc. for Interbay Urban Investors, LLC, May 1, 2017.

Two recognized environmental conditions (RECs) were identified in the Phase I environmental site assessment. Railroad spur lines were observed at the north end of the Site, which historically extended throughout the length of the property. The second REC was the former Interbay Landfill approximately 500 feet north and hydrologically upgradient of the Site. The landfill was used from 1911 to 1968, and is suspected of containing halogenated organics, metals, pesticides, and PAHs in groundwater, surface water, and soil. Leachate was observed draining off the Interbay Landfill site in 1984, and methane gas production has been vigorous. One historical REC was also identified: the Site is part of the larger Interbay Redevelopment Project site, which contained TPH-D, gasoline-range petroleum hydrocarbons (TPH-G), and benzene, toluene, ethylbenzene, and xylenes (BTEX) in soil and groundwater. Soil and groundwater were remediated, and the Site received a NFA determination from Ecology in 2011.

Hart Crowser recommended preparing a CCP before construction activities to outline protocols and notifications for managing and handling any environmental concerns encountered during construction. A CCP was prepared in May 2017 and implemented during construction activities at the Site. Hart Crowser also recommended implementing the methane mitigation measures that were outlined in a memorandum prepared for Interbay Urban Storage LLC by Hart Crowser (Hart Crowser 2016b). These methane mitigation measures were implemented during construction. A memorandum from Hart Crowser stated that, based on a review of methane mitigation plans and the basis of design letter, the methane mitigation plans appeared to have been prepared in substantial conformance with good engineering practice and our verbal recommendations (Hart Crowser 2017a).

Site Characterization

Analytical results for characterization stockpile soil samples collected during excavation and redevelopment are found in Table 2.

Environmental Contaminants and Media of Concern

Environmental contaminants of concern (COCs) identified at the Site are:

- **Soil.** TPH-O.
- **Groundwater.** None.
- **Vapor.** None.

Overall, the extent of the TPH-O releases to the soil were limited, near the surface, and isolated. The removal actions were successful in removing all of the contaminated soil above the MTCA Method A cleanup levels for unrestricted land use throughout the Site, as shown by the verification soil sample analytical results.

Groundwater was not considered a media of concern for multiple reasons. The COC in soil was completely removed during excavation activities, as shown by verification sample results, which eliminates the soil-to-groundwater pathway. Additionally, the Site is not within a 10-year wellhead protection area of a public water supply well, within 1,000 feet of a public or private water supply well, or within 300 feet of Smith Cove, the nearest surface water.

Vapor was not considered a medium of concern because the COC in soil was completely removed during excavation activities, as shown by verification sample results. Additionally, although a sub-slab landfill gas mitigation system was installed at the Site, no methane was detected in three samples collected and analyzed from the Site during a 2016 assessment.

Impacted Soil Removal, Sampling, and Analytical Results

During redevelopment, contaminated and impacted soil was discovered in the northern area of the Site. The remedial action of excavation and off-site disposal of the contaminated and impacted soil was conducted at the Site from September through October 2017. The following sections summarize how the remedial alternative was selected, the location of excavated impacted soil, and the verification sample analytical results. Analytical results for verification soil samples are found in Table 3, and the quality of the data is reviewed in Appendix B.

Evaluation of Remedial Alternatives

Phase I and Phase II investigations at the Site identified potential impacted soil beneath the Site based on the former railroad spurs and industrial use of the Site. Since property redevelopment plans involved subsurface excavation and grading, off-site disposal of any discovered impacted soil to a Subtitle D landfill was determined to be the most effective cleanup option, if needed. This cleanup option was selected because:

- The planned redevelopment included subsurface excavation;
- Removing any potentially impacted soil would be a permanent solution; and
- This option would be cost-effective, since any necessary cleanup could occur during development.

Summary of Completed Remedial Action

Following discovery of petroleum-impacted soils during redevelopment, the remedial action of excavation and off-site disposal was conducted at the Site from September to October 2017. Acting as a representative of the owner, Hart Crowser field representatives observed, screened, and characterized potentially contaminated or impacted soil, as appropriate, and assisted with the off-site disposal of contaminated or impacted soil when encountered.

Field screening consisted of sampling soil vapors with a photoionization detector (PID), conducting sheen tests, and visually observing soil to identify and segregate potentially impacted soil. Soil sampling and laboratory analysis characterized impacted soil for appropriate disposal, and verified that the soil remaining in place did not exceed MTCA Method A cleanup levels. Field reports were completed to document activities observed, conditions encountered, and samples collected. Sample analytical results were submitted to the contractors to coordinate disposal profiling.

The contaminated and impacted soils were located in the north area of the Site. The amount of contaminated soil with COCs above applicable MTCA Method A cleanup levels was small, surficial, and isolated, and those soils were fully removed throughout the Site during excavation.

The petroleum-contaminated soil removed from the Site includes comingled soil with concentrations of TPH-O above and below MTCA Method A soil cleanup levels for unrestricted land use. It was determined that any soil that exhibited any physical evidence of environmental impacts (e.g. odors, staining) or contained low concentrations of COCs would also be removed and disposed of off-site at Republic Services' Subtitle D landfill. Approximately 513 tons of known and potentially impacted soil was removed from the Site. A summary of off-site soil disposal tonnage is provided in Table 4.

Impacted Soil Removal and Sample Results

Within the footprint of the planned building, the depth of the excavation ranged from approximately 0 to 2 feet bgs, with select utility trenches requiring deeper excavations. Excavation and over-excavation to 5 feet bgs within the development area removed all of the known contaminated and impacted soil on and beneath the Site.

The approximate area from which the contaminated and impacted soil was removed is shown on Figures 2 and 3. During the cleanup, 27 soil samples were collected and analyzed; three of those were stockpile samples and the remaining 24 samples were verification samples collected from the excavation limits. The soil verification analytical results confirmed the final vertical and lateral limits of the excavation in the impacted area. Stockpile and verification soil sample analytical results are presented in Tables 2 and 3, respectively.

Soil containing petroleum impacts was discovered in a small isolated area near the surface on the northern portion of the Site. Petroleum-impacted soil was discovered in three sections, covering an approximately 230-foot by 15-foot area, from approximately ground surface and up to 5 feet bgs. Initially, suspect soil with petroleum odor and obvious impacts were stockpiled and sampled (Table

2—SP-A-1, SP-A-2, and SP-A-3). The chemical analysis indicated TPH-O above the applicable MTCA Method A cleanup level.

Contaminated and residual petroleum-impacted soil from this area was over-excavated, removed, and disposed of at a Subtitle D landfill. The surrounding area was field screened and soil verification samples were collected and analyzed from excavation sidewalls and beneath the impacted area. All previous soil samples that indicated TPH-O exceedances above MTCA Method A cleanup levels were excavated and disposed, along with any soils with observed petroleum impacts. The soil verification sample analytical results show that soil remaining on the Site is below MTCA Method A cleanup levels for TPH-O.

Conceptual Site Model

This section presents the conceptual site model for the Site. A discussion of the chemical and media of concern, the fate and transport characteristics of the release of the COC, the potential exposure pathways, and the potential receptors are included in this section. This section provides a conceptual understanding of the Site that is based on the results of historical research and final remedial actions performed at the Site.

Source and Release Information

Soil impacts at the Site may have been caused by the railroad spur lines or unknown fill historically placed on the Site. Figure 2 shows the approximate distribution and depth of the TPH-O-impacted soil. The TPH-O-impacted soil in the northern area of the Site was identified at a depth of approximately 0 to 5 feet bgs (approximately 10 to 15 feet elevation). Verification soil samples collected from the sidewalls and bottom of the excavated area indicate that all the soil remaining on the Site is below the MTCA Method A cleanup levels for the Site COC.

Fate and Transport Considerations

Petroleum impacts were associated primarily with soil in the northern area of the Site at approximate depths between 0 and 5 feet bgs. This impacted soil was fully excavated and removed from the Site during redevelopment. Field screening and verification soil samples collected from beneath the impacted materials and from the sidewalls of the excavation confirmed that all contaminated and impacted soil was removed from the Site and that applicable MTCA Method A cleanup levels were met.

All contaminated and impacted soil was removed on the Site. Based on the verification sample results, the Site presents no risk to human health and the environment.

Pathways for Exposure

Direct Contact Pathway. All contaminated and impacted soil on the Site has been removed. The remedial excavation extended laterally approximately 230 feet by 15 feet, and vertically up to 5 feet bgs. The verification soil samples collected and analyzed following soil excavation were below applicable MTCA Method A cleanup levels. These data results indicate the direct contact pathway has been eliminated.

Soil to Groundwater Pathway. All contaminated and impacted soil was removed and disposed of off-site. Soil sample analysis confirms that the contaminated and impacted soil was successfully remediated, and that the remaining soil on the Site no longer poses a risk to groundwater quality. The soil to groundwater exposure pathway for the Site has been eliminated.

Soil Vapor Pathway. All volatile contaminated soil has been successfully remediated at the Site, and the verification soil samples collected and analyzed following soil excavation were below applicable MTCA Method A cleanup levels for soil. Therefore, the soil vapor pathway for the Site has been eliminated.

Potential Receptors

As the pathways for exposure have been eliminated, there are no potential receptors.

Following the removal and disposal of petroleum-contaminated soil during construction activities and based on field observations and verification soil sample analytical results, current Site conditions satisfy all MTCA Method A cleanup requirements for protectiveness of human health and the environment.

Proposed Cleanup Standards

Cleanup standards involve cleanup levels and points of compliance, as described in WAC 173-340-700 through WAC 173-340-760. Cleanup standards must also incorporate other state and federal regulatory requirements applicable to the cleanup action and/or its location, as appropriate. The following section summarizes current applicable cleanup standards for the Site.

Cleanup Levels

Table 5 summarizes the current cleanup levels selected for the Site COC.

Table 5 – MTCA Cleanup Level

Medium	Chemical of Concern
	TPH-O
Soil [a] (mg/kg)	2,000

Notes:

a. MTCA Method A cleanup level.

Point of Compliance

Soil. The standard point of compliance for soil contamination by direct contact beneath a Site is 15 feet bgs, which is a reasonable estimate of the depth that could be accessed during normal redevelopment activities (WAC 173-340-740[6][d]).

As noted in the Pathways for Exposure section, the soil to groundwater and soil vapor pathways have been eliminated, so the standard points of compliance for soil for the protection of groundwater and for protection from vapors are not applicable. Additionally, as noted in the Environmental Contaminants and Media of Concern section, groundwater and vapor are not media of concern, so no point of compliance is listed for them.

Terrestrial Ecological Evaluation

Per WAC 173-340-7491(1)(a and c), the Site qualifies for an exclusion from a terrestrial ecological evaluation (TEE) because 1) all soil contamination is at least 15 feet bgs (no contaminated soil left on the Site), and 2) there is less than 1.5 acres of contiguous undeveloped land on the Site, or within 500 feet of any area of the Site. Figure 4 identifies the Site and its 500-foot radius to demonstrate that this exclusion is valid. In addition, before construction, the Site did not provide valuable habitat for ecological receptors under MTCA. This remains true for the current redevelopment.

Summary and Recommendations

Compliance with MTCA Requirements

It is Hart Crowser's opinion that cleanup actions conducted on and beneath the Site comply with the substantive requirements of MTCA and are fully protective of all potential exposure pathways. Compliance with cleanup objectives for each of the potential exposure pathways (direct contact, soil to groundwater, and soil vapor) have been met and are discussed in the Pathways for Exposure section.

The Site has been fully characterized in a manner consistent with the substantive requirements of MTCA, and performance monitoring indicates compliance with MTCA Method A cleanup levels at the points of compliance throughout the Site. The remedial action was performed in a manner consistent with Ecology's Model Remedy 1 (Department of Ecology 2017).

Approximately 513 tons of petroleum-contaminated and -impacted soil were removed and disposed of off-site at Republic Services' Subtitle D landfill. Based on verification soil sample analytical results collected from impacted soil excavation limits, concentrations of COCs in soil remaining beneath the Site are below applicable MTCA Method A cleanup levels.

The remedial action conducted on the Site should be considered final under WAC 173-340-350 through -390. It is Hart Crowser's opinion that the Site no longer poses a threat to human health or the environment and no further remedial actions are necessary. This closure report demonstrates confirmative analytical results, which show removal of all contaminated soils at concentrations exceeding the MTCA Method A cleanup levels.

References

Department of Ecology 2017. Model Remedies for Sites with Petroleum Contaminated Soils. Originally published September 2015, Revised draft August 2017.

Hart Crowser 2002. Environmental Site Assessment, J&B and BNSF Parcel, 15th Avenue West, Seattle, Washington. Prepared for South Point Seattle Investments, LLC, November 15, 2002.

Hart Crowser 2004. Preliminary Environmental Assessment Update (Phase I Update), Former Tsubota Steel and J&B/BNSF Property, 15th Avenue West and Armory Way, Seattle, Washington. Prepared for South Point Seattle Investments, LLC, May 28, 2004.

Hart Crowser 2010. Final Cleanup Action Report, Interbay Redevelopment Project, Seattle, Washington. Prepared for Interbay Urban Investors LLC, October 21, 2010.

Hart Crowser 2016a. Report of Geotechnical Engineering Services, Interbay Urban Storage Building, 1551 West Armory Way, Seattle, Washington. Prepared for CP Armory Storage Development and Interbay Urban Investors, LLC, April 26, 2016.

Hart Crowser 2016b. Memorandum on Methane Mitigation Recommendations, Interbay Urban Storage Facility, 1561 Armory Way, Seattle, Washington. Prepared for CP Armory Storage Development Services, LLC. October 7, 2016.

Hart Crowser 2017a. Memorandum on Methane Mitigation Plan Review, Interbay Urban Storage Facility, 1561 Armory Way, Seattle, Washington. Prepared for Interbay Urban Investors, LLC. March 10, 2017.

Hart Crowser 2017b. Phase I Environmental Site Assessment, Interbay Urban Storage Property, West Armory Way, Seattle, Washington. Prepared for Interbay Urban Investors, LLC, May 1, 2017.

Hart Crowser 2017c. Construction Contingency Plan, Interbay Urban Storage Property, West Armory Way, Seattle, Washington. Prepared for Interbay Urban Storage, LLC, May 25, 2017.

Herrera 2016. Methane Assessment–Proposed Interbay Urban Storage Facility, Seattle, Washington. Prepared for Floyd Snider, November 30, 2016.

\\seafs\Projects\Notebooks\754011_Interbay Urban Storage CCP_Construction\Deliverables\Reports\ICAR\Final ICAR\ICAR_Interbay Urban Storage.docx

Table 2 - Analytical Results for Stockpile Soil Samples

Sample ID Sampling Date	MTCA Method A Cleanup Level [a]	SP-A-1 9/25/2017	SP-A-2 9/25/2017	SP-A-3 9/25/2017
Moisture in %		13%	13%	11%
NWTPH-Dx in mg/kg				
Kerosene/Jet fuel	2000	20 U	20 U	20 U
Diesel/Fuel oil	2000	**170**	20 U	**690**
Heavy oil	2000	**960**	**130**	**3,900**
NWTPH-Gx in mg/kg				
Mineral spirits/Stoddard	30	5.0 U		
Gasoline	30/100[b]	5.0 U		
Metals in mg/kg				
Lead (Pb)	250	**13**	**15**	**19** J
Chromium (Cr)	19/2000[c]	**2.8**	**2.6**	**1.9**
Cadmium (Cd)	2	1.0 U	1.0 U	1.0 UJ
Arsenic (As)	20	1.0 U	1.0 U	1.0 U
Mercury (Hg) (7471)	2	0.5 U	0.5 U	0.5 U
Barium (Ba)		5.0 U	5.0 U	5.0 U
Silver (Ag)		1.0 U	1.0 U	1.0 U
Selenium (Se)		2.0 U	2.0 U	2.0 U
PCBs in mg/kg				
A1221				0.2 U
A1232				0.2 U
A1242 (A1016)				0.2 U
A1248				0.2 U
A1254				0.2 U
A1260				0.2 U
Total PCBs	1			0.2 U
PAHs in mg/kg				
1-Methylnaphthalene		0.10 U	0.10 U	**0.21**
2-Methylnaphthalene		0.10 U	0.10 U	**0.12**
Naphthalene		0.10 U	0.10 U	0.10 U
Total Naphthalenes	5	NC	NC	**0.34**
Acenaphthylene		0.10 U	0.10 U	0.10 U
Acenaphthene		0.10 U	0.10 U	0.10 U
Fluorene		0.10 U	0.10 U	0.10 U
Phenanthrene		**0.10**	0.10 U	**0.17**
Anthracene		0.10 U	0.10 U	0.10 U
Fluoranthene		0.10 U	0.10 U	0.10 U
Pyrene		**0.15**	0.10 U	0.10 U
Benzo(a)anthracene		0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	**0.39**
Benzo(b)fluoranthene		0.10 U	0.10 U	0.10 U
Benzo(k)fluoranthene		0.10 U	0.10 U	0.10 U
Benzo(a)pyrene	0.1	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)pyrene		0.10 U	0.10 U	0.10 U
Dibenzo(ah)anthracene		0.10 U	0.10 U	0.10 U
Benzo(ghi)perylene		0.10 U	0.10 U	0.10 U
Total cPAHs TEQ	0.1	NC	NC	**0.004**

Table 2 - Analytical Results for Stockpile Soil Samples

Sample ID Sampling Date	MTCA Method A Cleanup Level [a]	SP-A-1 9/25/2017	SP-A-2 9/25/2017	SP-A-3 9/25/2017
Volatiles in µg/kg				
MTBE	100	100 U		
Dichlorodifluoromethane		50 U		
Chloromethane		50 U		
Vinyl chloride		50 U		
Bromomethane		50 U		
Chloroethane		50 U		
Trichlorofluoromethane		50 U		
1,1-Dichloroethene		50 U		
Methylene chloride	20	20 U		
trans-1,2-Dichloroethene		50 U		
1,1-Dichloroethane		50 U		
2,2-Dichloropropane		50 U		
cis-1,2-Dichloroethene		50 U		
Chloroform		50 U		
1,1,1-Trichloroethane	2000	50 U		
Carbontetrachloride		50 U		
1,1-Dichloropropene		50 U		
Benzene	30	20 U		
1,2-Dichloroethane(EDC)		20 U		
Trichloroethene	30	20 U		
1,2-Dichloropropane		50 U		
Dibromomethane		50 U		
Bromodichloromethane		50 U		
cis-1,3-Dichloropropene		50 U		
Toluene	7000	50 U		
trans-1,3-Dichloropropene		50 U		
1,1,2-Trichloroethane		50 U		
Tetrachloroethene	50	50 U		
1,3-Dichloropropane		50 U		
Dibromochloromethane		20 U		
1,2-Dibromoethane (EDB)*	5	5 U		
Chlorobenzene		50 U		
1,1,1,2-Tetrachloroethane		50 U		
Ethylbenzene	6000	50 U		
Xylenes	9000	50 U		
Styrene		50 U		
Bromoform		50 U		
Isopropylbenzene		50 U		
1,2,3-Trichloropropane		50 U		
Bromobenzene		50 U		
1,1,2,2-Tetrachloroethane		50 U		
n-Propylbenzene		50 U		
2-Chlorotoluene		50 U		
4-Chlorotoluene		50 U		
1,3,5-Trimethylbenzene		50 U		
tert-Butylbenzene		50 U		
1,2,4-Trimethylbenzene		50 U		
sec-Butylbenzene		50 U		

Table 2 - Analytical Results for Stockpile Soil Samples

Sample ID Sampling Date	MTCA Method A Cleanup Level [a]	SP-A-1 9/25/2017	SP-A-2 9/25/2017	SP-A-3 9/25/2017
1,3-Dichlorobenzene		50 U		
Isopropyltoluene		50 U		
1,4-Dichlorobenzene		50 U		
1,2-Dichlorobenzene		50 U		
n-Butylbenzene		50 U		
1,2-Dibromo-3-Chloropropane		50 U		
1,2,4-Trichlorobenzene		50 U		
Hexachloro-1,3-butadiene		50 U		
Naphthalene	5000	50 U		
1,2,3-Trichlorobenzene		50 U		

U = Not detected at reporting limit indicated.
J = Estimated.
a. Method A soil cleanup level for unrestricted land use.
b. 100 mg/kg for gasoline mixtures without benzene, otherwise, 30 mg/kg.
c. 19 mg/kg as Chromium VI/2000 mg/kg as Chromium III.
Concentrations that exceed cleanup level are shaded.
Detected concentrations are bolded.

Table 3 - Analytical Results for Verification Soil Samples

Sample ID	MTCA	S-1	S-2	S-3	S-4	S-5	S-6	S-10	S-12	S-13	S-14
Sampling Date	Method A	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	10/2/2017	10/5/2017	10/5/2017	10/5/2017
Depth in Feet	Cleanup Level [a]	2.5	2	2	2	2	2	2	3	2	2
Moisture in %		14%	14%	16%	15%	14%	14%	9%	11%	7%	11%
NWTPH-Dx in mg/kg											
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U				
Diesel/Fuel oil	2000	20 U	20 U	20 U	20 U	20 U	20 U	21 U	22.3 U	20.7 U	**278**
Heavy oil	2000	50 U	50 U	50 U	50 U	50 U	50 U	**1,640**	**380**	**161**	**1,600**

Sample ID	MTCA	S-15	S-16	S-17	S-18	S-19	S-20	S-21	S-22	S-23	S-24
Sampling Date	Method A	10/5/2017	10/5/2017	10/18/2017	10/18/2017	10/18/2017	10/18/2017	10/18/2017	10/18/2017	10/19/2017	10/19/2017
Depth in Feet	Cleanup Level [a]	2	2.5	4.5	3	2.5	5	3	2.5	5	2.5
Moisture in %		9%	15%	15%	17%	16%	14%	15%	15%	18%	17%
NWTPH-Dx in mg/kg											
Kerosene/Jet fuel	2000			20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	**86.6**	**138**	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Heavy oil	2000	**471**	**270**	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U

Sample ID	MTCA	S-26	S-27	S-33	S-34
Sampling Date	Method A	10/19/2017	10/19/2017	10/20/2017	10/20/2017
Depth in Feet	Cleanup Level [a]	2.5	2.5	0 to 5	0 to 5
Moisture in %		17%	15%	17%	18%
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	20 U	20 U	**35**	20 U
Heavy oil	2000	50 U	50 U	50 U	50 U

a. Method A soil cleanup level for unrestricted land use.
U = Not detected at reporting limit indicated.
Detected concentrations are bolded.

Table 4 - Summary of Soil Disposal Tonnage to Republic Services' Subtitle D Landfill

Disposal Date	Tonnage
10/5/2017	28.97
10/5/2017	30.85
10/5/2017	27.12
10/5/2017	32.14
10/5/2017	30.63
10/5/2017	28.18
10/5/2017	18.33
10/19/2017	23.69
10/19/2017	25.55
10/19/2017	23.11
10/19/2017	25.25
10/19/2017	23.38
10/19/2017	25.89
10/19/2017	28.52
10/19/2017	26.15
10/19/2017	25.33
10/20/2017	26.5
10/23/2017	30.88
10/23/2017	32.39
	512.86 **Total Tons**

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

0 750 1,500 3,000

Scale in Feet

N

Interbay Urban Storage Property
Seattle, Washington

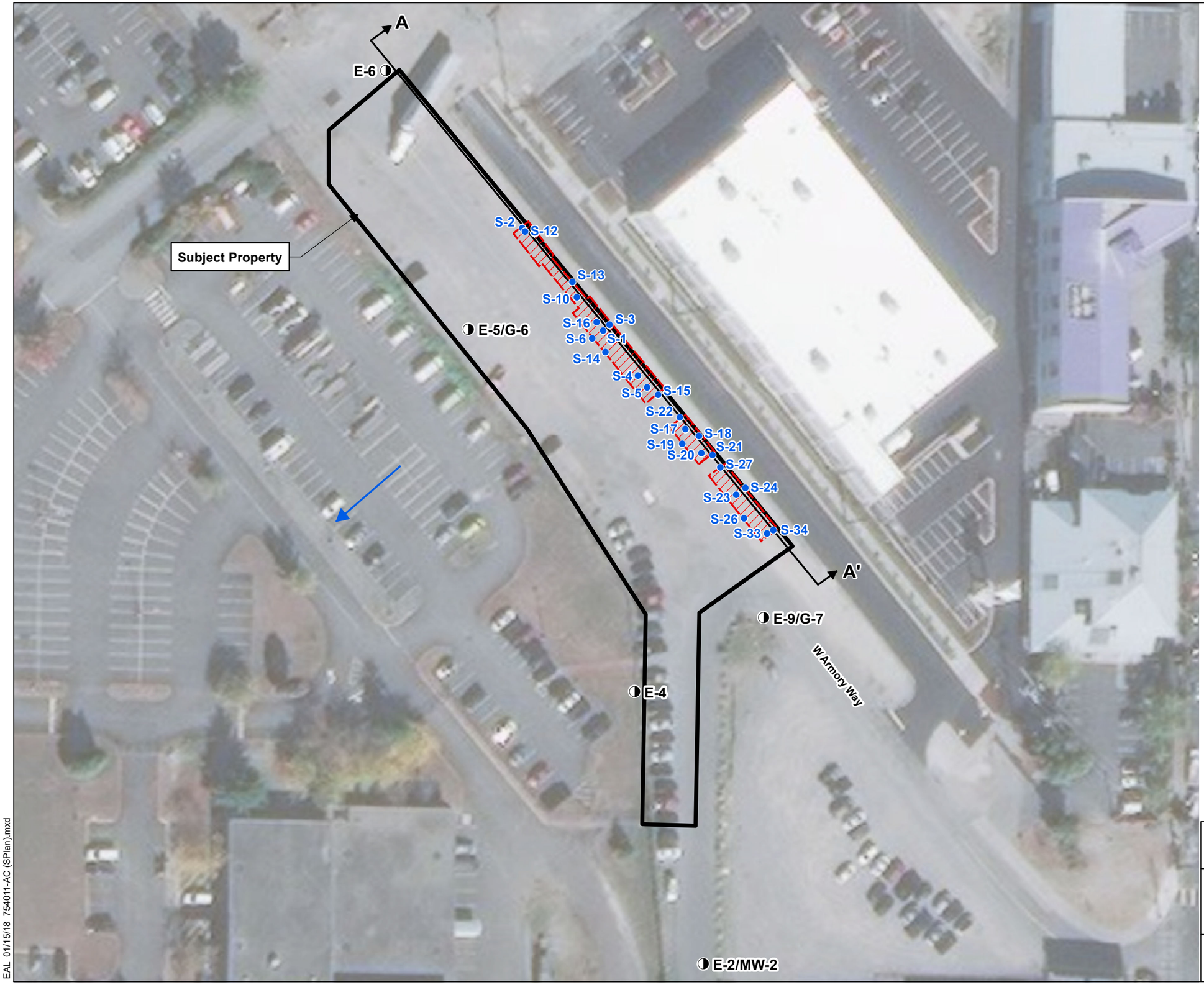
Vicinity Map

7540-11 1/18

HARTCROWSER

Figure
1

EAL 01/15/18 754011-AB (VMap).mxd



Legend

- Verification Sample (Hart Crowser 2017)
- Historical Boring (Hart Crowser 2002)
- Inferred Groundwater Flow Direction
- Approximate Area of Soil Above MTCA Method A Cleanup Levels - Removed and Disposed of Off-site at Subtitle D Landfill
- A A' Generalized Subsurface Cross Section

True North

Project North

N

0 30 60 120

Scale in Feet

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Interbay Urban Storage Property
Seattle, Washington

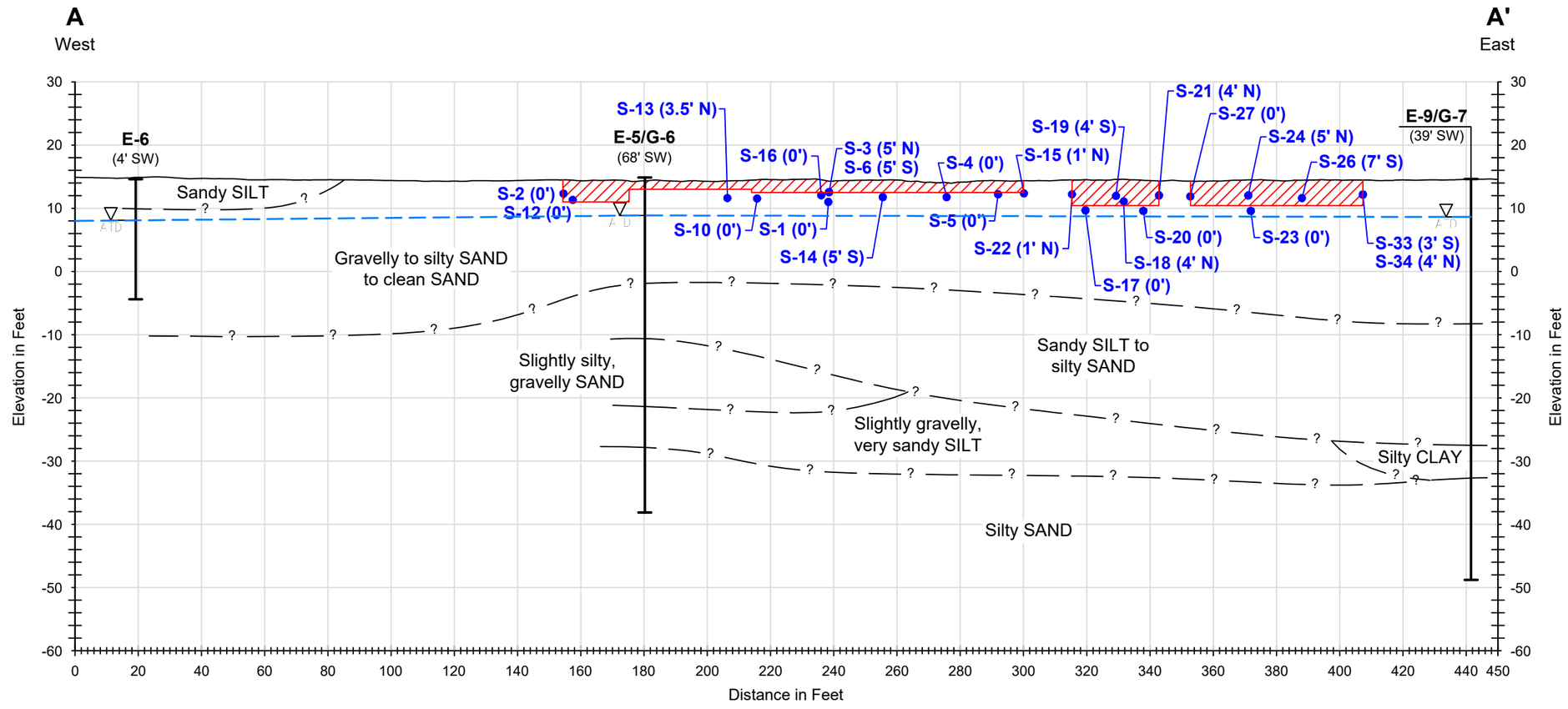
Site Plan and Verification Sample Locations

7540-11 1/18

HARTCROWSER

Figure
2

EAL 01/15/18 754011-AC (SPlan).mxd



Legend

E-6 (25.6' NE) — Exploration Number (Offset Distance and Direction)

Exploration Location

Water Level

S-3 (5' N) — Verification Sample (Offset Distance and Direction)

Approximate Area of Soil Above MTCA Method A Cleanup Levels - Removed and Disposed of Off-site at Subtitle D Landfill

Approximate Groundwater Table

Horizontal Scale in Feet
0 40 80
0 20 40
Vertical Scale in Feet
Vertical Exaggeration x 2

NOTE

1. This subsurface profile is generalized from materials observed in soil borings. Variations may exist between profile and actual conditions.
2. ATD = at time of drilling.

Reference: Surface profile line created from LiDar data obtained from Puget Sound Lidar Consortium, 2016.

Interbay Urban Storage Property
Seattle, Washington

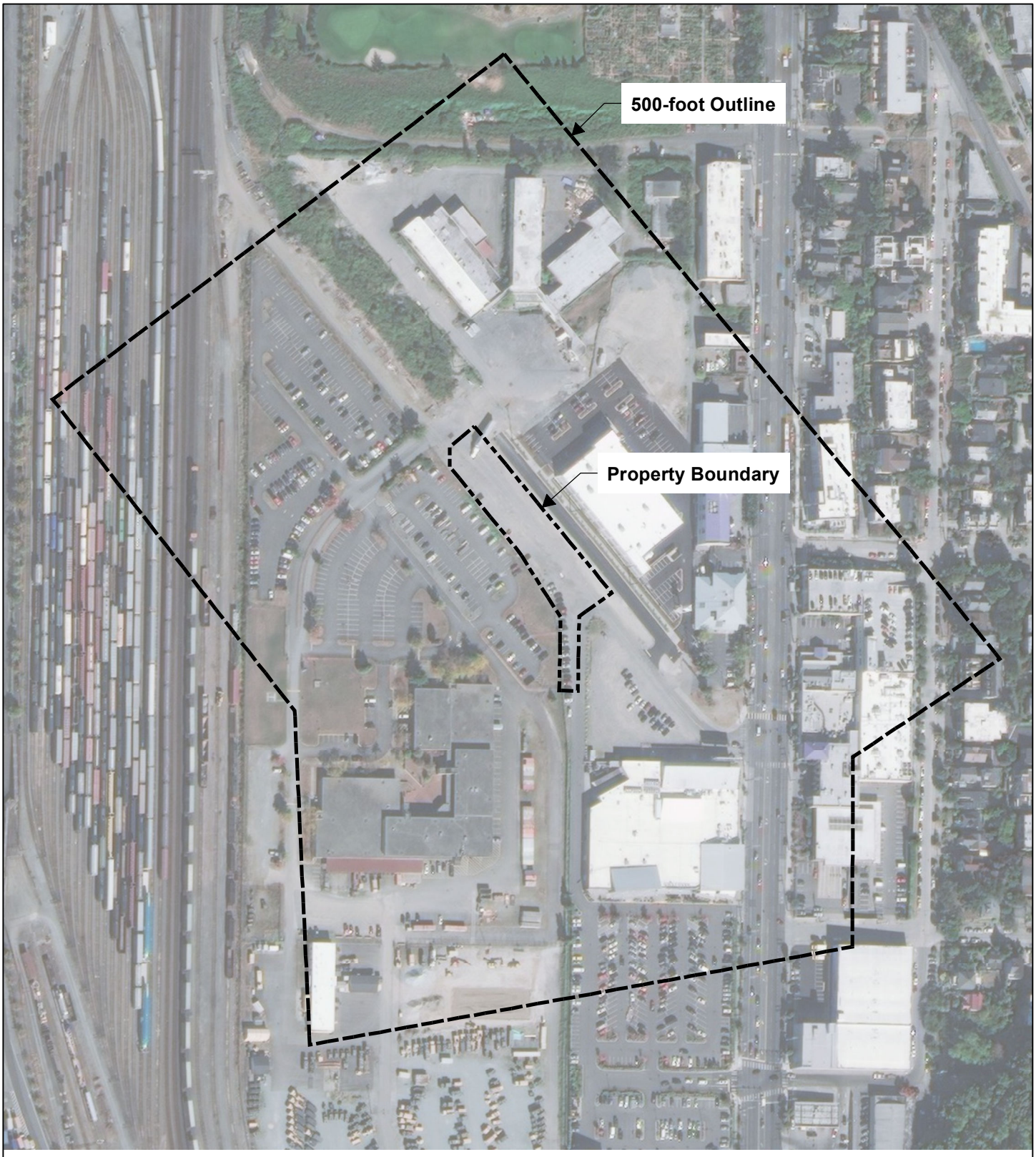
Generalized Subsurface Cross Section A-A'

7540-11 1/18

HARTCROWSER

Figure 3

File: L:\Notebooks\754011_Interbay Urban Storage CCP_Construction\CAD\754011-001 (XSec).dwg Layout:11x17 - Section Date: 06-07-2018 Author: ericlindquist



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

0 125 250 500

Scale in Feet

N

Interbay Urban Storage Property
Seattle, Washington

TEE Exclusion-Undeveloped Land

7540-11 1/18

HARTCROWSER

Figure
4

EAL 01/15/18 754011-AD (TEE).mxd

APPENDIX A
Interbay Redevelopment Project
No Further Action Letter

HQ Copy

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

February 1, 2011

Mr. Tim Russell
TRF Pacific, LLC
2620 Second Avenue
Seattle, WA 98121

Re: No Further Action at the following Site:

- **Site Name:** Interbay Redevelopment Property
- **Site Address:** 1827 15th Avenue West, Seattle, WA. 98119
- **Facility/Site No.:** 5497936
- **VCP Project No.:** NW1782

Dear Mr. Russell:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Interbay Redevelopment Property facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

NO. Ecology has determined that no further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Gasoline range petroleum hydrocarbons (tph-g), diesel range petroleum hydrocarbons (tph-d), benzene, ethylbenzene, toluene, and xylenes (BTEX) into the Soil, and Ground Water.

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Dalton, Olmsted & Fugelvand (DOF) 1998. Groundwater Monitoring and Sampling Report, February 1998, Tsubota Industrial Supply, Alisto Engineering Group, letter to DOF March 27, 1998, with Cover Memorandum from DOF to Tsubota Industrial Supply, April 28, 1998.

2. Farallon Consulting, 2001. Limited Subsurface Investigation (DRAFT), 2001-2033 15th Avenue West, Seattle, WA. March 1, 2001.

3. Hart Crowser, 1990. Soil and Groundwater Investigation Underground Storage Tank Excavations. Tsubota Industrial, Seattle, Washington, J2793-01, April 16, 1990.

4. Hart Crowser, 1990. Site Characterization and Groundwater Remediation Feasibility Study. Tsubota Industrial Property, Seattle, Washington, J2793-02, August 8, 1990.

5. Hart Crowser, 1990. Soil and Groundwater Investigation. Tsubota Industrial Property, Seattle, Washington. J2793-02, September 12, 1990

6. Hart Crowser, 2001. Environmental Assessment Update, Tsubota Steel North Property, 15th Avenue West, Seattle, WA. April 17, 2001.

7. Hart Crowser, 2002. Environmental Site Assessment, J&B and BNSF Parcel, Seattle, WA. November 15, 2002.

8. Hart Crowser, 2007. Cleanup Action Plan/Construction Contingency Plan (CAP/CCP), Specification for Handling Potential Environmental Concerns and Disposing of Environmental Impacts Encountered during Demolition and Excavation, Interbay Redevelopment Property, Seattle, WA. January 22, 2007.

9. Hart Crowser, 2008. Heavy Fuel Underground Storage Tank (UST) Closure Report, Interbay Redevelopment Property, Seattle, Washington. 17293-01. July 11, 2008.

10. Hart Crowser, 2009. Site Characterization and Summary Cleanup Report, Interbay Redevelopment Site, Seattle, Washington. 17293-01. May 22, 2009.

11. Hart Crowser, 2010. Final Cleanup Action Report, Interbay Redevelopment Project Seattle Washington. 17293-02. October 21, 2010.

Those documents are kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. You can make an appointment by calling the NWRO resource contact at 425.649.7239.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that **no further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.**

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site meet the substantive requirements of MTCA.

Current Site uses include businesses to which the public has access, so unrestricted land use is the appropriate basis for development of soil cleanup levels. The following potential exposure/risk pathways were appropriate to consider:

- Human health protection from direct soil contact pathway exposure
- Human health protection from soil-to-groundwater pathway exposure
- Human health protection from soil-to-air pathway exposure
- Human health protection from soil-to-surface water pathway exposure
- Terrestrial ecological protection

Because the site has relatively few contaminants, Method A was used to develop cleanup levels for the Site contaminants of concern.

Soil cleanup levels were selected as the WAC 173-340 Method A Table 740-1 values of 30 mg/kg for Gasoline-Range Organics, 0.03 mg/kg for Benzene, 7 mg/kg for Toluene, 6 mg/kg for Ethylbenzene, 9 mg/kg for Xylenes, 2,000 mg/kg for Diesel-Range Organics, and 2,000 mg/kg for Oil-Range Organics.

Groundwater cleanup levels were selected as the WAC 173-340 Method A Table 720-1 values of 800 ug/l for Gasoline Range Organics, 5 ug/l for Benzene, 1,000 ug/l for Toluene, 700 ug/l for Ethylbenzene, and 1,000 ug/l for Xylenes.

The point of compliance for soil is throughout the site, which is a standard point of compliance.

The point of compliance for groundwater is throughout the site, which is a standard point of compliance.

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site meets the substantive requirements of MTCA.

The selected cleanup action consisted of excavation and transportation off-site for disposal of all petroleum contaminated soil above cleanup levels. Quarterly groundwater compliance monitoring was then initiated.

4. Cleanup.

Ecology has determined the cleanup you performed meets the cleanup standards established for the Site.

Approximately 500 tons of petroleum-impacted soil were removed and disposed of off-site. A total of approximately 85 soil characterization, stockpile, and verification soil samples were collected and analyzed during site investigation, UST removal, and soil excavation and removal activities. Soil sampling and laboratory analysis were performed to characterize the potential impacted soils for appropriate disposal, and to verify that soils remaining in place did not exceed regulatory criteria (unrestricted MTCA Method A cleanup levels).

The performed cleanup has meet the substantive requirements of MTCA because the efficacy of the selected cleanup in regard to soil and groundwater has been demonstrated by confirmational soil sampling and by sampling from properly located and constructed monitoring wells over four consecutive quarters.

Listing of the Site

Based on this opinion, Ecology will remove the Site from our Confirmed and Suspected Contaminated Sites List.

Limitations of the Opinion

1. **Opinion does not settle liability with the state.**

   Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

   - Resolve or alter a person's liability to the state.
   - Protect liable persons from contribution claims by third parties.

   To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. **Opinion does not constitute a determination of substantial equivalence.**

   To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. **State is immune from liability.**

   The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Termination of Agreement

Thank you for cleaning up the Site under the Voluntary Cleanup Program (VCP). This opinion terminates the VCP Agreement governing this project (#NW1782).

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion or the termination of the Agreement, please contact me by phone at 425.649.4446 or e-mail at damy461@ecy.wa.gov.

Sincerely,

Dale R. Myers
Site Manager
NWRO Toxics Cleanup Program

dm/kp

Enclosures (1): A – Description and Diagrams of the Site

cc: Ms. Julie Wukelic
HART CROWSER, Inc.
1700 Westlake Avenue North, Suite 200
Seattle, Washington 98109-3056

Ms. Dolores Mitchell
VCP Financial Manager

Enclosure A

Description and Diagrams of the Site

The subject property consists of four tax parcels totaling approximately 8.08 acres in area.

An anchor grocery store (Whole Foods, at 2001 15th Avenue West) occupies the north building, and small shops and retail businesses occupy the south building (1827 15th Avenue West). The remaining portion of the developed property is paved with asphalt and is used for parking and driveways (Figure 2). The north portion of the property along Armory Way is unpaved and undeveloped (approximately 2.2 acres).

Two USTs and associated impacted soil were removed from the subject property in the early 1990s. Subsequent subsurface investigations across the property in 2001 and 2002 did not reveal any significant impacts in any areas. Between February 2007 and September 2008, during redevelopment construction activities, two unidentified USTs were encountered. The USTs and associated impacted soil were removed.

Summary of Tax Parcel Information

King County Tax Parcel ID number	Legal Description	Address	Parcel Size (in acres)
7666201627	SEATTLE TIDE LDS PCL A SEATTLE BLA #3007838 REC #20070830900001 SD BLA BEING POR OF E 1/2 OF E 1/2 OF SE 1/4 STR 23-25-03 & POR OF W 1/2 OF W 1/2 OF SW 1/4 STR 24-25-03 LY W OF 15TH AVE W	1827 15th Avenue West	1.77
7666201460	SEATTLE TIDE LDS PCL B SEATTLE BLA #3007838 REC #20070830900001 SD BLA BEING POR OF E 1/2 OF E 1/2 OF SE 1/4 STR 23-25-03 & POR OF W 1/2 OF W 1/2 OF SW 1/4 STR 24-25-03 LY W OF 15TH AVE W	2001 15th Avenue West	3.33
7666201491	SEATTLE TIDE LDS PCL D SEATTLE BLA #3007838 REC #20070830900001 SD BLA BEING POR OF E 1/2 OF E 1/2 OF SE 1/4 STR 23-25-03 & POR OF W 1/2 OF W 1/2 OF SW 1/4 STR 24-25-03 LY W OF 15TH AVE W	NA	.78
2325039045	PCL C SEATTLE BLA #3007838 REC #20070830900001 SD BLA BEING POR OF E 1/2 OF E 1/2 OF SE 1/4 STR 23-25-03 & POR OF W 1/2 OF W 1/2 OF SW 1/4 STR 24-25-03 LY W OF 15TH AVE W	2210 W. Armory Way	2.2
Total			8.08

Regional and Site-Specific Geology and Hydrogeology

According to the 2003 Draft USGS Geologic Map of King County (Troost and Booth USGS 2003), the property is predominantly underlain by artificial fill. The fill was placed on top of Smith Cove tide flats prior to 1905. The fill is underlain by interlayered marine sediments (sand) and lacustrine (hard sand, silt, or clay) deposits. Environmental and geotechnical subsurface investigations on the subject property conducted in 2001 and 2002 encountered fill materials 4 to 12 feet thick consisting of sand, gravel, and silt with wood, concrete, and glass debris underlain by loose sand. The sand stratum ranged in thickness from 7 to 14 feet. Beneath the sand, additional marine and lacustrine sediments were encountered down to at least 58 feet below grade.

The surrounding area topography is essentially level, with a slight, gentle slope to the southwest toward Smith Cove (Elliott Bay), located approximately one-quarter mile to the southwest.

During previous investigations, groundwater was encountered between 3 and 10 feet below grade. Groundwater occurs within the fill and tidal sediments. The estimated direction of groundwater flow on the subject property has been determined through previous investigations to be to the west and southwest, toward Smith Cove (Elliott Bay). The westerly groundwater flow is probably influenced by Queen Anne Hill, but a general southerly flow direction toward Elliot Bay is expected.

During construction, the influence of Queen Anne hill was confirmed when it was documented that surface water was flowing to the west onto the property as much as 2 gallons per minute. Construction of a 250-foot French drain on the subject property adjacent to Elliott Avenue occurred as part of the property development in 2007.

According to the Environmental Site Assessment (ESA) conducted in 2007 by SCS Engineers (SCS Engineers 2007) on the adjacent Washington State National Guard Armory site to the west, the groundwater depth ranged from 6 to 10 feet below grade. Groundwater flow direction on the Seattle Armory Site was found to flow in different directions during several investigations. Earlier investigations indicated groundwater flow direction to the southwest. The SCS Engineers 2007 investigation on the Seattle Armory site indicated that the groundwater flow direction was to the east. Based on the general topography of the area, the natural groundwater flow should be more southerly towards Elliott Bay.

SITE CONCEPTUAL MODEL

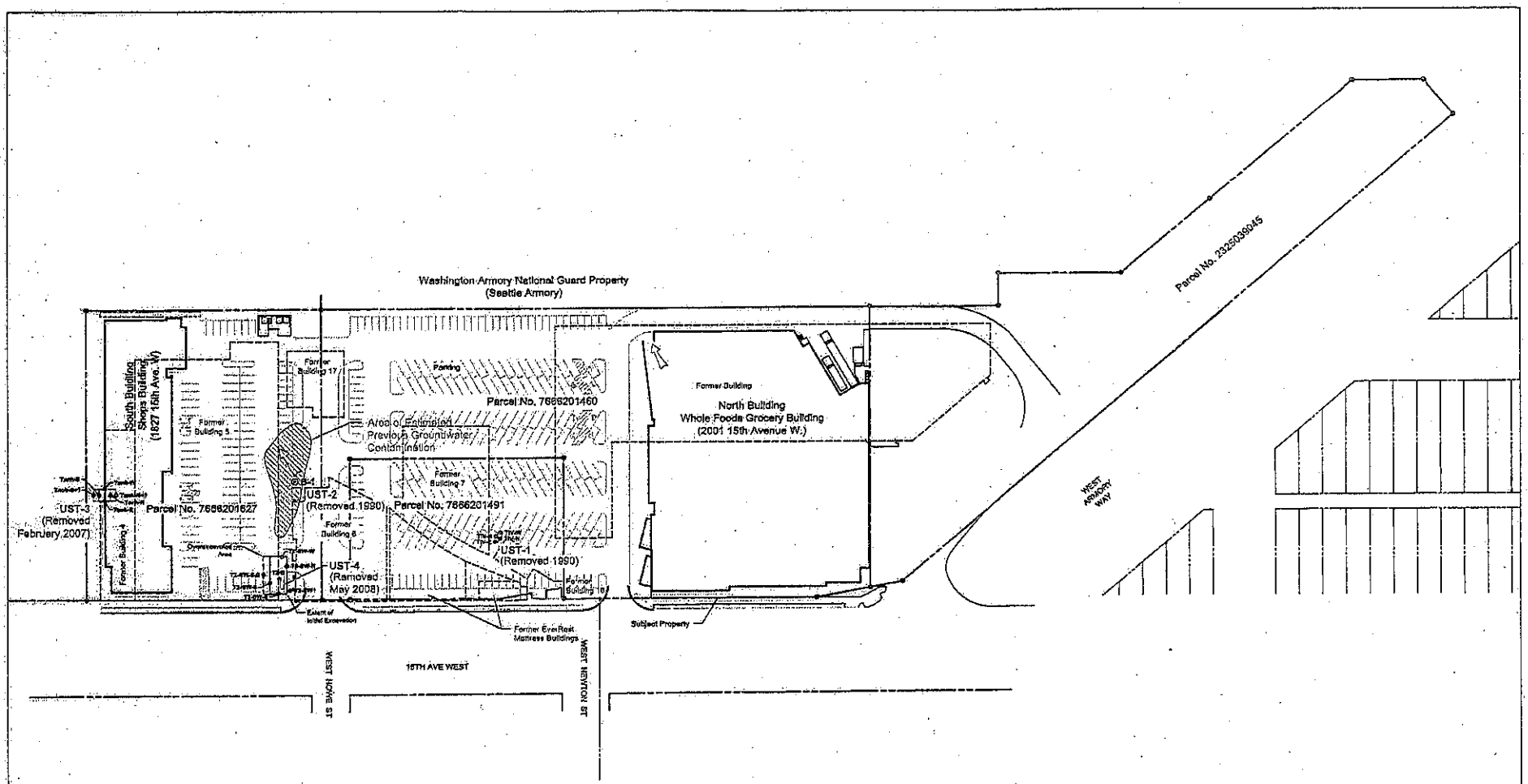
Petroleum compounds were detected in soil and groundwater in 1990 during site investigations and removal of two USTs. Isolated petroleum impacts were also discovered in 2001 during a site investigation on the north central parcel (former J&B parcel) where the former cordage manufacturer (rope manufacturer) was located. Petroleum-impacted soil was detected in shallow soil samples near the surface (0–3 feet) in two borings (SP-4 and SP-5). No groundwater impacts were found at these locations. Additional soil impacts were discovered in 2007 and 2008 in other areas of the property when two unknown USTs were encountered and removed during construction activities. No petroleum impacts above MTCA Cleanup levels were detected in the Hart Crowser 2002 investigation on the north central parcel where the former cordage operation was located.

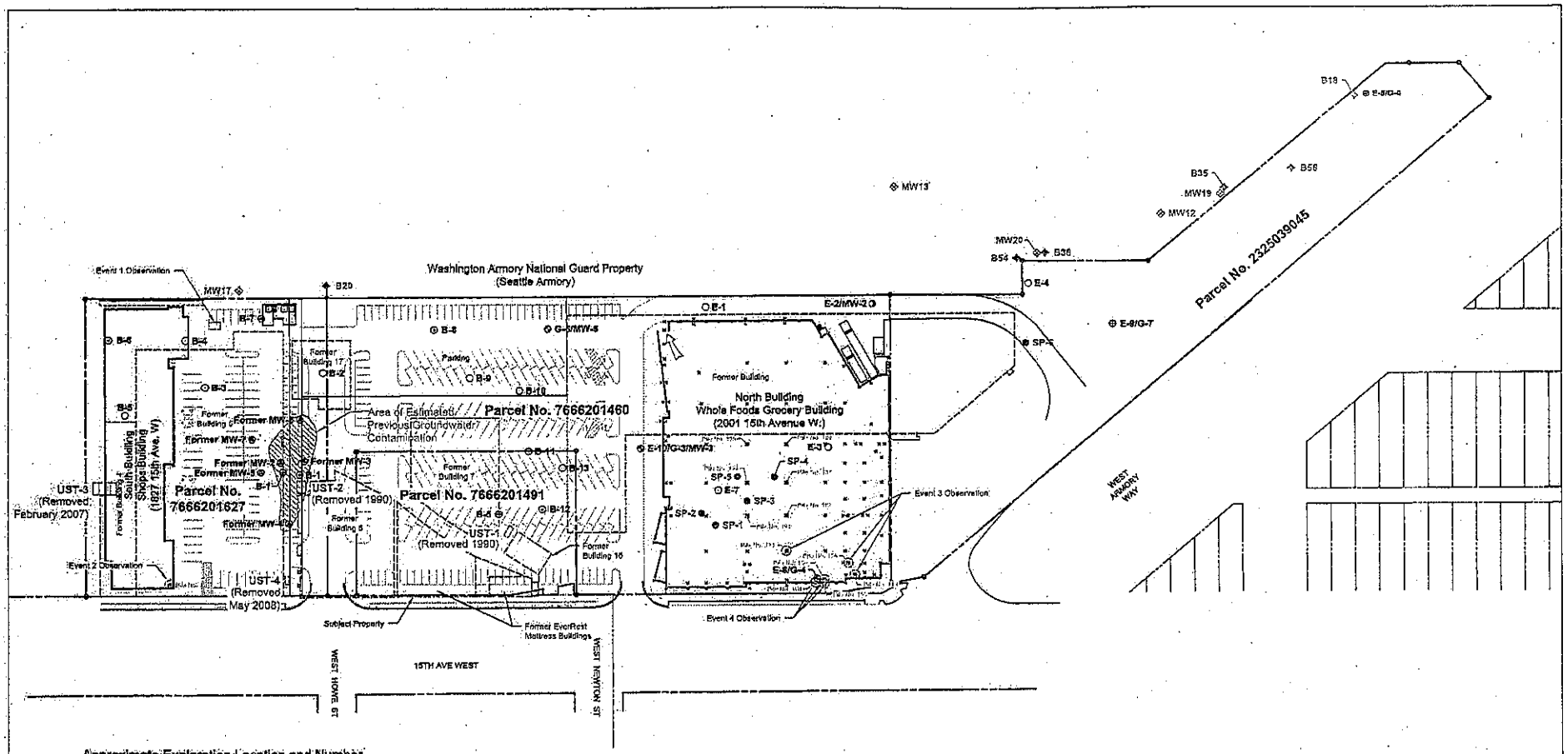
The soil impacts discovered in 1990, 2007 and 2008 were directly related to former petroleum USTs. Based on the historical use of the subject property, the petroleum releases associated with these former USTs likely occurred over the past 50 to 80 years, when buildings associated with the former Tsubota steel business were constructed in the 1930s and 1940s. Therefore, these releases could have been up to 60 years old when discovered in 1990 and up to 80 years old when discovered in 2007 and 2008. Figure 2 shows the locations of these former USTs and release areas.

Aboveground storage tanks (ASTs), concrete tanks, tar vats, and other features of the facility previously located on the north central parcel were likely removed at the time of construction of the former warehouse/office building in 1967. No petroleum impacts in soil or groundwater above MTCA Cleanup levels were encountered or observed during drilling and construction activities in 2007 and 2008 by Hart Crowser on this parcel where these features existed before 1967.

The constituents of concern (COCs) at the property and associated MTCA Site were determined to be petroleum hydrocarbons including benzene, toluene, ethylbenzene, and xylenes (BTEX). Soil impacted by petroleum releases was limited to the upper 15 feet of soil.

Approximately 500 tons of petroleum-impacted soil were removed and disposed of off-site. A total of approximately 85 soil characterization, stockpile, and verification soil samples were collected and analyzed during site investigation, UST removal, and soil excavation and removal activities. Soil sampling and laboratory analysis were performed to characterize the potential impacted soils for appropriate disposal, and to verify that soils remaining in place did not exceed regulatory criteria (unrestricted MTCA Method A cleanup levels).


Washington Armory National Guard Property
(Seattle Armory)
Parcel No. 2325039045
South Building
Sheraton Building
(1627 16th Ave. W.)
Former Building 17
Former Building 5
Parking
Parcel No. 7666201460
Area of Estimated Previous Groundwater Contamination
Former Building
North Building
Whole Foods Grocery Building
(2001 15th Avenue W.)
WEST ARMORY WAY
UST-3
(Removed February 2007)
Parcel No. 7666201627
UST-2
(Removed 1990)
Former Building 7
Parcel No. 7666201491
Former Building 6
UST-1
(Removed 1990)
UST-4
(Removed May 2008)
Former Building 10
Former ErinRest Mattress Buildings
Subject Property
Extent of Infilled Excavation
15TH AVE WEST
WEST HOWE ST
WEST HERVON ST
Approximate Exploration Location and Number
Verification Soil Sample
Environmental Boring with Grab Groundwater Sample (Hart Crowser 2001)
UST-1 Former UST Location and Number
Former Historical Building
Inferred Local Groundwater Flow Direction
0
100
200
Scale in Feet
Interbay
Seattle, Washington
UST Removal and Site Releases
17293-02
10/10
Figure
3


Washington Armory National Guard Property
(Seattle Armory)
Parcel No. 7666201460
Parcel No. 7666201491
Parcel No. 7666201627
Parcel No. 2325039045
North Building
Whole Foods Grocery Building
(2001 15th Avenue W.)
Area of Estimated Previous Groundwater Contamination
UST-1 (Removed 1990)
UST-2 (Removed 1990)
UST-3 (Removed February 2007)
UST-4 (Removed May 2008)
Former MW-2
Former MW-3
Former MW-4
Former MW-5
Event 1 Observation
Event 2 Observation
Event 3 Observation
Event 4 Observation
Subject Property
Former EverRest Mattress Buildings
15TH AVE WEST
WEST HOWE ST
WEST NEWTON ST
WEST ARMORY WAY
Approximate Exploration Location and Number
B-1 Environmental Boring (Hart Crowser 2001)
B-2 Environmental Boring with Grab Groundwater Sample (Hart Crowser 2001)
E-2/MW-2 Environmental Boring with Monitoring Well (Hart Crowser 2002)
G-4 Geotechnical Boring (Hart Crowser 2002)
G-5/MW-5 Geotechnical Boring with Monitoring Well (Hart Crowser)
Former MW-2 Former Monitoring Well (Hart Crowser 1990)
SP-1 Environmental Probe with Grab Groundwater Sample (Farallon Consulting 2001)
B-1 Environmental Boring (Hart Crowser 1990)
Soldier Pile (Hart Crowser 2007)
MW19 Seattle Armory Monitoring Well
B54 Seattle Armory Boring/Groundwater Sample
UST-1 Former UST Location and Number
Former Historical Building
Inferred Local Groundwater Flow Direction
0
60
120
Scale in Feet
Interbay
Seattle, Washington
Previous Site and Exploration Plan
17293-02
10/10
HARTCROWSER
Figure
2

APPENDIX B
Chemical Data Quality Review and Laboratory Reports

APPENDIX B
CHEMICAL DATA QUALITY REVIEW AND LABORATORY REPORTS

Chemical Data Quality Review

The samples for the project were submitted to Advanced Analytical Laboratory (AAL) in Redmond, Washington and Fremont Analytical in Seattle, Washington for chemical analysis. The table below shows laboratory report job numbers, collection date(s), and number of samples.

AAL Job No.	Date(s) Collected	Total Number of Samples Collected
C70925-1	9/25/17	3
C70927-3	9/27/17	6
C71019-1	10/18/17	6
C71020-1	10/19/17, 10/20/17	12
Fremont Analytical Job No.	**Date(s) Collected**	**Total Number of Samples Collected**
1710023	10/2/17	5
1710072	10/5/17	5

Selected soil samples were analyzed for one or more of the following:

- Diesel- and heavy-oil-range organics by Washington State Department of Ecology (Ecology) method NWTPH-Dx;
- Gasoline-range organics by Ecology method NWTPH-Gx;
- Polychlorinated biphenyls (PCBs) by EPA Method 8082;
- Metals by EPA Method 7010;
- Mercury by EPA Method 7471;
- Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270 SIM;
- Volatile organic compounds (VOCs) by EPA Method 8260B; and
- Percent moisture by Standard Method 2540B.

The laboratories performed ongoing quality assurance/quality control (QA/QC) review of laboratory procedures. Hart Crowser reviewed the laboratory QC summary sheets to determine whether QC results met data quality objectives for the project.

The following criteria were evaluated in the standard data quality review process:

- Holding times,
- Method blanks,
- Surrogate recoveries,
- Laboratory duplicate relative percent differences (RPDs),

- Matrix spike/matrix spike duplicate (MS/MSD) recoveries,
- Laboratory control sample (LCS) recoveries, and
- Reporting limits (RLs).

The data were determined to be acceptable for use with qualification. Full laboratory results are presented at the end of this appendix. Results of the data review are below.

Sample Receiving Notes

No sample receiving discrepancies were noted by the laboratory. Discrepancies from the chains of custody (COCs) are:

C70925-1. An analyte was added for analysis to one sample at the request of Hart Crowser.

C71020-1. Six samples were placed on hold and not analyzed.

1710023. Four samples were placed on hold and not analyzed.

Soil Samples

Diesel- and Heavy Oil-Range Hydrocarbons by NWTPH-Dx

Holding times and reporting limits were acceptable. No method blank contamination was detected. The laboratory duplicate RPDs were either within laboratory control limits or not applicable (NA) because the sample and/or duplicate were non-detect (ND). Surrogate and LCS recoveries were within laboratory control limits. MS/MSD recoveries and their associated RPDs were within laboratory control limits.

The data are acceptable for use without qualification.

Gasoline-Range Hydrocarbons by NWTPH-Gx

Holding times and reporting limits were acceptable. No method blank contamination was detected. Surrogate recoveries were within laboratory control limits. The laboratory duplicate RPDs were NA because the sample and/or duplicate were ND.

The data are acceptable for use without qualification.

Metals by EPA Method 7010

Holding times and reporting limits were acceptable. No method blank contamination was detected.

The laboratory duplicate RPDs were either within method control limits or NA because the sample and/or duplicate were ND with the following exception:

SP-A-3 Dup. The RPD for lead exceeded the method control limit, but was within laboratory control limits. The result for lead in SP-A-3 was qualified as estimated (J).

MS recoveries were within method control limits with the following exception:

SP-A-3 MS. The recovery for lead was not reported, and was qualified by the laboratory as M due to matrix interferences. The recovery for cadmium fell below the method control limit, but was within laboratory control limits. The results for lead and cadmium in SP-A-3 were qualified as estimated (J).

LCS recoveries were within method control limits with the following exception:

LCS 9/25/17. The recovery for barium exceeded the method control limit, but was within laboratory control limits. No samples analyzed had detections of barium at or above the laboratory reporting limit, and no results were qualified.

The data are acceptable for use with qualification.

Mercury by EPA Method 7471

Holding times and reporting limits were acceptable. No method blank contamination was detected. The laboratory duplicate RPDs were NA because the sample and/or duplicate were ND. MS and LCS recoveries were within method control limits.

The data are acceptable for use without qualification.

PAHs by EPA Method 8270 SIM

Holding times and reporting limits were acceptable. No method blank contamination was detected. Surrogate and LCS recoveries were within laboratory control limits. MS/MSD recoveries and their associated RPDs were within laboratory control limits.

The data are acceptable for use without qualification.

PCBs by EPA Method 8082

Holding times and reporting limits were acceptable. No method blank contamination was detected. LCS and surrogate recoveries were within laboratory control limits. MS/MSD recoveries and their associated RPDs were within laboratory control limits.

The data are acceptable for use without qualification.

VOCs by EPA Method 8260B

Holding times and reporting limits were acceptable. No method blank contamination was detected. LCS and surrogate recoveries were within laboratory control limits. MS/MSD recoveries and their associated RPDs were within laboratory control limits.

The data are acceptable for use without qualification.

Percent Moisture by SM 2540B

Holding times and reporting limits were acceptable. The laboratory duplicate RPDs were within laboratory control limits.

The data are acceptable for use without qualification.

Laboratory Reports
Advanced Analytical Laboratory, Inc.

ADVANCED ANALYTICAL

Environmental Testing Laboratory

September 27, 2017

Marissa Goodman
Hart Crowser, Inc.
3131 Elliott Avenue, Suite 600
Seattle, WA 98121

Dear Ms. Goodman:

Please find enclosed the analytical data report for the *Interbay Urban Storage 7540-11* ***(C70925-1)*** Project.

Samples were received on *September 25, 2017*. The results of the analyses are presented in the attached tables. Applicable reporting limits, QA/QC data and data qualifiers are included. A copy of the chain-of-custody and an invoice for the work is also enclosed.

ADVANCED ANALYTICAL LABORATORY appreciates the opportunity to provide analytical services for this project. Should there be any questions regarding this report, please contact me at (425) 702-8571.

It was a pleasure working with you, and we are looking forward to the next opportunity to work together.

Sincerely,

V. Ivanov

Val G. Ivanov, Ph.D.
Laboratory Manager

4078 148 Ave NE ■ Redmond, WA 98052
425.702-8571
E-mail: aachemlab@yahoo.com

Sample Custody Record

Samples Shipped to: AAL

C70925-1

HARTCROWSER

Hart Crowser, Inc.
1700 Westlake Avenue North, Suite 200
Seattle, Washington 98109-6212
Office: 206.324.9530 • **Fax** 206.328.5581

JOB 7540-11 LAB NUMBER

PROJECT NAME Interbay Urban Storage

HART CROWSER CONTACT M. Goodman

SAMPLED BY: MKG

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	NWTPH-Dx	NWTPH-Gx	PAHs	RCRA 8 Metals	VOCs	PCBs	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	SP-A-1		9/25/17	0820	SOIL	X	X	X	X	X		2	
	SP-A-2		1	0845	1	X	do not run	X	X			2	
	SP-A-3		1	0850	1	X	do not run	X	X		⊗	2	⊗ Added by M. Goodman 09/25/17 VT

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE Maria Stal	9/25/17	SIGNATURE V. Ivanov	09/25/17
PRINT NAME Monica Goodman	TIME	PRINT NAME VAL IVANOV	TIME
COMPANY HCA Crower	0930	COMPANY AAL	11[02]
RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	TIME	SIGNATURE	TIME
PRINT NAME		PRINT NAME	
COMPANY		COMPANY	

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. _____ for Other Contract Requirements

6 TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS:
☐YES ☐NO ☐N/A
GOOD CONDITION
☐YES ☐NO
TEMPERATURE _____
SHIPMENT METHOD: ☐HAND
☐COURIER ☐OVERNIGHT

TURNAROUND TIME:
☐ 24 HOURS ☐ 1 WEEK
☐48 HOURS ☐STANDARD
☐72 HOURS OTHER Same day

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser Gold to Sample Custodian

Advanced Analytical Laboratory
(425) 702-8571

AAL Job Number:	C70925-1
Client:	Hart Crowser, Inc.
Project Manager:	Marissa Goodman
Client Project Name:	Interbay Urban Storage
Client Project Number:	7540-11
Date received:	09/25/17

AAL Job Number: C70925-1
Client: Hart Crowser, Inc.
Project Manager: Marissa Goodman
Client Project Name: Interbay Urban Storage
Client Project Number: 7540-11
Date received: 09/25/17

Analytical Results

8260B, µg/kg		MTH BLK	LCS	SP-A-1	SP-A-1 MS	SP-A-1 MSD	SP-A-1 RPD
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17
Date analyzed	Limits	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17
MTBE	100	nd		nd			
Dichlorodifluoromethane	50	nd		nd			
Chloromethane	50	nd		nd			
Vinyl chloride	50	nd		nd			
Bromomethane	50	nd		nd			
Chloroethane	50	nd		nd			
Trichlorofluoromethane	50	nd		nd			
1,1-Dichloroethene	50	nd		nd			
Methylene chloride	20	nd		nd			
trans-1,2-Dichloroethene	50	nd		nd			
1,1-Dichloroethane	50	nd		nd			
2,2-Dichloropropane	50	nd		nd			
cis-1,2-Dichloroethene	50	nd		nd			
Chloroform	50	nd		nd			
1,1,1-Trichloroethane	50	nd		nd			
Carbontetrachloride	50	nd		nd			
1,1-Dichloropropene	50	nd		nd			
Benzene	20	nd	84%	nd	73%	74%	2%
1,2-Dichloroethane(EDC)	20	nd		nd			
Trichloroethene	20	nd	82%	nd	79%	83%	5%
1,2-Dichloropropane	50	nd		nd			
Dibromomethane	50	nd		nd			
Bromodichloromethane	50	nd		nd			
cis-1,3-Dichloropropene	50	nd		nd			
Toluene	50	nd	104%	nd	88%	86%	3%
trans-1,3-Dichloropropene	50	nd		nd			
1,1,2-Trichloroethane	50	nd		nd			
Tetrachloroethene	50	nd		nd			
1,3-Dichloropropane	50	nd		nd			
Dibromochloromethane	20	nd		nd			
1,2-Dibromoethane (EDB)*	5	nd		nd			
Chlorobenzene	50	nd	109%	nd	93%	103%	10%
1,1,1,2-Tetrachloroethane	50	nd		nd			
Ethylbenzene	50	nd		nd			
Xylenes	50	nd		nd			
Styrene	50	nd		nd			
Bromoform	50	nd		nd			
Isopropylbenzene	50	nd		nd			
1,2,3-Trichloropropane	50	nd		nd			
Bromobenzene	50	nd		nd			
1,1,2,2-Tetrachloroethane	50	nd		nd			
n-Propylbenzene	50	nd		nd			
2-Chlorotoluene	50	nd		nd			
4-Chlorotoluene	50	nd		nd			
1,3,5-Trimethylbenzene	50	nd		nd			
tert-Butylbenzene	50	nd		nd			

AAL Job Number: C70925-1
Client: Hart Crowser, Inc.
Project Manager: Marissa Goodman
Client Project Name: Interbay Urban Storage
Client Project Number: 7540-11
Date received: 09/25/17

Analytical Results

8260B, µg/kg		MTH BLK	LCS	SP-A-1	MS SP-A-1	MSD SP-A-1	RPD SP-A-1
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17
Date analyzed	Limits	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17
1,2,4-Trimethylbenzene	50	nd		nd			
sec-Butylbenzene	50	nd		nd			
1,3-Dichlorobenzene	50	nd		nd			
Isopropyltoluene	50	nd		nd			
1,4-Dichlorobenzene	50	nd		nd			
1,2-Dichlorobenzene	50	nd		nd			
n-Butylbenzene	50	nd		nd			
1,2-Dibromo-3-Chloropropane	50	nd		nd			
1,2,4-Trichlorobenzene	50	nd		nd			
Hexachloro-1,3-butadiene	50	nd		nd			
Naphthalene	50	nd		nd			
1,2,3-Trichlorobenzene	50	nd		nd			
Surrogate recoveries							
Dibromofluoromethane		91%	88%	92%	97%	90%	
Toluene-d8		87%	84%	88%	88%	87%	
1,2-Dichloroethane-d4		91%	98%	91%	95%	88%	
4-Bromofluorobenzene		106%	98%	110%	99%	113%	

*-instrument detection limits

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
M-matrix interference
C - coelution with sample peaks
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

AAL Job Number: C70925-1
Client: Hart Crowser, Inc.
Project Manager: Marissa Goodman
Client Project Name: Interbay Urban Storage
Client Project Number: 7540-11
Date received: 09/25/17

Analytical Results

NWTPH-Dx, mg/kg		MTH BLK	SP-A-1	SP-A-2	SP-A-3	SP-A-3 Dupl	SP-A-3 RPD
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17
Date analyzed	Limits	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd	
Diesel/Fuel oil	20	nd	170	nd	690	700	1%
Heavy oil	50	nd	960	130	3,900	4,100	5%
Surrogate recoveries:							
Fluorobiphenyl		102%	91%	100%	103%	104%	
o-Terphenyl		98%	94%	94%	122%	126%	

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
C - coelution with sample peaks
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

AAL Job Number:	C70925-1
Client:	Hart Crowser, Inc.
Project Manager:	Marissa Goodman
Client Project Name:	Interbay Urban Storage
Client Project Number:	7540-11
Date received:	09/25/17

Analytical Results

NWTPH-Gx		MTH BLK	SP-A-1	SP-A-1 Dupl
Matrix	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/25/17	09/25/17	09/25/17
Date analyzed	Limits	09/25/17	09/25/17	09/25/17
NWTPH-Gx, mg/kg				
Mineral spirits/Stoddard	5.0	nd	nd	nd
Gasoline	5.0	nd	nd	nd
Surrogate recoveries:				
Trifluorotoluene		116%	101%	110%
Bromofluorobenzene		129%	114%	124%

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

AAL Job Number: C70925-1
Client: Hart Crowser, Inc.
Project Manager: Marissa Goodman
Client Project Name: Interbay Urban Storage
Client Project Number: 7540-11
Date received: 09/25/17

Analytical Results

Metals (7010/7471), mg/kg		MTH BLK	LCS	SP-A-1	SP-A-2	SP-A-3	SP-A-3 Dupl	SP-A-3 RPD	SP-A-3 MS
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17
Date analyzed	Limits	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17
Lead (Pb)	1.0	nd	108%	13	15	19	25	28%	M
Chromium (Cr)	1.0	nd	89%	2.8	2.6	1.9	1.7	9%	77%
Cadmium (Cd)	1.0	nd	105%	nd	nd	nd	nd		73%
Arsenic (As)	1.0	nd	113%	nd	nd	nd	nd		82%
Mercury (Hg) (7471)	0.5	nd	105%	nd	nd	nd	nd		91%
Barium (Ba)	5.0	nd	127%	nd	nd	nd	nd		
Silver (Ag)	1.0	nd	104%	nd	nd	nd	nd		
Selenium (Se)	2.0	nd	117%	nd	nd	nd	nd		

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
M- matrix interference
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

AAL Job Number: C70925-1
Client: Hart Crowser, Inc.
Project Manager: Marissa Goodman
Client Project Name: Interbay Urban Storage
Client Project Number: 7540-11
Date received: 09/25/17

Analytical Results

PAH (8270 sim), mg/kg		MTH BLK	LCS	SP-A-1	SP-A-2	SP-A-3	MS SP-A-2	MSD SP-A-2	RPD SP-A-2
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17
Date analyzed	Limits	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17	09/25/17
1-Methylnaphthalene	0.10	nd		nd	nd	0.21			
2-Methylnaphthalene	0.10	nd		nd	nd	0.12			
Naphthalene	0.10	nd		nd	nd	nd			
Acenaphthylene	0.10	nd		nd	nd	nd			
Acenaphthene	0.10	nd	96%	nd	nd	nd	99%	98%	1%
Fluorene	0.10	nd		nd	nd	nd			
Phenanthrene	0.10	nd		0.10	nd	0.17			
Anthracene	0.10	nd		nd	nd	nd			
Fluoranthene	0.10	nd		nd	nd	nd			
Pyrene	0.10	nd	90%	0.15	nd	nd	102%	93%	9%
Benzo(a)anthracene	0.10	nd		nd	nd	nd			
Chrysene	0.10	nd		nd	nd	0.39			
Benzo(b)fluoranthene	0.10	nd		nd	nd	nd			
Benzo(k)fluoranthene	0.10	nd		nd	nd	nd			
Benzo(a)pyrene	0.10	nd		nd	nd	nd			
Indeno(1,2,3-cd)pyrene	0.10	nd		nd	nd	nd			
Dibenzo(ah)anthracene	0.10	nd		nd	nd	nd			
Benzo(ghi)perylene	0.10	nd		nd	nd	nd			

Surrogate recoveries:

2-Fluorobyphenyl	101%	109%	94%	97%	102%	109%	112%	
o-Terphenyl	94%	95%	82%	90%	71%	93%	91%	

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
M - matrix interference
Results reported on dry-weight basis
Acceptable Recovery limits: 50% TO 150%
Acceptable RPD limit: 50%

AAL Job Number: C70925-1
Client: Hart Crowser, Inc.
Project Manager: Marissa Goodman
Client Project Name: Interbay Urban Storage
Client Project Number: 7540-11
Date received: 09/25/17

Analytical Results

					MS	MSD	RPD
8082 (PCBs), mg/kg		**MTH BLK**	**LCS**	**SP-A-3**	**SP-A-3**	**SP-A-3**	**SP-A-3**
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/26/17	09/26/17	09/26/17	09/26/17	09/26/17	09/26/17
Date analyzed	Limits	09/26/17	09/26/17	09/26/17	09/26/17	09/26/17	09/26/17
A1221	0.2	nd		nd			
A1232	0.2	nd		nd			
A1242 (A1016)	0.2	nd		nd			
A1248	0.2	nd		nd			
A1254	0.2	nd		nd			
A1260	0.2	nd	85%	nd	87%	86%	1%
Surrogate recoveries:							
Tetrachloro-m-xylene		95%	117%	97%	129%	127%	
Decachlorobiphenyl		121%	78%	71%	82%	79%	

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
M - matrix interference
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 702-8571

AAL Job Number:	C70925-1
Client:	Hart Crowser, Inc.
Project Manager:	Marissa Goodman
Client Project Name:	Interbay Urban Storage
Client Project Number:	7540-11
Date received:	09/25/17

Analytical Results

Moisture, SM2540B	**SP-A-1**	**SP-A-2**	**SP-A-3**
Matrix	Soil	Soil	Soil
Date analyzed	09/25/17	09/25/17	09/25/17
Moisture, %	13%	13%	11%

ADVANCED ANALYTICAL

Environmental Testing Laboratory

September 29, 2017

Marissa Goodman
Hart Crowser, Inc.
3131 Elliott Avenue, Suite 600
Seattle, WA 98121

Dear Ms. Goodman:

Please find enclosed the analytical data report for the *Interbay Urban Storage 7540-11* ***(C70927-3)*** Project.

Samples were received on *September 27, 2017*. The results of the analyses are presented in the attached tables. Applicable reporting limits, QA/QC data and data qualifiers are included. A copy of the chain-of-custody and an invoice for the work is also enclosed.

ADVANCED ANALYTICAL LABORATORY appreciates the opportunity to provide analytical services for this project. Should there be any questions regarding this report, please contact me at (425) 702-8571.

It was a pleasure working with you, and we are looking forward to the next opportunity to work together.

Sincerely,

V. Ivanov

Val G. Ivanov, Ph.D.
Laboratory Manager

4078 148 Ave NE ■ Redmond, WA 98052
425.702-8571
E-mail: aachemlab@yahoo.com

Sample Custody Record

Samples Shipped to: AAL

C70927-3

HART CROWSER

Hart Crowser, Inc.
3131 Elliott Avenue, Suite 600
Seattle, Washington 98121
Office: 206.324.9530 • **Fax** 206.328.5581

JOB 7540-11 LAB NUMBER

PROJECT NAME Interbay

HART CROWSER CONTACT Marissa Goodman

SAMPLED BY: J. Green

LAB NO.	SAMPLE ID	~~DESCRIPTION~~	DATE	TIME	MATRIX	REQUESTED ANALYSIS: NWTPH-Dx	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	S-1		9/27/17	0830	SOIL	X	1	
	S-2			0900		X	1	
	S-3			0905		X	1	
	S-4			0910		X	1	
	S-5			0915		X	1	
	S-6			0920		X	1	

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	9/27/17	SIGNATURE	09/27/17
PRINT NAME Jennifer Green	TIME	PRINT NAME	TIME
COMPANY HC	1400	COMPANY AAL	14:30
RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	TIME	SIGNATURE	TIME
PRINT NAME		PRINT NAME	
COMPANY		COMPANY	

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS: ☐YES ☐NO ☐N/A
GOOD CONDITION ☐YES ☐NO
TEMPERATURE
SHIPMENT METHOD: ☐HAND ☐COURIER ☐OVERNIGHT

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. for Other Contract Requirements

TURNAROUND TIME:
☒ 24 HOURS ☐ 1 WEEK
☐48 HOURS ☐STANDARD
☐72 HOURS OTHER

White to Lab Yellow to Project Manager Pink to Sample Custodian

Advanced Analytical Laboratory
(425) 702-8571

AAL Job Number:	C70927-3
Client:	Hart Crowser, Inc.
Project Manager:	Marissa Goodman
Client Project Name:	Interbay
Client Project Number:	7540-11
Date received:	09/27/17

AAL Job Number: C70927-3
Client: Hart Crowser, Inc.
Project Manager: Marissa Goodman
Client Project Name: Interbay
Client Project Number: 7540-11
Date received: 09/27/17

Analytical Results

NWTPH-Dx, mg/kg		MTH BLK	S-1	S-2	S-3	S-4	S-5	S-6	Dupl S-6
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/28/17	09/28/17	09/28/17	09/28/17	09/28/17	09/28/17	09/28/17	09/28/17
Date analyzed	Limits	09/28/17	09/28/17	09/28/17	09/28/17	09/28/17	09/28/17	09/28/17	09/28/17
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd	nd	nd	nd
Diesel/Fuel oil	20	nd	nd	nd	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd	nd	nd	nd
Surrogate recoveries:									
Fluorobiphenyl		96%	98%	102%	97%	102%	98%	98%	102%
o-Terphenyl		97%	100%	104%	101%	105%	102%	98%	95%

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
C - coelution with sample peaks
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 702-8571

AAL Job Number:	C70927-3
Client:	Hart Crowser, Inc.
Project Manager:	Marissa Goodman
Client Project Name:	Interbay
Client Project Number:	7540-11
Date received:	09/27/17

Analytical Results

Moisture, SM2540B	**S-1**	**S-2**	**S-3**	**S-4**	**S-5**	**S-6**
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date analyzed	09/29/17	09/29/17	09/29/17	09/29/17	09/29/17	09/29/17
Moisture, %	14%	14%	16%	15%	14%	14%

ADVANCED ANALYTICAL

Environmental Testing Laboratory

October 20, 2017

Marissa Goodman
Hart Crowser, Inc.
3131 Elliott Avenue, Suite 600
Seattle, WA 98121

Dear Ms. Goodman:

Please find enclosed the analytical data report for the *Interbay 7540-11* ***(C71019-1)*** Project.

Samples were received on *October 19, 2017*. The results of the analyses are presented in the attached tables. Applicable reporting limits, QA/QC data and data qualifiers are included. A copy of the chain-of-custody and an invoice for the work is also enclosed.

ADVANCED ANALYTICAL LABORATORY appreciates the opportunity to provide analytical services for this project. Should there be any questions regarding this report, please contact me at (425) 702-8571.

It was a pleasure working with you, and we are looking forward to the next opportunity to work together.

Sincerely,

V. Ivanov

Val G. Ivanov, Ph.D.
Laboratory Manager

4078 148 Ave NE ■ Redmond, WA 98052
425.702-8571
E-mail: aachemlab@yahoo.com

Sample Custody Record

Samples Shipped to: AAL

C710191

HARTCROWSER

Hart Crowser, Inc.
1700 Westlake Avenue North, Suite 200
Seattle, Washington 98109-6212
Office: 206.324.9530 • **Fax** 206.328.5581

JOB [illegible] LAB NUMBER

PROJECT NAME [illegible]

HART CROWSER CONTACT M Cashman

SAMPLED BY: J Blanchette

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS: NWTPH-Dx	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	S-11		10/18/17	1540	Soil	X	1	
	S-18		"	1605	"	X	1	
	S-19			1655		X	1	
	S-20			1710		X	1	
	S-21			1715		X	1	
	S-22			1720		X	1	

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	10/18/17	SIGNATURE	10/19/17
PRINT NAME Jessica Blanchette	TIME 1745	PRINT NAME Matthew Goodman	TIME 0700
COMPANY Hart Crowser		COMPANY HC	

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE		SIGNATURE V. Ivanov	10/19/17
PRINT NAME	TIME	PRINT NAME AL Ivanov	TIME 11:15
COMPANY		COMPANY AAL	

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

6 TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS: ☐YES ☐NO ☐N/A
GOOD CONDITION ☐YES ☐NO
TEMPERATURE _____
SHIPMENT METHOD: ☐HAND ☐COURIER ☐OVERNIGHT

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. _____ for Other Contract Requirements

TURNAROUND TIME:
☐ 24 HOURS ☐ 1 WEEK
☐48 HOURS ☐STANDARD
☐72 HOURS OTHER Same day

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser Gold to Sample Custodian

Advanced Analytical Laboratory
(425) 702-8571

AAL Job Number:	C71019-1
Client:	Hart Crowser, Inc.
Project Manager:	Marissa Goodman
Client Project Name:	Interbay
Client Project Number:	7540-11
Date received:	10/19/17

Advanced Analytical Laboratory
(425) 702-8571

AAL Job Number: C71019-1
Client: Hart Crowser, Inc.
Project Manager: Marissa Goodman
Client Project Name: Interbay
Client Project Number: 7540-11
Date received: 10/19/17

Analytical Results

NWTPH-Dx, mg/kg		MTH BLK	S-17	S-18	S-19	S-20	S-21	S-22	S-22 Dupl
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	10/19/17	10/19/17	10/19/17	10/19/17	10/19/17	10/19/17	10/19/17	10/19/17
Date analyzed	Limits	10/19/17	10/19/17	10/19/17	10/19/17	10/19/17	10/19/17	10/19/17	10/19/17
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd	nd	nd	nd
Diesel/Fuel oil	20	nd	nd	nd	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd	nd	nd	nd
Surrogate recoveries:									
Fluorobiphenyl		86%	87%	85%	85%	84%	87%	82%	90%
o-Terphenyl		78%	77%	79%	76%	75%	78%	80%	78%

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
C - coelution with sample peaks
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 702-8571

AAL Job Number: C71019-1
Client: Hart Crowser, Inc.
Project Manager: Marissa Goodman
Client Project Name: Interbay
Client Project Number: 7540-11
Date received: 10/19/17

Analytical Results

Moisture, SM2540B	S-17	S-18	S-19	S-20	S-21	S-22
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date analyzed	10/20/17	10/20/17	10/20/17	10/20/17	10/20/17	10/20/17
Moisture, %	15%	17%	16%	14%	15%	15%

ADVANCED ANALYTICAL

Environmental Testing Laboratory

October 23, 2017

Marissa Goodman
Hart Crowser, Inc.
3131 Elliott Avenue, Suite 600
Seattle, WA 98121

Dear Ms. Goodman:

Please find enclosed the analytical data report for the *Interbay 7540-11* ***(C71020-1)*** Project.

Samples were received on *October 20, 2017*. The results of the analyses are presented in the attached tables. Applicable reporting limits, QA/QC data and data qualifiers are included. A copy of the chain-of-custody and an invoice for the work is also enclosed.

ADVANCED ANALYTICAL LABORATORY appreciates the opportunity to provide analytical services for this project. Should there be any questions regarding this report, please contact me at (425) 702-8571.

It was a pleasure working with you, and we are looking forward to the next opportunity to work together.

Sincerely,

V. Ivanov

Val G. Ivanov, Ph.D.
Laboratory Manager

4078 148 Ave NE ■ Redmond, WA 98052
425.702-8571
E-mail: aachemlab@yahoo.com

Sample Custody Record

1 of 1 C71020-1 CL

Samples Shipped to: AAL

HARTCROWSER

Hart Crowser, Inc.
1700 Westlake Avenue North, Suite 200
Seattle, Washington 98109-6212
Office: 206.324.9530 • **Fax** 206.328.5581

JOB 7540-11 LAB NUMBER

PROJECT NAME Interbay Urban Storage

HART CROWSER CONTACT M. Goodman

SAMPLED BY: KS

LAB NO.	SAMPLE ID	~~DESCRIPTION~~	DATE	TIME	MATRIX	REQUESTED ANALYSIS: NWTPH-Dx	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	S-23		10/19/17	1530	SOIL	X	1	
	S-24		"	1540	"	X	1	
	S-25		"	1550	"		1	
	S-26		"	1600	"	X	1	
	S-27		"	1610	"	X	1	

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE Melissa Goodman	10/20/17 TIME 0945	SIGNATURE VAL IVANOV	10/20/17 TIME 1100
PRINT NAME Melissa Goodman		PRINT NAME VAL IVANOV	
COMPANY HC		COMPANY AAL	
RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	TIME	SIGNATURE	TIME
PRINT NAME		PRINT NAME	
COMPANY		COMPANY	

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. _____ for Other Contract Requirements

5 TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS: ☐YES ☐NO ☐N/A
GOOD CONDITION ☐YES ☐NO
TEMPERATURE _____
SHIPMENT METHOD: ☐HAND ☐COURIER ☐OVERNIGHT

TURNAROUND TIME:
☐ 24 HOURS ☐ 1 WEEK
☐48 HOURS ☐STANDARD
☐72 HOURS OTHER same day

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser Gold to Sample Custodian

Sample Custody Record

C71020-1 (2)

Samples Shipped to: AAL

HARTCROWSER

Hart Crowser, Inc.
3131 Elliott Avenue, Suite 600
Seattle, Washington 98121
Office: 206.324.9530 • **Fax** 206.328.5581

JOB 7540-11 LAB NUMBER

PROJECT NAME Interbay

HART CROWSER CONTACT M. Goodman

SAMPLED BY: J. Blanchette

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS: NWTPH-Dx	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	S-28		10/20/17	1140	Soil		1	
	S-29			1145			1	
	S-30			1150			1	
	S-31			1155			1	
	S-32			1200			1	
	S-33			1205		X	1	
	S-34			1210		X	1	

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	10/20/17	SIGNATURE	10/20/17
PRINT NAME J. Blanchette	TIME	PRINT NAME VAL WATSON	TIME
COMPANY Hart Crowser	1315	COMPANY AAL	15 05
RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	TIME	SIGNATURE	TIME
PRINT NAME		PRINT NAME	
COMPANY		COMPANY	

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

7 TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS:
☐YES ☐NO ☐N/A
GOOD CONDITION
☐YES ☐NO
TEMPERATURE _____
SHIPMENT METHOD: ☐HAND
☐COURIER ☐OVERNIGHT

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. _____
for Other Contract Requirements

TURNAROUND TIME:
☐ 24 HOURS ☐ 1 WEEK
☐48 HOURS ☐STANDARD
☐72 HOURS OTHER same day

White to Lab Yellow to Project Manager Pink to Sample Custodian

Advanced Analytical Laboratory
(425) 702-8571

AAL Job Number:	C71020-1
Client:	Hart Crowser, Inc.
Project Manager:	Marissa Goodman
Client Project Name:	Interbay
Client Project Number:	7540-11
Date received:	10/20/17

AAL Job Number: C71020-1
Client: Hart Crowser, Inc.
Project Manager: Marissa Goodman
Client Project Name: Interbay
Client Project Number: 7540-11
Date received: 10/20/17

Analytical Results

NWTPH-Dx, mg/kg		MTH BLK	S-23	S-24	S-26	S-27	S-27 Dupl
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	10/20/17	10/20/17	10/20/17	10/20/17	10/20/17	10/20/17
Date analyzed	Limits	10/20/17	10/20/17	10/20/17	10/20/17	10/20/17	10/20/17
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd	nd
Diesel/Fuel oil	20	nd	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd	nd
Surrogate recoveries:							
Fluorobiphenyl		88%	86%	87%	90%	89%	86%
o-Terphenyl		89%	74%	77%	76%	90%	79%

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
C - coelution with sample peaks
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 702-8571

AAL Job Number: C71020-1
Client: Hart Crowser, Inc.
Project Manager: Marissa Goodman
Client Project Name: Interbay
Client Project Number: 7540-11
Date received: 10/20/17

Analytical Results

NWTPH-Dx, mg/kg		MTH BLK	S-33	S-34	Dupl S-34
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	10/21/17	10/21/17	10/21/17	10/21/17
Date analyzed	Limits	10/21/17	10/21/17	10/21/17	10/21/17
Kerosene/Jet fuel	20	nd	nd	nd	nd
Diesel/Fuel oil	20	nd	35	nd	nd
Heavy oil	50	nd	nd	nd	nd
Surrogate recoveries:					
Fluorobiphenyl		90%	87%	87%	90%
o-Terphenyl		92%	79%	81%	81%

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
C - coelution with sample peaks
Results reported on dry-weight basis
Acceptable Recovery limits: 70% TO 130%
Acceptable RPD limit: 30%

Advanced Analytical Laboratory
(425) 702-8571

AAL Job Number: C71020-1
Client: Hart Crowser, Inc.
Project Manager: Marissa Goodman
Client Project Name: Interbay
Client Project Number: 7540-11
Date received: 10/20/17

Analytical Results

Moisture, SM2540B	S-23	S-24	S-26	S-27	S-33	S-34
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date analyzed	10/21/17	10/21/17	10/21/17	10/21/17	10/21/17	10/21/17
Moisture, %	18%	17%	17%	15%	17%	18%

Laboratory Reports
Fremont Analytical

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Hart Crowser, Inc.
Marissa Goodman
3131 Elliott Avenue, Suite 600
Seattle, WA 98121

RE: Interbay Urban Storage
Work Order Number: 1710023

October 04, 2017

Attention Marissa Goodman:

Fremont Analytical, Inc. received 5 sample(s) on 10/3/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *10/04/2017*

CLIENT: Hart Crowser, Inc.
Project: Interbay Urban Storage
Work Order: 1710023

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1710023-001	S-7	10/02/2017 12:10 PM	10/03/2017 11:03 AM
1710023-002	S-8	10/02/2017 12:11 PM	10/03/2017 11:03 AM
1710023-003	S-9	10/02/2017 12:12 PM	10/03/2017 11:03 AM
1710023-004	S-10	10/02/2017 12:13 PM	10/03/2017 11:03 AM
1710023-005	S-11	10/02/2017 12:14 PM	10/03/2017 11:03 AM

Case Narrative

WO#: **1710023**
Date: **10/4/2017**

CLIENT: Hart Crowser, Inc.
Project: Interbay Urban Storage

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1710023**
Date Reported: **10/4/2017**

Client: Hart Crowser, Inc.
Collection Date: 10/2/2017 12:13:00 PM
Project: Interbay Urban Storage
Lab ID: 1710023-004
Matrix: Soil
Client Sample ID: **S-10**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18385		Analyst: SB
Diesel (Fuel Oil)	ND	21.4		mg/Kg-dry	1	10/3/2017 4:06:24 PM
Heavy Oil	1,640	53.5		mg/Kg-dry	1	10/3/2017 4:06:24 PM
Surr: 2-Fluorobiphenyl	88.7	50 - 150		%Rec	1	10/3/2017 4:06:24 PM
Surr: o-Terphenyl	92.1	50 - 150		%Rec	1	10/3/2017 4:06:24 PM
Sample Moisture (Percent Moisture)				Batch ID: R38990		Analyst: CO
Percent Moisture	8.71	0.500		wt%	1	10/3/2017 2:58:20 PM

Work Order: 1710023
CLIENT: Hart Crowser, Inc.
Project: Interbay Urban Storage

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-18385**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/3/2017**	RunNo: **38992**
Client ID: **MBLKS**	Batch ID: **18385**		Analysis Date: **10/3/2017**	SeqNo: **749608**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	17.7		20.00		88.4	50	150				
Surr: o-Terphenyl	16.3		20.00		81.4	50	150				

Sample ID **LCS-18385**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/3/2017**	RunNo: **38992**
Client ID: **LCSS**	Batch ID: **18385**		Analysis Date: **10/3/2017**	SeqNo: **749609**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	412	20.0	500.0	0	82.5	65	135				
Surr: 2-Fluorobiphenyl	18.2		20.00		91.2	50	150				
Surr: o-Terphenyl	18.2		20.00		91.1	50	150				

Sample ID **1710019-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/3/2017**	RunNo: **38992**
Client ID: **BATCH**	Batch ID: **18385**		Analysis Date: **10/3/2017**	SeqNo: **749614**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.7						0		30	
Heavy Oil	ND	51.6						0		30	
Surr: 2-Fluorobiphenyl	24.2		20.66		117	50	150		0		
Surr: o-Terphenyl	22.1		20.66		107	50	150		0		

Sample ID **1710019-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **10/3/2017**	RunNo: **38992**
Client ID: **BATCH**	Batch ID: **18385**		Analysis Date: **10/3/2017**	SeqNo: **749692**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	598	20.3	506.8	4.254	117	65	135				
Surr: 2-Fluorobiphenyl	24.8		20.27		122	50	150				
Surr: o-Terphenyl	24.8		20.27		122	50	150				

Work Order: 1710023
CLIENT: Hart Crowser, Inc.
Project: Interbay Urban Storage

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1710019-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/3/2017** RunNo: **38992**
Client ID: **BATCH** Batch ID: **18385** Analysis Date: **10/3/2017** SeqNo: **749692**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1710019-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/3/2017** RunNo: **38992**
Client ID: **BATCH** Batch ID: **18385** Analysis Date: **10/3/2017** SeqNo: **749693**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	481	19.7	493.5	4.254	96.6	65	135	597.8	21.7	30	
Surr: 2-Fluorobiphenyl	21.6		19.74		109	50	150		0		
Surr: o-Terphenyl	21.7		19.74		110	50	150		0		

Sample ID **1710030-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/3/2017** RunNo: **38992**
Client ID: **BATCH** Batch ID: **18385** Analysis Date: **10/3/2017** SeqNo: **749699**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	18.8						0		30	
Heavy Oil	ND	46.9						0		30	
Surr: 2-Fluorobiphenyl	19.8		18.76		105	50	150		0		
Surr: o-Terphenyl	19.2		18.76		102	50	150		0		

Work Order: 1710023
CLIENT: Hart Crowser, Inc.
Project: Interbay Urban Storage

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1710030-001ADUP** SampType: **DUP** Units: **wt%** Prep Date: **10/3/2017** RunNo: **38990**
Client ID: **BATCH** Batch ID: **R38990** Analysis Date: **10/3/2017** SeqNo: **749521**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	6.88	0.500						7.233	4.93	20	

Sample ID **1710030-011ADUP** SampType: **DUP** Units: **wt%** Prep Date: **10/3/2017** RunNo: **38990**
Client ID: **BATCH** Batch ID: **R38990** Analysis Date: **10/3/2017** SeqNo: **749532**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	7.75	0.500						8.744	12.0	20	

Sample Log-In Check List

Client Name:	**HART**	Work Order Number:	**1710023**
Logged by:	**Brianna Barnes**	Date Received:	**10/3/2017 11:03:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	2.4
Sample	1.2

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Sample Custody Record

Samples Shipped to: Fremont

HARTCROWSER

Hart Crowser, Inc.
3131 Elliott Avenue, Suite 600
Seattle, Washington 98121
Office: 206.324.9530 • Fax 206.328.5581

JOB 7540-11 LAB NUMBER 17I0023

PROJECT NAME Interbay Urban Storage

HART CROWSER CONTACT M. Goodman

marissa.goodman@hartcrowser.com

SAMPLED BY: Michael Chamberlain

LAB NO.	SAMPLE ID	DESCRIPTION ~~S~~	DATE	TIME	MATRIX	REQUESTED ANALYSIS: NWTPH-Dx	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	S-7		10/2/17	1210	SOIL		1	
	S-8			1211			1	
	S-9			1212			1	
	S-10			1213		X	1	
	S-11			1214			1	

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE: Marissa Goodman	10/3/17	SIGNATURE: Brahra Barnes	10/3/17
PRINT NAME: Marissa Goodman	TIME: 1030	PRINT NAME: BRA	TIME: 1103
COMPANY: Hart Crowser		COMPANY:	
RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	TIME	SIGNATURE	TIME
PRINT NAME		PRINT NAME	
COMPANY		COMPANY	

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

5 TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS: ☐YES ☐NO ☐N/A
GOOD CONDITION ☐YES ☐NO
TEMPERATURE _____
SHIPMENT METHOD: ☐HAND ☐COURIER ☐OVERNIGHT

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. _____ for Other Contract Requirements

TURNAROUND TIME:
☒ 24 HOURS ☐ 1 WEEK
☐ 48 HOURS ☐ STANDARD
☐ 72 HOURS OTHER _____

White to Lab Yellow to Project Manager Pink to Sample Custodian

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Hart Crowser, Inc.
Marissa Goodman
3131 Elliott Avenue, Suite 600
Seattle, WA 98121

RE: Interbay Storage
Work Order Number: 1710072

October 06, 2017

Attention Marissa Goodman:

Fremont Analytical, Inc. received 5 sample(s) on 10/5/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *10/06/2017*

CLIENT: Hart Crowser, Inc.
Project: Interbay Storage
Work Order: 1710072

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1710072-001	S-12	10/05/2017 1:27 PM	10/05/2017 5:51 PM
1710072-002	S-13	10/05/2017 1:32 PM	10/05/2017 5:51 PM
1710072-003	S-14	10/05/2017 2:30 PM	10/05/2017 5:51 PM
1710072-004	S-15	10/05/2017 2:37 PM	10/05/2017 5:51 PM
1710072-005	S-16	10/05/2017 2:41 PM	10/05/2017 5:51 PM

Case Narrative

WO#: **1710072**
Date: **10/6/2017**

CLIENT: Hart Crowser, Inc.
Project: Interbay Storage

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

CLIENT: Hart Crowser, Inc.
Project: Interbay Storage

Lab ID: 1710072-001 **Collection Date:** 10/5/2017 1:27:00 PM
Client Sample ID: **S-12** **Matrix:** Soil

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18427		Analyst: SB
Diesel (Fuel Oil)	ND	22.3		mg/Kg-dry	1	10/6/2017 8:38:34 AM
Heavy Oil	380	55.9		mg/Kg-dry	1	10/6/2017 8:38:34 AM
Surr: 2-Fluorobiphenyl	78.0	50 - 150		%Rec	1	10/6/2017 8:38:34 AM
Surr: o-Terphenyl	83.9	50 - 150		%Rec	1	10/6/2017 8:38:34 AM
Sample Moisture (Percent Moisture)				Batch ID: R39052		Analyst: CO
Percent Moisture	10.9	0.500		wt%	1	10/6/2017 9:02:48 AM

Lab ID: 1710072-002 **Collection Date:** 10/5/2017 1:32:00 PM
Client Sample ID: **S-13** **Matrix:** Soil

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18427		Analyst: SB
Diesel (Fuel Oil)	ND	20.7		mg/Kg-dry	1	10/6/2017 9:08:28 AM
Heavy Oil	161	51.8		mg/Kg-dry	1	10/6/2017 9:08:28 AM
Surr: 2-Fluorobiphenyl	76.2	50 - 150		%Rec	1	10/6/2017 9:08:28 AM
Surr: o-Terphenyl	81.4	50 - 150		%Rec	1	10/6/2017 9:08:28 AM
Sample Moisture (Percent Moisture)				Batch ID: R39052		Analyst: CO
Percent Moisture	6.74	0.500		wt%	1	10/6/2017 9:02:48 AM

CLIENT: Hart Crowser, Inc.
Project: Interbay Storage

Lab ID: 1710072-003 **Collection Date:** 10/5/2017 2:30:00 PM
Client Sample ID: **S-14** **Matrix:** Soil

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18427		Analyst: SB
Diesel (Fuel Oil)	278	21.2		mg/Kg-dry	1	10/6/2017 9:38:09 AM
Heavy Oil	1,600	53.0		mg/Kg-dry	1	10/6/2017 9:38:09 AM
Surr: 2-Fluorobiphenyl	80.3	50 - 150		%Rec	1	10/6/2017 9:38:09 AM
Surr: o-Terphenyl	84.5	50 - 150		%Rec	1	10/6/2017 9:38:09 AM
Sample Moisture (Percent Moisture)				Batch ID: R39052		Analyst: CO
Percent Moisture	10.7	0.500		wt%	1	10/6/2017 9:02:48 AM

Lab ID: 1710072-004 **Collection Date:** 10/5/2017 2:37:00 PM
Client Sample ID: **S-15** **Matrix:** Soil

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18427		Analyst: SB
Diesel (Fuel Oil)	86.6	20.8		mg/Kg-dry	1	10/6/2017 10:08:11 AM
Heavy Oil	471	52.1		mg/Kg-dry	1	10/6/2017 10:08:11 AM
Surr: 2-Fluorobiphenyl	77.0	50 - 150		%Rec	1	10/6/2017 10:08:11 AM
Surr: o-Terphenyl	83.4	50 - 150		%Rec	1	10/6/2017 10:08:11 AM
Sample Moisture (Percent Moisture)				Batch ID: R39052		Analyst: CO
Percent Moisture	9.15	0.500		wt%	1	10/6/2017 9:02:48 AM

Analytical Report

Work Order: **1710072**
Date Reported: **10/6/2017**

CLIENT: Hart Crowser, Inc.
Project: Interbay Storage

Lab ID: 1710072-005 **Collection Date:** 10/5/2017 2:41:00 PM
Client Sample ID: **S-16** **Matrix:** Soil

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18427		Analyst: SB
Diesel (Fuel Oil)	138	22.4		mg/Kg-dry	1	10/6/2017 10:37:54 AM
Heavy Oil	270	56.1		mg/Kg-dry	1	10/6/2017 10:37:54 AM
Surr: 2-Fluorobiphenyl	92.7	50 - 150		%Rec	1	10/6/2017 10:37:54 AM
Surr: o-Terphenyl	99.4	50 - 150		%Rec	1	10/6/2017 10:37:54 AM
Sample Moisture (Percent Moisture)				Batch ID: R39052		Analyst: CO
Percent Moisture	15.4	0.500		wt%	1	10/6/2017 9:02:48 AM

Work Order: 1710072
CLIENT: Hart Crowser, Inc.
Project: Interbay Storage

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-18427**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/5/2017**	RunNo: **39049**
Client ID: **MBLKS**	Batch ID: **18427**		Analysis Date: **10/5/2017**	SeqNo: **751025**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	18.8		20.00		94.3	50	150				
Surr: o-Terphenyl	19.5		20.00		97.3	50	150				

Sample ID **LCS-18427**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/5/2017**	RunNo: **39049**
Client ID: **LCSS**	Batch ID: **18427**		Analysis Date: **10/5/2017**	SeqNo: **751026**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	483	20.0	500.0	0	96.5	65	135				
Surr: 2-Fluorobiphenyl	17.2		20.00		86.1	50	150				
Surr: o-Terphenyl	18.8		20.00		94.2	50	150				

Sample ID **1710066-007ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/5/2017**	RunNo: **39049**
Client ID: **BATCH**	Batch ID: **18427**		Analysis Date: **10/6/2017**	SeqNo: **751036**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.4						0		30	
Heavy Oil	ND	53.6						0		30	
Surr: 2-Fluorobiphenyl	16.0		21.45		74.7	50	150		0		
Surr: o-Terphenyl	16.6		21.45		77.5	50	150		0		

Sample ID **1710066-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/5/2017**	RunNo: **39049**
Client ID: **BATCH**	Batch ID: **18427**		Analysis Date: **10/6/2017**	SeqNo: **751037**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.4						0		30	
Heavy Oil	ND	51.0						0		30	
Surr: 2-Fluorobiphenyl	15.8		20.41		77.4	50	150		0		

Work Order: 1710072
CLIENT: Hart Crowser, Inc.
Project: Interbay Storage

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1710066-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/5/2017** RunNo: **39049**
Client ID: **BATCH** Batch ID: **18427** Analysis Date: **10/6/2017** SeqNo: **751037**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: o-Terphenyl	16.5		20.41		81.0	50	150		0		

Sample ID **1710066-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/5/2017** RunNo: **39049**
Client ID: **BATCH** Batch ID: **18427** Analysis Date: **10/6/2017** SeqNo: **751038**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	489	20.7	518.2	0	94.3	65	135				
Surr: 2-Fluorobiphenyl	15.7		20.73		75.9	50	150				
Surr: o-Terphenyl	17.7		20.73		85.3	50	150				

Sample ID **1710066-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/5/2017** RunNo: **39049**
Client ID: **BATCH** Batch ID: **18427** Analysis Date: **10/6/2017** SeqNo: **751039**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	509	20.9	522.2	0	97.5	65	135	488.9	4.11	30	
Surr: 2-Fluorobiphenyl	16.1		20.89		77.2	50	150		0		
Surr: o-Terphenyl	17.8		20.89		85.1	50	150		0		

Work Order: 1710072
CLIENT: Hart Crowser, Inc.
Project: Interbay Storage

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1710071-001ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/6/2017**		RunNo: **39052**	
Client ID: **BATCH**	Batch ID: **R39052**						Analysis Date: **10/6/2017**		SeqNo: **751114**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	7.23	0.500						6.518	10.4	20	

Sample ID **1710075-006ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/6/2017**		RunNo: **39052**	
Client ID: **BATCH**	Batch ID: **R39052**						Analysis Date: **10/6/2017**		SeqNo: **751129**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	10.6	0.500						10.71	0.831	20	

Sample Log-In Check List

Client Name:	**HART**	Work Order Number:	**1710072**
Logged by:	**Brianna Barnes**	Date Received:	**10/5/2017 5:51:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	3.6
Sample	3.9

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Sample Custody Record

Samples Shipped to: Fremont

HARTCROWSER

Hart Crowser, Inc.
1700 Westlake Avenue North, Suite 200
Seattle, Washington 98109-6212
Office: 206.324.9530 • Fax 206.328.5581

JOB 7540-11 LAB NUMBER 1710072

PROJECT NAME Interbay Storage

HART CROWSER CONTACT Marissa Goodman
(209) 312-0424

SAMPLED BY: Michael Chamberlain

REQUESTED ANALYSIS

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	NWTPH-Dx	NWTPH-Gx	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	S-12		10/5	13:27	Soil	X			
	S-13		10/5	13:32	Soil	X			
	S-14		"	14:30	Soil	X			
	S-15		"	14:37	Soil	X			
	S-16		"	14:41	Soil	X			

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	10/5/17		10/5/17
PRINT NAME Michael Chamberlain	TIME	PRINT NAME Marissa Goodman	TIME
COMPANY Hart Crowser	15:18	COMPANY HC	1518
RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	10/5/17		10/5/17
PRINT NAME Marissa Goodman	TIME	PRINT NAME	TIME
COMPANY Hart Crowser	1750	COMPANY FA	17:51

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS:
☐YES ☐NO ☐N/A
GOOD CONDITION
☐YES ☐NO
TEMPERATURE _____
SHIPMENT METHOD: ☐HAND
☐COURIER ☐OVERNIGHT

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. _____
for Other Contract Requirements

TURNAROUND TIME:
☒ 24 HOURS ☐ 1 WEEK
☐ 48 HOURS ☐ STANDARD
☐ 72 HOURS OTHER _____

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser Gold to Sample Custodian