Whitman Environmental Sciences

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February 21, 2014

Isola Homes Inc.
555 S. Renton Village Place
Renton, WA 98057

Attention: Mr. Michael Pollard

Subject: Environmental Site Investigation
7514 to 7536 15th Avenue NW
Seattle, Washington

Dear Mr. Pollard:
Whitman Environmental Sciences (WES) was retained by Isola Homes to evaluate the current and historical conditions of the above referenced property to identify potential environmental concerns, as part of pre-purchase due diligence. Those concerns may include past or current site uses that could contribute to recognized environmental conditions, or the potential for off-site conditions to impact the subject property.

"Recognized environmental conditions" are defined by the American Society of Testing and Materials (ASTM) E1527-2005 guidance as the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release or material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water or surface water of the property.

This evaluation is based on the history of the site, which has included auto repair, an abandoned structure and a small storefront that is part of a dry cleaning company. As a result, petroleum products, other automotive fluids, batteries or solvents may have been managed or disposed on the site. This evaluation includes elements of a Phase I Environmental Assessment, including a site reconnaissance, records review and interviews with site occupants, as well as site specific sampling and laboratory analysis of soil samples.

The site and surrounding area are shown in Figure 1, a Site Location Map. The subject property consists of five parcels on the east side of 15th Avenue NW between NW 75th Street and NW 77th Street, totaling approximately 31,241 square feet (approximately 0.71 acre). The properties are identified by the King County Tax Parcel ID numbers in Table 1.

Table 1
Subject Properties

Street Address	***Tax Parcel ID No.***	***Size (Sq. Ft.)***
7514 15th Avenue NW	7748000005	3,729
7518 15th Avenue NW	7748000010	6,441
Abandoned Structure	7748000015	4,520
7530 15th Avenue NW	3491300023	10,455
7536 15th Avenue NW	3491300021	6,096

Photographs of the current conditions on the properties are included in Appendix A.

Property History and Condition
As part of this study, WES reviewed historical aerial photographs, city directories, atlases and fire insurance rate maps to evaluate the history of the properties. Selected historical references are included in Appendix B. The accumulated material is the basis for the following summary.

The properties were first developed as residences beginning in about 1904. Originally, the entire block along 15th Avenue was developed as residences. In the earliest readily ascertainable references from 1920 and 1928, all of the addresses along the block are residences. The block extended from 75th Street to 80th Street; no right of way for NW 77th Street had been established yet. But by the date of a 1936 aerial photograph the blocks were configured as they currently remain, and a gas station and repair garage had been built at the south end of the block, at the intersection with 75th Street. The service station was located on parcels about 40 feet south of the subject site, separated by the building at 7510 15th Avenue NW.

Over time, most of the residences along 15th were removed and replaced with the current structures, including a muffler shop at 7530 15th, an abandoned partially completed structure, and a small storefront office building at 7514 15th Avenue NW. The former service station south of the subject property remained in place until at least 1960. The current donut shop was constructed on that property in 1964.

Two of the original homes remain on the properties, at 7518 and 7536 15th Avenue NW. The two remaining homes are both used for businesses. The home at 7518 15th Avenue NW has two small apartments on the upper floor, while the main floor is a retail shop housing Galway Traders. The basement holds storage and a utility room for residents and the business. There is a large oil furnace in an isolated room in the basement, fueled by an underground heating oil tank that is located in the front yard of the property. The business in 7536 15th Avenue NW is a sales office for dishes and food handling equipment. The basement is used for storage. The building is currently heated by a gas furnace, but records show that in the past it had an oil tank located in front of the home. The tank was removed in 1997, and no indications of a release were discovered at that time.

The muffler shop at 7530 15th was constructed in about 1966 and has remained in a relatively consistent business use since that time. In several historical city directories the address is noted to be a muffler and radiator repair shop, but mostly appears as muffler repair, under several

different names. In the past the building was larger than its current dimensions, with a shed type roof on the eastern side of the building holding two additional service bays. There was also a small garage located at the northeastern corner of the lot until about 2010, when the dilapidated structure was removed. The concrete slabs from both of these features remain in place.

The business does not sell fuel or do routine fluid changes on cars, so there are no underground storage tanks or large quantities of oil stored on the property. There are three drums held on a concrete pad to the east of the muffler shop, two of which are held in a drum caddy which serves as secondary containment. The third drum is not used by the current business operator and is labeled to contain waste anti-freeze. The drum is rusted and should be properly disposed. There are two dilapidated trailers located on the east side of the muffler shop property. These appear to be filled with debris.

The storefront office at 7514 15th was built in about 1947 and currently houses a dry cleaner pick-up station, but no cleaning is conducted on-site. The drop-off station has only been in business for about two years. In the past, city directories indicate the building has been used as an attorney's office or real estate sales. For a short time it was a small print shop.

The abandoned structure is a partially built two story concrete building that has no roof or floor slabs. The window and door openings have been boarded over. By all appearances, construction was halted abruptly. Aerial photographs show the structure in place since at least 1990. There is no address on the building, but King County property records associate the parcel with the muffler shop at 7530 15th. The structure is not in a useable condition and has since become a disposal site for unwanted debris, tires, vehicles and oil containers, mostly in poor condition. Historical aerial photographs show the structure has been used for storage various vehicles and debris throughout most of its history. At the time of our site reconnaissance there were at least two 55-gallon drums of oil that were poorly secured and in poor condition inside the structure.

This assessment did not include any evaluation of the structures for the presence of asbestos containing building materials or lead paint. If redevelopment is planned, a complete demolition-oriented asbestos survey will be required on each structure before permits can be obtained for removal. Any detected asbestos containing building materials will need to be removed in a controlled manner before demolition. Since all of the buildings predate current regulation of lead paint, it should be assumed that it is present in all of the occupied buildings. This is primarily a worker protection issue; any demolition contractor qualified to remove these buildings should have appropriate employee health and safety programs in place to limit exposures and monitor employee health.

Adjoining Property History and Conditions

Properties in the surrounding area are considered potential sources of recognized environmental conditions if there are land uses or conditions that would be suspected as sources of contaminants, at locations that could have the potential to impact the subject property. Generally that could occur if the sources were immediately adjacent to the subject property or in a direction where migrating contaminants would move toward the site. Contaminants typically migrate with shallow groundwater, which tends to migrate following topography. In this area, the ground surface slopes generally southward, so adjacent properties to the north would be considered the most likely sources of potential contaminants originating from off-site sources.

Properties in the surrounding area have a mix of commercial and residential uses. To the north, the adjacent property is a small townhome style apartment building, beyond which is a duplex and medical office. North, across 77th Street is a former service station currently used as a Budget rental truck shop. The property is identified by Facility ID No. 92365751 on the Washington Department of Ecology's registry of inactive underground storage tank sites. It is listed as having two tanks of unknown size abandoned in place. Fuel is no longer stored or sold on that property. The site is not identified as a leaking underground storage tank site or as a confirmed or suspected contaminated site in Ecology's databases. No other properties to the north are considered likely sources of recognized environmental conditions on the subject properties.

The properties to the east are residences facing Mary Avenue NW. To the west, across 15th Avenue NW, are several auto related businesses. However, the topography of the area suggests contaminants migrating from potential sources to the west would trend to the west and south, away from the subject properties. They are not likely sources of recognized environmental conditions for the subject properties.

The current commercial buildings to the south are in relatively benign use. As noted above, the property at the southern corner of the block was formerly a service station. It was redeveloped to its current use in 1964, so it is unlikely that any environmental assessment or cleanup would have been conducted at the time the service station closed. However, the former service station is in a position that would be considered downgradient with respect to groundwater migration, so the former service station is not a likely source of recognized environmental conditions for the subject properties.

Based on the observed current conditions on the property and historical records, WES recommended site specific testing to evaluate the potential for environmental impacts. Specific areas of concern include the hydraulic lifts at the muffler shop, spills and debris inside the abandoned structure or near the muffler shop, the remaining heating oil tank at 7518 15th Avenue NW and the potential for releases related to the dry cleaner or former print shop at 7514 15th Avenue NW.

SITE INVESTIGATION SCOPE OF WORK

As part of this evaluation, WES subcontracted Holocene Drilling, Inc., to drill borings for soil and groundwater sampling at the property. In addition, surficial soil samples were obtained from the top two feet of soil in areas of the site where past features had been identified or conditions suggested a potential for surficial impacts. Daniel Whitman, a licensed geologist from WES, conducted all sampling for this project.

Soil Sampling

On February 11th, 2014, WES and Holocene drilled seven borings to obtain soil samples at accessible locations on the property that were at or near potential sources of recognized environmental conditions. The approximate locations of the borings are shown in Figure 2. The locations, depths drilled and depth of samples selected for laboratory testing are summarized in Table 2.

Table 2
Summary of Drilling and Sampling
7514 through 7536 15th Avenue NW
Seattle, Washington

Boring Number	***Location***	***Total Depth Drilled***	***Sample Depths Selected for Testing***
B-1	Inside Muffler Shop - adjacent to western lift	9.5'	4' 8.5'
B-2	Front Yard of 7518 15th Ave. NW - adjacent to heating oil tank	8'	7.5'
B-3	Inside Abandoned Structure - near wall in SE portion of building	20'	2' 15'
B-4	Behind Dry Cleaner at 7514 15th Ave. NW - near rear door of building	6'	2'
B-5	Inside Abandoned Structure - near W center of building	8'	2.5'
B-6	In paved area of 7530 15th Ave. NW - near storm drain	15'	5' 12'
B-7	Behind Dry Cleaner at 7514 15th Ave. NW - near S. Edge of parking lot	15'	3'
Surface Samples			
SS-1	Near the edge of a concrete slab E of muffler shop	4'	0-2'
SS-2	Near the edge of a concrete slab NE Of muffler shop	4'	0-2'
SS-3	Near the edge of a concrete slab in NE corner behind muffler shop	4'	0-2'

The soil borings were drilled to depths ranging from six to 20 feet below the ground surface. Continuous soil samples were attempted throughout the depths drilled, but recovery was sometimes limited by the dense soil conditions. As part of this scope of work WES intended to obtain groundwater samples from any borings that demonstrated wet soils or free standing water in the bore hole. However, no evidence of groundwater conditions were encountered at any depth in any of the borings.

After the drilling was completed, the rig was used to obtain three shallow soil samples from within the top four feet of the soil horizon in the area east of the muffler shop, where drainage and former site features may have resulted in impacts to site soils. Samples SS-1 through SS-3 were located near the edge of concrete slabs that were formerly the floors of additional garages.

Field Procedures

Holocene used hydraulically driven Geoprobes to conduct the drilling. Each boring was drilled by direct push methods, hydraulically driving a four-foot long split-spoon sampler to obtain continuous soil samples throughout the drilled depth. The samplers were cleaned prior to each sampling attempt and were equipped with new polyethylene liners which isolated the sampled soil from contact with the body of the sampler.

Representative portions of each sample were placed in laboratory prepared vials and glass jars with teflon-lined lids, chilled and held under chain-of-custody, following appropriate environmental sampling procedures. Additional portions of all samples were held for potential laboratory testing and soil classification reference.

At the drilling locations, borings were extended to the maximum depth which the drill rig was capable of advancing the sampler. At each location the drilling met refusal at a depth less than the planned depth due to dense soil conditions. Surface sampling was limited to the top four feet at the ground surface and did not meet refusal at the three locations sampled.

At the final depth of each boring, it was checked for standing water in the borehole. Groundwater was not encountered in any of the drilled borings. Soil samples obtained throughout the drilled depths were moist to dry, with no indication of damp or wet conditions.

After drilling and sampling was completed, the borings were sealed with bentonite and surficial asphalt patches were placed at the ground surface in paved portions of the site.

Field Observations

During drilling, the samples were reviewed for soil classification purposes and any field detectable evidence of soil and groundwater contamination, such as staining, odors, liquid petroleum or discoloration.

Soils consisted of brown silty and clayey sand with traces of gravel, extending to a depth of about six to eight feet below the ground surface. Below that depth, the soil was primarily a greyish-brown fine textured sand with only traces of silt. At shallow depths within about 18 inches of the ground surface, the borings encountered moderately weathered soil with a slightly rusty brown appearance. There was only a minor organic topsoil zone found in any of the borings. Most of the encountered soils would be considered native materials, with little or no fill encountered at any location.

Except for visually notable surface staining at one small location inside the abandoned structure, none of the borings found field evidence of environmental impacts. Even at that location, the staining was superficial and did not extend beyond a few inches in depth.

Soil samples were selected for laboratory testing from the depths in each boring deemed most susceptible to impacts from the former on-site sources, or demonstrating conditions at important depths below the ground surface. Since most of the observed potential sources were at the ground surface, shallow samples were typically selected to demonstrate conditions in the most susceptible areas.

The analyzed samples were from depths of two to 15 feet below the ground surface. Tables 2 and 3 summarize the soil samples selected for laboratory testing.

Laboratory Testing of Environmental Samples

Based on the observed conditions, laboratory testing was conducted on at least one soil sample from each boring. The selected samples were submitted to Friedman & Bruya, Inc., a Washington-state certified laboratory, for environmental analyses.

Laboratory Analyses

The soil samples were tested for parameters appropriate for the suspect sources of contamination at each location. Most samples were tested for parameters often associated with petroleum releases. All of the samples selected from the muffler shop, abandoned structure and heating oil tank borings were analyzed for total petroleum hydrocarbons (TPH) in the diesel and motor oil ranges by Washington method NWTPH-D (extended). This test would identify heavier range hydrocarbons, such as would be expected if impacts were present from leaks in the hydraulic system of the lift, or releases of motor oil or heating oil. One sample from boring B-3 inside the abandoned structure was analyzed for TPH in the gasoline range by Washington method NWTPH-G and aromatic hydrocarbons commonly associated with gasoline; benzene, toluene, ethylbenzene and xylenes (BTEX), by EPA Method 8021B.

Three shallow samples from the muffler shop and abandoned structure were also analyzed for arsenic, cadmium and lead, metals that are regulated in Washington State. These metals are often found in waste oils or other automotive fluids.

The selected samples from borings B-4 and B-7, behind the dry cleaner building at 7514 15th Avenue NW, were analyzed for a suite of 62 volatile organic compounds (solvents) commonly associated with dry cleaning or printing.

The laboratory findings are summarized in Table 3. The table also summarizes the applicable Washington State soil cleanup criteria used by the Department of Ecology to determine whether or not cleanup is required under state regulations. The laboratory reports of analytical results are attached in Appendix C. All laboratory testing was completed within appropriate holding times and met the quality assurance/quality control requirements of the project. Sample analyses were completed with detection limits appropriate for comparison to applicable regulatory criteria.

Results and Conclusions

This limited site investigation did not identify petroleum, volatile organic compounds or cadmium in any of the tested samples. Arsenic and lead were detected in all three of the analyzed samples, but at concentrations that do not violate applicable Washington State cleanup criteria. The detected levels of arsenic and lead are within the ranges that would be considered natural background conditions.

Although no widespread indications of contamination were found in the environmental sampling, it should be assumed that there will be at least minor conditions which will need to be addressed as part of the redevelopment of the property. Surficial staining in the abandoned structure will need to be addressed, which could generate 8-10 cubic yards of petroleum contaminated soil. Other staining could become evident in that area once debris and vehicles have been removed.

Borings B-1 and B-2 did not encounter evidence of significant releases from the hydraulic lifts or heating oil tank. However, it is not unusual to find minor releases from leaks or overfills when these features are decommissioned. If a release has occurred, it is likely to be limited to the area directly around the lifts or tank. Other home heating oil tanks could remain in place from previous residences that have been on the property.

Excavating and disposal of contaminated soil under simple conditions can typically cost in the range of $50-60 per ton. Of course, this is a very general estimate based on commonly encountered costs. Additional site specific discussions with environmental cleanup contractors would be needed to better refine this estimate.

This assessment did not address the potential for asbestos or lead paint to be present in or on the site structures. A complete demolition-oriented asbestos survey will be required on each structure before permits can be obtained for removal. Any detected asbestos containing building materials will need to be removed in a controlled manner before demolition. Since all of the buildings predate current regulation of lead paint, it should be assumed that it is present in all of the occupied buildings. This is primarily a worker protection issue; any demolition contractor qualified to remove these buildings will have appropriate employee health and safety programs in place to limit exposures and monitor employee health.

Limitations

This report has been prepared to attempt to qualify certain environmental conditions of the property. This information should be viewed only in the context of any pre-existing studies of the site and surrounding area that provide further information regarding environmental conditions. WES does not guarantee that the site is free of hazardous or potentially hazardous materials or conditions, or that latent or undiscovered conditions will not become evident in the future. This report represents the professional opinions and judgments of WES, prepared in accordance with the our General Terms and Conditions and commonly practiced environmental assessment procedures. No other warranties, representations, or certifications are made.

WES may have obtained, reviewed, and evaluated information available from other consultants, analytical laboratories and local, state, or federal agencies in preparing this report. WES' conclusions, opinions, and recommendations are based, in part, on this information. Where possible, WES has made efforts to identify mistakes or insufficiencies in the information provided, but verification of all of the information is beyond the scope of this study.

Closure

Thank you for the opportunity to be of service to you in this matter. If you have any questions regarding this report, or if I may be of any further assistance, please feel free to contact me at your convenience.

Respectfully submitted,
Whitman Environmental Sciences

Daniel S. Whitman
Principal

Attachments:

Table 3 - Summary of Soil Sample Analytical Results
Figure 1 - Site Location Map
Figure 2 - Soil Sample Location Plan

Appendix A - Current Site Photographs
Appendix B - Selected Historical References
Appendix C - Laboratory Analytical Reports
Friedman & Bruya, Inc.

TABLE 3
Summary of Soil Sample Analytical Results
7514 to 7536 15th Avenue NW, Seattle, Washington

Sample I.D.	Depth (ft.)	Sample Location	Laboratory Analytical Results (mg/kg)			
			Total Petroleum Hydrocarbons	Benzene Toluene Ethyl benzene Xylenes	Volatile Organic Compounds (Solvents)	Regulated Metals
B-1	4'	7530 Adjacent to hydraulic lift	Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
B-1	8.5'	7530 Adjacent to hydraulic lift	Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
B-2	7.5'	7518 Adjacent to heating oil tank	Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
B-3	2'	In abandoned structure, stained area	Gasoline: ND (<2) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	NA	Arsenic: 4.03 Cadmium: ND(<1) Lead: 28.4
B-3	15'	In abandoned structure , deep sample	Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
B-4	2'	7514 Near rear door of cleaners	Diesel: NA Motor Oil: NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	Tetrachloroethene: ND(<0.025) Trichloroethene: ND (<0.03) 1,2 dichloroethane: ND(<0.05) Vinyl chloride: ND(<0.05) 54 other volatile compounds: ND (all)	NA
B-5	2.5'	7530 In abandoned structure, stained area	Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA

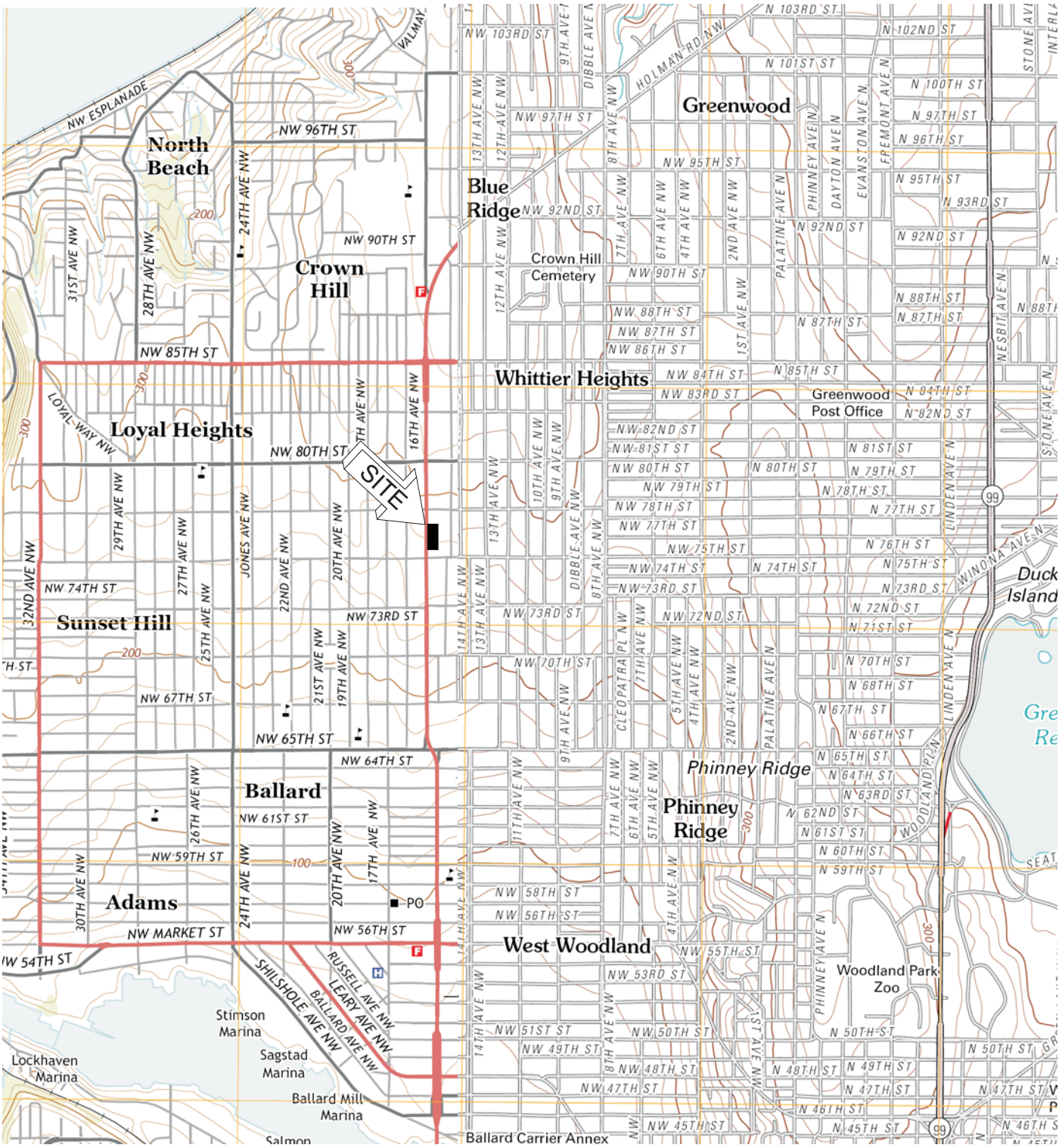
TABLE 3
Summary of Soil Sample Analytical Results
7514 to 7536 15th Avenue NW, Seattle, Washington

Sample I.D.	***Depth (ft.)***	***Sample Location***	***Laboratory Analytical Results (mg/kg)***			
			Total Petroleum Hydrocarbons	***Benzene Toluene Ethyl benzene Xylenes***	***Volatile Organic Compounds (Solvents)***	***Regulated Metals***
B-6	5'	7530 Adjacent to catchbasin	Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
B-6	12'	7530 Adjacent to catchbasin	Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
B-7	3'	7514 S. edge of parking lot behind cleaners	Diesel: NA Motor Oil: NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (<0.06)	Tetrachloroethene: ND(<0.025) Trichloroethene: ND (<0.03) 1,2 dichloroethane: ND(<0.05) Vinyl chloride: ND(<0.05) 54 other volatile compounds: ND (all)	NA
SS-1	0-2'	7530 E. of muffler shop	Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	Arsenic: 2.51 Cadmium: ND(<1) Lead: 4.92
SS-2	0-2'	7530 E. of muffler shop	Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	Arsenic: 3.01 Cadmium: ND(<1) Lead: 5.59
SS-3	0-2'	7530 E. of muffler shop	Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
MTCA Method A Soil Cleanup Criteria:		***Gasoline: 100*** ***(If no benzene is present)*** ***Diesel or Motor Oil: 2,000***		***Benzene: 0.03*** ***Toluene: 7*** ***Ethylbenzene: 6*** ***Xylenes: 9***	***Tetrachloroethene: 0.05*** ***Trichloroethene: 0.03*** ***1,2 dichloroethane: 11*** ***Vinyl chloride: 0.67*** ***Other compounds vary***	***Arsenic: 20*** ***Cadmium: 2*** ***Lead: 250***

Table 3 Notes:

ND (<XXX) - Parameter not detected at concentrations at or above the noted reporting limit.
NA - Sample not analyzed for the listed parameter.
Gasoline Range Total Petroleum Hydrocarbons by Method NWTPH-G.
Diesel and Motor Oil Range Total Petroleum Hydrocarbons by Method NWTPH-D(x).
BTEX compounds by EPA Method 8021B or as part of volatile organic analysis by EPA Method 8260C.
Volatile organic compounds by EPA Method 8260C for a list of 62 different volatile parameters. Detection limits vary.
Selected regulated metals analyzed by EPA Method 7000.

MTCA Soil cleanup criteria per Chapter 173-340-740 WAC. Method A criteria presented where available. Otherwise, Method B standard formula values presented.



North

0 2000'

Scale 1 : 24,000

From USGS

Figure 1 - Site Map

7514 to 7536 15th Avenue NW
Seattle, Washington

Project No.	WES - 1471
Date	Feb 14, 2014
File ID.	1471F1

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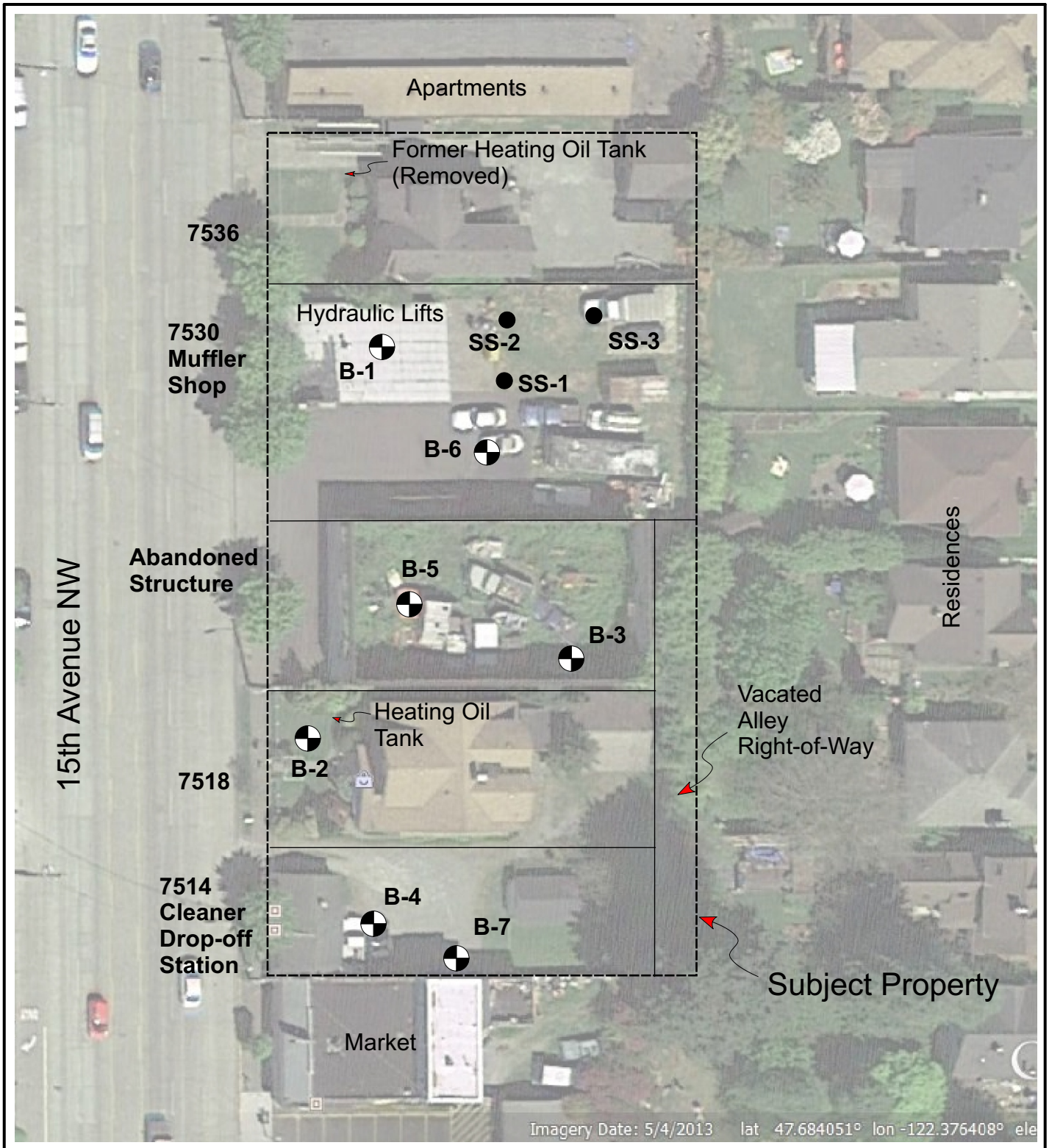

Boring Locations

Surface Sample Locations

North

0 40’

Scale 1” = Approx. 40’

Base Photo from Google Earth

Figure 2 - Site and Sampling Plan

7514 to 7536 15th Avenue NW
Seattle, Washington

Project No.	WES - 1471
Date	Feb 14, 2014
File ID.	1471F1

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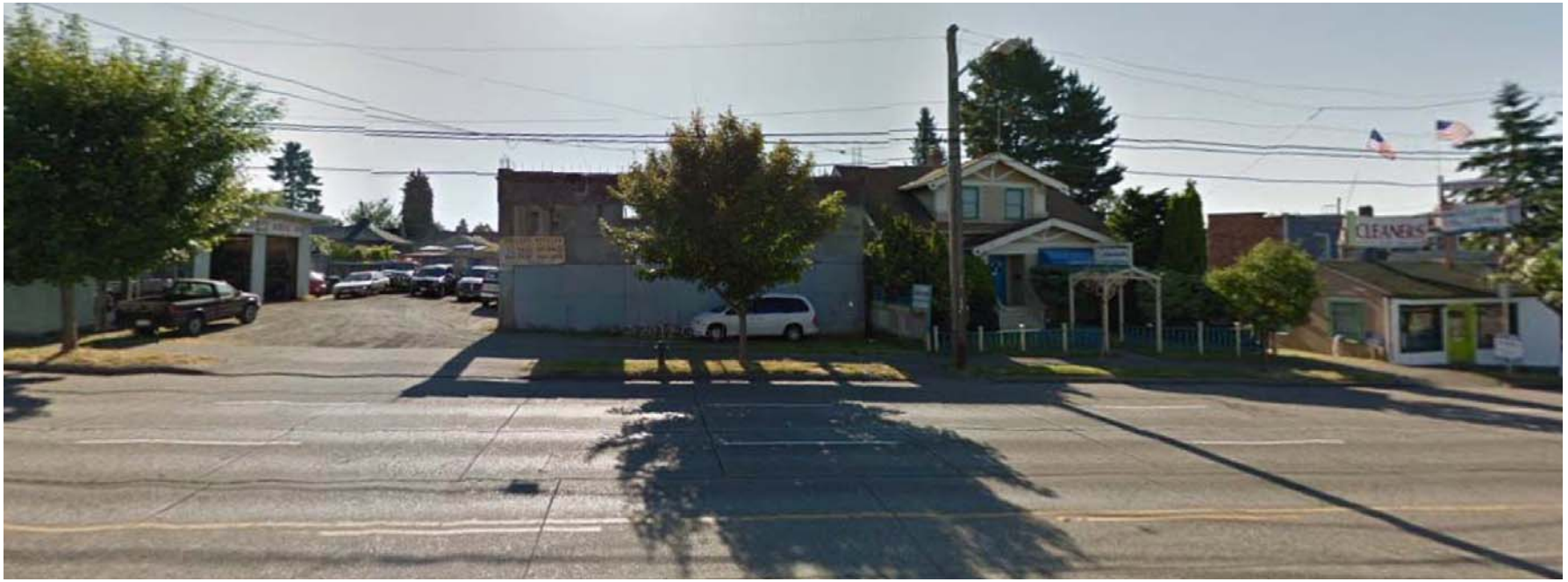
APPENDIX A

Current Site Photographs



1.) View of 7530, the abandoned structure, 7518 and 7514 15th Avenue NW, facing east.

2.) View of 7536 15th Avenue NW, facing east.

3.) View of the front of the Muffler shop at 7530 15th Avenue NW.

4.) View of the area adjacent to the muffler shop. The concrete slabs remain from prior garages that have been removed.

5.) View of one of two hydraulic lifts inside the muffler shop service bays.

6.) View of vehicles and debris stored in the abandoned structure.

7.) View of poorly secured drums in the abandoned structure.

8.) View of debris pile containing at least one more drum and other containers inside the abandoned structure.

9.) View of two trailers filled with debris in the area adjacent to the muffler shop.

APPENDIX B

Selected Historical References

North

Historical Kroll's Atlas - 1920

7514 to 7536 15th Avenue NW
Seattle, Washington

From Seattle Public Library

Project No.	WES - 1471
Date	Feb 16, 2014
File ID.	1471K20

Whitman Environmental Sciences

North

Historical Aerial Photograph - 1936

7514 to 7536 15th Avenue NW
Seattle, Washington

From King County Archives

Project No.	WES - 1471
Date	Feb 16, 2014
File ID.	1471P36

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△McKinley Minnie H Mrs
Peterson John A
△Roll Merton F
Titus Diamond L
Watson Wm R
6210△Bon Ton Cleaners clo clnrs
6212△Pedrose Margt I Mrs outboard motors
6215 Vacant
6217△Schatz Casper M gas sta
W 63d intersects
6311 VanWinter Leigh
6319 Vacant
W 64th intersects
6400△Louie's Fuel Co
6407△Blakney Thos W ◎
6409 Fiksdal Aksel I
6409½ Donaldson Peter O barber
6411 Starr Alice M Mrs
Angelow Junietta Mrs
6412△Nielsen Martin ◎
6413 Vacant
6415 Vacant
6416△Lynch Jos gas sta
6419 Peterson Alget M gas sta
W 65th intersects
6522 Coyne Wm A
6525 Widell Fred H
6528△Norwood Robt H ◎
6533 Larsen Arne
6536 Ready Harold G M
6536½△Charmette Beauty Shoppe
6537 Johnson Alben J
6543△LeMay Jos ◎
6554 Pederson Albert A rest
6556△March Byron D gro
6557△Wyard Isabella Mrs ◎
W 67th intersects
6700 LaChapelle Polydore E fuel
6714 Vacant
6716△Royal Venetian Blind Co
6719△Cameron Lydia C Mrs ◎
Oland Howard
6726△Richey Everett M
6727 Olney Fred C
6731 Sibelhuber Rosie Mrs ◎
6732 Meister Ursula Mrs
6733 Wick Peder ◎
6738△Storm Einer H ◎
6739 Peterson Roy
6742△Grover David C ◎
6743△Whitman Steph O fuel
6746 Meller Nils ◎
6750△Jones Donald D dentist
6752-54△Caldwell Benj F gro and notions
6759△Taylor's Bill General Petroleum Service gas sta
W 70th intersects
7000△Stevenson John O drugs
7001 Nelson Nicholas A gas sta
Wilson Carl auto repr
7002 Helgeland John A barber
7003△Rockey & Russo gas sta
7004△Segraves Jask S baker
7006△Kirkevold Realty Co
Kirkevold Oscar M
7011△Klaiber's Gus Tavern beer
7056 Bare Etta A Mrs ◎
Prouty Clara A Mrs
W 73d intersects
7302 Carlson Oliver gas sta
7310 Kennedy Griffith A ◎
7311 Mottram Jack H
7314△Gustafson Erick A ◎
7319 Bird Raymond F ◎
7320△Boutin Jas J
7324 McDermott Patk J
7325 Harlow Jas A ◎
7329 Moe Henry R
7332 Dalrymple F Bruce
7334 "Rhodadendron" Beauty Shop
7338 Woodruff Jessye V Mrs
7342△Johnsen John J
Hardy Thelma L Mrs
7346△Willman Herman P
7348△Ulschaffer Marion E
7353△Miles Jas C ◎
7358△Headrick Frank S drugs
7358½ Fanning Jas A ◎
W 75th intersects
7501 Rousu Geo S
7503△Cox J B Mrs beer parlor
Patterson Lu Delia Mrs
7504△Lambright Bros gas sta
7507 Vacant
7509△Carlin Arth C bicycles
7510△Oddie Leonard T M gro and meats
Montgomery Chas B
7511 Vacant
7515△Haughian G F beer parlor
7517△Hutton Alice Mrs beauty shop
7518△Sheriff Clyde J ◎
Walker Raymond B
7522△Bauman Willy B
7523△Myhre Anna Mrs
7533 Wrobel Frank ◎
7536 Abrahamson John S
7543 Vacant
7545△Johansen Olaf J
Chivers Sidney A
7548 Roberson Howard T
7549 Vacant
7551△Polzin Chester radio serv
7553△Erickson Axel E ◎
7556△Haberbush L Jas
McSorley Cath Mrs
W 77th intersects
7706△Griswold Carrie Mrs ◎
7709 Soderberg Richd J ◎
7716 Pantages Anna Mrs
7720△Farman Larry H ◎
7725 △Sundstrom Verner A ◎
7729 Youngren John E ◎
7732 Holen Olaf
7743 Henderson Ezekiel
7749△Thompson Sever
7752△Nelson Peter E
7755△Zarbough Geo R ◎
7760△Kline Raymond C
W 80th intersects
8002△Henskey Carl E
8006 Johnson Carl A ◎
8008△Johnson Realty Co
8010 Vacant
8324△Seattle Service Inc fuel and bldg matls
Ingram Fordyce paints
8327 Vacant
8329 Vacant
8331 Dalrymple N E shoe repr
8332 Vacant
8333△Dorcille Beauty Salon
8334△Goethals Victor beer parlor
8335 Crown Hill News
8336△Goethals Victor baker
8339△Erickson Plumbing & Heating Co
8346△Indridson Inde C fuel
8356△Koch Frank L gro and meats
8360 Vacant
8364△Crown Hill Drug Store
8365 McCain Melville gas sta
W 85th intersects
15TH AV S—Fr 1500 blk Yesler way s
Washington intersects Unopened to Judkins
1304 Civarra Anthony T
English Winfield S
1310△Cekalo Jas ◎
1312△Moon F G
Roscoe Donald A
1313 Vacant
1318△Read Wm H bldg contr
1320 Duncan Gordon
1322 Ballou Jos E
1325 Vacant
1331 Hard Walter
1335△Roberts Sandra Mrs
Naura Myrtle Mrs
1343△Washington Spoon & Bait Co fishing tackle
△Schechterle Otto ◎
Atlantic intersects
1505△Ford John ◎
1511 Abram Jos ◎
1514 Saltarelli John ◎
1517 Wells Winfield
1521△Harrington Lester D
1523 Coover Stanley ◎
1527 Baughman D Howard
1531△Gardner Henry C ◎
1532 Saltarelli Tony ◎
1535 Bocco Gust
1537 Czarniecki Laura Mrs ◎
1543△Sakamoto Tamizo ◎
Massachusetts intersects
1700△Dawson Harry E
1710 Klitschke Rachel Mrs ◎
Good Earl T
State intersects
1764△Warren Arth E gas sta
Grand intersects
1800△McSkimmings D Geo
1800½ Thomas Wm G
1801 Reed Frances M ◎
Zumwalt Frances M Mrs
Littlefield Bernice Mrs
1806△Mayouck Vera ◎
1809 Erickson Albert W
1814 Ingalls Calvin A ◎
1815△Lenhart Wm H ◎

Site Addresses from 1940 Polk Directory

7514 to 7536 15th Avenue NW
Seattle, Washington

Project No.	WES - 1471
Date	Feb 16, 2014
File ID.	1471S60

Whitman Environmental Sciences

North

From Seattle Public Library

Historical Kroll's Atlas - 1950

7514 to 7536 15th Avenue NW
Seattle, Washington

Project No.	WES - 1471
Date	Feb 16, 2014
File ID.	1471K50

Whitman Environmental Sciences

North

Historical Sanborn Map - Updated to 1960

7514 to 7536 15th Avenue NW
Seattle, Washington

From Seattle Public Library

Project No.	WES - 1471
Date	Feb 16, 2014
File ID.	1471S60

Whitman Environmental Sciences

North

From USGS Earth Explorer

Historical Aerial Photograph - 1977

7514 to 7536 15th Avenue NW
Seattle, Washington

Project No.	WES - 1471
Date	Feb 16, 2014
File ID.	1471P77

Whitman Environmental Sciences

North

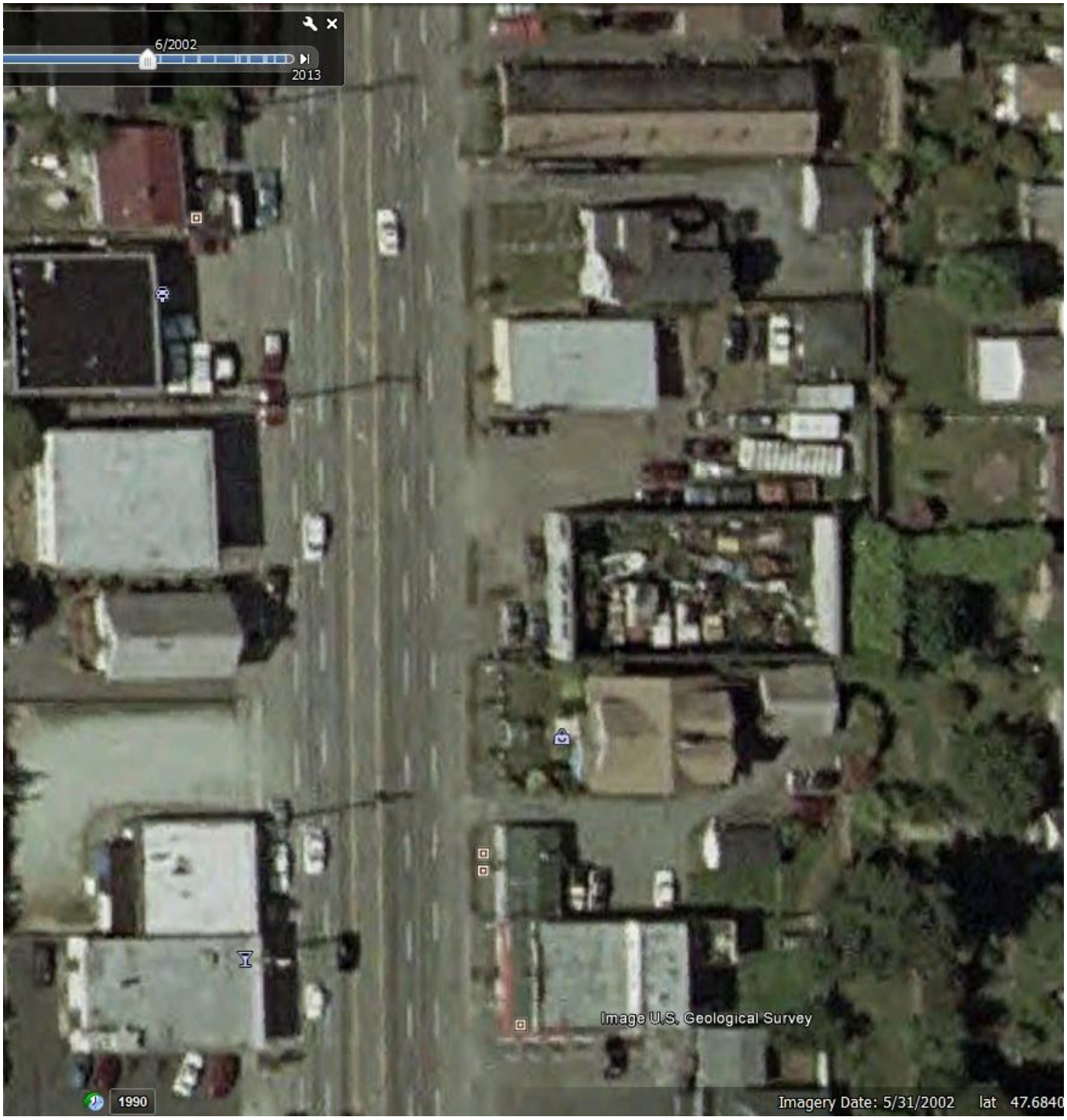
From Google Earth

Historical Aerial Photograph - 1990

7514 to 7536 15th Avenue NW
Seattle, Washington

Project No.	WES - 1471
Date	Feb 16, 2014
File ID.	1471P36

Whitman Environmental Sciences



North

From Google Earth

Historical Aerial Photograph - 2002

7514 to 7536 15th Avenue NW
Seattle, Washington

Project No.	WES - 1471
Date	Feb 16, 2014
File ID.	1471P02

Whitman Environmental Sciences

APPENDIX C

Laboratory Analytical Reports
Friedman & Bruya, Inc.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

February 19, 2014

Dan Whitman, Project Manager
Whitman Environmental Sciences
5508 35th Ave. NE
Seattle, WA 98105

Dear Mr. Whitman:

Included are the results from the testing of material submitted on February 11, 2014 from the Ballard Muffler WES 1471, F&BI 402132 project. There are 16 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
WES0219R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 11, 2014 by Friedman & Bruya, Inc. from the Whitman Environmental Sciences Ballard Muffler WES 1471, F&BI 402132 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Whitman Environmental Sciences
402132 -01	SS-1
402132 -02	SS-2
402132 -03	SS-3
402132 -04	B-1-4'
402132 -05	B-1-8.5'
402132 -06	B-2-7.5'
402132 -07	B-3-2'
402132 -08	B-3-15'
402132 -09	B-4-2'
402132 -10	B-4-6'
402132 -11	B-5-2.5'
402132 -12	B-6-5'
402132 -13	B-6-12'
402132 -14	B-7-3'
402132 -15	B-7-13'

The 8260C samples were not received in 5035 sampling containers. The data were flagged accordingly.

The 8260C calibration standard failed the acceptance criteria for bromoform in the method blank. The data were flagged accordingly.

All other quality control requirements were acceptable.

Date of Report: 02/19/14
Date Received: 02/11/14
Project: Ballard Muffler WES 1471, F&BI 402132
Date Extracted: 02/12/14
Date Analyzed: 02/12/14

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
B-3-2' 402132-07	<0.02	<0.02	<0.02	<0.06	<2	98
Method Blank 04-0258 MB	<0.02	<0.02	<0.02	<0.06	<2	97

Date of Report: 02/19/14
Date Received: 02/11/14
Project: Ballard Muffler WES 1471, F&BI 402132
Date Extracted: 02/13/14
Date Analyzed: 02/14/14

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
SS-1 402132-01	<50	<250	127
SS-2 402132-02	<50	<250	128
SS-3 402132-03	<50	<250	124
B-1-4' 402132-04	<50	<250	127
B-1-8.5' 402132-05	<50	<250	130
B-2-7.5' 402132-06	<50	<250	110
B-3-2' 402132-07	<50	<250	125
B-3-15' 402132-08	<50	<250	127
B-5-2.5' 402132-11	<50	<250	128
B-6-5' 402132-12	<50	<250	128
Method Blank 04-293 MB	<50	<250	128

Analysis For Total Metals By EPA Method 200.8

Client ID:	SS-1	Client:	Whitman Environmental Sciences
Date Received:	02/11/14	Project:	Ballard Muffler WES 1471, F&BI 402132
Date Extracted:	02/13/14	Lab ID:	402132-01
Date Analyzed:	02/14/14	Data File:	402132-01.049
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	79	60	125
Holmium	87	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.51
Cadmium	<1
Lead	4.92

Analysis For Total Metals By EPA Method 200.8

Client ID:	SS-2	Client:	Whitman Environmental Sciences
Date Received:	02/11/14	Project:	Ballard Muffler WES 1471, F&BI 402132
Date Extracted:	02/13/14	Lab ID:	402132-02
Date Analyzed:	02/14/14	Data File:	402132-02.050
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	78	60	125
Holmium	84	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.01
Cadmium	<1
Lead	5.59

Analysis For Total Metals By EPA Method 200.8

Client ID:	B-3-2'	Client:	Whitman Environmental Sciences
Date Received:	02/11/14	Project:	Ballard Muffler WES 1471, F&BI 402132
Date Extracted:	02/13/14	Lab ID:	402132-07
Date Analyzed:	02/14/14	Data File:	402132-07.052
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	76	60	125
Holmium	81	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.03
Cadmium	<1
Lead	28.4

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	NA	Project:	Ballard Muffler WES 1471, F&BI 402132
Date Extracted:	02/13/14	Lab ID:	I4-078 mb
Date Analyzed:	02/14/14	Data File:	I4-078 mb.035
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	86	60	125
Holmium	90	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-4-2' pc	Client:	Whitman Environmental Sciences
Date Received:	02/11/14	Project:	Ballard Muffler WES 1471, F&BI 402132
Date Extracted:	02/12/14	Lab ID:	402132-09
Date Analyzed:	02/13/14	Data File:	021307.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	99	50	150

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-7-3' pc	Client:	Whitman Environmental Sciences
Date Received:	02/11/14	Project:	Ballard Muffler WES 1471, F&BI 402132
Date Extracted:	02/12/14	Lab ID:	402132-14
Date Analyzed:	02/13/14	Data File:	021308.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	98	50	150

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Whitman Environmental Sciences
Date Received:	NA	Project:	Ballard Muffler WES 1471, F&BI 402132
Date Extracted:	02/12/14	Lab ID:	04-0273 mb2
Date Analyzed:	02/12/14	Data File:	021206.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	101	50	150

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

Date of Report: 02/19/14
Date Received: 02/11/14
Project: Ballard Muffler WES 1471, F&BI 402132

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 402129-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	79	66-121
Toluene	mg/kg (ppm)	0.5	89	72-128
Ethylbenzene	mg/kg (ppm)	0.5	89	69-132
Xylenes	mg/kg (ppm)	1.5	89	69-131
Gasoline	mg/kg (ppm)	20	95	61-153

Date of Report: 02/19/14
Date Received: 02/11/14
Project: Ballard Muffler WES 1471, F&BI 402132

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 402132-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	100	100	64-133	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	98	58-147

Date of Report: 02/19/14
Date Received: 02/11/14
Project: Ballard Muffler WES 1471, F&BI 402132

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 402161-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	2.90	92 b	90 b	70-118	2 b
Cadmium	mg/kg (ppm)	10	<1	99	99	83-116	0
Lead	mg/kg (ppm)	50	1.81	103	105	59-148	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	97	83-113
Cadmium	mg/kg (ppm)	10	100	54-114
Lead	mg/kg (ppm)	50	105	80-120

Date of Report: 02/19/14
Date Received: 02/11/14
Project: Ballard Muffler WES 1471, F&BI 402132

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

Laboratory Code: 402099-15 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	15	15	10-56	0
Chloromethane	mg/kg (ppm)	2.5	<0.5	41	42	10-90	2
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	38	38	10-91	0
Bromomethane	mg/kg (ppm)	2.5	<0.5	84	74	10-110	13
Chloroethane	mg/kg (ppm)	2.5	<0.5	47	48	10-101	2
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	40	41	10-95	2
Acetone	mg/kg (ppm)	12.5	<0.5	65	67	11-141	3
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	52	53	11-103	2
Methylene chloride	mg/kg (ppm)	2.5	<0.5	55	58	14-128	5
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	64	66	17-134	3
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	58	58	13-112	0
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	60	62	23-115	3
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	62	65	18-117	5
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	61	62	25-120	2
Chloroform	mg/kg (ppm)	2.5	<0.05	64	66	29-117	3
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	67	67	20-133	0
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	64	65	22-124	2
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	59	59	27-112	0
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	61	60	26-107	2
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	58	60	22-115	3
Benzene	mg/kg (ppm)	2.5	<0.03	63	62	26-114	2
Trichloroethene	mg/kg (ppm)	2.5	<0.03	61	62	30-112	2
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	66	67	31-119	2
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	65	65	31-131	0
Dibromomethane	mg/kg (ppm)	2.5	<0.05	66	68	27-124	3
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	71	71	16-147	0
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	69	70	28-137	1
Toluene	mg/kg (ppm)	2.5	<0.05	62	62	34-112	0
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	69	69	30-136	0
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	66	69	32-126	4
2-Hexanone	mg/kg (ppm)	12.5	<0.5	68	69	17-147	1
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	66	66	29-125	0
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	60	59	27-110	2
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	64	66	32-143	3
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	67	69	32-126	3
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	65	66	37-113	2
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	65	65	38-111	0
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	66	66	35-126	0
m,p-Xylene	mg/kg (ppm)	5	<0.1	65	65	38-112	0
o-Xylene	mg/kg (ppm)	2.5	<0.05	65	66	38-113	2
Styrene	mg/kg (ppm)	2.5	<0.05	66	67	38-118	2
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	65	66	37-114	2
Bromoform	mg/kg (ppm)	2.5	<0.05	60	62	18-155	3
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	65	65	36-114	0
Bromobenzene	mg/kg (ppm)	2.5	<0.05	66	65	40-115	2
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	67	67	35-116	0
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	68	68	33-128	0
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	64	65	33-123	2
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	66	65	39-110	2
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	67	67	39-111	0
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	67	67	36-116	0
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	68	67	35-116	1
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	68	67	33-118	1
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	66	66	32-119	0
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	65	65	38-111	0
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	64	64	39-109	0
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	64	64	40-111	0
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	61	62	34-134	2
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	65	66	31-117	2
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	66	66	25-122	0
Naphthalene	mg/kg (ppm)	2.5	<0.05	65	66	39-120	2
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	67	68	35-117	1

Date of Report: 02/19/14
Date Received: 02/11/14
Project: Ballard Muffler WES 1471, F&BI 402132

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	50	10-76
Chloromethane	mg/kg (ppm)	2.5	67	34-98
Vinyl chloride	mg/kg (ppm)	2.5	68	42-107
Bromomethane	mg/kg (ppm)	2.5	70	46-113
Chloroethane	mg/kg (ppm)	2.5	75	47-115
Trichlorofluoromethane	mg/kg (ppm)	2.5	76	53-112
Acetone	mg/kg (ppm)	12.5	93	39-147
1,1-Dichloroethene	mg/kg (ppm)	2.5	82	65-110
Methylene chloride	mg/kg (ppm)	2.5	85	62-119
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	90	72-122
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	85	71-113
1,1-Dichloroethane	mg/kg (ppm)	2.5	87	76-109
2,2-Dichloropropane	mg/kg (ppm)	2.5	93	64-151
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	87	77-110
Chloroform	mg/kg (ppm)	2.5	91	78-108
2-Butanone (MEK)	mg/kg (ppm)	12.5	91	60-121
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	90	80-109
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	86	72-116
1,1-Dichloropropene	mg/kg (ppm)	2.5	85	77-108
Carbon tetrachloride	mg/kg (ppm)	2.5	86	67-123
Benzene	mg/kg (ppm)	2.5	87	75-107
Trichloroethene	mg/kg (ppm)	2.5	87	72-107
1,2-Dichloropropane	mg/kg (ppm)	2.5	90	78-111
Bromodichloromethane	mg/kg (ppm)	2.5	92	75-126
Dibromomethane	mg/kg (ppm)	2.5	92	80-111
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	96	80-128
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	98	71-138
Toluene	mg/kg (ppm)	2.5	86	79-112
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	97	77-135
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	92	84-115
2-Hexanone	mg/kg (ppm)	12.5	91	71-129
1,3-Dichloropropane	mg/kg (ppm)	2.5	89	82-113
Tetrachloroethene	mg/kg (ppm)	2.5	83	77-110
Dibromochloromethane	mg/kg (ppm)	2.5	90	64-152
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	93	83-116
Chlorobenzene	mg/kg (ppm)	2.5	88	82-113
Ethylbenzene	mg/kg (ppm)	2.5	87	81-114
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	94	76-125
m,p-Xylene	mg/kg (ppm)	5	89	82-115
o-Xylene	mg/kg (ppm)	2.5	89	81-116
Styrene	mg/kg (ppm)	2.5	92	81-118
Isopropylbenzene	mg/kg (ppm)	2.5	89	81-117
Bromoform	mg/kg (ppm)	2.5	87	50-174
n-Propylbenzene	mg/kg (ppm)	2.5	87	82-116
Bromobenzene	mg/kg (ppm)	2.5	87	82-118
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	90	83-120
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	93	83-125
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	86	79-116
2-Chlorotoluene	mg/kg (ppm)	2.5	88	80-114
4-Chlorotoluene	mg/kg (ppm)	2.5	89	82-114
tert-Butylbenzene	mg/kg (ppm)	2.5	89	82-116
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	92	82-116
sec-Butylbenzene	mg/kg (ppm)	2.5	91	81-123
p-Isopropyltoluene	mg/kg (ppm)	2.5	89	82-124
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	87	80-118
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	87	79-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	87	80-118
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	89	71-131
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	92	75-122
Hexachlorobutadiene	mg/kg (ppm)	2.5	88	74-130
Naphthalene	mg/kg (ppm)	2.5	92	83-128
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	94	80-126

Data Qualifiers & Definitions

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

A1 – More than one compound of similar molecule structure was identified with equal probability.

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

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

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

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

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

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

402132

SAMPLE CHAIN OF CUSTODY ME 02-12-14/5 SAMPLES TOTAL BI4

Page # 1 of 2

Send Report To [illegible]

Company [illegible]

Address 3508 35TH AVE W

City, State, ZIP SEATTLE WA 98199

Phone #[illegible] Fax #

SAMPLERS (signature)

PROJECT NAME/NO. BARNES WIFFLER

PO # 0265 1471

REMARKS

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☒ RUSH ONE WEEK

Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel (X)	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	HFS Common Reserve						Notes
SS-1-	01	2-11-14		SOIL	1	X						X						
SS-2	02	"				X						X						
SS-3	03	"				X												
B-1-4'	04	"				X												
B-1-8.5'	05	"				X												
B-2-7.5'	06	"				X												
B-3-2'	07	"				X	X	X				X						
B-3-15'	08	"				X												
B-4-2'	09	"							X									
B-4-6'	10	"																HOLD

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	[illegible]	[illegible]	2-11-14	
Received by:	[signature]	Kurt Johnson	FRB1	2/11/14	5:05
Relinquished by:					
Received by:					

Samples received at 14 °C

402132

SAMPLE CHAIN OF CUSTODY ME 02-12-14 BI4

Send Report To Dan Whitman
Company Whitman Env. Services
Address 5508 35th Ave NE
City, State, ZIP Seattle, WA 98105
Phone #523-3605 Fax #

SAMPLERS (signature)
PROJECT NAME/NO. Ballard Muffler
PO # 1471
REMARKS

Page # 1 of 1

TURNAROUND TIME
☐ Standard (2 Weeks)
☒ RUSH One week
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Notes
B-5-2.5'	11	2-11-14		Soil	1	X						
B-6-5'	12	"		"	"	X						
B-6-12'	13	"		"	"							Hold
B-7-3'	14	"		"	"				X			
B-7-13'	15	"		"	"							Hold

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:			GRS	2-11-14	
Received by:		Kurt Johnson	F&B	2/11/14	5:05
Relinquished by:					
Received by:					

Samples received at 14 °C