

**Cleanup Action Report
Former 7-Eleven Store 25821
Wascher Mobil Station
1824 George Washington Way, Richland, WA**

Facility No. 77113577
Cleanup Site No. 6650



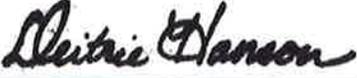
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May 25, 2017

Sign-off Sheet

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 FORMER 7-ELEVEN STORE 25821
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Abbreviations

µg/l	micrograms per liter
7-Eleven	7-Eleven Inc.
AOC	Area of concern
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CAR	Cleanup Action Report
CLARC	Cleanup Level and Risk Calculations
COPC	constituents of potential concern
COR	City of Richland
CPRAS	Columbia Plateau Regional Aquifer System
CSCSL	Confirmed and Suspected Contaminated Sites List
CSM	Conceptual Site Model
CUL	cleanup level
DNR	Washington State Department of Natural Resources
Ecology	Washington State Department of Ecology
EDB	1,2-dibromoethane
EDC	1,2-dichloroethane
EPA	Environmental Protection Agency
ft/day	feet per day
HASP	Health and Safety Plan
HDB	Hydrocarbon Degrading Bacteria
Holocene	Holocene Drilling, Inc.
ID	Identification
Kleinfelder	Kleinfelder, Inc.
LUST	Leaking Underground Storage Tank
mg/kg	milligrams per kilogram
Mobil	Mobil Oil
MTCA	Model Toxics Control Act
MTBE	methyl tertiary-butyl ether
NAPL	Non-Aqueous Petroleum Liquid
NFA	No Further Action
NWTPH-Dx	Northwest Method for total petroleum hydrocarbons as diesel
NWTPH-Gx	Northwest Method for total petroleum hydrocarbons as gasoline
PCS	Petroleum contaminated soil
PQL	Practical quantitation limit
Property	1824 George Washington Way, Richland, WA
QA/QC	Quality Assurance/Quality Control

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Qfg4	Pleistocene gravel outburst flood deposits
SHA	Site Hazard Assessment
Site	MTCAsite definition
Stantec	Stantec Consulting Services Inc.
TEE	Terrestrial Ecological Evaluation
TPH-D	Total petroleum hydrocarbons as diesel
TPH-G	Total petroleum hydrocarbons as gasoline
UST	Underground storage tank
VOC	Volatile Organic Compound
WAC	Washington Administrative Code
WARM	Washington Ranking Method

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INTRODUCTION
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1.0 INTRODUCTION

On behalf of 7-Eleven, Inc. (7-Eleven), Stantec Consulting Services Inc. (Stantec), has prepared this Cleanup Action Report (CAR) for former 7-Eleven Store No. 25821 in accordance with the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA). This report documents soil and groundwater sampling related to a gasoline release at the former 7-Eleven Store No. 25821 gasoline facility (the Site), located at 1824 George Washington Way, Richland, Benton County, Washington (the Property; shown on **(Figures 1 and 2)**). The former gasoline underground storage tanks (USTs) and distribution equipment were removed from the Property in 1989. The Property currently operates as a Subway® sandwich restaurant.

1.1 PROJECT INFORMATION

Site Name	Former 7-Eleven Store No. 25821
Property Address	1824 George Washington Way, Richland, WA
Property Parcel Number	102981020815007
Current Property Owner	Cazier Properties LLC
Project Client Contact Information	Mr. Jose Rios – Manager, Environmental Services 7-Eleven Inc. PO Box 711 Dallas TX 75221-0711
Project Consultant Contact Information	Mr. Paul Fairbairn - Project Manager Stantec Consulting Services Inc. 11130 NE 33 rd Place, Suite 200 Bellevue, WA 98004
Department of Ecology Site Manager	Ms. Laura Klasner
Facility Number	77113577
Cleanup Site Number	6650

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1.2 PROJECT RATIONALE

Following removal of the 7-Eleven gasoline facility in 1989, environmental sampling indicated that petroleum hydrocarbons in soil and groundwater exceeded MTCA Method A Cleanup Levels (CULs) in the vicinity of the former tank basin. The following interim actions have been conducted to remediate soil and groundwater impacts at the Site:

- Remedial excavation (1989); and,
- BOS-200® activated carbon injections (2014).

The most recent interim action in 2014 is unreported and discussed in this report. Recent soil and groundwater confirmation samples in 2015 and 2016 indicate that petroleum impacts associated with the release from the former fuel system(s) at the Property no longer pose a threat to human health and the environment as defined in MTCA, Chapter 70.105D Revised Code of Washington, and its implementing regulations, Washington Administrative Code (WAC) 173-340. The scope consisted of confirmation soil sampling and routine quarterly groundwater monitoring and sampling events. Confirmation soil and groundwater sampling was performed to evaluate the effectiveness of the 2014 interim action and to:

- Evaluate current petroleum hydrocarbon concentrations in soil and groundwater;
- Determine the vertical extent of petroleum hydrocarbons in soil; and,
- Close existing data gaps.

Specifically, recent sampling results demonstrate the Site meets the requirements set forth in Model Remedy 5 as the basis for Site closure with unrestricted land use. Under WAC 173-340-390, the purpose of model remedies is to streamline and accelerate the selection of cleanup actions that protect human health and the environment, with a preference for permanent solutions to the maximum extent practicable. Where a site meets the circumstances identified by Ecology, the components of the model remedy may be selected as the cleanup action, or as a portion of the cleanup action. At such sites, it shall not be necessary to conduct a feasibility study under WAC 173-340-350(8) or a disproportionate cost analysis under WAC 173-340-360(3) for those components of a cleanup action to which a model remedy applies. Model Remedy 5 was selected to demonstrate that the soil direct contact pathway is incomplete and post-remediation groundwater sampling was completed on a quarterly basis in order to demonstrate, via empirical demonstration, that the leaching pathway is incomplete at the Site. Dissolved phase petroleum concentrations in groundwater have been below MTCA Method A CULs for four consecutive quarters and residual petroleum-impacted soil does not pose a threat to human health or the environment, currently or in the future, and meets the requirements for a No Further Action (NFA) determination.

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SITE IDENTIFICATION AND BACKGROUND
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2.0 SITE IDENTIFICATION AND BACKGROUND

2.1 SITE IDENTIFICATION

Under MTCA WAC 173-340-200, a “site” is defined by the nature and extent of contamination associated with one or more releases of hazardous substances, prior to any cleanup of that contamination. A MTCA site is, therefore, not restricted by or related to legal property boundaries, and a MTCA site may include only a portion of the property where the release occurred or may include an affected area extending onto adjacent parcel(s). For this project, the MTCA site (Site) is contained within the north half of the Property, does not extend beyond the Property boundaries, and does not appear to extend beneath the single Property building. The Site boundary is presented on *Figure 3*.

2.2 PROPERTY AND SURROUNDING LAND USE

2.2.1 Property Land Use

The Property is a former 7-Eleven convenience store and gasoline dispensing facility. 7-Eleven operations commenced in 1984 and ceased at the Site in 1989. A prior gas station (Mobil Oil-branded (Mobil)) operated at the Property from 1949 until 1984 with two generations of USTs during that time frame: original metal USTs from 1949 to 1964 and replacement fiberglass USTs from 1964 to 1984. The Property currently operates as a Subway® sandwich restaurant and is located at the southeast corner of the intersection of George Washington Way and McMurray Street. The Property is located in a mixed commercial and residential area of Richland. A detailed Site history is presented in *Appendix A*. A legal description of the Property is included in *Appendix B*.

The Property is located in Benton County in township 9 north, range 28 east, and section 2 (along the north-central boundary of Section 2). The Property is currently owned by Russell Cazier of Cazier Properties LLC and leased by Subway® as Store Number 7655 located at 1824 George Washington Way, Richland (*Figures 1 and 2*) show the Property location and layout, respectively). The Property is identified as parcel 102981020815007 by the Benton County Assessor’s Office and occupies approximately 22,400-square feet. The eastern portion of the parcel is occupied by the Subway® sandwich restaurant and the remaining area of the parcel is occupied by a parking lot. Stantec is unaware of any proposed land use changes to the Property.

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2.2.2 Surrounding Land Use

Surrounding land use is summarized below:

Direction From Property	Neighboring Property Land Use
North	McMurray Street followed by a pizza restaurant and pharmacy.
South	Vacant land and a paved parking lot.
East	A residential property.
West	George Washington Way followed by a fast-food restaurant and commercial shopping center.

2.3 ZONING, INFRASTRUCTURE, AND WATER SUPPLY

According to a City of Richland (COR) Zoning Map, the Property is zoned Commercial. Subsurface utilities present beneath and adjacent to the Property include sanitary sewer, storm water, water, power, and communications. Additional subsurface utilities may be present, but were not identified by Stantec.

Catch basins located off of the Property likely connect into the COR's storm water system.

The COR draws water from two major sources, the Columbia River and municipal groundwater wells located at various locations around the city. The COR supplies public drinking water to all of its residences in a two-mile radius from the Site. The city treats surface water from the Columbia River to provide drinking water to its residents and this provides about 70% of the COR's water. The other 30% is water that is supplied by the municipal groundwater wells. There are three COR municipal groundwater wells located less than 1-mile from the Site. One of these wells (Columbia) is located about 0.8-mile northeast of the Site and the other two wells (Well Number 1000-8 and COR Well 1100-D) are located about 0.9-mile north of the Site. The Site is also located about 1.25-mile south of the COR Recharge Basin (Site Hazard Assessment February 2013). Ecology records indicate that there are 117 Water Well Reports on file within the same township (09N), range (28E), and section (2) as the Site. There are fifty-two (52) resource protection wells, thirty decommissioned wells, thirty-one domestic water wells, and four soil boring locations.

Of the 31 domestic water wells, four are within one mile of the Site. The closest is Well Identification (ID) AEL443 located 0.3-mile east of the Site at 1822 Davison Avenue in Richland, WA. Static groundwater was encountered at 16-feet (below ground surface) bgs when the well was

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constructed on January 13, 1999. The other three water wells are located 0.6-mile south and 0.8-mile northeast of the Site and have levels of static groundwater at 16-feet bgs to 38-feet bgs.

Of the 52 resource protection wells, the closest is Well ID ABI453 (1 HR Cleaners) located approximately 331-feet west of the Site at 1823 George Washington Way. Groundwater was encountered at approximately 11-feet below the existing grade during well placement (June 18, 1999).

A map demonstrating the lack of connectivity due to the distance of the Site and the predominant southwesterly groundwater flow direction and gradient flowing away from up gradient potential potable water sources is provided in **Figure 4**. The predominant groundwater flow direction (blue arrow) is to the southwest (**Graph 1**) on **Figure 4**, downgradient of the three domestic municipal water wells (yellow) located less than a mile to the north from the Property. Furthermore, municipal water is drawn from the Ringold Formation at approximately 50-feet bgs, as seen by the COR Water Well Report for a water well located at the southwest corner of Leslie Grove Park (north of the Site) in Richland as described in **Section 3.4** and provided in **Appendix C**, which is a separate formation from the shallow Pleistocene surficial deposits that Site wells are located in.

2.4 PROPERTY DEVELOPMENT AND HISTORY

Stantec conducted a review of the Benton County Assessor Parcel information; historical records provided by Environmental Data Resources, Inc., and historical microfilm at the COR (**Appendix C**) and compiled the following tables in **Sections 2.4.1 and 2.4.2**.

2.4.1 Past Property Uses and Facilities

The following is a summary of Site characteristics and occupancy based on the review of historical documents. A brief historical summary is also found in **Appendix A**:

Year	Property History
Prior to 1949	The Property is vacant land.
1949 to 1964	A gasoline service station owned and operated by the Wascher family was located on the property circa 1949 to circa 1964 with the first generation of metal USTs and dispensers located in the central portion of the Property as shown on Figure 3 .
1964 to 1984	The Wascher family continued to operate a gasoline service station at the Site with the second generation of fiberglass USTs.

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Year	Property History
1984 to 1989	7-Eleven demolished the original Wascher Mobil gas station building; removed the 1964-circa 10,000-gallon fiberglass USTs; installed three new 12,000-gallon fiberglass USTs, and built a new convenience store, dispenser island, and gasoline canopy. 7-Eleven operated the Property as a retail gasoline station and convenience store until 1989. The 7-Eleven USTs and dispensers were located in the northern portion of the Property.
1989 to 1990	In 1989, 7-Eleven closed the refueling station and removed the 1984-circa fiberglass USTs, dispenser island, and canopy. The convenience store building was left standing.
1990 to 2005	In 1990, 7-Eleven sub-leased the Property to Russell Cazier who opened a Subway® restaurant in the former 7-Eleven convenience store building.
2005 to present	In 2005, Mr. Cazier purchased the Property from the Wascher Family and continues to own and operate a Subway® restaurant on the Property from 2005 to present.

The former USTs and contents are summarized in the table below:

2.4.2 Former Underground Storage Tanks

Tank ID	Tank Type & Volume	Substance Stored	Date Installed	Date Decommissioned	Tank Operator
N/A	10,000-gallon, single-wall metal	Gasoline	1/1/1949	1964	Wascher Mobil
N/A	10,000-gallon, single-wall metal	Gasoline	1/1/1949	1964	Wascher Mobil
N/A	10,000-gallon, single-wall metal	Gasoline	1/1/1949	1964	Wascher Mobil
N/A	10,000-gallon, single-wall fiberglass	Gasoline	1/1/1964	1984	Wascher Mobil
N/A	10,000-gallon, single-wall fiberglass	Gasoline	1/1/1964	1984	Wascher Mobil

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N/A	10,000-gallon, single-wall fiberglass	Gasoline	1/1/1964	1984	Wascher Mobil
2 Premium Unleaded	12,000-gallon, single-wall fiberglass	Unleaded Premium	1/1/1984	1989	Southland Corporation
3 Premium Unleaded	12,000-gallon, single-wall fiberglass	Unleaded Premium	1/1/1984	1989	Southland Corporation
4 Unleaded	12,000-gallon, single-wall fiberglass	Unleaded	1/1/1984	1989	Southland Corporation

2.5 RELEASE DISCOVERY

A release was reported to Ecology on February 28, 1989 following the removal of three 10,000-gallon gasoline USTs. Potential hydrocarbon-impacted soil was identified by Kleinfelder, Inc. (Kleinfelder) of Bellevue, Washington on February 27, 1989. Two soil samples were collected from the bottom of the excavation and stockpiled soils. Based on the results, additional site investigation was deemed necessary to define the nature and extent of the soil and groundwater impacts at the Site. The release was reported to Ecology and the Site was entered into Ecology's Leaking Underground Storage Tank (LUST) database with LUST ID number 8 (Historic Release ID 1018).

2.6 REGULATORY FRAMEWORK

Stantec reviewed Ecology electronic databases regarding the regulatory status of the Site. As of August 2016, the Site is included in Ecology's UST and LUST lists and the Site is included in the Ecology LUST list with the status "cleanup started." Ecology ID numbers for the Site are summarized below.

Database	Ecology ID Number
Facility ID	77113577
UST Site ID	8598
Cleanup Site ID	6650
LUST Release ID	8



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Database	Ecology ID Number
Historic Release ID Number	1018

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NATURAL CONDITIONS
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3.0 NATURAL CONDITIONS

3.1 PHYSIOGRAPHIC SETTING AND TOPOGRAPHY

Surface cover at the Property is primarily asphalt pavement with concrete, and topography of the Property is sloped down to the road (McMurray Street) at the northern part of the site. The Property is located at an approximate elevation of 371-feet above mean sea level. The closest body of surface water to the Site is the Columbia River, located approximately 2,100 feet due east of the Site. The Columbia River flows generally to the south in the vicinity of the Site.

The Site lies within the Pasco Basin and the geology of the immediate area surrounding the Site in North Richland consists of four main units: Holocene/Pleistocene surficial deposits; the Pleistocene Hanford formation; the Pliocene Ringold Formation, and the Miocene Columbia River Basalt Group.

The Site is located on Pleistocene gravel outburst flood deposits (Qgf₄) that are part of the Holocene/Pleistocene surficial units that overlie the Hanford Formation (Washington State Department of Natural Resources (DNR) 1994). The surficial units include loess, sand dunes, alluvium, landslides, talus, and colluvium and locally veneer the surface of the Pasco Basin (Liikala 1994).

The Hanford formation was deposited during the last period of catastrophic flooding from Glacial Lake Missoula during the Pleistocene and is the below the Holocene surficial units. It lies unconformably on top of the eroded surface of the Ringold Formation. The sediments consist of approximately 25- to 60-feet of fine- to medium-grained sand with trace silt and varying amounts of gravels and boulders.

The Ringold Formation lies below the Hanford Formation (COR 2017). The Ringold Formation is a Tertiary alluvial deposit approximately 100-150 feet thick that locally includes sandy silts and clays with interbeds of sand (DNR 1994).

The Columbia River Basalt Group underlies the alluvial deposits of the Ringold Formation and represents a massive out-pouring of flood basalt that occurred between 6-17.5 million years ago, (DNR 1994). The Basalt Group includes three major units, from top to bottom: Saddle Mountains, Wanapum, and the Grande Ronde and within each of these three major basalt units occurs numerous interflow zones and sedimentary interbeds (Rockwell International 1979).

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3.2 SURFACE WATER

The closest body of surface water to the Site is the Columbia River, located approximately 2,100 feet due east of the Site. The Columbia River flows generally to the south in the vicinity of the Site.

3.3 SITE GEOLOGICAL CONDITIONS

Based on a review of past soil boring logs from previous Site investigations and the United States Department of Agriculture Natural Resources Conservation Service website that has local soil data information, the Site consists of Burbank loamy fine sand with gravelly substratum in the areas that have not been previously excavated and sandy gravelly fill material in the area of the 1989 excavation. The Burbank loamy fine sand with gravelly substratum layer is amongst the Holocene/Pleistocene surficial deposits that overlie the Hanford Formation. The Site is covered by approximately 2 inches of asphalt and concrete followed by approximately 15-feet of brown gravelly sandy fill material in the 1989 excavation area. The layer of fill is underlain by approximately 10-feet of gray sand with fine gravel to the maximum depth explored beneath the Property (26.5-feet bgs). Borehole logs are included as **Appendix D**.

3.4 HYDROGEOLOGY

3.4.1 Regional Hydrogeology

The Columbia Plateau regional aquifer system (CPRAS) is present in the Pasco Basin. The CPRAS consists of multiple aquifer systems: a shallow unconfined water table aquifer system with localized confined aquifers on top of a deeper confined aquifer system within the basalt. Groundwater comprising the water table aquifer in the North Richland area flows generally eastward from the source of recharge beneath the Richland area at the Yakima River to the discharge point at the Columbia River (ICF 1987). The shallow unconfined and confined aquifer system is a principal source of water for many wells in the COR.

The three Miocene basaltic-rock aquifers that comprise the deeper confined aquifer system include, from top to bottom, Saddle Mountain Basalt, Wanapum Basalt, and Grande Ronde Basalt. The areal extent of the CPRAS is contiguous with the extent of the Grande Ronde Basalt. The basalt aquifers beneath the Richland area are recharged by subsurface flow from distant surface recharge areas northeast and south-southeast of the Richland area. The basalt aquifers discharge to the Yakima and Columbia Rivers in the vicinity of Richland (COR 1998). Collectively, however, the deeper thick Miocene basaltic-rock confined aquifers generally yield more water than the shallow aquifers near the surface (USGS 2009).

In the Richland area, the shallow unconfined and confined aquifer system occur within the alluvial Holocene/Pleistocene surficial deposits, Hanford, and Ringold Formations. The shallow

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unconfined aquifer is generally overlain by coarse, permeable sediments including the Burbank loamy fine sand with gravel.

Nearby COR water wells draw from the Ringold Formation as described in the COR Water Well Report (**Appendix C**). According to the COR Water Well Report for the water well located at the southwest corner of Leslie Grove Park in Richland, hardpan and cemented sand were observed at 21- to 26-feet bgs; therefore, a likely aquitard exists at that location.

3.4.2 Site Hydrogeology

During the most recent drilling activities at the Site (July 2015), perched static groundwater was encountered at approximately 17- to 20-feet bgs in the five confirmation soil borings. Depth to groundwater measured from on-Site wells has ranged from approximately 12.17-feet to 19.55-feet bgs. The average depth to groundwater at the Site is 16.93-feet bgs. Based on the 13 years of groundwater flow direction interpretations (presented in **Graph 1**), the dominant groundwater flow direction is to the southwest (from wells MW-12 and MW-6 towards well MW-3) and occasionally northwesterly (from well MW-1 towards well MW-3).

3.5 NATURAL RESOURCES AND ECOLOGICAL RECEPTORS

3.5.1 Terrestrial Ecological Evaluation (TEE)

Terrestrial Ecological Evaluation: A Simplified Terrestrial Ecological Evaluation (TEE) form has been completed. The evaluation indicates that there is no risk to ecological receptors from the release at the Site. The Simplified TEE form for this Site is included in **Appendix E**, along with an aerial map depicting a 500-foot radius around the Site.

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4.0 SITE CHARACTERIZATION

4.1 SITE HAZARD ASSESSMENT

Under the MTCA, one of the first steps in the process of cleaning up a hazardous waste site is a Site Hazard Assessment (SHA). During a SHA, Ecology collects environmental data about a site to determine the type and extent of contamination. A SHA provides preliminary data regarding the potential hazard of a site. According to *Publication No. 91-111 Focus on Site Hazard Assessment* (Ecology 2009), the main purpose of a SHA is to provide sufficient sampling data and other information to:

- Confirm or rule out contamination;
- Identify hazardous substance(s);
- Identify environmental characteristics associated with the site; and,
- Evaluate the potential threats to human health and the environment.

If further action is needed, Ecology ranks the site using the Washington Ranking Method (WARM) and places it on the Hazardous Sites List.

The SHA includes sampling results from locations on and around the site, site observations, maps, and historical information. A SHA should specifically include the following:

- Evidence confirming a release or threaten release of a hazardous substance;
- Identification of the hazardous substances and their location, including what was or may be released and, if applicable, what products of decomposition, recombination or chemical reaction are currently present at the site;
- A description of the facilities containing the substances and their condition;
- Consideration of surface water run-on or run-off and the possibility of contaminants seeping through the surface and contaminating groundwater;
- Characterization of sub-surface and groundwater, including the depth to groundwater and distance to nearby wells, bodies of surface water, and drinking water supplies;
- An evaluation of human population, food crops, recreation areas, sensitive environments, irrigated areas, and aquatic resources; and,
- Any other factors which may be significant in estimating exposure of sensitive environments to hazardous waste.

The SHA process collects environmental information that is used to “score” the primary exposure routes through which contaminants could pose a risk to human health and the environment. These include surface water, air, and groundwater. Each exposure route is then evaluated to determine the relative risk to each site and the final ranking for each site. Sites are ranked on a

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scale of 1 to 5 using WARM, with a ranking of 1 representing the highest level of potential risk and 5 the lowest. The rankings represent an estimation of the potential threat posed by a site compared to all other assessed/ranked sites in the state. Ecology provides the results of the SHA to site owners, operators, and other potentially liable persons.

4.1.1 2012 Site Hazard Assessment

On December 12, 2012, a representative, Jim Coleman, of the Benton-Franklin Health District, performed a SHA on behalf of Ecology and evaluated and scored different routes of exposure such as Surface Water/Human Health, Surface Water/Environmental, Air/Human Health, Air/Environmental, and Groundwater/Human Health for the Site. Mr. Coleman gave a route score of 50.5 to the Groundwater/Human Health route and no score to the other routes (air and surface water) as they were not significant routes of potential exposure. He gave a maximum value of 100 for the target "Population served within 2 miles: City of Richland" in the groundwater route scoring worksheet. According to the SHA performed by Mr. Coleman, overall WARM rank for the Site is 3 and this demonstrates a moderate level of potential risk posed by the Site to the groundwater in the immediate area that contributes to drinking water supplies for the COR. As demonstrated herein, the Site does not pose a risk to groundwater resources in the area.

The municipal groundwater and domestic water wells in the Wellhead Protection Area of the COR are screened in the shallow unconfined aquifer in the Hanford Formation and are located north of the site. This shallow unconfined aquifer is generally overlain by coarse, permeable sediments that are included in the Holocene surficial deposits that overly the Hanford Formation and is vulnerable to contaminants spilled, leaked, or applied to the soil. According to research of Ecology's well log database as described in **Section 3.4**, one nearby COR municipal water well located north of the Site is screened in the Ringold Formation which appears to be confined (**Appendix C**).

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4.2 SUMMARY OF PREVIOUS SOIL INVESTIGATIONS

Several subsurface investigations have been conducted to characterize subsurface soil and groundwater impacts from historical use. Site investigations were completed between 1989 and 2015. A description of historical soil investigations is provided in **Appendix A**. A summary of soil sample locations submitted for analyses, including the date of the sample, depth, analytical methods, and results, is presented in **Table 1**. **Figure 3** presents historical soil analytical results. The two most recent investigations (previously unreported), performed in October 2013 and July 2015, are documented in **Section 4.3.1 and Section 4.3.2** with analytical results presented in **Figures 5 and 6**.

4.3 PREVIOUSLY UNREPORTED SUBSURFACE INVESTIGATIONS

4.3.1 2013 Additional Subsurface Investigation and Well Installation

The results of the previously unreported 2013 subsurface investigation are presented in this CAR. A detailed account of the 2013 subsurface investigation is presented in **Appendix F**. Soil boring locations and soil sample laboratory analytical results for this investigation are summarized in **Table 1** and shown on **Figure 5**.

4.3.1.1 Purpose

In response to the 2012 SHA performed by Ecology (see **Section 4.1.1**), Stantec performed an additional subsurface investigation with well installation in October 2013. The horizontal extent of on-Site dissolved petroleum hydrocarbon impacts to groundwater had not been assessed in the past and it was unknown if the impacts extended off the Property. Soil boring and well locations were located to the southwest, southeast, and north of the existing wells MW-6 and MW-7 to better define horizontally and vertically the extent of dissolved petroleum hydrocarbons based upon the groundwater flow direction and assess soil concentrations in areas that had been and not been previously assessed.

4.3.1.2 Scope

Drilling activities were conducted on October 2 and 3, 2013, and were supervised by a Stantec field geologist. Stantec contracted Holocene Drilling, Inc. (Holocene), of Puyallup, Washington to advance four soil borings identified as MW-9, MW-10, MW-11, and MW-12. Three of the borings (MW-9, MW-11, and MW-12) were drilled to a depth of 25.5-feet bgs. The fourth boring MW-10 was drilled to a depth of 26-feet bgs and all four were completed as groundwater monitoring wells.

A total of 9 soil samples collected from MW-9, MW-10, MW-11, and MW-12 were submitted based on photoionization detector readings and depth to Friedman & Bruya, Inc. for laboratory analysis.

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Targeted constituents of potential concern (COPCs) were identified based on the known use of the Site and hydrocarbon compounds detected in the soil samples collected during previous subsurface investigations at the Site. All soil samples submitted for laboratory analysis were analyzed for total petroleum hydrocarbon as gasoline (TPH-G) using Ecology method Northwest Total Petroleum Hydrocarbon as Gasoline (NWTPH-Gx) and total petroleum hydrocarbons as diesel (TPH-D) via method Northwest Total Petroleum Hydrocarbon as Diesel (NWTPH-Dx). There samples were also analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) via Environmental Protection Agency (EPA) Method 8021B.

Soil samples collected from MW-9 at 20-feet bgs, MW-10 at 15-feet bgs, and MW-12 at 5-feet bgs were additionally analyzed for methyl tertiary butyl ether (MTBE), 1,2-dibromoethane (EDB), 1,2-dichloroethane (EDC), total lead, and total naphthalenes in accordance with MTCA Table 830-1.

4.3.1.3 Results

All analyzed petroleum hydrocarbon constituents in soil were either not detected above the laboratory method reporting limit and/or were reported below their respective MTCA Method A CULs. All analyzed petroleum hydrocarbon constituents in groundwater collected from the four wells on October 17, 2013 were reported below their respective MTCA Method A CULs.

4.3.1.4 Discussion

This 2013 subsurface investigation was successful in delineating residual COPCs at the Site and determining the following:

- A small volume of petroleum impacted soil remained at the Site in the area of wells MW-6 and MW-7 and did not extend to the areas delineated by MW-10, MW-11, and MW-12;
- The boring MW-9 installed near B-7 showed that soil impacts seen in the soils collected from B-7 at 16-feet bgs in December 2000 in the area of the former Mobil UST basin (1949-1984) had naturally attenuated in the last 13 years to below MTCA Method A CULs;
- COPCs in soil were horizontally and vertically defined and did not appear to extend north, south, southeast, or southwest beyond the Property boundary or beneath the Property building (Subway® sandwich restaurant); and,
- COPCs in groundwater were horizontally defined since dissolved petroleum hydrocarbons analytical results in the four wells in October 2013 were below MTCA Method A CULs.

4.3.2 2015 Additional Subsurface Investigation with Confirmation Borings

This section documents the unreported confirmation soil sampling performed in July 2015 following the 2014 BOS-200® interim action. A detailed account of the 2015 subsurface investigation is presented in **Appendix G**. All soil boring and well completion logs from past reported and previously unreported subsurface investigations are included in **Appendix D**. The logs contain

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geologic descriptions; Unified Soil Classification System soil descriptions, drilling methods, field screening results, and well completion details.

4.3.2.1 Soil Sampling – July 2015

Holocene utilized a mobile B-59 hollow-stem auger drill rig to advance five soil borings CB-1, CB-2, CB-3, CB-4, and CB-5. Prior to drilling, all borings were cleared to five feet bgs using an air knife and vacuum truck. Confirmation soil samples were collected every 5-feet to a maximum depth of 26.5-feet bgs. Soils encountered during this investigation consisted primarily of poorly graded sands with fine and coarse gravel to 26.5-feet bgs. All sampling and soil descriptions were completed by a Stantec field geologist under the supervision of a State of Washington Licensed Geologist. All five soil borings were backfilled with bentonite chips to a depth of approximately 0.5-feet bgs, hydrated, and completed to the surface with concrete or asphalt depending on the surrounding ground surface.

Soil sample analytical results from this investigation are previously unreported and presented in **Table 1** and **Figure 6**. Boring locations are also shown on **Figure 6**. Soil boring logs from this investigation are presented in **Appendix D**.

A total of fifteen soil samples collected from CB-1, CB-2, CB-3, CB-4, and CB-5 were submitted for laboratory analysis during this assessment. All soil samples submitted for laboratory analysis were analyzed for BTEX by EPA Method 8260B; TPH-G using method NWTPH-Gx; TPH-D and total petroleum hydrocarbons as oil using method NWTPH-Dx; and total lead by EPA Method 200.8.

4.3.2.2 Quality Assurance/Quality Control (QA/QC)

Quality Assurance/Quality Control (QA/QC) procedures were conducted in conformance with industry standards. QA/QC procedures included data quality objectives and quality assurance goals; quality assurance procedures for sample collection, laboratory analytical protocols, and calibration methods; data validation procedures; and corrective actions in the event that data quality issues arose. The quality of the data collected during this investigation was evaluated on an on-going basis to determine if the data quality objectives were met. The analytical data was evaluated in terms of precision, accuracy, representativeness, completeness, and comparability using results of the quality control sampling.

A total of four QA/QC samples were submitted to the project laboratory for analysis. Two equipment rinsate water samples were produced from the event. The sample EQRP-2 was collected from a small amount of distilled water poured over an unused split spoon prior to commencement of hollow-stem auger drilling activities. The EQRR-2 was collected from the rinsing of another unused split spoon at the end of drilling activities. One field blank sample, FB-2, and one trip blank sample, TB-2, were prepared in the field using distilled water, during drilling activities, and were submitted for analysis.



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Targeted contaminants of concern at the Site were identified based on the use of the Site and Ecology requirements. All QA/QC samples submitted for laboratory analysis were analyzed for TPH-G using Ecology method NWTPH-Gx.

QA/QC analytical results for this investigation and the 2013 investigation are summarized in **Table 2**. Petroleum hydrocarbon constituents in all the submitted QA/QC samples were not reported exceeding laboratory practical quantitation limits (PQLs).

Laboratory QC measures including holding times, surrogate recoveries, and blank contamination were reviewed and found to be within control limits for all samples.

4.3.2.3 Results

Soil analytical results for this investigation include:

- One soil sample, CB-3-15', exceeded Ecology MTCA Method A CULs for TPH-G;
- The location and depth of the impact was limited to boring CB-3 at a depth of approximately 15-feet bgs in the vicinity of previously identified impacts;
- Stantec reported the EDB Method Detection Limit (MDL) of <0.0547 mg/kg for the soil sample CB-2@20' collected on July 29, 2015 in **Table 1**. Even though the EDB MDL for soil sample CB-2@20' was above the MTCA Method A CUL (0.005 mg/kg), all of the other EDB results were non-detect for every soil sample collected during the July 2015 subsurface investigation. Therefore, EDB in soil is not a COPC at the Site, and;
- All other concentrations were either reported below respective MTCA Method A CULs or reported not exceeding laboratory PQLs in all submitted soil samples.

Cumulative soil sample analytical results are presented in **Table 1**. **Figure 6** shows the soil sample location and analytical data collected by depth interval. Complete laboratory soil results and chain-of-custody documentation are included in **Appendix H**.

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4.4 PREVIOUSLY UNREPORTED GROUNDWATER ANALYTICAL RESULTS

This section documents previously unreported groundwater monitoring and sampling results from first quarter 2015 through second quarter 2016.

4.4.1 Groundwater Monitoring and Sampling Results First Quarter 2015 to Second Quarter 2016

Five previously unreported groundwater sampling events (first quarter 2015 through second quarter 2016) are summarized below. For each sampling event, all indicated wells were purged and sampled in accordance with procedures and the field notes and groundwater sampling log forms provided in **Appendix I**. Copies of the laboratory analytical reports and chain-of-custody documentation are provided in **Appendix H**. **Figures 7a through 7d** illustrate groundwater elevations and groundwater gradient directions across the Site for each event. **Figure 8** shows the laboratory analytical results from the 2015 and 2016 quarterly sampling events posted near each respective well. **Table 3** summarizes groundwater analytical results and elevation data.

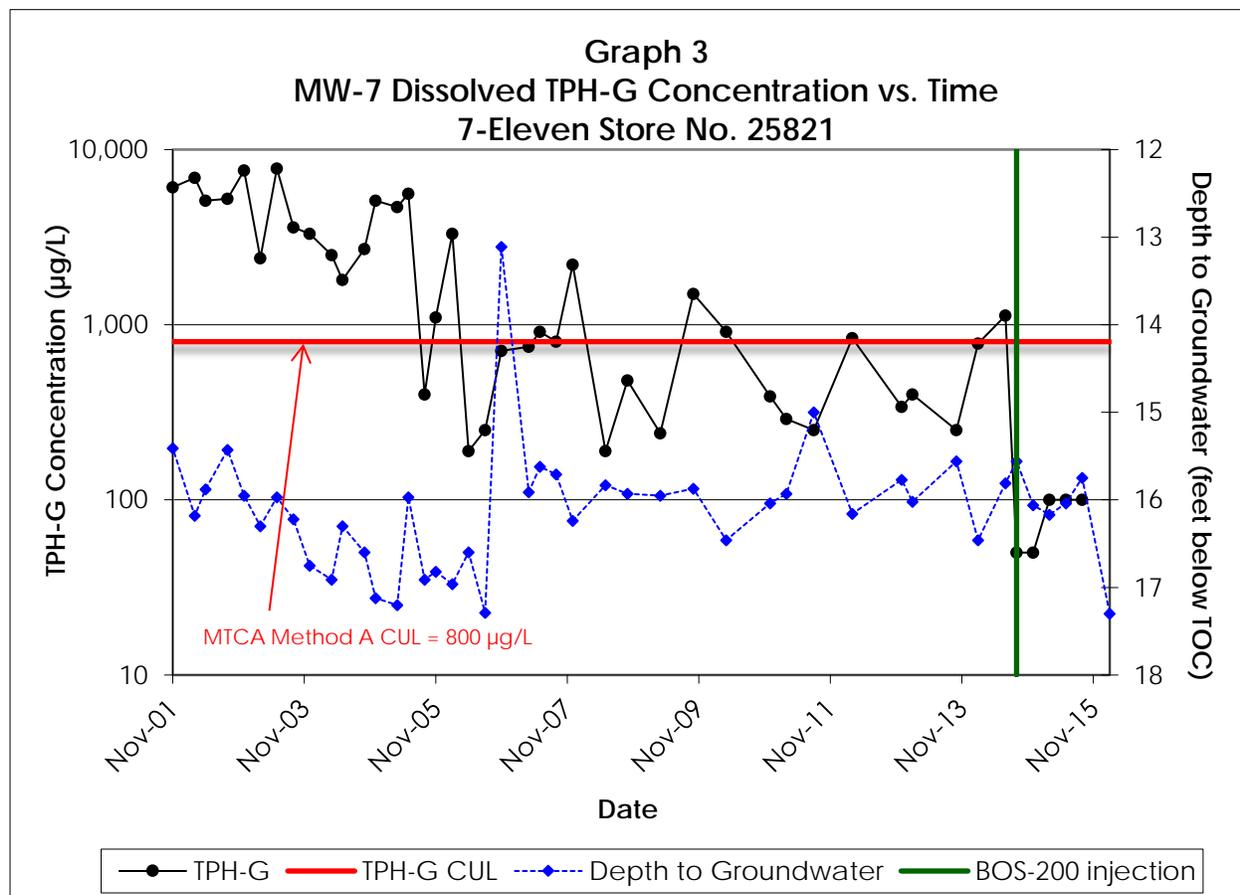
Quarter Date	Depth to Water Range (feet below TOC)	Groundwater Flow Direction(s) Estimate	Average Hydraulic Gradients (feet/foot)	Wells Sampled for The Identified COPCs	Wells with Analytical One or More Result Above MTCA Method A CULs for the COPCs
1 st 2015 3-19-15	15.58 to 17.49	South and Northwest	0.0024 and 0.0013	MW-3, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12	MW-11 (total lead)
2 nd 2015 6-30-15	15.44 to 17.21	South and Northwest	0.0019 and 0.0020	MW-3, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12	None
3 rd 2015 9-24-15	15.18 to 16.96	South and Northwest	0.0024 and 0.0020	MW-3, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12	None
1 st 2016 2-9-16	15.72 to 17.54	South and Northwest	0.0015 and 0.0014	MW-10, MW-11	None
2 nd 2016 6-30-16	—	—	—	MW-11	None

4.4.2 Groundwater Analytical Results

Total lead exceedances were observed in well MW-10 in February 2014. Following the September 2014 interim action, COPCs have been below respective MTCA Method A CULs at all Site monitoring wells except for total lead exceedances in well MW-11 in March 2015. The detections of total lead in excess of MTCA Method A CULs in MW-10 and MW-11 in 2014 and 2015 appear to

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Groundwater quality parameters [ferrous iron, hydrogen degrading bacteria (HDB), nitrate, sulfate, total inorganic and organic carbon, and total iron] are presented in **Table 4**. The species were collected before and after the 2014 remedial action to assess its effectiveness. A comparison of pre- and post BOS-200® injections indicate nitrate and sulfate concentrations increased as designed in the treatment area (MW-6, MW-8, and MW-11). Nitrate and sulfate concentrations provide a relative measure of injectate dispersal. Nitrate and sulfate concentrations will likely decrease in the treatment area as the metabolic degradation pathway proceeds and HDB utilize these components for respiration. Elevated concentrations of nitrate and sulfate have not been observed in monitoring well MW-11 which is located south of the treatment area, indicating that elevated nitrate and sulfate concentrations have not migrated in that direction. HDB increased by over an order of magnitude in the treatment area and somewhat outside of the treatment area (MW-10). The increased quantity of HDB observed in groundwater at the Site should enhance bioremediation of dissolved petroleum hydrocarbons at the Site.

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4.5 SOIL VAPOR INVESTIGATIONS

In October 1991, Kleinfelder performed a field flow test on the monitoring wells in order to evaluate the possibility of using soil vapor extraction as a site cleanup alternative. Kleinfelder did not proceed with installation of a soil vapor extraction system despite preliminary test results from the field flow test indicating that subsurface air-flow rates and expected radius of influence for vapor extraction wells could be achieved. A detailed summary of the investigation is provided in **Appendix A**.

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5.0 INTERIM REMEDIAL ACTIONS

Three interim remedial actions have been completed at the Site and are summarized below:

5.1.1 Previously Reported Interim Remedial Actions

5.1.1.1 1989 Tank Removal

In February 1989, 7-Eleven decommissioned three USTs by removal, under the supervision of Kleinfelder. The fiberglass supply lines connecting the tanks to the pump island were broken during the tank excavation and approximately 5 gallons of gasoline was spilled in the northwest corner of the excavation. During excavation of the soils from the northwest corner impacted by the spill, obvious hydrocarbon contamination was discovered in the soils just above the water table (approximate depths of 12- to 14-feet bgs). Test pits in other areas in the tank excavation also uncovered obvious contamination at similar depths at the west, north, and south sides of the excavation. The discovery of contamination at this depth and away from the area of the 5-gallon spill, suggested a secondary source. A Kleinfelder geologist collected soil samples from the bottom of the open excavation (SS0105129A) and from the stockpiled contaminated soils (SP0105129A). Total xylenes and TPH-G concentrations were greater than the MTCA Method A CULs in the soil sample SS0105129A and chemical analysis of the soil sample indicated that the contamination may have represented an aged gasoline product. Approximately 26 cubic yards of stained soil was removed from the northwest corner of the excavation to 13-feet bgs. Approximately 15 cubic yards of stained soil was removed from the west and north sides of the excavation to 13-feet bgs. The soil in the southern excavation area was also stained to 11-feet bgs. Groundwater was encountered at 12.5-feet bgs.

5.1.1.2 1999-2001 Nitrate Injections

In July 1999, Ecology issued an underground injection permit, allowing nitrate injections to be completed through MW-7 to promote biodegradation of the remaining petroleum hydrocarbons in groundwater surrounding MW-6. The nitrate injections began in fourth quarter 1999 and ended in 2001.

5.1.2 Previously Unreported Interim Remedial Actions

5.1.2.1 2014 BOS-200® Injection Event

BOS-200® is a “trap and treat” process which utilizes a sulfate-enhanced, carbon-based injectate designed for the in-situ treatment of groundwater and soil. The “trap” process occurs immediately upon contact with the contaminants as they are adsorbed by the activated carbon component of the product. Following the stabilization of contaminants, the conditioned bacteria



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facilitate the metabolic breakdown or “treatment” of contaminants. Biodegradation is encouraged through the incorporation of a large range of electron receptors, including oxygen and a time-released source of sulfate. Additional information regarding the BOS-200® “trap and treat” process and metabolic treatment of petroleum hydrocarbons is provided in **Appendix J**.

5.1.2.2 Purpose

The purpose of this event was to inject BOS-200® and conditioned bacteria into the subsurface soil and groundwater at the Site to “trap and treat” residual elevated concentrations of TPH-G and related volatile organic compounds (VOCs). The dosing of BOS-200® and bacteria concentrate in select areas was based on the analytical soil and groundwater data that was available as of July 10, 2014. The cleanup goal was to meet MTCA Method A CULs for soil and for groundwater at the Site. The evaluation of residual soil impacts that needed injections was based upon the TPH-G and related VOCs in soil detected above MTCA Method A CULs in borings B-1 through B-7 installed in December 2000. The evaluation of groundwater impacts was based on the groundwater data collected in 2014 that indicated an area of dissolved phase impacts above MTCA Method A CULs existed in the vicinity of well MW-6. MW-6 contained elevated dissolved benzene and TPH-G in excess of the MTCA Method A CULs.

5.1.2.3 Scope

In September 2014, Stantec supervised the in-situ injection of BOS-200® at the Site. Approximately 3,500 pounds of carbon, 919 fluid ounces of conditioned bacteria, and 2,508 pounds of gypsum were injected into the subsurface over approximately 1,350-square feet in three injection areas surrounding wells MW-5, MW-6, MW-7, MW-8, and MW-9 (**Appendix J**). Injections occurred vertically every 2-feet at depths from approximately 12- to 22-feet bgs. Injections were staggered in adjacent boreholes to promote saturation of the entire treatment area (injections occurred at 12-, 14-, 16-, 18-, or at 15-, 17-, 19-, and 21-feet bgs). The locations of the injection points are presented on **Figure 9**. The estimated dispersal of BOS-200® was estimated using the observed induced pressure readings collected from nearby monitoring wells, Site specific geology, and field observations. The groundwater monitoring wells were redeveloped following the injections.

5.1.2.4 Results

The results of the BOS-200® and conditioned bacteria injections affecting the residual soil and groundwater concentrations are discussed in **Sections 4.3.2 and 4.4**.

5.1.3 Summary of Groundwater Monitoring and Sampling

Groundwater monitoring and sampling was initiated at the Site on June 30, 1989 and has been conducted quarterly from 1989 to 2011; semi-annually from 2011 through 2013, and quarterly from February 2014 until the most recent sampling date performed on June 30, 2016. A total of twelve



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groundwater monitoring wells (MW-1 through MW-12) have been installed at the Property and their locations define horizontally the extent of petroleum hydrocarbons in soil and groundwater. No groundwater monitoring wells are located off-site due to the lack of detection of petroleum hydrocarbons in soil and/or groundwater in wells MW-1 and MW-2 located on the south side of the site and well MW-12 located near the northern boundary of the Property. **Table 3** summarizes historical and current analytical results and groundwater elevation data. A description of groundwater monitoring well installation is included in **Appendix A**. A brief chronology of historical groundwater monitoring activities is provided as follows:

<p>1980-1989</p>	<p>In 1989, groundwater monitoring wells MW-1 through MW-5 were installed. Analytical results indicated that dissolved concentrations of ethyl benzene and total xylenes exceeded their respective MTCA Method A CULs in the groundwater samples taken from wells MW-3 and MW-5.</p>
<p>1990 - 1999</p>	<p>In 1990, well MW-6 was installed near the center of the excavation pit. Well MW-6 contained dissolved concentrations of ethyl benzene, toluene, total xylenes, and TPH-G exceeding respective MTCA Method A CULs. In 1996, well MW-7 was installed up gradient from the former UST basin, and Oxygen Releasing Compound was added to the subsurface to promote biological degradation of dissolved petroleum compounds. One injection of 1,000 ppm nitrate solution was completed on July 13, 1999 using vapor extraction well MW-7 to promote biodegradation of the remaining dissolved petroleum hydrocarbons through denitrification in the groundwater surrounding the well MW-6. In April 2001, well MW-8 was installed.</p>
<p>2000 - 2009</p>	<p>On March 31, 2000, a second injection of 1,000 ppm nitrate solution was completed using vapor extraction well MW-7. Nitrate injections were ceased in 2001. Groundwater monitoring continued. Well MW-6 continued to contain dissolved concentrations of benzene, total xylenes, and TPH-G exceeding respective MTCA Method A CULs.</p>
<p>2010 - present</p>	<p>Since the removal of the fuel dispensing system in 1989, groundwater sampling results from the wells in the vicinity of the former dispenser island and located around the Site have attenuated to below MTCA Method A CULs for TPH-G and BTEX. Wells in the vicinity of the 1984 UST basin (MW-6 and MW-7) remained above MTCA Method A CULs for TPH-G until July 2014. Wells MW-6 and MW-7 were below MTCA Method A CULs for TPH-G following the BOS-200® injections in September 2014 as described in Section 4.4.2. Wells MW-9, MW-10, MW-11 and MW-12 were installed on October 2, 2013 and first sampled on October 17, 2013. Initially, groundwater results from the newly installed wells indicated no</p>

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	exceedances of MTCA Method A CULs for TPH-G and BTEX; however, total lead was detected in two wells (MW-10 and MW-11). The total lead exceedances observed in February 2014 and March 2015 (MW-10 and MW-11, respectively) are not representative of lead concentrations in groundwater, based on historical groundwater results and recent total and dissolved lead analytical results.
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Based on groundwater monitoring data from 1989 through 2016, groundwater is present beneath the Site at an average of 16.93-feet bgs and seasonally fluctuates from approximately 12.17- to 19.55-feet bgs. Historical groundwater flow directions have not indicated significant variability and have consistently flowed to the southwest.

Based on historical and recent groundwater analytical results, the dissolved phase plume is limited to a small area of the northern part of the former 7-Eleven tank basin (MW-6, MW-7, and MW-8). Dissolved phase impacts do not appear to extend laterally beyond the Property boundary or underneath the Property building. Dissolved groundwater concentrations are presented in **Table 3**. TPH-G concentrations versus time for MW-6, MW-7, and MW-8 are presented in **Graphs 2, 3, and 4**.

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6.0 ENVIRONMENTAL SUMMARY

The section provides an environmental summary of impacted media at the Site.

6.1 AREA OF CONCERN

The area of concern (AOC) is defined as the lateral and vertical extent of soil and groundwater beneath the Site where COPCs have been detected exceeding the MTCA Method A screening levels. For the purposes of this CAR, the AOC and the MTCA Site Boundary are the same (**Figure 3**). COPCs are defined as petroleum hydrocarbon and heavy metal concentrations exceeding the MTCA Method A CULs and are listed below in **Section 6.2**. Site data indicates that the AOC for soil and groundwater includes the areas of the former 7-Eleven and Mobil UST basins at a depth of approximately 12- to 17-feet bgs. The Mobil gasoline system was located in the central portion of the Property and the 7-Eleven gasoline system was located in the northern portion of the Property. Historical soil and groundwater analytical results are summarized in **Tables 1 and 3**, respectively. Confirmation sampling was conducted in July 2015 to vertically delineate soil impacts.

6.2 CONSTITUENTS OF POTENTIAL CONCERN

Based on past and present use of the Site and existing analytical data, COPCs include the compounds listed in MTCA 173-340-900 Table 830-1 *Required Testing for Petroleum Releases* (Ecology 2007). The following table presents the potential sources of contamination and the corresponding potential COPCs for the Site:

Potential Source	COPCs
Former gasoline USTs and distribution system located in the northern portion of the Property.	<ul style="list-style-type: none"> • BTEX • TPH-G • Total lead • EDB* • EDC* • MTBE* • Total Naphthalenes (naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene) *

*Although not present at the Site, the analytes are also potential constituents of concern per Table 830-1.

Note: Diesel fuel is not considered a potential COPC because it was not historically stored at the Property.

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Historical and recent soil results are presented in **Table 1**. Groundwater results are presented in **Table 3**. Soil and groundwater at the Site have been tested for all potential COPCs. Based on sampling results, COPCs in soil and groundwater above MTCA Method A CULs include:

- BTEX;
- TPH-G; and,
- Total lead.

6.3 POTENTIAL SOURCES OF CONTAMINATION

6.3.1 Potential Sources of On-Property Contamination

Potential on-Site sources of the COPCs are likely from the three generations of gasoline fuel systems that operated between 1949 and 1989 on the Site.

A review of the Site's development, provided in historical records at the COR and a review of the Benton County Assessor's Office information, indicates that the Property was used as a gasoline dispensing and automotive service facility and/or convenience store from 1949 through to 1989.

The former dispensing infrastructure reportedly consisted of three generations of UST system configurations. The first generation, that existed when the Site was occupied by a Mobil gas station starting in 1949, consisted of three 10,000-gallon single-wall metal USTs. The second generation existed when the Site was occupied by Wascher Mobil gas station and the first generation of USTs was removed and replaced with three 10,000-gallon fiberglass USTs in 1964. The first and second generation systems were located in the central portion of the Property. The third generation of USTs, which existed at the Site when it was occupied by 7-Eleven for five years from 1984 to 1989, consisted of three 10,000-gallon gasoline USTs and conveyance piping associated with the dispenser island. The 7-Eleven gasoline system was located at the northern portion of the Property. Based on results of historical soil and groundwater sampling, the source of subsurface petroleum impacts at the Site are likely attributable to releases associated with historical operation of the former first and second generation gasoline dispensing and automotive service facility (Wascher Mobil) and the former third generation 7-Eleven fueling system formerly at the Site.

6.3.2 Potential Sources of Contamination from Neighboring Properties

According to the Ecology database, there is one site listed on the Washington Department of Ecology's Confirmed and Suspected Contaminated Sites List (CSCSL) and LUST identified within one mile of the Property. The closest CSCSL and LUST property from the Site is the Uptown Shopping Center Perchloroethylene Plume, located 0.9-miles south from the Site at 1300 George Washington Way (Facility ID 13386651, Cleanup Site ID 5553). Based on available records, this CSCSL is considered not likely to have impacted the Site.

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6.4 AFFECTED MEDIA

6.4.1 SOIL

Petroleum was likely released into the soil before the February 1989 UST removal when release(s) may have occurred from the first, second, and third generation product conveyance system(s) and/or overfill spill buckets.

Eight soil investigations were conducted at the Site between 1989 and 2015 (**Appendix A**). The following subsurface investigations have been completed at the Site:

- 1989 *Underground Fuel Storage Tank Closure Chronology*, Kleinfelder;
- 1989 *Phase II Soil and Groundwater Assessment*, Kleinfelder;
- 1990 *Third Quarterly Sampling of Groundwater Water Wells and Installation of Additional Monitoring Well*, Kleinfelder;
- 1997 *Fourth Quarter 1996 Groundwater Monitoring Results*, Fluor Daniel GTI;
- 2002 *Remediation Progress Report, Second Quarter 2001*, IT Corporation;
- 2004 *Subsurface Assessment Report*, SECOR International, Inc.;
- 2013 *Additional Subsurface Investigation and Well Installation*, Stantec; and,
- 2015 *Additional Subsurface Investigation with Confirmation Soil Borings*, Stantec.

A detailed summary of work completed at the Site is included as **Appendix A**. A summary of historical soil sample, depth, analytical methods, and results, is presented in **Table 1**. All available historical boring logs for the previous reported and unreported investigations are included in **Appendix D**.

A total of 34 soil borings have been advanced at the Site, and of those borings, twelve converted to on-site wells. A total of 87 soil samples have been collected since petroleum-impacted soil was first discovered during the February 1989 UST closure excavation mostly around the vicinity of the former 7-Eleven dispenser island and UST basin at depths which range from approximately 5- to 25-feet bgs at the Site.

The historic peak concentrations of TPH-G and BTEX in soils were identified in the soil sample SS0105129A which was collected in the northeastern portion of the former 7-Eleven UST basin on May 12, 1989 (**Figure 3**). The following concentrations were recorded: benzene [<0.05 milligrams

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per kilogram (mg/kg)], toluene (48 mg/kg), ethyl benzene (59 mg/kg) and xylenes (1,000 mg/kg) and TPH-G (12,000 mg/kg). The historic peak concentration of benzene in soils was identified in the soil boring sample B-1@16' collected on December 27, 2000 with a benzene concentration of 12 mg/kg.

The first interim remedial action in 1989 removed an approximate 41 cubic yards of petroleum contaminated soil (PCS) to appropriately permitted waste disposal facilities. The second and third interim remedial actions included injecting nitrate and BOS-200® into the ground to remediate the remaining in-situ PCS. Based on site investigations from 1989 to 2013, soil impacts appeared to be localized to the area immediately east of the former 7-Eleven dispenser island and in the northern area and northeastern corner of the former 7-Eleven UST basin at approximately 16-foot bgs. Recent confirmation soil samples were collected in July 2015 (**Section 4.3.2.1**) to evaluate the concentration of COPCs following the 2014 interim remedial action.

6.4.2 GROUNDWATER

The historic peak concentrations of TPH-G and total xylenes in groundwater were identified in 1994 in groundwater monitoring well MW-6. This well is situated along the eastern boundary of the former UST basin. The following concentrations were recorded: benzene [<3.0 micrograms per liter ($\mu\text{g/L}$)], toluene (120 $\mu\text{g/L}$), ethyl benzene (130 $\mu\text{g/L}$), total xylenes (4,700 $\mu\text{g/L}$), and TPH-G (43,000 $\mu\text{g/L}$).

The dissolved phase plume is laterally defined and does not appear to pose a threat to off-Site receptors including the groundwater wells. A map demonstrating the lack of connectivity due to the distance of the Site from potential water sources and the groundwater flow direction and gradient is provided in **Figure 4**. The predominant groundwater flow direction is to the southwest, downgradient and away from the three COR municipal groundwater wells located less than a mile north of the Site (**Section 2.3**).

6.4.3 SURFACE WATER

The Site is located within the CPRAS. The closest surface water body is the Columbia River, located approximately 1,000-feet to the east. Catch basins located on the Property connect into the COR's storm water system.

The Site has been surfaced by asphalt and concrete since development and therefore, has not been exposed to infiltrating surface water. No surface water has been sampled at the Site. Small areas of landscaping are present along the northwestern section of the Site. There is no indication that surface water has been impacted at the Site.

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6.4.4 SEDIMENT

No indication of surface water impact has been identified in association with this release; therefore, no sediment sampling has been conducted.

6.4.5 SOIL VAPOR

A pilot test was performed at the Site to check if subsurface conditions were conducive to performing future soil vapor extraction as a remedial strategy in October 1991. Kleinfelder did not install a soil vapor extraction system after the pilot test and instead recommended surface capping, continued groundwater monitoring, and groundwater extraction and carbon adsorption as effective remedial technologies for the site (**Section 4.5 and Appendix A**).

Based on the following rationale from Ecology's *Updated Process for Initially Assessing the Potential for Petroleum Vapor Intrusion, Implementation Memorandum No. 14 (March 31, 2016)*, the potential soil vapor pathway is likely incomplete for residential structures. This process of determining the likelihood of vapor intrusion assumes that sufficient site characterization work has been performed to allow each specific step to be completed:

- **STEP 1: Confirm the release.** The release was confirmed by soil analytical results in 1989;
- **STEP 2: Determine if an immediate action is necessary.** An immediate action was determined not necessary;
- **STEP 3: Characterize the site and develop a conceptual site model (CSM).** A Site characterization was conducted and a CSM was prepared (**Section 8.0**);
- **STEP 4: Evaluate whether there are any contaminants besides petroleum.** No other volatile contaminants other than those typically found in petroleum fuel products were discovered at the Site;
- **STEP 5: Determine if there are precluding factors.** The site conditions are not changing as the plume is not expanding and there is no planned development above or adjacent to the contamination. There are no preferential pathways such as utility corridors or highly permeable soil zones. There is relatively moderate soil moisture content. EDB and EDC have not been detected in past soil or groundwater analytical results. There is no evidence of other additives in the released fuel that may aerobically biodegrade more slowly than benzene, and the residual subsurface contamination at CB-3-15' is not in direct contact with the Subway® restaurant building foundation;
- **Step 6: Determine if buildings are within the lateral inclusion zone.** Since the degree and extent of residual contamination is well-defined horizontally and vertically and the

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dissolved phase plume is stable or receding, a horizontal separation distance of 30 feet would generally be appropriate for establishing a lateral inclusion zone. The Subway® restaurant building is not located in the lateral inclusion zone and thus, the initial vapor intrusion assessment process is complete.

Additional rationale for the unlikelihood of soil vapor intrusion affecting the Subway® restaurant building:

- The bulk of the source area soils (associated with the former USTs and piping) have been removed (February 1989) and remediated (2014);
- Confirmation soil boring samples indicate that the lateral extent of soil impacts has been defined and does not extend beneath the Subway® restaurant building. Benzene, the chemical that more accurately captures TPH risk to human health concerns, has not been detected above laboratory reporting limits in Site soils since 2000, and has not been detected above laboratory reporting limits in Site groundwater since 2012 (MW-6); therefore, it is considered unlikely to pose a risk of vapor intrusion;
- All residual COPCs (in soil and groundwater) are below cleanup standards for the Site except for TPH-G (**Section 9.0**); and,
- Dissolved concentrations of benzene are below the vapor intrusion screening level of 2.4 µg/L as established in Ecology's 2009 *Draft Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, Table B-1*.

Work conducted by Robin Davis at Utah Department of Environmental Quality since 2009 indicates that petroleum vapors will be fully attenuated within 8- to 13-feet of the soil source (Davis 2009). Thus, the presence of clean backfill and lateral separation between excavation boundaries, and the Subway® restaurant building would provide a sufficient biodegradation zone for attenuation of any unidentified residual petroleum constituents in soil vapor.

6.4.6 NATURAL RESOURCES AND ECOLOGICAL RECEPTORS

A simplified TEE form was completed for the Site and is included in **Appendix E**. It concludes that no risk to ecological receptors exists from the release at the Site.

6.4.7 WASTE MATERIAL

Investigative-derived waste and waste generated from the remedial action, groundwater sampling, and confirmation soil borings was transported from the Site and disposed of at an appropriately permitted waste disposal facility (**see Appendix K**).

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CONTAMINANT OCCURRENCE AND MOVEMENT
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7.0 CONTAMINANT OCCURRENCE AND MOVEMENT

Despite three interim actions and over 27 years of monitoring and sampling, a small area of impacted soil currently remains at the Site. This section provides an updated evaluation of contaminant occurrence and movement.

7.1 SOIL

Based on recent confirmation soil sampling, the following COPCs appear to remain at the Site above MTCA Method A screening levels:

- TPH-G

BTEX, total lead, and EDC were not detected above MTCA Method A screening levels in any of the 2013 or 2015 soil samples. MTBE was not detected above laboratory reporting limits in any of the 2013 or 2015 soil samples. Stantec reported the EDB MDL for the soil sample collected at CB-2-20' on July 29, 2015. The EDB results have been non-detect for every soil sample collected at the Site. Therefore, EDB in soil is not a COPC at the Site.

The extent of historical petroleum-impacted soil is horizontally and vertically defined at the Site and the remaining COPC (TPH-G) in soil is limited to a small area between wells MW-6 and MW-7 and has a vertical extent of approximately 15-foot bgs to 20-foot bgs (CB-3-15', CB-4-18', and CB-5-20'). Based on the most recent 2015 subsurface investigation, COPCs do not extend vertically beyond 20-foot bgs and appear to be localized within the Pleistocene glacial deposits and surrounded by BOS-200® activated carbon. According to MTCA Method A CUL for TPH-G, gasoline mixtures without benzene and where the total of ethylbenzene, toluene, and xylene are less than 1% of the gasoline mixture have a CUL of 100 mg/kg. This can be applied to the TPH-G analytical results for CB-4-18' (52.8 mg/kg) and CB-5-20' feet bgs (30.5 mg/kg) and thus both analytical results are below the MTCA Method A CUL for TPH-G. However, the TPH-G analytical result of 335 mg/kg for CB-3-15' feet bgs is above the MTCA Method A CUL of 100 mg/kg and this remaining COPC is limited to the middle of the northern edge of the former tank basin at a depth of approximately 15-foot bgs. Based on analytical results from borings MW-10 and CB-1, COPCs do not appear to extend underneath the Property building. Historic and recent soil analytical data is summarized in **Table 1** and select historical soil results are presented in **Figure 3**. Blow counts from the July 2015 drilling investigation are provided in boring logs (**Appendix D**). Geologic cross-sections are provided as **Figures A and B**.

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7.2 GROUNDWATER

Dissolved phase impacts have historically been limited to monitoring wells MW-6 and MW-7, located in the north and northeastern corner of the former 7-Eleven UST basin. Since completion of the 2014 interim remedial action, dissolved phase COPCs have been below MTCA Method A CULs at MW-6 for six consecutive quarters and at MW-7 for five consecutive quarters. This indicates that BOS-200® injections appear to have effectively reduced dissolved phase COPCs below MTCA Method A screening levels within the treatment area. The detections of total lead in excess of MTCA Method A CULs in MW-10 and MW-11 in February 2014 and March 2015 appear to be anomalous (**Section 4.4.2**) and there have been no detections of total lead above MTCA Method A CUL in MW-10 and MW-11 for four quarters.

All dissolved phase COPCs were below MTCA Method A screening levels (at all sampled wells) during the third quarter 2015.

Dissolved phase impacts are delineated and do not appear to be migrating. A map demonstrating the lack of connectivity due to the distance of the Site from potential water sources and the groundwater flow direction and gradient is provided in **Figure 4**. The predominant groundwater flow directions are to the south and to the northwest and they are flowing away from the three water wells located less than a mile from the Site.

7.3 SURFACE WATER

There has been no evidence of impact to surface water or sediment from historical petroleum hydrocarbons beneath the Site. No discussion of the occurrence or movement of contaminants in this medium is necessary.

7.4 SEDIMENT

No discussion of the occurrence or movement of contaminants in this medium is necessary.

7.5 SOIL VAPOR

Based on concentrations of petroleum compounds in soil and groundwater and the depth at which the residual concentrations occur, future management of soil vapor is not warranted.

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8.0 CONCEPTUAL SITE MODEL

Petroleum was likely released into the soil before the February 1989 UST removal when release(s) may have occurred from the first, second, and/or third generation product conveyance system(s) and/or overfill spill buckets. Petroleum was released into soil and groundwater near the northeastern corner of the former UST basin prior to 1989. It is not certain when or how the release occurred; however, the release likely occurred from the former USTs and/or product conveyance piping over a period of time.

Soil beneath the Property consists of fill and Burbank loamy fine sand with gravelly substratum on top of Pleistocene gravel outburst flood deposits. Based on Site soil boring logs, soils consist primarily of poorly graded sands with fine and coarse gravel to 26.5-feet bgs. Geologic cross-sections are provided as **Figures A and B**.

Groundwater is present at approximately 17-feet bgs based upon Site-specific groundwater elevations and seasonally fluctuates from approximately 12.17- to 19.55-feet bgs. Shallow groundwater beneath the Property flows to the southwest away from the Columbia River. The groundwater flow direction rose diagram is including as **Graph 1**.

The closest body of water is the Columbia River, located approximately 2,100 feet due east of the Site. The Columbia River flows generally to the south in the vicinity of the Site. Surface waters at the Property are intercepted by storm drains which are connected to the COR's storm water system. The Property has been capped by asphalt and concrete since it was developed; therefore, subsurface soils have not been exposed to infiltrating surface water.

There are four domestic water wells within one mile of the Site. The closest well is located 0.3-mile east of the Site and the other three wells are located 0.6-mile south and 0.8-mile northeast of the Site. Based on the distance, local geologic conditions, and Site-specific groundwater flow directions calculated from 2002 to 2016, residual petroleum hydrocarbons remaining in the soil are unlikely to pose a threat to any water supply wells in the vicinity of the Site.

The most recent remedial action was conducted in September 2014, when Stantec supervised the in-situ injection of BOS-200®. Subsequent confirmation sampling (post-injection) indicates that dissolved phase COPC concentrations have been below MTCA Method A CULs for four consecutive quarters. Confirmation soil sample results indicate that residual soil concentrations are below MTCA Method A CULs for unrestricted land use at the point of compliance (0- to 15-feet bgs) for direct contact except for the residual COPCs in soil that remain at approximately 15-feet bgs in the vicinity of the northern edge of the former tank basin and do not likely extend greater than 26.5-feet bgs based on historic boring logs (**Appendix D**). Impacted soil is enveloped and surrounded by BOS-200® activated carbon from the September 2014 remedial action.

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Leaching of COPCs to groundwater has not been observed during recent groundwater sampling and is not anticipated in the future. The 3,500 pounds of carbon previously injected into and around the source area enhances natural attenuation by providing adsorption capacity (carbon) and additional metabolic pathways for biological degradation.

Based on the depth of residual COPCs in soil, Site-specific geologic conditions, and groundwater concentrations; soil vapor does not likely present a risk to human health or the environment (**Sections 6.4.5 and 7.5**). The Site qualifies for a TEE exclusion, indication that there is no risk to ecological receptors based on the historical release.

The table below provides a summary of exposure pathways:

MTC A Exposure Pathway Analysis

Exposure Pathway	Pathway Complete or Incomplete	Supporting Evidence
Human health protection from direct soil contact	Incomplete	Soil concentrations are either below site specific Method A and B CULs for this pathway or below 15-foot bgs.
Human health protection from soil to groundwater (drinking water)	Incomplete	All soil and groundwater concentrations are below MTC A Method A and B CULs; thus, the leaching pathway is incomplete.
Human health protection from soil to groundwater (direct contact)	Incomplete	All soil and groundwater concentrations are below MTC A Method A and B CULs; thus, the leaching pathway is incomplete.
Human health protection from soil vapor inhalation	Incomplete	Soil concentrations are either below site specific Method A and B CULs for this pathway or below 15-foot bgs.
Human health protection from soil to surface water	Incomplete	The distance to any surface water bodies is far greater than the potential for contaminant migration.
Human health protection from groundwater to surface water	Incomplete	Groundwater concentrations are below Method A CULs and the distance to the nearest surface water body is far greater than the potential for contaminant migration.
Terrestrial ecological protection	Incomplete	The Site qualifies for an Exclusion from TEE.

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9.0 CLEANUP STANDARDS

In accordance with MTCA, development of CULs includes identifying potential exposure pathways for humans and environmental impacts based on planned land use. The Site is currently zoned for commercial use, and future zoning is not anticipated to change. As noted previously, the Property was formerly used as a retail petroleum station. The third generation of USTs and dispensing system was removed in 1989 and a portion of source area soils were removed at that time. The Site is currently used as a Subway® sandwich restaurant.

The following potential exposure/risk pathways were considered:

- 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;
- Human health protection from groundwater-to-surface water; and,
- Terrestrial ecological protection.

9.1 GROUNDWATER CLEANUP LEVELS

MTCA Method A CULs are appropriate for groundwater at the Site. Groundwater at the Site is classified as potable to protect drinking water beneficial uses; therefore, MTCA Method A CULs (WAC 173-340 Table 720-1) will be used relative to COPCs at the Site. The point of compliance for this Site is defined as the point at which the groundwater CUL must be attained; thus, the point of compliance is the entire Site. Site specific groundwater CULs and analytical results are presented in **Table 3**.

9.2 SOIL COMPLIANCE

The Site does not meet the MTCA definition of an industrial property; therefore, soil CULs suitable for unrestricted land use are appropriate. MTCA Cleanup Regulation section WAC 173-340-747 presents methods to, “establish soil concentrations that will not cause contamination of ground water at levels that exceed the groundwater CULs established under WAC 173-340-720.” For unrestricted land use, direct soil contact pathway exposure, either MTCA Method A or Method B CULs can be used. The cleanup standards established in this section will be based on these criteria. A discussion of Site specific CULs, as relates to exposure and risk pathways, is provided in the sections below.

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The leaching pathway [WAC 173-340-747(7)(d)], for COPCs remaining on-Site following the July 1989 and September 2014 remedial actions and identified from the July 2015 subsurface investigation, is considered an exposure pathway to groundwater. Based on groundwater samples collected at the Site, residual COPCs in Site soil are not adversely affecting groundwater quality at the Site. Therefore, groundwater analytical data empirically demonstrates the leaching pathway is no longer a complete exposure pathway for COPCs at the Site as discussed below.

9.2.1 Empirical Demonstration

An empirical demonstration of soil CULs for groundwater protection is possible because the horizontal and vertical migration of groundwater that has made contact with impacted soil on the Site has not resulted in groundwater concentrations being above MTCA Method A CULs in any of the on-Site wells since March 2015. The total lead exceedances observed in February 2014 and March 2015 (MW-10 and MW-11) are not representative of lead concentrations in groundwater, based on historical groundwater analytical results; sorbed-phase lead in groundwater sediment; the last four quarters of total and dissolved lead analytical results detected from MW-10 and the last three quarters of dissolved lead analytical results from MW-11 being below MTCA Method A CULs (February 2016).

9.2.1.1 Groundwater Velocity Calculation

Based on Ecology's *Technical Memorandum – Empirical Demonstration of Soil Cleanup Levels for Groundwater Protection*, dated August 9, 2010, the groundwater velocity was calculated based on Site-specific data to demonstrate that a sufficient amount of time had passed for groundwater, in contact with impacted soil, to reach Site monitoring wells. The horizontal velocity of groundwater, 0.72 feet per day (ft/day), was calculated using a conservative hydraulic conductivity value for the Site. Burbank loamy fine sand, gravelly substratum ($K = 0.0092$ centimeter per second) was used to estimate the hydraulic conductivity (based on soil boring logs from the Site (**Appendix D**) and the United States Department of Agriculture Natural Resources Conservation Service website that has local soil data information). See the groundwater velocity calculation in **Appendix L**.

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9.2.1.2 Horizontal Migration of Petroleum Impacts to Nearby Monitoring Wells

The horizontal distance from the residual impacted soils to nearby on-site monitoring wells can be used for the demonstration of compliance with MTCA Method A CULs.

Horizontal Migration of Groundwater Through Impacted Soil to Nearby Wells					
Start Point	End Point	Distance (feet)	Groundwater Gradient Direction as of First Quarter 2016	Estimated Travel Time (Days)	Estimated Travel Time (Years)
Soil Boring ID	Well #				
CB-3	MW-7	4	N	6	0.0164
CB-4	MW-7	11	N	16	0.0438
CB-3	MW-12	17	N	24	0.0647
CB-3	MW-10	45	SW (predominate flow direction)	63	0.1726
CB-3	MW-11	47	SW (predominate flow direction)	66	0.1808
CB-3	MW-3	87	SW (predominate flow direction)	121	0.3315
CB-3	MW-2	127	SW (predominate flow direction)	177	0.4849

- Dissolved impacts near CB-3 would reach monitoring well MW-11 in approximately 66 days using the calculated groundwater velocity of 0.72-ft/day and the distance of 47 feet between boring CB-3 and well MW-11. Therefore, sufficient time has elapsed to allow horizontal migration of dissolved impacts to nearby monitoring well MW-11. Groundwater analytical results for well MW-11 have been below laboratory PQLs for 2.5 years (since installation).
- Dissolved impacts near CB-3 would reach monitoring well MW-10 in approximately 63 days using the calculated groundwater velocity of 0.72-ft/day and the distance of 45 feet between boring CB-3 and well MW-10. Therefore, sufficient time has elapsed to allow horizontal migration of dissolved impacts to nearby monitoring well MW-10. Groundwater analytical results for well MW-10 have been below laboratory PQLs for four quarters.

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- The predominant groundwater flow direction is to the southwest (**Graph 1**) towards wells MW-2, MW-3, MW-10, and MW-11. Sufficient time has passed for the dissolved plume to reach MW-2, MW-3, MW-10, and MW-11. Groundwater near impacted soil as identified in confirmation soil boring location CB-3 on the Site would reach well MW-2 (lateral distance of approximately 127 feet) in approximately 0.485 years.

9.2.1.3 Vertical Migration of Petroleum Impacts to Nearby Monitoring Wells

Groundwater levels also fluctuate vertically over time at the Site as evidenced by the measured groundwater elevations recorded during groundwater sampling events since 1989. The groundwater elevation ranges from a minimum elevation of 12.17-feet to a maximum elevation of 19.55-feet and have come in contact with impacted soil at the Site. Vertical migration of the groundwater from impacted soils up to screens of monitoring wells shows that residual soil concentrations do not appear to be impacting groundwater at the Site. It is unlikely that residual soil concentrations will impact groundwater in the future based on the groundwater analytical results.

Horizontal and vertical migration of groundwater through impacted soil in the vicinity of confirmation boring CB-3 to down gradient wells MW-10 and MW-11 shows attenuation and groundwater concentrations have been below MTCA Method A CULs since July 2015 as tabulated in **Table 3**.

9.3 SOIL CLEANUP LEVELS

Groundwater is in contact with locations of residual soil concentrations that are above MTCA Method A CULs at the Site. Historically, no non-aqueous phase liquid (NAPL) has been found in any of the on-Site groundwater monitoring wells and the groundwater concentrations have been below MTCA Method A CULs including total lead since June 2015 in all wells. The leaching pathway is therefore protective of groundwater and an empirical demonstration (**Section 9.2.1**) can be used to show that the residual TPH concentrations will not result the groundwater concentrations exceeding MTCA Method A CULs in the future because of the following reasons:

- Natural attenuation;
- Sorption; and,
- Gravimetric and/or capillary forces.

Since the leaching pathway is incomplete and is protective of groundwater, soil CULs are based on the direct contact pathway [WAC 173-340-740 (3)(b)(iii)(B)]. The point of compliance for the direct contact pathway is from the ground surface to 15-feet bgs. The point of compliance for the leaching pathway is throughout the Site.

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9.3.1 Soil Degradation

Stantec estimated TPH-G degradation rates at the Site based on analytical results of soil samples collected at the Site (1989 through 2015) from comparable locations and depths.

Based on an average Site degradation constant ($k = -0.3258$), the highest residual TPH-G concentration remaining at the Site (CB-3-15') obtained in July 2015 would attenuate below the MTCA Method A screening level by approximately 2019. **Table 5** presents degradation calculations. An example of the degradation calculations is provided below.

$$k = [\ln(N/N_0)]/[1/t] = [\ln(335/12,000)]/[1/26] = -0.1376 \text{ years}^{-1}$$

$$t = [\ln(N/N_0)]/k = [\ln(100/335)]/(-0.1376) = 9 \text{ years to reach } 100 \text{ mg/kg.}$$

9.3.2 MTCA Method B CULs for Soil for Direct Contact

The CULs for unrestricted land use are based on protection of the direct contact pathway and protection of groundwater via the leaching pathway at the Site. The point of compliance for the direct contact pathway is from the ground surface to 15-feet bgs. The point of compliance for the leaching pathway is throughout the Site.

MTCA Method B CULs were established for Site soil. Method B CULs were established for BTEX, TPH-G, and total lead in soil based on the **Model Remedy 5** described in the Publication No. 16-09-057 *Model Remedies for Sites with Petroleum Impacts to Groundwater*. The TPH-G CUL was adjusted downward to residual saturation screening levels [per MTCA 173-340-747 (3)(g)] for protection of groundwater. The rationale and methods used for selecting soil CULs at the Site is described below.

The Site met the publication's *Chapter 3: Eligibility Criteria for Model Remedies* as described below:

Geographic Area: The Site is located in Washington State.

Release Confirmation and Ecology Notification: A release of petroleum had been confirmed and notification of the release to Ecology was completed in February 1989.

Affected Media: The characterization of the Site has confirmed that the only media impacted by the residual petroleum contamination is soil. Characterization of the Site has also confirmed that neither the surface water nor sediment pathways have been impacted by petroleum. Soil CULs address direct contact, terrestrial ecological receptors, and the soil to groundwater and vapor intrusion pathways. The Method A groundwater CULs are not exceeded beyond the source property after remedial actions and compliance monitoring of well MW-12 was completed and ensure that the potential for future impacts to other pathways is minimized.

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Contaminant Types: The October 2013 and July 2015 site investigations documented that petroleum hydrocarbons consisting of TPH-G are the only contaminants present in soil.

Emergency/Interim Actions: Emergency or interim actions are not required due to the lower risk nature of the Site.

Terrestrial Ecological Evaluation: A simplified TEE has been completed for this Site (**Section 3.5.1**).

Remedy Selection: The primary remedy of source removal involved the removal of 41 cubic yards of PCS during the gasoline system removal in February 1989. This remedy combined with other remedial actions performed at the Site including chemical/biological treatment and natural attenuation resulted in satisfying the eligibility criteria and meeting the specific requirements of **Model Remedy 5** described in Chapter 6 of the Publication No. 16-09-057 *Model Remedies for Sites with Petroleum Impacts to Groundwater*.

Impacts to Water Supply Wells: The Site has not caused impacts above the PQL to any water supply well used for drinking water purposes.

Proximity to Private Wells: No private wells are located on or near the Site. As mentioned earlier in **Section 2.3**, three COR municipal groundwater wells are located less than 1-mile from the Site. One of these wells (Columbia) is located about 0.8-mile northeast of the Site and the other two wells (Well #1000-8 and COR Well 1100-D) are located about 0.9-mile north of the Site.

9.3.2.1 Model Remedy 5

The Site meets the criteria outlined for **Model Remedy 5**:

This model remedy is for situations where, following remediation, sufficient monitoring data are collected to confirm that the Method A groundwater CULs are met throughout the site:

Groundwater monitoring data was collected from September 2014 to February 2016, following the BOS-200® injections in September 2014, confirming that the Method A groundwater CULs were met throughout the Site;

Once groundwater quality has been adequately addressed, an empirical demonstration can be pursued using the provisions in WAC 173-340-747 to establish Method B soil CULs that are protective of groundwater. This requires that the characteristics of the Site are representative of future site conditions.

Groundwater quality is previously addressed in **Sections 4.4.1 and 7.2**. An empirical demonstration using the provisions in WAC 173-340-747 to establish Method B soil CULs that are protective of

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groundwater is discussed in **Section 9.2.1**. The current characteristics of the Site are representative of future site conditions as there are no plans to change the Site at this time.

Method B soil CULs that are protective of the direct contact pathway must be determined using the provisions contained in WA 173-340-740(3). Ecology's Cleanup Level and Risk Calculations (CLARC) website houses the CLARC spreadsheet that provides compound-specific Method B direct contact levels for unrestricted land use:

Media	TPH-G	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total Lead
Soil (mg/kg)	Method B —	Method B 18	Method B 6,400	Method B 8,000	Method B 16,000	Method B 3,000

No compound-specific Method B direct contact level for TPH-G exists in the CLARC spreadsheet.

However, when selecting and implementing a model remedy set forth in the Ecology Publication No. 16-09-057 *Model Remedies for Sites with Petroleum Impacts to Groundwater*, in Chapter 5, there are two options described for establishing a Method B or Method C direct contact TPH level:

According to Option 2, applying a generic TPH CUL of 1,500 mg/kg is applicable for this Site as TPH-G is the only COPC remaining in the soil and Method A was not used for establishing soil cleanup standards at this Site.

Since the measured TPH-G concentration was 335 mg/kg in soil sample CB-3-15-feet bgs is less than the generic value of 1,500 mg/kg, the direct contact pathway has been addressed.

Media	TPH-G	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total Lead
Soil (mg/kg)	Method B 1,500	Method B 18	Method B 6,400	Method B 8,000	Method B 16,000	Method B 3,000

Per MTCA regulations 173-340-747 (3)(g), the **TPH-G CUL was lowered to the residual saturation screening level of 1,000 mg/kg** for weathered gasoline (MTCA 173-340-900 Table 747-5). Therefore, the modified Method B CUL for TPH-G at the Site is 1,000 mg/kg. The rationale with the selection of the TPH-G CUL is consistent with Example 10 in the *Guidance for Remediation of Petroleum Contaminated Sites* (Ecology 2011). Site-specific CULs are summarized below.



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Summary of Site-Specific MTCA CULs

(MTCA Cleanup Regulation, Chapter 173-340 WAC, Publication No. 94-06 Revised November 2007)

Media	TPH-G	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total Lead
Soil (mg/kg)	Residual Saturation 1,000	Method B 18	Method B 6,400	Method B 8,000	Method B 16,000	Method A 250
Groundwater (µg/L)	Method A 1,000	Method A 5	Method A 1,000	Method A 700	Method A 1,000	Method A 15

Note: µg/L = Micrograms per Liter

MTBE, EDB, and EDC have never been observed above PQLs at the Site, and are not considered COPCs at the Site. Additionally, total naphthalene's have never been detected above MTCA Method A CULs at the Site.

CONCLUSIONS
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10.0 CONCLUSIONS

10.1 CONSTITUENTS OF POTENTIAL CONCERN

COPC's historically detected above MTCA Method A screening levels at the Site include:

- BTEX;
- TPH-G; and,
- Total Lead.

Based on the results of the 2015 confirmation soil sampling, no COPCs remain in soil or groundwater at the Site above cleanup standards. Applicable Site-specific Method B CULs and points of compliance for soil and groundwater are discussed in **Sections 9.1, 9.2, and 9.3**. The TPH-G in soil is the only COPC that remains above MTCA Method A screening levels; however, concentrations are in compliance with Site-specific Method B CULs.

10.2 SOIL – LATERAL AND VERTICAL

In February 1989, the third generation of USTs were removed and approximately 41 cubic yards of PCS were transported and disposed off-Site. Residual petroleum hydrocarbons remained at the Site following the over-excavation; however, all COPCs are in compliance with cleanup standards for direct contact and leaching pathways as described below.

10.2.1 Direct Contact

All COPCs are below MTCA Method A and B CULs from ground surface to 15-feet bgs. The remedial over-excavation was completed approximately 13-feet bgs and then backfilled with clean fill material. The surface was finished with asphalt. Based on subsequent remedial action and natural attenuation, there is no risk to human health or the environment via the direct contact pathway at the Site.

10.2.2 Leaching Pathway

Groundwater analytical results empirically demonstrate that residual COPCs are not negatively impacting groundwater quality [MTCA 173-340-373(9)]. Groundwater analytical results have been below MTCA Method A CULs for almost 2 years at the Site. Additionally, the majority of the petroleum impacted soil was remediated by the BOS-200® injections which further reduced the risk to groundwater.

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If residual TPH-G in soil could impact groundwater quality, it would have been observed within the past 2 years. Based on groundwater results, COPCs have historically migrated to and impacted groundwater (1989 through 2014). Given the horizontal groundwater seepage velocity at the Site [0.72-ft/day (**Appendix L**)], COPCs would have been observed in groundwater analytical samples from monitoring wells within the past 2 years if vertical migration were occurring. Monitoring well MW-7 is location only 4-feet of residual TPH-G impacts (CB-3-15'). Based on this and the BOS-200® injections during the remedial action performed in September 2014, there is no likely risk to human health or the environment via the leaching pathway.

BTEX and lead concentrations are below MTCA Method A CULs for soil throughout the Site. Benzene, the chemical that presents the most risk to human health, was not reported above PQLs for any soil sample collected during the 2015 confirmation boring subsurface assessment.

The small quantity of TPH-G in soil that remains is below the Site-specific cleanup standard (residual saturation). Confirmation sample CB-3-15' reported a TPH-G concentration of 335 mg/kg at 15-feet bgs, which attenuated to less than 7.59 mg/kg at 20-feet bgs. This is the only residual TPH-G concentration observed in soil remaining at the Site, and it is below the modified Method B CUL for TPH-G at the Site of 1,000 mg/kg. The concentration is protective of the leaching pathway as discussed previously based on 2 years of groundwater analytical results.

Remaining TPH-G is likely held in place due to adsorption and capillary forces within the soil matrix. When a NAPL is released to the soil, some of the NAPL will be held in the soil's pores or void spaces by adsorption and capillary forces. The concentration of petroleum hydrocarbons under equilibrium conditions is called residual saturation. The highest TPH-G concentration remaining in soil is below the modified Method B CUL for TPH-G at the Site of 1,000 mg/kg indicating vertical migration is unlikely.

10.2.3 Degradation

All COPCs, except for TPH-G in soil, are below MTCA Method A CULs. Based on the Site wide average degradation rate for TPH-G (**Table 5**) and from soil analytical results (**Table 1**), the highest concentration of residual TPH-G in Site soil (335 mg/kg) will likely reach the MTCA Method A screening level in 2019.

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10.2.4 Soil Compliance Demonstration Table

Soil Compliance Demonstration Table (Benzene, TPH-G, TPH-D, and TPH-O)

Historic Soil Samples Exceeding MTCA Method A Cleanup Levels in mg/kg ^a						2015 Confirmation Samples and Analytical Results in mg/kg ^a					
Soil Sample ID/year	Depth (feet bgs)	Benz	TPH-G	TPH-D	TPH-O	Soil Sample ID/year	Depth (feet bgs)	Benz	TPH-G	TPH-D	TPH-O
SS0105129A 1989	11	<0.05	12,000	<100	--	CB-3 2015	15	<0.00222	335	18.1	9.83
B-1 2000	16	12	4,600	--	--	CB-2 2015	15	<0.00229	<5.44	<4.17	6.00
						CB-2 2015	20	<0.00150	<3.51	6.00	14.00
						CB-3 2015	15	<0.00222	335	18.1	9.83
						CB-3 2015	20	<0.00219	<7.59	<4.94	18.2
						CB-4 2015	18	<0.00165	52.8 ^b	<4.30	<4.30
						CB-5 2015	20	<0.00199	30.5 ^b	<4.62	5.60
B-2 2000	16	11	3,800	--	--	CB-3 2015	15	<0.00222	335	18.1	9.83
B-3 2000	16	4	3,700	--	--	CB-4 2015	18	<0.00165	52.8 ^b	<4.30	<4.30
B-4 2000	16	4.2	2,000	--	--	CB-2 2015	15	<0.00229	<5.44	<4.17	6.00
B-5 2000	16	2.6	1,000	--	--	CB-5 2015	20	<0.00199	30.5 ^b	<4.62	5.60
B-6 2000	12	<0.05	1,400	--	--	CB-1 2015	15	<0.00199	<5.07	4.57	<4.33
B-6 2000	16	<0.05	150	--	--	CB-1 2015	20	<0.00201	<5.93	<4.00	6.10
B-7 2000	16	4.8	3,900	--	--	MW-9 2013	20	<0.02	<2	<50	<250
MTCA Method A Soil Cleanup Levels		0.03	100 ^b	2,000	2,000	---		0.03	100 ^b	2,000	2,000
MTCA Method B Soil Cleanup Levels		18	1,000			---		18	1,000		

10.3 GROUNDWATER LATERAL AND VERTICAL

Depth to groundwater from on-site wells occurs at an average of approximately 12.17- to 19.55-foot bgs. All dissolved COPCs have been below MTCA Method A CULs since July 2015 in on-site wells. Groundwater gradient and flow direction for previously un-submitted data from first quarter 2015 to first quarter 2016, are presented on **Figures 7a, 7b, 7c, and 7d**. Groundwater analytical results are presented in **Table 3** and **Figure 8**. The total lead exceedances observed in February 2014 in well MW-10 and March 2015 in well MW-11 are not representative of lead concentrations in groundwater based on historical groundwater results and dissolved analytical results (February 2016).

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10.4 SEDIMENT

No areas of impacted sediment exist at the Site nor require any future management.

10.5 SURFACE WATER

Surface water was unlikely impacted by historical petroleum hydrocarbons beneath the Site.

10.6 SOIL VAPOR

No future management of soil vapor is warranted based on concentrations of petroleum compounds in soil and groundwater and the depth at which residual concentrations occur.

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REQUEST FOR NO FURTHER ACTION DETERMINATION
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11.0 REQUEST FOR NO FURTHER ACTION DETERMINATION

The Site meets the criteria required for exclusion from further TEE, confirming that the Site is protective of the terrestrial environment. Based on the information contained in this CAR, Stantec requests a NFA determination for the Site.

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12.0 REFERENCES

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TABLES

TABLE 1
CUMULATIVE SOIL ANALYTICAL RESULTS
Former 7-Eleven Store No. 25821
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All concentrations are in milligrams per liter (mg/kg)

Sample Type	Sample Identification	Date	Depth (feet bgs)	PID (ppm)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-G	TPH-D	TPH-O	Lead	MTBE	EDC	EDB	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene	
May 1989 Kleinfelder, Underground Fuel Storage Tank Closure Chronology, Store Number 25821, 1824 George Washington Way, Richland, Washington																			
	SS0105129A	5/12/1989	11	--	<0.05	48	59	1,000	12,000	<100	--	<0.10	--	--	--	--	--	--	
	SP0105129A	5/12/1989	--	--	<0.025	<0.025	<0.025	<0.025	47	<5	--	--	--	--	--	--	--	--	
June 1989 Kleinfelder, Subsurface Assessment, 1824 George Washington Way, Richland, Washington																			
	MW01	6/30/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW01	6/30/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW01	6/30/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW01	6/30/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW02	6/30/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW02	6/30/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW02	6/30/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW02	6/30/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW03	6/30/1989	5	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW03	6/30/1989	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW03	6/30/1989	15	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW03	6/30/1989	20	0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW04	6/30/1989	8	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW05	6/30/1989	15	1.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW05	6/30/1989	20	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
May 1990 Kleinfelder, Subsurface Assessment, 1824 George Washington Way, Richland, Washington																			
	MW06	5/23/1990	5	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW06	5/23/1990	10	0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW06	5/23/1990	15	505.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	MW06	5/23/1990	20	144.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
July 1996, Fourth Quarter 1996 Groundwater Monitoring Results, Southland Site #25821, 1824 George Washington Way, Richland, Washington																			
	MW-7-B	7/25/1996	5-10	--	<0.05	<0.05	<0.05	<0.10	<5.0	--	--	<10	--	--	--	--	--	--	
	MW-7-C	7/25/1996	13-14	--	<0.05	<0.05	<0.05	<0.10	<5.0	--	--	<10	--	--	--	--	--	--	
December 2000 IT Corporation, Subsurface Assessment, 1824 George Washington Way, Richland, Washington																			
	B-1@16'	12/27/2000	16	--	12	22	27	<50	4,600	--	--	--	--	--	--	--	--	--	
	B-1@18'	12/27/2000	18	--	<0.05	<0.05	<0.05	<0.05	<10	--	--	--	--	--	--	--	--	--	
	B-2@16'	12/27/2000	16	--	11	19	23	<50	3,800	--	--	--	--	--	--	--	--	--	
	B-3@16'	12/27/2000	16	--	4	16	12	23	3,700	--	--	--	--	--	--	--	--	--	
	B-3@18'	12/27/2000	18	--	<0.05	<0.05	<0.05	<0.05	<10	--	--	--	--	--	--	--	--	--	
	B-4@16'	12/27/2000	16	--	4.2	6.6	10	35	2,000	--	--	--	--	--	--	--	--	--	
	B-4@18'	12/27/2000	18	--	<0.05	<0.05	<0.05	<0.05	<10	--	--	--	--	--	--	--	--	--	
	B-5@16'	12/27/2000	16	--	2.6	6.6	5.5	30	1,000	--	--	--	--	--	--	--	--	--	
	B-5@18'	12/27/2000	18	--	<0.05	<0.05	<0.05	<0.05	<10	--	--	--	--	--	--	--	--	--	
	B-6@12'	12/27/2000	12	--	<0.05	0.34	<0.05	45	1,400	--	--	--	--	--	--	--	--	--	
	B-6@16'	12/27/2000	16	--	<0.05	0.2	0.94	7.8	150	--	--	--	--	--	--	--	--	--	
	B-7@12'	12/27/2000	12	--	<0.05	<0.05	<0.05	<0.05	<10	--	--	--	--	--	--	--	--	--	
	B-7@16'	12/27/2000	16	--	4.8	28	27	<50	3,900	--	--	--	--	--	--	--	--	--	
	B-8@16'	12/27/2000	16	--	<0.05	<0.05	<0.05	<0.05	<10	--	--	--	--	--	--	--	--	--	
July 2004 SECOR International, Inc., Limited Phase II Environmental Site Assessment, 1824 George Washington Way, Richland, WA																			
Subsurface Investigation Samples	GP-1@5'	7/9/2004	5	23	<0.011	<0.055	<0.055	<0.11	<5.5	<280	1,300	--	--	--	--	--	--	--	
	GP-1@10'	7/9/2004	10	17	<0.011	<0.053	<0.053	<0.106	<5.3	<26	<53	--	--	--	--	--	--	--	
	GP-1@16'	7/9/2004	16	21	<0.011	<0.054	<0.054	<0.108	<5.4	<27	<54	--	--	--	--	--	--	--	
	GP-2@5'	7/9/2004	5	42	<0.011	<0.054	<0.054	<0.108	<5.4	<27	<54	--	--	--	--	--	--	--	
	GP-2@10'	7/9/2004	10	40	<0.011	<0.055	<0.055	<0.11	<5.5	<28	<55	--	--	--	--	--	--	--	
	GP-2@15'	7/9/2004	15	32	<0.011	<0.055	<0.055	<0.11	<5.5	<28	<55	--	--	--	--	--	--	--	--
	GP-2@18'	7/9/2004	18	16	<0.011	<0.054	<0.054	<0.108	<5.4	<27	110	--	--	--	--	--	--	--	
	GP-3@5'	7/9/2004	5	1	<0.011	<0.055	<0.055	<0.11	<5.5	<28	210	--	--	--	--	--	--	--	
	GP-3@10'	7/9/2004	10	1	<0.011	<0.057	<0.057	<0.114	<5.7	<28	<57	--	--	--	--	--	--	--	
	GP-3@12'	7/9/2004	12	1.5	<0.011	<0.056	<0.056	<0.112	<5.6	<140	670	--	--	--	--	--	--	--	
	GP-4@5'	7/9/2004	5	1	<0.010	<0.052	<0.052	<0.104	<5.2	<26	<52	--	--	--	--	--	--	--	
	GP-4@10'	7/9/2004	10	0.0	<0.011	<0.056	<0.056	<0.112	<5.6	<140	500	--	--	--	--	--	--	--	
	GP-4@15'	7/9/2004	15	0.0	<0.011	<0.054	<0.054	<0.108	<5.4	<27	<54	--	--	--	--	--	--	--	
	GP-5@10'	7/9/2004	10	0.3	<0.010	<0.052	<0.052	<0.104	<5.2	<26	<52	--	--	--	--	--	--	--	
	GP-5@14'	7/9/2004	14	2	<0.013	<0.063	<0.063	<0.126	<6.3	<31	<63	--	--	--	--	--	--	--	
	GP-6@5'	7/9/2004	5	5	<0.011	<0.056	<0.056	<0.112	<5.6	<28	<56	--	--	--	--	--	--	--	
MITCA Method A Soil Cleanup Levels for Unrestricted Land Uses					--	0.03	7	6	9	100 ¹	2,000	2,000	250	0.1	--	0.005	5	--	--
MITCA Method B Soil Cleanup Levels for Unrestricted Land Uses					--	18	6,400	8,000	16,000	1,000			250	556	11	0.5	--	--	34.5

TABLE 1
CUMULATIVE SOIL ANALYTICAL RESULTS
Former 7-Eleven Store No. 25821
1824 George Washington Way, Richland, Washington
All concentrations are in milligrams per liter (mg/kg)

Sample Type	Sample Identification	Date	Depth (feet bgs)	PID (ppm)	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH-G	TPH-D	TPH-O	Lead	MTBE	EDC	EDB	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene	
Subsurface Investigation Samples	GP-6@10'	7/9/2004	10	2	<0.011	<0.056	<0.056	<0.112	<5.6	57	91	--	--	--	--	--	--	--	
	GP-6@12'	7/9/2004	12	68	<0.011	<0.056	<0.056	<0.112	<5.6	440	<56	--	--	--	--	--	--	--	
	GP-7@5'	7/9/2004	5	0.5	<0.012	<0.060	<0.060	<0.12	<6.0	<30	<60	--	--	--	--	--	--	--	
	GP-7@10'	7/9/2004	10	1	<0.010	<0.052	<0.052	<0.104	<5.2	<26	<52	--	--	--	--	--	--	--	
	GP-7@12'	7/9/2004	12	1	<0.011	<0.054	<0.054	<0.108	<5.4	<27	<54	--	--	--	--	--	--	--	
	GP-8@5'	7/9/2004	5	0.5	<0.011	<0.054	<0.054	<0.108	<5.4	<27	<54	--	--	--	--	--	--	--	--
	GP-8@10'	7/9/2004	10	0.4	<0.011	<0.053	<0.053	<0.106	<5.3	<26	<53	--	--	--	--	--	--	--	
	GP-9@5'	7/9/2004	5	0.8	<0.011	<0.055	<0.055	<0.11	<5.5	<28	<55	--	--	--	--	--	--	--	
	GP-9@10'	7/9/2004	10	0.4	<0.011	<0.056	<0.056	<0.112	<5.6	<28	<56	--	--	--	--	--	--	--	
GP-9@14'	7/9/2004	14	1.3	<0.011	<0.054	<0.054	<0.108	<5.4	<27	<54	--	--	--	--	--	--	--		
October 2013 Stantec Consulting Services Inc. Subsurface Investigation and Well Installation, 1824 George Washington Way, Richland, WA																			
Well Installation Soil Samples	MW-9@5'	10/02/13	5	0.0	<0.02	<0.02	<0.02	<0.06	<2	<50	<250	--	--	--	--	--	--	--	
	MW-9@20'	10/02/13	20	4.2	<0.02	<0.02	<0.02	<0.06	<2	<50	<250	2.53	<0.05	<0.05	<0.005	<0.01	<0.01	<0.01	
	MW-9@25'	10/02/13	25	0.0	<0.02	<0.02	<0.02	<0.06	<2	<50	<250	--	--	--	--	--	--	--	
	MW-10@10'	10/02/13	10	0.1	<0.02	<0.02	<0.02	<0.06	<2	<50	<250	--	--	--	--	--	--	--	
	MW-10@15'	10/02/13	15	0.0	<0.02	<0.02	<0.02	<0.06	<2	<50	<250	2.19	<0.05	<0.05	<0.005	<0.01	<0.01	<0.01	
	MW-11@10'	10/02/13	10	0.0	<0.02	<0.02	<0.02	<0.06	<2	<50	<250	--	--	--	--	--	--	--	
	MW-11@15'	10/02/13	15	0.0	<0.02	<0.02	<0.02	<0.06	5.1	<50	<250	--	--	--	--	--	--	--	
	MW-12@5'	10/02/13	5	31.4	<0.02	<0.02	<0.02	<0.06	12	<50	<250	4.73	<0.05	<0.05	<0.005	<0.01	<0.01	<0.01	
MW-12@15'	10/02/13	15	1.0	<0.02	<0.02	<0.02	<0.06	4.2	<50	<250	--	--	--	--	--	--	--		
July 2015 Stantec Consulting Services Inc. Subsurface Investigation and Well Installation, 1824 George Washington Way, Richland, WA																			
Confirmation Soil Borings	CB-1@10'	07/28/15	10	0.0	<0.00183	<0.00183	<0.00183	<0.00456	<6.70	4.83	14.0	32.4	<0.00183	<0.00183	<0.00183	<0.00456	--	--	
	CB-1@15'	07/28/15	15	3.6	<0.00199	<0.00199	<0.00199	<0.00497	<5.07	4.57	<4.33	5.63	<0.00199	<0.00199	<0.00199	<0.00497	--	--	
	CB-1@20'	07/28/15	20	1.3	<0.00201	<0.00201	<0.00201	<0.00502	<5.93	<4.00	6.10	4.50	<0.00201	<0.00201	<0.00201	<0.00502	--	--	
	CB-2@10'	07/29/15	10	7.7	<0.00186	<0.00186	<0.00186	<0.00465	<4.53	<4.06	15.8	6.03	<0.00186	<0.00186	<0.00186	<0.00465	--	--	
	CB-2@15'	07/29/15	15	10.5	<0.00229	<0.00229	<0.00229	<0.00571	<5.44	<4.17	6.00	6.23	<0.00229	<0.00229	<0.00229	<0.00571	--	--	
	CB-2@20'	07/29/15	20	2.7	<0.00150	<0.109	<0.109	<0.164	<3.51	6.00	14.0	3.20	<0.00150	<0.00150	<0.0547 ^a	<0.274	--	--	
	CB-3@5'	07/28/15	5	0.0	<0.00258	<0.00258	<0.00258	<0.00644	<7.01	<4.00	46.4	4.21	<0.00258	<0.00258	<0.00258	<0.00644	--	--	
	CB-3@15'	07/28/15	15	1.2	<0.00222	<0.00222	<0.00222	<0.00556	335	18.1	9.83	6.28	<0.00222	<0.00222	<0.00222	<0.00556	--	--	
	CB-3@20'	07/28/15	20	0.0	<0.00219	<0.00219	<0.00219	<0.00546	<7.59	<4.94	18.2	3.31	<0.00219	<0.00219	<0.00219	<0.441	--	--	
	CB-4@5'	07/29/15	5	0.0	<0.00162	<0.00162	<0.00162	<0.00405	<7.06	<10.0	4.85	<0.00162	<0.00162	<0.00162	<0.00162	<0.00405	--	--	
	CB-4@18'	07/29/15	18	2.8	<0.00165	<0.00165	<0.00165	<0.00413	52.8	<4.30	<4.30	3.84	<0.00165	<0.00165	<0.00165	<0.232	--	--	
	CB-4@20'	07/29/15	20	2.5	<0.00197	<0.00197	<0.00197	<0.00493	<2.72	<4.31	<4.31	4.86	<0.00197	<0.00197	<0.00197	<0.00493	--	--	
	CB-5@10'	07/29/15	10	11.3	<0.00229	<0.00229	<0.00229	<0.00573	<5.81	<3.94	<3.94	1.77	<0.00229	<0.00229	<0.00229	<0.00573	--	--	
CB-5@15'	07/29/15	15	8.5	<0.00238	<0.00238	<0.00238	<0.00595	<5.96	<4.28	<4.28	4.96	<0.00238	<0.00238	<0.00238	<0.00595	--	--		
CB-5@20'	07/29/15	20	1.3	<0.00199	<0.00199	<0.00199	<0.00498	30.5	<4.62	5.60	3.95	<0.00199	<0.00199	<0.00199	<0.00498	--	--		
MTC A Method A Soil Screening Levels for Unrestricted Land Uses					--	0.03	7	6	9	100 ¹	2,000	2,000	250	0.1	--	0.005	5	--	--
MTC B Method B Soil Cleanup Levels for Unrestricted Land Uses					--	18	6,400	8,000	16,000	1,000	250	556	11	0.5	--	--	--	34.5	--

Notes:

█ = indicates removed sample location

< = result is below laboratory reporting limit

-- = Not Analyzed

bgs = below ground surface

BOLD = Result exceeds MTC A Method A Soil Screening Level

EDB = 1,2-Dibromethane

EDC = 1,2-Dichloroethane

MTBE = Methyl tertiary-butyl ether

MTC A = Model Toxics Control Act

TPH-D = total petroleum hydrocarbons as diesel

TPH-G = total petroleum hydrocarbons in the gasoline range, by Ecology Method NWTPH-Gx

TPH-O = total petroleum hydrocarbons as heavy oil

ppm = parts per million

1 = Gasoline mixtures without benzene and where the total of ethylbenzene, toluene, and xylene

are less than 1% of the gasoline mixture have a cleanup level of 100 mg/kg; all other mixtures are 30 mg/kg.

a = The laboratory reporting limit (RL) and the method detection limit (MDL) exceeded the MTC A Method A CUL.

Therefore, the method detection limit (MDL), the lower of the two, was reported for this analyte.

TABLE 2
Quality Assurance/Quality Control (QA/QC) ANALYTICAL RESULTS
Former 7-Eleven Inc. Site No. 25821
1824 George Washington Way, Richland, Washington
All results in micrograms per liter (µg/L)

Sample ID	Sample Date	Benzene	Toluene	Ethyl Benzene	Total Xylenes	TPH-G
TB-1	10/2/13	<1	<1	<1	<3	<100
FB-1	10/2/13	<1	<1	<1	<3	<100
EQRP-1	10/2/13	<1	<1	<1	<3	<100
EQRR-1	10/2/13	<1	<1	<1	<3	<100
TB-2	7/28/15	--	--	--	--	<100
FB-2	7/28/15	--	--	--	--	<100
EQRP-2	7/28/15	--	--	--	--	<100
EQRR-2	7/28/15	--	--	--	--	<100
MTCA Method A Screening Levels		5	1,000	700	1,000	800/1,000^a

Explanation of Abbreviations

- ID = identification
- TPH-G = total petroleum hydrocarbons-as-gasoline
- < = not detected above the specified practical quantitation limit
- MTCA = Model Toxics Control Act

Notes

- ^a TPH-G cleanup level is reduced from 1,000 µg/L to 800 µg/L if benzene is present in the sample
- Bold** analytical result exceeds the specified MTCA Method A Screening Level

TABLE 3
CUMULATIVE GROUNDWATER MONITORING AND ANALYTICAL RESULTS
 7-Eleven Store No. 25821
 1824 George Washington Way, Richland, Washington
 All results in micrograms per liter (µg/L), except where noted

Well ID (TOC)	Sample Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-G	TPH-D	EDB	EDC	MTBE	Lead	Dissolved Lead	Depth To Groundwater (feet from TOC)	Groundwater Elevation (feet)	
MW-1 ^a 362.38	06/30/89	<0.5	<0.5	<0.5	<1.0	<1,000	<1,000 ^d	--	--	--	--	--	15.56	346.82	
	06/24/97	--	--	--	--	--	--	--	--	--	--	--	13.47	348.91	
	10/25/00	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
	11/22/00	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
	04/24/01	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
	11/02/01	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
	03/07/02	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
	09/13/02	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
	12/13/02	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
	03/20/03	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
	06/06/03	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
	09/18/03	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
	12/04/03	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
	04/02/04	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
	06/29/04	--	--	--	--	--	--	--	--	--	--	--	--	16.45	345.93
	10/06/04	--	--	--	--	--	--	--	--	--	--	--	--	16.50	345.88
	12/23/04	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	04/07/05	--	--	--	--	--	--	--	--	--	--	--	--	15.99	346.39
	06/21/05	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	09/21/05	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	11/22/05	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	02/06/06	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	05/30/06	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	08/14/06	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	06/05/07	--	--	--	--	--	--	--	--	--	--	--	--	16.83	345.55
	09/27/07	--	--	--	--	--	--	--	--	--	--	--	--	16.95	345.43
	12/07/07	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	04/07/10	<0.20	<1.0	0.20	1.52	<100	--	<0.0095	<0.20	<0.20	--	--	--	17.73	344.65
	12/12/12	--	--	--	--	--	--	--	--	--	--	--	--	17.00	345.38
	02/27/13	--	--	--	--	--	--	--	--	--	--	--	--	17.24	345.14
	10/17/13	--	--	--	--	--	--	--	--	--	--	--	--	16.75	349.36
	02/05/14	--	--	--	--	--	--	--	--	--	--	--	--	17.67	348.44
	07/16/14	--	--	--	--	--	--	--	--	--	--	--	--	16.90	349.21
09/08/14	--	--	--	--	--	--	--	--	--	--	--	--	16.79	349.32	
12/05/14	--	--	--	--	--	--	--	--	--	--	--	--	17.33	348.78	
03/19/15	--	--	--	--	--	--	--	--	--	--	--	--	17.41	348.70	
06/30/15	--	--	--	--	--	--	--	--	--	--	--	--	17.15	348.96	
09/24/15	--	--	--	--	--	--	--	--	--	--	--	--	16.91	349.20	
02/09/16	--	--	--	--	--	--	--	--	--	--	--	--	17.52	348.59	
MTCA Method A Cleanup Level		5	1,000	700	1,000	800/1,000^b	500	0.01	5	20	15	--			

TABLE 3
CUMULATIVE GROUNDWATER MONITORING AND ANALYTICAL RESULTS
 7-Eleven Store No. 25821
 1824 George Washington Way, Richland, Washington
 All results in micrograms per liter (µg/L), except where noted

Well ID (TOC)	Sample Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-G	TPH-D	EDB	EDC	MTBE	Lead	Dissolved Lead	Depth To Groundwater (feet from TOC)	Groundwater Elevation (feet)
MW-2 362.32	06/30/89	<0.5	<0.5	<0.5	<1.0	<1,000	<1,000 ^d	--	--	--	--	--	14.44	347.88
	09/01/93	<0.3	<0.3	<0.3	<0.5	<10	--	--	--	--	--	--	15.29	347.03
	03/18/94	<0.3	<0.3	<0.3	<0.5	<10	--	--	--	--	--	--	16.11	346.21
	09/19/94	--	--	--	--	--	--	--	--	--	--	--	15.39	346.93
	03/02/95	--	--	--	--	--	--	--	--	--	--	--	17.18	345.14
	08/09/95	--	--	--	--	--	--	--	--	--	--	--	14.63	347.69
	06/13/96	--	--	--	--	--	--	--	--	--	--	--	13.92	348.40
	12/11/96	--	--	--	--	--	--	--	--	--	--	--	14.74	347.58
	06/24/97	--	--	--	--	--	--	--	--	--	--	--	13.40	348.92
	12/30/97	--	--	--	--	--	--	--	--	--	--	--	16.65	345.67
	04/01/98	--	--	--	--	--	--	--	--	--	--	--	16.75	345.57
	06/25/98	--	--	--	--	--	--	--	--	--	--	--	16.95	345.37
	09/24/98	--	--	--	--	--	--	--	--	--	--	--	16.25	346.07
	12/15/98	--	--	--	--	--	--	--	--	--	--	--	16.83	345.49
	03/31/00	--	--	--	--	--	--	--	--	--	--	--	16.95	345.37
	06/13/00	--	--	--	--	--	--	--	--	--	--	--	16.33	345.99
	09/13/00	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	10/25/00	--	--	--	--	--	--	--	--	--	--	--	16.35	345.97
	11/22/00	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	04/24/01	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	11/02/01	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	03/07/02	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	09/13/02	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	12/13/02	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	03/20/03	--	--	--	--	--	--	--	--	--	--	--	17.42	344.90
	06/06/03	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.23	345.09
	09/18/03	--	--	--	--	--	--	--	--	--	--	--	17.50	344.82
	12/04/03	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	04/02/04	--	--	--	--	--	--	--	--	--	--	--	18.21	344.11
	06/29/04	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.66	344.66
	10/06/04	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.84	344.48
	12/23/04	--	--	--	--	--	--	--	--	--	--	--	18.41	343.91
	04/07/05	--	--	--	--	--	--	--	--	--	--	--	18.96	343.36
06/21/05	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
09/21/05	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
11/22/05	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
02/06/06	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	18.20	344.12	
05/30/06	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.90	344.42	
08/14/06	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
04/10/07	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
06/05/07	--	--	--	--	--	--	--	--	--	--	--	16.00	346.32	
09/27/07	--	--	--	--	--	--	--	--	--	--	--	16.95	345.37	
12/07/07	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
04/07/10	<0.20	<1.0	<0.20	<0.60	<100	--	<0.0095	<0.20	<0.20	--	--	--	17.74	344.58
12/12/12	--	--	--	--	--	--	--	--	--	--	--	--	17.02	345.30
02/27/13	--	--	--	--	--	--	--	--	--	--	--	--	17.25	345.07
366.10	10/17/13	--	--	--	--	--	--	--	--	--	--	--	16.80	349.30
	02/05/14	--	--	--	--	--	--	--	--	--	--	--	17.70	348.40
	07/16/14	--	--	--	--	--	--	--	--	--	--	--	16.97	349.13
	09/08/14	--	--	--	--	--	--	--	--	--	--	--	16.86	349.24
	12/05/14	--	--	--	--	--	--	--	--	--	--	--	17.37	348.73
	03/19/15	--	--	--	--	--	--	--	--	--	--	--	17.49	348.61
	06/30/15	--	--	--	--	--	--	--	--	--	--	--	17.21	348.89
	09/24/15	--	--	--	--	--	--	--	--	--	--	--	16.96	349.14
	02/09/16	--	--	--	--	--	--	--	--	--	--	--	17.54	348.56
	MTCM Method A Cleanup Level		5	1,000	700	1,000	800/1,000^b	500	0.01	5	20	15	--	

TABLE 3
CUMULATIVE GROUNDWATER MONITORING AND ANALYTICAL RESULTS
 7-Eleven Store No. 25821
 1824 George Washington Way, Richland, Washington
 All results in micrograms per liter (µg/L), except where noted

Well ID (TOC)	Sample Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-G	TPH-D	EDB	EDC	MTBE	Lead	Dissolved Lead	Depth To Groundwater (feet from TOC)	Groundwater Elevation (feet)
MW-3 362.13	06/30/89	<0.5	<0.5	<0.5	0.7	<1,000	<1,000 ^d	--	--	--	--	--	14.19	347.94
	09/01/93	--	--	--	--	--	--	--	--	--	--	--	15.12	347.01
	03/18/94	<0.3	<0.3	<0.3	<0.5	<10	--	--	--	--	--	--	15.84	346.29
	09/19/94	--	--	--	--	--	--	--	--	--	--	--	15.12	347.01
	03/02/95	--	--	--	--	--	--	--	--	--	--	--	15.96	346.17
	08/09/95	--	--	--	--	--	--	--	--	--	--	--	14.37	347.76
	06/13/96	--	--	--	--	--	--	--	--	--	--	--	13.68	348.45
	12/11/96	--	--	--	--	--	--	--	--	--	--	--	14.41	347.72
	06/24/97	--	--	--	--	--	--	--	--	--	--	--	13.13	349.00
	12/30/97	--	--	--	--	--	--	--	--	--	--	--	16.47	345.66
	04/01/98	--	--	--	--	--	--	--	--	--	--	--	16.58	345.55
	06/25/98	--	--	--	--	--	--	--	--	--	--	--	16.15	345.98
	09/24/98	--	--	--	--	--	--	--	--	--	--	--	16.11	346.02
	12/15/98	--	--	--	--	--	--	--	--	--	--	--	16.66	345.47
	03/31/00	--	--	--	--	--	--	--	--	--	--	--	16.73	345.40
	06/13/00	--	--	--	--	--	--	--	--	--	--	--	16.21	345.92
	09/13/00	--	--	--	--	--	--	--	--	--	--	--	15.01	347.12
	10/25/00	--	--	--	--	--	--	--	--	--	--	--	16.26	345.87
	11/22/00	--	--	--	--	--	--	--	--	--	--	--	16.48	345.65
	04/24/01	--	--	--	--	--	--	--	--	--	--	--	17.11	345.02
	11/02/01	--	--	--	--	--	--	--	--	--	--	--	16.50	345.63
	03/07/02	--	--	--	--	--	--	--	--	--	--	--	17.26	344.87
	05/31/02	<0.5	<1.0	<1.0	<3.0	--	--	--	--	--	--	--	16.85	345.28
	09/13/02	<0.5	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	16.51	345.62
	12/13/02	<0.5	<1.0	<1.0	<3.0	<100	--	--	--	--	--	--	17.04	345.09
	03/20/03	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.36	344.77
	06/06/03	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.05	345.08
	09/18/03	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.34	344.79
	12/04/03	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	04/02/04	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	16.00	346.13
	06/29/04	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.51	344.62
	10/06/04	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.69	344.44
	12/23/04	--	--	--	--	--	--	--	--	--	--	--	18.20	343.93
	04/07/05	--	--	--	--	--	--	--	--	--	--	--	19.68	342.45
	06/21/05	--	--	--	--	--	--	--	--	--	--	--	17.46	344.67
	09/21/05	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	11/22/05	--	--	--	--	--	--	--	--	--	--	--	18.01	344.12
	02/06/06	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	18.00	344.13
	05/30/06	--	--	--	--	--	--	--	--	--	--	--	17.75	344.38
	08/14/06	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	04/10/07	--	--	--	--	--	--	--	--	--	--	--	17.01	345.12
	06/05/07	--	--	--	--	--	--	--	--	--	--	--	16.14	345.99
	09/27/07	--	--	--	--	--	--	--	--	--	--	--	16.83	345.30
	12/07/07	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	06/11/08	<1.0	<1.0	<1.0	<2.0	230	--	--	--	--	--	--	16.54	345.59
10/29/08	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	16.98	345.15	
04/13/09	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.15	344.98	
10/22/09	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
04/07/10	<0.20	<1.0	<0.20	<0.60	<100	--	<0.0096	<0.20	<0.20	--	--	19.55	342.58	
12/16/10	<0.50	<0.50	<0.50	<0.50	<250	--	--	--	--	--	--	17.10	345.03	
03/08/11	<0.50	<0.50	<0.50	<0.50	<250	--	--	--	--	--	--	17.01	345.12	
08/03/11	<0.50	<0.50	<0.50	<0.50	<250	--	--	--	--	--	--	16.13	346.00	
03/27/12	<0.50	<0.50	16.0	1.3	660	--	<0.010	<0.50	<0.50	<5	--	17.22	344.91	
12/12/12	<1	<1	<1	<3	<100	--	<0.01	<1	<1	<1	--	16.86	345.27	
02/27/13	<0.50	<0.50	<0.50	<0.50	<250	--	<0.010	<0.50	<0.50	<5	--	17.04	345.09	
10/17/13	<0.50	<0.50	<0.50	<0.50	<250	--	<0.010	<0.50	<0.50	<5	--	16.67	349.14	
02/05/14	--	--	--	--	--	--	--	--	--	--	--	17.49	348.32	
07/16/14	--	--	--	--	--	--	--	--	--	--	--	16.88	348.93	
09/08/14	--	--	--	--	--	--	--	--	--	--	--	16.70	349.11	
12/05/14	--	--	--	--	--	--	--	--	--	--	--	17.18	348.63	
03/19/15	<1.00	<1.00	<1.00	<2.00	<100	--	<0.0100 ^c	--	--	<2.00	--	17.24	348.57	
06/30/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.0101 ^c	<1.00	<1.00	<2.00	--	17.05	348.76	
09/24/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.0100 ^c	<1.00	<1.00	<2.00	--	16.84	348.97	
02/09/16	--	--	--	--	--	--	--	--	--	--	--	17.36	348.45	
MTCA Method A Cleanup Level		5	1,000	700	1,000	800/1,000^b	500	0.01	5	20	15	--		

TABLE 3
CUMULATIVE GROUNDWATER MONITORING AND ANALYTICAL RESULTS
 7-Eleven Store No. 25821
 1824 George Washington Way, Richland, Washington
 All results in micrograms per liter (µg/L), except where noted

Well ID (TOC)	Sample Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-G	TPH-D	EDB	EDC	MTBE	Lead	Dissolved Lead	Depth To Groundwater (feet from TOC)	Groundwater Elevation (feet)
MW-4 361.83	06/30/89	<0.5	<0.5	<0.5	<1.0	<1,000	<1,000 ^d	--	--	--	--	--	13.74	348.09
	09/01/93	0.4	<0.3	<0.3	<0.5	<10	--	--	--	--	--	--	14.66	347.17
	03/18/94	<0.3	<0.3	<0.3	<0.5	<10	--	--	--	--	--	--	15.45	346.38
	09/19/94	--	--	--	--	--	--	--	--	--	--	--	13.76	348.07
	03/02/95	--	--	--	--	--	--	--	--	--	--	--	15.62	346.21
	08/09/95	--	--	--	--	--	--	--	--	--	--	--	13.98	347.85
	06/13/96	--	--	--	--	--	--	--	--	--	--	--	13.23	348.60
	12/11/96	--	--	--	--	--	--	--	--	--	--	--	13.97	347.86
	06/24/97	--	--	--	--	--	--	--	--	--	--	--	12.75	349.08
	12/30/97	--	--	--	--	--	--	--	--	--	--	--	15.95	345.88
	04/01/98	--	--	--	--	--	--	--	--	--	--	--	16.25	345.58
	06/25/98	--	--	--	--	--	--	--	--	--	--	--	15.70	346.13
	09/24/98	--	--	--	--	--	--	--	--	--	--	--	15.64	346.19
	12/15/98	--	--	--	--	--	--	--	--	--	--	--	16.18	345.65
	03/31/00	--	--	--	--	--	--	--	--	--	--	--	16.29	345.54
	06/13/00	--	--	--	--	--	--	--	--	--	--	--	15.74	346.09
	09/13/00	--	--	--	--	--	--	--	--	--	--	--	15.55	346.28
	10/25/00	--	--	--	--	--	--	--	--	--	--	--	15.72	346.11
	11/22/00	--	--	--	--	--	--	--	--	--	--	--	16.08	345.75
	04/24/01	<0.5	<0.5	<0.5	<1.0	<100	--	--	--	--	--	--	16.66	345.17
	11/02/01	<0.5	<0.5	<0.5	<1.5	<100	--	--	--	--	--	--	16.02	345.81
	03/07/02	--	--	--	--	--	--	--	--	--	--	--	16.82	345.01
	05/31/02	<0.5	<1.0	<1.0	<1.0	<100	--	--	--	--	--	--	16.49	345.34
	09/13/02	<0.5	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	16.09	345.74
	12/13/02	<0.5	<1.0	<1.0	<3.0	<100	--	--	--	--	--	--	16.55	345.28
	03/20/03	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	16.92	344.91
	06/06/03	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	16.61	345.22
	09/18/03	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	16.82	345.01
	12/04/03	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.38	344.45
	04/02/04	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.53	344.30
	06/29/04	--	--	--	--	--	--	--	--	--	--	--	17.03	344.80
	10/06/04	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.21	344.62
	12/23/04	--	--	--	--	--	--	--	--	--	--	--	17.75	344.08
	04/07/05	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.89	343.94
	06/21/05	--	--	--	--	--	--	--	--	--	--	--	17.03	344.80
	09/21/05	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	11/22/05	--	--	--	--	--	--	--	--	--	--	--	17.94	343.89
	02/06/06	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.55	344.28
	05/30/06	--	--	--	--	--	--	--	--	--	--	--	17.25	344.58
	08/14/06	--	--	--	--	--	--	--	--	--	--	--	DRY	--
04/10/07	--	--	--	--	--	--	--	--	--	--	--	16.53	345.30	
06/05/07	--	--	--	--	--	--	--	--	--	--	--	16.25	345.58	
09/27/07	--	--	--	--	--	--	--	--	--	--	--	16.38	345.45	
12/07/07	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
04/13/09	--	--	--	--	--	--	--	--	--	--	--	16.25	345.58	
10/22/09	--	--	--	--	--	--	--	--	--	--	--	16.47	345.36	
04/07/10	<0.20	<1.0	<0.20	<0.60	<100	--	<0.0097	<0.20	<0.20	--	--	17.11	344.72	
12/12/12	--	--	--	--	--	--	--	--	--	--	--	16.38	345.45	
02/27/13	--	--	--	--	--	--	--	--	--	--	--	16.65	345.18	
10/17/13	--	--	--	--	--	--	--	--	--	--	--	16.19	349.35	
02/05/14	Iced Well-Could Not Open												--	--
07/16/14	--	--	--	--	--	--	--	--	--	--	--	--	--	--
09/08/14	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/05/14	--	--	--	--	--	--	--	--	--	--	--	--	--	--
03/19/15	--	--	--	--	--	--	--	--	--	--	--	--	--	--
09/24/15	Could Not Open												--	--
02/09/16	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Level		5	1,000	700	1,000	800/1,000^b	500	0.01	5	20	15	--		

TABLE 3
CUMULATIVE GROUNDWATER MONITORING AND ANALYTICAL RESULTS
 7-Eleven Store No. 25821
 1824 George Washington Way, Richland, Washington
 All results in micrograms per liter (µg/L), except where noted

Well ID (TOC)	Sample Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-G	TPH-D	EDB	EDC	MTBE	Lead	Dissolved Lead	Depth To Groundwater (feet from TOC)	Groundwater Elevation (feet)	
MW-5 362.01	07/01/89	<0.5	0.8	<0.5	4.2	<1,000	<1,000 ^d	--	--	--	--	--	14.05	347.96	
	09/01/93	2.0	0.5	5.0	1.0	290	--	--	--	--	--	--	14.98	347.03	
	03/18/94	<0.3	1.0	7.0	6.0	37	--	--	--	--	--	--	15.76	346.25	
	09/19/94	1.5	0.7	14.0	38.0	420	--	--	--	--	--	--	15.02	346.99	
	03/02/95	5.4	8.0	13.0	63.0	930	--	--	--	--	--	--	15.90	346.11	
	08/09/95	<0.3	<0.3	1.3	1.0	210	--	--	--	--	--	--	14.28	347.73	
	06/13/96	<0.5	<0.5	12.7	30.1	424	--	--	--	--	--	<2.0	--	13.53	348.48
	12/11/96	<0.5	0.8	33.5	210.0	1,860	--	--	--	--	--	<2.0	--	14.30	347.71
	06/24/97	<0.5	<0.5	<0.5	1.5	<50	--	--	--	--	--	4.09	--	13.00	349.01
	12/30/97	<0.5	<0.5	<0.5	<1.0	<50	--	--	--	--	--	<2.0	--	16.27	345.74
	04/01/98	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	06/25/98	<0.3	<0.3	<0.5	<0.6	<100	--	--	--	--	--	<5	--	15.96	346.05
	09/24/98	--	--	--	--	--	--	--	--	--	--	--	--	15.91	346.10
	12/15/98	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	03/31/00	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	06/13/00	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	09/13/00	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	10/25/00	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	11/22/00	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	04/24/01	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	11/02/01	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	03/07/02	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	09/13/02	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	12/13/02	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	03/20/03	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	06/06/03	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	09/18/03	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	12/04/03	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	04/02/04	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	06/29/04	--	--	--	--	--	--	--	--	--	--	--	--	17.25	344.76
	10/06/04	--	--	--	--	--	--	--	--	--	--	--	--	17.45	344.56
	12/23/04	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	04/07/05	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	06/21/05	--	--	--	--	--	--	--	--	--	--	--	--	17.47	344.54
	09/21/05	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	05/30/06	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	08/14/06	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	--	18.01	344.00
	04/10/07	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	06/05/07	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	09/27/07	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	12/07/07	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	06/11/08	<4.0	<4.0	<4.0	<8.0	<400	--	--	--	--	--	--	--	16.45	345.56
	10/29/08	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	04/13/09	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
	10/22/09	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--
04/07/10	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
12/16/10	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
03/08/11	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
08/03/11	<0.50	<0.50	<0.50	<0.50	<250	--	--	--	--	--	--	--	15.82	346.19	
03/27/12	--	--	--	--	--	--	--	--	--	--	--	--	DRY	--	
12/12/12							Dry Well						DRY	--	
02/27/13							Dry Well						DRY	--	
10/17/13							Dry Well						DRY	--	
02/05/14							Dry Well						DRY	--	
07/16/14							Dry Well						DRY	--	
09/08/14							Dry Well						DRY	--	
12/05/14							Dry Well						DRY	--	
03/19/15							Dry Well						DRY	--	
06/30/15							Dry Well						DRY	--	
09/24/15							Dry Well						DRY	--	
02/09/16							Dry Well						DRY	--	
MTCA Method A Cleanup Level		5	1,000	700	1,000	800/1,000^b	500	0.01	5	20	15	--			

TABLE 3
CUMULATIVE GROUNDWATER MONITORING AND ANALYTICAL RESULTS
 7-Eleven Store No. 25821
 1824 George Washington Way, Richland, Washington
 All results in micrograms per liter (µg/L), except where noted

Well ID (TOC)	Sample Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-G	TPH-D	EDB	EDC	MTBE	Lead	Dissolved Lead	Depth To Groundwater (feet from TOC)	Groundwater Elevation (feet)	
MW-6 361.43	09/01/93	65.0	120.0	87.0	3,000	15,000	--	--	--	--	--	--	14.27	347.16	
	03/18/94	14.0	140.0	82.0	3,800	8,500	--	--	--	--	--	--	15.03	346.40	
	09/19/94	<3.0	120.0	140.0	4,700	43,000	--	--	--	--	--	--	14.35	347.08	
	03/02/95	14.0	38.0	33.0	1,500	15,000	--	--	--	--	--	--	15.21	346.22	
	08/09/95	<1.5	32.0	23.0	1,200	15,000	--	--	--	--	--	--	13.59	347.84	
	06/13/96	<0.5	1.2	3.2	155	3,000	--	--	--	--	--	6.63	--	12.82	348.61
	12/11/96	3.2	7.1	11.2	387	4,000	--	--	--	--	--	3.75	--	13.58	347.85
	06/24/97	<2.50	<2.50	6.4	211	2,040	--	--	--	--	--	2.58	--	12.32	349.11
	12/30/97	17.1	<2.50	49.7	695	9,770	--	--	--	--	--	2.47	--	15.54	345.89
	04/01/98	28.0	44.5	328.0	5,370	29,700	--	--	--	--	--	--	--	15.90	345.53
	06/25/98	1.9	19.0	120.0	2,200	7,700	--	--	--	--	--	8	--	15.25	346.18
	09/24/98	54.5	66.6	202.0	2,150	8,680	--	--	--	--	--	--	--	15.23	346.20
	12/15/98	<3	525.0	56	6,500	25,000	--	--	--	--	--	13	--	15.79	345.64
	03/31/00	<5	23.0	82	2,900	24,000	--	--	--	--	--	25	--	15.85	345.58
	06/13/00	<0.5	<0.5	88	2,500	19,000	--	--	--	--	--	--	--	15.26	346.17
	09/13/00	<50	<50	<50	1,100	19,000	--	--	--	--	--	--	--	15.78	345.65
	10/25/00	--	--	--	--	--	--	--	--	--	--	--	--	15.33	346.10
	11/22/00	--	--	--	--	--	--	--	--	--	--	--	--	15.54	345.89
	04/24/01	<25	<25	560	4,900	22,000	--	--	--	--	--	--	--	16.23	345.20
	11/02/01	<12	19.0	210	1,200	10,000	--	--	--	--	--	--	--	16.63	344.80
	03/07/02	<0.5	8.6	83.6	432	11,900	--	--	--	--	--	--	--	16.48	344.95
	05/31/02	3.5	3.3	155	889	6,610	--	--	--	--	--	--	--	16.09	345.34
	09/13/02	4.5	4.3	252	907	10,600	--	--	--	--	--	--	--	15.66	345.77
	12/13/02	<0.5	<1.0	227	889	8,220	--	--	--	--	--	--	--	16.16	345.27
	03/20/03	23.0	5.9	370	1,940	26,000	--	--	--	--	--	--	--	16.50	344.93
	06/06/03	4.0	4.0	10.0	10.0	1,000	--	--	--	--	--	--	--	16.19	345.24
	09/18/03	4.8	4.0	240	1,020	9,300 ^(b)	--	--	--	--	--	--	--	16.43	345.00
	12/04/03			Sheen Observed										16.81	344.62
	04/02/04	<1.0	<1.0	150	1,260	8,900	--	--	--	--	--	--	--	17.12	344.31
	06/29/04	3.8	1.1	110	940	8,300	--	--	--	--	--	--	--	16.50	344.93
	10/06/04	3.1	1.3	300	1,620	16,000	--	--	--	--	--	--	--	16.80	344.63
	12/23/04	3.6	<1.0	210	1,190	9,900	--	--	--	--	--	--	--	17.34	344.09
	04/07/05	<1.0	<1.0	<1.0	<2.0	920	--	--	--	--	--	--	--	16.21	345.22
	06/22/05	<1.0	2.2	1	<2.0	330	--	--	--	--	--	--	--	17.91	343.52
	09/21/05	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	--	16.41	345.02
	11/22/05	--	--	--	--	--	--	--	--	--	--	--	--	18.04	343.39
02/06/06	3.8	<1.0	110	400	6,300	--	--	--	--	--	--	--	17.11	344.32	
05/30/06	7.9	<1.0	130	770	7,500	--	--	--	--	--	--	--	16.85	344.58	
08/14/06	5.4	<1.0	<1.0	1.3	720	--	--	--	--	--	--	--	17.68	343.75	
11/07/06	14	290	1,300	7,600	35,000	--	--	--	--	--	--	--	14.26	347.17	
04/10/07	12	<4.0	260	1,200	13,000	--	--	--	--	--	--	--	16.11	345.32	
06/05/07	11	<4.0	140	540	7,600	--	--	--	--	--	--	--	15.84	345.59	
09/27/07	9.0	<10	620	3,300	20,000	--	--	--	--	--	--	--	15.93	345.50	
12/07/07	5.5	<4.0	280	1,290	9,200	--	--	--	--	--	--	--	16.42	345.01	
06/11/08	12	<10	250	940	11,000	--	--	--	--	--	--	--	16.03	345.40	
10/29/08	7.3	<4.0	240	1,040	9,000	--	--	--	--	--	--	--	16.01	345.42	
04/13/09	9.0	<4.0	75	198	5,300	--	--	--	--	--	--	--	16.15	345.28	
10/22/09	5.5	<4.0	90	206	3,800	--	--	--	--	--	--	--	16.07	345.36	
04/07/10	<0.4	<2.0	52	97	2,600	--	<0.0096 ^(d)	<0.40	<0.40	--	--	--	16.67	344.76	
12/16/10	<0.50	<0.50	73	240	5,300	--	--	--	--	--	--	--	16.10	345.33	
03/08/11	<0.50	<0.50	42	140	3,600	--	--	--	--	--	--	--	16.15	345.28	
08/03/11	<0.50	<0.50	7.6	30	270	--	--	--	--	--	--	--	16.00	345.43	
03/27/12	<0.50	<0.50	63	180	3,900	--	<0.010	<0.50	<0.50	<5	--	--	16.38	345.05	
12/12/12	3.50	14	140	360	6,700	--	<0.01	<1	<1	1.14	--	--	15.95	345.48	
02/27/13	<0.50	<0.50	26	62	2,000	--	<0.010	<0.50	<0.50	<5	--	--	16.08	345.35	
10/17/13	<0.50	<0.50	110	190	4,600	--	<0.010	<0.50	<0.50	<5	--	--	15.77	349.38	
02/06/14	<1.00	<1.00	32.9	64.3	5,290	--	<0.010	<1.00	<1.00	<1.00	--	--	16.65	348.50	
07/16/14	<1.00	<1.00	6.02	13.81	1,470	--	--	--	--	--	--	--	16.00	349.15	
09/08/14	<1.00	<1.00	<1.00	<2.00	<50.0	--	--	--	--	--	--	--	15.76	349.39	
12/05/14	<1.00	<1.00	<1.00	<2.00	<50.0	--	--	--	--	--	1.11	--	16.26	348.89	
03/19/15	<1.00	<1.00	<1.00	<2.00	<100	--	<0.00989 ^(c)	--	--	<2.00	--	--	16.37	348.78	
06/30/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.0101 ^(c)	<1.00	<1.00	<2.00	--	--	16.23	348.92	
09/24/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.0101 ^(c)	<1.00	<1.00	<2.00	--	--	15.94	349.21	
02/09/16	--	--	--	--	<100	--	--	--	--	--	--	--	16.49	348.66	
MTC A Method A Cleanup Level		5	1,000	700	1,000	800/1,000 ^(b)	500	0.01	5	20	15	--			

TABLE 3
CUMULATIVE GROUNDWATER MONITORING AND ANALYTICAL RESULTS
 7-Eleven Store No. 25821
 1824 George Washington Way, Richland, Washington
 All results in micrograms per liter (µg/L), except where noted

Well ID (TOC)	Sample Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-G	TPH-D	EDB	EDC	MTBE	Lead	Dissolved Lead	Depth To Groundwater (feet from TOC)	Groundwater Elevation (feet)
MW-7 361.23	12/11/96	--	--	--	--	--	--	--	--	--	--	--	--	--
	06/24/97	--	--	--	--	--	--	--	--	--	--	--	12.17	349.06
	04/24/01	--	--	--	--	--	--	--	--	--	--	--	16.03	345.20
	11/02/01	<1	1.0	17.0	49.0	6,100	--	--	--	--	--	--	15.41	345.82
	03/07/02	<0.5	2.2	5.9	13.5	6,900	--	--	--	--	--	--	16.18	345.05
	05/31/02	1.5	1.6	6.7	28.6	5,110	--	--	--	--	--	--	15.88	345.35
	09/13/02	3.5	1.2	8.8	13.0	5,240	--	--	--	--	--	--	15.43	345.80
	12/13/02	<0.5	<1.0	9.0	<3.0	7,600	--	--	--	--	--	--	15.95	345.28
	03/20/03	12.0	<1.0	1.6	3.1	2,400	--	--	--	--	--	--	16.30	344.93
	06/06/03	5.7	<1.0	8.0	17.2	7,800	--	--	--	--	--	--	15.97	345.26
	09/18/03	6.1	<1.0	5.4	5.7	3,600^(b)	--	--	--	--	--	--	16.22	345.01
	12/04/03	7.4	<5.0	<5.0	<1.0	3,300	--	--	--	--	--	--	16.75	344.48
	04/02/04	6.3	<1.0	2.0	2.2	2,500	--	--	--	--	--	--	16.91	344.32
	06/29/04	3.7	<1.0	1.0	<2.0	1,800	--	--	--	--	--	--	16.30	344.93
	10/06/04	4.6	<1.0	2.0	<2.0	2,700	--	--	--	--	--	--	16.60	344.63
	12/23/04	7.8	1.7	2.5	4.6	5,100	--	--	--	--	--	--	17.12	344.11
	04/07/05	6.9	<1.0	1.1	1.8	4,700	--	--	--	--	--	--	17.2	344.03
	06/22/05	5.7	<1.0	1.6	1.7	5,600	--	--	--	--	--	--	15.97	345.26
	09/21/05	<4.0	<4.0	<4.0	<8.0	<400	--	--	--	--	--	--	16.91	344.32
	11/22/05	2.6	<1.0	<1.0	<2.0	1,100	--	--	--	--	--	--	16.82	344.41
	02/06/06	5.8	<1.0	1.3	<2.0	3,300	--	--	--	--	--	--	16.96	344.27
	05/30/06	<1.0	<1.0	<1.0	<2.0	190	--	--	--	--	--	--	16.60	344.63
	08/14/06	3.8	<1.0	<1.0	<2.0	250	--	--	--	--	--	--	17.29	343.94
	11/07/06	11	<1.0	17	18.5	710	--	--	--	--	--	--	13.11	348.12
	04/10/07	1.4	<1.0	<1.0	<2.0	750	--	--	--	--	--	--	15.91	345.32
	06/05/07	3.0	<1.0	<1.0	<2.0	910	--	--	--	--	--	--	15.62	345.61
	09/27/07	5.1	<4.0	<4.0	<8.0	800	--	--	--	--	--	--	15.71	345.52
	12/07/07	11	<1.0	<1.0	<2.0	2,200	--	--	--	--	--	--	16.24	344.99
	06/11/08	<1.0	<1.0	<1.0	<2.0	190	--	--	--	--	--	--	15.83	345.40
	10/29/08	<4.0	<4.0	<4.0	<8.0	480	--	--	--	--	--	--	15.93	345.30
	04/13/09	1.7	<1.0	<1.0	<2.0	240	--	--	--	--	--	--	15.95	345.28
	10/22/09	3.0	1.4	<1.0	4.5	1,500	--	--	--	--	--	--	15.87	345.36
	04/07/10	<0.2	<1.0	0.24	1.63	910	--	<0.0096 ^d	<0.20	<0.20	--	--	16.46	344.77
	12/16/10	<0.50	<0.50	<0.50	<0.50	390	--	--	--	--	--	--	16.04	345.19
	03/08/11	<0.50	<0.50	<0.50	<0.50	290	--	--	--	--	--	--	15.93	345.30
	08/03/11	<0.50	<0.50	<0.50	<0.50	<250	--	--	--	--	--	--	15.00	346.23
	03/27/12	<0.50	<0.50	<0.50	<0.50	840	--	<0.010	<0.50	<0.50	<5	--	16.16	345.07
	12/12/12	<1	1.4	<1	<3	340	--	<0.01	<1	<1	<1	--	15.77	345.46
	02/27/13	<0.50	<0.50	<0.50	<0.50	400	--	<0.010	<0.50	<0.50	<5	--	16.02	345.21
	10/17/13	<0.50	<0.50	<0.50	<0.50	<250	--	<0.010	<0.50	<0.50	<5	--	15.56	349.39
02/06/14	<1.00	<1.00	<1.00	<2.00	780	--	<0.010	<1.00	<1.00	<1.00	--	16.46	348.49	
07/16/14	<1.00	<1.00	<1.00	<2.00	1,130	--	--	--	--	--	--	15.81	349.14	
09/04/14	--	BOS 200 Injection				--	--	--	--	--	--	--	--	--
09/04/14	--	BOS 200 Injection				--	--	--	--	--	--	--	--	--
09/08/14	<1.00	<1.00	<1.00	<2.00	<50.0	--	--	--	--	--	--	15.56	349.39	
12/05/14	<1.00	<1.00	<1.00	<2.00	<50.0	--	--	--	--	<1	--	16.06	348.89	
03/19/15	<1.00	<1.00	<1.00	<2.00	<100	--	<0.0101 ^e	--	--	<2.00	--	16.17	348.78	
06/30/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.00997 ^c	<1.00	<1.00	<2.00	--	16.04	348.91	
09/24/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.00994 ^c	<1.00	<1.00	<2.00	--	15.75	349.20	
02/09/16	--	--	--	--	--	--	--	--	--	--	--	17.30	347.65	
MTCA Method A Cleanup Level		5	1,000	700	1,000	800/1,000^b	500	0.01	5	20	15	--		

TABLE 3
CUMULATIVE GROUNDWATER MONITORING AND ANALYTICAL RESULTS
 7-Eleven Store No. 25821
 1824 George Washington Way, Richland, Washington
 All results in micrograms per liter (µg/L), except where noted

Well ID (TOC)	Sample Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-G	TPH-D	EDB	EDC	MTBE	Lead	Dissolved Lead	Depth To Groundwater (feet from TOC)	Groundwater Elevation (feet)
MW-8 361.34	04/24/01	<5	40.0	49.0	840.0	9,200	--	--	--	--	--	--	16.18	345.16
	11/02/01	5.9	43.0	32.0	240.0	4,900	--	--	--	--	--	--	15.56	345.78
	03/07/02	<0.5	<1.0	<1.0	<3.0	326	--	--	--	--	--	--	16.34	345.00
	05/31/02	<0.5	<1.0	<1.0	1.4	<100	--	--	--	--	--	--	16.04	345.30
	09/13/02	1.63	0.6	20.0	54.5	1,240	--	--	--	--	--	--	15.59	345.75
	12/13/02	<0.5	<1.0	<1.0	<3.0	<100	--	--	--	--	--	--	16.08	345.26
	03/20/03	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	16.43	344.91
	06/06/03	<1.0	<1.0	13.0	44	1,100	--	--	--	--	--	--	16.03	345.31
	09/18/03	<1.0	<1.0	97	187	5,200 ^(b)	--	--	--	--	--	--	16.35	344.99
	12/04/03	4.5	1.9	100	57	4,200	--	--	--	--	--	--	16.75	344.59
	04/02/04	2.1	3.4	96	130	2,500	--	--	--	--	--	--	17.05	344.29
	06/29/04	2.7	2.2	83	241	3,800	--	--	--	--	--	--	16.54	344.80
	10/06/04	1.9	2.3	100	156	4,000	--	--	--	--	--	--	16.63	344.71
	12/23/04	2.5	4.1	67	11.8	1,900	--	--	--	--	--	--	17.26	344.08
	04/07/05	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	17.37	343.97
	06/22/05	<1.0	2.3	1.2	1.1	280	--	--	--	--	--	--	16.15	345.19
	09/21/05	16.0	<4.0	<4.0	<8.0	<400	--	--	--	--	--	--	17.01	344.33
	11/22/05	<1.0	<1.0	<1.0	<2.0	<100	--	--	--	--	--	--	16.95	344.39
	02/06/06	<1.0	<1.0	1.4	1.2	190	--	--	--	--	--	--	17.09	344.25
	05/30/06	<1.0	<1.0	1.0	29.0	450	--	--	--	--	--	--	16.80	344.54
	08/14/06	--	--	--	--	--	--	--	--	--	--	--	17.47	343.87
	11/07/06	12	330	1,600	9,500	36,000	--	--	--	--	--	--	13.24	348.10
	04/10/07	<4.0	<4.0	<4.0	<8.0	<400	--	--	--	--	--	--	16.04	345.30
	06/05/07	<1.0	<1.0	<1.0	7.2	210	--	--	--	--	--	--	15.76	345.58
	09/27/07	<4.0	<4.0	8.7	4.9	<400	--	--	--	--	--	--	15.85	345.49
	12/07/07	<4.0	<4.0	<4.0	<8.0	<400	--	--	--	--	--	--	16.32	345.02
	06/11/08	<4.0	<4.0	<4.0	<8.0	<400	--	--	--	--	--	--	15.96	345.38
	10/29/08	<1.0	<1.0	11	<2.0	180	--	--	--	--	--	--	16.05	345.29
	04/13/09	4.3	9.6	3.4	10.1	230	--	--	--	--	--	--	16.10	345.24
	10/22/09	<1.0	<1.0	22	18.0	640	--	--	--	--	--	--	16.00	345.34
	04/07/10	<0.20	<1.0	0.75	0.31	130	--	<0.0096	<0.20	<0.20	--	--	16.61	344.73
	12/16/10	<0.50	<0.50	1.9	18	<250	--	--	--	--	--	--	16.20	345.14
	03/08/11	<0.50	<0.50	<0.50	<0.50	<250	--	--	--	--	--	--	16.05	345.29
08/03/11	<0.50	<0.50	<0.50	<0.50	<250	--	--	--	--	--	--	15.12	346.22	
03/27/12	<0.50	<0.50	<0.50	<0.50	<250	--	<0.010	<0.50	<0.50	11	--	16.29	345.05	
12/12/12	<1	<1	<1	4.2	140	--	<0.01	<1	<1	1.05	--	15.89	345.45	
02/27/13	<0.50	<0.50	<0.50	<0.50	<250	--	<0.010	<0.50	<0.50	<5	--	16.13	345.21	
10/17/13	<0.50	<0.50	<0.50	0.78	<250	--	<0.010	<0.50	<0.50	<5	--	15.68	349.35	
02/06/14	<1.00	<1.00	<1.00	<2.00	<50.0	--	<0.010	<1.00	<1.00	<1.00	--	16.56	348.47	
07/16/14	<1.00	<1.00	<1.00	<2.00	84.6	--	--	--	--	--	--	15.92	349.11	
09/04/14	--	BOS-200 Injection				--	--	--	--	--	--	--	--	--
09/04/14	--	BOS-200 Injection				--	--	--	--	--	--	--	--	--
09/08/14	<1.00	<1.00	<1.00	<2.00	<50.0	--	--	--	--	--	--	--	15.71	349.32
12/05/14	--	--	--	--	--	--	--	--	--	--	--	--	16.21	348.82
03/19/15	<1.00	<1.00	<1.00	<2.00	<100	--	<0.00980 ^c	--	--	<2.00	--	--	16.31	348.72
06/30/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.0100 ^c	<1.00	<1.00	<2.00	--	--	16.13	348.90
09/24/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.0100 ^c	<1.00	<1.00	<2.00	--	--	15.86	349.17
02/09/16	--	--	--	--	--	--	--	--	--	--	--	--	16.42	348.61
MW-9 365.32	10/17/13	<0.50	<0.50	<0.50	<0.50	<250	--	<0.010	<0.50	<0.50	<5	--	16.01	349.31
	02/06/14	<1.00	<1.00	<1.00	<2.00	<50.0	--	<0.010	<1.00	<1.00	4.07	--	16.89	348.43
	07/16/14	--	--	--	--	--	--	--	--	--	--	--	16.20	349.12
	09/08/14	--	--	--	--	--	--	--	--	--	--	--	16.02	349.30
	12/05/14	<1.00	<1.00	<1.00	<2.00	<50.0	--	--	--	--	<1	--	16.53	348.79
	03/19/15	<1.00	<1.00	<1.00	<2.00	<100	--	<0.0100 ^c	--	--	<2.00	--	16.62	348.70
	06/30/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.00989 ^c	<1.00	<1.00	<2.00	--	16.44	348.88
	09/24/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.0100 ^c	<1.00	<1.00	<2.00	--	16.17	349.15
02/09/16	--	--	--	--	--	--	--	--	--	--	--	16.74	348.58	
MW-10 365.77	10/17/13	<0.50	<0.50	<0.50	<0.50	<250	--	<0.010	<0.50	<0.50	<5	--	16.48	349.29
	02/06/14	<1.00	<1.00	<1.00	<2.00	<50.0	--	<0.0100	<1.00	<1.00	63.0	--	17.32	348.45
	07/16/14	<1.00	<1.00	<1.00	<2.00	55.9	--	--	--	--	--	--	16.69	349.08
	09/08/14	--	--	--	--	--	--	--	--	--	--	--	16.48	349.29
	12/05/14	--	--	--	--	--	--	--	--	--	--	--	16.97	348.80
	03/19/15	<1.00	<1.00	<1.00	<2.00	<100	--	<0.0100 ^c	--	--	<2.00	--	17.08	348.69
	06/30/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.0102 ^c	<1.00	<1.00	<2.00	--	16.92	348.85
	09/24/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.00994 ^c	<1.00	<1.00	<2.00	--	16.66	349.11
02/09/16	--	--	--	--	--	--	--	--	--	3.92	<1.00	17.18	348.59	
MTCA Method A Cleanup Level		5	1,000	700	1,000	800/1,000^b	500	0.01	5	20	15	--		

TABLE 3
CUMULATIVE GROUNDWATER MONITORING AND ANALYTICAL RESULTS
 7-Eleven Store No. 25821
 1824 George Washington Way, Richland, Washington
 All results in micrograms per liter (µg/L), except where noted

Well ID (TOC)	Sample Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-G	TPH-D	EDB	EDC	MTBE	Lead	Dissolved Lead	Depth To Groundwater (feet from TOC)	Groundwater Elevation (feet)	
MW-11 365.57	10/17/13	<0.50	<0.50	<0.50	<0.50	<250	--	<0.010	<0.50	<0.50	<5	--	16.25	349.32	
	02/06/14	<1.00	<1.00	<1.00	<2.00	<50.0	--	<0.0100	<1.00	<1.00	3.75	--	17.09	348.48	
	07/16/14	<1.00	<1.00	<1.00	<2.00	67.3	--	--	--	--	--	--	16.50	349.07	
	09/08/14	--	--	--	--	--	--	--	--	--	--	--	16.23	349.34	
	12/05/14	--	--	--	--	--	--	--	--	--	--	--	16.75	348.82	
	03/19/15	<1.00	<1.00	<1.00	<2.00	<100	--	<0.0103 ^c	--	--	--	23.5	--	16.85	348.72
	06/30/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.00992 ^c	<1.00	<1.00	<2.00	--	--	16.70	348.87
	09/24/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.00992 ^c	<1.00	<1.00	<2.00	--	--	16.45	349.12
	02/09/16	--	--	--	--	--	--	--	--	--	<1.00	<1.00	16.97	348.60	
	06/30/16	--	--	--	--	--	--	--	--	--	<2.00	<2.00	16.66	348.91	
MW-12 364.40	10/17/13	<0.50	<0.50	<0.50	<0.50	<250	--	<0.010	<0.50	<0.50	<5	--	14.96	349.44	
	02/06/14	<1.00	<1.00	<1.00	<2.00	<50.0	--	<0.0100	<1.00	<1.00	<1.00	--	15.87	348.53	
	07/16/14	--	--	--	--	--	--	--	--	--	--	--	15.20	349.20	
	09/08/14	--	--	--	--	--	--	--	--	--	--	--	14.96	349.44	
	12/05/14	--	--	--	--	--	--	--	--	--	--	--	15.49	348.91	
	03/19/15	<1.00	<1.00	<1.00	<2.00	<100	--	<0.00983 ^c	--	--	<2.00	--	15.58	348.82	
	06/30/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.00994 ^c	<1.00	<1.00	<2.00	--	15.44	348.96	
	09/24/15	<1.00	<1.00	<1.00	<3.00	<100	--	<0.0101 ^c	<1.00	<1.00	<2.00	--	15.18	349.22	
	02/09/16	--	--	--	--	--	--	--	--	--	--	--	15.72	348.68	
MTCA Method A Cleanup Level		5	1,000	700	1,000	800/1,000^b	500	0.01	5	20	15	--			

- TOC = top of casing elevation.
- TPH-G = total petroleum hydrocarbons as gasoline
- mg/L = milligrams per liter
- < = less than the laboratory practical quantitation limits
- = not measured, not available or not sampled
- ° = Hydrocarbons outside the defined gasoline range are present in the sample
- ª = surrogate recovery is outside of the control limits
- MTCA = Model Toxics Control Act

Bold values exceed MTCA Method A Cleanup Levels

^a MW-1 has been dry and not sampled since 09/01/93

^b The TPH-G cleanup level is reduced from 1,000 µg/L to 800 µg/L if benzene is present in the sample

**TABLE 4
CHEMICAL INDICATOR AND HDB RESULTS**

7-Eleven Store No. 25821
1824 George Washington Way, Richland, Washington
All concentrations in milligrams per liter (mg/L), unless otherwise noted

Well ID (TOC)	Sample Date	Sulfate (SO ₄ ²⁻)	Total Iron	Total Organic Carbon	Total Inorganic Carbon	Carbon Dioxide (CO ₂)	Ferrous Iron (Fe ²⁺)	Nitrate (NO ₃ ⁻)	HDB (CFU/ml)
MW-3	06/30/15	--	<0.025	--	--	--	--	--	--
	09/24/15	--	--	--	--	--	--	--	--
MW-6	07/16/14	153	12.8	9.92	106	--	0.980	1.75	--
	09/08/14	1,670	--	0.524	88.7	--	--	96.5	600
	12/05/14	249	15.4	1.02	94.1	--	--	0.764	300
	03/19/15	--	--	--	--	--	--	--	--
	06/30/15	956	2.78	--	--	--	--	64.5	1,100
	09/24/15	--	--	--	--	--	--	--	--
MW-7	07/16/14	122	17	5.98	63.6	--	3.10	0.406	--
	09/08/14	--	--	--	--	--	--	--	--
	12/05/14	547	6.62	1.18	114	--	--	0.498	6,300
	03/19/15	--	--	--	--	--	--	--	--
	06/30/15	385	3.02	--	--	--	--	1.61	960
	09/24/15	--	--	--	--	--	--	--	--
MW-8	07/16/14	30.8	1.24	1.78	89.7	--	<0.0300	4.86	--
	09/08/14	934	--	1.69	104	--	--	36.5	800
	06/30/15	--	1.99	--	--	--	--	--	--
	09/24/15	120	2.6	--	--	--	--	2.52	3,700
MW-9	12/05/14	74.1	0.225	0.868	103	--	--	4.72	2,300
	03/19/15	--	--	--	--	--	--	--	--
	06/30/15	--	0.17	--	--	--	--	--	--
	09/24/15	32.6	0.144	--	--	--	--	3.27	14,000
MW-10	07/16/14	41.0	1.48	1.30	73.5	--	0.260	5.62	--
	09/08/14	31.1	401	2.26	85.3	--	--	2.67	700
	06/30/15	61.3	3.7	--	--	--	--	5.59	--
	09/24/15	27.4	1.89	--	--	--	--	3.92	1,200,000
MW-11	07/16/14	36.4	1.21	0.873	71.2	--	0.380	4.11	--
	09/08/14	141	204	--	--	--	--	7.20	--
	06/30/15	60.1	1.08	--	--	--	--	5.07	--
	09/24/15	103	1.13	--	--	--	--	3.24	230,000
MW-12	07/16/14	36.4	1.21	0.873	71.2	--	0.380	4.11	--
	09/08/14	141	204	--	--	--	--	7.20	--
	06/30/15	--	0.369	--	--	--	--	--	--
	09/24/15	23.3	0.273	--	--	--	--	2.43	160,000
MTCA Method A Cleanup Level		NA	NA	--	--	NA	NA	NA	NA

Notes:

- < = less than the laboratory practical quantitation limit
- = not sampled, not measured or not analyzed
- NA = not applicable
- HF = Analyte has a holding time of 15 minutes. Results are outside of hold time.

Explanation of Abbreviations:

- MTCA = Model Toxics Control Act
- TOC = top of casing
- HDB = hydrocarbon degrading bacteria
- CFU/ml = colony forming units per milliliter
- EPA = Environmental Protection Agency

Analytical Methods:

- Sulfate = by EPA Method 300.0
- Nitrate = by EPA Method 300.0
- Total Iron = by EPA Method 200.8
- Total Organic Carbon = by SM 5310C
- Total Inorganic Carbon = by SM 5310C
- Ferrous Iron = by SM3500-Fe B
- HDB = Method Reference: Manual of Environmental Microbiology, 2nd Edition, 2001: Chapter 84
- Carbon Dioxide = by SM 4500C

**TABLE 5
SOIL DEGRADATION CALCULATION**

7-Eleven Store No. 25821
1824 George Washington Way
Richland, Washington

Sample ID	TPH-G Concentration (mg/kg)	Depth (feet bgs)	Soil Sample Collection Date	Elapsed Time Between Soil Samples (years)	Degradation Constant (k)	Time To Reach MTCA Method A CUL (years)
CB-3@15'	335	15	2015	26	-0.1376	9
SS0105129A	12,000	11	1989			
CB-2@15'	5.44	15	2015	15	-0.4493	-6
B-1	4,600	16	2000			
CB-2@20'	3.51	20	2015	15	-0.4785	-7
B-1	4,600	16	2000			
CB-3@15'	335	15	2015	15	-0.1746	7
B-1	4,600	16	2000			
CB-3@20'	7.59	20	2015	15	-0.4271	-6
B-1	4,600	16	2000			
CB-4@18'	52.8	18	2015	15	-0.2978	-2
B-1	4,600	16	2000			
CB-5@20'	30.5	20	2015	15	-0.3344	-4
B-1	4,600	16	2000			
CB-3@15'	335	15	2015	15	-0.1619	7
B-2	3,800	16	2000			
CB-4@18'	52.8	18	2015	15	-0.2833	-2
B-3	3,700	16	2000			
CB-2@15'	5.44	15	2015	15	-0.3938	-7
B-4	2,000	16	2000			
CB-5@20'	30.5	20	2015	15	-0.2327	-5
B-5	1,000	16	2000			
CB-1@15'	5.07	15	2015	15	-0.3747	-8
B-6	1,400	16	2000			
CB-1@20'	5.93	20	2015	15	-0.2154	-13
B-6	150	16	2000			
MW-9	2	20	2013	13	-0.6003	-7
B-7	4,900	16	2000			
Average					-0.3258	4
Estimated Year for Site Soil to Reach MTCA Method A CUL						2019

Soil degradation equation:

$$N = N_0 e^{-kt}$$

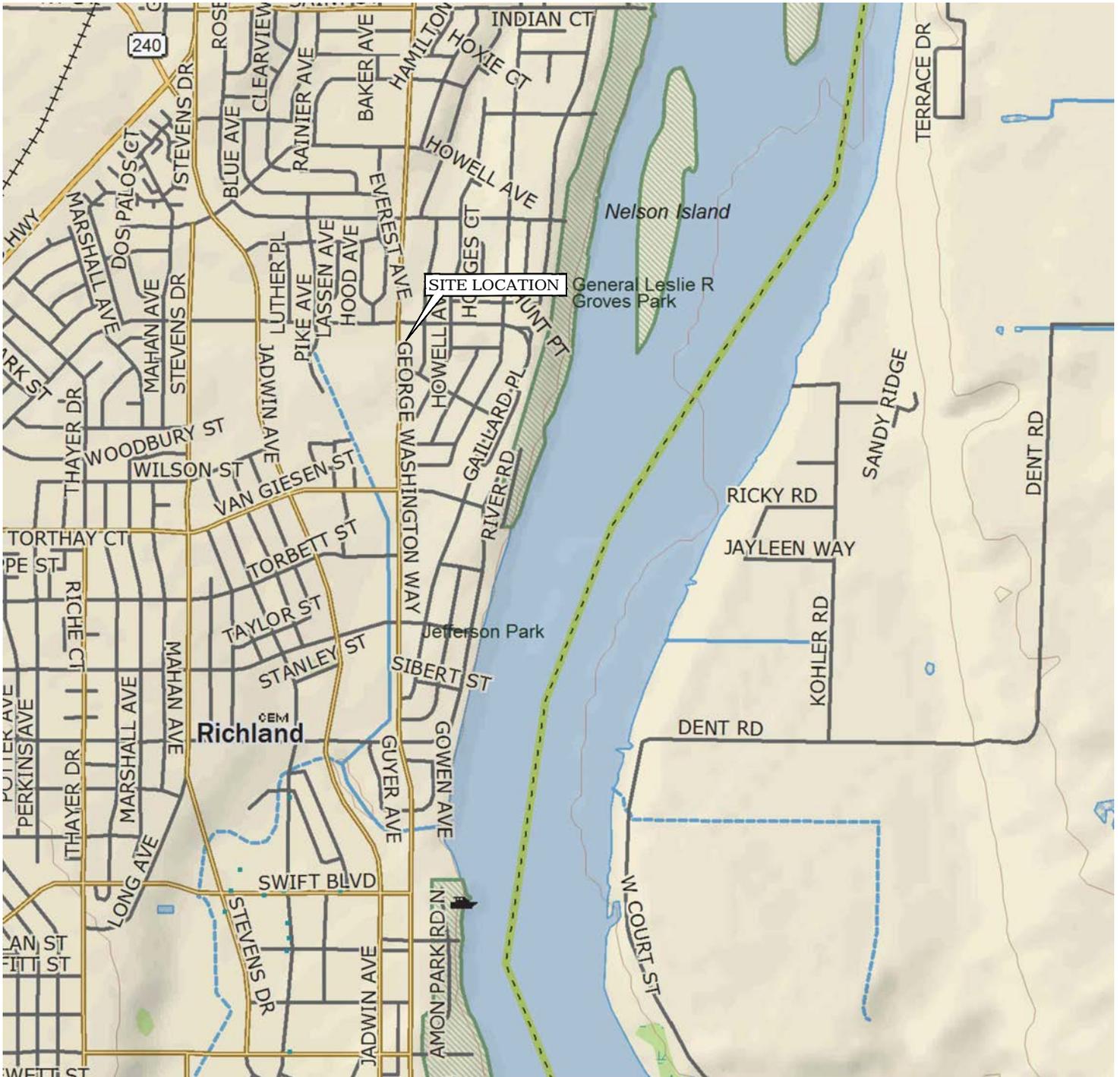
Where,

- N = soil concentration after elapsed time t (mg/kg)
- N₀ = soil concentration at initial time t₀ (mg/kg)
- t = elapsed time (years)
- e = base of the natural logarithm
- k = first order rate constant (years⁻¹)

Notes:

- CUL = cleanup level
- feet bgs = feet below ground surface
- MTCA = Model Toxics Control Act
- N/A = not applicable (degradation calculation for comparison purposes only)
- TPH-G = total petroleum hydrocarbons characterized as gasoline
- mg/kg = milligrams per kilogram

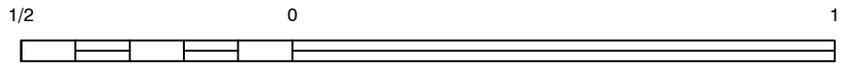
FIGURES



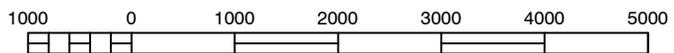
North



WASHINGTON



SCALE (MILES)



SCALE (FEET)

REFERENCE: USGS 7.5 MINUTE QUADRANGLE, RICHLAND, WASHINGTON



11130 NE 33RD PLACE, SUITE 200
 BELLEVUE, WASHINGTON
 PHONE: (425) 869-9448 FAX: (425) 869-1190

FOR:



FORMER FACILITY NO. 25821
 1824 GEORGE WASHINGTON WAY
 RICHLAND, WASHINGTON

JOB NUMBER:
 185750037

DRAWN BY:
 MDR

CHECKED BY:
 EM

APPROVED BY:
 PF

FIGURE:

1

DATE:
 NOV 2013



LEGEND:

 PROPERTY BOUNDARY



APPROXIMATE SCALE (FEET)

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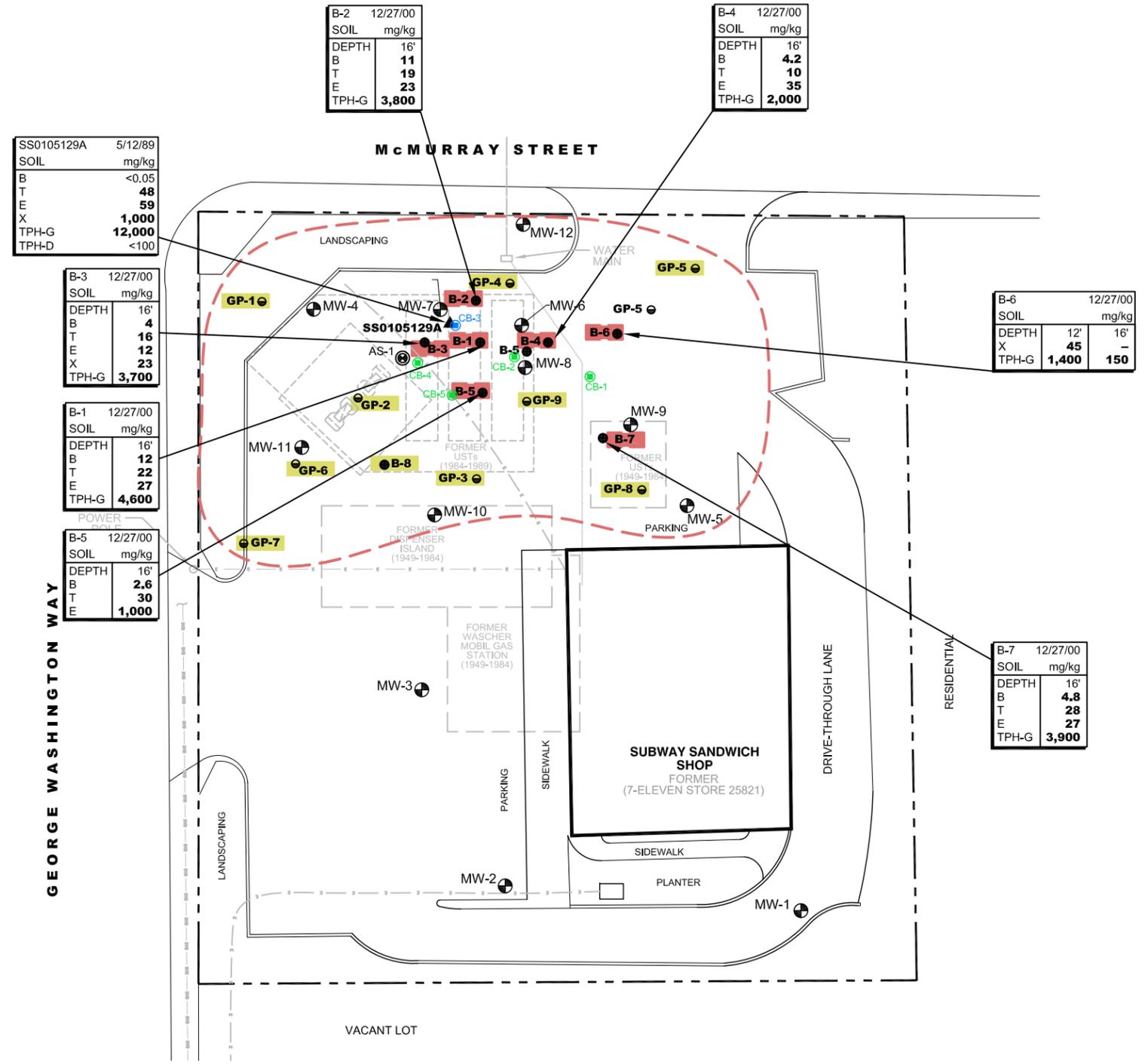
CHECKED BY:
 DH

APPROVED BY:
 PF

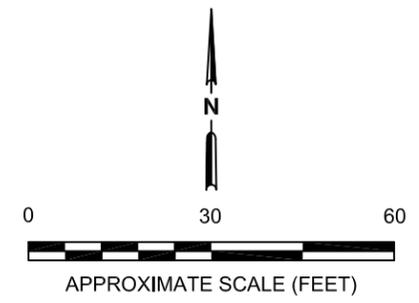
FIGURE:

2

DATE:
 NOV 2015



- LEGEND:**
- SUBJECT PROPERTY LINE BOUNDARY
 - MW-1 MONITORING WELL LOCATION
 - AS-1 AIR SPARGE WELL LOCATION
 - CB-1 SOIL SAMPLE RESULTS BELOW MTCA METHOD A SCREENING LEVELS.
 - CB-3 SOIL SAMPLE RESULTS ABOVE MTCA METHOD A SCREENING LEVELS, BUT BELOW SITE CLEANUP LEVELS (METHOD B)
 - B-1 SOIL BORING (IT, DECEMBER 2000)
 - GP-1 SOIL BORING (SECOR, AUGUST 2004)
 - SS-1 SOIL SAMPLE (KLEINFELDER, MAY 1989)
 - ELECTRIC LINE
 - WATER LINE
 - GAS LINE
 - WASCHER MOBIL SERVICE STATION (1949-1984)
 - 7-ELEVEN DISPENSER ISLAND (1984-1989)
 - CURRENT SITE FEATURES-SUBWAY SANDWICH SHOP
 - MTCA SITE BOUNDARY
 - HISTORIC SOIL SAMPLES EXCEEDING MTCA METHOD A CLEAN UP LEVELS; BUT LATER CONFIRMED BELOW SITE SPECIFIC CLEANUP LEVELS.
 - HISTORIC SOIL SAMPLES NOT EXCEEDING MTCA METHOD A CLEAN UP LEVELS
 - TPH-G TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
 - TPH-D TOTAL PETROLEUM HYDROCARBONS AS DIESEL
 - µg/L MICROGRAMS PER LITER
 - mg/kg MILLIGRAMS PER KILOGRAM
 - SOIL SOIL SAMPLE
 - GW GROUNDWATER SAMPLE



No warranty is made by Stantec as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed electronically, and may be updated without notification. Any reproduction may result in a loss of scale and/or information.

 11130 NE 33rd Place, Bellevue WA 98004 phone: (425) 869-9448 www.stantec.com	 STORE NO. 25821 1824 GEORGE WASHINGTON WAY RICHLAND, WASHINGTON	SITE PLAN WITH HISTORIC SOIL ANALYTICAL RESULTS PRIOR TO REMEDIAL ACTION AND SUBSEQUENT CONFIRMATION SOIL BORINGS		3
		JOB NUMBER: 212302332	DRAWN BY: BLG	CHECKED BY:



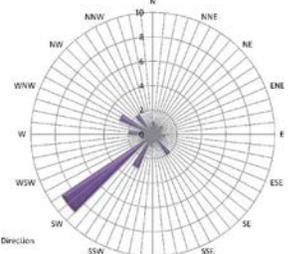
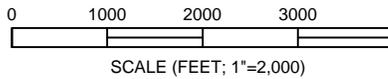
North



WASHINGTON

● = MUNICIPAL WELLS

← INFERRED GROUNDWATER FLOW DIRECTION



LEGEND:
CONCENTRIC CIRCLES REPRESENT QUARTERLY MONITORING
EVENTS FOURTH QUARTER 2002 THROUGH FIRST QUARTER 2016
41 DATA POINTS SHOWN

REFERENCE: USGS 7.5 MINUTE QUADRANGLE, RICHLAND, WASHINGTON



11130 NE 33RD PLACE, SUITE 200
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FOR:



FACILITY NO. 25821
1824 GEORGE WASHINGTON WAY
RICHLAND, WASHINGTON

SENSITIVE RECEPTOR SURVEY

FIGURE:

4

JOB NUMBER:
185750037

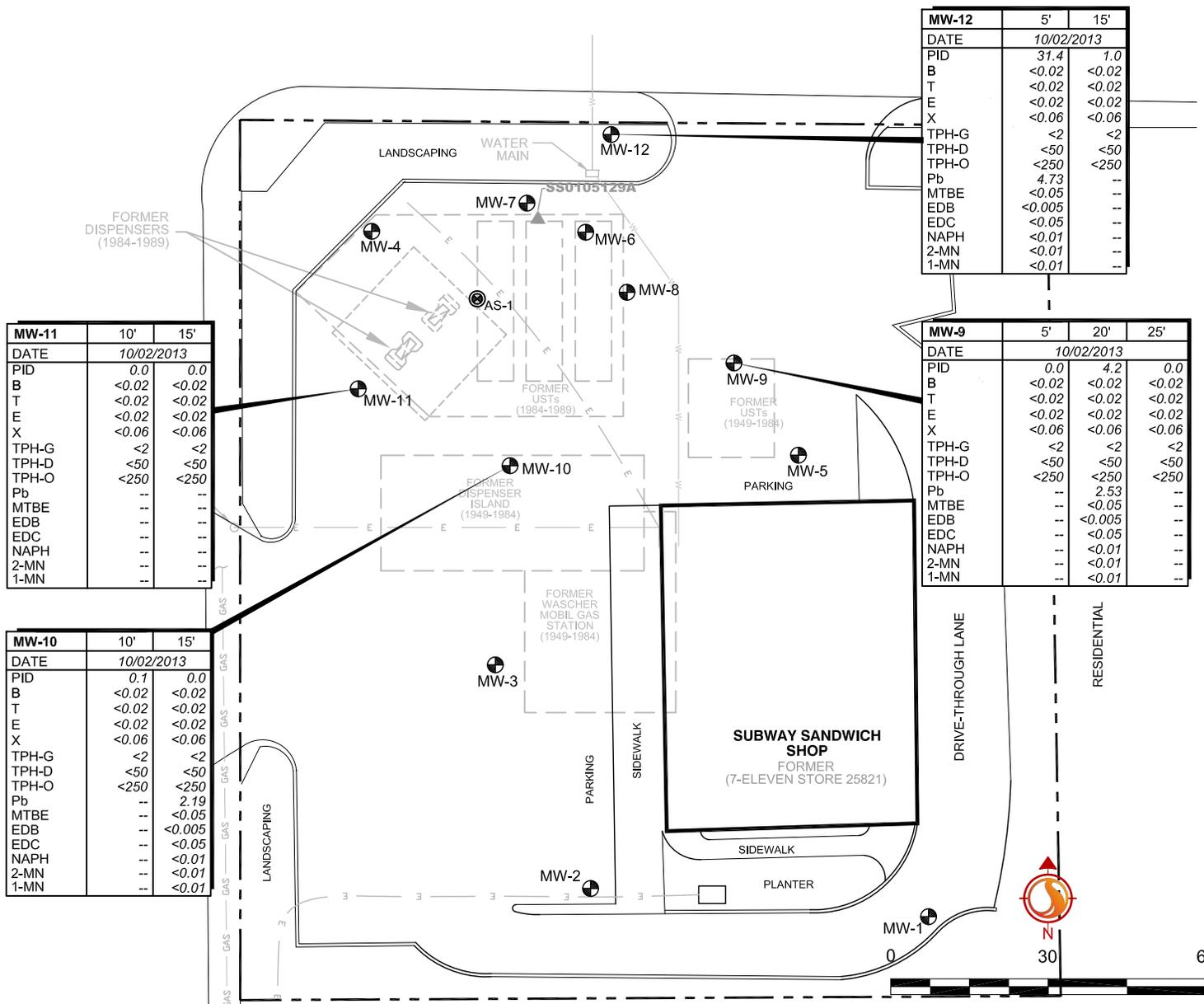
DRAWN BY:
MDR

CHECKED BY:
DH

APPROVED BY:
PF

DATE:
DEC 2016

McMURRAY STREET



LEGEND:

- SUBJECT PROPERTY LINE BOUNDARY
- MW-1 MONITORING WELL LOCATION
- AS-1 AIR SPARGE WELL LOCATION
- FORMER FEATURES
- ELECTRIC LINE
- WATER LINE
- GAS LINE
- < NOT DETECTED AT OR ABOVE THE LABORATORY REPORTING LIMIT
- mg/kg MILLIGRAM PER KILOGRAM
- ppm PARTS PER MILLION
- bgs BELOW GROUND SURFACE

SAMPLE ID SAMPLE DEPTH (bgs)

ANALYTES	SAMPLE ID			
	MW-9	5'	20'	25'
DATE	10/02/2013			
PID	0.0	4.2	0.0	ppm
B	<0.02	<0.02	<0.02	
T	<0.02	<0.02	<0.02	
E	<0.02	<0.02	<0.02	
X	<0.06	<0.06	<0.06	
TPH-G	<2	<2	<2	
TPH-D	<50	<50	<50	
TPH-O	<250	<250	<250	
Pb	--	2.53	--	mg/kg
MTBE	--	<0.005	--	
EDB	--	<0.05	--	
EDC	--	<0.05	--	
NAPH	--	<0.01	--	
2-MN	--	<0.01	--	
1-MN	--	<0.01	--	

ANALYTES:

- B BENZENE
- T TOLUENE
- E ETHYLBENZENE
- X TOTAL XYLENES
- TPH-G TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- TPH-D TOTAL PETROLEUM HYDROCARBONS AS DIESEL
- TPH-O TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL
- Pb DISSOLVED LEAD
- MTBE METHYL TERTIARY BUTYL ETHER
- EDC 1,2-DICHLOROETHANE
- EDB 1,2-DIBROMOETHANE
- NAPH NAPHTHALENE
- 1-MN 2-METHYLNAPHTHALENE
- 2-MN 1-METHYLNAPHTHALENE

APPROXIMATE SCALE IN FEET

11130 NE 33RD PLACE, SUITE 200
BELLEVUE, WASHINGTON
PHONE: (425) 869-9448 FAX: (425) 869-1190

FOR: FACILITY NO. 25821
1824 GEORGE WASHINGTON WAY
RICHLAND, WASHINGTON

JOB NUMBER: 185750037 DRAWN BY: MDR CHECKED BY: DH APPROVED BY: PF DATE: JAN 2016

SITE PLAN WITH SOIL ANALYTICAL RESULTS
OCTOBER 2, 2013

FIGURE: 5

GEORGE WASHINGTON WAY

CB-3	5'	15'	20'
DATE	07/28/2015		
PID	0.0	0.0	0.0
B	<0.00258	<0.00222	<0.00219
T	<0.00258	<0.00222	<0.00219
E	<0.00258	<0.00222	<0.00219
X	<0.00644	<0.00556	<0.00546
TPH-G	<7.01	335	<7.59
TPH-D	<4.00	18.1	<4.94
TPH-O	46.4	9.83	18.2
Pb	4.21	6.28	3.31
EDB	<0.00258	<0.00222	<0.00219
EDC	<0.00258	<0.00222	<0.00219
MTBE	<0.00258	<0.00222	<0.00219
NAPH	<0.00644	<0.00556	<0.441

CB-4	5'	18'	20'
DATE	07/29/2015		
PID	0.0	0.0	0.0
B	<0.00162	<0.00165	<0.00197
T	<0.00162	<0.00165	<0.00197
E	<0.00162	<0.00165	<0.00197
X	<0.00405	<0.00413	<0.00493
TPH-G	<7.06	52.8*	<2.72
TPH-D	<10.0	<4.30	<4.31
TPH-O	<10.0	<4.30	<4.31
Pb	4.85	3.84	4.86
EDB	<0.00162	<0.00165	<0.00197
EDC	<0.00162	<0.00165	<0.00197
MTBE	<0.00162	<0.00165	<0.00197
NAPH	<0.00405	<0.232	<0.00493

CB-5	10'	15'	20'
DATE	07/29/2015		
PID	0.0	0.0	0.0
B	<0.00229	<0.00238	<0.00199
T	<0.00229	<0.00238	<0.00199
E	<0.00229	<0.00238	<0.00199
X	<0.00573	<0.00595	<0.00498
TPH-G	<5.81	<5.96	30.5*
TPH-D	<3.94	<4.28	<4.62
TPH-O	<3.94	<4.28	5.60
Pb	1.77	4.96	3.95
EDB	<0.00229	<0.00238	<0.00199
EDC	<0.00229	<0.00238	<0.00199
MTBE	<0.00229	<0.00238	<0.00199
NAPH	<0.00573	<0.00595	<0.00498

CB-2	10'	15'	20'
DATE	07/28/2015		
PID	0.0	0.0	0.0
B	<0.00186	<0.00229	<0.00150
T	<0.00186	<0.00229	<0.109
E	<0.00186	<0.00229	<0.109
X	<0.00465	<0.00571	<0.164
TPH-G	<4.53	<5.44	<3.51
TPH-D	<4.06	<4.17	6.00
TPH-O	15.8	6.00	14.0
Pb	6.03	6.23	3.2
EDB	<0.00186	<0.00229	<0.109
EDC	<0.00186	<0.00229	<0.00150
MTBE	<0.00186	<0.00229	<0.109
NAPH	<0.00465	<0.00571	<0.274

CB-1	10'	15'	20'
DATE	07/28/2015		
PID	0.0	0.0	0.0
B	<0.00183	<0.00199	<0.00201
T	<0.00183	<0.00199	<0.00201
E	<0.00183	<0.00199	<0.00201
X	<0.00456	<0.00497	<0.00502
TPH-G	<6.70	<5.07	<5.93
TPH-D	4.83	4.57	<4.00
TPH-O	14.0	<4.33	6.10
Pb	32.4	5.63	4.50
EDB	<0.00183	<0.00199	<0.00201
EDC	<0.00183	<0.00199	<0.00201
MTBE	<0.00183	<0.00199	<0.00201
NAPH	<0.00456	<0.00497	<0.00502

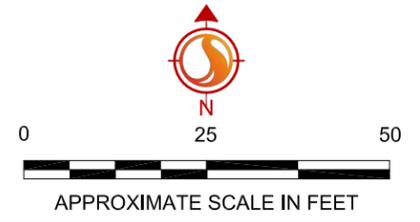
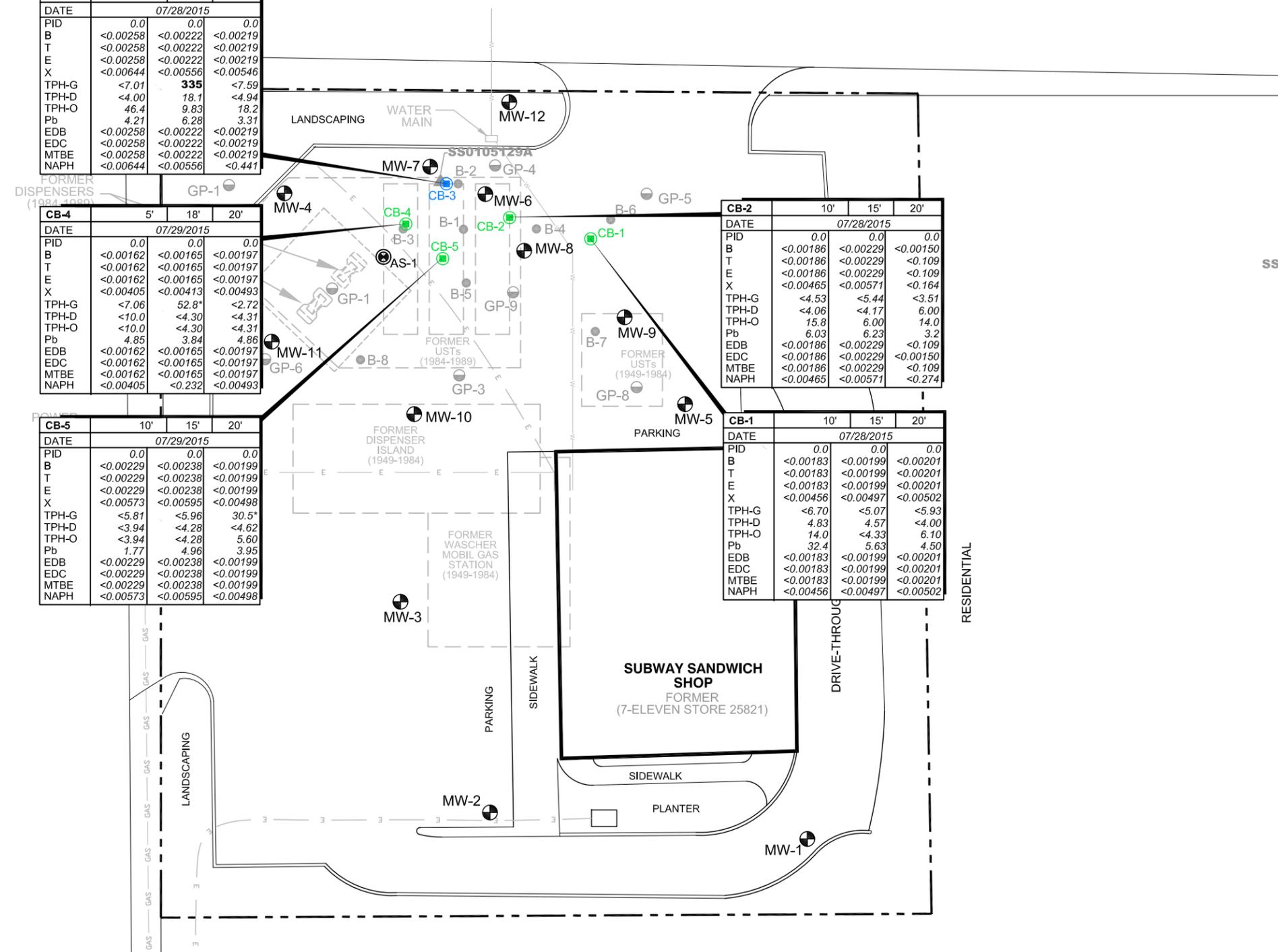
- LEGEND:**
- SUBJECT PROPERTY LINE BOUNDARY
 - MW-1 ● MONITORING WELL LOCATION
 - AS-1 ● AIR SPARGE WELL LOCATION
 - CB-1 ● SOIL SAMPLE RESULTS BELOW MTCA METHOD A SCREENING LEVELS.
 - CB-4 ● SOIL SAMPLE RESULTS ABOVE MTCA METHOD A SCREENING LEVELS, BUT BELOW SITE CLEANUP LEVELS (METHOD B)
 - B-7 ● SOIL BORING
 - GP-8 ● GEO-PROBE BORING
 - SS0105129A ▲ BORING
 - FORMER FEATURES
 - < NOT DETECTED AT OR ABOVE THE LABORATORY REPORTING LIMIT
 - mg/kg MILLIGRAM PER KILOGRAM
 - ppm PARTS PER MILLION
 - bgs BELOW GROUND SURFACE
 - BOLD** VALUES EXCEED MTCA METHOD A CLEANUP LEVELS
 - * GASOLINE MIXTURES WITHOUT BENZENE AND WHERE THE TOTAL OF ETHYLBENZENE, TOLUENE, AND TOTAL XYLENES IS LESS THAN 1% OF THE TOTAL MIXTURE, HAVE CLEANUP LEVEL OF 100 mg/kg.

SAMPLE ID: CB-1

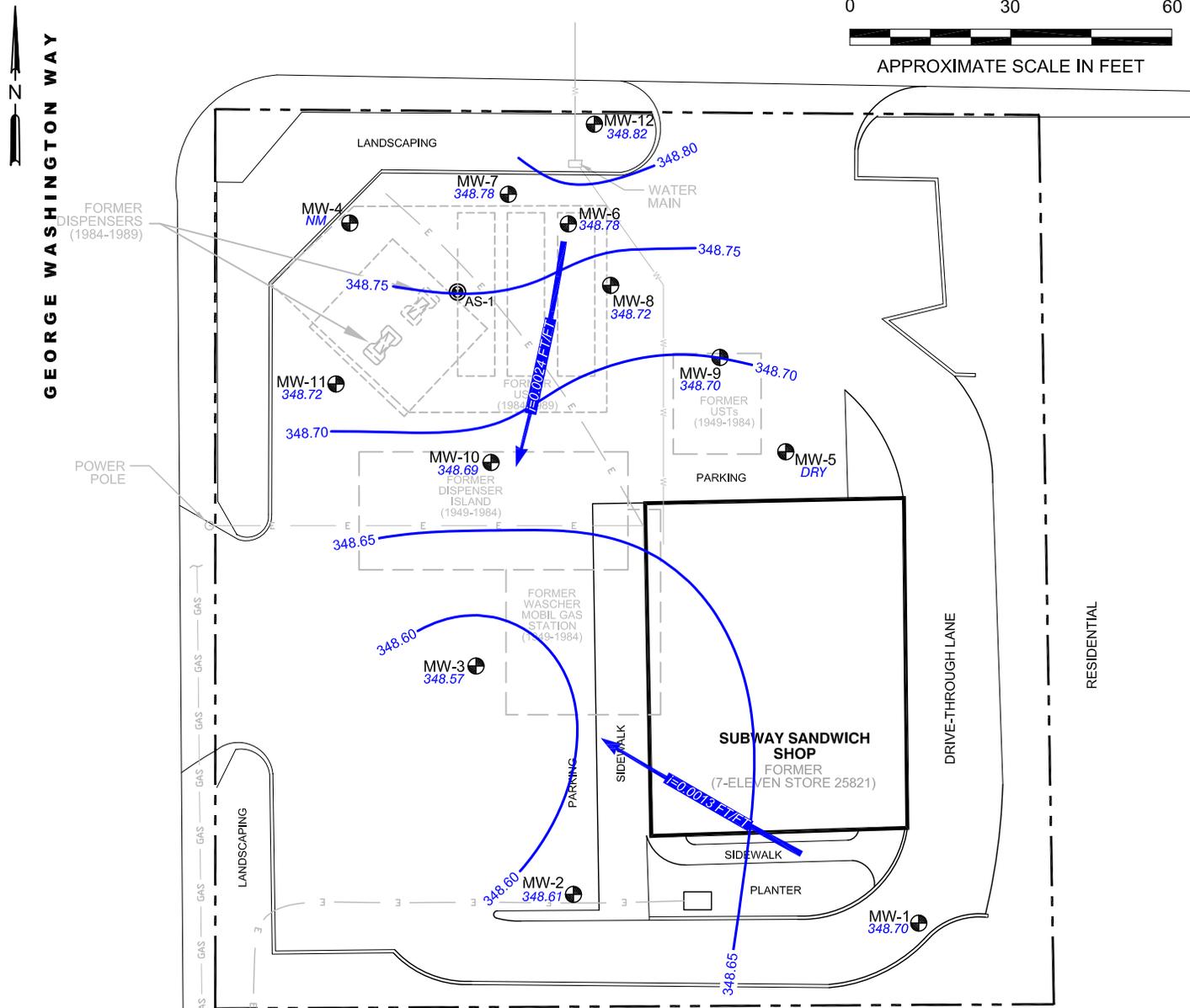
SAMPLE DEPTH (bgs): 5', 20', 25'

ANALYTES	5'	20'	25'
DATE	01/28/2015		
PID	0.0	0.0	0.0
B	<0.00183	<0.00199	<0.00201
T	<0.00183	<0.00199	<0.00201
E	<0.00183	<0.00199	<0.00201
X	<0.00456	<0.00497	<0.00502
TPH-G	<6.70	<5.07	<5.93
TPH-D	4.83	4.57	<4.00
TPH-O	14.0	<4.33	6.10
Pb	32.4	5.63	4.50
EDB	<0.00183	<0.00199	<0.00201
EDC	<0.00183	<0.00199	<0.00201
MTBE	<0.00183	<0.00199	<0.00201
NAPH	<0.00456	<0.00497	<0.00502

- ANALYTES:**
- B BENZENE
 - T TOLUENE
 - E ETHYLBENZENE
 - X TOTAL XYLENES
 - TPH-G TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
 - TPH-D TOTAL PETROLEUM HYDROCARBONS AS DIESEL
 - TPH-O TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL
 - Pb DISSOLVED LEAD
 - MTBE METHYL TERTIARY BUTYL ETHER
 - EDC 1,2-DICHLOROETHANE
 - EDB 1,2-DIBROMOETHANE
 - NAPH NAPHTHALENE



<p>11130 NE 33RD PLACE, SUITE 200 BELLEVUE, WASHINGTON PHONE: (425) 869-9448 FAX: (425) 869-1190</p>	<p>FOR: </p> <p>FACILITY NO. 25821 1824 GEORGE WASHINGTON WAY RICHLAND, WASHINGTON</p>	<p>SITE PLAN WITH SOIL ANALYTICAL RESULTS JULY 28-29, 2015</p>		<p>FIGURE: 6</p>
	<p>JOB NUMBER: 185750037</p>	<p>DRAWN BY: MDR</p>	<p>CHECKED BY: DH</p>	<p>APPROVED BY: PF</p>

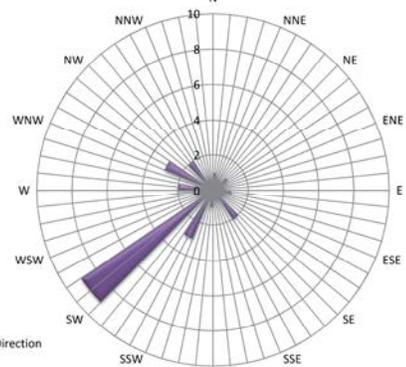


LEGEND:

- SUBJECT PROPERTY LINE BOUNDARY
- MW-1 MONITORING WELL LOCATION
- AS-1 AIR SPARGE WELL LOCATION
- 348.70 RELATIVE GROUNDWATER ELEVATION (FEET)
- NM NOT MEASURED
- 348.60 INFERRED GROUNDWATER ELEVATION CONTOUR (FEET)
- INFERRED GROUNDWATER FLOW DIRECTION

GROUNDWATER FLOW DIRECTION

7-ELEVEN STORE NO. 25821
1824 GEORGE WASHINGTON WAY
RICHLAND, WASHINGTON



LEGEND:
CONCENTRIC CIRCLES REPRESENT QUARTERLY MONITORING
EVENTS: FOURTH QUARTER 2002 THROUGH FIRST QUARTER 2015
38 DATA POINTS SHOWN



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FOR:

FACILITY NO. 25821
1824 GEORGE WASHINGTON WAY
RICHLAND, WASHINGTON

**GROUNDWATER ELEVATION
CONTOUR MAP
MARCH 19, 2015**

FIGURE:
7a

JOB NUMBER: 185750037	DRAWN BY: MDR	CHECKED BY: DH	APPROVED BY: PF	DATE: NOV 2015
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0 30 60



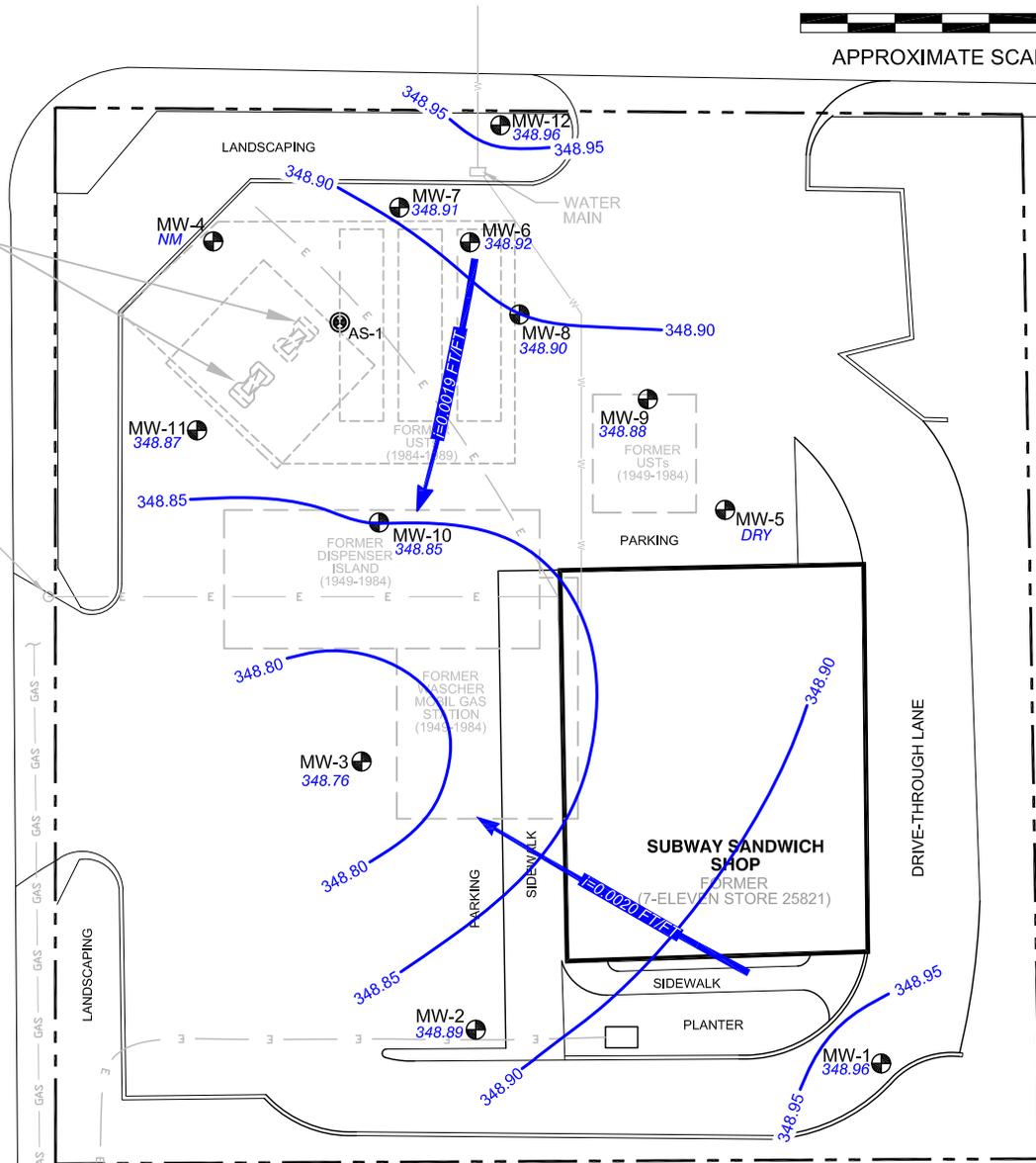
APPROXIMATE SCALE IN FEET



GEORGE WASHINGTON WAY

FORMER DISPENSERS (1984-1989)

POWER POLE



VACANT LOT

SUBWAY SANDWICH SHOP
FORMER 7-ELEVEN STORE 25821

DRIVE-THROUGH LANE

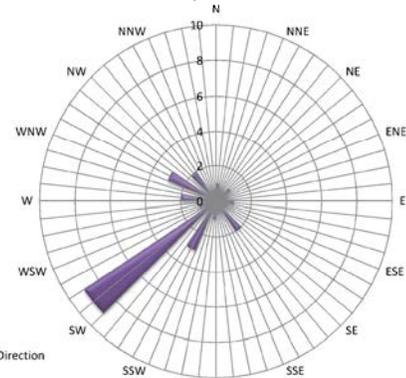
RESIDENTIAL

LEGEND:

- SUBJECT PROPERTY LINE BOUNDARY
- MW-1 MONITORING WELL LOCATION
- AS-1 AIR SPARGE WELL LOCATION
- 348.96 RELATIVE GROUNDWATER ELEVATION (FEET)
- NM NOT MEASURED
- 348.60 INFERRED GROUNDWATER ELEVATION CONTOUR (FEET)
- INFERRED GROUNDWATER FLOW DIRECTION

GROUNDWATER FLOW DIRECTION

7-ELEVEN STORE NO. 25821
1824 GEORGE WASHINGTON WAY
RICHLAND, WASHINGTON



LEGEND:
CONCENTRIC CIRCLES REPRESENT QUARTERLY MONITORING EVENTS FOURTH QUARTER 2002 THROUGH SECOND QUARTER 2015
39 DATA POINTS SHOWN



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FOR:



FACILITY NO. 25821
1824 GEORGE WASHINGTON WAY
RICHLAND, WASHINGTON

**GROUNDWATER ELEVATION
CONTOUR MAP
JUNE 30, 2015**

FIGURE:

7b

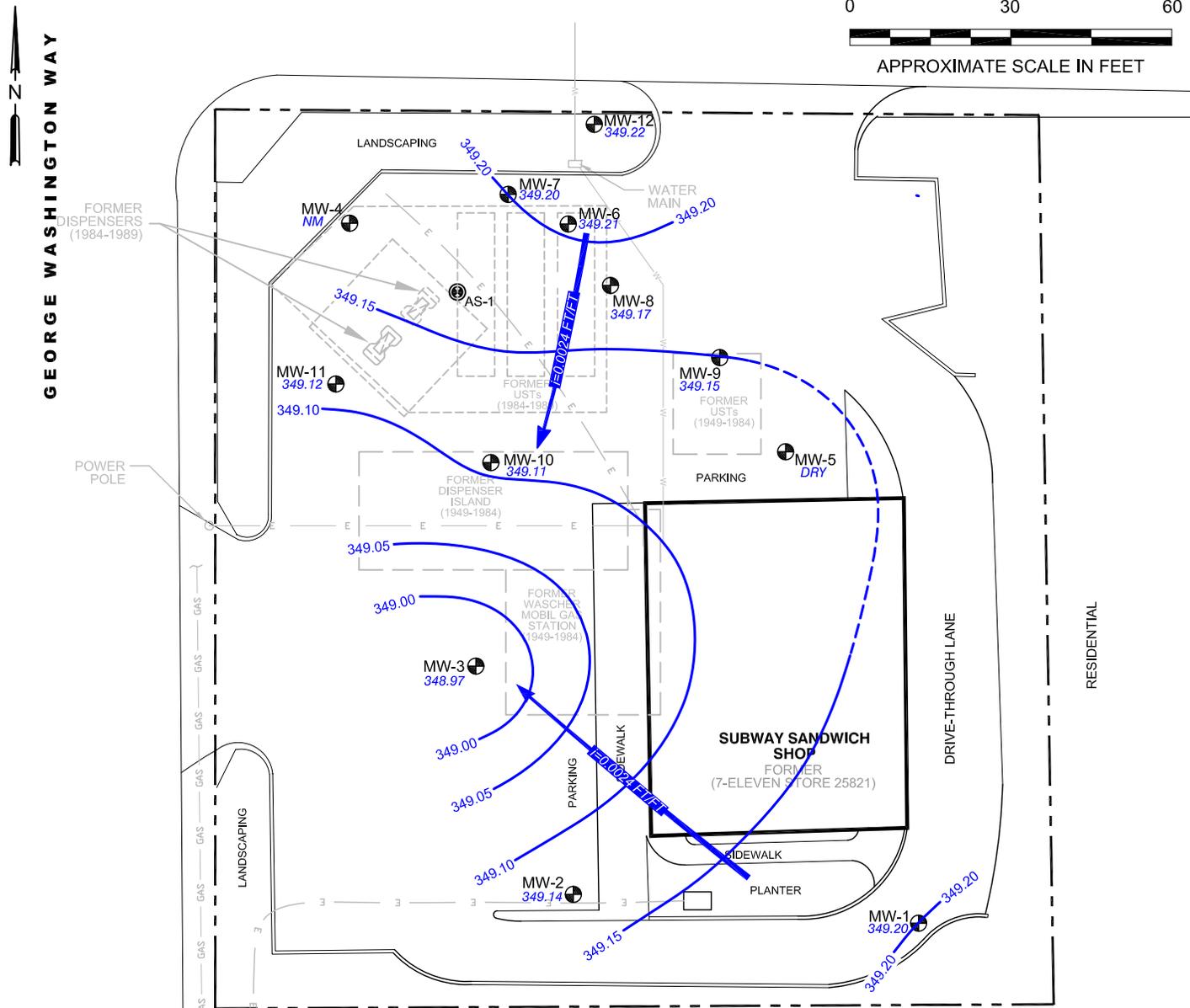
JOB NUMBER:
185750037

DRAWN BY:
MDR

CHECKED BY:
DH

APPROVED BY:
PF

DATE:
FEB 2016

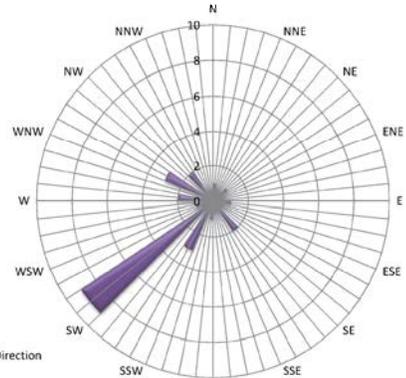


LEGEND:

- SUBJECT PROPERTY LINE BOUNDARY
- MW-1 MONITORING WELL LOCATION
- AS-1 AIR SPARGE WELL LOCATION
- 348.96 RELATIVE GROUNDWATER ELEVATION (FEET)
- NM NOT MEASURED
- 348.60 INFERRED GROUNDWATER ELEVATION CONTOUR (FEET)
- INFERRED GROUNDWATER FLOW DIRECTION

GROUNDWATER FLOW DIRECTION

7-ELEVEN STORE NO. 25821
1824 GEORGE WASHINGTON WAY
RICHLAND, WASHINGTON



LEGEND
CONCENTRIC CIRCLES REPRESENT QUARTERLY MONITORING EVENTS FOURTH QUARTER 2002 THROUGH THIRD QUARTER 2015
40 DATA POINTS SHOWN



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PHONE: (425) 869-9448 FAX: (425) 869-1190

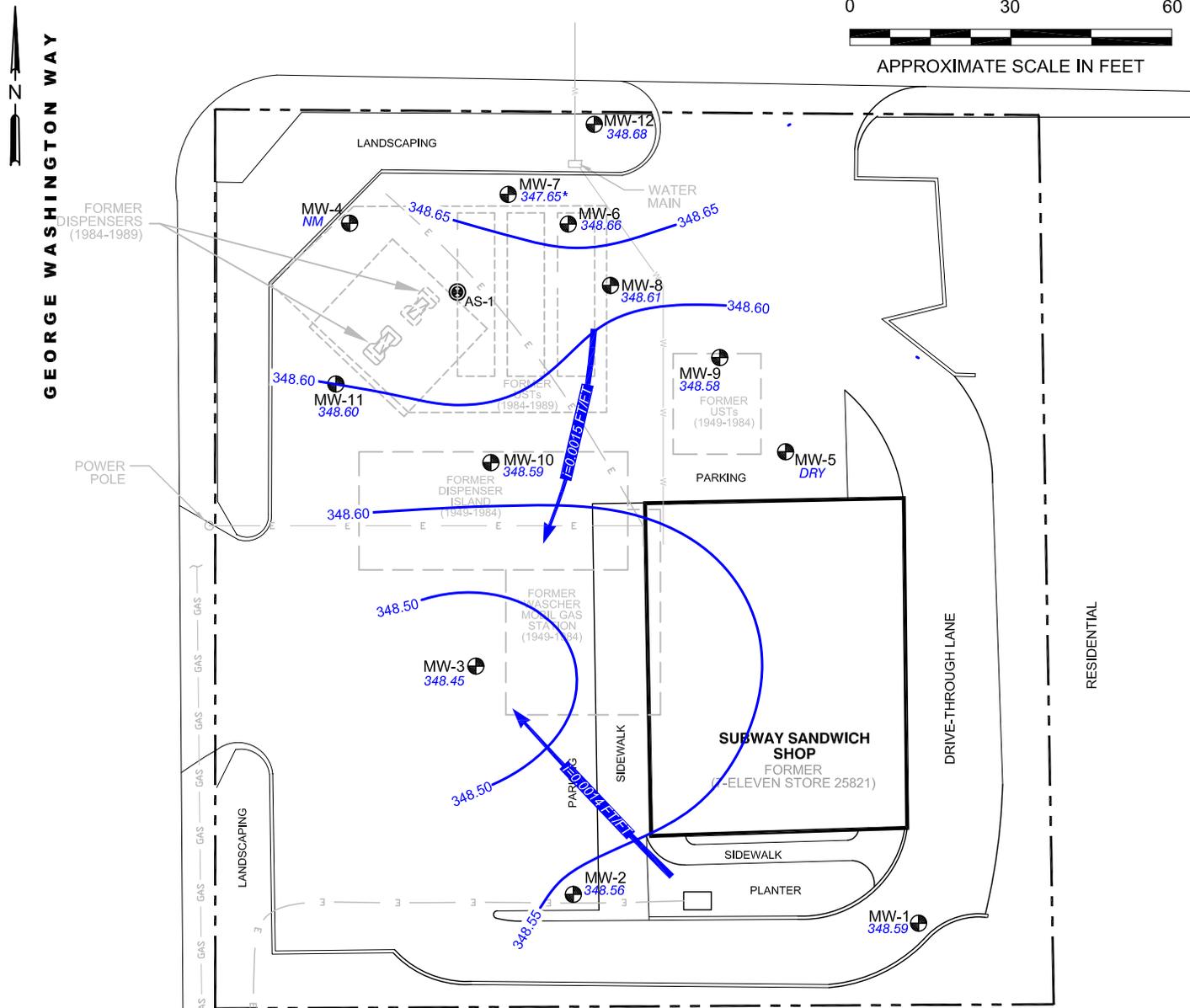
FOR:

FACILITY NO. 25821
1824 GEORGE WASHINGTON WAY
RICHLAND, WASHINGTON

**GROUNDWATER ELEVATION
CONTOUR MAP
SEPTEMBER 24, 2015**

FIGURE:
7c

JOB NUMBER: 185750037	DRAWN BY: MDR	CHECKED BY: DH	APPROVED BY: PF	DATE: FEB 2016
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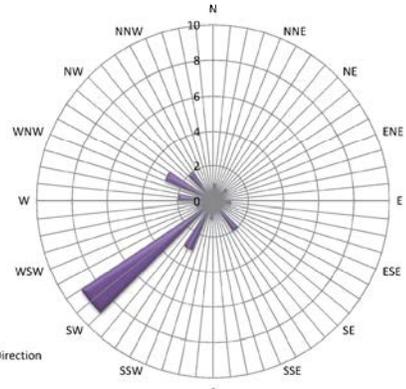


LEGEND:

- SUBJECT PROPERTY LINE BOUNDARY
- MW-1 MONITORING WELL LOCATION
- AS-1 AIR SPARGE WELL LOCATION
- 348.96 RELATIVE GROUNDWATER ELEVATION (FEET)
- NM NOT MEASURED
- 348.60 INFERRED GROUNDWATER ELEVATION CONTOUR (FEET)
- INFERRED GROUNDWATER FLOW DIRECTION
- * NOT USED TO CALCULATE CONTOURS

GROUNDWATER FLOW DIRECTION

7-ELEVEN STORE NO. 25821
1824 GEORGE WASHINGTON WAY
RICHLAND, WASHINGTON



LEGEND
CONCENTRIC CIRCLES REPRESENT QUARTERLY MONITORING EVENTS FOURTH QUARTER 2002 THROUGH FIRST QUARTER 2016
41 DATA POINTS SHOWN



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PHONE: (425) 869-9448 FAX: (425) 869-1190

FOR:

FACILITY NO. 25821
1824 GEORGE WASHINGTON WAY
RICHLAND, WASHINGTON

**GROUNDWATER ELEVATION
CONTOUR MAP
FEBRUARY 9, 2016**

FIGURE:
7d

JOB NUMBER: 185750037	DRAWN BY: MDR	CHECKED BY: DH	APPROVED BY: PF	DATE: FEB 2016
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GEORGE WASHINGTON WAY

MW-7	DATE	03/19/15	06/30/15	09/24/15
B	<1.00	<1.00	<1.00	<1.00
T	<1.00	<1.00	<1.00	<1.00
E	<1.00	<1.00	<1.00	<1.00
X	<2.00	<3.00	<3.00	<3.00
TPHG	<100	<100	<100	<100
MTBE	--	<1.00	<1.00	<1.00
EDB	<0.0101*	<0.00997*	<0.00994*	--
EDC	--	<1.00	<1.00	<1.00
PB	<2.00	<2.00	<2.00	<2.00

MW-12	DATE	03/19/15	06/30/15	09/24/15	02/09/16
B	<1.00	<1.00	<1.00	<1.00	--
T	<1.00	<1.00	<1.00	<1.00	--
E	<1.00	<1.00	<1.00	<1.00	--
X	<2.00	<3.00	<3.00	<3.00	--
TPHG	<100	<100	<100	<100	--
MTBE	--	<1.00	<1.00	<1.00	--
EDB	<0.00983*	<0.00994*	<0.0101*	--	--
EDC	--	<1.00	<1.00	<1.00	<1.00
PB	<2.00	<2.00	<2.00	<1.00	<1.00

MW-6	DATE	03/19/15	06/30/15	09/24/15
B	<1.00	<1.00	<1.00	<1.00
T	<1.00	<1.00	<1.00	<1.00
E	<1.00	<1.00	<1.00	<1.00
X	<2.00	<3.00	<3.00	<3.00
TPHG	<100	<100	<100	<100
MTBE	--	<1.00	<1.00	<1.00
EDB	<0.00989*	<0.0101*	<0.0101*	--
EDC	--	<1.00	<1.00	<1.00
PB	<2.00	<2.00	<2.00	<2.00

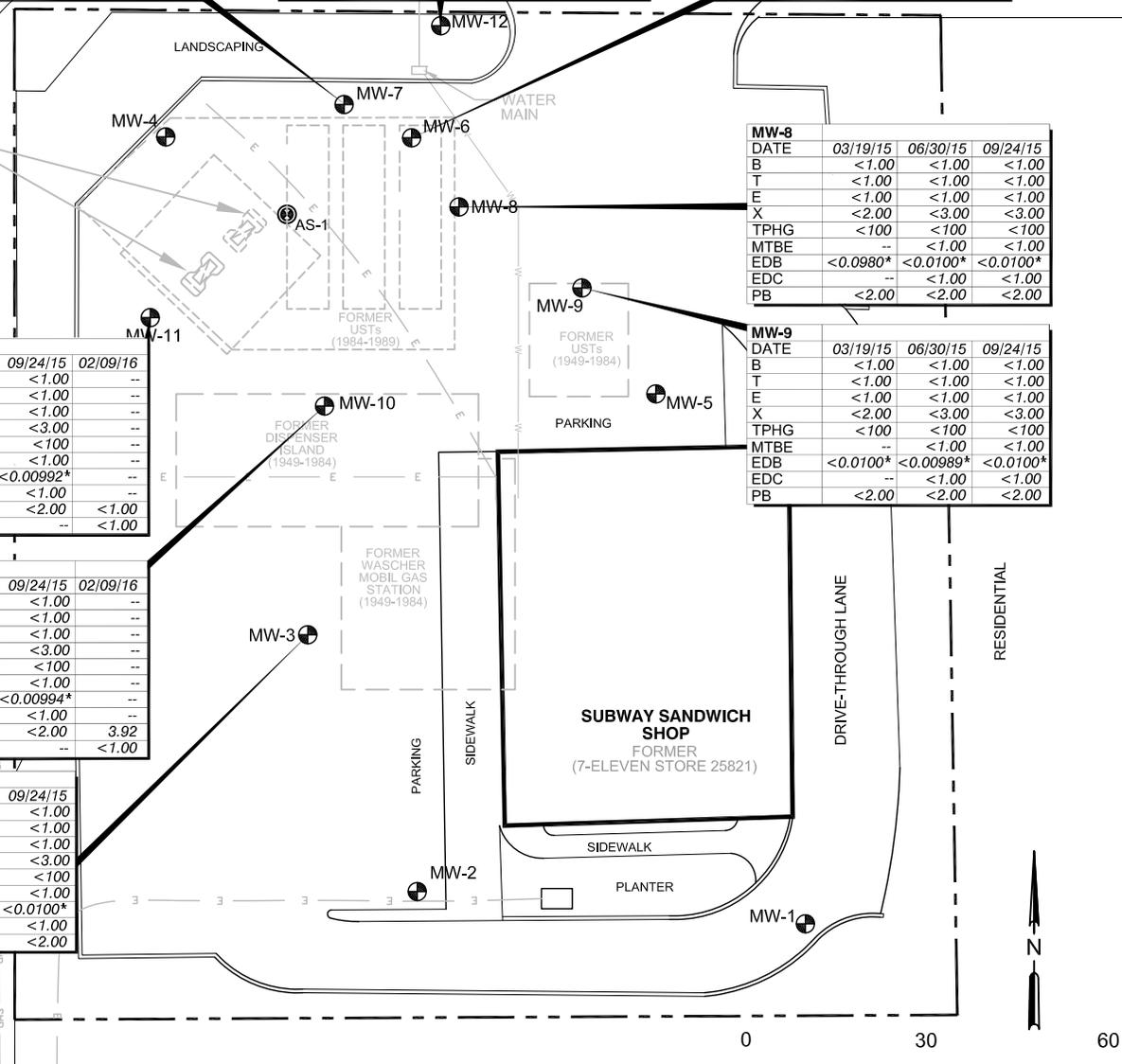
MW-8	DATE	03/19/15	06/30/15	09/24/15
B	<1.00	<1.00	<1.00	<1.00
T	<1.00	<1.00	<1.00	<1.00
E	<1.00	<1.00	<1.00	<1.00
X	<2.00	<3.00	<3.00	<3.00
TPHG	<100	<100	<100	<100
MTBE	--	<1.00	<1.00	<1.00
EDB	<0.0980*	<0.0100*	<0.0100*	--
EDC	--	<1.00	<1.00	<1.00
PB	<2.00	<2.00	<2.00	<2.00

MW-9	DATE	03/19/15	06/30/15	09/24/15
B	<1.00	<1.00	<1.00	<1.00
T	<1.00	<1.00	<1.00	<1.00
E	<1.00	<1.00	<1.00	<1.00
X	<2.00	<3.00	<3.00	<3.00
TPHG	<100	<100	<100	<100
MTBE	--	<1.00	<1.00	<1.00
EDB	<0.0100*	<0.00989*	<0.0100*	--
EDC	--	<1.00	<1.00	<1.00
PB	<2.00	<2.00	<2.00	<2.00

MW-11	DATE	03/19/15	06/30/15	09/24/15	02/09/16
B	<1.00	<1.00	<1.00	<1.00	--
T	<1.00	<1.00	<1.00	<1.00	--
E	<1.00	<1.00	<1.00	<1.00	--
X	<2.00	<3.00	<3.00	<3.00	--
TPHG	<100	<100	<100	<100	--
MTBE	--	<1.00	<1.00	<1.00	--
EDB	<0.0103*	<0.00992*	<0.00992*	--	--
EDC	--	<1.00	<1.00	<1.00	<1.00
PB	23.5	<2.00	<2.00	<1.00	<1.00
DissPB	--	--	--	<1.00	<1.00

MW-10	DATE	03/19/15	06/30/15	09/24/15	02/09/16
B	<1.00	<1.00	<1.00	<1.00	--
T	<1.00	<1.00	<1.00	<1.00	--
E	<1.00	<1.00	<1.00	<1.00	--
X	<2.00	<3.00	<3.00	<3.00	--
TPHG	<100	<100	<100	<100	--
MTBE	--	<1.00	<1.00	<1.00	--
EDB	<0.0100*	<0.0102*	<0.00994*	--	--
EDC	--	<1.00	<1.00	<1.00	<1.00
PB	<2.00	<2.00	<2.00	3.92	<1.00
DissPB	--	--	--	<1.00	<1.00

MW-3	DATE	03/19/15	06/30/15	09/24/15
B	<1.00	<1.00	<1.00	<1.00
T	<1.00	<1.00	<1.00	<1.00
E	<1.00	<1.00	<1.00	<1.00
X	<2.00	<3.00	<3.00	<3.00
TPHG	<100	<100	<100	<100
MTBE	--	<1.00	<1.00	<1.00
EDB	<0.0100*	<0.0101*	<0.0100*	<0.0100*
EDC	--	<1.00	<1.00	<1.00
PB	<2.00	<2.00	<2.00	<2.00



LEGEND:

- SUBJECT PROPERTY LINE BOUNDARY
- MW-1 ⊕ MONITORING WELL LOCATION
- AS-1 ⊙ AIR SPARGE WELL LOCATION
- FORMER FEATURES
- < NOT DETECTED AT OR ABOVE THE LABORATORY REPORTING LIMIT
- NOT SAMPLED
- µg/L MICROGRAMS PER LITER
- BOLD** VALUES EXCEED MTCA METHOD A CLEANUP LEVELS

ANALYTES	SAMPLE ID	DATE	03/19/15	06/30/15	09/24/15	µg/L
	MW-9					
B		<1.00	<1.00	<1.00	<1.00	
T		<1.00	<1.00	<1.00	<1.00	
E		<1.00	<1.00	<1.00	<1.00	
X		<2.00	<3.00	<3.00	<3.00	
TPHG		<100	<100	<100	<100	
MTBE		--	<1.00	<1.00	<1.00	
EDB		<0.0100*	<0.00989*	<0.0100*	<0.0100*	
EDC		--	<1.00	<1.00	<1.00	
PB		<2.00	<2.00	<2.00	<2.00	

* THE LABORATORY REPORTING LIMIT (RL) EXCEEDED THE MTCA METHOD A CUL. THEREFORE, THE METHOD DETECTION LIMIT (MDL) WAS REPORTED FOR THIS ANALYTE.

APPROXIMATE SCALE IN FEET

- ANALYTES:**
- B BENZENE
 - T TOLUENE
 - E ETHYLBENZENE
 - X TOTAL XYLENES
 - TPH-G TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
 - MTBE METHYL TERTIARY BUTYL ETHER
 - EDB 1,2-DIBROMOETHANE
 - EDC 1,2-DICHLOROETHANE
 - Pb TOTAL LEAD
 - DissPb DISSOLVED LEAD

11130 NE 33RD PLACE, SUITE 200
BELLEVUE, WASHINGTON
PHONE: (425) 869-9448 FAX: (425) 869-1190

FOR: FACILITY NO. 25821
1824 GEORGE WASHINGTON WAY
RICHLAND, WASHINGTON

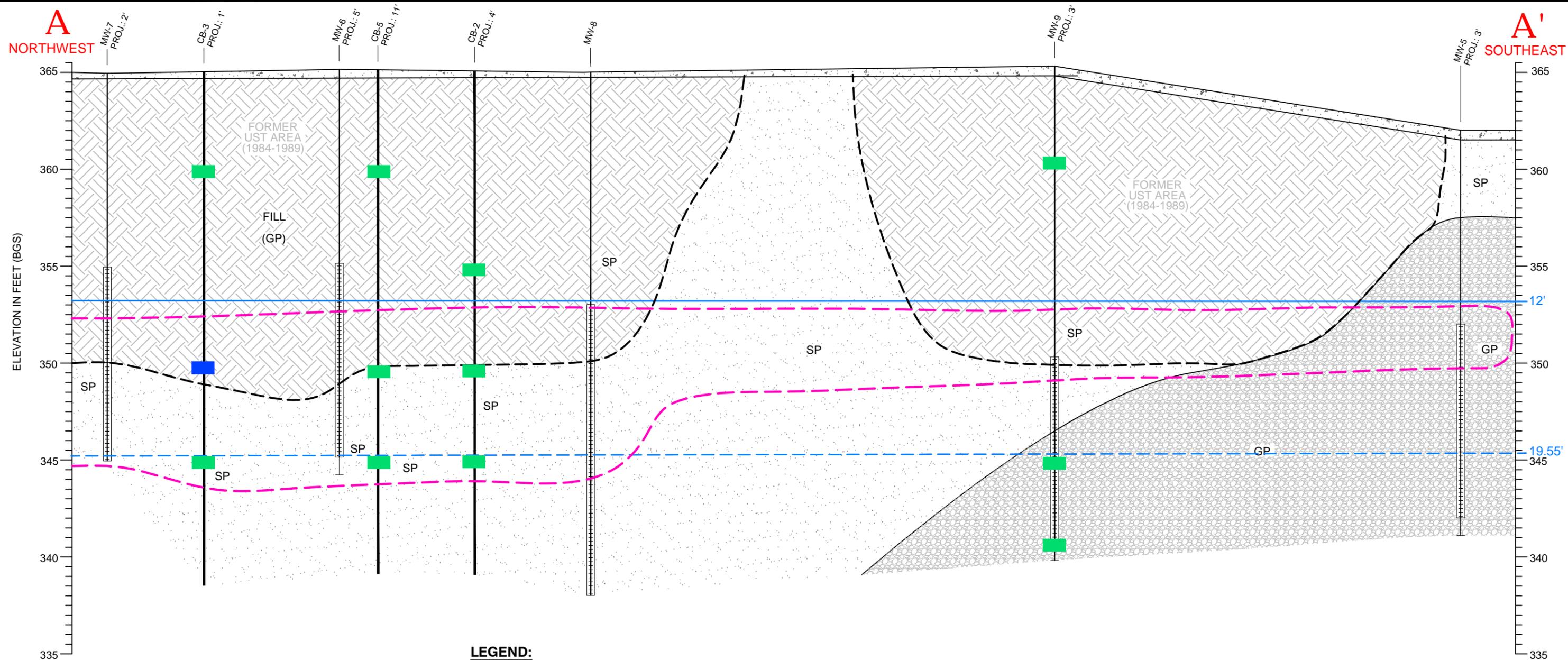
JOB NUMBER: 185750037 DRAWN BY: MDR

GROUNDWATER ANALYTICAL RESULTS
MARCH 19, 2015; JUNE 30, 2015;
SEPTEMBER 24, 2015;
FEBRUARY 9, 2016

CHECKED BY: DH APPROVED BY: PF

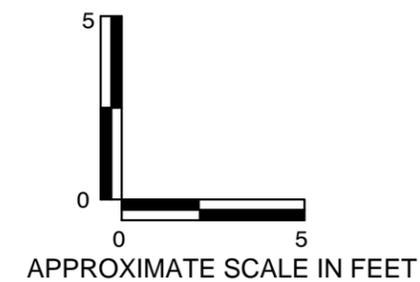
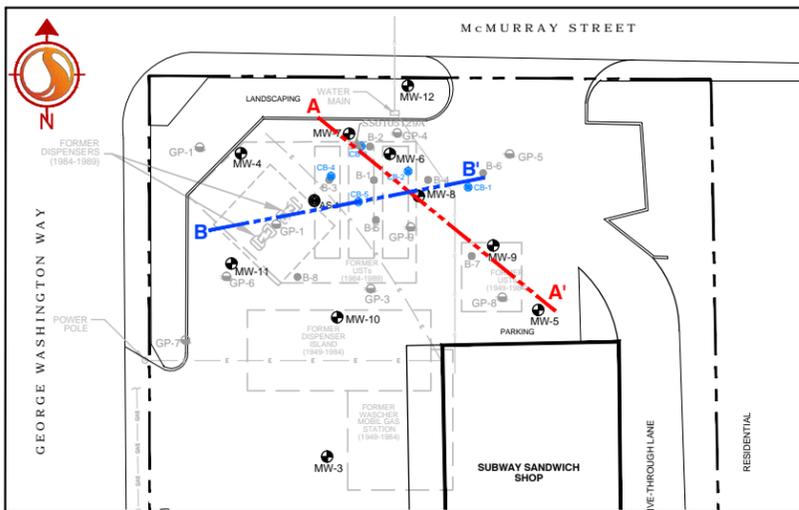
FIGURE: **8**

DATE: FEB 2016

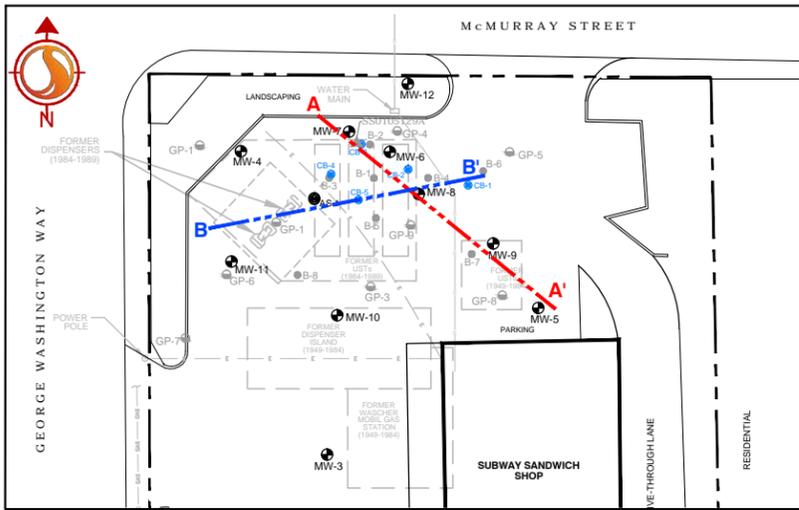
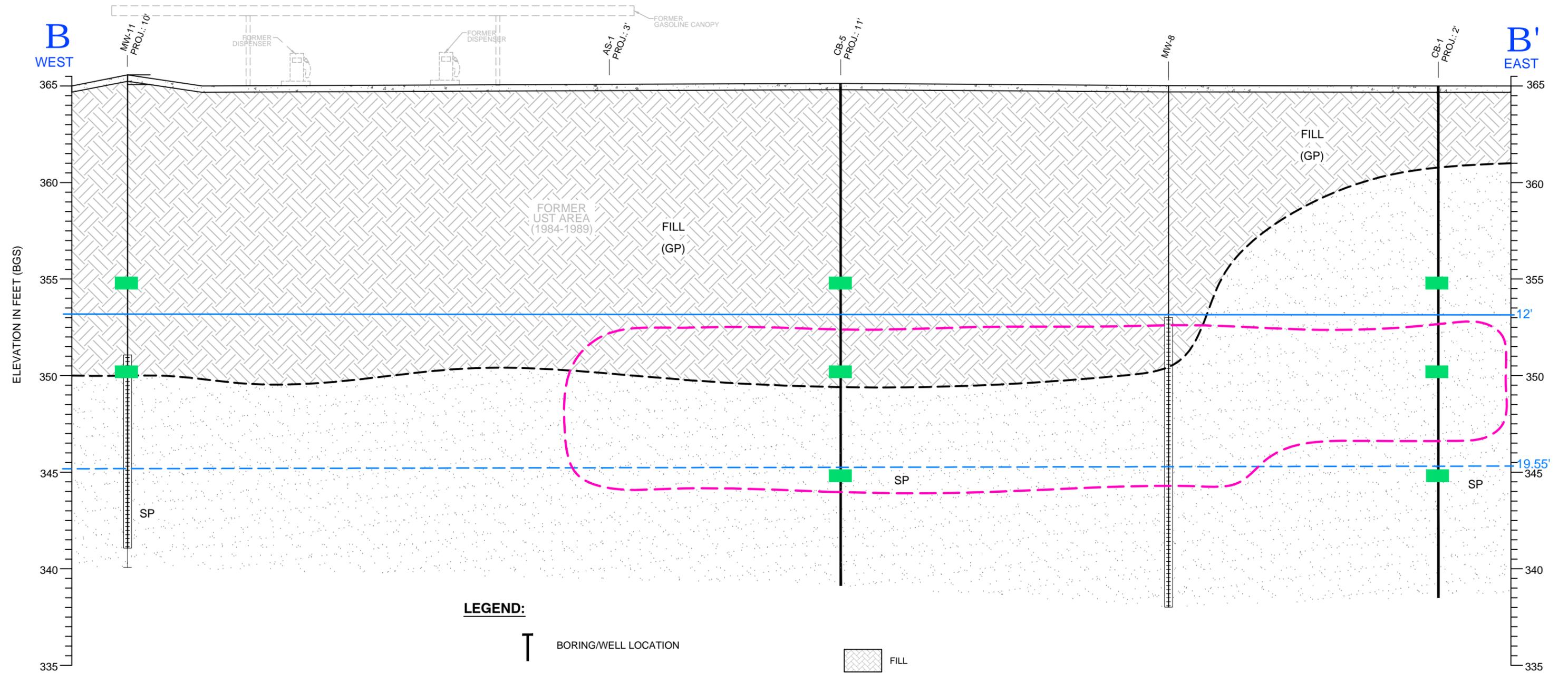


LEGEND:

- BORING/WELL LOCATION
- SCREENED INTERVAL FOR MONITORING WELLS
- CB-1 ● SOIL SAMPLE RESULTS BELOW MTCA METHOD A SCREENING LEVELS.
- CB-3 ● SOIL SAMPLE RESULTS ABOVE MTCA METHOD A SCREENING LEVELS, BUT BELOW SITE CLEANUP LEVELS (METHOD B)
- mg/kg = MILLIGRAMS PER KILOGRAM
- µg/L = MICROGRAMS PER LITER
- BGS = BELOW GROUND SURFACE
- APPROXIMATE FILL BOUNDARY
- INTERPRETED SOIL STRATIGRAPHIC BOUNDARY
- HISTORICAL HIGH WATER LEVEL
- HISTORICAL LOW WATER LEVEL
- ESTIMATED EXTENT OF BOS-200 INJECTIONS SEPTEMBER 2-5, 2014
- FILL
- ASPHALT/CONCRETE
- SP
- GP
- HISTORICAL SOIL SAMPLE LOCATION BELOW MTCA METHOD A CLEANUP LEVELS
- SOIL SAMPLE RESULTS ABOVE MTCA METHOD A SCREENING LEVELS, BUT BELOW SITE CLEANUP LEVELS (METHOD B)



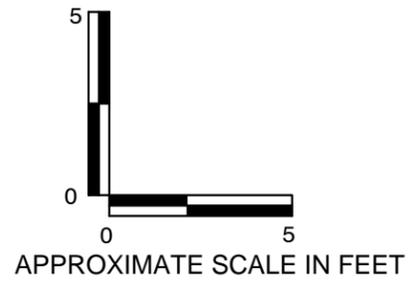
<p>11130 NE 33RD PLACE, SUITE 200 BELLEVUE, WASHINGTON PHONE: (425) 869-9448 FAX: (425) 869-1190</p>	<p>FOR: </p> <p>FACILITY NO. 25821 1824 GEORGE WASHINGTON WAY RICHLAND, WASHINGTON</p>	<p>GEOLOGIC CROSS SECTION A-A'</p>		<p>FIGURE: A</p>
	<p>JOB NUMBER: 185750037</p>	<p>DRAWN BY: ARA</p>	<p>CHECKED BY: DH</p>	<p>APPROVED BY: PF</p>



CROSS-SECTION LOCATION MAP
SCALE: 1" = 50'

LEGEND:

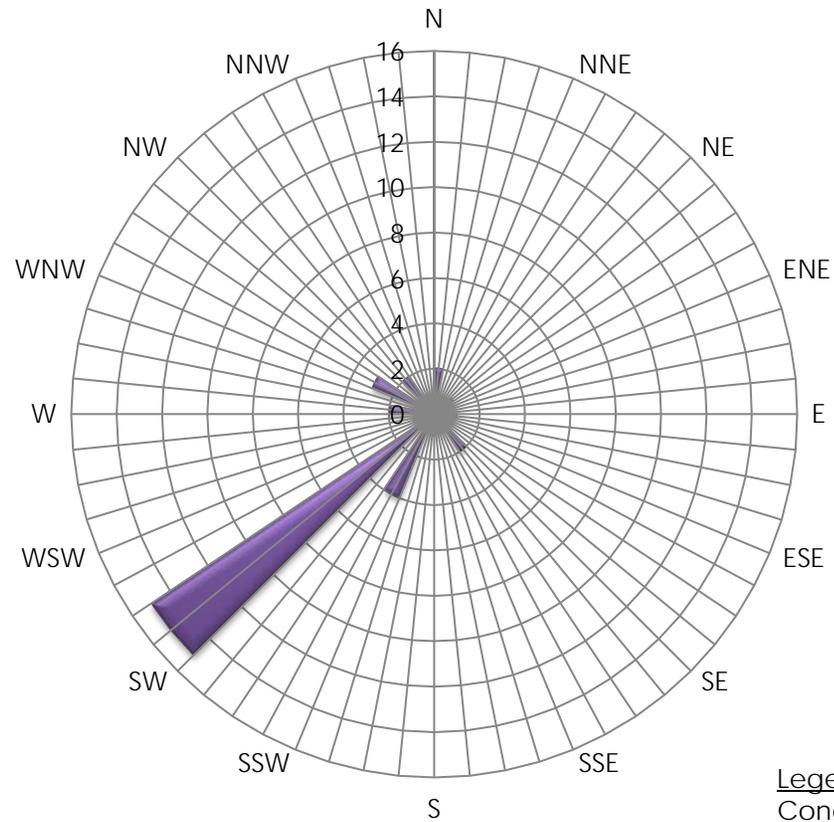
- BORING/WELL LOCATION
- SCREENED INTERVAL FOR MONITORING WELLS
- SOIL SAMPLE RESULTS BELOW MTCA METHOD A SCREENING LEVELS.
- SOIL SAMPLE RESULTS ABOVE MTCA METHOD A SCREENING LEVELS, BUT BELOW SITE CLEANUP LEVELS (METHOD B)
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- APPROXIMATE FILL BOUNDARY
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- HISTORICAL HIGH WATER LEVEL
- HISTORICAL LOW WATER LEVEL
- ESTIMATED EXTENT OF BOS-200 INJECTIONS SEPTEMBER 2-5, 2014
- FILL
- ASPHALT/CONCRETE
- SP
- HISTORICAL SOIL SAMPLE LOCATION BELOW MTCA METHOD A CLEANUP LEVELS



 11130 NE 33RD PLACE, SUITE 200 BELLEVUE, WASHINGTON PHONE: (425) 869-9448 FAX: (425) 869-1190	FOR: FACILITY NO. 25821 1824 GEORGE WASHINGTON WAY RICHLAND, WASHINGTON	GEOLOGIC CROSS SECTION B-B'		FIGURE: B
	JOB NUMBER: 185750037	DRAWN BY: ARA	CHECKED BY: DH	APPROVED BY: PF

GRAPHS

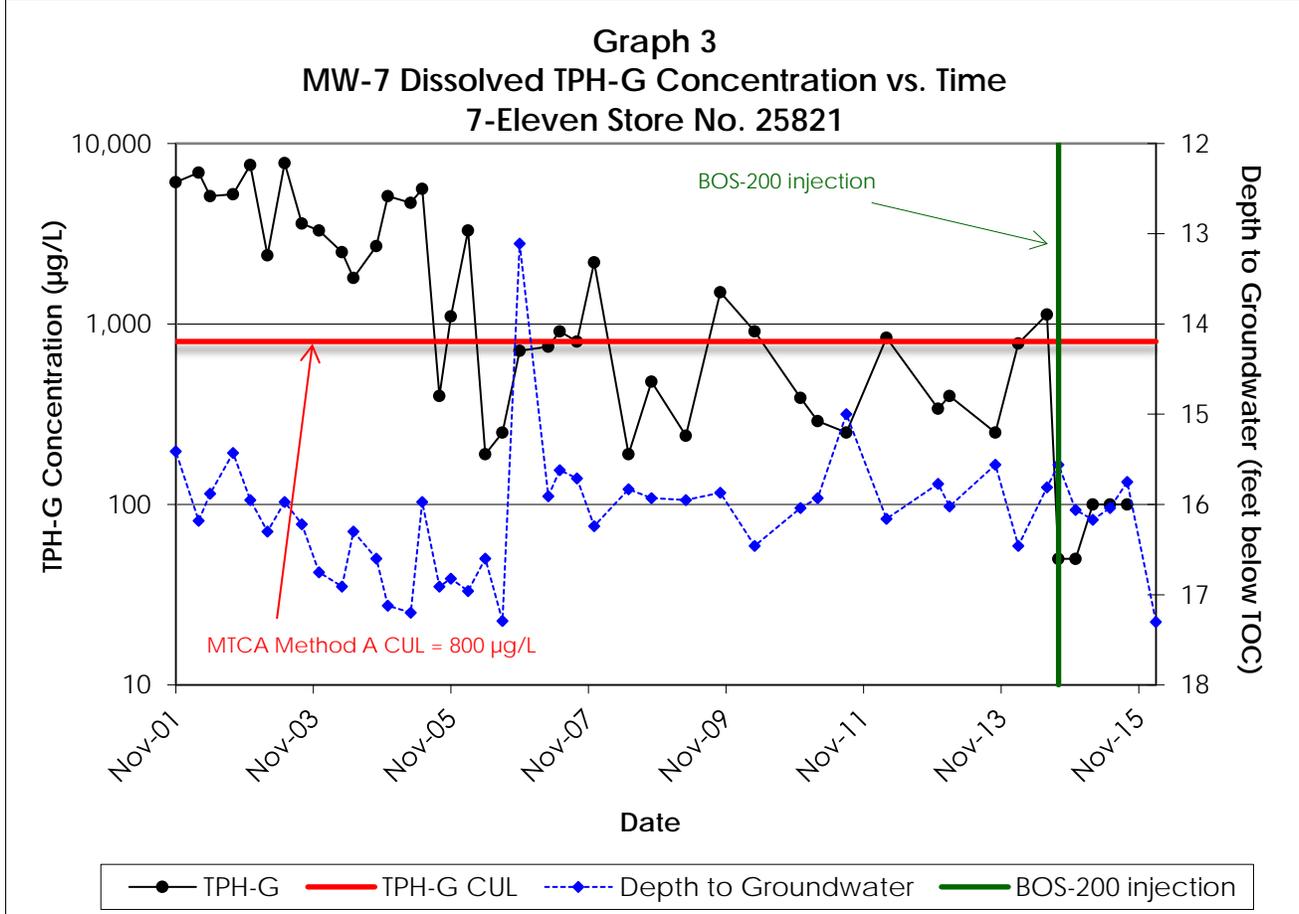
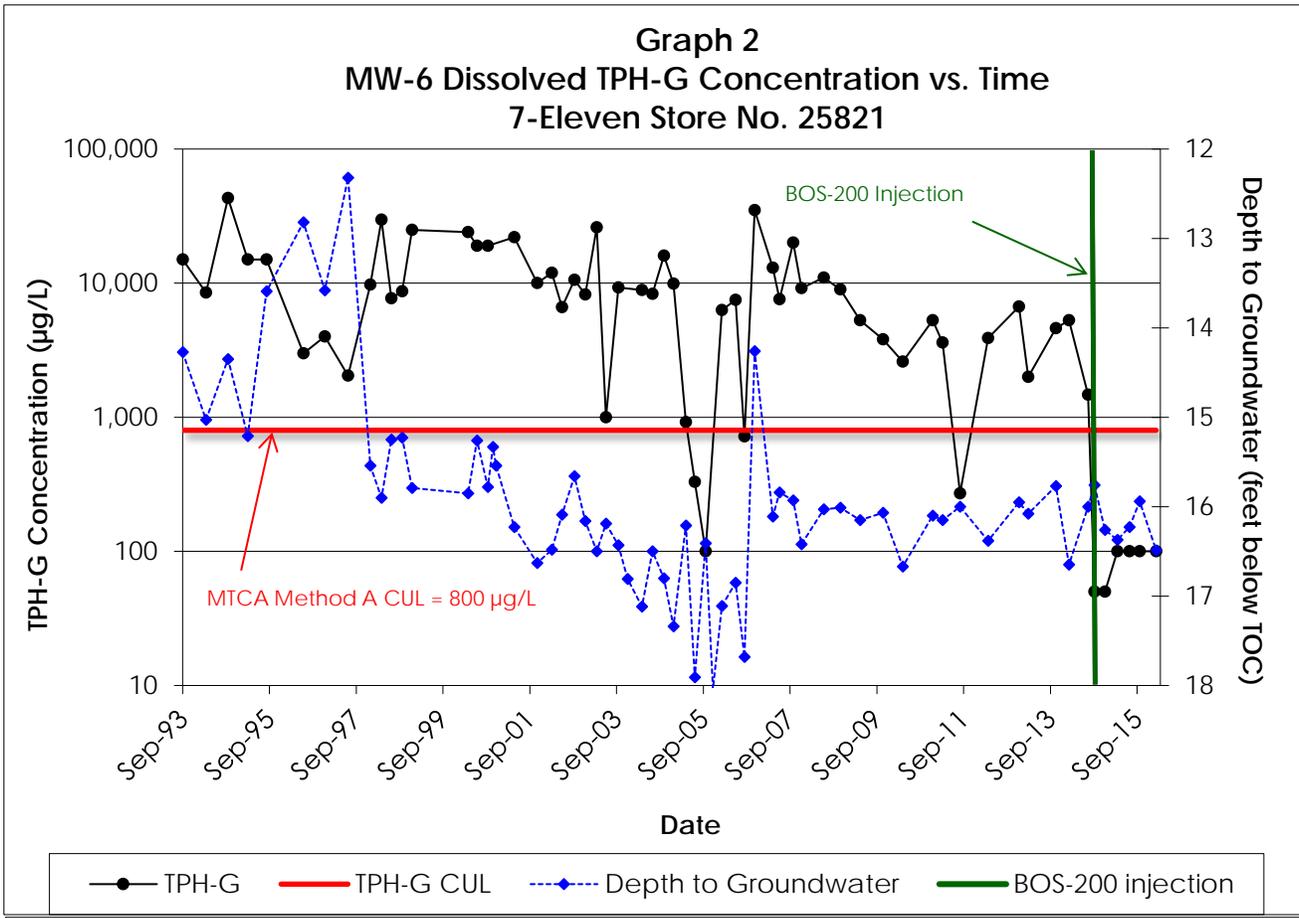
Graph 1
Groundwater Flow Direction Rose Diagram
7-Eleven Store No. 25821
1824 George Washington Way
Richland, Washington



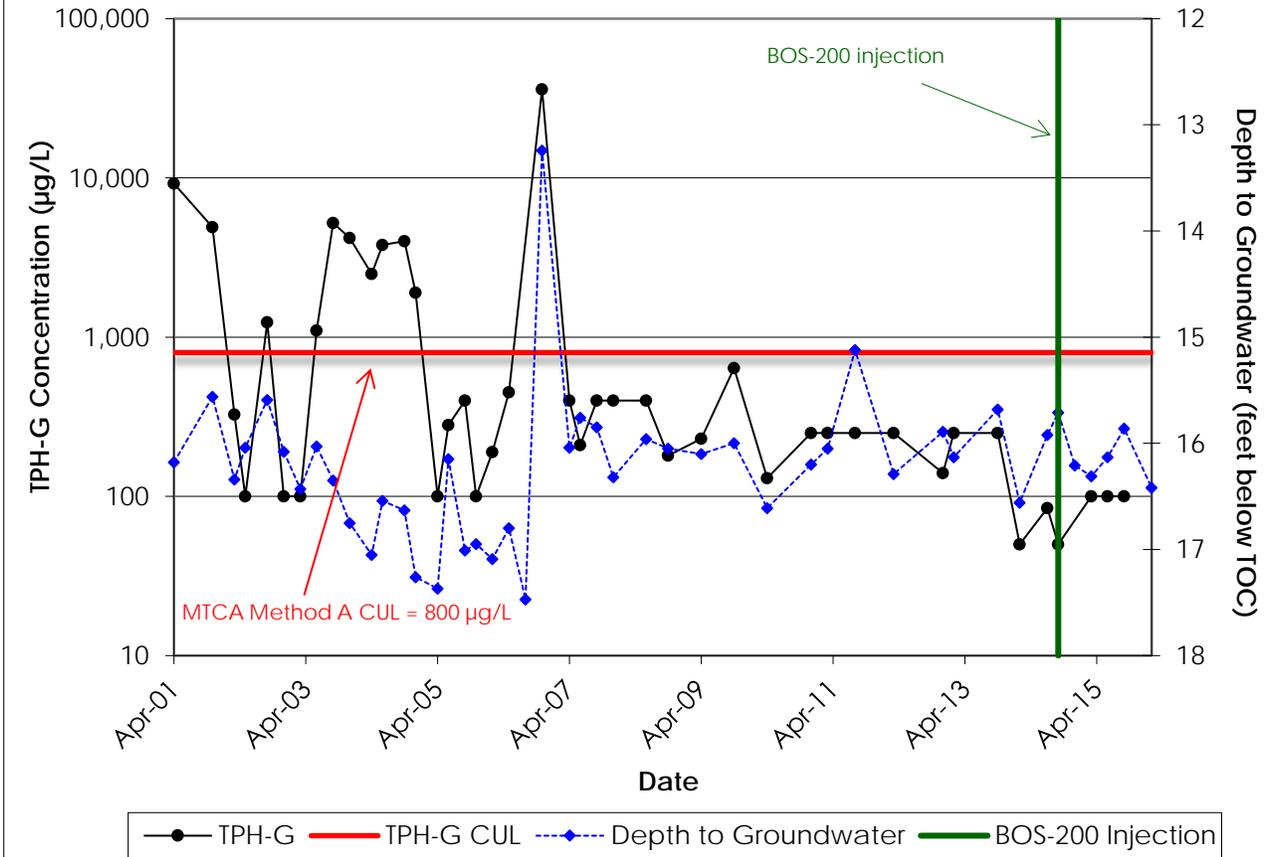
■ Groundwater Flow Direction

Legend

Concentric Circles represent
Quarterly Monitoring Events
Fourth Quarter 2002 through First
Quarter 2016
41 Data Points Shown



Graph 4
MW-8 Dissolved TPH-G Concentration vs. Time
7-Eleven Store No. 25821



CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA

Appendix A DETAILED SITE BACKGROUND
May 25, 2017

Appendix A DETAILED SITE BACKGROUND

**CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA**

Appendix A DETAILED SITE BACKGROUND
May 25, 2017

A.1 SITE HISTORY

Based on available aerial photographs, historical building permits, and historical City Directory records, the Property was a vacant lot prior to 1949. Peter George Wascher purchased the property in 1949 and built a Mobil retail fueling station. The original metal circa-1949 USTs were replaced by fiberglass ones in 1964. The Wascher family operated the Mobil retail fueling station from 1949 until 1984 when The Southland Corporation (7-Eleven) leased the property from the Wascher family and built a new 7-Eleven retail fueling station. 7-Eleven demolished the original Wascher Mobil gas station building; removed the 1964-circa 10,000-gallon fiberglass USTs; installed three new 12,000-gallon fiberglass USTs, and built a new convenience store, dispenser island, and gasoline canopy. 7-Eleven operated the refueling station from 1984 to 1989. In 1989, 7-Eleven closed the refueling station and contracted Kleinfelder, Inc. of Bellevue, Washington, an environmental consultant, to remove the 1984-circa fiberglass USTs, dispenser island, and canopy. The convenience store building was left standing. In 1990, 7-Eleven sub-leased the property to Russell Cazier who opened a Subway® restaurant in the former 7-Eleven convenience store building. Mr. Cazier purchased the property from the Wascher Family in 2005 and continues to own and operate a Subway® restaurant on the Property from 2005 to present.

A.2 INITIAL DISCOVERY

In February 1989, 7-Eleven, Inc. (7-Eleven) decommissioned three underground storage tanks (USTs) by removal, under the supervision of Kleinfelder, Inc. (Kleinfelder) of Bellevue, Washington. The fiberglass supply lines connecting the tanks to the pump island were broken during the tank excavation and approximately 5 gallons of gasoline was spilled in the northwest corner of the excavation. During excavation of the soils impacted by the spill, obvious hydrocarbon contamination was discovered in the soils just above the water table (approximate depth 12- to 14-feet below ground surface (bgs)). Test pits in other areas of the tank excavation also uncovered obvious contamination at similar depths at the west, north, and south sides of the excavation. The discovery of contamination at this depth and away from the area of the 5-gallon spill, suggested a secondary source. A Kleinfelder geologist collected soil samples from the bottom of the open excavation (SS0105129A) and from the stockpiled contaminated soils (SP0105129A). Total xylenes and total petroleum hydrocarbons as gasoline (TPH-G) concentrations were greater than the Model Toxics Control Act (MTCA) Method A Cleanup Levels (CULs) in the soil sample SS0105129A collected from the bottom of the excavation. Chemical analysis of a soil sample, SS0105129A, taken from the bottom of the tank excavation, just above the water table, indicated that the contamination may have represented an aged gasoline product.

**CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA**

Appendix A DETAILED SITE BACKGROUND
May 25, 2017

A.3 INITIAL SOIL AND GROUNDWATER INVESTIGATIONS

In July 1989, Kleinfelder completed a Phase II environmental assessment that included the installation of five monitoring wells (MW-1 through MW-5) at various locations around the site. Physical evidence of hydrocarbon impacts in soil (stained soil and hydrocarbon odor) was observed only at MW-5, at depths of 15- and 16-feet bgs; however, soil samples from this location were not submitted for analysis. Benzene, toluene, ethyl benzene, and total xylenes (BTEX) and TPH-G concentrations were less than the MTCA Method A CULs in groundwater samples collected from these wells.

In May 1990, Kleinfelder installed monitoring well (MW-6) near the former USTs. BTEX concentrations in the groundwater sample collected from monitoring well MW-6 were greater than the MTCA Method A CULs.

In October 1991, a field flow test on the monitoring wells was completed by Kleinfelder in order to evaluate the possibility of using soil vapor extraction as a site cleanup alternative. Preliminary test results indicated that moderate subsurface air-flow rates could be achieved and that the expected radius of influence for vapor extraction wells would be approximately 15- to 30-feet, if a vapor extraction system were installed at the Site.

In January 1992, Kleinfelder submitted a Draft Feasibility Review and Draft Cleanup Action Plan to Ecology. The report recommended surface capping, continued groundwater monitoring, and groundwater extraction and carbon adsorption as effective remedial technologies for the site.

In July 1996, monitoring well MW-7 was installed under the supervision of Fluor Daniel GTI. BTEX, TPH-G, and total lead concentrations did not exceed the MTCA Method A CULs in soil samples taken from this well. Oxygen Release Compound was placed in the well to promote biological degradation of dissolved petroleum compounds by increasing the dissolved oxygen in the groundwater.

In July 1999, Ecology issued an underground injection permit, allowing nitrate injections to be completed through MW-7 to promote biodegradation of the remaining petroleum hydrocarbons in groundwater surrounding MW-6. The nitrate injections began in fourth quarter 1999 and ended in 2001.

On December 27, 2000, IT Corporation (IT) supervised the advancement of eight soil borings (B-1 through B-8) around the former USTs to a maximum depth of 18-feet bgs for the purpose of delineating the extent of impacted soil contributing to elevated concentrations of benzene and TPH-G in groundwater near MW-6. Benzene and TPH-G concentrations in soil samples collected from borings in the northeastern portion of the former UST complex (B-1, B-2, B-3, B-4, B-5, and B-7 at 16-feet bgs) exceeded their respective MTCA Method A CULs.

**CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA**

Appendix A DETAILED SITE BACKGROUND
May 25, 2017

In April 2001, IT supervised the installation of well MW-8 and incorporated it into the quarterly groundwater program beginning April 24, 2001.

On August 31, 2004, SECOR International, Inc. supervised the advancement of nine soil borings (GP-1 through GP-9) located across the site to further define the extent of impacted soil at the site. None of the soil samples contained concentrations of TPH-G or BTEX above MTCA Method A CULs.

A.4 2012 SITE HAZARD ASSESSMENT

A representative, Jim Coleman, of the Benton-Franklin Health District, performed a site hazard assessment on December 12, 2012 and evaluated and scored different routes of exposure such as Surface Water/Human Health, Surface Water/Environmental, Air/Human Health, Air/Environmental, and Groundwater/Human Health for the Site. The overall rank for the Site is 3.

A.5 2013 SUBSURFACE INVESTIGATION AND WELL INSTALLATION

On October 2 and 3, 2013, a Stantec field geologist supervised drilling and well installation activities. Stantec contracted Holocene Drilling, Inc. (Holocene), of Puyallup, Washington to advance four soil borings identified as MW-9, MW-10, MW-11, and MW-12. Three of the borings (MW-9, MW-11, and MW-12) were drilled to a depth of 25.5-feet bgs. The fourth boring MW-10 was drilled to a depth of 26-feet bgs and all four were completed as groundwater monitoring wells. All analyzed petroleum hydrocarbon constituents were either not detected above the laboratory method reporting limit and/or were reported below their respective MTCA Method A CULs in the 9 soil samples collected from MW-9, MW-10, MW-11, and MW-12.

A.6 2014 REMEDIAL ACTION

In September 2014, Stantec supervised the in-situ injection of BOS-200® at the Site. Approximately 3,500 pounds of carbon, 919 fluid ounces of conditioned bacteria, and 2,508 pounds of gypsum were injected into the subsurface over approximately 1,350-square feet surrounding wells MW-5, MW-6, MW-7, MW-8, and MW-9. Injections occurred vertically every 2-feet approximately 12- to 22-feet bgs. Injections were staggered in adjacent boreholes to promote saturation of the entire treatment area (injections occurred at 12, 14, 16, 18, and 20 or 15, 17, 19, and 21-feet bgs).

A.7 2015 SOIL INVESTIGATION WITH CONFIRMATION BORINGS

On July 28 and 29, 2015, a Stantec field geologist supervised the advancement of five confirmation soil borings CB-1, CB-2, CB-3, CB-4, and CB-5 to a maximum depth of 26.5 feet bgs. One soil sample, CB-3-15', exceeded Ecology MTCA Method A CULs for TPH-G. All other

**CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA**

Appendix A DETAILED SITE BACKGROUND
May 25, 2017

concentrations were either reported below respective MTCA Method A CULs or reported not exceeding laboratory practical quantitation limits in all submitted soil samples.

Cumulative soil sample analytical results are presented in **Table 1**. **Figure 6** shows the soil sample location and analytical data collected by depth interval. Complete laboratory soil results and chain-of-custody documentation are included in **Appendix H**.

CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA

Appendix B LEGAL DESCRIPTION
May 25, 2017

Appendix B LEGAL DESCRIPTION

Barbara Wagner, Assessor Benton County, Washington

Summary



Street Address
1 of 1

Parcel Info Summary

Parcel ID	Address	Index Order	Card
102981020815007	1824 GEORGE WASHINGTON WAY, RICHLA	Street Address	1 of 1

Printable Tab

- Residential
- Commercial
- Transfer
- Image
- Property Report
- Mapping **NEW!** →

Summary

Property Location	1824 GEORGE WASHINGTON WA 458 458 RT eating and drinking	Number of Stories	
Land Use		Year Built	1984
Neighborhood	660100	Total Rooms	0
Acres	0.514	Full Bathrooms	
		Half Bathrooms	
		Foundation	
		Finished Square Footage	2400

Search By

- Parcel ID
- Street Address**
- Sales

Legal Description

Property Information
PLAT OF RICHLAND BLOCK 815, LOT 7:SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD 10/18/84.

Site Functions Property Search

- Contact Us
- On-Line Help
- Assessor Home
- Mapping
- Treasurer Home
- Tax Info

Owner Information

Owner Information
CAZIER ENTERPRISES

Mail Information

2798 KATIE RD,,KENNEWICK,WA,99338,USA

Assessment Info

Mkt. Land	\$326,330
Mkt. Improvement	\$176,330
Total	\$502,660

Most Recent Sale

Sale Amount \$0

Sale Date 11/20/2013

Excise Number 13K05657

For additional property information regarding property in Benton County call 1-509-786-2046.

For tax information on this parcel, make note of your Parcel ID/Number and click here.

[Print](#) | << First < Previous Next > Last >>

CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA

Appendix C BENTON COUNTY AND CITY OF RICHLAND ARCHIVAL DOCUMENTATION
May 25, 2017

Appendix C BENTON COUNTY AND CITY OF RICHLAND ARCHIVAL DOCUMENTATION



THE CITY OF RICHLAND DOES NOT WARRANT, GUARANTEE OR ACCEPT ANY LIABILITY FOR THE ACCURACY, PRECISION OR COMPLETENESS OF ANY INFORMATION SHOWN HEREON OR FOR ANY INTERPRETATION THEREOF. ANY USE MADE OF THIS INFORMATION IS AT THE USER'S RISK.



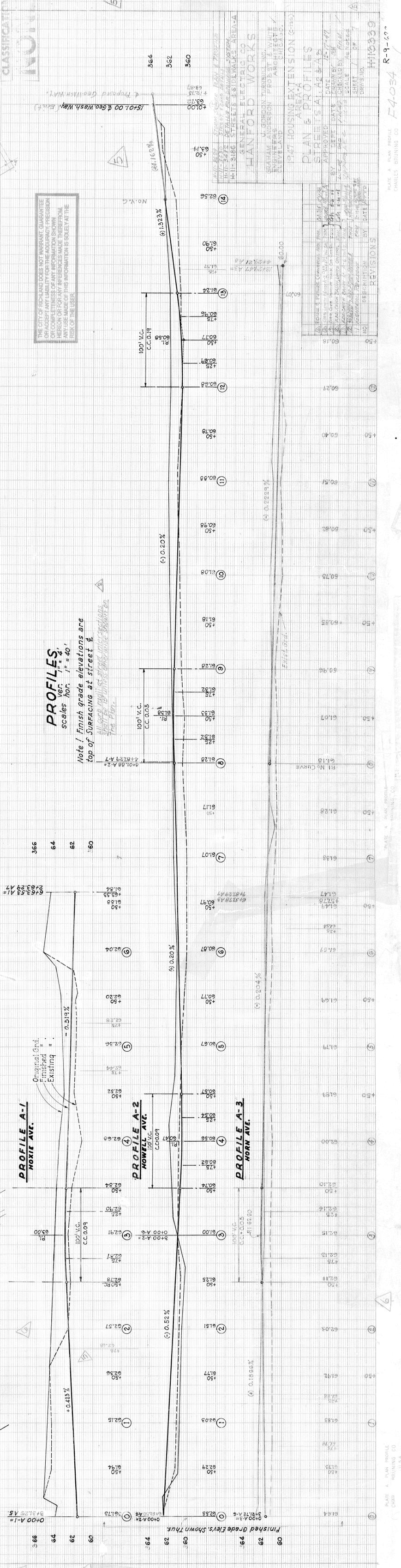
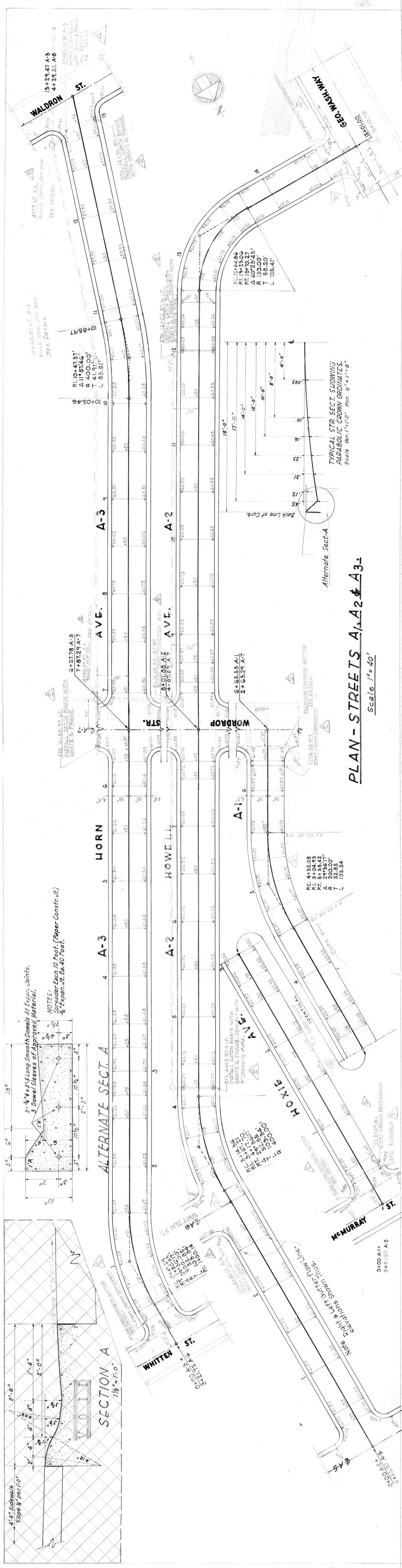
"AS BUILT" NOTES NONE MARKED THUS &

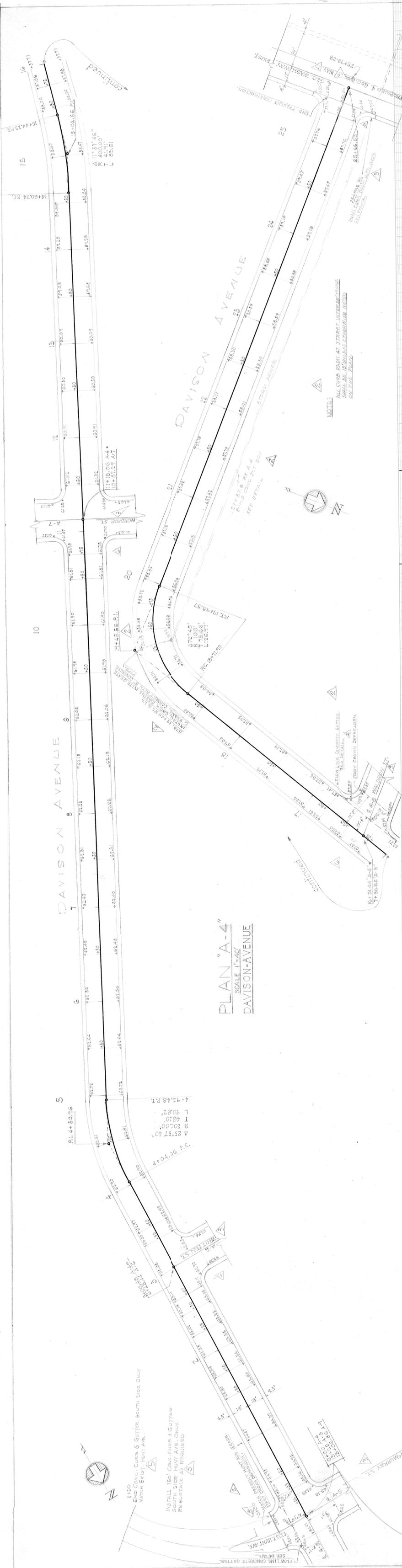
ORIGINAL TRACING

REVISIONS		APPROVALS		
NO.	DESCRIPTION	BY	DATE	APPROVED
1	Checked for AS BUILT SEE P.L. 10/1/88	W.C. [Signature]	10/1/88	[Signature]
2	ADD CONC. CURB & GUTTER - CORNER	W.C. [Signature]	10/1/88	[Signature]
3	ADD CONC. CURB & GUTTER - CORNER	W.C. [Signature]	10/1/88	[Signature]
4	ADD CONC. CURB & GUTTER - CORNER	W.C. [Signature]	10/1/88	[Signature]

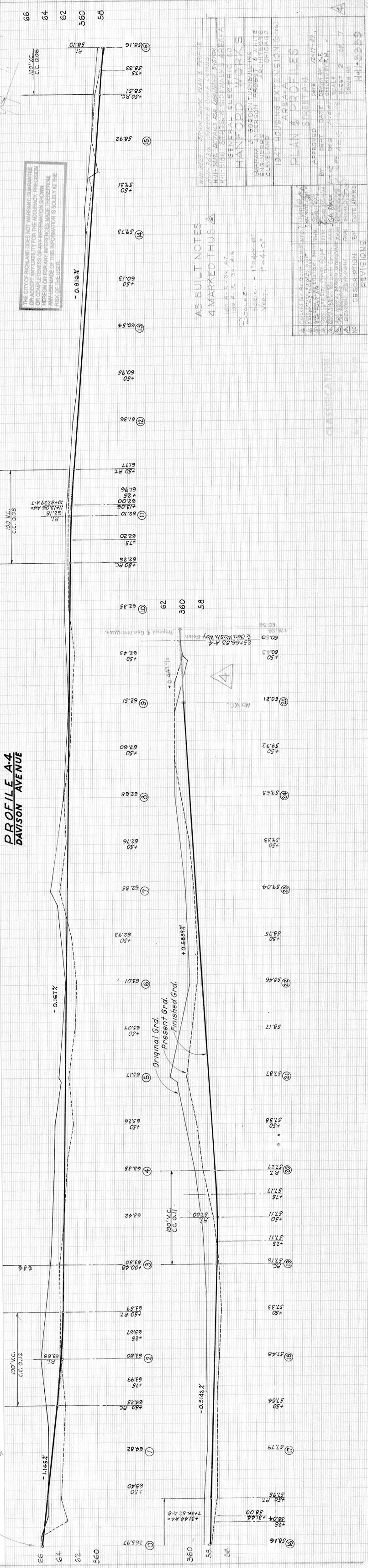
ENG. REP. NO. C-136
GENERAL ELECTRIC CO. HANFORD WORKS
 JOB NO. 4721-D
 DESIGN BY GRAHAM ANDERSON PROBST & WHITE ARCHITECTS - ENGINEERS CLEVELAND CHICAGO
 SHEET NO. 1 of 1
 DATE 5-3-88
 1447 HOUSING EXTENSION AREA "A"
KEY PLAN
 STORM DRAINAGE SYSTEM.
 DWG. NO. 14-JI-3831
 BLDG. NO.

DWG. NO.	TITLE	BLDG. NO.	DWG. NO.
H-11-3412	Storm Sewer Details		
H-11-3339	Sh. 14.6 incl. Street Plan and Profiles		
H-11-3429	Sh. 14.2 Plan and Profiles - Storm Sewers		
	REFERENCE DRAWINGS		





PLAN "A-4"
SCALE 1"=40'
DAVISON AVENUE



PROFILE A-4
DAVISON AVENUE

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AS BUILT NOTES
4 MARKED THUS Δ

SCALE:
HORIZ. 1"=40.0'
VERT. 1"=4.0'

APPROVED FOR CONSTRUCTION

APPROVED DATE: 12/17/17

DESIGNED BY: K.E. STREIBER

CHECKED BY: J.M. HANFORD

DATE: 12/17/17

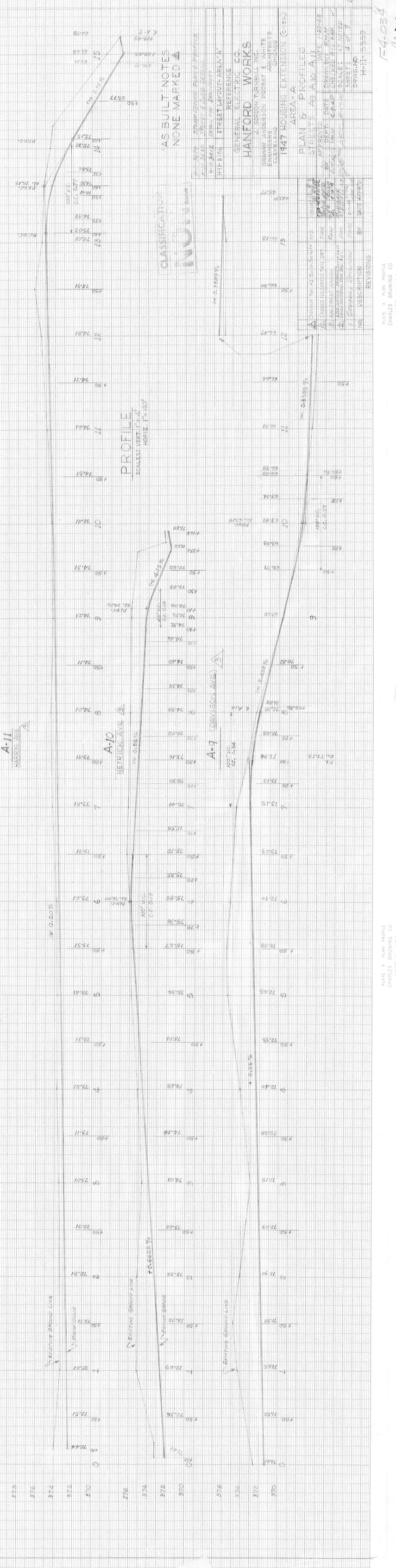
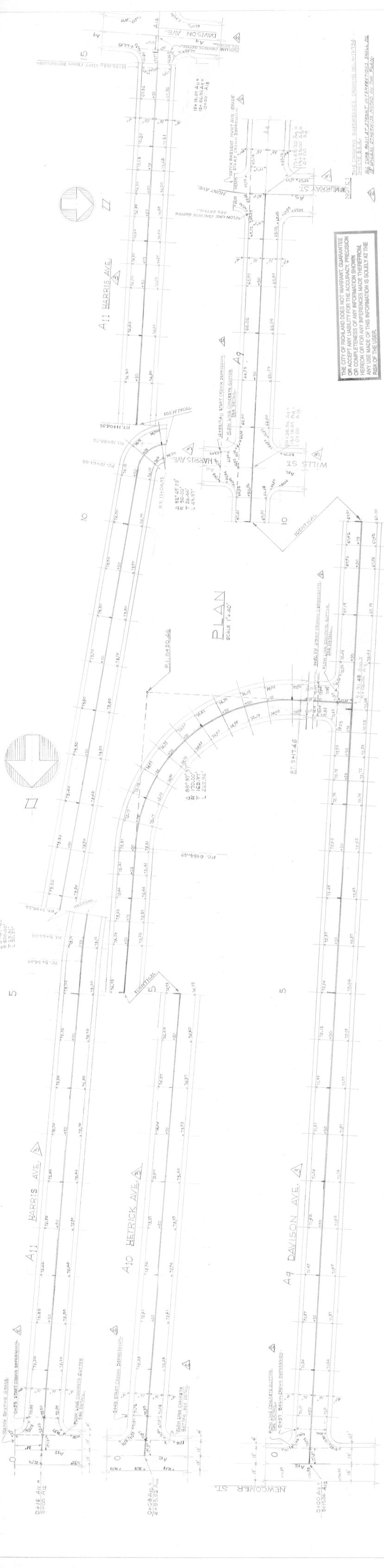
PROJECT: 1927 HOUSING EXTENSION (G192)

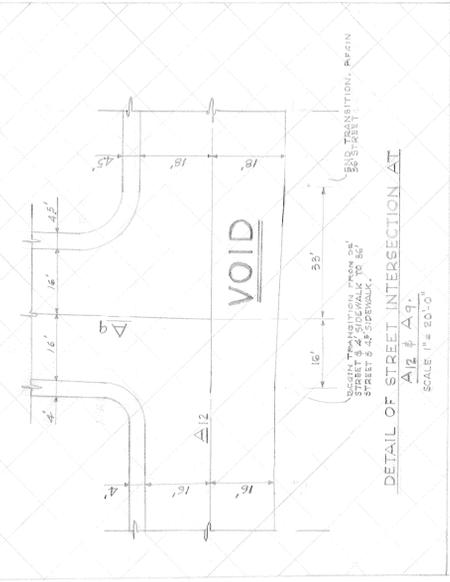
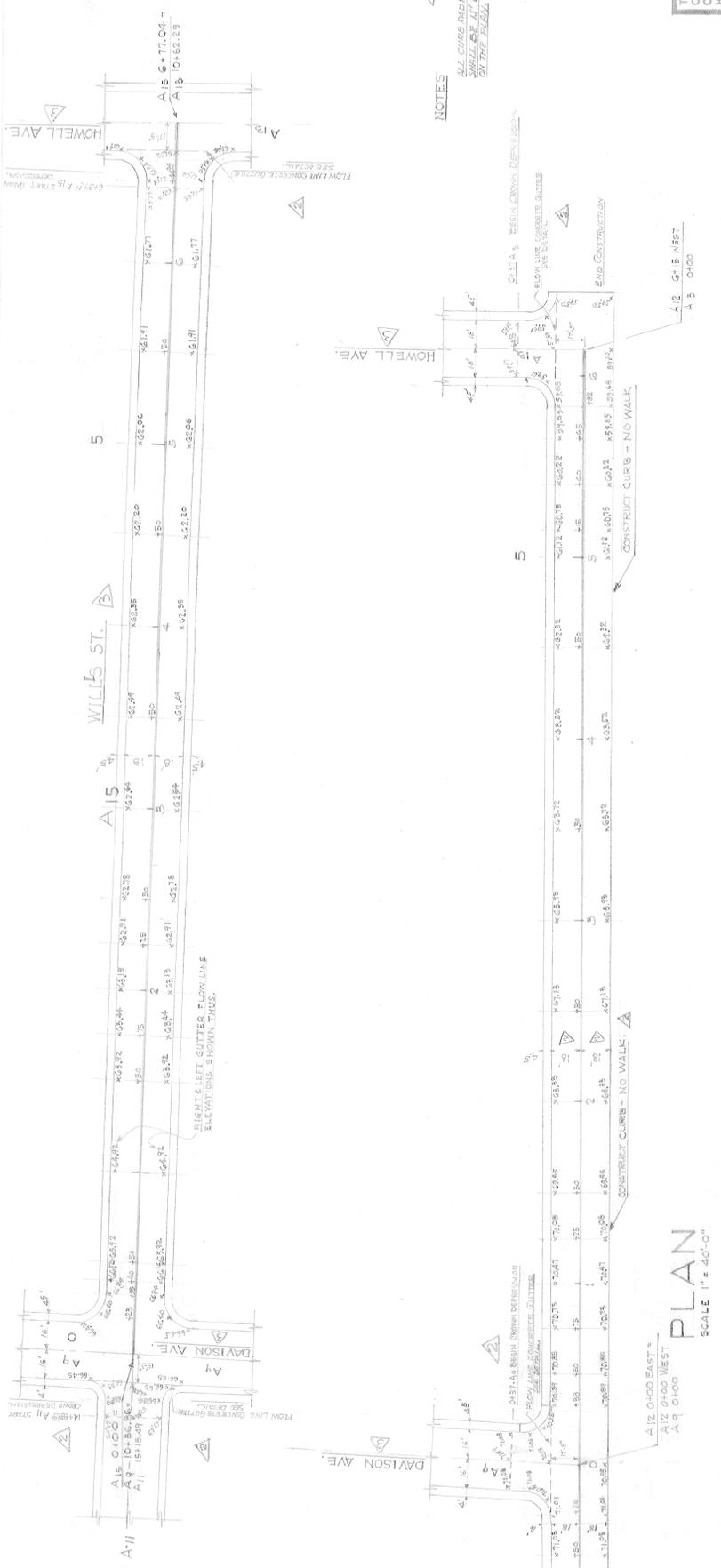
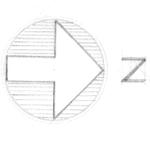
AREA: PLAN & PROFILES

PROJECT NO: H11-3000

SHEET NO: 7 OF 7

NO.	DESCRIPTION	BY	DATE	APPROVED
1	GENERAL REVISION	STREIBER	12/17/17	HANFORD
2	GENERAL REVISION	STREIBER	12/17/17	HANFORD
3	GENERAL REVISION	STREIBER	12/17/17	HANFORD
4	GENERAL REVISION	STREIBER	12/17/17	HANFORD
5	GENERAL REVISION	STREIBER	12/17/17	HANFORD
6	GENERAL REVISION	STREIBER	12/17/17	HANFORD
7	GENERAL REVISION	STREIBER	12/17/17	HANFORD





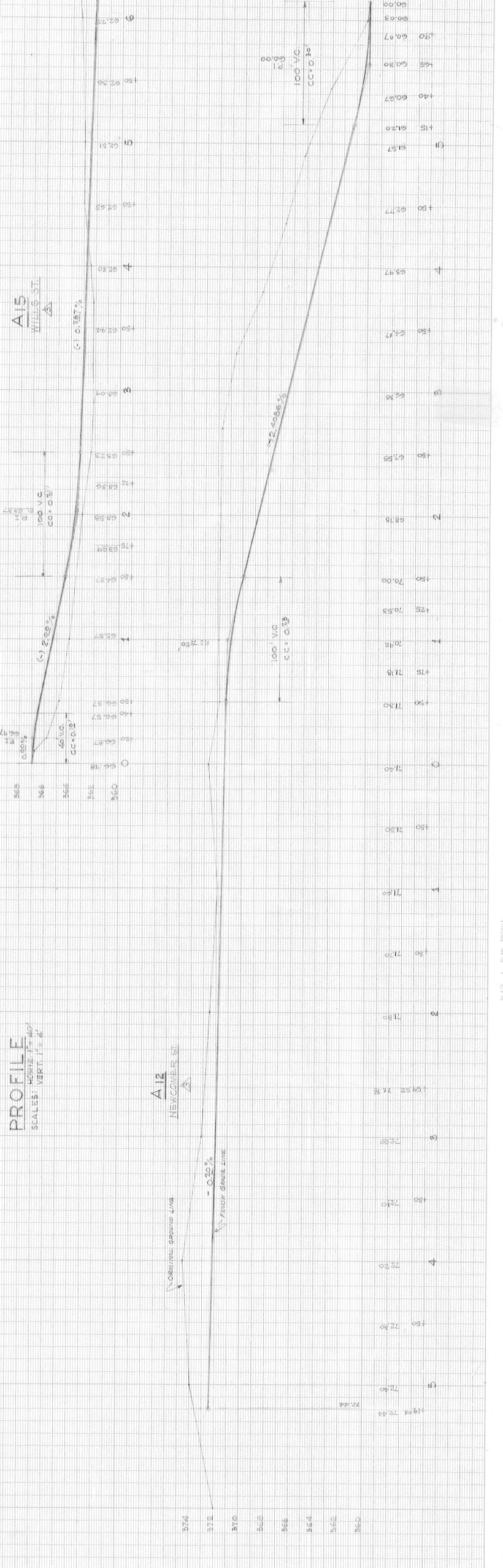
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AS BUILT NOTES
NONE MARKED

11/11/2017	STREETS, SIDEWALKS, CURBS & UTILITIES
11/11/2017	STREET LAYOUT
11/13/17	FINAL PLAN
11/13/17	STREET LAYOUT - AREA 'A'
GENERAL ELECTRIC CO.	
HANFORD WORKS	
J. GEORGE TURNBULL, INC.	
ENGINEER, PROBIST ARCHITECTS	
CLEVELAND	
1947 HOUSING EXTENSION (2019)	

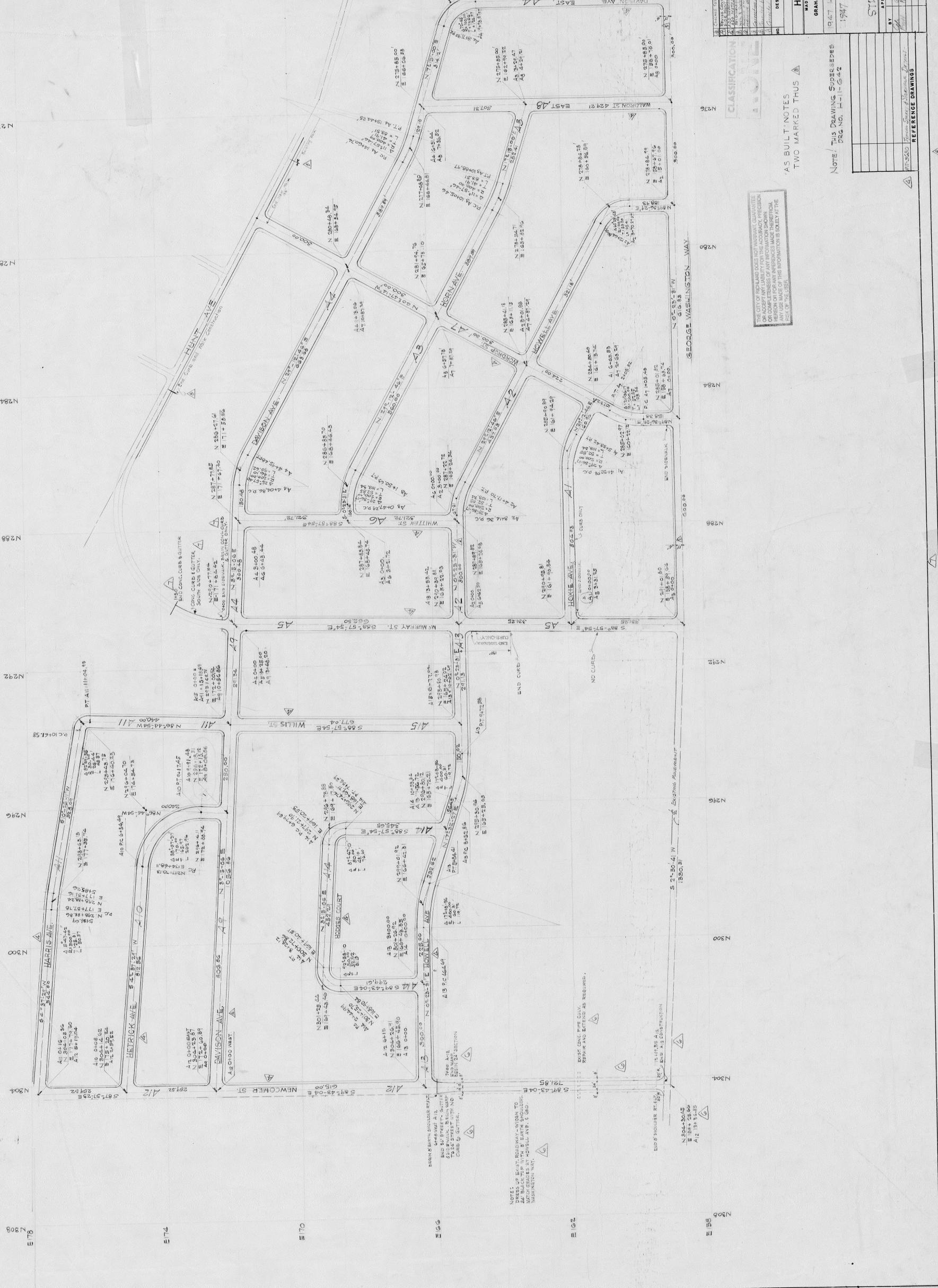
CLASSIFICATION
LINE

NO.	DESCRIPTION	BY	DATE APPROD.
1	Original for As Built - See Note 1	AS BUILT	11/13/17
2	Change No. 1 - See Note 2	AS BUILT	11/13/17
3	As Built - See Note 3	AS BUILT	11/13/17
4	As Built - See Note 4	AS BUILT	11/13/17
5	As Built - See Note 5	AS BUILT	11/13/17
6	As Built - See Note 6	AS BUILT	11/13/17
7	As Built - See Note 7	AS BUILT	11/13/17





- SYMBOLS
- 1. DRIVE
 - 2. DRIVE
 - 3. DRIVE
 - 4. DRIVE
 - 5. DRIVE
 - 6. DRIVE
 - 7. DRIVE
 - 8. DRIVE
 - 9. DRIVE
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 - 99. DRIVE
 - 100. DRIVE



NO.	DESCRIPTION	DATE	BY	APPROVED BY
1	PRELIMINARY PLAN	12/15/27
2
3
4
5
6
7
8
9
10

HANFORD WORKS
 MADE FOR GENERAL BUILDING CO. BY
 GRAHAM ANDERSON PROBERT & WHITE
 ARCHITECTS-ENGINEERS

1947 HOUSING EXTENSION
 AREA A
 KEY PLAN
 STREETS & SIDEWALKS

DATE: 12-15-27
 DRAWN BY: S.E.S.
 CHECKED: H.H.H.
 REV. NO.: H-1-3186

AS BUILT NOTES
 TWO MARKED THUS

NOTE: THIS DRAWING SUPERSEDES
 DAG NO. H-1-642

THE CITY OF HANFORD DOES NOT WARRANT, GUARANTEE, OR ACCEPT ANY LIABILITY FOR THE ACCURACY, COMPLETENESS, OR RELIABILITY OF THE INFORMATION OR DATA PROVIDED HEREON. ANY USE MADE OF THIS INFORMATION IS SOLELY AT THE RISK OF THE USER.

CLASSIFICATION

REFERENCE DRAWING

REVISIONS

DATE: 12-15-27
 DRAWN BY: S.E.S.
 CHECKED: H.H.H.
 REV. NO.: H-1-3186

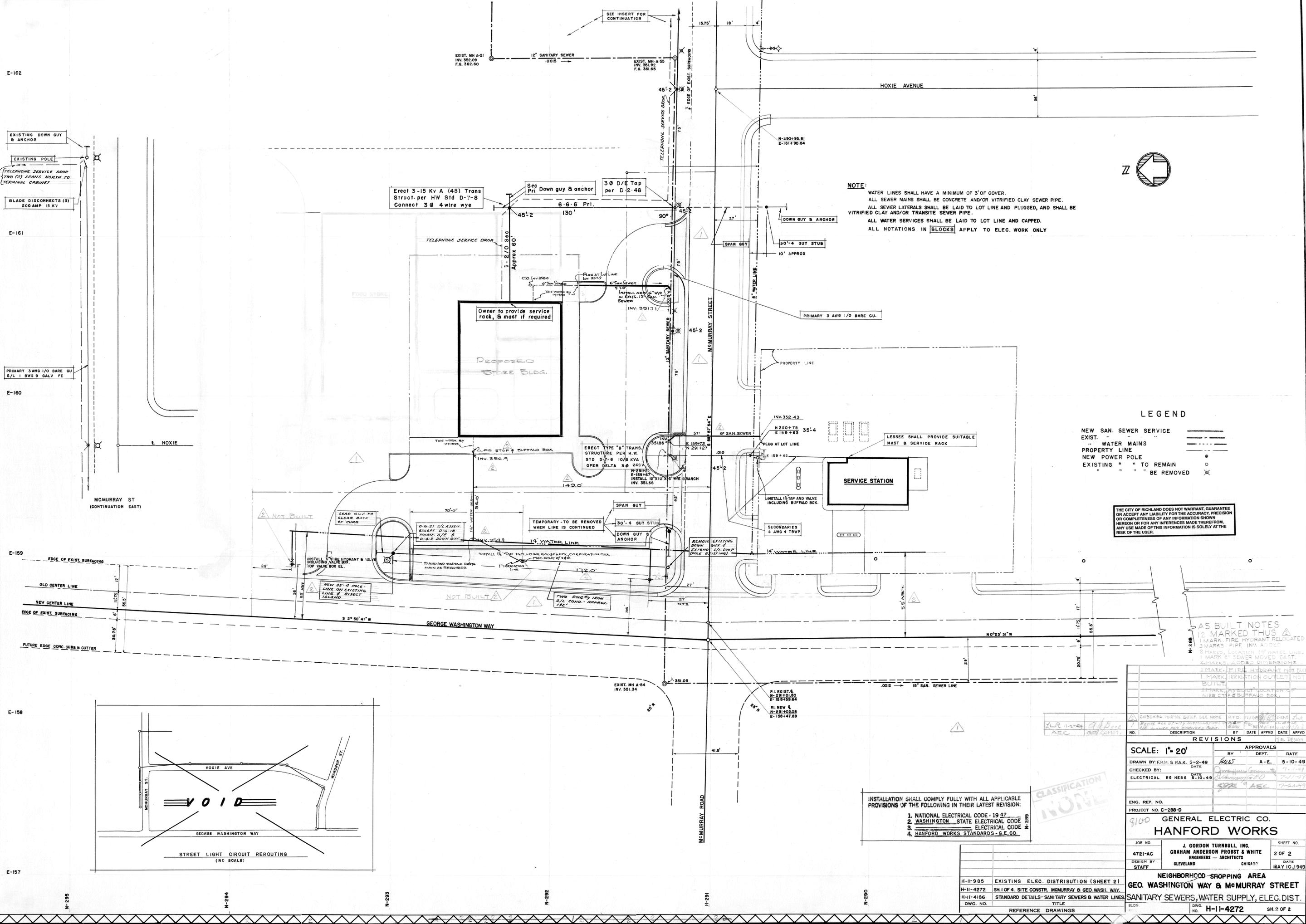
DATE: 12-15-27
 DRAWN BY: S.E.S.
 CHECKED: H.H.H.
 REV. NO.: H-1-3186

DATE: 12-15-27
 DRAWN BY: S.E.S.
 CHECKED: H.H.H.
 REV. NO.: H-1-3186

DATE: 12-15-27
 DRAWN BY: S.E.S.
 CHECKED: H.H.H.
 REV. NO.: H-1-3186

DATE: 12-15-27
 DRAWN BY: S.E.S.
 CHECKED: H.H.H.
 REV. NO.: H-1-3186

F-4-034 R-7-0-627



NOTE:
 WATER LINES SHALL HAVE A MINIMUM OF 3' OF COVER.
 ALL SEWER MAINS SHALL BE CONCRETE AND/OR VITRIFIED CLAY SEWER PIPE.
 ALL SEWER LATERALS SHALL BE LAID TO LOT LINE AND PLUGGED, AND SHALL BE VITRIFIED CLAY AND/OR TRANSITE SEWER PIPE.
 ALL WATER SERVICES SHALL BE LAID TO LOT LINE AND CAPPED.
 ALL NOTATIONS IN [BLOCKS] APPLY TO ELEC. WORK ONLY



LEGEND

NEW SAN. SEWER SERVICE	---
EXIST. " " " "	---
WATER MAINS	---
PROPERTY LINE	---
NEW POWER POLE	○
EXISTING " " " "	○
EXISTING " " " " TO REMAIN	○
EXISTING " " " " BE REMOVED	⊗

THE CITY OF RICHLAND DOES NOT WARRANT, GUARANTEE OR ACCEPT ANY LIABILITY FOR THE ACCURACY, PRECISION OR COMPLETENESS OF ANY INFORMATION SHOWN HEREON OR FOR ANY INFERENCES MADE THEREFROM. ANY USE MADE OF THIS INFORMATION IS SOLELY AT THE RISK OF THE USER.

AS BUILT NOTES
 12 MARKED THUS
 1 MARK FIRE HYDRANT RELOCATED
 3 MARKS PIPE INV. ADJ.
 2 MARKS LOCATION OF WATER LINE
 1 MARK 6" SEWER MOVED EAST
 2 MARKS ADDED DIMENSIONS
 1 MARK FIRE HYDRANT NOT BUILT
 1 MARK IRRIGATION OUTLET NOT BUILT
 1 MARK AS BUILT LOCATION OF 20" 2" 2" BUFFALO BOX

REVISIONS

NO.	DESCRIPTION	BY	DATE	APPROV.
1	CHECKED FOR THIS BUILT SEE NOTE	MFD	5-2-49	WJH
2	REVISION ALL UTILITY INFORMATION	WJH	5-10-49	WJH
3	REVISION FOR CONSTRUCTION	WJH	5-10-49	WJH

SCALE: 1" = 20'

APPROVALS

BY	DEPT.	DATE
WJH	A-E	5-10-49

DRAWN BY: F.H.M. & H.A.K. 5-2-49
 CHECKED BY: DATE 7-1-49
 ELECTRICAL RG HESS 5-10-49
 DATE 7-2-49

ENG. REP. NO. PROJECT NO. C-288-D

GENERAL ELECTRIC CO. HANFORD WORKS

J. GORDON TURNBULL, INC. SHEET NO. 2 OF 2
 GRAHAM ANDERSON FROST & WHITE ENGINEERS - ARCHITECTS
 CLEVELAND CHICAGO DATE MAY 10, 1949

NEIGHBORHOOD SHOPPING AREA
GEO. WASHINGTON WAY & McMURRAY STREET
SANITARY SEWERS, WATER SUPPLY, ELEC. DIST.

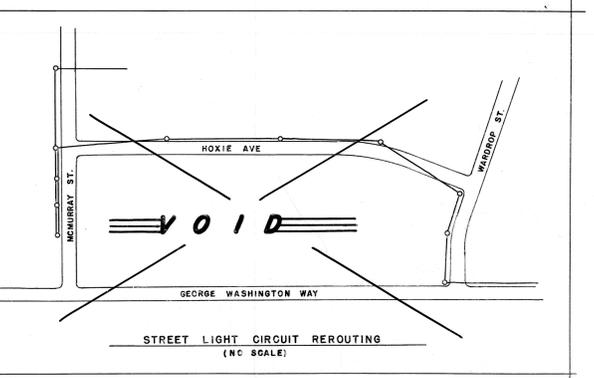
BLDG. NO. DWG. NO. H-11-4272 SH. 2 OF 2

INSTALLATION SHALL COMPLY FULLY WITH ALL APPLICABLE PROVISIONS OF THE FOLLOWING IN THEIR LATEST REVISION:

- NATIONAL ELECTRICAL CODE - 1947
- WASHINGTON STATE ELECTRICAL CODE
- ELECTRICAL CODE
- HANFORD WORKS STANDARDS - G.E. CO.

CLASSIFICATION
NONE

E-162
 E-161
 E-160
 E-159
 E-158
 E-157



SEE INSERT FOR CONTINUATION

EXIST. MH A-21 INV. 352.09 F.S. 352.00

12" SANITARY SEWER .0015

EXIST. MH A-55 INV. 351.56 F.S. 351.55

HOXIE AVENUE

N-290+95.81 E-161+90.84

TELEPHONE SERVICE DROPS

EDGE OF EXIST. SURFACING

45'-2" 130' 90° 27'

DOWN GUY & ANCHOR

30" x 4" GUY STUB

10' APPROX

SPAN GUY

30" x 4" GUY STUB

PRIMARY 3 AWG 1/0 BARE CU.

Erect 3-15 Kv A (45) Trans Struct. per HW Std D-7-8 Connect 3 @ 4 wire wye

Sec Pri Down guy & anchor

3 @ D/E Tap per D-2-48

6-6-6 Pri.

45'-2" 130' 90° 27'

TELEPHONE SERVICE DROPS

3-2/0 SEC APPROX 60'

Plug at Lot Line Inv. 357.9

6" SAN. SEWER

INSTALL NEW 6" WYE IN EXIST. 12" SAN. SEWERS

INV. 351.71

OWNER TO PROVIDE SERVICE TRACK, & MAST IF REQUIRED

PROPOSED STORE BLDG.

PROPERTY LINE

INVENTORY 352.43

N 230+76 35'-4"

E 159+63

PLUG AT LOT LINE

159+62

LESSEE SHALL PROVIDE SUITABLE MAST & SERVICE RACK

SERVICE STATION

INSTALL 1/2" TAP AND VALVE INCLUDING BUFFALO BOX.

SECONDARIES 4 AWG 4 TRWP

14" WATER LINE

14" WATER LINE

NOT BUILT

LEAD GUY TO CLEAR BANK OF CURB

0-6-31 3/4" ASSESS EXCEPT 0-6-18 HODGE D/E & 0-6-2 DOWN GUY

INSTALL 6" FIRE HYDRANT & VALVE INCLUDING VALVE BOX TOP VALVE BOX EL.

INSTALL 1/2" TAP INCLUDING BRONZE CONNECTION BOX (FIRE ONLY) W/ SEW

TEMPORARY - TO BE REMOVED WHEN LINE IS CONTINUED

SPAN GUY

30" x 4" GUY STUB

DOWN GUY & ANCHOR

REMOVE EXISTING GUY & EXTEND S/L COND. (ONE & SETTING)

EXISTING MH A-54 INV. 351.34

EXIST. MH A-54 INV. 351.09

P.I. EXIST. & N-291+01.80 2" 15" 455.84

P.I. NEW & N-291+02.08 E-156+47.89

172.0'

14" WATER LINE

20' 27'

33' N.T.S.

15" SAN. SEWER LINE

11.75' 17' 20.75' 56.5'

8 2° 50' 41" W

GEORGE WASHINGTON WAY

McMURRAY STREET

McMURRAY ROAD

41.5'

351.09

15" SAN. SEWER LINE

11.75' 17' 20.75' 56.5'

N 0° 23' 31" W

R.28 E.

R.29 E.

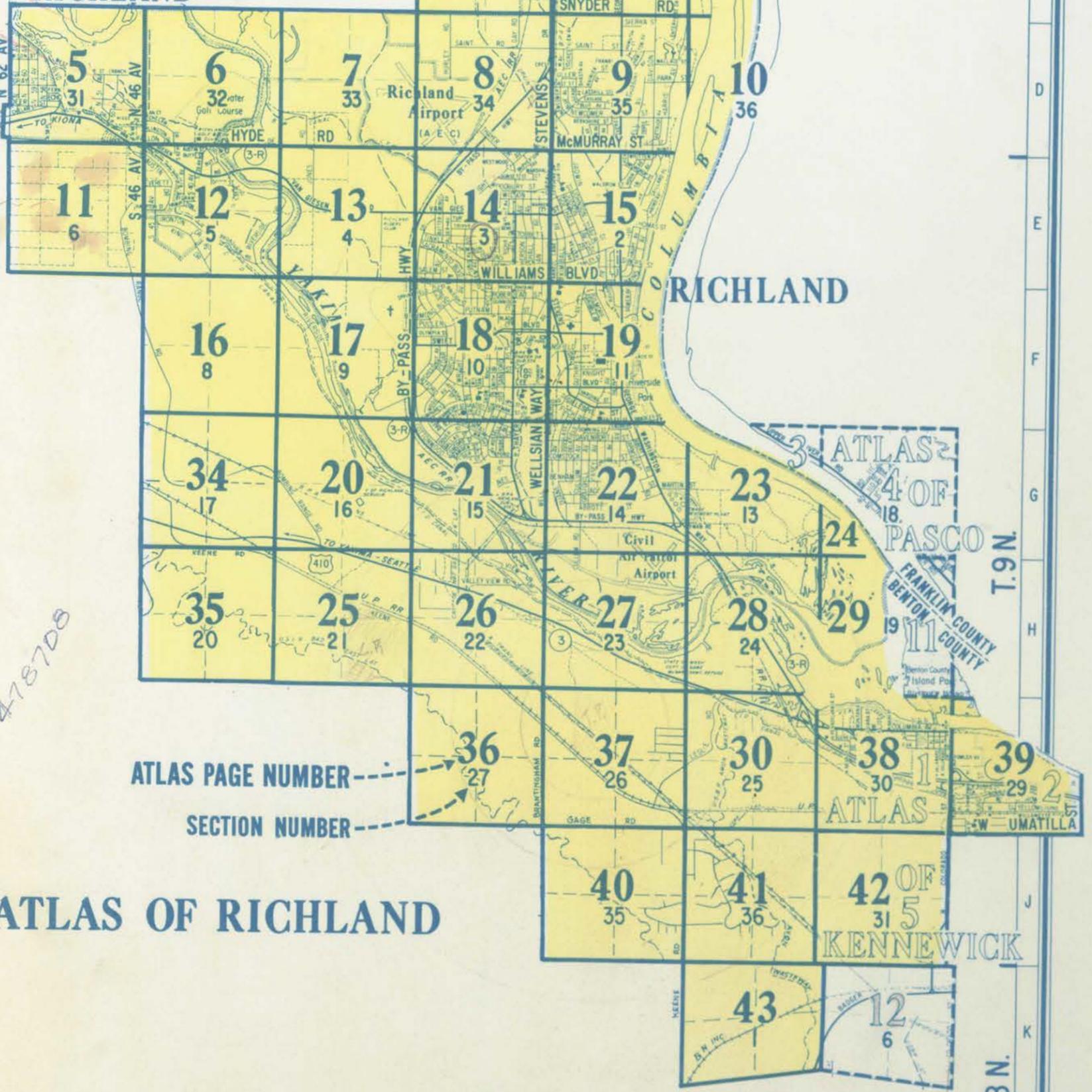
HANFORD WORKS

T.10 E

ATOMIC ENERGY COMMISSION

T.10 N.

WEST RICHLAND



478708

ATLAS PAGE NUMBER

SECTION NUMBER

ATLAS OF RICHLAND

ATLAS OF PASCO

ATLAS OF KENNEWICK

Continue below

R.28 E.

R.29 E.

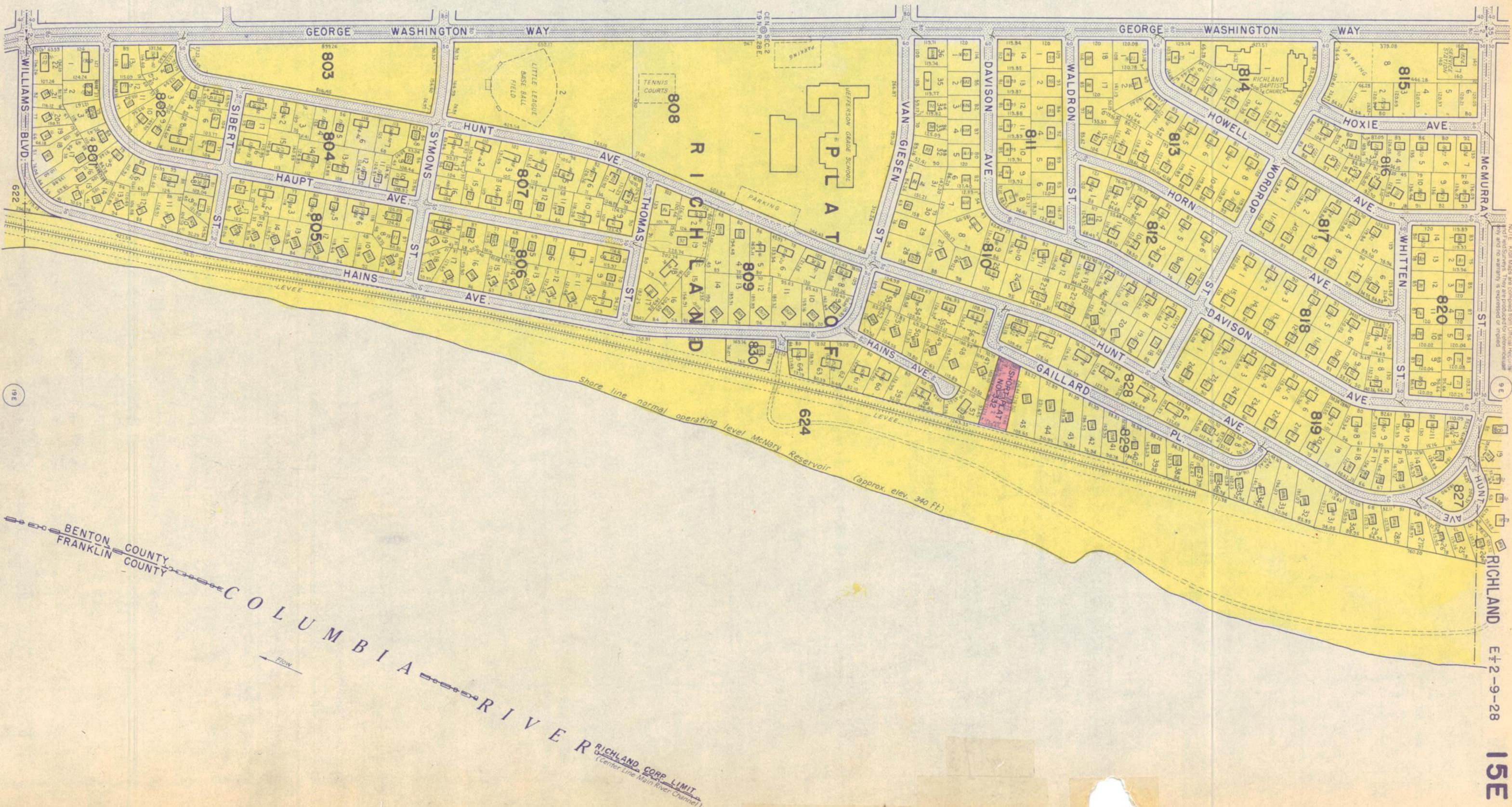
R.28 E.

R.29 E.

ATLAS PAGE NUMBER

SECTION NUMBER





LEGEND

- ROADS
- RAILROADS
- POLYLINE
- BOUNDARY
- ELEVATION

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19E

9E

BENTON COUNTY
FRANKLIN COUNTY

COLUMBIA RIVER
 RICHLAND CORP. LIMIT
 (Center Line Main River Channel)

E72-9-28

15E

ATLAS OF RICHLAND
 KROLL MAP COMPANY, INC., SEATTLE
 SCALE: 1" = 400'

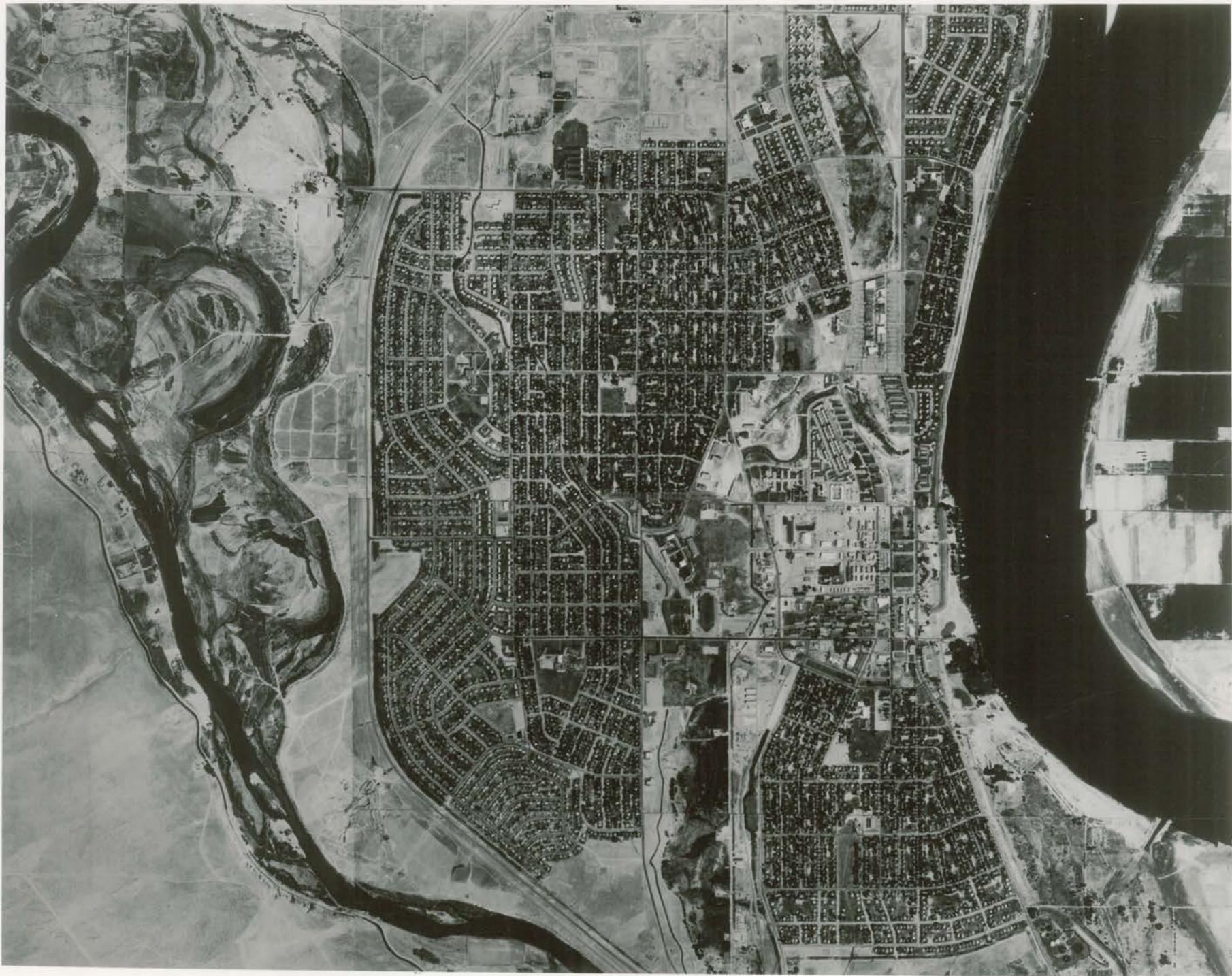
NOTE: Kroll Maps are compiled from Official Records. They are not intended for use as a substitute for a survey. No warranty is expressed or implied.

1-30-48

12200

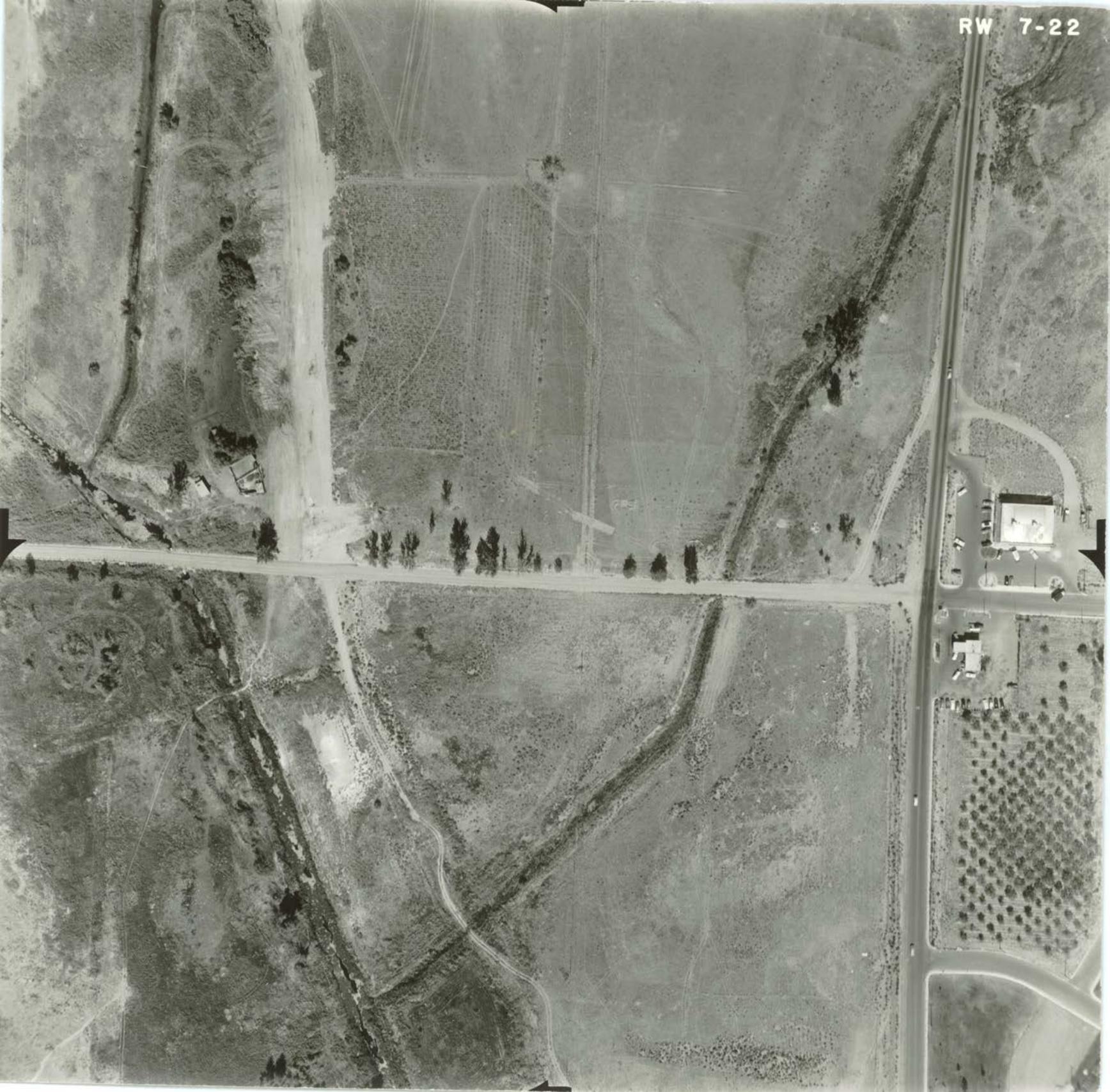
2-97





RW 7-21







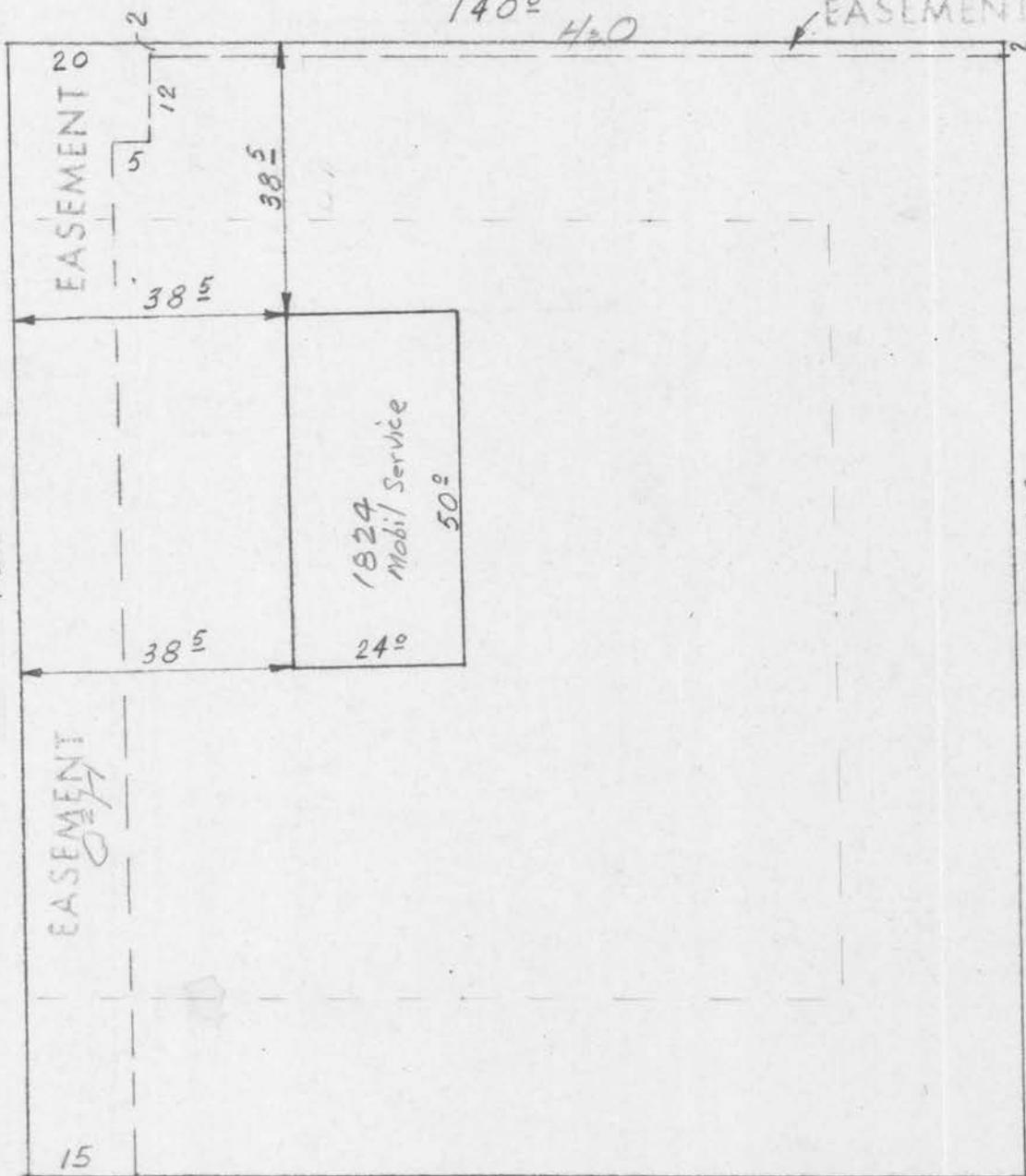
M^c MURRAY ST. (60°)

140° H.O.

EASEMENT

GEORGE WASHINGTON WAY (80°)

160°



160°

EASEMENT

15

1824
Mobil Service
50°
24°

LOT 7 BLOCK 815

PLAT OF RICHLAND

BENTON COUNTY WASH.

140°

SCALE: 1" = 25'

40 Scale

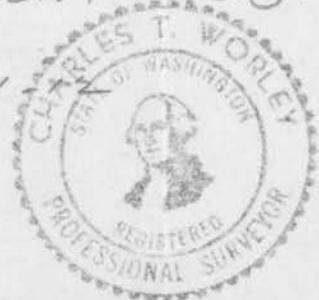
OR 50 "

Field

CIN P 108

A-11

37



I hereby certify I have examined the above described property and find the improvements to be situated there on as shown and there are no encroachments.

Date: 12-29-55 C.T. Worley

REV. 2-2-56



P.G. WASCHER

Mobiloil

Mobil Tires

Mobil Tires

Mobil Lubrication

Lubrication

Mobil Tires

CHRISTMAS

COMPLIMENTARY
WAX
POLISHING
WASHING
WAXING
WAXING
SERVICE

Mobil Tires



IT'S ANTI-FREEZE
TIME
TAKE ONE

Mobil
PREMIER
TIRE

TAKE ONE

YOUR CREDIT
IS GOOD
TIL OUT AND RETURN IT

NORWAY

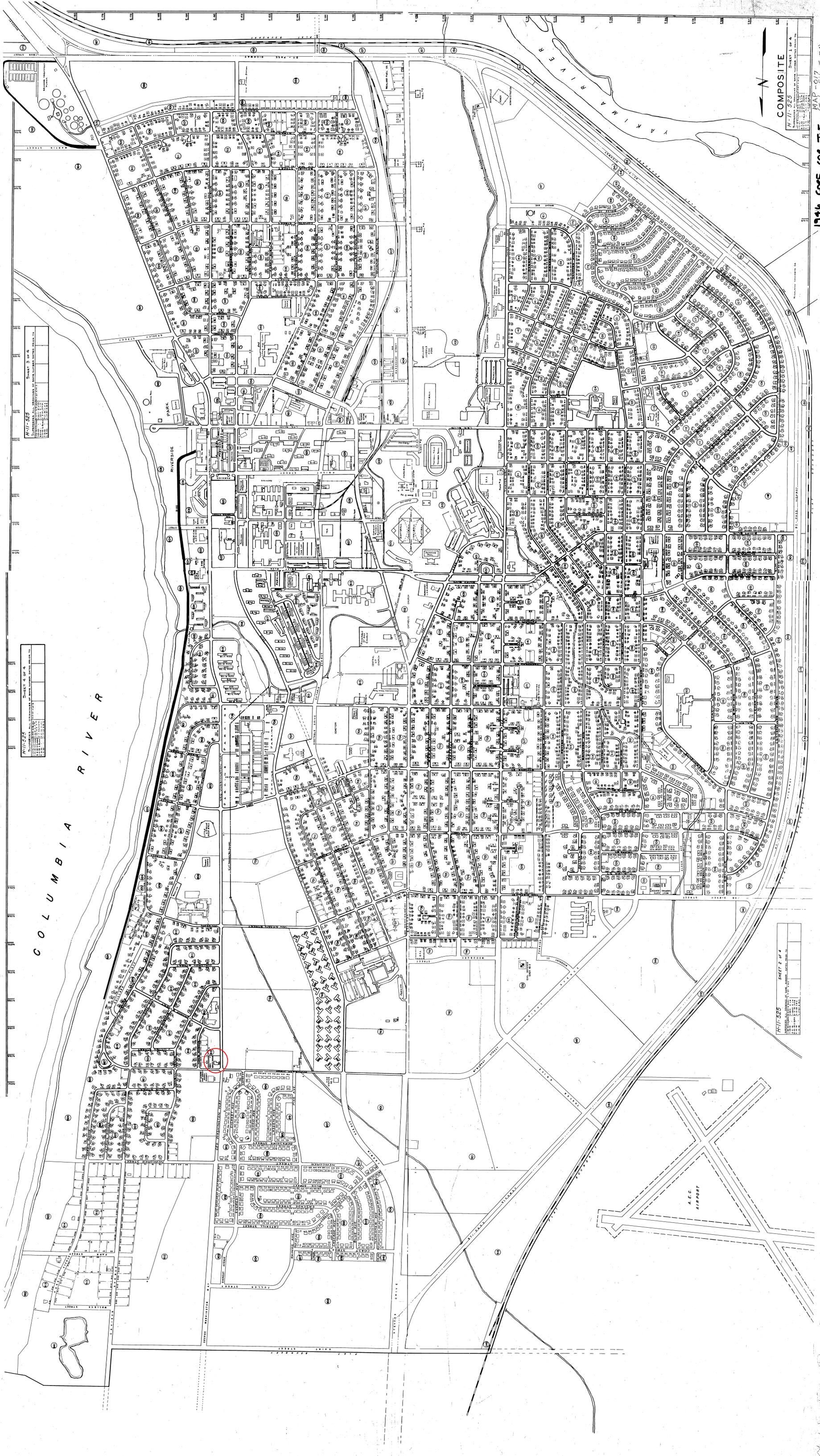
CHARTER

SHOW PRUF

Mobil

Mobil

PRESTONE



C O L U M B I A R I V E R

A. E. C. AIRPORT

Sheet 2 of 4

Sheet 3 of 4

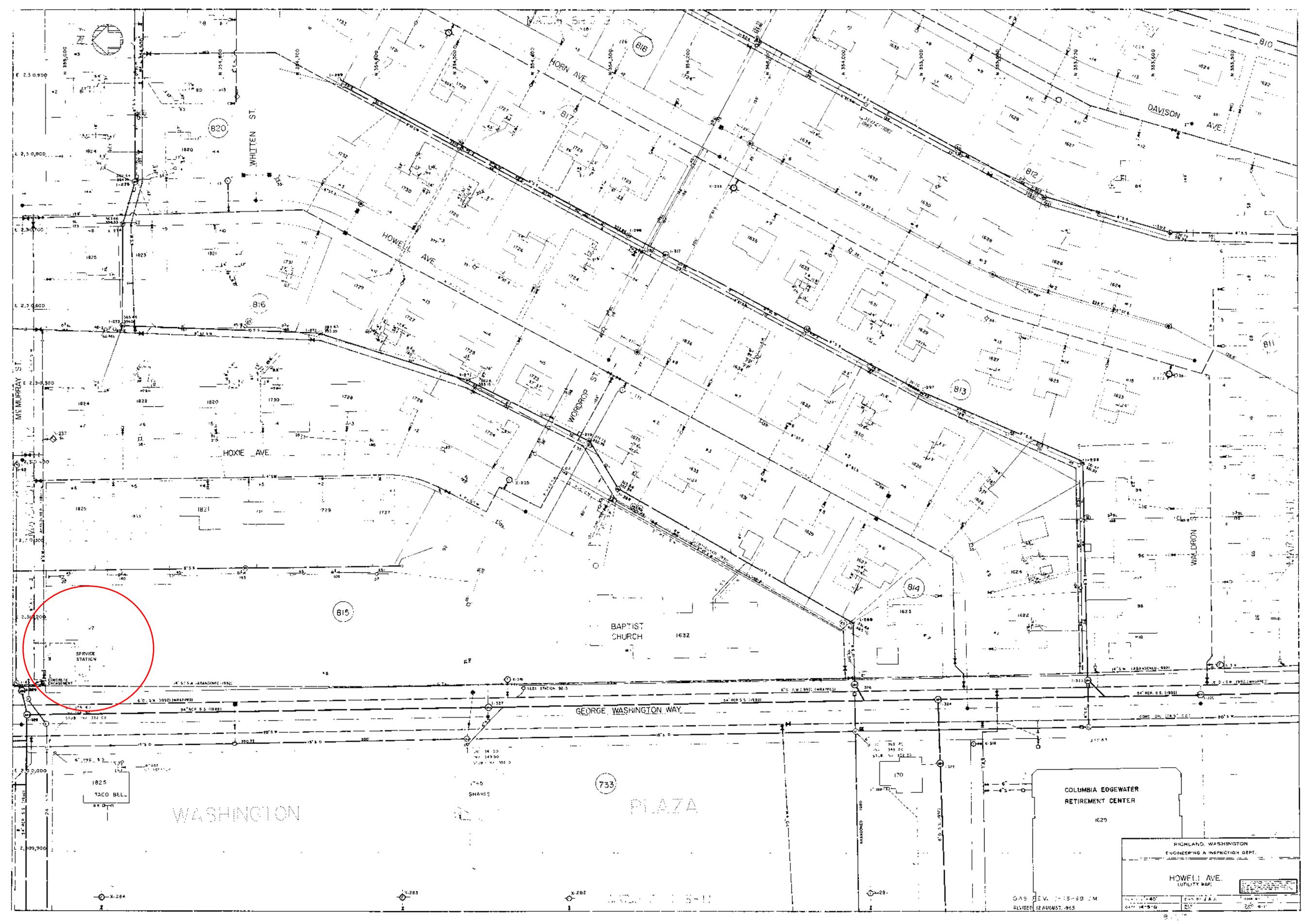
Sheet 4 of 4

COMPOSITE



MAP-017
Grabs File I-2A

1946-Cod5-Cof-T1F



WASHINGTON

733 PLAZA

COLUMBIA EDGEWATER RETIREMENT CENTER

RICHLAND, WASHINGTON
ENGINEERING & INSPECTION DEPT.

HOWELL AVE.
UTILITY MAP

GAS REV. 1-15-58 J.M.
REVISED 12 AUGUST, 1965

DATE: 12-1-65
DRAWN BY: J.A.J.
CHECKED BY: R.W.
SCALE: AS SHOWN

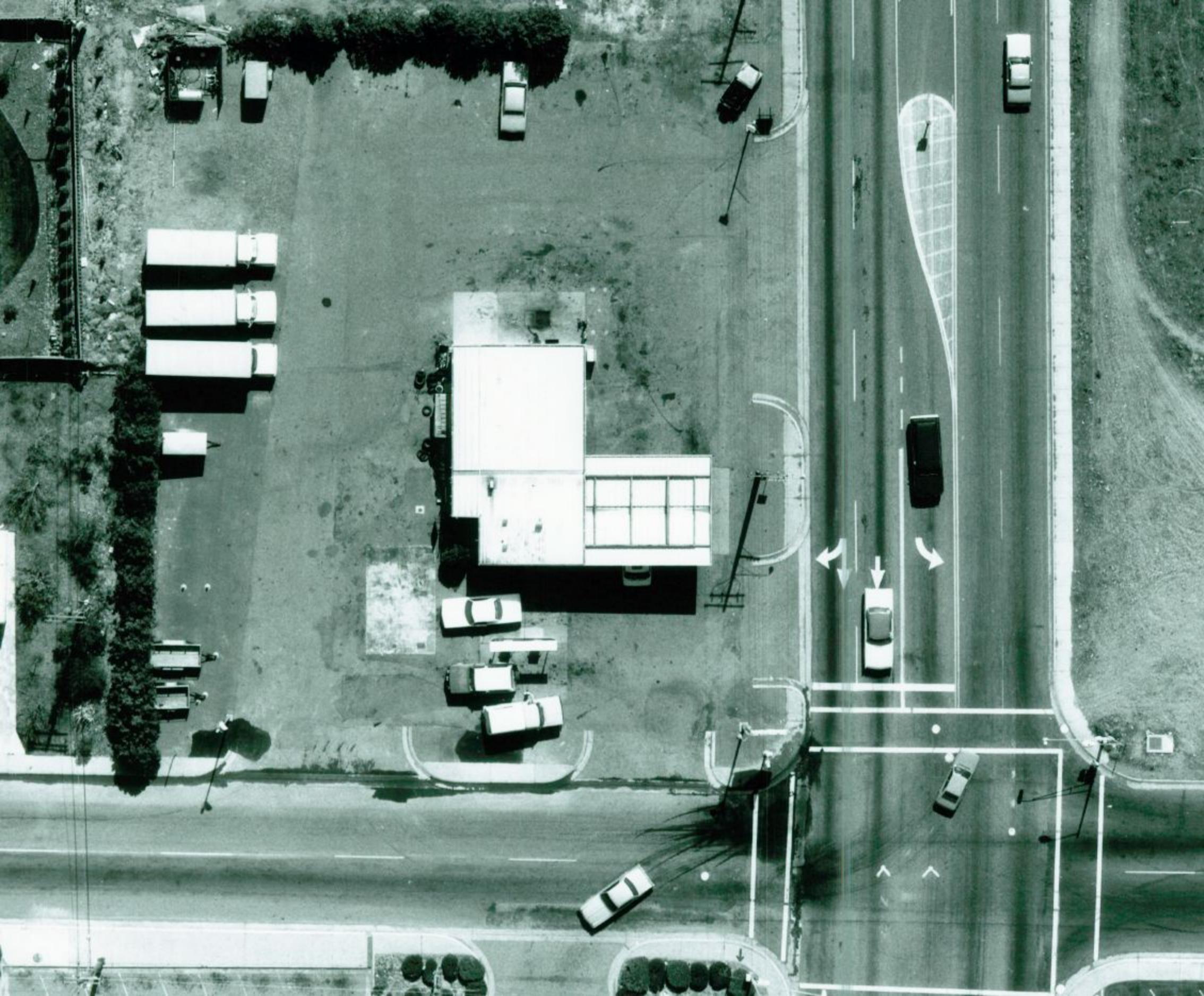


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RISK OF THE USER.













HAUL



JOB ADDRESS
1824 Geo. Wash. Way

OWNER
P. G. Wascher

CONTRACTOR
Ray Becker

DESC. OF WORK
Add 6' to rear and canopy to front to within 10' of property line

PERMIT NO. 9518

DATE 3-22-66

LOT BLOCK SUBDIVISION

INSPECTION RECORD

VALUE: \$ 4,000

CITY OF RICHLAND INSPECTION RECORD

FINAL 4-28-66

JOB ADDRESS
1824 George Wash. Way

OWNER
R. G. Wascher

CONTRACTOR
Owner

DESC. OF WORK:
Replace 2000 gal gas tank, replace 4 gas tanks.

PERMIT NO. 26910

DATE 8-15-77

LOT BLOCK SUBDIVISION

INSPECTION RECORD

VALUE: \$ 6,000.

CITY OF RICHLAND INSPECTION RECORD

DEV 00

JOB ADDRESS
1824 George Washington Way

OWNER
7-11 Food Store

CONTRACTOR
Area Sign & Lighting

DESC. OF WORK:
2 signs

PERMIT NO. 38234

DATE 3/9/84

LOT BLOCK SUBDIVISION

INSPECTION RECORD

VALUE: \$4000

CITY OF RICHLAND INSPECTION RECORD

DEV 0004

JOB ADDRESS
1824 G.W.W.

OWNER
Service Oil Co.

CONTRACTOR
Dwinell Central Neon

DESC. OF WORK:
Skeleton neon tubing mounted on bldg.

PERMIT NO. 10992

DATE 4-10-67

LOT BLOCK SUBDIVISION

INSPECTION RECORD

VALUE: \$

CITY OF RICHLAND INSPECTION RECORD

FOOTINGS AND FOUNDATION

FRAMING

PLUMBING

HEATING

AIR COND.

SEWER

GAS

FINAL

Job Address 1824 George Washington Way Permit No. 6568 Date 7/9/90

Owner The Subway Lot Block Subdivision

Contractor Pro-Sign Company Address _____

Description of Work: 1 freestanding sign and 1 wall mounted sign

Footings & Foundation: _____ Heating: _____ Value \$ 3000

Framing: _____ Sheetrock: _____

Plumbing: _____ Sewer & Water: _____

Fireplace: _____ Insulation: _____

FINAL: _____

City of Richland Inspection Record 2/00

Job Address 1824 George Washington Way Permit No. 43315 Date 6/1/90

Owner Richland Subway Lot Block Subdivision

Contractor _____ Address _____

Owner _____

Description of Work: Remodel

Footings & Foundation: _____ Heating: _____ Value \$ 20,000

Framing: 7-2-90 Sheetrock: 7-3-90

Plumbing: 6-15-90 Sewer & Water: _____

Fireplace: _____ Insulation: _____

FINAL: 2 7-19-90 7-21-90

City of Richland Inspection Record

1824 George Wash. Way permit no. 38877 date 6/11/84
 Owner 7-Eleven lot block subdivision
 Contractor Newland Const. Address
 Desc. of Work: Construct convenience store

INSPECTION RECORD Value: \$163,000

Footings: 6-25-84
 Framing: 6-27-84
 Plumbing: 6-28-84
 Fireplace: 7-20-84
 FINAL: 9-11-84
 CITY OF RICHLAND INSPECTION RECORD DEV 0004

Job Address 1824 B Geo. Wash. Way Permit No. 12370 Date 7/22/93
 Owner Elite latte Lot Blk Subdivision
 Contractor Paula Spencer Address
 Description of Work: 8' x 10' building
 Value \$ 3,000.00

Footings: Heating:
 Foundation: Sheetrock:
 Framing: Sewer & Water:
 Plumbing: Insulation:
 Final: OK 8-14-93 LG
 CITY OF RICHLAND INSPECTION RECORD 4/01

Job Address 1824 George Washington Way		Permit No. 95-00295	Date 3/22/95
Owner Subway	Lot	Blk	Subdivision 1-0298-102-0815-007
Contractor Owner		Address	
Description of Work: Remodel existing restaurant Value \$ 5,000.00			
Footings:	Heating:		
Foundation:	Sheetrock: 3-22-95		
Framing: 3-22-95 JK	Sewer & Water:		
Plumbing:	Insulation:		
Final: 4-4-95 JK	⑤ 3-23-95 JK		

1824 George Washington Way 8028 6/13/91
 Lot Block Subdivision

Owner
 Russ Cazier

Contractor
 Address

Pro Signs, Inc.

Description of Work:

2 signs (1 building mounted and 1 freestanding on existing pole)

Value \$ 4600

Footings & Foundation: Heating:

Framing: Sheetrock:

6-29-92 JK

Plumbing: Sewer & Water:

Fireplace: Insulation:

FINAL: 4-21-94 160

City of Richland Inspection Record 3/90

Job Address

1824 George Wash. Way

permit no. date

38876 6/11/84

Owner 7-Eleven lot block subdivision

Contractor Newland Const. Address

Desc. of Work:

Demolish service station

INSPECTION RECORD Value: \$3000

Footings

Foundation:

Framing:

Sheetrock:

Plumbing:

Sewer:

Fireplace:

Insulation:

FINAL: *6-29-92 JK*

CITY OF RICHLAND INSPECTION RECORD

DEV 0004

Job Address

1824 George Washington Way

permit no.

38342

date

3/26/84

Owner

7-11 Food Stores

lot

block

subdivision

Contractor

Address

Desc. of Work:

Plan check fee

Value: \$263.90

INSPECTION RECORD

Footings

Foundation:

Framing:

Sheetrock:

Plumbing:

Sewer:

Fireplace:

Insulation:

FINAL:

CITY OF RICHLAND INSPECTION RECORD

DEV 0004

Job Address

Permit No. Date

1824 George Washington Way

7787 4/30/91

Owner

Lot Block Subdivision

Cajun Joe's

Contractor

Address

Mahaffy Enterprises

Description of Work:

Gas line

Footings & Foundation:

Heating:

Value \$ 50

Framing:

Sheetrock:

Plumbing:

Sewer & Water:

Fireplace:

Insulation:

FINAL:

5-16-91/HA City of Richland Inspection Record 3/90

Job Address

Permit No. Date

1824 George Washington Way

10001 6/26/92

Owner

Lot Block Subdivision

Cazier Enterprises

Contractor

Address

Owner

Description of Work:

Install walls for offices

Footings & Foundation:

Heating:

Value \$ 500

Framing:

Sheetrock:

Plumbing:

Sewer & Water:

Fireplace:

Insulation:

FINAL:

No Final 4-25-94/ka City of Richland Inspection Record 3/90

Job Address

1824 George Washington Way

Permit No. Date

7329 1/23/91

Owner

Lot Block Subdivision

Cajun Joe's Chicken

Contractor

Address

Owner

Description of Work:

Interior remodel

Footings & Foundation:

Value \$ 7500

Framing:

Heating:

Plumbing:

Sheetrock:

Fireplace:

Sewer & Water:

FINAL:

Insulation:

No Final 4-25-94/ka

City of Richland Inspection Record

3/90

**OFFICE OF BUILDING INSPECTOR
CITY OF RICHLAND, WASHINGTON**

Recorded Owner <i>7-11 Store</i>	Job Address—Number and Street <i>1824 Geo. W. Way</i>	Permit No. 38876
Owner's Address	Lot	Block
Estimated Value of Completed Work is \$ <i>3000.-</i>	Plat of Richland or Subdivision	

INSPECTIONS REQUIRED	
Footings	Foundation
Ground Plumbing	Rough in Plumb.
Framing	Fireplace
Insulation	Sheetrock
Sewer	Water
Concrete Floors	Sprinklers
Final	

BUILDING PERMIT

VOID IF WORK IS NOT COMMENCED IN 180 DAYS

6/11/84
Date Issued

7/11/84
Expiration Date

Use Zone	PAID
Type Bldg.	<i>#39479</i>
Occupancy	
Permit Fee	\$ <i>38.50</i>
Plan Check Fee	\$
Total Fee	\$ <i>38.50</i>

Code	Description of Work
<i>240</i>	<i>Demolish service station to construct convenience store</i>

CONSTRUCTION		Roof Covering	Front Yard	Side Yard	Side Yard	Rear Yard
Fire Resistive	Heavy Timber	No. of Stories	No. of Families	Type Heating	Plbg.	Electric
Ordinary Masonry	Wood Frame					
Unprotected Metal						Gas
Plans Submitted	Plot Plan Submitted			Amps		

Name of Builder <i>Newland Const Co. Inc.</i>	Address	City Business License
Plumbing Contractor		Electrical Contractor

THIS PERMIT DOES NOT AUTHORIZE ANY WORK IN PUBLIC RIGHT-OF-WAY OR ON UTILITY EASEMENTS

- (1) I HEREBY CERTIFY THAT NO WORK IS TO BE DONE EXCEPT AS DESCRIBED ABOVE AND IN ACCOMPANYING PLANS AND SPECIFICATIONS AND THAT ALL WORK IS TO CONFORM TO BUILDING CODES AND ZONING ORDINANCES.
- (2) I HEREBY APPLY FOR ALL REQUIRED CERTIFICATES OF OCCUPANCY TO USE THE ABOVE DESCRIBED BUILDING FOR THE USE SPECIFIED.

CALL FOR INSPECTION requires 24 hr. prior notice before work is concealed
RICHLAND INSP. DIVISION
 943-9161 EX: 366

WN. State Dept. of Labor & Industries
 Electric Inspector
 783-6171

Applicant	<i>Robert E. Jap</i>
Inspector	<i>[Signature]</i>
Engineering	<i>[Signature]</i>
Elec.	<i>[Signature]</i> was <i>Mary E. Lippold</i>

SUBJECT TO COMPLIANCE WITH THE ORDINANCES OF THE CITY OF RICHLAND AND INFORMATION FILED HEREWITH, THIS PERMIT IS GRANTED.

**OFFICE OF BUILDING INSPECTOR
CITY OF RICHLAND, WASHINGTON**

Recorded Owner 7-11 Store	Job Address—Number and Street 1824 Geo. W. Way.	Permit No. 38877
Owner's Address	Lot	Block
Plat of Richland or Subdivision		

Estimated Value of Completed Work is \$ 163,000.-

<p align="center">INSPECTIONS REQUIRED</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>Footings</td><td>Foundation</td></tr> <tr><td>Ground Plumbing</td><td>Rough in Plumb.</td></tr> <tr><td>Framing</td><td>Fireplace</td></tr> <tr><td>Insulation</td><td>Sheetrock</td></tr> <tr><td>Sewer</td><td>Water</td></tr> <tr><td>Concrete Floors</td><td>Sprinklers</td></tr> <tr><td>Final Code</td><td></td></tr> </table>	Footings	Foundation	Ground Plumbing	Rough in Plumb.	Framing	Fireplace	Insulation	Sheetrock	Sewer	Water	Concrete Floors	Sprinklers	Final Code		<p>BUILDING PERMIT</p> <p>VOID IF WORK IS NOT COMMENCED IN 180 DAYS</p> <p>6/11/84 Date Issued</p> <p>10/11/84 Expiration Date</p>	<p>Use Zone</p> <p>Type Bldg. #39479</p> <p>Occupancy</p> <p>Permit Fee \$ 590.50</p> <p>Plan Check Fee \$ 383.83</p> <p><i>less credit</i> \$ 342</p> <p>321 due \$ 710.43</p> <p>Total Fee</p>
Footings	Foundation															
Ground Plumbing	Rough in Plumb.															
Framing	Fireplace															
Insulation	Sheetrock															
Sewer	Water															
Concrete Floors	Sprinklers															
Final Code																

Code	Description of Work
018	Construct convenience store as per plans and specifications and according to plan check letter requirements

CONSTRUCTION		Roof Covering	Front Yard	Side Yard	Side Yard	Rear Yard
Fire Resistive	Heavy Timber	No. of Stories	No. of Families	Type Heating	Plbg.	Electric
Ordinary Masonry	Wood Frame					
Unprotected Metal						Gas
Plans Submitted	Plot Plan Submitted		Amps			

Name of Builder Newland Const Co, Inc	Address	City Business License
Plumbing Contractor	Electrical Contractor	

THIS PERMIT DOES NOT AUTHORIZE ANY WORK IN PUBLIC RIGHT-OF-WAY OR ON UTILITY EASEMENTS

- (1) I HEREBY CERTIFY THAT NO WORK IS TO BE DONE EXCEPT AS DESCRIBED ABOVE AND IN ACCOMPANYING PLANS AND SPECIFICATIONS AND THAT ALL WORK IS TO CONFORM TO BUILDING CODES AND ZONING ORDINANCES.
- (2) I HEREBY APPLY FOR ALL REQUIRED CERTIFICATES OF OCCUPANCY TO USE THE ABOVE DESCRIBED BUILDING FOR THE USE SPECIFIED.

CALL FOR INSPECTION requires 24 hr. prior notice before work is concealed
RICHLAND INSP. DIVISION
 943-9161 EX: 366
 WN. State Dept. of Labor & Industries
 Electric Inspector
 783-6171

Applicant **Robert E. Gays**

Inspector **[Signature]**

Engineering **[Signature]**

Elect. **[Signature]** was **Mary E. Lippold**

SUBJECT TO COMPLIANCE WITH THE ORDINANCES OF THE CITY OF RICHLAND AND INFORMATION FILED HERewith, THIS PERMIT IS GRANTED.

CERTIFICATE of OCCUPANCY

CITY of RICHLAND

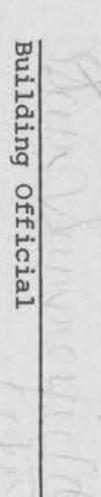
BUILDING & INSPECTION DIVISION

This Certificate issued pursuant to the requirements of Section 306 of the Uniform Building Code certifying that at the time of issuance this structure was in compliance with the various ordinances of the City regulating building construction or use. For the following:

Use classification 7-Eleven Convenience Store Bldg. Permit No. 38877
Group B-2 Type Construction V-N Use Zone C-1
Owner of Building The Southland Corporation Address 1035 Andover Park West, Tukwila, WA
Building Address 1828 George Washington Way Legal Lot 7, Block 815, Plat of Richland


Fire Marshal

Date 3-6-85


Building Official

Date 3/15/85



POST IN A CONSPICUOUS PLACE

005

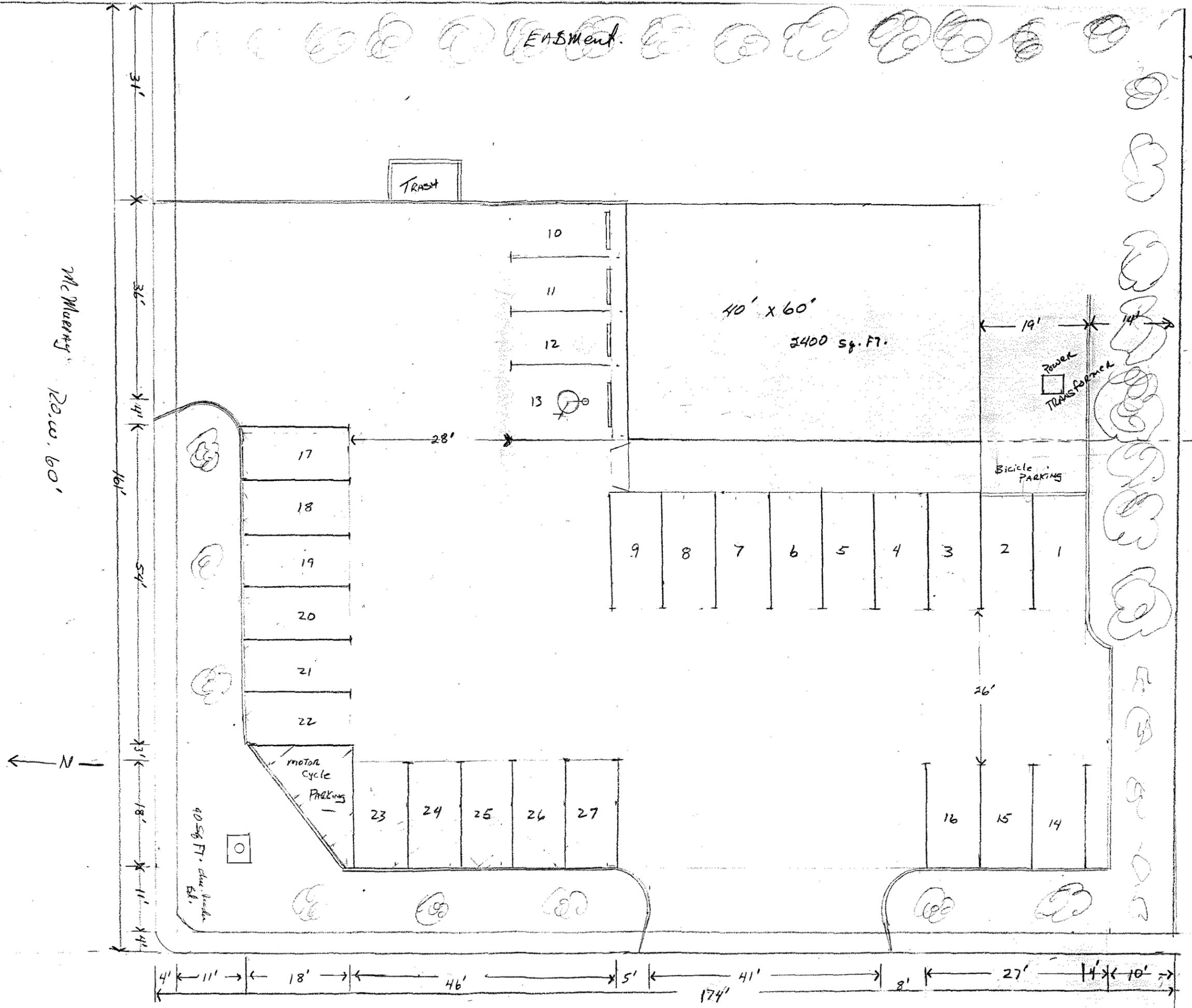
RICHLAND WA 27 APR VAP FL=15.20 15000 W88-3-156



LENS NO 112648

CFL 153.207

SCALE 1/16" = 1' 1/4" = 4'
 DRAWING OF PREMISES AND IMPROVEMENTS - PLOT PLAN
 GEORGE WASHINGTON WAY & McMURRAY ST.
 RICH LAND



GEORGE WASHINGTON WAY - 80' ROW.

61

4-23-95

1:24,000

TRI-CITIES BLOCK

24-189



5-13-97

1:24,000

TRI-CITIES BLK

5-35









3-11-99

152-889

17200

50-013135 RICHLAND, WA 10-20

7200
1-11-11

3-11-99

152.889

1:24,000

50-013135

RICHLAND, WA

19-4

TOP 15



4-21-00

1:24,000

TRI-CITIES BLOCK

6-88









McMURRY STREET

GEORGE WASHINGTON WAY

LOT 7, BLOCK 815
PLAT OF RICHLAND
0.514 Ac.

Flowering Cherry
or
Flowering Pear

140 ft

Above ground Reduced Pressure
Backflow Assembly installed in
cabinet box for freeze protection

City Water Meter

Existing Lot
97.55

Proposed Drive-Thru Lane

3.26% Slope
Slab to Existing Lot

Existing Arborvitae
to be left if Possible

Existing Fence
Starts

Sound Wall
6 feet high

Pergola

40 ft

EXISTING PARKING

Existing Building

480 sq ft Addition

Drive-thru Slab
99.8

Property of Richland Baptist Church

Existing
Training Room

Existing
Personnel
Office

Office

1.24% Slope
Slab to Monitoring Well

Sewer Lines From Existing
Building to City Sewer

Electrical Power Service Line

Existing Lot
97.8

Cascade Natural Gas Service Line

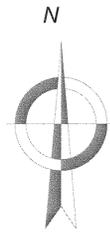
Proposed Drive-Thru Lane

1.64% Slope
Monitoring Well to Existing Lot

Monitoring Well
99.25'

Evergreen

140 ft Hedge of Japanese Barberry and Boxwood



Site Plan and Grading Plan
Proposed Drive -Thru
for Subway
1824 George Washington Way
Richland WA

Cazier Enterprises
2798 Katie Rd
Kennewick, WA 99338

Designed By:
Bob Cazier
509-948-5850

Date:
May 1, 2009

Page 3 of 4

Scale 1/8 in = 1 ft





MC MURRAY ST

GEORGE WASH WAY

WASH WAY

SHAW WAY

5842

5841

5804

5803

5802

1824

5840

815

3-2/0BC, 12 1/0AL

3-1/0URD/00

7872(n)
112-G

P-2057

160.00

00.08

00.08

00.08

00.08

00.08

00.08

00.08

54"SS

54"SS

54"SS

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8'W

13"SD

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W

W

W

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W

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W

W

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H-1263

H-329

H-199

H-2332

H-2332

H-2332

H-2332

H-2332

H-2332

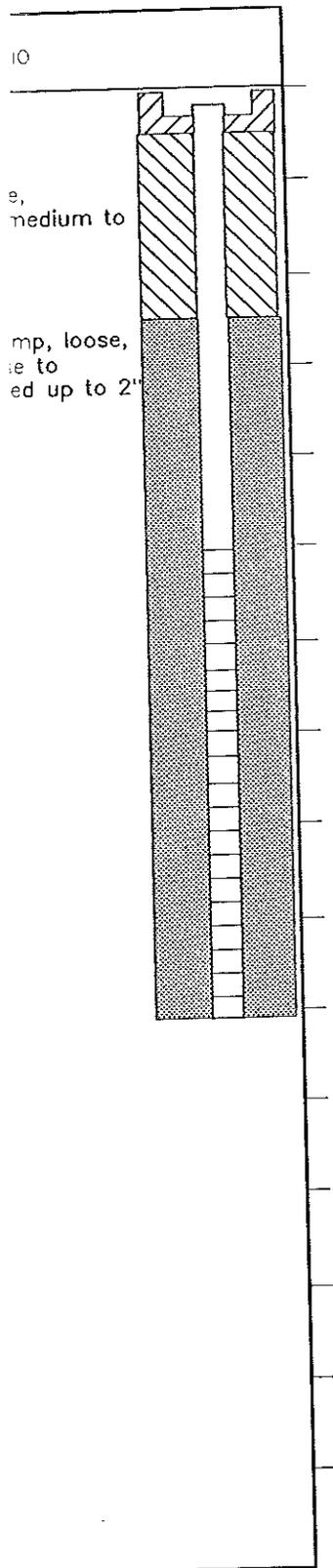
H-2332

SS

CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA

Appendix D HISTORICAL AND CURRENT SOIL BORING LOGS
May 25, 2017

Appendix D HISTORICAL AND CURRENT SOIL BORING LOGS



Screen Size: 0.010"
Casing Size: 2" PVC

Plate 4

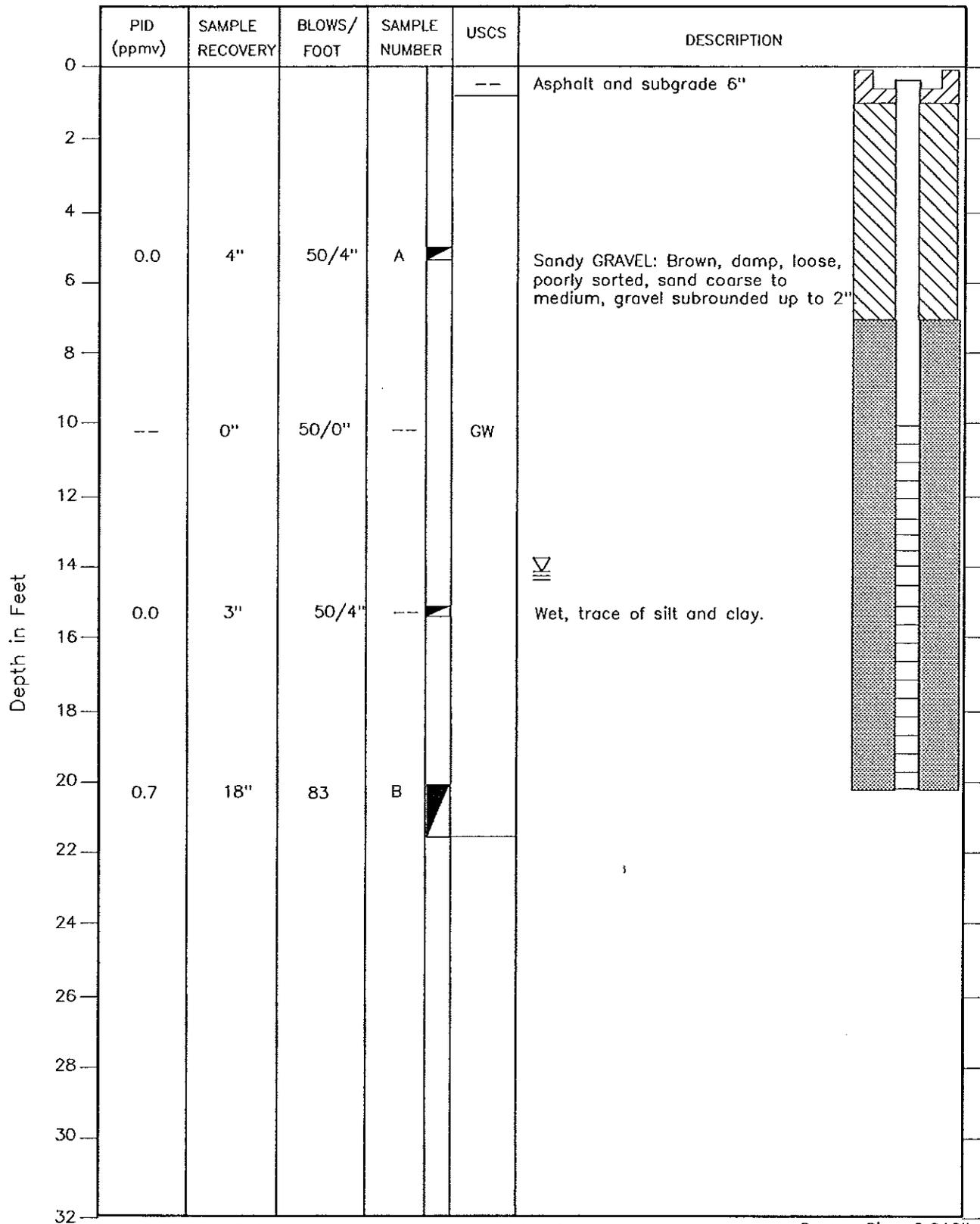
DEPTH	BLOWS/ FOOT	SAMPLE NUMBER	USCS	DESCRIPTION
			---	Asphalt and subgrade 6"
			SP	SAND: Brown, damp, loose, moderately sorted, sand medium to fine grained.
	50/5"	A		Sandy GRAVEL: Brown, damp, loose, poorly sorted, sand coarse to medium, gravel subrounded up to 2"
	50/5"		GW	
	42		Wet	
	37	B		

Logged by: Glenn A. Hayman
Boring Diameter: 6"
Drilling Method: Hollow-Stem Auger

Screen Size: 0.010"
Casing Size: 2" PVC

Boring No. MW02

Plate 5



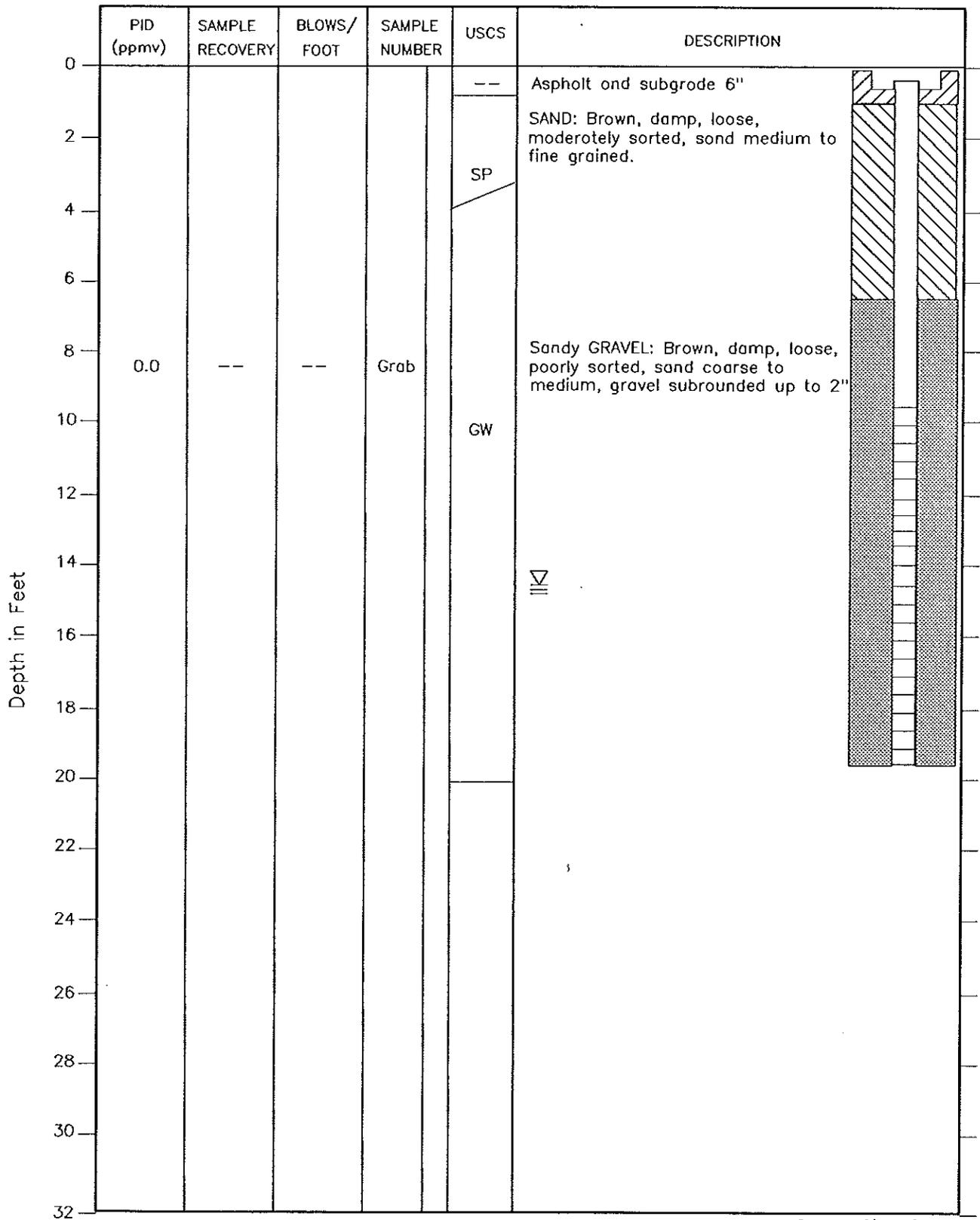
Total Depth: 21.5 feet
 Date Drilled: 6/30/89
 Sheet 1 of 1
 File # 10490203.MW
 Project # 60-1049-02

Logged by: Glenn A. Hoyman
 Boring Diameter: 6"
 Drilling Method: Hollow-Stem Auger

Screen Size: 0.010"
 Casing Size: 2" PVC

Boring No. MW03

Plate 6



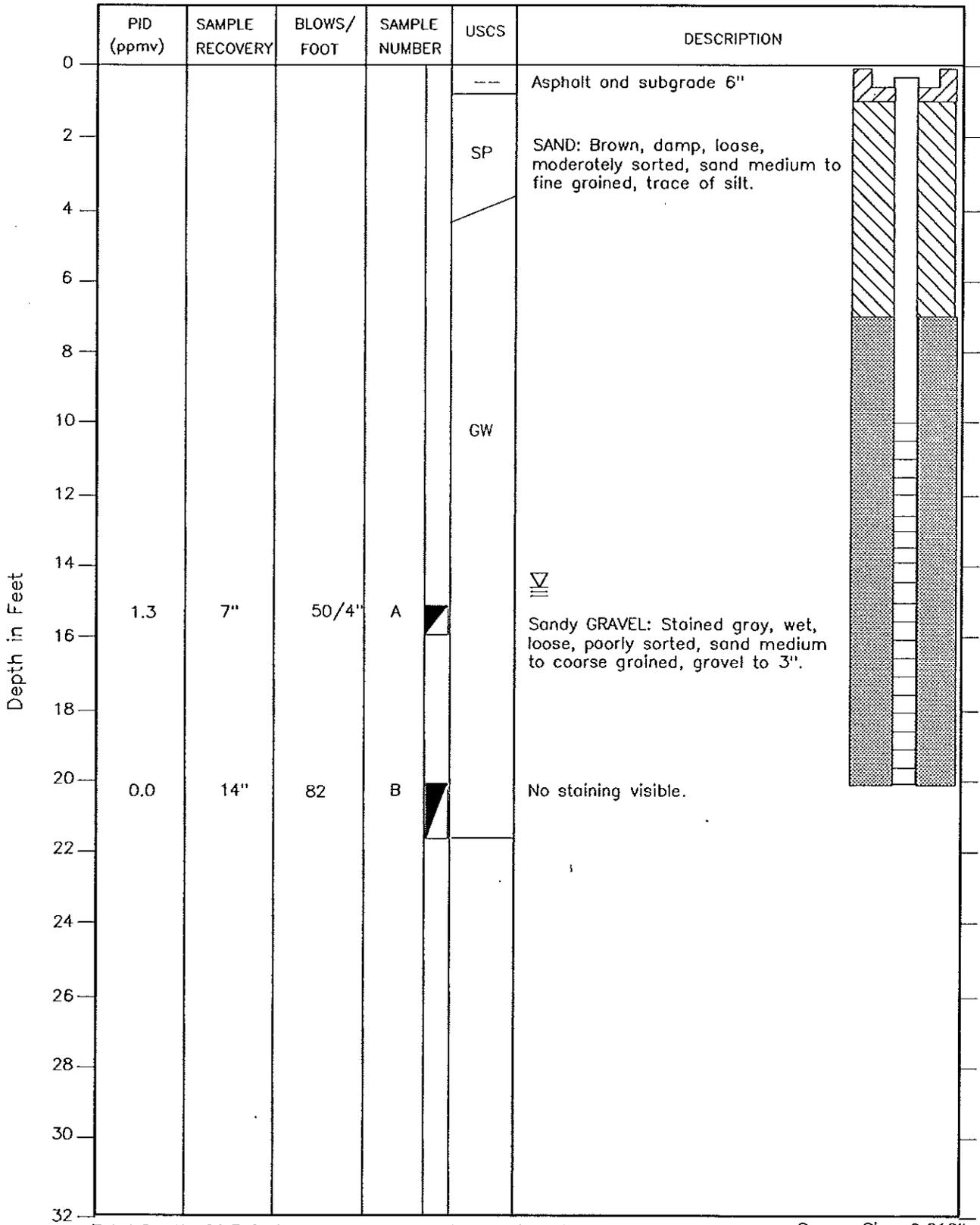
Total Depth: 20 feet
 Date Drilled: 6/30/89
 Sheet 1 of 1
 File # 10400204.MW
 Project # 60-1049-02

Logged by: Glenn A. Hayman
 Boring Diameter: 6"
 Drilling Method: Hollow-Stem Auger

Screen Size: 0.010"
 Casing Size: 2" PVC

Boring No. MW04

Plate 7



Total Depth: 21.5 feet
 Date Drilled: 6/30/89
 Sheet 1 of 1
 File # 10490205.MW
 Project # 60-1049-02

Logged by: Glenn A. Hayman
 Boring Diameter: 6"
 Drilling Method: Hollow-Stem Auger

Screen Size: 0.010"
 Casing Size: 2" PVC

Boring No. MW05

Plate 8

DEPTH (feet)	WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOKS/FOOT	INTERVAL	SAMPLE NUMBER	LITHOLOGY	U. S. C. S. DESIGNATION	SOIL DESCRIPTION
		LABORATORY	FIELD						
			PID ppmv						
0	Concrete surface seal and monument. Bentonite seal.								Gravel surface.
5			0.0	50			GM		Silty gravelly, slightly moist, dense, light to medium grayish brown matrix. Gravel clasts up to 2 inches. Driller only dropping hammer 2' instead of 3'.
10	Sand filter pack. Slotted pipe.		0.4	20			GP		Sandy gravel, moist to wet, medium dense, medium grayish brown matrix. Gravel clasts to 2 inches.
15			505.0	64 / 5"			SW		Gravelly sand, wet, dense, medium to dark gray. Strong gasoline odor.
20			144.0	50 / 4"			SP		Medium to coarse grained sand, wet, dense, medium to dark gray. Gasoline odor, not as strong as 15 foot sample.
25									

FILE #:	SURFACE ELEVATION (feet): 361.0	DRILLING METHOD: Hollow stem auger
LOGGED BY: Karin Hayman	TOTAL DEPTH (feet): 20.9	SCREEN SIZE: 0.010"
DATE DRILLED: 5-23-90	DIAMETER OF BORING: 6"	CASING SIZE: 2"



KLEINFELDER

PROJECT NUMBER 60-1075-01

George Washington Way, Richland Washington

LOG OF SOILS

MW06

PLATE

B-2

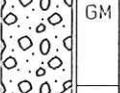
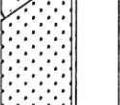
PAGE 1 of 1

Project Facility #25821 Owner The Southland Corporation
 Location 1824 George Washington Way, Richland, WA Proj. No. 020600276
 Surface Elev. _____ Total Hole Depth 20 ft. Diameter 10 in.
 Top of Casing _____ Water Level Initial 13 ft. Static _____
 Screen: Dia 4 in. Length 10 ft. Type/Size 0.020 in.
 Casing: Dia 4 in. Length 10 ft. Type Sched. 40 PVC
 Fill Material 10/20 Sand Rig/Core Mobile Drill B-59
 Drill Co. Geo-Tech Method HSA
 Driller Joel Welsh Log By Steve Hartman Date 07/25/96 Permit # _____
 Checked By Stan Haskins License No. _____

See Site Map
For Boring Location

COMMENTS:

Samples represented with a black box were submitted for laboratory analysis.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
-2							
0						Asp	Hand dug to two feet 1.5" Asphaltic concrete
2						GM	GRAVEL and boulders, some brown silty sand, diameter <4" (medium dense, dry, no odor) (boulder diameter decreases with depth)
4							Brown medium-grained SAND, some fine-medium gravel (medium dense, dry, no odor)
6		0	MW-7-A	6 10 10			
8							
10		0	MW-7-B				(sample MW-7-B is composited with MW-7-A) (switch to 3-inch split spoon sampler)
12							
14		0	MW-7-C	8 50/2		SP	(grades to fine to coarse gravel) Encountered water at 13' at 14:40 on 7/25/96 (slight odor to water)
16							
18							(grades no gravel)
20		90	MW-7-D	17 40 50/4			
22							End of borehole 14:55 on 7/25/96. Construct groundwater monitoring well
24							

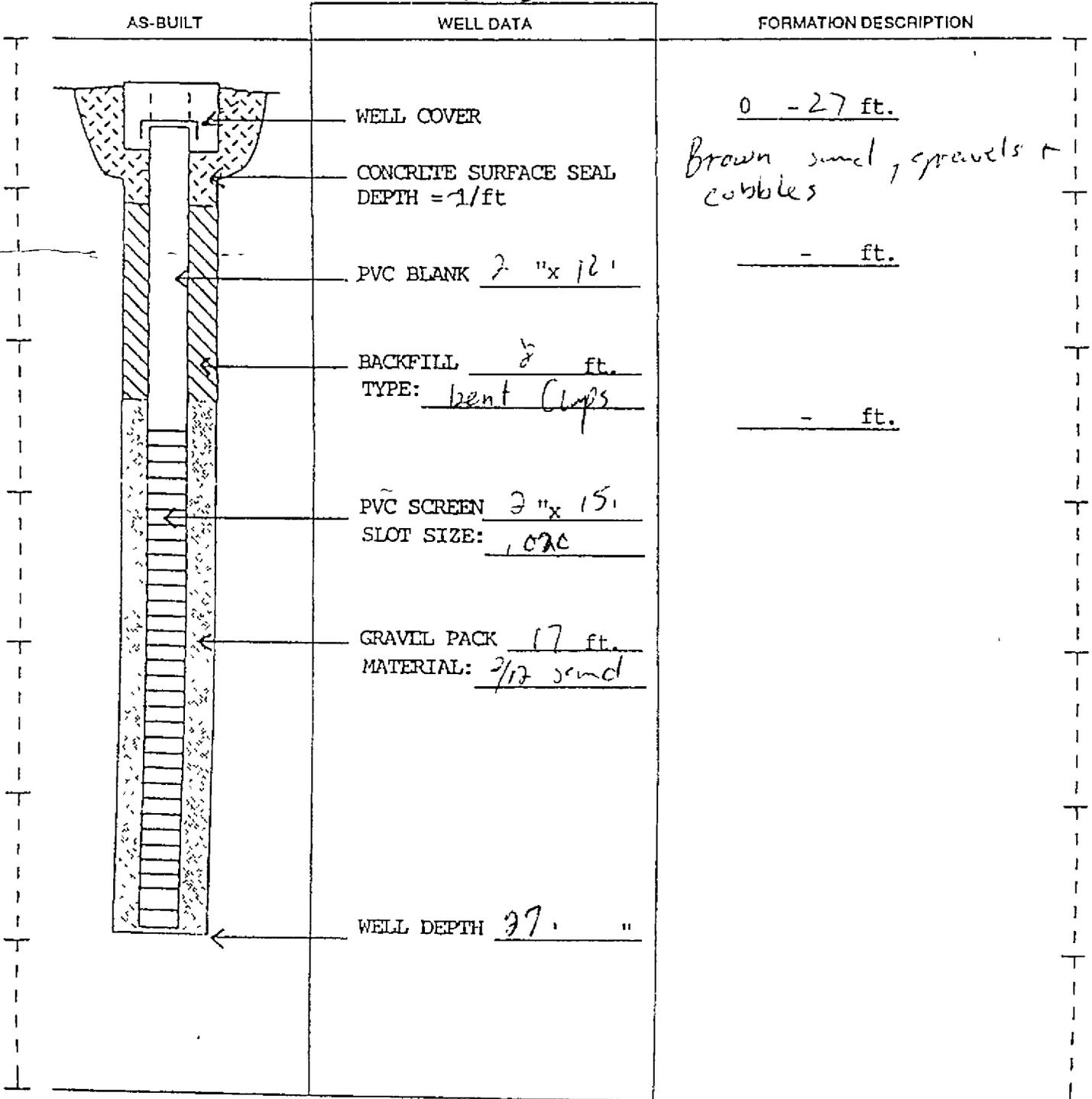
RESOURCE PROTECTION WELL REPORT

START CARD NO R050369

937416
 PROJECT NAME: SUBWAY SANDWICH SHOP
 WELL IDENTIFICATION NO A6H 232
 DRILLING METHOD HSA
 DRILLER Scott E Krueger
 FIRM Cascade Drilling, Inc.
 SIGNATURE [Signature]
 CONSULTING FIRM IT Corporation
 REPRESENTATIVE Amy Ott

COUNTY BENTON
 LOCATION NW 1/4 NE 1/4 Sec 2 Twn 9N R 28E **B**
 STREET ADDRESS OF WELL 1824 George Washington Wy, Richland
 WATER LEVEL ELEVATION 17
 GROUND SURFACE ELEVATION N/A
 INSTALLED 7/11/01
 DEVELOPED NO

1228



SCALE 1" = _____

PAGE _____ OF _____

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

SECOR

International Incorporated

Logged By: D. JOHNSON	Date Drilled: 7/9/04	Drilling Contractor CASCADE DRILLING	Project Name: 7-ELEVEN FACILITY 25821 RICHLAND, WASHINGTON	Method/Equipment: GEOPROBE	Boring Number: GP-1		
See "Legend to Logs" for sampling method, classifications and laboratory testing methods		Boring Diam.(in.): 2	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.): 16.0	Drive wt.(lbs.): NA	Drop Dist.(in.): NA

Boring Abandonment	Depth, (ft.)	Sample Interval	Description	PID (ppm)	SAMPLE
			Asphalt 4" thick.		
			SAND (SP); brown, low moisture, loose, medium grained, poorly graded, odor.		
			Crushed rock.		
	5		SAND (SP); brown, low moisture, medium grained, medium gravel, subrounded to 2", odor.	23 ppm	GP-1@5'
				17 ppm	
	10				GP-1@10'
				18 ppm	
	15		As above.		
				21 ppm	GP-1@16'
			REFUSAL AT 16 FEET BELOW GROUND SURFACE.		

25821(BL) GP1 LOG OF BH-REDLANDS-REVI

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **01EL.25821.04**
Date

Log of Boring/Well: GP-1

Approved by _____

SECOR

International Incorporated

Logged By: D. JOHNSON	Date Drilled: 7/9/04	Drilling Contractor CASCADE DRILLING	Project Name: 7-ELEVEN FACILITY 25821 RICHLAND, WASHINGTON	Method/Equipment: GEOPROBE	Boring Number: GP-2		
See "Legend to Logs" for sampling method, classifications and laboratory testing methods		Boring Diam.(in.): 2	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.): 18.0	Drive wt.(lbs.): NA	Drop Dist.(in.): NA

Boring Abandonment	Depth, (ft.)	Sample Interval	Description	PID	SAMPLE
--------------------	--------------	-----------------	-------------	-----	--------

			Asphalt 4" thick. SAND (SP); brown, low moisture, loose, medium grained, subrounded gravel to 2".		
	5	X		42 ppm	GP-2@5'
	10	X	As above.	40 ppm	GP-2@10'
	15	X		32 ppm	GP-2@15'
	20	X	As above. REFUSAL AT 18 FEET BELOW GROUND SURFACE.	16 ppm	GP-2@18'

25821(BL) GPJ LOG OF BH-REDLANDS-REV1

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **01EL.25821.04**
Date

Log of Boring/Well: GP-2

Approved by _____

SECOR

International Incorporated

Logged By: D. JOHNSON	Date Drilled: 7/9/04	Drilling Contractor CASCADE DRILLING	Project Name: 7-ELEVEN FACILITY 25821 RICHLAND, WASHINGTON	Method/Equipment: GEOPROBE	Boring Number: GP-3		
See "Legend to Logs" for sampling method, classifications and laboratory testing methods		Boring Diam.(in.): 2	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.): 12.0	Drive wt.(lbs.): NA	Drop Dist.(in.): NA

Boring Abandonment	Depth, (ft.)	Sample Interval	Description	PID	SAMPLE
--------------------	--------------	-----------------	-------------	-----	--------

			Asphalt 4" thick.		
			SAND (SP); brown, low moisture, loose, medium grained, no odor.		
	5	X	As above.	1 ppm	GP-3@5'
	10	X	As above.	1 ppm	GP-3@10'
		X		1.5 ppm	GP-3@12'
			REFUSAL AT 12 FEET BELOW GROUND SURFACE.		

25821(BL) GPJ LOG OF BH-REDLANDS-REV1

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **01EL.25821.04**
Date

Log of Boring/Well: GP-3

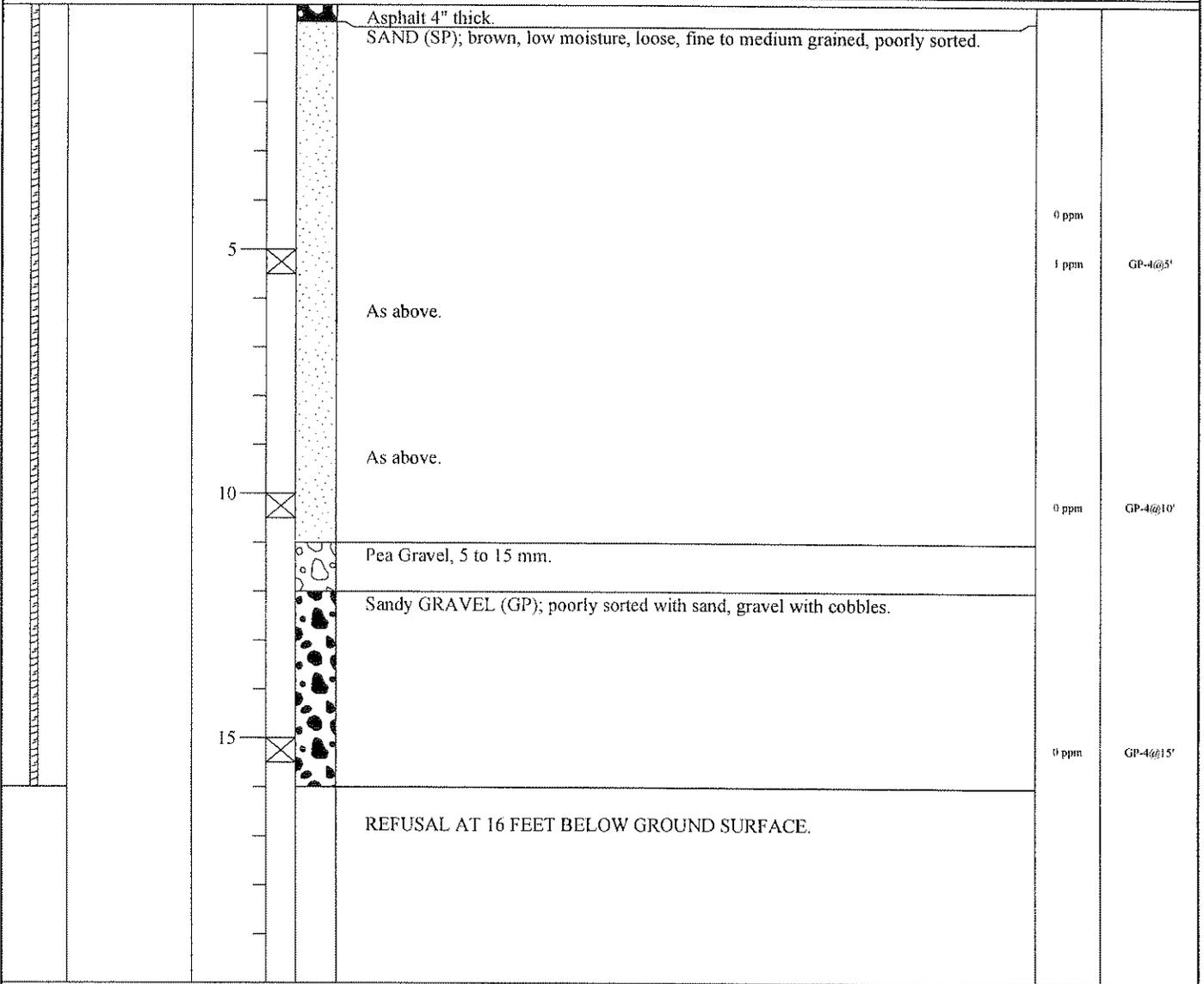
Approved by _____

SECOR

International Incorporated

Logged By: D. JOHNSON	Date Drilled: 7/9/04	Drilling Contractor CASCADE DRILLING	Project Name: 7-ELEVEN FACILITY 25821 RICHLAND, WASHINGTON	Method/Equipment: GEOPROBE	Boring Number: GP-4		
See "Legend to Logs" for sampling method, classifications and laboratory testing methods		Boring Diam.(in.): 2	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.): 16.0	Drive wt.(lbs.): NA	Drop Dist.(in.): NA

Boring Abandonment	Depth, (ft.)	Sample Interval	Description	PID	SAMPLE
--------------------	--------------	-----------------	-------------	-----	--------



25821(BL) GP1 LOG OF BH-REDLANDS-REV1

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **01EL.25821.04**

Date

Log of Boring/Well: GP-4

Approved by _____

SECOR

International Incorporated

Logged By: D. JOHNSON	Date Drilled: 7/9/04	Drilling Contractor CASCADE DRILLING	Project Name: 7-ELEVEN FACILITY 25821 RICHLAND, WASHINGTON	Method/Equipment: GEOPROBE	Boring Number: GP-5		
See "Legend to Logs" for sampling method, classifications and laboratory testing methods		Boring Diam.(in.): 2	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.): 14.0	Drive wt.(lbs.): NA	Drop Dist.(in.): NA

Boring Abandonment	Depth, (ft.)	Sample Interval	Description	PID	SAMPLE
			Asphalt 4" thick.		
			SAND (SP); brown, low moisture, fine to medium grained, poorly sorted.		
	5		As above.	1.4 ppm	
	10		As above.	0.3 ppm	GP-5@10'
			Sandy GRAVEL (GP); moist, cobbles 2 to 4".	1.1 ppm	
				2 ppm	GP-5@14'
	15		REFUSAL AT 14 FEET BELOW GROUND SURFACE.		

25821(BL) GPJ LOG OF BH-RICHLANDS-REV1

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. 01EL.25821.04

Date

Log of Boring/Well: GP-5

Approved by _____

(sheet 1 of 1)

SECOR

International Incorporated

Logged By: D. JOHNSON	Date Drilled: 7/9/04	Drilling Contractor CASCADE DRILLING	Project Name: 7-ELEVEN FACILITY 25821 RICHLAND, WASHINGTON	Method/Equipment: GEOPROBE	Boring Number: GP-6
---------------------------------	--------------------------------	------------------------------------------------	----------------------------------------------------------------------	--------------------------------------	-------------------------------

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.): 2	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.): 12.0	Drive wt.(lbs.): NA	Drop Dist.(in.): NA
------------------------------------------------------------------------------------------	--------------------------------	---------------------	--------------------------	-----------------------------------	-------------------------------	-------------------------------

Boring Abandonment	Depth, (ft.)	Sample Interval	Description	PID	SAMPLE
--------------------	--------------	-----------------	-------------	-----	--------

			Asphalt 4" thick.		
			SAND (SP); brown, low moisture, fine to medium grained, poorly sorted, slight odor.		
	5	X	As above.	5 ppm	GP-6@5'
			No odor.		
	10	X	Sandy GRAVEL (GP); medium moisture, cobbles, odor.	2 ppm	GP-6@10'
		X		68 ppm	GP-6@12'
			REFUSAL AT 12 FEET BELOW GOUND SURFACE.		

25821(BL).GPJ LOG OF BH+REFDLANDS-REV1

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. 01EL.25821.04
Date

Log of Boring/Well: GP-6

Approved by _____

SECOR

International Incorporated

Logged By: D. JOHNSON	Date Drilled: 7/9/04	Drilling Contractor CASCADE DRILLING	Project Name: 7-ELEVEN FACILITY 25821 RICHLAND, WASHINGTON	Method/Equipment: GEOPROBE	Boring Number: GP-7		
See "Legend to Logs" for sampling method, classifications and laboratory testing methods		Boring Diam.(in.): 2	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.): 12.0	Drive wt.(lbs.): NA	Drop Dist.(in.): NA

Boring Abandonment	Depth, (ft.)	Sample Interval	Description	PID	SAMPLE
--------------------	--------------	-----------------	-------------	-----	--------

			Asphalt 4" thick.		
			SAND (SP); brown, low moisture, fine to medium grained, poorly sorted.		
	5	X	As above.	0.5 ppm	GP-7@5'
	10	X	As above.	1 ppm	GP-7@10'
		X	GRAVEL and COBBLES (alluvium).	1 ppm	GP-7@12'
			REFUSAL AT 12 FEET BELOW GROUND SURFACE.		

25821(8L).GPI LOG OF BH-REDLANDS-REV1

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **01EL.25821.04**

Date

Log of Boring/Well: GP-7

Approved by _____

(sheet 1 of 1)

SECOR

International Incorporated

Logged By: D. JOHNSON	Date Drilled: 7/9/04	Drilling Contractor CASCADE DRILLING	Project Name: 7-ELEVEN FACILITY 25821 RICHLAND, WASHINGTON	Method/Equipment: GEOPROBE	Boring Number: GP-8	
See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.): 2	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs.): NA	Drop Dist.(in.): NA

Boring Abandonment	Depth, (ft.)	Sample Interval	Description	PID	SAMPLE
			Asphalt 4" thick.		
			SAND (SP); brown, low moisture, fine to medium grained, poorly sorted.		
	5	X	As above.	0.5 ppm	GP-8@5'
			GRAVEL with COBBLES.		
	10	X	REFUSAL AT 10 FEET BELOW GROUND SURFACE.	0.4 ppm	GP-8@10'

25821(BL)GPJ LOG OF BH-REDLANDS-REV1

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **01EL.25821.04**
Date

Log of Boring/Well: GP-8

Approved by _____

SECOR

International Incorporated

Logged By: D. JOHNSON	Date Drilled: 7/9/04	Drilling Contractor CASCADE DRILLING	Project Name: 7-ELEVEN FACILITY 25821 RICHLAND, WASHINGTON	Method/Equipment: GEOPROBE	Boring Number: GP-9		
See "Legend to Logs" for sampling method, classifications and laboratory testing methods		Boring Diam.(in.): 2	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.): 14.0	Drive wt.(lbs.): NA	Drop Dist.(in.): NA

Boring Abandonment	Depth, (ft.)	Sample Interval	Description	PID	SAMPLE
			Asphalt 4" thick.		
			SAND (SP); brown, low moisture, fine to medium grained, poorly sorted.		
	5	X	As above.	0.8 ppm	GP-9@5'
	10	X	Sandy GRAVEL (GP); brown, dry, loose, poorly sorted, cobbles.	0.4 ppm	GP-9@10'
	15	X	REFUSAL AT 14 FEET BELOW GROUND SURFACE.	1.3 ppm	GP-9@14'

25821(BL).GPJ LOG OF BH+REDLANDS-REV1

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **01EL.25821.04**
Date

Log of Boring/Well: GP-9

Approved by _____

PROJECT: **Former 7-Eleven Store No. 25821**
 LOCATION: **1824 George Washington Way, Richland, WA 99352**
 PROJECT NUMBER: **185750037.300.0600 BHU 324**

WELL / PROBEHOLE / BOREHOLE NO
MW-9 PAGE 1 OF 1



DRILLING / INSTALLATION:
 STARTED **10/2/13** COMPLETED: **10/2/13**
 DRILLING COMPANY: **Holocene Drilling, Inc.**
 DRILLING EQUIPMENT: **Diedrich D-120**
 DRILLING METHOD: **Hollow-Stem Auger (HSA)**
 SAMPLING EQUIPMENT: **Split Spoon 0'-25'**

NORTHING (ft):
 LAT:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **Not Encountered**
 STATIC DTW (ft): **Not Encountered**
 WELL CASING DIA. (in): **2**
 LOGGED BY: **DH**

EASTING (ft):
 LONG:
 TOC ELEV (ft): **365.32**
 WELL DEPTH (ft): **25.0**
 BOREHOLE DEPTH (ft): **25.5**
 BOREHOLE DIA. (in): **6**
 CHECKED BY: **PF**

Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
0	Asphalt	SP	Asphalt; cleared hole to 5 feet bgs via air knife and vacuum							Flush Mount Monument
0-5	SP	SP	Poorly-graded sand with angular coarse gravel; SP; brown; loose; dry; no odor; no staining							Hydrated Bentonite Chips
5	SP	SP	SP; No recovery	1645	MW-9@5'	1.0	14 18 21	0.0	5	
10	SP	SP	SP; No recovery		--	--	50/4	--	10	Colorado 10/20 Sand
15	SP	SP	SP; Poorly-graded sand; SP; gray; coarse-grained sand with coarse angular gravel; medium dense; wet; no odor; no staining		--	--	50/5	--	15	
20	SP	SP	SP; Poorly-graded sand; SP; gray; coarse-grained sand with coarse angular gravel; medium dense; wet; no odor; no staining	1710	MW-9@20'	1.0	38 24 15	4.2	20	Screen
25				1715	MW-9@25'	0.05	50/3	0.0	25	
Borehole terminated at 25.5 feet.										

PROJECT: **Former 7-Eleven Store No. 25821**
 LOCATION: **1824 George Washington Way, Richland, WA 99352**
 PROJECT NUMBER: **185750037.300.0600 BHU 323**

WELL / PROBEHOLE / BOREHOLE NO **MW-10** PAGE 1 OF 1 

DRILLING / INSTALLATION:
 STARTED **10/2/13** COMPLETED: **10/2/13**
 DRILLING COMPANY: **Holocene Drilling, Inc.**
 DRILLING EQUIPMENT: **Diedrich D-120**
 DRILLING METHOD: **Hollow-Stem Auger**
 SAMPLING EQUIPMENT: **Split Spoon 0'-25'**

NORTHING (ft):
 LAT:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **Not Encountered**
 STATIC DTW (ft): **Not Encountered**
 WELL CASING DIA. (in): **2**
 LOGGED BY: **DH**

EASTING (ft):
 LONG:
 TOC ELEV (ft): **365.77**
 WELL DEPTH (ft): **25.0**
 BOREHOLE DEPTH (ft): **26.0**
 BOREHOLE DIA. (in): **6**
 CHECKED BY: **PF**

Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
0		SP	Asphalt top 4 inches; hole cleared to 5 feet bgs via air knife and vacuum							Flush Mount Monument
0-4		SP	SP; Poorly-graded sand with gravel; SP; brown; fine grained sand with rounded fine gravel; loose; dry; no odor							Hydrated Bentonite Chips
5		SP	SP; Poorly-graded sand with gravel; SP; brown; fine grained sand with rounded fine gravel; loose; dry; no odor	X	1510 MW-10@5'	0.5	12 14 21	0.0	5	
10		GW	GW; Gravel-sand mixture; GW; gray; fine-grained sand; dry; dense; no odor	X	1515 MW-10@10'	0.10	13 50/6	0.1	10	Colorado 10/20 Sand
15		SP	SP; Poorly-graded sand with gravel; SP; gray; fine-grained sand; dense; wet; no odor	X	1520 MW-10@15'	1	13 48 47	0.0	15	
20		SP	SP; Poorly-graded sand with gravel; SP; gray; fine-grained sand; dense; wet; no odor	X	1530 MW-10@20'	1.5	16 30 54	0.0	20	Screen
25		SP	SP; Poorly-graded sand with gravel; SP; gray; fine-grained sand; dense; wet; no odor	X	1540 MW-10@25'	1.5	18 50/5	0.0	25	

Borehole terminated at 26 feet.

PROJECT: **Former 7-Eleven Store No. 25821**
 LOCATION: **1824 George Washington Way, Richland, WA 99352**
 PROJECT NUMBER: **185750037.300.0600 BHU 322**

WELL / PROBEHOLE / BOREHOLE NO
MW-11 PAGE 1 OF 1



DRILLING / INSTALLATION:
 STARTED **10/2/13** COMPLETED: **10/2/13**
 DRILLING COMPANY: **Holocene Drilling, Inc.**
 DRILLING EQUIPMENT: **Diedrich D-120**
 DRILLING METHOD: **Hollow-Stem Auger**
 SAMPLING EQUIPMENT: **Split Spoon 0'-25'**

NORTHING (ft):
 LAT:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **Not Encountered**
 STATIC DTW (ft): **Not Encountered**
 WELL CASING DIA. (in): **2**
 LOGGED BY: **DH**

EASTING (ft):
 LONG:
 TOC ELEV (ft): **365.57**
 WELL DEPTH (ft): **24.5**
 BOREHOLE DEPTH (ft): **25.5**
 BOREHOLE DIA. (in): **6**
 CHECKED BY: **PF**

Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
0	Asphalt top 4 inches; cleared hole to 5 feet bgs via air knife and vacuum									Flush Mount Monument
5	SW; Sand with fines and gravel; SW; brown; very fine to fine grained sand and fine gravel; slightly moist; loose; orange iron oxide streaks	SW								Hydrated Bentonite Chips
5	SW; Same as above	SW		X	1330 MW-11@5'	0.2	7 9 18	0.0	5	
10	SW; Same as above	SW		X	1340 MW-11@10'	0.2	12 50/5	0.0	10	Colorado 10-20 Sand
15	SW; Poorly graded sand with some gravel; SP; grayish brown; fine grained sand and coarse gravel; dense; wet; no odor	SW		X	1350 MW-11@15'	0.2	15 18 33	0.0	15	
20	SP; Poorly graded sand with some gravel; SP; grayish brown; fine grained sand and coarse gravel; dense; wet; no odor	SP		X	1400 MW-11@20'	0.2	50/6	0.0	20	Screen
25				X	1410 MW-11@25'	0.1	50/5	0.0	25	
Borehole terminated at 25.5 feet.										

PROJECT: **Former 7-Eleven Store No. 25821**
 LOCATION: **1824 George Washington Way, Richland, WA 99352**
 PROJECT NUMBER: **185750037.300.0600 BHU 321**

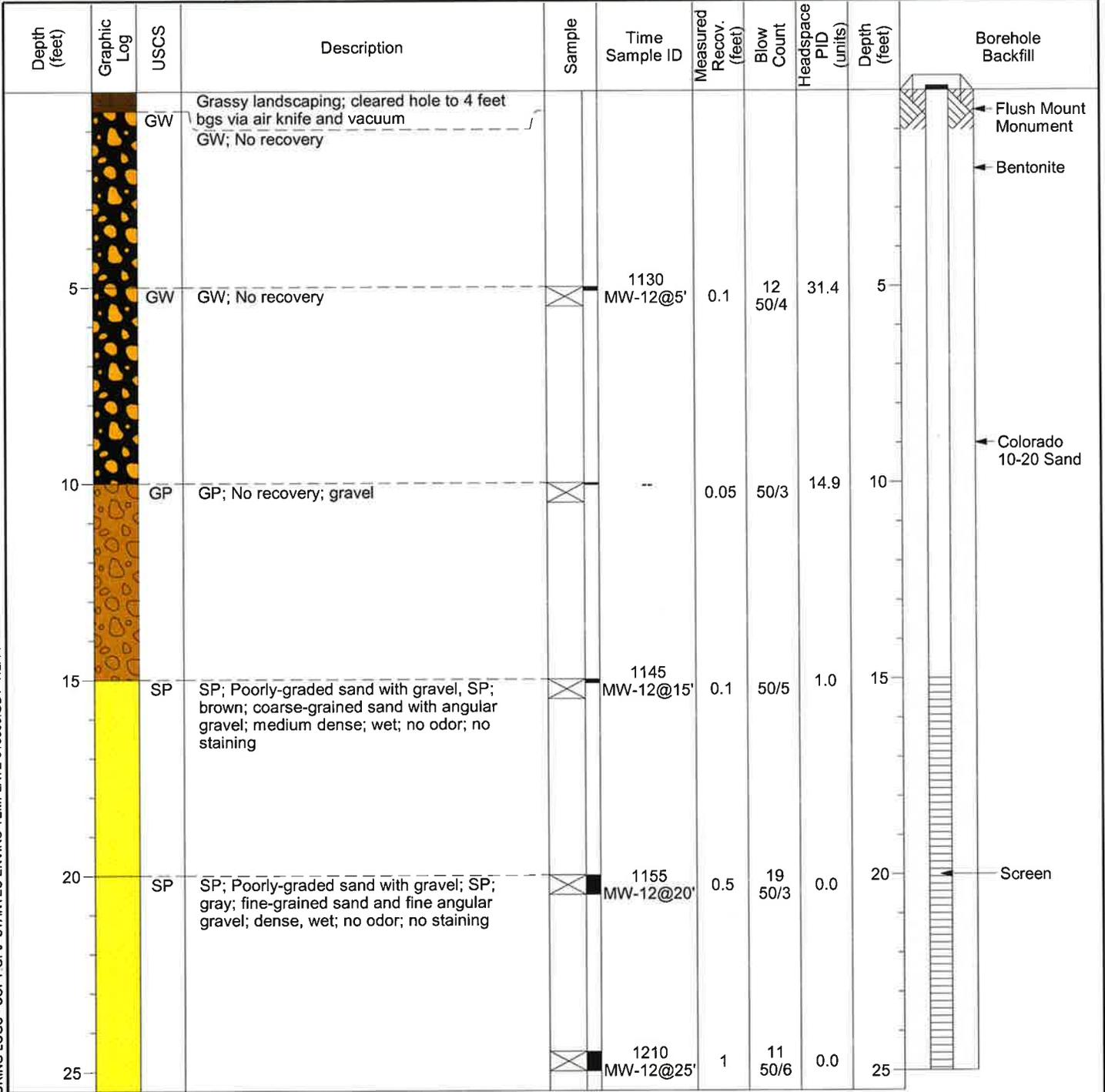
WELL / PROBEHOLE / BOREHOLE NO
MW-12 PAGE 1 OF 1



DRILLING / INSTALLATION:
 STARTED **10/2/13** COMPLETED: **10/2/13**
 DRILLING COMPANY: **Holocene Drilling, Inc.**
 DRILLING EQUIPMENT: **Diedrich D-120**
 DRILLING METHOD: **Hollow-Stem Auger**
 SAMPLING EQUIPMENT: **Split Spoon 0'-25'**

NORTHING (ft):
 LAT:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **Not Encountered**
 STATIC DTW (ft): **Not Encountered**
 WELL CASING DIA. (in): **2**
 LOGGED BY: **DH**

EASTING (ft):
 LONG:
 TOC ELEV (ft): **364.40**
 WELL DEPTH (ft): **25.0**
 BOREHOLE DEPTH (ft): **25.5**
 BOREHOLE DIA. (in): **6**
 CHECKED BY: **PF**



GEO FORM 304 25821 SOIL BORING LOGS - COPY.GPJ STANTEC ENVIRO TEMPLATE 010509.GDT 7/2/14

PROJECT: **Former 7-Eleven #25821**
 LOCATION: **1824 George Washington Way, Richland, WA**
 PROJECT NUMBER: **185750037.400.0600**

BORING NO:

CB-1 PAGE 1 OF 1



INSTALLATION:
 STARTED **7/28/15** COMPLETED: **7/28/15**
 DRILLING COMPANY: **Holocene**
 EQUIPMENT: **Mobile B-59**
 METHOD: **Hollow Stem Auger**
 SAMPLING EQUIPMENT: **Split Spoon (2" & 3")**

NORTHING (ft): EASTING (ft):
 LAT: LONG:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **18** WELL DEPTH (ft): **---**
 STATIC DTW (ft): **Not Encountered** DEPTH (ft): **26.5**
 WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8**
 LOGGED BY: **DH** CHECKED BY: **PF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
5		SP	SP; Medium dense, fine to medium grained sand with gravel, brown, dry to moist. -Air Knife/Vacuum to 5'		1315 CB-1-5	1	11 13 13	0.0	5
10					1330 CB-1-10	1	8 7 8	0.0	10
15		GP	GP; Medium dense, gravel with sand, brown, moist. 200 Injection at 15'		1340 CB-1-15	.2	11 11 9	3.6	15
20		SP	SP; Dense to very dense, coarse grained sand, gray, wet.		1355 CB-1-20	0.5	18 50	1.3	20
25		GP	GP; Very dense, gravel with coarse sand, gray, wet.		1410 CB-1-25	1.25	19 36 x	0.0	25
			Borehole terminated at 26.5 feet.						

PROJECT: **Former 7-Eleven #25821**
 LOCATION: **1824 George Washington Way, Richland, WA**
 PROJECT NUMBER: **185750037.400.0600**

BORING NO:

CB-2 PAGE 1 OF 1



INSTALLATION:
 STARTED **7/29/15** COMPLETED: **7/29/15**
 DRILLING COMPANY: **Holocene**
 EQUIPMENT: **Mobile B-59**
 METHOD: **Hollow Stem Auger**
 SAMPLING EQUIPMENT: **Split Spoon (2" & 3")**

NORTHING (ft): EASTING (ft):
 LAT: LONG:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **18** WELL DEPTH (ft): **---**
 STATIC DTW (ft): **Not Encountered** DEPTH (ft): **26.0**
 WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8**
 LOGGED BY: **DH** CHECKED BY: **PF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
5		GP	GP; Medium dense, gravel with sand and cobbles, brown to gray, dry. -Air Knife/Vacuum to 5'			0	11 8 9		5
10		SP	SP; Medium dense, fine to medium grained sand with pea gravel, brown, dry.		0850 CB-2-10	.1	4 4 6	7.7	10
15		SP	SP; Dense to very dense, fine to coarse grained sand with gravel, gray, moist.		0855 CB-2-15	1	23 38 34	10.5	15
20		SP	SP; Very dense, fine to coarse grained sand with trace gravel, dark gray, wet.		0905 CB-2-20	1	11 19 39	2.7	20
25			Borehole terminated at 26 feet.		0915 CB-2-25	.5	50	1.0	25

PROJECT: **Former 7-Eleven #25821**
 LOCATION: **1824 George Washington Way, Richland, WA**
 PROJECT NUMBER: **185750037.400.0600**

BORING NO:

CB-3 PAGE 1 OF 1



INSTALLATION:
 STARTED **7/28/15** COMPLETED: **7/28/15**
 DRILLING COMPANY: **Holocene**
 EQUIPMENT: **Mobile B-59**
 METHOD: **Hollow Stem Auger**
 SAMPLING EQUIPMENT: **Split Spoon (2" & 3")**

NORTHING (ft): EASTING (ft):
 LAT: LONG:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **18** WELL DEPTH (ft): **---**
 STATIC DTW (ft): **Not Encountered** DEPTH (ft): **26.5**
 WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8**
 LOGGED BY: **DH** CHECKED BY: **PF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
5		SP	SP; Medium dense, fine to medium grained sand with gravel, brown, dry. -Air Knife/Vacuum to 5'		1600 CB-3-5	0.25	6 4 5	0.0	5
10		GP	GP; Medium dense to dense, gravel with sand, brown, moist.		x x			x	10
15					1615 CB-3-15	0.5	10 15 19	1.2	15
20		SP	SP; Very dense, coarse grained sand with gravel, gray, wet.		1620 CB-3-20	0.25	28 50	0.0	20
25					1635 CB-3-25	1.5	18 22 50	0.0	25
			Borehole terminated at 26.5 feet.						

PROJECT: **Former 7-Eleven #25821**
 LOCATION: **1824 George Washington Way, Richland, WA**
 PROJECT NUMBER: **185750037.400.0600**

BORING NO:

CB-4 PAGE 1 OF 1



INSTALLATION:
 STARTED **7/29/15** COMPLETED: **7/29/15**
 DRILLING COMPANY: **Holocene**
 EQUIPMENT: **Mobile B-59**
 METHOD: **Hollow Stem Auger**
 SAMPLING EQUIPMENT: **Split Spoon (2" & 3")**

NORTHING (ft): EASTING (ft):
 LAT: LONG:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **18** WELL DEPTH (ft): **---**
 STATIC DTW (ft): **Not Encountered** DEPTH (ft): **26.5**
 WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8**
 LOGGED BY: **DH** CHECKED BY: **PF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
5		GP	GP; Medium dense to very dense, gravel with sand and cobbles, brown to gray, dry to moist. Knife/Vacuum to 5'		1200 CB-4-5	x	50	0.0	5
10						0	10 8 5		10
15						x			15
20		SP	SP; Very dense, fine to coarse grained sand with gravel, gray, wet.		1245 CB-4-20	1	19 36 45	2.8	20
25					1255 CB-4-25	1.5	9 36 50	1.2	25
Borehole terminated at 26.5 feet.									

PROJECT: **Former 7-Eleven #25821**
 LOCATION: **1824 George Washington Way, Richland, WA**
 PROJECT NUMBER: **185750037.400.0600**

BORING NO:

CB-5 PAGE 1 OF 1



INSTALLATION:
 STARTED **7/29/15** COMPLETED: **7/29/15**
 DRILLING COMPANY: **Holocene**
 EQUIPMENT: **Mobile B-59**
 METHOD: **Hollow Stem Auger**
 SAMPLING EQUIPMENT: **Split Spoon (2" & 3")**

NORTHING (ft): EASTING (ft):
 LAT: LONG:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **18** WELL DEPTH (ft): **---**
 STATIC DTW (ft): **Not Encountered** DEPTH (ft): **26.0**
 WELL CASING DIA. (in): **---** BOREHOLE DIA. (in): **8**
 LOGGED BY: **DH** CHECKED BY: **PF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
5		GP	GP; Medium dense, gravel with sand and cobbles, brown, dry. -Air Knife/Vacuum to 5'		1010 CB-5-5	x	13 6 5	0.9	5
10		GP	GP; Loose to medium dense, pea gravel with sand, brown, moist.		1020 CB-5-10	0.75	2 3 6	11.3	10
15		SP	SP; Dense to very dense, coarse grained sand with gravel, gray, moist to wet.		1025 CB-5-15	0.75	12 31 30	8.5	15
20		SP	SP; Very dense, coarse sand with gravel, gray, wet.		1035 CB-5-20	0.75	18 39 50	1.3	20
25		SP	SP; Very dense, coarse sand with gravel, gray, wet.		1045 CB-5-25	1	34 50	11.7	25
			Borehole terminated at 26 feet.						

CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA

Appendix E SIMPLIFIED TERRESTRIAL ECOLOGICAL EVALUATION (TEE) FORM
May 25, 2017

Appendix E SIMPLIFIED TERRESTRIAL ECOLOGICAL EVALUATION (TEE) FORM



Voluntary Cleanup Program

Washington State Department of Ecology Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Under the Model Toxics Control Act (MTCA), a terrestrial ecological evaluation is necessary if hazardous substances are released into the soils at a Site. In the event of such a release, you must take one of the following three actions as part of your investigation and cleanup of the Site:

1. Document an exclusion from further evaluation using the criteria in WAC 173-340-7491.
2. Conduct a simplified evaluation as set forth in WAC 173-340-7492.
3. Conduct a site-specific evaluation as set forth in WAC 173-340-7493.

When requesting a written opinion under the Voluntary Cleanup Program (VCP), you must complete this form and submit it to the Department of Ecology (Ecology). The form documents the type and results of your evaluation.

Completion of this form is not sufficient to document your evaluation. You still need to document your analysis and the basis for your conclusion in your cleanup plan or report.

If you have questions about how to conduct a terrestrial ecological evaluation, please contact the Ecology site manager assigned to your Site. For additional guidance, please refer to www.ecy.wa.gov/programs/tcp/policies/terrestrial/TEEHome.htm.

Step 1: IDENTIFY HAZARDOUS WASTE SITE

Please identify below the hazardous waste site for which you are documenting an evaluation.

Facility/Site Name: Former 7-Eleven Store Number 25821

Facility/Site Address: 1824 George Washington Way, Richland, Washington 99354

Facility/Site No: 77113577

VCP Project No.: pending

Step 2: IDENTIFY EVALUATOR

Please identify below the person who conducted the evaluation and their contact information.

Name: Paul Fairbairn

Title: Project Manager

Organization: Stantec Consulting Services Inc.

Mailing address: 11130 NE 33rd Place Suite 200

City: Bellevue

State: WA

Zip code: 98004

Phone: 425-869-9448

Fax: 425-869-1190

E-mail: paul.fairbairn@stantec.com

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

1. Does the Site qualify for an exclusion from further evaluation?

- Yes *If you answered "YES," then answer **Question 2**.*
- No or Unknown *If you answered "NO" or "UNKNOWN," then skip to **Step 3B** of this form.*

2. What is the basis for the exclusion? *Check all that apply. Then skip to **Step 4** of this form.*

Point of Compliance: WAC 173-340-7491(1)(a)

- All soil contamination is, or will be,* at least 15 feet below the surface.
- All soil contamination is, or will be,* at least 6 feet below the surface (or alternative depth if approved by Ecology), and institutional controls are used to manage remaining contamination.

Barriers to Exposure: WAC 173-340-7491(1)(b)

- All contaminated soil, is or will be,* covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination.

Undeveloped Land: WAC 173-340-7491(1)(c)

- There is less than 0.25 acres of contiguous# undeveloped± land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.
- For sites not containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous# undeveloped± land on or within 500 feet of any area of the Site.

Background Concentrations: WAC 173-340-7491(1)(d)

- Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709.

* An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.

± "Undeveloped land" is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

"Contiguous" undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

- Yes *If you answered "YES," then answer **Question 2** below.*
- No or Unknown *If you answered "NO" or "UNKNOWN," then skip to **Step 3C** of this form.*

2. Did you conduct a simplified evaluation?

- Yes *If you answered "YES," then answer **Question 3** below.*
- No *If you answered "NO," then skip to **Step 3C** of this form.*

3. Was further evaluation necessary?

- Yes *If you answered "YES," then answer **Question 4** below.*
- No *If you answered "NO," then answer **Question 5** below.*

4. If further evaluation was necessary, what did you do?

- Used the concentrations listed in Table 749-2 as cleanup levels. *If so, then skip to **Step 4** of this form.*
- Conducted a site-specific evaluation. *If so, then skip to **Step 3C** of this form.*

5. If no further evaluation was necessary, what was the reason? Check all that apply. Then skip to **Step 4** of this form.

Exposure Analysis: WAC 173-340-7492(2)(a)

- Area of soil contamination at the Site is not more than 350 square feet.
- Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.

Pathway Analysis: WAC 173-340-7492(2)(b)

- No potential exposure pathways from soil contamination to ecological receptors.

Contaminant Analysis: WAC 173-340-7492(2)(c)

- No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.
- No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations that exceed the values listed in Table 749-2, and institutional controls are used to manage remaining contamination.
- No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays.
- No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays, and institutional controls are used to manage remaining contamination.

C. Site-specific evaluation. A site-specific evaluation process consists of two parts: (1) formulating the problem, and (2) selecting the methods for addressing the identified problem. Both steps require consultation with and approval by Ecology. See WAC 173-340-7493(1)(c).

1. Was there a problem? See WAC 173-340-7493(2).

- Yes *If you answered “YES,” then answer **Question 2** below.*
- No *If you answered “NO,” then identify the reason here and then skip to **Question 5** below:*
- No issues were identified during the problem formulation step.
 - While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

2. What did you do to resolve the problem? See WAC 173-340-7493(3).

- Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*
- Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use?

Check all that apply. See WAC 173-340-7493(3).

- Literature surveys.
- Soil bioassays.
- Wildlife exposure model.
- Biomarkers.
- Site-specific field studies.
- Weight of evidence.
- Other methods approved by Ecology. If so, please specify:

4. What was the result of those evaluations?

- Confirmed there was no problem.
- Confirmed there was a problem and established site-specific cleanup levels.

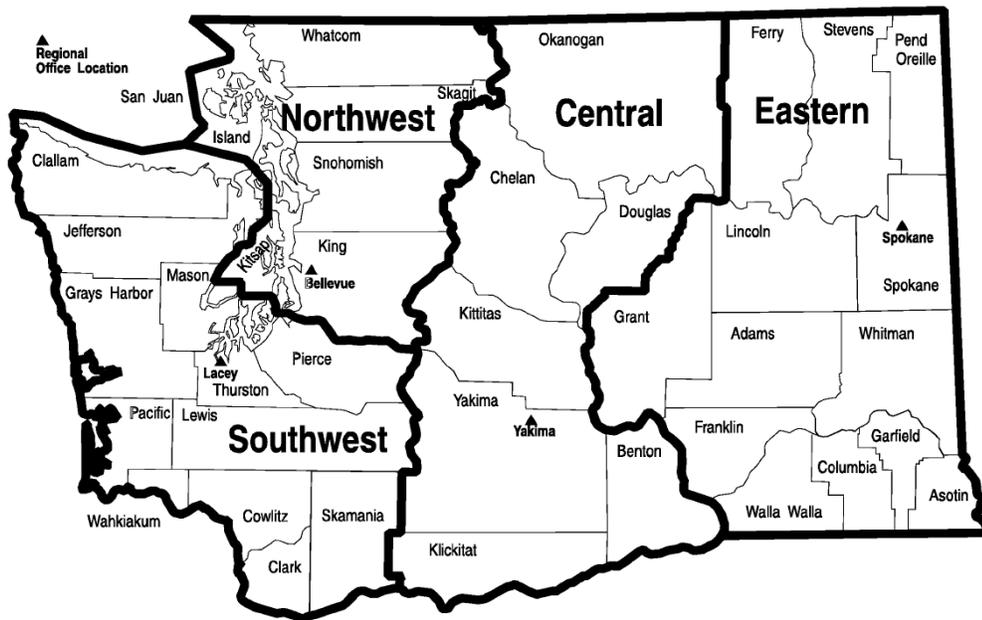
5. Have you already obtained Ecology’s approval of both your problem formulation and problem resolution steps?

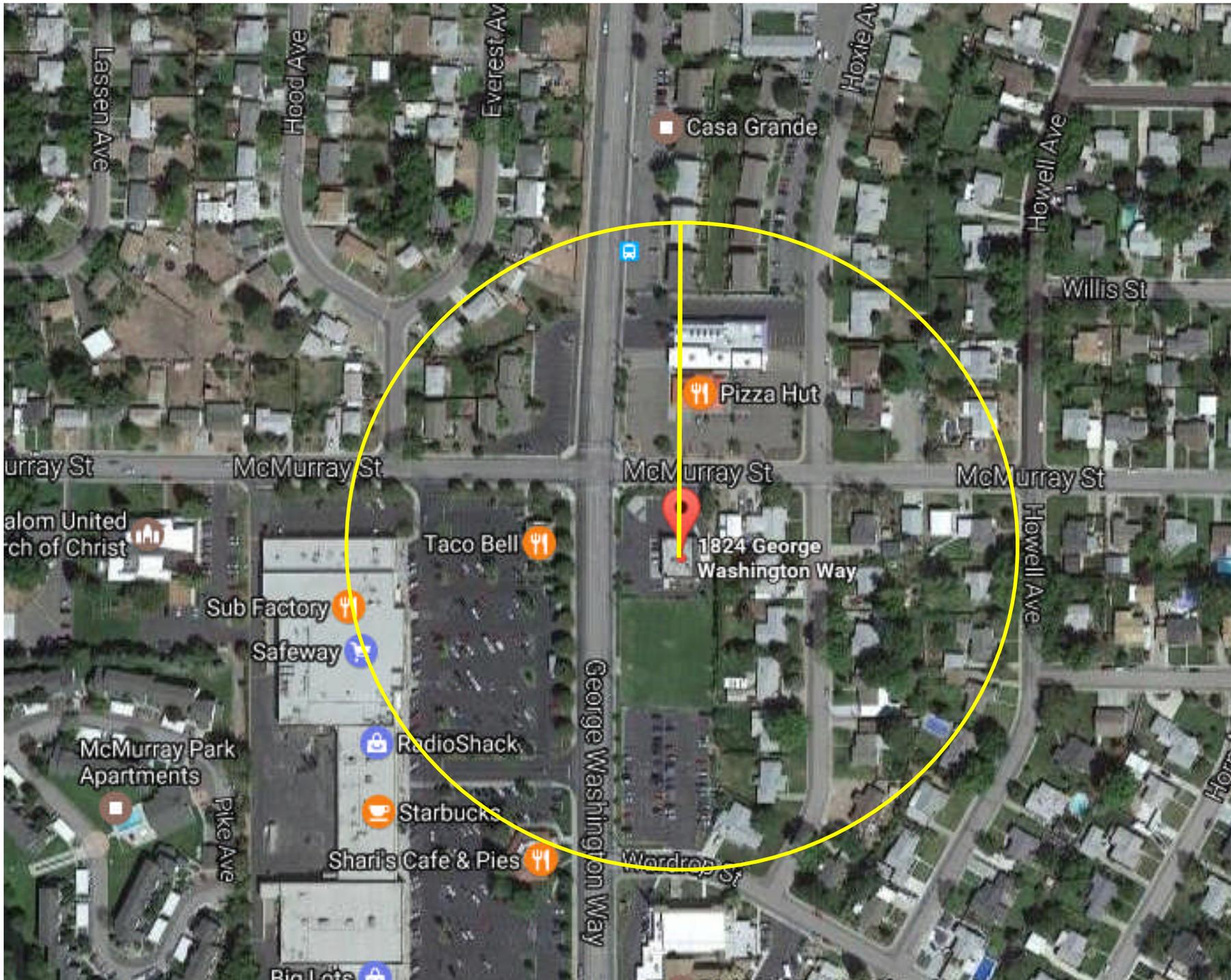
- Yes If so, please identify the Ecology staff who approved those steps:
- No

Step 4: SUBMITTAL

Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.

<p>Northwest Region: Attn: VCP Coordinator 3190 160th Ave. SE Bellevue, WA 98008-5452</p>	<p>Central Region: Attn: VCP Coordinator 1250 West Alder St. Union Gap, WA 98903-0009</p>
<p>Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775</p>	<p>Eastern Region: Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295</p>





Stantec Consulting Services Inc. Former 7-Eleven Store # 25821, 1824 George Washington Way, Richland, WA 500' Radius Site Map

CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA

Appendix F 2013 SUBSURFACE INVESTIGATION
May 25, 2017

Appendix F 2013 SUBSURFACE INVESTIGATION

**CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA**

Appendix F 2013 SUBSURFACE INVESTIGATION
May 25, 2017

F.1 2013 SUBSURFACE INVESTIGATION

F.1.1 PURPOSE

Stantec was to supervise the advancement of four proposed soil borings (MW-9 through MW-12) to a maximum depth of 25-feet bgs using a hollow-stem auger (HSA) drill rig. All four borings were to be completed as groundwater monitoring wells. The boreholes were located to better define the horizontal and vertical extent of the dissolved petroleum hydrocarbon plume and to assess the condition of the subsurface up-gradient of the Site.

The table below summarizes soil investigative purpose:

Proposed Soil Boring ID	Boring Depth (feet bgs)	Purpose of Boring
MW-9	25	Determine residual soil concentrations near the northern edge of former Mobil UST basin (1949-1984) (former soil sample B-7 collected in 2000). Former impacts were at 16-feet below ground surface (bgs) at this location. Collect samples at approx. 15- and 20-feet bgs for degradation analysis. Determine horizontal extent of dissolved petroleum impacts to the southeast of the MW-6 and MW-7 area.
MW-10	25	Determine residual soil concentrations (if any) near the northern edge of the former Mobil dispenser island location that had not been previously assessed in past subsurface investigations. Determine horizontal extent of dissolved petroleum impacts (if any) south of the MW-6 and MW-7 area and located closer than MW-3.
MW-11	25	Determine residual soil concentrations near western edge of former 7-Eleven dispenser island location (former soil sample GP-6). Determine horizontal extent of dissolved petroleum impacts (if any) southwest of the MW-6 and MW-7 area in area not previously assessed.
MW-12	25	Determine residual soil concentrations near northern boundary of the Site and north of the wells MW-6 and MW-7. Determine horizontal extent of dissolved petroleum impacts (if any) north of the wells MW-6 and MW-7 in area not previously assessed and determine if any off-Site soil or dissolved petroleum impacts.

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FORMER 7-ELEVEN STORE 25821
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Appendix F 2013 SUBSURFACE INVESTIGATION
May 25, 2017

F.1.2 HEALTH AND SAFETY

A site-specific health and safety plan (HASP) was prepared for the Site as part of the project. The HASP identified potential physical and chemical hazards associated with the proposed field activities and established personnel protection standards and mandatory safety practices. The HASP also included information on suspected chemical compounds to be encountered, a list of monitoring equipment, the required protective clothing and equipment, a map and directions to the nearest hospital, and a list of emergency telephone numbers. The HASP was available on Site during the field activities. Stantec personnel and subcontractors working on Site were required to review, sign, and comply with the provisions set forth in the HASP.

F.1.3 UTILITY LOCATE

Prior to advancement of the boreholes, Stantec contacted One Call, a municipal underground utility location service, to identify subsurface municipal utilities located in the public right-of-way. Additionally, Utilities Plus LLC, a private underground utility location service was contracted to clear the proposed borehole locations on the Site.

F.1.4 SITE INVESTIGATION ACTIVITIES

Drilling activities were conducted on October 2 and 3, 2013, and were supervised by a Stantec field geologist. Stantec contracted Holocene Drilling, Inc. (Holocene), of Puyallup, Washington to advance four soil borings identified as MW-9, MW-10, MW-11, and MW-12. Holocene utilized a Diedrich D-120, a HSA drill rig to advance soil boreholes MW-9, MW-10, MW-11, and MW-12. Three of the borings (MW-9, MW-11, and MW-12) were drilled to a depth of 25.5-feet bgs. The fourth boring MW-10 was drilled to the maximum depth of 26-feet bgs. All four boreholes were subsequently completed as groundwater monitoring wells MW-9, MW-10, MW-11, and MW-12. All sampling and soil descriptions were completed by a Stantec field geologist under the supervision of a State of Washington Licensed Geologist. Prior to drilling, all boreholes were cleared to 5-feet bgs using an air knife and vacuum truck.

F.1.5 GROUNDWATER MONITORING WELL INSTALLATION

The groundwater monitoring wells MW-9, MW-10, MW-11, and MW-12 were constructed of 2-inch outer diameter, schedule 40 poly-vinyl chloride (PVC) blank casing and a 10-foot long, 0.010-inch slotted PVC screen. The open annulus surrounding the screened section, and approximately 2-feet above, was filled with #12/#12 Colorado Silica Sand. Hydrated bentonite chips were placed within the borehole above the sand to seal the remaining open space surrounding the solid PVC blank section of the well up to 2-feet bgs. Each monitoring well was completed with a 8-inch diameter, traffic-rated well monument set in concrete. Complete well descriptions are included in the borehole and well construction logs provided in **Appendix D**.

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Appendix F 2013 SUBSURFACE INVESTIGATION
May 25, 2017

After well installation was completed, the wells were developed by purging each well with a submersible pump to remove fine-grained sediments from the well and sand pack. Each well was purged of groundwater, at which time groundwater turbidity decreased significantly and the water appeared clear.

F.1.6 SAMPLING METHODOLOGY

Soil samples were collected every five feet using an 18-inch split spoon sampler in accordance with United States Environmental Protection Agency (EPA) Method 5035A (described as follows). Relatively undisturbed soils were collected from the center of the core using a syringe-type sampler to obtain approximately 5-grams of soil. The samples were then placed directly into pre-weighed methanol preserved 40-milliliter vials (supplied by the analytical laboratory). Additional soil was collected by hand and placed directly in clean 4-ounce glass jars. A clean disposable glove was used for each sample. Care was taken to obtain representative soil samples and to place the soils directly and quickly into the sample container to minimize loss of volatile constituents.

The threads of the sample jars were wiped clean of soil particles that would interfere with an airtight seal, and a Teflon-lined screw closure lid was immediately placed on the jars. The sample jars were labeled (i.e., borehole name, depth, date, and time of sampling) and placed in a cooler on ice for subsequent transport under chain-of-custody protocol to Friedman & Bruya, Inc. (F&BI), an Ecology-accredited fixed-base environmental laboratory located in Seattle, Washington. United States EPA recommended protocols for sample management, including chain-of-custody procedures and documentation, were observed during all sampling activities.

The remaining soil was used for soil type classification and field screening analysis for petroleum hydrocarbon impacts. Field screening consisted of visual observations of potential hydrocarbon contamination and headspace analysis for volatile organic vapors. Headspace testing for volatile organic vapors was completed using a PID to monitor volatile vapors given off by the sampled soil. A sample of the soil matrix was placed in a re-sealable plastic bag, and allowed to equilibrate for approximately ten minutes. The probe of the PID was used to pierce the plastic, and was extended into the headspace above the soil surface. The greatest vapor reading obtained during the next 60 seconds was then recorded. Prior to use, the PID was calibrated to known concentrations of isobutylene, in accordance with the manufacturer's specifications.

F.1.7 SOIL SAMPLING

A total of 9 soil samples collected from MW-9, MW-10, MW-11, and MW-12 were submitted based on photoionization detector readings and depth to F&BI for laboratory analysis. Targeted constituents of potential concern were identified based on the known use of the Site and hydrocarbon compounds detected in the soil samples collected during previous subsurface investigations at the Site. All soil samples submitted for laboratory analysis were analyzed for total

**CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
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May 25, 2017

petroleum hydrocarbon as gasoline using Ecology method Northwest Total Petroleum Hydrocarbon as Gasoline and total petroleum hydrocarbons as diesel via method Northwest Total Petroleum Hydrocarbon as Diesel. These samples were also analyzed for benzene, toluene, ethylbenzene, and total xylenes via Environmental Protection Agency Method 8021B.

Soil samples collected from MW-9 at 20-feet bgs, MW-10 at 15-feet bgs, and MW-12 at 5-feet bgs were additionally analyzed for methyl tertiary butyl ether, 1,2-dibromoethane, 1,2-dichloroethane, total lead, and naphthalenes in accordance with MTCA Table 830-1.

F.1.8 RESULTS OF SOIL ANALYSIS

All analyzed petroleum hydrocarbon constituents in soil were either not detected above the laboratory method reporting limit and/or were reported below their respective MTCA Method A CULs. All analyzed petroleum hydrocarbon constituents in groundwater collected from the four wells on October 17, 2013 were reported below their respective MTCA Method A CULs.

F.1.9 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) RESULTS

Quality Assurance/Quality Control (QA/QC) procedures were conducted in conformance with industry standards. QA/QC procedures included data quality objectives and quality assurance goals, quality assurance procedures for sample collection, laboratory analytical protocols and calibration methods, data validation procedures, and corrective actions in the event that data quality issues arise. The quality of the data collected during this investigation was evaluated on an on-going basis to determine if the data quality objectives were met. The analytical data was evaluated in terms of precision, accuracy, representativeness, completeness, and comparability using the results of the quality control sampling.

A total of four QA/QC samples were submitted to the project laboratory for analysis. Two equipment rinsate water samples were produced from the event. The sample EQRP-1 was collected from a small amount of distilled water poured over an unused split spoon prior to commencement of hollow-stem auger drilling activities. The EQRR-1 was collected from the rinsing of another unused split spoon at the end of drilling activities. One field blank sample, FB-1, and one trip blank sample, TB-1, were prepared in the field using distilled water, during drilling activities, and were submitted for analysis.

Targeted contaminants of concern at the Site were identified based on the use of the Site and Ecology requirements. All the QA/QC samples submitted for laboratory analysis were analyzed for TPH-G using Ecology method NWTPH-Gx, and for BTEX using EPA Method 8021B.

QA/QC analytical results for this investigation are summarized in **Table 3**. Petroleum hydrocarbon constituents in all the submitted QA/QC samples were not reported exceeding laboratory practical quantitation limits.

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May 25, 2017

Laboratory QC measures including holding times, surrogate recoveries, and blank contamination were reviewed and found to be within control limits for all samples.

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Appendix G 2015 SUBSURFACE INVESTIGATION
May 25, 2017

Appendix G 2015 SUBSURFACE INVESTIGATION

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FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA**

Appendix G 2015 SUBSURFACE INVESTIGATION
May 25, 2017

G.1 2015 SUBSURFACE INVESTIGATION

G.1.1 PURPOSE

Stantec was to supervise the advancement of five proposed soil borings (CB-1 through CB-5) to a maximum depth of 20-feet bgs using a hollow-stem auger drill rig. Four of the five borings were advanced for chemical sampling and degradation analysis within the boundaries of the former UST basin. The remaining fifth boring was advanced outside of the former UST basin on the east side in order to perform degradation analysis on former soil sample B-6. The table below summarizes soil investigative purpose:

Proposed Soil Boring ID	Boring Depth (feet bgs)	Purpose of Boring
CB-1	20	Determine residual soil concentrations near the northern edge and center of the former tank basin (former soil samples B-1 and B-2). Former impacts were at 16-feet bgs at these locations. Collect samples at approximately 15- and 20-feet bgs for degradation analysis.
CB-2	20	Determine residual soil concentrations near the eastern edge of the former tank basin (former soil samples B-4, B-5, and MW-8). Former impacts were at 16-feet bgs. Collect samples from 15- and & 20-feet bgs for degradation analysis.
CB-3	20	Determine residual soil concentrations near western edge of former tank basin (former soil sample B-3). Former impacts were at 16-feet bgs. Collect samples from 15- and & 20-feet bgs for degradation analysis.
CB-4	20	Determine residual soil concentrations near southern portion of former tank basin (former soil sample B-5).
CB-5	20	Determine residual soil concentrations outside of the former tank basin on the east side (former soil sample B-6).

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Appendix G 2015 SUBSURFACE INVESTIGATION
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G.1.2 HEALTH AND SAFETY

A site-specific Health and Safety Plan (HASP) was prepared for the Site as part of the project. The HASP identified potential physical and chemical hazards associated with the proposed field activities and established personal protection standards and mandatory safety practices. The HASP also included information on suspected chemical compounds to be encountered, a list of monitoring equipment, the required protective clothing and equipment, a map and directions to the nearest hospital, and a list of emergency telephone numbers. The HASP was available on Site during the field activities. Stantec personnel and subcontractors working on the Site were required to review, sign, and comply with the provisions set forth in the HASP.

G.1.3 UTILITY CLEARANCE

Prior to advancement of the probe holes, Stantec contacted One Call, a municipal underground utility location service, to identify subsurface municipal utilities located in the public right-of-way. Additionally, Utilities Plus LLC, a private underground utility location service, was contracted to clear the proposed soil boring locations on the Site.

G.1.4 SITE INVESTIGATION ACTIVITIES

Drilling activities were conducted on July 28 and 29, 2015 and were supervised by a Stantec field geologist. Stantec contracted Holocene Drilling, Inc. (Holocene) to complete the advancement of five confirmation soil borings identified as CB-1 through CB-5 (**Figure 6**). The borings were located to assess the soil degradation within and outside of the former UST basin.

Holocene utilized a mobile B-59 hollow-stem auger drill rig to advance soil borings CB-1, CB-2, CB-3, CB-4, and CB-5. All sampling and soil descriptions were completed by a Stantec field geologist under the supervision of a State of Washington Licensed Geologist. Prior to drilling, all borings were cleared to five feet bgs using an air knife and vacuum truck. Maximum probing depth ranged from 26.5-feet bgs. All five soil borings were backfilled with bentonite chips to a depth of approximately 0.5-feet bgs, hydrated, and completed to the surface with concrete or asphalt depending on the surrounding ground surface.

Soil boring logs from this investigation are presented in **Appendix D**. The logs contain geologic descriptions, Unified Soil Classification System soil descriptions, drilling methods, field screening results, and well completion details. Soils encountered during this investigation consisted primarily of poorly graded sands with fine and coarse gravel to 26.5 feet bgs. Boring locations are shown on **Figure 6**.

Seven 55-gallon drums of soil cuttings and one 55-gallon drum of water rinsate were generated and subsequently transferred to Burlington Environmental LLC's Kent, Washington facility for disposal at a permitted non-hazardous waste landfill (**Appendix K**).



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May 25, 2017

G.1.5 SAMPLING METHODOLOGY

Soil samples were collected every five feet or where contamination was visible using an 18-inch split-spoon sampler in accordance with Environmental Protection Agency (EPA) Method 5035A. Relatively undisturbed soils were collected from the center of the core using a syringe-type sampler in order to obtain approximately 5-grams of soil. The samples were then placed directly into pre-weighed 40-milliliter vials supplied by the analytical laboratory. Additional soil was collected by hand and placed directly into a clean 4-ounce glass jar. A clean disposable nitrile glove was used for each sample. Care was taken to obtain representative soil samples and to place the soils directly and quickly into the sample container to minimize loss of volatile constituents.

The threads of the sample jars were wiped clean of soil particles that would interfere with an airtight seal, and a Teflon™-lined screw closure lid was immediately placed on the jars. The sample jars were labeled with probe hole name, depth, type of analysis, date, and time of sampling and placed in a cooler on ice for subsequent transport under chain-of-custody protocol to TestAmerica Nashville (TestAmerica) in Nashville, Tennessee. TestAmerica operates an Ecology-accredited fixed-base environmental laboratory located in Nashville, Tennessee. EPA recommended protocols for sample management, including chain-of-custody procedures and documentation, were observed during all sampling activities.

The remaining soil was used for soil type classification and field screening analysis for petroleum hydrocarbon impacts. Field screening consisted of visual observations of potential hydrocarbon contamination and headspace analysis for volatile organic vapors. Headspace testing for volatile organic vapors was completed using a photoionization (PID) to monitor volatile vapors given off by the sampled soil. A sample of the soil matrix was placed in a re-sealable plastic bag, and allowed to equilibrate for approximately ten minutes. The probe of the PID was used to pierce the plastic, and was extended into the headspace above the soil surface. The greatest vapor reading obtained during the next 60 seconds was then recorded. Prior to use, the PID was calibrated to known concentrations of isobutylene, in accordance with the manufacturer's specifications.

G.1.6 SOIL SAMPLING

A total of fifteen soil samples collected from CB-1, CB-2, CB-3, CB-4, and CB-5 were submitted to TestAmerica for analysis during this assessment. All soil samples submitted for laboratory analysis were analyzed for total petroleum hydrocarbons as gasoline (TPH-G), using method Northwest Total Petroleum Hydrocarbons as gasoline; total petroleum hydrocarbons as diesel; total petroleum hydrocarbons as oil; total lead by EPA Method 200.8; and benzene, toluene, ethyl benzene, and total xylenes (BTEX) by EPA method 8260B.

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May 25, 2017

G.1.7 RESULTS OF SOIL ANALYSIS

Soil analytical results for this investigation include:

- One soil sample, CB-3@15', exceeded Ecology MTCA Method A CULs for TPH-G;
- The location and depth of the impact was limited to boring CB-3 at a depth of approximately 15-feet bgs in the vicinity of previously identified impacts; and,
- All other concentrations were either reported below respective MTCA Method A CULs or reported not exceeding laboratory practical quantification limits in all submitted soil samples.

G.1.8 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) RESULTS

Quality Assurance/Quality Control (QA/QC) procedures were conducted in conformance with industry standards. QA/QC procedures included data quality objectives and quality assurance goals; quality assurance procedures for sample collection, laboratory analytical protocols, and calibration methods; data validation procedures; and corrective actions in the event that data quality issues arose. The quality of the data collected during this investigation was evaluated on an on-going basis to determine if the data quality objectives were met. The analytical data was evaluated in terms of precision, accuracy, representativeness, completeness, and comparability using results of the quality control sampling.

A total of four QA/QC samples were submitted to the project laboratory for analysis. Two equipment rinsate water samples were produced from the event. The sample EQRP-2 was collected from a small amount of distilled water poured over an unused split spoon prior to commencement of hollow-stem auger drilling activities. The EQRR-2 was collected from the rinsing of another unused split spoon at the end of drilling activities. One field blank sample, FB-2, and one trip blank sample, TB-2, were prepared in the field using distilled water, during drilling activities, and were submitted for analysis.

Targeted contaminants of concern at the Site were identified based on the use of the Site and Ecology requirements. All QA/QC samples submitted for laboratory analysis were analyzed for TPH-G using Ecology method NWTPH-Gx.

QA/QC analytical results for this investigation are summarized in **Table 3**. Petroleum hydrocarbon constituents in all the submitted QA/QC samples were not reported exceeding laboratory practical quantitation limits.

Laboratory QC measures including holding times, surrogate recoveries, and blank contamination were reviewed and found to be within control limits for all samples.

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Appendix H LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION
May 25, 2017

Appendix H LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

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
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October 22, 2013

Paul Fairbairn, Project Manager
Stantec
12034 134th Ct NE, Suite 102
Redmond, WA 98052

Dear Mr. Fairbairn:

Included are the results from the testing of material submitted on October 7, 2013 from the Former 7-Eleven 25821 Richland Well Installation 185750037, F&BI 310128 project. There are 28 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
STN1022R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 7, 2013 by Friedman & Bruya, Inc. from the Stantec Former 7-Eleven 25821 Richland Well Installation 185750037, F&BI 310128 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Stantec</u>
310128 -01	MW-9@5'
310128 -02	MW-9@20'
310128 -03	MW-9@25'
310128 -04	MW-10@5'
310128 -05	MW-10@10'
310128 -06	MW-10@15'
310128 -07	MW-10@20'
310128 -08	MW-10@25'
310128 -09	MW-11@5'
310128 -10	MW-11@10'
310128 -11	MW-11@15'
310128 -12	MW-11@20'
310128 -13	MW-11@25'
310128 -14	MW-12@5'
310128 -15	MW-12@15'
310128 -16	MW-12@20'
310128 -17	MW-12@25'
310128 -18	TB-1
310128 -19	FB-1
310128 -20	EQRP-1
310128 -21	EQRR-1

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/13

Date Received: 10/07/13

Project: Former 7-Eleven 25821 Richland Well Installation 185750037, F&BI 310128

Date Extracted: 10/09/13

Date Analyzed: 10/09/13

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
MW-9@5' 310128-01	<0.02	<0.02	<0.02	<0.06	<2	92
MW-9@20' 310128-02	<0.02	<0.02	<0.02	<0.06	<2	92
MW-9@25' 310128-03	<0.02	<0.02	<0.02	<0.06	<2	89
MW-10@10' 310128-05	<0.02	<0.02	<0.02	<0.06	<2	92
MW-10@15' 310128-06	<0.02	<0.02	<0.02	<0.06	<2	92
MW-11@10' 310128-10	<0.02	<0.02	<0.02	<0.06	<2	91
MW-11@15' 310128-11	<0.02	<0.02	<0.02	<0.06	5.1	93
MW-12@5' 310128-14	<0.02	<0.02	<0.02	<0.06	12	94
MW-12@15' 310128-15	<0.02	<0.02	<0.02	<0.06	4.2	93
Method Blank 03-2017 MB	<0.02	<0.02	<0.02	<0.06	<2	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/13

Date Received: 10/07/13

Project: Former 7-Eleven 25821 Richland Well Installation 185750037, F&BI 310128

Date Extracted: 10/09/13

Date Analyzed: 10/09/13

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

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 52-124)
TB-1 310128-18	<1	<1	<1	<3	<100	73
FB-1 310128-19	<1	<1	<1	<3	<100	73
EQRP-1 310128-20	<1	<1	<1	<3	<100	74
EQRR-1 310128-21	<1	<1	<1	<3	<100	74
Method Blank 03-2016 MB	<1	<1	<1	<3	<100	74

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/13

Date Received: 10/07/13

Project: Former 7-Eleven 25821 Richland Well Installation 185750037, F&BI 310128

Date Extracted: 10/09/13

Date Analyzed: 10/09/13

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 56-165)
MW-9@5' 310128-01	<50	<250	116
MW-9@20' 310128-02	<50	<250	109
MW-9@25' 310128-03	<50	<250	98
MW-10@10' 310128-05	<50	<250	108
MW-10@15' 310128-06	<50	<250	107
MW-11@10' 310128-10	<50	<250	107
MW-11@15' 310128-11	<50	<250	110
MW-12@5' 310128-14	<50	<250	109
MW-12@15' 310128-15	<50	<250	106
Method Blank 03-2032 MB	<50	<250	102

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW-9@20'	Client:	Stantec
Date Received:	10/07/13	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/09/13	Lab ID:	310128-02
Date Analyzed:	10/09/13	Data File:	310128-02.054
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	104	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	2.53

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW-10@15'	Client:	Stantec
Date Received:	10/07/13	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/09/13	Lab ID:	310128-06
Date Analyzed:	10/09/13	Data File:	310128-06.055
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	104	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	2.19

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW-12@5'	Client:	Stantec
Date Received:	10/07/13	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/09/13	Lab ID:	310128-14
Date Analyzed:	10/09/13	Data File:	310128-14.056
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	105	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	4.73

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Stantec
Date Received:	NA	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/08/13	Lab ID:	I3-651 mb
Date Analyzed:	10/09/13	Data File:	I3-651 mb.050
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower	Upper
Holmium	107	Limit:	Limit:
		60	125

Analyte:	Concentration
	mg/kg (ppm)

Lead	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C Direct Sparge

Client Sample ID:	MW-9@20'	Client:	Stantec
Date Received:	10/07/13	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/09/13	Lab ID:	310128-02
Date Analyzed:	10/09/13	Data File:	100916.D
Matrix:	Soil	Instrument:	GCMS7
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	107	50	150
4-Bromofluorobenzene	106	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C Direct Sparge

Client Sample ID:	MW-10@15'	Client:	Stantec
Date Received:	10/07/13	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/09/13	Lab ID:	310128-06
Date Analyzed:	10/09/13	Data File:	100917.D
Matrix:	Soil	Instrument:	GCMS7
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C Direct Sparge

Client Sample ID:	MW-12@5'	Client:	Stantec
Date Received:	10/07/13	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/09/13	Lab ID:	310128-14
Date Analyzed:	10/10/13	Data File:	101005.D
Matrix:	Soil	Instrument:	GCMS7
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	114	50	150
Toluene-d8	93	50	150
4-Bromofluorobenzene	126 J	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C Direct Sparge

Client Sample ID:	Method Blank	Client:	Stantec
Date Received:	NA	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/09/13	Lab ID:	03-2002 mb
Date Analyzed:	10/09/13	Data File:	100915.D
Matrix:	Soil	Instrument:	GCMS7
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-9@20'	Client:	Stantec
Date Received:	10/07/13	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/09/13	Lab ID:	310128-02
Date Analyzed:	10/09/13	Data File:	100910.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	98	51	121
4-Bromofluorobenzene	102	32	146

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-10@15'	Client:	Stantec
Date Received:	10/07/13	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/09/13	Lab ID:	310128-06
Date Analyzed:	10/09/13	Data File:	100911.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	99	51	121
4-Bromofluorobenzene	102	32	146

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-12@5'	Client:	Stantec
Date Received:	10/07/13	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/09/13	Lab ID:	310128-14
Date Analyzed:	10/09/13	Data File:	100912.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	97	51	121
4-Bromofluorobenzene	100	32	146

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Stantec
Date Received:	NA	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/09/13	Lab ID:	03-1997 mb2
Date Analyzed:	10/09/13	Data File:	100907.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	99	51	121
4-Bromofluorobenzene	101	32	146

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-9@20'	Client:	Stantec
Date Received:	10/07/13	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/09/13	Lab ID:	310128-02 1/5
Date Analyzed:	10/09/13	Data File:	100922.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	82	50	150
Benzo(a)anthracene-d12	96	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-10@15'	Client:	Stantec
Date Received:	10/07/13	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/09/13	Lab ID:	310128-06 1/5
Date Analyzed:	10/09/13	Data File:	100925.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	81	50	150
Benzo(a)anthracene-d12	94	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-12@5'	Client:	Stantec
Date Received:	10/07/13	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/09/13	Lab ID:	310128-14 1/5
Date Analyzed:	10/11/13	Data File:	101112.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	104	50	150
Benzo(a)anthracene-d12	132	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Stantec
Date Received:	NA	Project:	Former 7-Eleven 25821 Richland Well
Date Extracted:	10/09/13	Lab ID:	03-2036 mb 1/5
Date Analyzed:	10/09/13	Data File:	100915.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	97	50	150
Benzo(a)anthracene-d12	92	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/13

Date Received: 10/07/13

Project: Former 7-Eleven 25821 Richland Well Installation 185750037, F&BI 310128

**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: 310128-01 (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	91	69-120
Toluene	mg/kg (ppm)	0.5	93	70-117
Ethylbenzene	mg/kg (ppm)	0.5	95	65-123
Xylenes	mg/kg (ppm)	1.5	95	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/13

Date Received: 10/07/13

Project: Former 7-Eleven 25821 Richland Well Installation 185750037, F&BI 310128

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

Laboratory Code: 310115-04 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	96	65-118
Toluene	ug/L (ppb)	50	95	72-122
Ethylbenzene	ug/L (ppb)	50	94	73-126
Xylenes	ug/L (ppb)	150	93	74-118
Gasoline	ug/L (ppb)	1,000	102	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/13

Date Received: 10/07/13

Project: Former 7-Eleven 25821 Richland Well Installation 185750037, F&BI 310128

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

Laboratory Code: 310142-01 (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	88	83	63-146	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	86	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/13

Date Received: 10/07/13

Project: Former 7-Eleven 25821 Richland Well Installation 185750037, F&BI 310128

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

Laboratory Code: 310116-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	50	2.98	96	91	59-148	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	100	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/13

Date Received: 10/07/13

Project: Former 7-Eleven 25821 Richland Well Installation 185750037, F&BI 310128

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

Laboratory Code: 310128-06 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	<0.005	<0.005	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	0.05	97	96	70-130	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/13

Date Received: 10/07/13

Project: Former 7-Eleven 25821 Richland Well Installation 185750037, F&BI 310128

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

Laboratory Code: 310138-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	69	67	21-145	3
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	76	74	12-160	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	77	78	60-123	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	85	86	56-135	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/13

Date Received: 10/07/13

Project: Former 7-Eleven 25821 Richland Well Installation 185750037, F&BI 310128

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL
SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM**

Laboratory Code: 310128-02 1/5 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	<0.01	<0.01	nm
2-Methylnaphthalene	mg/kg (ppm)	<0.01	<0.01	nm
1-Methylnaphthalene	mg/kg (ppm)	<0.01	<0.01	nm

Laboratory Code: 310128-02 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	84	44-129
2-Methylnaphthalene	mg/kg (ppm)	0.17	<0.01	84	45-135
1-Methylnaphthalene	mg/kg (ppm)	0.17	<0.01	82	64-115

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	88	88	58-121	0
2-Methylnaphthalene	mg/kg (ppm)	0.17	85	85	58-123	0
1-Methylnaphthalene	mg/kg (ppm)	0.17	86	88	60-124	2

Data Qualifiers & Definitions

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

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.

3 10/28

SAMPLE CHAIN OF CUSTODY

ME 10-07-13

1st/10/3/0128

Send Report To PAUL FAIRBAIRN

Company STANTEC CONSULTING SERVICES

Address 11386 NE 33RD PLACE SUITE 200

City, State, ZIP BELLEVUE WA 98004

Phone # (425)869-9448 Fax # (425)869-1190

SAMPLERS (signature) Deitrie Hanson

PROJECT NAME/NO. # FORMER 7-ELEVEN 25821

RICHLAND WELL INSTALLATION

185750037

REMARKS

Page # 1 of 3

TURNAROUND TIME
Standard (2 Weeks)
 RUSH
Rush charges authorized by

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

REMARKS

SAMPLE DISPOSAL

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED							Notes		
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Total Lead		EDB, EDC, mTB	Nipthalenes
MW-9@5'	01AE	10/2/13	1645	SOIL	5	X	X	X							PID = 0.0ppm
MW-9@20'	02T	10/2/13	1710	SOIL	5	X	X	X							PID = 4.2ppm
MW-9@25'	03K	10/2/13	1715	SOIL	5	X	X	X							PID = 0.0ppm
MW-10@5'	04	10/2/13	1510	SOIL	5										PID = 0.0ppm
MW-10@10'	05	10/2/13	1515	SOIL	5	X	X	X							PID = 0.1ppm
MW-10@15'	06	10/2/13	1520	SOIL	5	X	X	X							PID = 0.0ppm
MW-10@20'	07	10/2/13	1530	SOIL	5										PID = 0.0ppm
MW-10@25'	08	10/2/13	1540	SOIL	5										PID = 0.0ppm
MW-11@5'	09	10/2/13	1330	SOIL	5										PID = 0.0ppm
MW-11@10'	10	10/2/13	1340	SOIL	5	X	X	X							PID = 0.0ppm

Friedman & Bryna, 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
Reinquinshed by: <u>Deitrie Hanson</u>	<u>Deitrie Hanson</u>	Deitrie Hanson	Stantec	10/7/13	1455		
Received by: <u>Phan</u>	<u>Phan</u>	Phan	Phan	10-7-13	3:00		
Reinquinshed by:							
Received by: <u>Phan</u>	<u>Phan</u>	Phan	Phan	10/7/13	1510		

310128

SAMPLE CHAIN OF CUSTODY

ME 10-07-13

Ver/vr 2/13

Send Report To **PAUL FAIRBAIN**

Company **STANTEC CONSULTING SERVICES**

Address **11300 NE 33RD PLACE STE 200**

City, State, ZIP **BELLEVUE WA 98004**

Phone # **(425) 869-9448** Fax # **(425) 869-1190**

PROJECT NAME/NO. FORMER 7-ELEVEN #25821 RICHLAND WEL INSTALATION 185750037		PO#
REMARKS		

Page # 2 of 3

TURNAROUND TIME
 Standard (2 Weeks)
 RUSH
 Rush charges authorized by _____

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED							Notes		
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	FDB EDC m+BB		Lead	NuOn/Hubnes
MW-11@15'	11A	10/21/13	1350	SOIL	5	X	X	X							PID = 0.0ppm
MW-11@20'	12	10/21/13	1400	SOIL	5										PID = 0.0ppm
MW-11@25'	13	10/21/13	1410	SOIL	5										PID = 0.0ppm
MW-12@5'	14	10/21/13	1130	SOIL	5	X	X	X				X	X		PID = 31.4ppm
MW-12@15'	15	10/21/13	1145	SOIL	5	X	X	X							PID = 1.0ppm
MW-12@20'	16	10/21/13	1155	SOIL	5										PID = 0.0ppm
MW-12@25'	17	10/21/13	1210	SOIL	5										PID = 0.0ppm
TB-1	18	10/21/13	0915	WATER	1	X	X	X							
FB-1	19	10/21/13	0920	WATER	1	X	X	X							Samples received at 3 °C
EQRP-1	20	10/21/13	0925	WATER	1	X	X	X							

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

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Relinquished by: <i>Deitrie Hanson</i>		Deitrie Hanson		StanteC		10/7/13	1455
Received by: <i>C. Houc</i>		C. Houc		Postal Express		10-7	3:00
Relinquished by: _____		Nhan Phan		FEET		10/7/13	1610



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

Stantec Consulting Corporation
Paul Fairbairn
11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

RE: 3Q14 GWM 25821 PRE-BOS 200
Lab ID: 1407167

July 24, 2014

Attention Paul Fairbairn:

Fremont Analytical, Inc. received 5 sample(s) on 7/17/2014 for the analyses presented in the following report.

Ferrous Iron by SM3500-Fe B
Gasoline by NWTPH-Gx
Ion Chromatography by EPA Method 300.0
Total Metals by EPA Method 200.8
Total Inorganic Carbon by SM 5310C
Total Organic Carbon by SM 5310C
Volatile Organic Compounds by EPA Method 8260

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,

A handwritten signature in black ink, appearing to read "M. Dee".

Michael Dee
Sr. Chemist / Principal



Date: 07/24/2014

CLIENT: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200
Lab Order: 1407167

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1407167-001	MW-6	07/16/2014 6:40 PM	07/17/2014 8:45 AM
1407167-002	MW-7	07/16/2014 7:15 PM	07/17/2014 8:45 AM
1407167-003	MW-8	07/16/2014 6:00 PM	07/17/2014 8:45 AM
1407167-004	MW-10	07/16/2014 5:00 PM	07/17/2014 8:45 AM
1407167-005	MW-11	07/16/2014 5:30 PM	07/17/2014 8:45 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200

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.

RA - Ferrous Iron samples re-analyzed out of hold time for reagent verification.



Analytical Report

WO#: 1407167

Date Reported: 7/24/2014

Client: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200
Lab ID: 1407167-001
Client Sample ID: MW-6

Collection Date: 7/16/2014 6:40:00 PM

Matrix: Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Gasoline by NWTPH-Gx

Batch ID: R15686 Analyst: BC

Gasoline	1,470	50.0		µg/L	1	7/19/2014 8:21:00 AM
Surr: 4-Bromofluorobenzene	97.2	65-135		%REC	1	7/19/2014 8:21:00 AM
Surr: Toluene-d8	96.6	65-135		%REC	1	7/19/2014 8:21:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R15685 Analyst: BC

Benzene	ND	1.00		µg/L	1	7/19/2014 8:21:00 AM
Toluene	ND	1.00		µg/L	1	7/19/2014 8:21:00 AM
Ethylbenzene	6.02	1.00		µg/L	1	7/19/2014 8:21:00 AM
m,p-Xylene	8.37	1.00		µg/L	1	7/19/2014 8:21:00 AM
o-Xylene	5.44	1.00		µg/L	1	7/19/2014 8:21:00 AM
Surr: Dibromofluoromethane	95.7	61.7-130		%REC	1	7/19/2014 8:21:00 AM
Surr: Toluene-d8	97.2	40.1-139		%REC	1	7/19/2014 8:21:00 AM
Surr: 1-Bromo-4-fluorobenzene	88.2	68.2-127		%REC	1	7/19/2014 8:21:00 AM

Ion Chromatography by EPA Method 300.0

Batch ID: R15672 Analyst: KT

Nitrate	1.75	0.100		mg/L	1	7/17/2014 3:38:00 PM
Sulfate	153	3.00	D	mg/L	10	7/17/2014 5:27:00 PM

Total Metals by EPA Method 200.8

Batch ID: 8150 Analyst: TN

Iron	12,800	100		µg/L	1	7/17/2014 6:56:06 PM
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Total Organic Carbon by SM 5310C

Batch ID: R15724 Analyst: KT

Total Organic Carbon	9.92	0.500		mg/L	1	7/21/2014 5:08:41 PM
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Ferrous Iron by SM3500-Fe B

Batch ID: R15698 Analyst: KT

Ferrous Iron	0.870	0.0300	RAH	mg/L	1	7/18/2014 3:00:00 PM
Ferrous Iron	0.980	0.0300		mg/L	1	7/17/2014 4:59:00 PM

NOTES:

RA - Re-analyzed

Qualifiers:	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
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Client: Stantec Consulting Corporation

Collection Date: 7/16/2014 6:40:00 PM

Project: 3Q14 GWM 25821 PRE-BOS 200

Lab ID: 1407167-001

Matrix: Groundwater

Client Sample ID: MW-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Inorganic Carbon by SM 5310C

Batch ID: R15775

Analyst: KT

Total Inorganic Carbon	106	5.00		mg/L	1	7/24/2014 4:38:26 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1407167

Date Reported: 7/24/2014

Client: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200
Lab ID: 1407167-002
Client Sample ID: MW-7

Collection Date: 7/16/2014 7:15:00 PM

Matrix: Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Gasoline by NWTPH-Gx

Batch ID: R15686 Analyst: BC

Gasoline	1,130	50.0		µg/L	1	7/19/2014 8:49:00 AM
Surr: 4-Bromofluorobenzene	99.9	65-135		%REC	1	7/19/2014 8:49:00 AM
Surr: Toluene-d8	100	65-135		%REC	1	7/19/2014 8:49:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R15685 Analyst: BC

Benzene	ND	1.00		µg/L	1	7/19/2014 8:49:00 AM
Toluene	ND	1.00		µg/L	1	7/19/2014 8:49:00 AM
Ethylbenzene	ND	1.00		µg/L	1	7/19/2014 8:49:00 AM
m,p-Xylene	ND	1.00		µg/L	1	7/19/2014 8:49:00 AM
o-Xylene	ND	1.00		µg/L	1	7/19/2014 8:49:00 AM
Surr: Dibromofluoromethane	94.0	61.7-130		%REC	1	7/19/2014 8:49:00 AM
Surr: Toluene-d8	95.6	40.1-139		%REC	1	7/19/2014 8:49:00 AM
Surr: 1-Bromo-4-fluorobenzene	90.4	68.2-127		%REC	1	7/19/2014 8:49:00 AM

Ion Chromatography by EPA Method 300.0

Batch ID: R15672 Analyst: KT

Nitrate	0.406	0.100		mg/L	1	7/17/2014 3:49:00 PM
Sulfate	122	3.00	D	mg/L	10	7/17/2014 6:11:00 PM

Total Metals by EPA Method 200.8

Batch ID: 8150 Analyst: TN

Iron	17,000	100		µg/L	1	7/17/2014 7:09:47 PM
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Total Organic Carbon by SM 5310C

Batch ID: R15724 Analyst: KT

Total Organic Carbon	5.98	0.500		mg/L	1	7/21/2014 5:33:01 PM
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Ferrous Iron by SM3500-Fe B

Batch ID: R15698 Analyst: KT

Ferrous Iron	2.68	0.0600	DRAH	mg/L	2	7/18/2014 3:00:00 PM
Ferrous Iron	3.10	0.0600	D	mg/L	2	7/17/2014 5:02:00 PM

NOTES:

RA - Re-analyzed

Qualifiers:	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
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Client: Stantec Consulting Corporation

Collection Date: 7/16/2014 7:15:00 PM

Project: 3Q14 GWM 25821 PRE-BOS 200

Lab ID: 1407167-002

Matrix: Groundwater

Client Sample ID: MW-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Inorganic Carbon by SM 5310C

Batch ID: R15775

Analyst: KT

Total Inorganic Carbon	63.6	5.00		mg/L	1	7/24/2014 4:38:26 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1407167

Date Reported: 7/24/2014

Client: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200
Lab ID: 1407167-003
Client Sample ID: MW-8

Collection Date: 7/16/2014 6:00:00 PM

Matrix: Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Gasoline by NWTPH-Gx

Batch ID: R15686 Analyst: BC

Gasoline	84.6	50.0		µg/L	1	7/19/2014 9:17:00 AM
Surr: 4-Bromofluorobenzene	95.8	65-135		%REC	1	7/19/2014 9:17:00 AM
Surr: Toluene-d8	99.0	65-135		%REC	1	7/19/2014 9:17:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R15685 Analyst: BC

Benzene	ND	1.00		µg/L	1	7/19/2014 9:17:00 AM
Toluene	ND	1.00		µg/L	1	7/19/2014 9:17:00 AM
Ethylbenzene	ND	1.00		µg/L	1	7/19/2014 9:17:00 AM
m,p-Xylene	ND	1.00		µg/L	1	7/19/2014 9:17:00 AM
o-Xylene	ND	1.00		µg/L	1	7/19/2014 9:17:00 AM
Surr: Dibromofluoromethane	92.1	61.7-130		%REC	1	7/19/2014 9:17:00 AM
Surr: Toluene-d8	94.6	40.1-139		%REC	1	7/19/2014 9:17:00 AM
Surr: 1-Bromo-4-fluorobenzene	87.9	68.2-127		%REC	1	7/19/2014 9:17:00 AM

Ion Chromatography by EPA Method 300.0

Batch ID: R15672 Analyst: KT

Nitrate	4.86	0.100		mg/L	1	7/17/2014 4:00:00 PM
Sulfate	30.8	1.50	D	mg/L	5	7/17/2014 6:22:00 PM

Total Metals by EPA Method 200.8

Batch ID: 8150 Analyst: TN

Iron	1,240	100		µg/L	1	7/17/2014 7:13:13 PM
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Total Organic Carbon by SM 5310C

Batch ID: R15724 Analyst: KT

Total Organic Carbon	1.78	0.500		mg/L	1	7/21/2014 5:55:23 PM
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Ferrous Iron by SM3500-Fe B

Batch ID: R15698 Analyst: KT

Ferrous Iron	ND	0.0300	RAH	mg/L	1	7/18/2014 3:00:00 PM
Ferrous Iron	ND	0.0300		mg/L	1	7/17/2014 4:50:00 PM

NOTES:

RA - Re-analyzed

Qualifiers:	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
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Client: Stantec Consulting Corporation

Collection Date: 7/16/2014 6:00:00 PM

Project: 3Q14 GWM 25821 PRE-BOS 200

Lab ID: 1407167-003

Matrix: Groundwater

Client Sample ID: MW-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Inorganic Carbon by SM 5310C

Batch ID: R15775

Analyst: KT

Total Inorganic Carbon	89.7	5.00		mg/L	1	7/24/2014 4:38:26 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1407167

Date Reported: 7/24/2014

Client: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200
Lab ID: 1407167-004
Client Sample ID: MW-10

Collection Date: 7/16/2014 5:00:00 PM

Matrix: Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Gasoline by NWTPH-Gx

Batch ID: R15686 Analyst: BC

Gasoline	55.9	50.0		µg/L	1	7/19/2014 9:45:00 AM
Surr: 4-Bromofluorobenzene	94.6	65-135		%REC	1	7/19/2014 9:45:00 AM
Surr: Toluene-d8	98.6	65-135		%REC	1	7/19/2014 9:45:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R15685 Analyst: BC

Benzene	ND	1.00		µg/L	1	7/19/2014 9:45:00 AM
Toluene	ND	1.00		µg/L	1	7/19/2014 9:45:00 AM
Ethylbenzene	ND	1.00		µg/L	1	7/19/2014 9:45:00 AM
m,p-Xylene	ND	1.00		µg/L	1	7/19/2014 9:45:00 AM
o-Xylene	ND	1.00		µg/L	1	7/19/2014 9:45:00 AM
Surr: Dibromofluoromethane	91.3	61.7-130		%REC	1	7/19/2014 9:45:00 AM
Surr: Toluene-d8	93.6	40.1-139		%REC	1	7/19/2014 9:45:00 AM
Surr: 1-Bromo-4-fluorobenzene	86.4	68.2-127		%REC	1	7/19/2014 9:45:00 AM

Ion Chromatography by EPA Method 300.0

Batch ID: R15672 Analyst: KT

Nitrate	5.62	0.100		mg/L	1	7/17/2014 4:11:00 PM
Sulfate	41.0	0.600	D	mg/L	2	7/17/2014 6:32:00 PM

Total Metals by EPA Method 200.8

Batch ID: 8150 Analyst: TN

Iron	1,480	100		µg/L	1	7/17/2014 7:16:38 PM
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Total Organic Carbon by SM 5310C

Batch ID: R15724 Analyst: KT

Total Organic Carbon	1.30	0.500		mg/L	1	7/22/2014 3:03:33 PM
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Ferrous Iron by SM3500-Fe B

Batch ID: R15698 Analyst: KT

Ferrous Iron	0.150	0.0300	RAH	mg/L	1	7/18/2014 3:00:00 PM
Ferrous Iron	0.260	0.0300		mg/L	1	7/17/2014 4:53:00 PM

NOTES:

RA - Re-analyzed

Qualifiers:	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
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Client: Stantec Consulting Corporation

Collection Date: 7/16/2014 5:00:00 PM

Project: 3Q14 GWM 25821 PRE-BOS 200

Lab ID: 1407167-004

Matrix: Groundwater

Client Sample ID: MW-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Inorganic Carbon by SM 5310C

Batch ID: R15775

Analyst: KT

Total Inorganic Carbon	73.5	5.00		mg/L	1	7/24/2014 4:38:26 PM
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Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1407167

Date Reported: 7/24/2014

Client: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200
Lab ID: 1407167-005
Client Sample ID: MW-11

Collection Date: 7/16/2014 5:30:00 PM

Matrix: Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Gasoline by NWTPH-Gx</u>						
				Batch ID: R15686	Analyst: BC	
Gasoline	67.3	50.0		µg/L	1	7/19/2014 10:13:00 AM
Surr: 4-Bromofluorobenzene	94.2	65-135		%REC	1	7/19/2014 10:13:00 AM
Surr: Toluene-d8	99.9	65-135		%REC	1	7/19/2014 10:13:00 AM
<u>Volatile Organic Compounds by EPA Method 8260</u>						
				Batch ID: R15685	Analyst: BC	
Benzene	ND	1.00		µg/L	1	7/19/2014 10:13:00 AM
Toluene	ND	1.00		µg/L	1	7/19/2014 10:13:00 AM
Ethylbenzene	ND	1.00		µg/L	1	7/19/2014 10:13:00 AM
m,p-Xylene	ND	1.00		µg/L	1	7/19/2014 10:13:00 AM
o-Xylene	ND	1.00		µg/L	1	7/19/2014 10:13:00 AM
Surr: Dibromofluoromethane	88.8	61.7-130		%REC	1	7/19/2014 10:13:00 AM
Surr: Toluene-d8	93.6	40.1-139		%REC	1	7/19/2014 10:13:00 AM
Surr: 1-Bromo-4-fluorobenzene	85.9	68.2-127		%REC	1	7/19/2014 10:13:00 AM
<u>Ion Chromatography by EPA Method 300.0</u>						
				Batch ID: R15672	Analyst: KT	
Nitrate	4.11	0.100		mg/L	1	7/17/2014 4:22:00 PM
Sulfate	36.4	0.600	D	mg/L	2	7/17/2014 6:43:00 PM
<u>Total Metals by EPA Method 200.8</u>						
				Batch ID: 8150	Analyst: TN	
Iron	1,210	100		µg/L	1	7/17/2014 7:20:04 PM
<u>Total Organic Carbon by SM 5310C</u>						
				Batch ID: R15724	Analyst: KT	
Total Organic Carbon	0.873	0.500		mg/L	1	7/22/2014 3:25:53 PM
<u>Ferrous Iron by SM3500-Fe B</u>						
				Batch ID: R15698	Analyst: KT	
Ferrous Iron	0.440	0.0300	RAH	mg/L	1	7/18/2014 3:00:00 PM
Ferrous Iron	0.380	0.0300		mg/L	1	7/17/2014 4:56:00 PM
NOTES:						
RA - Re-analyzed						

Qualifiers:	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
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Client: Stantec Consulting Corporation

Collection Date: 7/16/2014 5:30:00 PM

Project: 3Q14 GWM 25821 PRE-BOS 200

Lab ID: 1407167-005

Matrix: Groundwater

Client Sample ID: MW-11

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Inorganic Carbon by SM 5310C

Batch ID: R15775

Analyst: KT

Total Inorganic Carbon	71.2	5.00		mg/L	1	7/24/2014 4:38:26 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

Work Order: 1407167
CLIENT: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200

QC SUMMARY REPORT
Ferrous Iron by SM3500-Fe B

Sample ID: MB-R15698	SampType: MBLK	Units: mg/L	Prep Date: 7/18/2014	RunNo: 15698							
Client ID: MBLKW	Batch ID: R15698		Analysis Date: 7/18/2014	SeqNo: 317710							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Ferrous Iron ND 0.0300

Sample ID: LCS-R15698	SampType: LCS	Units: mg/L	Prep Date: 7/18/2014	RunNo: 15698							
Client ID: LCSW	Batch ID: R15698		Analysis Date: 7/18/2014	SeqNo: 317711							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Ferrous Iron 1.02 0.0300 1.000 0 102 90 110

Sample ID: 1407180-004ADUP	SampType: DUP	Units: mg/L	Prep Date: 7/18/2014	RunNo: 15698							
Client ID: BATCH	Batch ID: R15698		Analysis Date: 7/18/2014	SeqNo: 317715							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Ferrous Iron 5.60 0.300 5.400 3.64 20 D

Sample ID: 1407180-004BMS	SampType: MS	Units: mg/L	Prep Date: 7/18/2014	RunNo: 15698							
Client ID: BATCH	Batch ID: R15698		Analysis Date: 7/18/2014	SeqNo: 317716							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Ferrous Iron 24.1 0.300 20.00 5.400 93.5 85 115 D

Sample ID: 1407180-004BMSD	SampType: MSD	Units: mg/L	Prep Date: 7/18/2014	RunNo: 15698							
Client ID: BATCH	Batch ID: R15698		Analysis Date: 7/18/2014	SeqNo: 317717							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Ferrous Iron 23.3 0.300 20.00 5.400 89.5 85 115 24.10 3.38 20 D

Qualifiers: B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
D Dilution was required
J Analyte detected below quantitation limits
RL Reporting Limit
E Value above quantitation range
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

Work Order: 1407167
CLIENT: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200

QC SUMMARY REPORT
Ion Chromatography by EPA Method 300.0

Sample ID: MB-R15672	SampType: MBLK	Units: mg/L	Prep Date: 7/17/2014	RunNo: 15672							
Client ID: MBLKW	Batch ID: R15672	Analysis Date: 7/17/2014	SeqNo: 317179								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate	ND	0.100									
Sulfate	ND	0.300									

Sample ID: LCS-R15672	SampType: LCS	Units: mg/L	Prep Date: 7/17/2014	RunNo: 15672							
Client ID: LCSW	Batch ID: R15672	Analysis Date: 7/17/2014	SeqNo: 317180								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate	2.95	0.100	3.000	0	98.3	90	110				
Sulfate	14.8	0.300	15.00	0	98.6	90	110				

Sample ID: 1407167-001EDUP	SampType: DUP	Units: mg/L	Prep Date: 7/17/2014	RunNo: 15672							
Client ID: MW-6	Batch ID: R15672	Analysis Date: 7/17/2014	SeqNo: 317186								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate	1.73	0.100						1.748	1.25	20	
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Sample ID: 1407167-001EMS	SampType: MS	Units: mg/L	Prep Date: 7/17/2014	RunNo: 15672							
Client ID: MW-6	Batch ID: R15672	Analysis Date: 7/17/2014	SeqNo: 317187								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate	5.62	0.100	3.000	1.748	129	80	120				S
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NOTES:

S - Outlying QC recoveries were associated with this sample. The method is in control as indicated by the LCS.

Qualifiers:	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	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits



Work Order: 1407167
CLIENT: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200

QC SUMMARY REPORT
Ion Chromatography by EPA Method 300.0

Sample ID: 1407167-001EMSD	SampType: MSD	Units: mg/L	Prep Date: 7/17/2014	RunNo: 15672							
Client ID: MW-6	Batch ID: R15672	Analysis Date: 7/17/2014	SeqNo: 317188								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate	4.79	0.100	3.000	1.748	101	80	120	5.616	16.0	20	
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Sample ID: 1407167-001EDUP	SampType: DUP	Units: mg/L	Prep Date: 7/17/2014	RunNo: 15672							
Client ID: MW-6	Batch ID: R15672	Analysis Date: 7/17/2014	SeqNo: 317191								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate	155	3.00						153.0	1.18	20	D
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Sample ID: 1407167-001EMS	SampType: MS	Units: mg/L	Prep Date: 7/17/2014	RunNo: 15672							
Client ID: MW-6	Batch ID: R15672	Analysis Date: 7/17/2014	SeqNo: 317192								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate	336	3.00	150.0	153.0	122	80	120				DS
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NOTES:

S - Outlying QC recoveries were associated with this sample. The method is in control as indicated by the LCS.

Sample ID: 1407167-001EMSD	SampType: MSD	Units: mg/L	Prep Date: 7/17/2014	RunNo: 15672							
Client ID: MW-6	Batch ID: R15672	Analysis Date: 7/17/2014	SeqNo: 317193								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate	332	3.00	150.0	153.0	119	80	120	336.2	1.40	20	D
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Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1407167
CLIENT: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200

QC SUMMARY REPORT
Total Inorganic Carbon by SM 5310C

Sample ID: MB-R15775	SampType: MBLK	Units: mg/L	Prep Date: 7/24/2014	RunNo: 15775							
Client ID: MBLKW	Batch ID: R15775		Analysis Date: 7/24/2014	SeqNo: 319139							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Carbon	ND	5.00									
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Sample ID: LCS-R15775	SampType: LCS	Units: mg/L	Prep Date: 7/24/2014	RunNo: 15775							
Client ID: LCSW	Batch ID: R15775		Analysis Date: 7/24/2014	SeqNo: 319140							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Carbon	5.08	5.00	5.000	0	102	65	135				
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Sample ID: 1407167-003BDUP	SampType: DUP	Units: mg/L	Prep Date: 7/24/2014	RunNo: 15775							
Client ID: MW-8	Batch ID: R15775		Analysis Date: 7/24/2014	SeqNo: 319144							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Inorganic Carbon	91.0	5.00						89.67	1.52	30	
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Qualifiers:
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
J Analyte detected below quantitation limits
ND Not detected at the Reporting Limit

R RPD outside accepted recovery limits
RL Reporting Limit
S Spike recovery outside accepted recovery limits

Work Order: 1407167
CLIENT: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200

QC SUMMARY REPORT
Total Organic Carbon by SM 5310C

Sample ID: MB-R15724	SampType: MBLK	Units: mg/L	Prep Date: 7/21/2014	RunNo: 15724							
Client ID: MBLKW	Batch ID: R15724		Analysis Date: 7/21/2014	SeqNo: 318268							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Organic Carbon ND 0.500

Sample ID: LCS-R15724	SampType: LCS	Units: mg/L	Prep Date: 7/21/2014	RunNo: 15724							
Client ID: LCSW	Batch ID: R15724		Analysis Date: 7/21/2014	SeqNo: 318269							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Organic Carbon 4.63 0.500 5.000 0 92.5 80 120

Sample ID: 1407167-003ADUP	SampType: DUP	Units: mg/L	Prep Date: 7/21/2014	RunNo: 15724							
Client ID: MW-8	Batch ID: R15724		Analysis Date: 7/21/2014	SeqNo: 318276							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Organic Carbon 1.23 0.500 1.782 36.5 20 R

NOTES:
 High RPD observed.

Sample ID: 1407167-003AMS	SampType: MS	Units: mg/L	Prep Date: 7/21/2014	RunNo: 15724							
Client ID: MW-8	Batch ID: R15724		Analysis Date: 7/21/2014	SeqNo: 318277							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Organic Carbon 4.84 0.500 2.500 1.782 122 70 130

Sample ID: 1407167-003AMSD	SampType: MSD	Units: mg/L	Prep Date: 7/21/2014	RunNo: 15724							
Client ID: MW-8	Batch ID: R15724		Analysis Date: 7/21/2014	SeqNo: 318278							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Organic Carbon 4.69 0.500 2.500 1.782 116 70 130 4.837 3.09 30

Qualifiers: 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 J Analyte detected below quantitation limits ND Not detected at the Reporting Limit
 R RPD outside accepted recovery limits RL Reporting Limit S Spike recovery outside accepted recovery limits

Work Order: 1407167
CLIENT: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200

QC SUMMARY REPORT
Total Organic Carbon by SM 5310C

Sample ID: 1407167-003AMSD	SampType: MSD	Units: mg/L	Prep Date: 7/21/2014	RunNo: 15724							
Client ID: MW-8	Batch ID: R15724	Analysis Date: 7/21/2014	SeqNo: 318278								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: CCV-R15724C	SampType: CCV	Units: mg/L	Prep Date: 7/22/2014	RunNo: 15724							
Client ID: CCV	Batch ID: R15724	Analysis Date: 7/22/2014	SeqNo: 318281								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Organic Carbon	4.65	0.500	5.000	0	93.0	85	115				
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Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1407167
CLIENT: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200

QC SUMMARY REPORT
Total Metals by EPA Method 200.8

Sample ID: MB-8150	SampType: MBLK	Units: µg/L	Prep Date: 7/17/2014	RunNo: 15656							
Client ID: MBLKW	Batch ID: 8150	Analysis Date: 7/17/2014	SeqNo: 316913								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron ND 100

Sample ID: LCS-8150	SampType: LCS	Units: µg/L	Prep Date: 7/17/2014	RunNo: 15656							
Client ID: LCSW	Batch ID: 8150	Analysis Date: 7/17/2014	SeqNo: 316916								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 1,080 100 1,000 0 108 50 150

Sample ID: 1407167-001DDUP	SampType: DUP	Units: µg/L	Prep Date: 7/17/2014	RunNo: 15656							
Client ID: MW-6	Batch ID: 8150	Analysis Date: 7/17/2014	SeqNo: 316918								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 11,800 100 12,850 8.20 30

Sample ID: 1407167-001DMS	SampType: MS	Units: µg/L	Prep Date: 7/17/2014	RunNo: 15656							
Client ID: MW-6	Batch ID: 8150	Analysis Date: 7/17/2014	SeqNo: 316919								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 17,500 100 5,000 12,850 93.2 50 150

Sample ID: 1407167-001DMSD	SampType: MSD	Units: µg/L	Prep Date: 7/17/2014	RunNo: 15656							
Client ID: MW-6	Batch ID: 8150	Analysis Date: 7/17/2014	SeqNo: 316920								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 17,200 100 5,000 12,850 87.3 50 150 17,500 1.68 30

Qualifiers: 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
 J Analyte detected below quantitation limits
 ND Not detected at the Reporting Limit
 R RPD outside accepted recovery limits
 RL Reporting Limit
 S Spike recovery outside accepted recovery limits

Work Order: 1407167
CLIENT: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200

QC SUMMARY REPORT
Gasoline by NWTPH-Gx

Sample ID: 1407143-001ADUP	SampType: DUP	Units: µg/L	Prep Date: 7/19/2014	RunNo: 15686							
Client ID: BATCH	Batch ID: R15686		Analysis Date: 7/19/2014	SeqNo: 317481							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	4,230	50.0						4,854	13.7	30	
Surr: Toluene-d8	50.6		50.00		101	65	135		0	0	
Surr: 4-Bromofluorobenzene	49.5		50.00		99.0	65	135		0	0	

Sample ID: LCS-R15686	SampType: LCS	Units: µg/L	Prep Date: 7/19/2014	RunNo: 15686							
Client ID: LCSW	Batch ID: R15686		Analysis Date: 7/19/2014	SeqNo: 317494							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	446	50.0	500.0	0	89.1	65	135				
Surr: Toluene-d8	50.1		50.00		100	65	135				
Surr: 4-Bromofluorobenzene	50.3		50.00		101	65	135				

Sample ID: MB-R15686	SampType: MBLK	Units: µg/L	Prep Date: 7/19/2014	RunNo: 15686							
Client ID: MBLKW	Batch ID: R15686		Analysis Date: 7/19/2014	SeqNo: 317495							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	50.0									
Surr: Toluene-d8	50.4		50.00		101	65	135				
Surr: 4-Bromofluorobenzene	48.4		50.00		96.8	65	135				

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1407167
CLIENT: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1407143-001ADUP	SampType: DUP	Units: µg/L	Prep Date: 7/19/2014	RunNo: 15685							
Client ID: BATCH	Batch ID: R15685		Analysis Date: 7/19/2014	SeqNo: 317458							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	29.7	1.00						29.46	0.744	30	
Toluene	6.25	1.00						6.040	3.42	30	
Ethylbenzene	17.3	1.00						16.76	3.17	30	
m,p-Xylene	7.42	1.00						7.010	5.68	30	
o-Xylene	2.08	1.00						1.990	4.42	30	
Surr: Dibromofluoromethane	45.3		50.00		90.5	61.7	130		0		
Surr: Toluene-d8	49.5		50.00		99.1	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	45.3		50.00		90.7	68.2	127		0		

Sample ID: 1407143-002AMS	SampType: MS	Units: µg/L	Prep Date: 7/19/2014	RunNo: 15685							
Client ID: BATCH	Batch ID: R15685		Analysis Date: 7/19/2014	SeqNo: 317460							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.4	1.00	20.00	0.2300	106	65.4	138				
Toluene	22.0	1.00	20.00	0.3300	108	64	139				
Ethylbenzene	22.4	1.00	20.00	0.2200	111	64.5	136				
m,p-Xylene	45.5	1.00	40.00	0.8000	112	63.3	135				
o-Xylene	23.0	1.00	20.00	0.4100	113	65.4	134				
Surr: Dibromofluoromethane	49.8		50.00		99.5	61.7	130				
Surr: Toluene-d8	48.1		50.00		96.1	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	45.4		50.00		90.7	68.2	127				

Sample ID: LCS-R15685	SampType: LCS	Units: µg/L	Prep Date: 7/19/2014	RunNo: 15685							
Client ID: LCSW	Batch ID: R15685		Analysis Date: 7/19/2014	SeqNo: 317475							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.1	1.00	20.00	0	90.7	73.1	126				
Toluene	18.7	1.00	20.00	0	93.6	61.3	145				

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1407167
CLIENT: Stantec Consulting Corporation
Project: 3Q14 GWM 25821 PRE-BOS 200

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-R15685	SampType: LCS	Units: µg/L	Prep Date: 7/19/2014	RunNo: 15685							
Client ID: LCSW	Batch ID: R15685		Analysis Date: 7/19/2014	SeqNo: 317475							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene	18.8	1.00	20.00	0	94.2	72	130				
m,p-Xylene	38.9	1.00	40.00	0	97.3	73	131				
o-Xylene	19.5	1.00	20.00	0	97.5	72.1	131				
Surr: Dibromofluoromethane	49.7		50.00		99.5	61.7	130				
Surr: Toluene-d8	47.5		50.00		95.1	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	46.9		50.00		93.8	68.2	127				

Sample ID: MB-R15685	SampType: MBLK	Units: µg/L	Prep Date: 7/19/2014	RunNo: 15685							
Client ID: MBLKW	Batch ID: R15685		Analysis Date: 7/19/2014	SeqNo: 317476							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00									
Toluene	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Surr: Dibromofluoromethane	44.0		50.00		88.1	61.7	130				
Surr: Toluene-d8	46.8		50.00		93.6	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	44.3		50.00		88.7	68.2	127				

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client Name: STANTEC	Work Order Number: 1407167
Logged by: Erica Silva	Date Received: 7/17/2014 8:45:00 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 intact on shipping container/cooler? Yes No Not Required
6. Was an attempt made to cool the samples? Yes No NA
7. Were all coolers 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 the 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:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C	Condition
Cooler	8.7	Good
Sample	5.1	Good
Temp Blank	4.1	Good



Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103

Tel: 206-352-3750
Fax: 206-352-7178

Date: 7/16/14

Laboratory Project No (interior): 1407167
Page: 1 of 1

Client: STANTEC
Address: 11730 NE 33rd Pl Ste 200
City, State, Zip: BELLEVUE, WA 98004
Tel: 425-869-948x143
Project Name: 3014 GUM 25821 PRE-805200
Location: RICHAND, WA
Collected by: EMILY HARPER

Reports To (PM): PAUL FAIRBAIRN
Fax: 425-869-1190
Email: PAUL.FAIRBAIRN@STANTEC.COM
Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	Analytes																																			
				VOC (EPA 8260)	GV/BTEX by EPA 8260	BTEX by EPA 8260	Gasoline Range Organics	Hydrocarbon Identification (HID)	Diesel/Heavy Oil Range Organics	SEMI-VOL (EPA 8270)	PAH (EPA 8270)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8081)	Metals* (EPA 8151A)	Metals** (6020 / 200.9)	Anions (IC)**	Sulfate-Nitrate	Ferric Iron	Toxic	Comments/Depth	Special Remarks:																	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
MW-6	7/16	1840	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
MW-7		1915		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
MW-8		1800		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
MW-10		1700		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
MW-11		1730		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			

Instructions: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com



3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
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Stantec Consulting Corporation
Paul Fairbairn
11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

RE: Post-Injection 3Q14 GWM 7-11 #2
Lab ID: 1409100

September 17, 2014

Attention Paul Fairbairn:

Fremont Analytical, Inc. received 6 sample(s) on 9/10/2014 for the analyses presented in the following report.

Gasoline by NWTPH-Gx
Ion Chromatography by EPA Method 300.0
Total Metals by EPA Method 200.8
Total Inorganic Carbon by SM 5310C
Total Organic Carbon by SM 5310C
Volatile Organic Compounds by EPA Method 8260

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,

A handwritten signature in black ink, appearing to read "Mike Ridgeway", written in a cursive style.

Mike Ridgeway
President



Date: 09/17/2014

CLIENT: Stantec Consulting Corporation
Project: Post-Injection 3Q14 GWM 7-11 #2
Lab Order: 1409100

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1409100-001	MW-6	09/08/2014 1:51 PM	09/10/2014 1:48 PM
1409100-002	MW-7	09/08/2014 12:42 PM	09/10/2014 1:48 PM
1409100-003	MW-8	09/08/2014 11:45 AM	09/10/2014 1:48 PM
1409100-004	MW-10	09/08/2014 9:11 AM	09/10/2014 1:48 PM
1409100-005	MW-11	09/08/2014 10:45 AM	09/10/2014 1:48 PM
1409100-006	Trip Blank	08/28/2014 1:48 PM	09/10/2014 1:48 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Stantec Consulting Corporation
Project: Post-Injection 3Q14 GWM 7-11 #2

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.



Analytical Report

WO#: 1409100

Date Reported: 9/17/2014

Client: Stantec Consulting Corporation

Collection Date: 9/8/2014 1:51:00 PM

Project: Post-Injection 3Q14 GWM 7-11 #2

Lab ID: 1409100-001

Matrix: Water

Client Sample ID: MW-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Gasoline by NWTPH-Gx

Batch ID: R16719 Analyst: EM

Gasoline	ND	50.0		µg/L	1	9/10/2014 10:10:00 PM
Surr: 4-Bromofluorobenzene	102	65-135		%REC	1	9/10/2014 10:10:00 PM
Surr: Toluene-d8	101	65-135		%REC	1	9/10/2014 10:10:00 PM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R16700 Analyst: EM

Benzene	ND	1.00		µg/L	1	9/10/2014 10:10:00 PM
Toluene	ND	1.00		µg/L	1	9/10/2014 10:10:00 PM
Ethylbenzene	ND	1.00		µg/L	1	9/10/2014 10:10:00 PM
m,p-Xylene	ND	1.00		µg/L	1	9/10/2014 10:10:00 PM
o-Xylene	ND	1.00		µg/L	1	9/10/2014 10:10:00 PM
Surr: Dibromofluoromethane	102	61.7-130		%REC	1	9/10/2014 10:10:00 PM
Surr: Toluene-d8	100	40.1-139		%REC	1	9/10/2014 10:10:00 PM
Surr: 1-Bromo-4-fluorobenzene	98.4	68.2-127		%REC	1	9/10/2014 10:10:00 PM

Ion Chromatography by EPA Method 300.0

Batch ID: R16711 Analyst: KT

Nitrate	96.5	10.0	DH	mg/L	100	9/10/2014 4:42:00 PM
Sulfate	1,670	150	D	mg/L	500	9/10/2014 4:52:00 PM

Total Organic Carbon by SM 5310C

Batch ID: R16781 Analyst: KT

Total Organic Carbon	0.524	0.500		mg/L	1	9/15/2014 2:26:14 PM
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Total Inorganic Carbon by SM 5310C

Batch ID: R16799 Analyst: KT

Total Inorganic Carbon	88.7	5.00		mg/L	1	9/16/2014 3:00:19 PM
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Qualifiers:

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
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Client: Stantec Consulting Corporation

Collection Date: 9/8/2014 12:42:00 PM

Project: Post-Injection 3Q14 GWM 7-11 #2

Lab ID: 1409100-002

Matrix: Water

Client Sample ID: MW-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Gasoline by NWTPH-Gx

Batch ID: R16719 Analyst: EM

Gasoline	ND	50.0		µg/L	1	9/10/2014 11:05:00 PM
Surr: 4-Bromofluorobenzene	103	65-135		%REC	1	9/10/2014 11:05:00 PM
Surr: Toluene-d8	103	65-135		%REC	1	9/10/2014 11:05:00 PM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R16700 Analyst: EM

Benzene	ND	1.00		µg/L	1	9/10/2014 11:05:00 PM
Toluene	ND	1.00		µg/L	1	9/10/2014 11:05:00 PM
Ethylbenzene	ND	1.00		µg/L	1	9/10/2014 11:05:00 PM
m,p-Xylene	ND	1.00		µg/L	1	9/10/2014 11:05:00 PM
o-Xylene	ND	1.00		µg/L	1	9/10/2014 11:05:00 PM
Surr: Dibromofluoromethane	99.0	61.7-130		%REC	1	9/10/2014 11:05:00 PM
Surr: Toluene-d8	101	40.1-139		%REC	1	9/10/2014 11:05:00 PM
Surr: 1-Bromo-4-fluorobenzene	99.9	68.2-127		%REC	1	9/10/2014 11:05:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409100

Date Reported: 9/17/2014

Client: Stantec Consulting Corporation

Collection Date: 9/8/2014 11:45:00 AM

Project: Post-Injection 3Q14 GWM 7-11 #2

Lab ID: 1409100-003

Matrix: Water

Client Sample ID: MW-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Gasoline by NWTPH-Gx

Batch ID: R16719 Analyst: EM

Gasoline	ND	50.0		µg/L	1	9/10/2014 11:33:00 PM
Surr: 4-Bromofluorobenzene	100	65-135		%REC	1	9/10/2014 11:33:00 PM
Surr: Toluene-d8	102	65-135		%REC	1	9/10/2014 11:33:00 PM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R16700 Analyst: EM

Benzene	ND	1.00		µg/L	1	9/10/2014 11:33:00 PM
Toluene	ND	1.00		µg/L	1	9/10/2014 11:33:00 PM
Ethylbenzene	ND	1.00		µg/L	1	9/10/2014 11:33:00 PM
m,p-Xylene	ND	1.00		µg/L	1	9/10/2014 11:33:00 PM
o-Xylene	ND	1.00		µg/L	1	9/10/2014 11:33:00 PM
Surr: Dibromofluoromethane	102	61.7-130		%REC	1	9/10/2014 11:33:00 PM
Surr: Toluene-d8	103	40.1-139		%REC	1	9/10/2014 11:33:00 PM
Surr: 1-Bromo-4-fluorobenzene	96.7	68.2-127		%REC	1	9/10/2014 11:33:00 PM

Ion Chromatography by EPA Method 300.0

Batch ID: R16711 Analyst: KT

Nitrate	36.5	2.00	DH	mg/L	20	9/10/2014 5:02:00 PM
Sulfate	934	60.0	D	mg/L	200	9/10/2014 5:13:00 PM

Total Organic Carbon by SM 5310C

Batch ID: R16781 Analyst: KT

Total Organic Carbon	1.69	0.500		mg/L	1	9/15/2014 2:48:20 PM
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Total Inorganic Carbon by SM 5310C

Batch ID: R16799 Analyst: KT

Total Inorganic Carbon	104	5.00		mg/L	1	9/16/2014 3:12:25 PM
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Qualifiers:

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
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Client: Stantec Consulting Corporation

Collection Date: 9/8/2014 9:11:00 AM

Project: Post-Injection 3Q14 GWM 7-11 #2

Lab ID: 1409100-004

Matrix: Water

Client Sample ID: MW-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Ion Chromatography by EPA Method 300.0</u>				Batch ID: R16711		Analyst: KT
Nitrate	2.67	0.100	H	mg/L	1	9/10/2014 4:15:00 PM
Sulfate	31.1	1.50	D	mg/L	5	9/10/2014 5:23:00 PM
<u>Total Metals by EPA Method 200.8</u>				Batch ID: 8684		Analyst: TN
Iron	401	100		µg/L	1	9/11/2014 2:11:33 PM
<u>Total Organic Carbon by SM 5310C</u>				Batch ID: R16781		Analyst: KT
Total Organic Carbon	2.26	0.500		mg/L	1	9/15/2014 3:06:31 PM
<u>Total Inorganic Carbon by SM 5310C</u>				Batch ID: R16799		Analyst: KT
Total Inorganic Carbon	85.3	5.00		mg/L	1	9/16/2014 3:24:25 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit
 D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Client: Stantec Consulting Corporation

Collection Date: 9/8/2014 10:45:00 AM

Project: Post-Injection 3Q14 GWM 7-11 #2

Lab ID: 1409100-005

Matrix: Water

Client Sample ID: MW-11

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Ion Chromatography by EPA Method 300.0

Batch ID: R16711 Analyst: KT

Nitrate	7.20	5.00	DH	mg/L	50	9/10/2014 5:54:00 PM
Sulfate	141	15.0	D	mg/L	50	9/10/2014 5:54:00 PM

Total Metals by EPA Method 200.8

Batch ID: 8684 Analyst: TN

Iron	204	100		µg/L	1	9/11/2014 2:14:59 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

Work Order: 1409100
CLIENT: Stantec Consulting Corporation
Project: Post-Injection 3Q14 GWM 7-11 #2

QC SUMMARY REPORT
Ion Chromatography by EPA Method 300.0

Sample ID: LCS-R16711	SampType: LCS	Units: mg/L				Prep Date: 9/10/2014	RunNo: 16711				
Client ID: LCSW	Batch ID: R16711					Analysis Date: 9/10/2014	SeqNo: 335869				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate	2.80	0.100	3.000	0	93.3	90	110				
Sulfate	14.5	0.300	15.00	0	96.6	90	110				

Sample ID: 1409100-005BDUP	SampType: DUP	Units: mg/L				Prep Date: 9/10/2014	RunNo: 16711				
Client ID: MW-11	Batch ID: R16711					Analysis Date: 9/10/2014	SeqNo: 335879				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate	6.99	5.00						7.205	3.03	20	DH
Sulfate	139	15.0						140.7	0.928	20	D

Sample ID: 1409100-005BMS	SampType: MS	Units: mg/L				Prep Date: 9/10/2014	RunNo: 16711				
Client ID: MW-11	Batch ID: R16711					Analysis Date: 9/10/2014	SeqNo: 335880				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate	152	5.00	150.0	7.205	96.7	80	120				DH
Sulfate	918	15.0	750.0	140.7	104	80	120				DE

Sample ID: 1409100-005BMSD	SampType: MSD	Units: mg/L				Prep Date: 9/10/2014	RunNo: 16711				
Client ID: MW-11	Batch ID: R16711					Analysis Date: 9/10/2014	SeqNo: 335881				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate	162	5.00	150.0	7.205	103	80	120	152.2	6.11	20	DH
Sulfate	970	15.0	750.0	140.7	111	80	120	918.2	5.52	20	DE

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1409100
CLIENT: Stantec Consulting Corporation
Project: Post-Injection 3Q14 GWM 7-11 #2

QC SUMMARY REPORT
Ion Chromatography by EPA Method 300.0

Sample ID: MB-R16711	SampType: MBLK	Units: mg/L	Prep Date: 9/10/2014	RunNo: 16711							
Client ID: MBLKW	Batch ID: R16711		Analysis Date: 9/10/2014	SeqNo: 335883							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate	ND	0.100									
Sulfate	ND	0.300									

Qualifiers:
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
J Analyte detected below quantitation limits
ND Not detected at the Reporting Limit

R RPD outside accepted recovery limits
RL Reporting Limit
S Spike recovery outside accepted recovery limits

Work Order: 1409100
CLIENT: Stantec Consulting Corporation
Project: Post-Injection 3Q14 GWM 7-11 #2

QC SUMMARY REPORT
Total Inorganic Carbon by SM 5310C

Sample ID: MB-R16799	SampType: MBLK	Units: mg/L	Prep Date: 9/16/2014	RunNo: 16799							
Client ID: MBLKW	Batch ID: R16799		Analysis Date: 9/16/2014	SeqNo: 337533							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Carbon	ND	5.00									
Total Inorganic Carbon	ND	5.00									

Sample ID: LCS-R16799	SampType: LCS	Units: mg/L	Prep Date: 9/16/2014	RunNo: 16799							
Client ID: LCSW	Batch ID: R16799		Analysis Date: 9/16/2014	SeqNo: 337534							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Carbon	5.36	5.00	5.000	0	107	65	135				
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Sample ID: 1409100-001DDUP	SampType: DUP	Units: mg/L	Prep Date: 9/16/2014	RunNo: 16799							
Client ID: MW-6	Batch ID: R16799		Analysis Date: 9/16/2014	SeqNo: 337539							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Carbon	82.3	0						89.24	8.04	30	
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Sample ID: 1409100-001DMS	SampType: MS	Units: mg/L	Prep Date: 9/16/2014	RunNo: 16799							
Client ID: MW-6	Batch ID: R16799		Analysis Date: 9/16/2014	SeqNo: 337540							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Carbon	197	0	100.0	89.24	108	65	135				
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Sample ID: 1409100-001DMSD	SampType: MSD	Units: mg/L	Prep Date: 9/16/2014	RunNo: 16799							
Client ID: MW-6	Batch ID: R16799		Analysis Date: 9/16/2014	SeqNo: 337541							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Carbon	198	0	100.0	89.24	108	65	135	197.1	0.223	30	
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Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/17/2014

Work Order: 1409100
CLIENT: Stantec Consulting Corporation
Project: Post-Injection 3Q14 GWM 7-11 #2

QC SUMMARY REPORT
Total Inorganic Carbon by SM 5310C

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409100
CLIENT: Stantec Consulting Corporation
Project: Post-Injection 3Q14 GWM 7-11 #2

QC SUMMARY REPORT
Total Organic Carbon by SM 5310C

Sample ID: MB-R16781	SampType: MBLK	Units: mg/L	Prep Date: 9/15/2014	RunNo: 16781							
Client ID: MBLKW	Batch ID: R16781		Analysis Date: 9/15/2014	SeqNo: 337258							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Organic Carbon ND 0.500

Sample ID: LCS-R16781	SampType: LCS	Units: mg/L	Prep Date: 9/15/2014	RunNo: 16781							
Client ID: LCSW	Batch ID: R16781		Analysis Date: 9/15/2014	SeqNo: 337262							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Organic Carbon 5.53 0.500 5.000 0 111 80 120

Sample ID: 1409100-003CDUP	SampType: DUP	Units: mg/L	Prep Date: 9/15/2014	RunNo: 16781							
Client ID: MW-8	Batch ID: R16781		Analysis Date: 9/15/2014	SeqNo: 337263							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Organic Carbon 1.66 0.500 1.692 2.03 20

Sample ID: 1409100-003CMS	SampType: MS	Units: mg/L	Prep Date: 9/15/2014	RunNo: 16781							
Client ID: MW-8	Batch ID: R16781		Analysis Date: 9/15/2014	SeqNo: 337264							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Organic Carbon 4.06 0.500 2.500 1.692 94.5 70 130

Sample ID: 1409100-003CMSD	SampType: MSD	Units: mg/L	Prep Date: 9/15/2014	RunNo: 16781							
Client ID: MW-8	Batch ID: R16781		Analysis Date: 9/15/2014	SeqNo: 337265							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Organic Carbon 4.12 0.500 2.500 1.692 97.0 70 130 4.055 1.54 30

Qualifiers: 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 J Analyte detected below quantitation limits ND Not detected at the Reporting Limit
 R RPD outside accepted recovery limits RL Reporting Limit S Spike recovery outside accepted recovery limits



Work Order: 1409100
CLIENT: Stantec Consulting Corporation
Project: Post-Injection 3Q14 GWM 7-11 #2

QC SUMMARY REPORT
Total Metals by EPA Method 200.8

Sample ID: MB-8684	SampType: MBLK	Units: µg/L	Prep Date: 9/11/2014	RunNo: 16722							
Client ID: MBLKW	Batch ID: 8684	Analysis Date: 9/11/2014	SeqNo: 336003								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron ND 100

Sample ID: LCS-8684	SampType: LCS	Units: µg/L	Prep Date: 9/11/2014	RunNo: 16722							
Client ID: LCSW	Batch ID: 8684	Analysis Date: 9/11/2014	SeqNo: 336004								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 1,020 100 1,000 0 102 50 150

Sample ID: 1409107-001BDUP	SampType: DUP	Units: µg/L	Prep Date: 9/11/2014	RunNo: 16722							
Client ID: BATCH	Batch ID: 8684	Analysis Date: 9/11/2014	SeqNo: 336006								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron ND 100 0 30

Sample ID: 1409107-001BMS	SampType: MS	Units: µg/L	Prep Date: 9/11/2014	RunNo: 16722							
Client ID: BATCH	Batch ID: 8684	Analysis Date: 9/11/2014	SeqNo: 336007								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 5,050 100 5,000 10.91 101 50 150

Sample ID: 1409107-001BMSD	SampType: MSD	Units: µg/L	Prep Date: 9/11/2014	RunNo: 16722							
Client ID: BATCH	Batch ID: 8684	Analysis Date: 9/11/2014	SeqNo: 336008								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron 5,170 100 5,000 10.91 103 50 150 5,047 2.48 30

Qualifiers: 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
 J Analyte detected below quantitation limits
 ND Not detected at the Reporting Limit
 R RPD outside accepted recovery limits
 RL Reporting Limit
 S Spike recovery outside accepted recovery limits

Work Order: 1409100
CLIENT: Stantec Consulting Corporation
Project: Post-Injection 3Q14 GWM 7-11 #2

QC SUMMARY REPORT
Gasoline by NWTPH-Gx

Sample ID: 1409100-001ADUP	SampType: DUP	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16719							
Client ID: MW-6	Batch ID: R16719		Analysis Date: 9/10/2014	SeqNo: 335976							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	50.0						0		30	
Surr: Toluene-d8	50.1		50.00		100	65	135		0	0	
Surr: 4-Bromofluorobenzene	53.0		50.00		106	65	135		0	0	

Sample ID: LCS-R16719	SampType: LCS	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16719							
Client ID: LCSW	Batch ID: R16719		Analysis Date: 9/10/2014	SeqNo: 335985							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	575	50.0	500.0	0	115	65	135				
Surr: Toluene-d8	50.2		50.00		100	65	135				
Surr: 4-Bromofluorobenzene	48.3		50.00		96.6	65	135				

Sample ID: MB-R16719	SampType: MBLK	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16719							
Client ID: MBLKW	Batch ID: R16719		Analysis Date: 9/10/2014	SeqNo: 335986							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	50.0									
Surr: Toluene-d8	51.5		50.00		103	65	135				
Surr: 4-Bromofluorobenzene	50.4		50.00		101	65	135				

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1409100
CLIENT: Stantec Consulting Corporation
Project: Post-Injection 3Q14 GWM 7-11 #2

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-R16700	SampType: LCS	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16700							
Client ID: LCSW	Batch ID: R16700		Analysis Date: 9/10/2014	SeqNo: 335648							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.6	1.00	20.00	0	103	73.1	126				
Toluene	21.4	1.00	20.00	0	107	61.3	145				
Ethylbenzene	21.0	1.00	20.00	0	105	72	130				
m,p-Xylene	40.1	1.00	40.00	0	100	73	131				
o-Xylene	21.0	1.00	20.00	0	105	72.1	131				
Surr: Dibromofluoromethane	47.5		50.00		95.0	61.7	130				
Surr: Toluene-d8	51.9		50.00		104	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	48.2		50.00		96.4	68.2	127				

Sample ID: MB-R16700	SampType: MBLK	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16700							
Client ID: MBLKW	Batch ID: R16700		Analysis Date: 9/10/2014	SeqNo: 335649							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00									
Toluene	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Surr: Dibromofluoromethane	49.8		50.00		99.5	61.7	130				
Surr: Toluene-d8	51.7		50.00		103	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	49.0		50.00		98.0	68.2	127				

Sample ID: 1409100-001ADUP	SampType: DUP	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16700							
Client ID: MW-6	Batch ID: R16700		Analysis Date: 9/10/2014	SeqNo: 336206							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00						0		30	
Toluene	ND	1.00						0		30	

Qualifiers: 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 J Analyte detected below quantitation limits ND Not detected at the Reporting Limit
R RPD outside accepted recovery limits RL Reporting Limit S Spike recovery outside accepted recovery limits

Work Order: 1409100
CLIENT: Stantec Consulting Corporation
Project: Post-Injection 3Q14 GWM 7-11 #2

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene	ND	1.00						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	1.00						0		30	
Surr: Dibromofluoromethane	53.0		50.00		106	61.7	130		0		
Surr: Toluene-d8	50.5		50.00		101	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	51.6		50.00		103	68.2	127		0		

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.1	1.00	20.00	0	106	65.4	138				
Toluene	21.7	1.00	20.00	0	108	64	139				
Ethylbenzene	22.3	1.00	20.00	0	111	64.5	136				
m,p-Xylene	41.3	1.00	40.00	0	103	63.3	135				
o-Xylene	21.4	1.00	20.00	0	107	65.4	134				
Surr: Dibromofluoromethane	52.6		50.00		105	61.7	130				
Surr: Toluene-d8	50.1		50.00		100	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	51.7		50.00		103	68.2	127				

Qualifiers:
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
J Analyte detected below quantitation limits
ND Not detected at the Reporting Limit

R RPD outside accepted recovery limits
RL Reporting Limit
S Spike recovery outside accepted recovery limits

Client Name: **STANTEC**
 Logged by: **Erica Silva**

Work Order Number: **1409100**
 Date Received: **9/10/2014 1:48:00 PM**

Chain of Custody

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

Log In

3. Coolers are present? Yes No NA
 4. Shipping container/cooler in good condition? Yes No
 5. Custody seals intact on shipping container/cooler? Yes No Not Required
 6. Was an attempt made to cool the samples? Yes No NA
 7. Were all coolers 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 the 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:	<input type="text" value="Deitrie Hanson"/>	Date:	<input type="text" value="9/10/2014"/>
By Whom:	<input type="text" value="Erica Silva"/>	Via:	<input type="checkbox"/> eMail <input checked="" type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="Nitrate hold time expiration / Total vs. Dissolvec"/>		
Client Instructions:	<input type="text" value="Proceed with Nitrate analysis / Total Fe"/>		

19. Additional remarks:

Item Information

Item #	Temp °C	Condition
Cooler	3.1	Good
Sample	0.0	Good



Fremont

Analytical

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Date: 9/18/2014

Laboratory Project No (Internal):

1409100

Page: 1 of 1

Client: STANTEC CONSULTING SERVICES
 Address: 1130 NE 33RD PLACE SUITE 200
 City, State, Zip: BELLEVUE WA 98007
 Reports To (PM): PAUL FAIRBARN
 Project Name: POST-INJECTION 301HWUM#1#2
 Location: 1824 GEORGE WASHINGTON WAY RICHLAND
 Collected by: DEITRIE HANSON
 Fax: (425) 869-9448
 Email: Paul.Fairbairn@stantec.com
 Project No: 185750037:300:700

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DN)	SEMI VOL (EPA 8270)	PAH (EPA 8082)	PCBs (EPA 8082)	Metals** (6020 / 200.6)	Total (T) Dissolved (D)	Anions (IC)***	EDB (8013)	SULPHATE/NITRATE	TOC/TIC	Iron -Total	Comments/Depth
1 MW-6	9/8/14	1351	W																	
2 MW-7	9/8/14	1242	W																	
3 MW-8	9/8/14	1145	W																	
4 MW-10	9/8/14	0911	W																	
5 MW-11	9/8/14	1045	W																	
6																				
7																				
8																				
9																				
10																				

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cl Fe Hg K Mg Mn Mo Na Ni Pb Sp Se Sr Sn Tl U V Zn
 ***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite
 Sample Disposal: Return to Client Disposal by Lab (Aster may be assessed if samples are retained after 30 days.)

Requisitioned: * Caitie Sawyer Date/Time 9/10/14 1231 Received: * Christina Grand Date/Time 9/10/14 1231
 Relinquished: * Christina Grand Date/Time 9/10/14 Received: * Kessa Tucker Date/Time 9/10/14 1348

Special Remarks: Client instruction to proceed w/ Nitrate analysis

TAT -> SameDay* NextDay* 2 Day 3 Day STD
*Please coordinate with the lab in advance

BioLogic Resources, LLC
10260 SW Nimbus Ave., Suite M11
Portland, OR 97223
Phone 503.670.1312
Fax 503.670.7262

For: Stantec Consulting Services, Inc.
12034 134th Court NE, Suite 102
Redmond, WA 98052
Attn: Paul Fairbairn

Received: 09.16.14
Tested: 09.16.14
Completed: 09.26.14

			Hydrocarbon Degrading
Lab #	Sample		Bacteria CFU/ml
SC034	MW-6 9/8/14 1351		6.0×10^2
SC035	MW-8 9/8/14 1145		8.0×10^2
SC036	MW-10 9/8/14 0911		7.0×10^2

Project: Former 7-Eleven #25821 Richland

Method Reference:

Manual of Environmental Microbiology, 2nd edition, 2002:
Chapter 84:Hydrogen Degrading Bacteria

We warrant the above analysis was performed in good faith, using methods which are considered Standard Methods, or using methods previously agreed upon by the client. No other warranty is expressed or implied by this laboratory report. All sample results pertain only to the sample(s) tested. This test report shall not be reproduced except in full, without written approval of the laboratory.



Joanna Kronmiller
Microbiologist



Kim W. Hutchinson
Microbiologist/Principal



3600 Fremont Ave. N.

Seattle, WA 98103

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F: (206) 352-7178

info@fremontanalytical.com

Stantec Consulting Corporation

Paul Fairbairn
11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

RE: 4Q14 GWM 25821

Lab ID: 1412073

December 12, 2014

Attention Paul Fairbairn:

Fremont Analytical, Inc. received 3 sample(s) on 12/5/2014 for the analyses presented in the following report.

Gasoline by NWTPH-Gx

Ion Chromatography by EPA Method 300.0

Total Metals by EPA Method 200.8

Total Inorganic Carbon by SM 5310C

Total Organic Carbon by SM 5310C

Volatile Organic Compounds by EPA Method 8260

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,

A handwritten signature in black ink, appearing to read "Mike Ridgeway".

Mike Ridgeway
President



Date: 12/12/2014

CLIENT: Stantec Consulting Corporation
Project: 4Q14 GWM 25821
Lab Order: 1412073

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1412073-001	MW-6	12/05/2014 11:20 AM	12/05/2014 4:00 PM
1412073-002	MW-7	12/05/2014 11:45 AM	12/05/2014 4:00 PM
1412073-003	MW-9	12/05/2014 12:10 PM	12/05/2014 4:00 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Stantec Consulting Corporation

Project: 4Q14 GWM 25821

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.



Analytical Report

WO#: 1412073

Date Reported: 12/12/2014

Client: Stantec Consulting Corporation
Project: 4Q14 GWM 25821
Lab ID: 1412073-001
Client Sample ID: MW-6

Collection Date: 12/5/2014 11:20:00 AM
Matrix: Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Gasoline by NWTPH-Gx</u>			Batch ID: R18491 Analyst: BC			
Gasoline	ND	50.0		µg/L	1	12/9/2014 3:34:00 PM
Surr: 4-Bromofluorobenzene	102	65-135		%REC	1	12/9/2014 3:34:00 PM
Surr: Toluene-d8	102	65-135		%REC	1	12/9/2014 3:34:00 PM
<u>Volatile Organic Compounds by EPA Method 8260</u>			Batch ID: R18490 Analyst: BC			
Benzene	ND	1.00		µg/L	1	12/9/2014 3:34:00 PM
Toluene	ND	1.00		µg/L	1	12/9/2014 3:34:00 PM
Ethylbenzene	ND	1.00		µg/L	1	12/9/2014 3:34:00 PM
m,p-Xylene	ND	1.00		µg/L	1	12/9/2014 3:34:00 PM
o-Xylene	ND	1.00		µg/L	1	12/9/2014 3:34:00 PM
Surr: Dibromofluoromethane	97.7	61.7-130		%REC	1	12/9/2014 3:34:00 PM
Surr: Toluene-d8	97.3	40.1-139		%REC	1	12/9/2014 3:34:00 PM
Surr: 1-Bromo-4-fluorobenzene	97.6	76.2-130		%REC	1	12/9/2014 3:34:00 PM
<u>Ion Chromatography by EPA Method 300.0</u>			Batch ID: R18476 Analyst: KT			
Nitrate	0.764	1.00	JD	mg/L	10	12/5/2014 5:01:00 PM
Sulfate	249	15.0	D	mg/L	50	12/5/2014 5:33:00 PM
NOTES: Sample diluted due to the presence of high levels of target and non-target analytes and for matrix issues.						
<u>Total Metals by EPA Method 200.8</u>			Batch ID: 9513 Analyst: MW			
Iron	15,400	100		µg/L	1	12/8/2014 3:21:17 PM
Lead	1.11	1.00		µg/L	1	12/8/2014 3:21:17 PM
<u>Total Organic Carbon by SM 5310C</u>			Batch ID: R18484 Analyst: KT			
Total Organic Carbon	1.02	0.500		mg/L	1	12/8/2014 2:59:13 PM
<u>Total Inorganic Carbon by SM 5310C</u>			Batch ID: R18572 Analyst: KT			
Total Inorganic Carbon	94.1	5.00	D	mg/L	10	12/12/2014 1:12:11 PM

Qualifiers: 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
J Analyte detected below quantitation limits ND Not detected at the Reporting Limit
RL Reporting Limit S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1412073

Date Reported: 12/12/2014

Client: Stantec Consulting Corporation

Collection Date: 12/5/2014 11:45:00 AM

Project: 4Q14 GWM 25821

Lab ID: 1412073-002

Matrix: Groundwater

Client Sample ID: MW-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Gasoline by NWTPH-Gx</u>						
				Batch ID: R18491	Analyst: BC	
Gasoline	ND	50.0		µg/L	1	12/9/2014 4:01:00 PM
Surr: 4-Bromofluorobenzene	103	65-135		%REC	1	12/9/2014 4:01:00 PM
Surr: Toluene-d8	101	65-135		%REC	1	12/9/2014 4:01:00 PM
<u>Volatile Organic Compounds by EPA Method 8260</u>						
				Batch ID: R18490	Analyst: BC	
Benzene	ND	1.00		µg/L	1	12/9/2014 4:01:00 PM
Toluene	ND	1.00		µg/L	1	12/9/2014 4:01:00 PM
Ethylbenzene	ND	1.00		µg/L	1	12/9/2014 4:01:00 PM
m,p-Xylene	ND	1.00		µg/L	1	12/9/2014 4:01:00 PM
o-Xylene	ND	1.00		µg/L	1	12/9/2014 4:01:00 PM
Surr: Dibromofluoromethane	97.0	61.7-130		%REC	1	12/9/2014 4:01:00 PM
Surr: Toluene-d8	97.1	40.1-139		%REC	1	12/9/2014 4:01:00 PM
Surr: 1-Bromo-4-fluorobenzene	97.6	76.2-130		%REC	1	12/9/2014 4:01:00 PM
<u>Ion Chromatography by EPA Method 300.0</u>						
				Batch ID: R18476	Analyst: KT	
Nitrate	0.498	2.00	JD	mg/L	20	12/5/2014 5:11:00 PM
Sulfate	547	15.0	D	mg/L	50	12/5/2014 5:44:00 PM
NOTES:						
Sample diluted due to the presence of high levels of target and non-target analytes and for matrix issues.						
<u>Total Metals by EPA Method 200.8</u>						
				Batch ID: 9513	Analyst: MW	
Iron	6,620	100		µg/L	1	12/8/2014 3:24:43 PM
Lead	ND	1.00		µg/L	1	12/8/2014 3:24:43 PM
<u>Total Organic Carbon by SM 5310C</u>						
				Batch ID: R18484	Analyst: KT	
Total Organic Carbon	1.18	0.500		mg/L	1	12/8/2014 3:19:13 PM
<u>Total Inorganic Carbon by SM 5310C</u>						
				Batch ID: R18572	Analyst: KT	
Total Inorganic Carbon	114	5.00	D	mg/L	10	12/12/2014 1:24:32 PM

Qualifiers:

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
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1412073

Date Reported: 12/12/2014

Client: Stantec Consulting Corporation

Collection Date: 12/5/2014 12:10:00 PM

Project: 4Q14 GWM 25821

Lab ID: 1412073-003

Matrix: Groundwater

Client Sample ID: MW-9

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Gasoline by NWTPH-Gx</u>			Batch ID: R18491 Analyst: BC			
Gasoline	ND	50.0		µg/L	1	12/9/2014 4:28:00 PM
Surr: 4-Bromofluorobenzene	100	65-135		%REC	1	12/9/2014 4:28:00 PM
Surr: Toluene-d8	101	65-135		%REC	1	12/9/2014 4:28:00 PM
<u>Volatile Organic Compounds by EPA Method 8260</u>			Batch ID: R18490 Analyst: BC			
Benzene	ND	1.00		µg/L	1	12/9/2014 4:28:00 PM
Toluene	ND	1.00		µg/L	1	12/9/2014 4:28:00 PM
Ethylbenzene	ND	1.00		µg/L	1	12/9/2014 4:28:00 PM
m,p-Xylene	ND	1.00		µg/L	1	12/9/2014 4:28:00 PM
o-Xylene	ND	1.00		µg/L	1	12/9/2014 4:28:00 PM
Surr: Dibromofluoromethane	101	61.7-130		%REC	1	12/9/2014 4:28:00 PM
Surr: Toluene-d8	98.9	40.1-139		%REC	1	12/9/2014 4:28:00 PM
Surr: 1-Bromo-4-fluorobenzene	95.5	76.2-130		%REC	1	12/9/2014 4:28:00 PM
<u>Ion Chromatography by EPA Method 300.0</u>			Batch ID: R18476 Analyst: KT			
Nitrate	4.72	2.00	D	mg/L	20	12/5/2014 5:22:00 PM
Sulfate	74.1	6.00	D	mg/L	20	12/5/2014 5:22:00 PM
NOTES: Sample diluted due to the presence of high levels of target and non-target analytes and for matrix issues.						
<u>Total Metals by EPA Method 200.8</u>			Batch ID: 9513 Analyst: MW			
Iron	225	100		µg/L	1	12/8/2014 3:28:09 PM
Lead	ND	1.00		µg/L	1	12/8/2014 3:28:09 PM
<u>Total Organic Carbon by SM 5310C</u>			Batch ID: R18484 Analyst: KT			
Total Organic Carbon	0.868	0.500		mg/L	1	12/8/2014 3:39:31 PM
<u>Total Inorganic Carbon by SM 5310C</u>			Batch ID: R18572 Analyst: KT			
Total Inorganic Carbon	103	5.00	D	mg/L	10	12/12/2014 1:36:53 PM

Qualifiers: 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
 J Analyte detected below quantitation limits ND Not detected at the Reporting Limit
 RL Reporting Limit S Spike recovery outside accepted recovery limits

Work Order: 1412073
 CLIENT: Stantec Consulting Corporation
 Project: 4Q14 GWM 25821

QC SUMMARY REPORT
Ion Chromatography by EPA Method 300.0

Sample ID: MB-R18476	SampType: MBLK	Units: mg/L	Prep Date: 12/5/2014	RunNo: 18476							
Client ID: MBLKW	Batch ID: R18476		Analysis Date: 12/5/2014	SeqNo: 368479							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate	ND	0.100									
Sulfate	ND	0.300									

Sample ID: LCS-R18476	SampType: LCS	Units: mg/L	Prep Date: 12/5/2014	RunNo: 18476							
Client ID: LCSW	Batch ID: R18476		Analysis Date: 12/5/2014	SeqNo: 368480							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate	2.83	0.100	3.000	0	94.3	90	110				
Sulfate	14.2	0.300	15.00	0	94.9	90	110				

Sample ID: 1412061-004EDUP	SampType: DUP	Units: mg/L	Prep Date: 12/5/2014	RunNo: 18476							
Client ID: BATCH	Batch ID: R18476		Analysis Date: 12/5/2014	SeqNo: 368484							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate	2.83	0.500						2.812	0.638	20	D
Sulfate	22.9	1.50						22.81	0.403	20	D

Sample ID: 1412061-004EMS	SampType: MS	Units: mg/L	Prep Date: 12/5/2014	RunNo: 18476							
Client ID: BATCH	Batch ID: R18476		Analysis Date: 12/5/2014	SeqNo: 368485							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate	19.2	0.500	15.00	2.812	109	80	120				D
Sulfate	106	1.50	75.00	22.81	111	80	120				D

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1412073
CLIENT: Stantec Consulting Corporation
Project: 4Q14 GWM 25821

QC SUMMARY REPORT
Ion Chromatography by EPA Method 300.0

Sample ID: 1412061-004EMSD	SampType: MSD	Units: mg/L	Prep Date: 12/5/2014	RunNo: 18476
Client ID: BATCH	Batch ID: R18476		Analysis Date: 12/5/2014	SeqNo: 368486

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate	20.4	0.500	15.00	2.812	117	80	120	19.21	5.98	20	D
Sulfate	111	1.50	75.00	22.81	118	80	120	106.1	4.73	20	D

Qualifiers:
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
J Analyte detected below quantitation limits
ND Not detected at the Reporting Limit
R RPD outside accepted recovery limits
RL Reporting Limit
S Spike recovery outside accepted recovery limits

Work Order: 1412073
 CLIENT: Stantec Consulting Corporation
 Project: 4Q14 GWM 25821

QC SUMMARY REPORT
Total Inorganic Carbon by SM 5310C

Sample ID: MB-R18572	SampType: MBLK	Units: mg/L	Prep Date: 12/12/2014	RunNo: 18572							
Client ID: MBLKW	Batch ID: R18572		Analysis Date: 12/12/2014	SeqNo: 370420							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Carbon ND 0.500

Sample ID: LCS-R18572	SampType: LCS	Units: mg/L	Prep Date: 12/12/2014	RunNo: 18572							
Client ID: LCSW	Batch ID: R18572		Analysis Date: 12/12/2014	SeqNo: 370421							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Carbon 4.70 0.500 5.000 0 94.0 85 115

Sample ID: 1412061-004CDUP	SampType: DUP	Units: mg/L	Prep Date: 12/12/2014	RunNo: 18572							
Client ID: BATCH	Batch ID: R18572		Analysis Date: 12/12/2014	SeqNo: 370427							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Carbon 29.8 5.00 33.54 11.7 30 D

Sample ID: 1412061-004CMS	SampType: MS	Units: mg/L	Prep Date: 12/12/2014	RunNo: 18572							
Client ID: BATCH	Batch ID: R18572		Analysis Date: 12/12/2014	SeqNo: 370428							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Carbon 88.6 5.00 50.00 33.54 110 80 120 D

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 D Dilution was required
 J Analyte detected below quantitation limits
 RL Reporting Limit
 E Value above quantitation range
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Work Order: 1412073
CLIENT: Stantec Consulting Corporation
Project: 4Q14 GWM 25821

QC SUMMARY REPORT
Total Metals by EPA Method 200.8

Sample ID: MB-9513	SampType: MBLK	Units: µg/L			Prep Date: 12/8/2014	RunNo: 18468					
Client ID: MBLKW	Batch ID: 9513				Analysis Date: 12/8/2014	SeqNo: 368302					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron	ND	100									
Lead	ND	1.00									

Sample ID: LCS-9513	SampType: LCS	Units: µg/L			Prep Date: 12/8/2014	RunNo: 18468					
Client ID: LCSW	Batch ID: 9513				Analysis Date: 12/8/2014	SeqNo: 368303					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron	998	100	1,000	0	99.8	50	150				
Lead	47.9	1.00	50.00	0	95.8	85	115				

Sample ID: 1412063-001BDUP	SampType: DUP	Units: µg/L			Prep Date: 12/8/2014	RunNo: 18468					
Client ID: BATCH	Batch ID: 9513				Analysis Date: 12/8/2014	SeqNo: 368305					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron	ND	100						0		30	
Lead	ND	1.00						0		30	

Sample ID: 1412063-001BMS	SampType: MS	Units: µg/L			Prep Date: 12/8/2014	RunNo: 18468					
Client ID: BATCH	Batch ID: 9513				Analysis Date: 12/8/2014	SeqNo: 368306					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron	5,140	100	5,000	87.34	101	50	150				
Lead	240	1.00	250.0	0.6065	95.9	70	130				

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1412073
CLIENT: Stantec Consulting Corporation
Project: 4Q14 GWM 25821

QC SUMMARY REPORT
Total Metals by EPA Method 200.8

Sample ID: 1412063-001BMSD	SampType: MSD	Units: µg/L	Prep Date: 12/8/2014	RunNo: 18468
Client ID: BATCH	Batch ID: 9513		Analysis Date: 12/8/2014	SeqNo: 368307

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5,100	100	5,000	87.34	100	50	150	5,142	0.890	30	
Lead	241	1.00	250.0	0.6065	96.0	70	130	240.3	0.151	30	

Qualifiers:
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
J Analyte detected below quantitation limits
ND Not detected at the Reporting Limit

R RPD outside accepted recovery limits
RL Reporting Limit
S Spike recovery outside accepted recovery limits

Work Order: 1412073
 CLIENT: Stantec Consulting Corporation
 Project: 4Q14 GWM 25821

QC SUMMARY REPORT
Gasoline by NWTPH-Gx

Sample ID: 1412059-002ADUP	SampType: DUP	Units: µg/L	Prep Date: 12/9/2014	RunNo: 18491							
Client ID: BATCH	Batch ID: R18491		Analysis Date: 12/9/2014	SeqNo: 368749							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	50.0						0		30	
Surr: Toluene-d8	51.1		50.00		102	65	135		0	0	
Surr: 4-Bromofluorobenzene	51.7		50.00		103	65	135		0	0	

Sample ID: LCS-R18491	SampType: LCS	Units: µg/L	Prep Date: 12/9/2014	RunNo: 18491							
Client ID: LCSW	Batch ID: R18491		Analysis Date: 12/9/2014	SeqNo: 368761							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	452	50.0	500.0	0	90.3	65	135				
Surr: Toluene-d8	49.8		50.00		99.5	65	135				
Surr: 4-Bromofluorobenzene	49.4		50.00		98.8	65	135				

Sample ID: MB-R18491	SampType: MBLK	Units: µg/L	Prep Date: 12/9/2014	RunNo: 18491							
Client ID: MBLKW	Batch ID: R18491		Analysis Date: 12/9/2014	SeqNo: 368762							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	50.0									
Surr: Toluene-d8	50.0		50.00		99.9	65	135				
Surr: 4-Bromofluorobenzene	49.0		50.00		98.1	65	135				

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1412073
CLIENT: Stantec Consulting Corporation
Project: 4Q14 GWM 25821

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1412059-002ADUP	SampType: DUP	Units: µg/L	Prep Date: 12/9/2014	RunNo: 18490							
Client ID: BATCH	Batch ID: R18490		Analysis Date: 12/9/2014	SeqNo: 368709							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00						0		30	
Toluene	1.43	1.00						1.040	31.6	30	
Ethylbenzene	ND	1.00						0		30	
m,p-Xylene	ND	1.00						1.000	200	30	
o-Xylene	ND	1.00						0		30	
Surr: Dibromofluoromethane	47.5		50.00		95.0	61.7	130		0		
Surr: Toluene-d8	48.5		50.00		97.1	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	49.2		50.00		98.4	76.2	130		0		

Sample ID: 1412078-002AMS	SampType: MS	Units: µg/L	Prep Date: 12/9/2014	RunNo: 18490							
Client ID: BATCH	Batch ID: R18490		Analysis Date: 12/9/2014	SeqNo: 368722							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.1	1.00	20.00	0	95.7	65.4	138				
Toluene	19.8	1.00	20.00	0	99.0	64	139				
Ethylbenzene	20.7	1.00	20.00	0	104	64.5	136				
m,p-Xylene	39.9	1.00	40.00	0	99.8	63.3	135				
o-Xylene	20.0	1.00	20.00	0	100	65.4	134				
Surr: Dibromofluoromethane	48.1		50.00		96.3	61.7	130				
Surr: Toluene-d8	46.9		50.00		93.8	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	50.1		50.00		100	76.2	130				

Sample ID: LCS-R18490	SampType: LCS	Units: µg/L	Prep Date: 12/9/2014	RunNo: 18490							
Client ID: LCSW	Batch ID: R18490		Analysis Date: 12/9/2014	SeqNo: 368728							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.9	1.00	20.00	0	94.4	69.3	132				
Toluene	19.0	1.00	20.00	0	94.8	61.3	145				

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1412073
 CLIENT: Stantec Consulting Corporation
 Project: 4Q14 GWM 25821

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-R18490	SampType: LCS	Units: µg/L				Prep Date: 12/9/2014	RunNo: 18490				
Client ID: LCSW	Batch ID: R18490					Analysis Date: 12/9/2014	SeqNo: 368728				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene	19.1	1.00	20.00	0	95.6	72	130				
m,p-Xylene	38.4	1.00	40.00	0	95.9	73	131				
o-Xylene	19.3	1.00	20.00	0	96.6	72.1	131				
Surr: Dibromofluoromethane	47.0		50.00		94.0	61.7	130				
Surr: Toluene-d8	48.6		50.00		97.2	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	47.6		50.00		95.2	76.2	130				

Sample ID: MB-R18490	SampType: MBLK	Units: µg/L				Prep Date: 12/9/2014	RunNo: 18490				
Client ID: MBLKW	Batch ID: R18490					Analysis Date: 12/9/2014	SeqNo: 368729				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00									
Toluene	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Surr: Dibromofluoromethane	48.7		50.00		97.5	61.7	130				
Surr: Toluene-d8	48.9		50.00		97.8	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	46.7		50.00		93.4	76.2	130				

Qualifiers:

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	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client Name: **STANTEC**
 Logged by: **Erica Silva**

Work Order Number: **1412073**
 Date Received: **12/5/2014 4:00:00 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 intact on shipping container/cooler? Yes No Not Required
 6. Was an attempt made to cool the samples? Yes No NA
 7. Were all coolers 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 the 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:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C	Condition
Cooler	6.5	Good
Sample	3.6	Good
Temp Blank	1.2	Good

BioLogic Resources, LLC
10260 SW Nimbus Ave., Suite M11
Portland, OR 97223
Phone 503.670.1312
Fax 503.670.7262

For: Stantec Consulting Services, Inc.
12034 134th Court NE, Suite 102
Redmond, WA 98052
Attn: Paul Fairbairn

Received: 12.09.14
Tested: 12.09.14
Completed: 12.19.14

			Hydrocarbon Degrading
Lab #	Sample		Bacteria CFU/ml
SC042	MW-6 12/05/14 1120		3.0×10^2
SC043	MW-7 12/05/14 1145		6.3×10^3
SC044	MW-9 12/05/14 1210		2.3×10^3

Project: 4Q14 GWM 25821

Method Reference:

Manual of Environmental Microbiology, 2nd edition, 2002:
Chapter 84:Hydrogen Degrading Bacteria

We warrant the above analysis was performed in good faith, using methods which are considered Standard Methods, or using methods previously agreed upon by the client. No other warranty is expressed or implied by this laboratory report. All sample results pertain only to the sample(s) tested. This test report shall not be reproduced except in full, without written approval of the laboratory.



Kim Song
Lab Technician



Kim W. Hutchinson
Microbiologist/Principal

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-74821-1
Client Project/Site: 7-Eleven No. 25821

For:
Stantec Consulting Corp.
11130 NE 33rd Place
Suite 200
Bellevue, Washington 98004-1465

Attn: Paul Fairbairn



Authorized for release by:
3/30/2015 4:50:29 PM

Heather Wagner, Project Manager I
(615)301-5763
heather.wagner@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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

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Sample Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-74821-1	MW-3	Water	03/19/15 13:30	03/21/15 08:30
490-74821-2	MW-6	Water	03/19/15 15:30	03/21/15 08:30
490-74821-3	MW-7	Water	03/19/15 16:30	03/21/15 08:30
490-74821-4	MW-8	Water	03/19/15 15:00	03/21/15 08:30
490-74821-5	MW-9	Water	03/19/15 14:30	03/21/15 08:30
490-74821-6	MW-10	Water	03/19/15 14:00	03/21/15 08:30
490-74821-7	MW-11	Water	03/19/15 13:00	03/21/15 08:30
490-74821-8	MW-12	Water	03/19/15 16:00	03/21/15 08:30



Case Narrative

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Job ID: 490-74821-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-74821-1

Comments

No additional comments.

Receipt

The samples were received on 3/21/2015 8:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4° C.

GC/MS VOA

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

GC VOA

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

GC Semi VOA

Method(s) 8011: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batch 235916, 235919.

Method(s) 8011: The %RPD between the primary and confirmation column / detector exceeded 40% for 1,3 Dichlorobenzene for the following sample(s): MW-6 (490-74821-2). The lower result has been reported and qualified in accordance with the laboratory's SOP.

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

Metals

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

VOA Prep

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



Definitions/Glossary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

Glossary

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

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Client Sample ID: MW-3
Date Collected: 03/19/15 13:30
Date Received: 03/21/15 08:30

Lab Sample ID: 490-74821-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			03/25/15 06:35	1
Ethylbenzene	ND		1.00		ug/L			03/25/15 06:35	1
Methyl tert-butyl ether	ND		1.00		ug/L			03/25/15 06:35	1
Toluene	ND		1.00		ug/L			03/25/15 06:35	1
Xylenes, Total	ND		2.00		ug/L			03/25/15 06:35	1
1,2-Dichloroethane	ND		1.00		ug/L			03/25/15 06:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		70 - 130		03/25/15 06:35	1
4-Bromofluorobenzene (Surr)	112		70 - 130		03/25/15 06:35	1
Dibromofluoromethane (Surr)	104		70 - 130		03/25/15 06:35	1
Toluene-d8 (Surr)	103		70 - 130		03/25/15 06:35	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			03/25/15 02:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	99		50 - 150		03/25/15 02:51	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0201		ug/L		03/24/15 11:49	03/25/15 16:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	131		50 - 150	03/24/15 11:49	03/25/15 16:07	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		03/24/15 10:30	03/24/15 15:17	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Client Sample ID: MW-6
Date Collected: 03/19/15 15:30
Date Received: 03/21/15 08:30

Lab Sample ID: 490-74821-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			03/25/15 07:02	1
Ethylbenzene	ND		1.00		ug/L			03/25/15 07:02	1
Methyl tert-butyl ether	ND		1.00		ug/L			03/25/15 07:02	1
Toluene	ND		1.00		ug/L			03/25/15 07:02	1
Xylenes, Total	ND		2.00		ug/L			03/25/15 07:02	1
1,2-Dichloroethane	ND		1.00		ug/L			03/25/15 07:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		70 - 130		03/25/15 07:02	1
4-Bromofluorobenzene (Surr)	104		70 - 130		03/25/15 07:02	1
Dibromofluoromethane (Surr)	102		70 - 130		03/25/15 07:02	1
Toluene-d8 (Surr)	105		70 - 130		03/25/15 07:02	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			03/25/15 03:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	101		50 - 150		03/25/15 03:24	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0198		ug/L		03/24/15 11:49	03/25/15 16:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	50	p	50 - 150	03/24/15 11:49	03/25/15 16:25	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		03/24/15 10:30	03/24/15 15:22	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Client Sample ID: MW-7

Lab Sample ID: 490-74821-3

Date Collected: 03/19/15 16:30

Matrix: Water

Date Received: 03/21/15 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			03/25/15 07:29	1
Ethylbenzene	ND		1.00		ug/L			03/25/15 07:29	1
Methyl tert-butyl ether	ND		1.00		ug/L			03/25/15 07:29	1
Toluene	ND		1.00		ug/L			03/25/15 07:29	1
Xylenes, Total	ND		2.00		ug/L			03/25/15 07:29	1
1,2-Dichloroethane	ND		1.00		ug/L			03/25/15 07:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		70 - 130		03/25/15 07:29	1
4-Bromofluorobenzene (Surr)	105		70 - 130		03/25/15 07:29	1
Dibromofluoromethane (Surr)	100		70 - 130		03/25/15 07:29	1
Toluene-d8 (Surr)	106		70 - 130		03/25/15 07:29	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			03/25/15 03:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	101		50 - 150		03/25/15 03:57	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0203		ug/L		03/24/15 11:49	03/25/15 17:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	86		50 - 150	03/24/15 11:49	03/25/15 17:34	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		03/24/15 10:30	03/24/15 15:27	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Client Sample ID: MW-8
Date Collected: 03/19/15 15:00
Date Received: 03/21/15 08:30

Lab Sample ID: 490-74821-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			03/25/15 07:56	1
Ethylbenzene	ND		1.00		ug/L			03/25/15 07:56	1
Methyl tert-butyl ether	ND		1.00		ug/L			03/25/15 07:56	1
Toluene	ND		1.00		ug/L			03/25/15 07:56	1
Xylenes, Total	ND		2.00		ug/L			03/25/15 07:56	1
1,2-Dichloroethane	ND		1.00		ug/L			03/25/15 07:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		70 - 130		03/25/15 07:56	1
4-Bromofluorobenzene (Surr)	103		70 - 130		03/25/15 07:56	1
Dibromofluoromethane (Surr)	103		70 - 130		03/25/15 07:56	1
Toluene-d8 (Surr)	106		70 - 130		03/25/15 07:56	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			03/25/15 04:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	100		50 - 150		03/25/15 04:29	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0196		ug/L		03/24/15 11:49	03/25/15 17:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	115		50 - 150	03/24/15 11:49	03/25/15 17:52	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		03/24/15 10:30	03/24/15 15:42	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Client Sample ID: MW-9
Date Collected: 03/19/15 14:30
Date Received: 03/21/15 08:30

Lab Sample ID: 490-74821-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			03/25/15 08:23	1
Ethylbenzene	ND		1.00		ug/L			03/25/15 08:23	1
Methyl tert-butyl ether	ND		1.00		ug/L			03/25/15 08:23	1
Toluene	ND		1.00		ug/L			03/25/15 08:23	1
Xylenes, Total	ND		2.00		ug/L			03/25/15 08:23	1
1,2-Dichloroethane	ND		1.00		ug/L			03/25/15 08:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	117		70 - 130		03/25/15 08:23	1
4-Bromofluorobenzene (Surr)	104		70 - 130		03/25/15 08:23	1
Dibromofluoromethane (Surr)	101		70 - 130		03/25/15 08:23	1
Toluene-d8 (Surr)	105		70 - 130		03/25/15 08:23	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			03/25/15 05:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	99		50 - 150		03/25/15 05:02	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0201		ug/L		03/24/15 11:49	03/25/15 18:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	74		50 - 150	03/24/15 11:49	03/25/15 18:10	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		03/24/15 10:30	03/24/15 15:47	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Client Sample ID: MW-10

Lab Sample ID: 490-74821-6

Date Collected: 03/19/15 14:00

Matrix: Water

Date Received: 03/21/15 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			03/25/15 08:50	1
Ethylbenzene	ND		1.00		ug/L			03/25/15 08:50	1
Methyl tert-butyl ether	ND		1.00		ug/L			03/25/15 08:50	1
Toluene	ND		1.00		ug/L			03/25/15 08:50	1
Xylenes, Total	ND		2.00		ug/L			03/25/15 08:50	1
1,2-Dichloroethane	ND		1.00		ug/L			03/25/15 08:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122		70 - 130		03/25/15 08:50	1
4-Bromofluorobenzene (Surr)	102		70 - 130		03/25/15 08:50	1
Dibromofluoromethane (Surr)	106		70 - 130		03/25/15 08:50	1
Toluene-d8 (Surr)	107		70 - 130		03/25/15 08:50	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			03/25/15 05:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	99		50 - 150		03/25/15 05:35	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0201		ug/L		03/24/15 11:49	03/25/15 18:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	133		50 - 150	03/24/15 11:49	03/25/15 18:28	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		03/24/15 10:30	03/24/15 15:52	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Client Sample ID: MW-11

Lab Sample ID: 490-74821-7

Date Collected: 03/19/15 13:00

Matrix: Water

Date Received: 03/21/15 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			03/25/15 09:17	1
Ethylbenzene	ND		1.00		ug/L			03/25/15 09:17	1
Methyl tert-butyl ether	ND		1.00		ug/L			03/25/15 09:17	1
Toluene	ND		1.00		ug/L			03/25/15 09:17	1
Xylenes, Total	ND		2.00		ug/L			03/25/15 09:17	1
1,2-Dichloroethane	ND		1.00		ug/L			03/25/15 09:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		70 - 130		03/25/15 09:17	1
4-Bromofluorobenzene (Surr)	105		70 - 130		03/25/15 09:17	1
Dibromofluoromethane (Surr)	104		70 - 130		03/25/15 09:17	1
Toluene-d8 (Surr)	108		70 - 130		03/25/15 09:17	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			03/25/15 06:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	100		50 - 150		03/25/15 06:07	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0206		ug/L		03/24/15 11:49	03/25/15 18:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	134		50 - 150	03/24/15 11:49	03/25/15 18:46	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	23.5		2.00		ug/L		03/24/15 10:30	03/24/15 15:57	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Client Sample ID: MW-12

Lab Sample ID: 490-74821-8

Date Collected: 03/19/15 16:00

Matrix: Water

Date Received: 03/21/15 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			03/25/15 09:45	1
Ethylbenzene	ND		1.00		ug/L			03/25/15 09:45	1
Methyl tert-butyl ether	ND		1.00		ug/L			03/25/15 09:45	1
Toluene	ND		1.00		ug/L			03/25/15 09:45	1
Xylenes, Total	ND		2.00		ug/L			03/25/15 09:45	1
1,2-Dichloroethane	ND		1.00		ug/L			03/25/15 09:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		70 - 130		03/25/15 09:45	1
4-Bromofluorobenzene (Surr)	101		70 - 130		03/25/15 09:45	1
Dibromofluoromethane (Surr)	106		70 - 130		03/25/15 09:45	1
Toluene-d8 (Surr)	110		70 - 130		03/25/15 09:45	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			03/25/15 06:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	100		50 - 150		03/25/15 06:40	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0197		ug/L		03/24/15 11:49	03/26/15 09:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	120		50 - 150	03/24/15 11:49	03/26/15 09:17	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		03/24/15 10:30	03/24/15 16:02	1

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

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

Lab Sample ID: MB 490-236064/7

Matrix: Water

Analysis Batch: 236064

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			03/25/15 02:59	1
Ethylbenzene	ND		1.00		ug/L			03/25/15 02:59	1
Methyl tert-butyl ether	ND		1.00		ug/L			03/25/15 02:59	1
Toluene	ND		1.00		ug/L			03/25/15 02:59	1
Xylenes, Total	ND		2.00		ug/L			03/25/15 02:59	1
1,2-Dichloroethane	ND		1.00		ug/L			03/25/15 02:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		70 - 130		03/25/15 02:59	1
4-Bromofluorobenzene (Surr)	106		70 - 130		03/25/15 02:59	1
Dibromofluoromethane (Surr)	98		70 - 130		03/25/15 02:59	1
Toluene-d8 (Surr)	104		70 - 130		03/25/15 02:59	1

Lab Sample ID: LCS 490-236064/3

Matrix: Water

Analysis Batch: 236064

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	20.0	19.70		ug/L		99	80 - 121
Ethylbenzene	20.0	19.60		ug/L		98	80 - 130
Methyl tert-butyl ether	20.0	21.56		ug/L		108	72 - 133
Toluene	20.0	19.27		ug/L		96	80 - 126
Xylenes, Total	40.0	38.98		ug/L		97	80 - 132
1,2-Dichloroethane	20.0	22.09		ug/L		110	77 - 121

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	119		70 - 130
4-Bromofluorobenzene (Surr)	103		70 - 130
Dibromofluoromethane (Surr)	102		70 - 130
Toluene-d8 (Surr)	99		70 - 130

Lab Sample ID: LCSD 490-236064/4

Matrix: Water

Analysis Batch: 236064

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	20.0	20.48		ug/L		102	80 - 121	4	17
Ethylbenzene	20.0	20.17		ug/L		101	80 - 130	3	15
Methyl tert-butyl ether	20.0	21.91		ug/L		110	72 - 133	2	16
Toluene	20.0	20.49		ug/L		102	80 - 126	6	15
Xylenes, Total	40.0	41.93		ug/L		105	80 - 132	7	15
1,2-Dichloroethane	20.0	23.34		ug/L		117	77 - 121	6	17

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	116		70 - 130
4-Bromofluorobenzene (Surr)	108		70 - 130
Dibromofluoromethane (Surr)	100		70 - 130

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

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

Lab Sample ID: LCSD 490-236064/4

Matrix: Water

Analysis Batch: 236064

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	100		70 - 130

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 490-235794/9

Matrix: Water

Analysis Batch: 235794

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C6-C12	ND		100		ug/L			03/24/15 18:07	1
Surrogate	MB	MB	Limits				Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
a,a,a-Trifluorotoluene	98		50 - 150					03/24/15 18:07	1

Lab Sample ID: LCS 490-235794/6

Matrix: Water

Analysis Batch: 235794

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.	Limits
	Added	Result	Qualifier					
C6-C12	1000	970.3		ug/L		97	39 - 143	
Surrogate	LCS	LCS	Limits					
	%Recovery	Qualifier						
a,a,a-Trifluorotoluene	125		50 - 150					

Lab Sample ID: LCSD 490-235794/7

Matrix: Water

Analysis Batch: 235794

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	Limits	RPD	RPD
	Added	Result	Qualifier							Limit
C6-C12	1000	959.3		ug/L		96	39 - 143		1	18
Surrogate	LCSD	LCSD	Limits							
	%Recovery	Qualifier								
a,a,a-Trifluorotoluene	123		50 - 150							

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 490-235916/2-A

Matrix: Water

Analysis Batch: 236151

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 235916

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ethylene Dibromide	ND		0.0200		ug/L		03/24/15 11:49	03/25/15 10:48	1
Surrogate	MB	MB	Limits				Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
1,3-Dichlorobenzene	123		50 - 150				03/24/15 11:49	03/25/15 10:48	1

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 490-235916/3-A

Matrix: Water

Analysis Batch: 236151

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 235916

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.286	0.3542		ug/L		124	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,3-Dichlorobenzene	126		50 - 150

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 490-235877/1-A

Matrix: Water

Analysis Batch: 236242

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 235877

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		03/24/15 10:30	03/24/15 14:41	1

Lab Sample ID: LCS 490-235877/2-A

Matrix: Water

Analysis Batch: 236242

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 235877

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	100	95.23		ug/L		95	85 - 115

Lab Sample ID: 490-74821-8 MS

Matrix: Water

Analysis Batch: 236242

Client Sample ID: MW-12

Prep Type: Total/NA

Prep Batch: 235877

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	ND		100	91.36		ug/L		91	70 - 130

Lab Sample ID: 490-74821-8 MSD

Matrix: Water

Analysis Batch: 236242

Client Sample ID: MW-12

Prep Type: Total/NA

Prep Batch: 235877

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Lead	ND		100	90.92		ug/L		90	70 - 130	0	20

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

GC/MS VOA

Analysis Batch: 236064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-74821-1	MW-3	Total/NA	Water	8260B	
490-74821-2	MW-6	Total/NA	Water	8260B	
490-74821-3	MW-7	Total/NA	Water	8260B	
490-74821-4	MW-8	Total/NA	Water	8260B	
490-74821-5	MW-9	Total/NA	Water	8260B	
490-74821-6	MW-10	Total/NA	Water	8260B	
490-74821-7	MW-11	Total/NA	Water	8260B	
490-74821-8	MW-12	Total/NA	Water	8260B	
LCS 490-236064/3	Lab Control Sample	Total/NA	Water	8260B	
LCS 490-236064/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 490-236064/7	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 235794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-74821-1	MW-3	Total/NA	Water	NWTPH-Gx	
490-74821-2	MW-6	Total/NA	Water	NWTPH-Gx	
490-74821-3	MW-7	Total/NA	Water	NWTPH-Gx	
490-74821-4	MW-8	Total/NA	Water	NWTPH-Gx	
490-74821-5	MW-9	Total/NA	Water	NWTPH-Gx	
490-74821-6	MW-10	Total/NA	Water	NWTPH-Gx	
490-74821-7	MW-11	Total/NA	Water	NWTPH-Gx	
490-74821-8	MW-12	Total/NA	Water	NWTPH-Gx	
LCS 490-235794/6	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCS 490-235794/7	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	
MB 490-235794/9	Method Blank	Total/NA	Water	NWTPH-Gx	

GC Semi VOA

Prep Batch: 235916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-74821-1	MW-3	Total/NA	Water	8011	
490-74821-2	MW-6	Total/NA	Water	8011	
490-74821-3	MW-7	Total/NA	Water	8011	
490-74821-4	MW-8	Total/NA	Water	8011	
490-74821-5	MW-9	Total/NA	Water	8011	
490-74821-6	MW-10	Total/NA	Water	8011	
490-74821-7	MW-11	Total/NA	Water	8011	
490-74821-8	MW-12	Total/NA	Water	8011	
LCS 490-235916/3-A	Lab Control Sample	Total/NA	Water	8011	
MB 490-235916/2-A	Method Blank	Total/NA	Water	8011	

Analysis Batch: 236151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-74821-1	MW-3	Total/NA	Water	8011	235916
490-74821-2	MW-6	Total/NA	Water	8011	235916
490-74821-3	MW-7	Total/NA	Water	8011	235916
490-74821-4	MW-8	Total/NA	Water	8011	235916
490-74821-5	MW-9	Total/NA	Water	8011	235916

TestAmerica Nashville

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

GC Semi VOA (Continued)

Analysis Batch: 236151 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-74821-6	MW-10	Total/NA	Water	8011	235916
490-74821-7	MW-11	Total/NA	Water	8011	235916
490-74821-8	MW-12	Total/NA	Water	8011	235916
LCS 490-235916/3-A	Lab Control Sample	Total/NA	Water	8011	235916
MB 490-235916/2-A	Method Blank	Total/NA	Water	8011	235916

Metals

Prep Batch: 235877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-74821-1	MW-3	Total/NA	Water	200.8	
490-74821-2	MW-6	Total/NA	Water	200.8	
490-74821-3	MW-7	Total/NA	Water	200.8	
490-74821-4	MW-8	Total/NA	Water	200.8	
490-74821-5	MW-9	Total/NA	Water	200.8	
490-74821-6	MW-10	Total/NA	Water	200.8	
490-74821-7	MW-11	Total/NA	Water	200.8	
490-74821-8	MW-12	Total/NA	Water	200.8	
490-74821-8 MS	MW-12	Total/NA	Water	200.8	
490-74821-8 MSD	MW-12	Total/NA	Water	200.8	
LCS 490-235877/2-A	Lab Control Sample	Total/NA	Water	200.8	
MB 490-235877/1-A	Method Blank	Total/NA	Water	200.8	

Analysis Batch: 236242

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-74821-1	MW-3	Total/NA	Water	200.8	235877
490-74821-2	MW-6	Total/NA	Water	200.8	235877
490-74821-3	MW-7	Total/NA	Water	200.8	235877
490-74821-4	MW-8	Total/NA	Water	200.8	235877
490-74821-5	MW-9	Total/NA	Water	200.8	235877
490-74821-6	MW-10	Total/NA	Water	200.8	235877
490-74821-7	MW-11	Total/NA	Water	200.8	235877
490-74821-8	MW-12	Total/NA	Water	200.8	235877
490-74821-8 MS	MW-12	Total/NA	Water	200.8	235877
490-74821-8 MSD	MW-12	Total/NA	Water	200.8	235877
LCS 490-235877/2-A	Lab Control Sample	Total/NA	Water	200.8	235877
MB 490-235877/1-A	Method Blank	Total/NA	Water	200.8	235877

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Client Sample ID: MW-3

Date Collected: 03/19/15 13:30

Date Received: 03/21/15 08:30

Lab Sample ID: 490-74821-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	236064	03/25/15 06:35	JJR	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	235794	03/25/15 02:51	GWM	TAL NSH
Total/NA	Prep	8011			34.9 mL	2 mL	235916	03/24/15 11:49	MWT	TAL NSH
Total/NA	Analysis	8011		1	34.9 mL	2 mL	236151	03/25/15 16:07	MWT	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	235877	03/24/15 10:30	AJD	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	236242	03/24/15 15:17	JBD	TAL NSH

Client Sample ID: MW-6

Date Collected: 03/19/15 15:30

Date Received: 03/21/15 08:30

Lab Sample ID: 490-74821-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	236064	03/25/15 07:02	JJR	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	235794	03/25/15 03:24	GWM	TAL NSH
Total/NA	Prep	8011			35.4 mL	2 mL	235916	03/24/15 11:49	MWT	TAL NSH
Total/NA	Analysis	8011		1	35.4 mL	2 mL	236151	03/25/15 16:25	MWT	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	235877	03/24/15 10:30	AJD	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	236242	03/24/15 15:22	JBD	TAL NSH

Client Sample ID: MW-7

Date Collected: 03/19/15 16:30

Date Received: 03/21/15 08:30

Lab Sample ID: 490-74821-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	236064	03/25/15 07:29	JJR	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	235794	03/25/15 03:57	GWM	TAL NSH
Total/NA	Prep	8011			34.5 mL	2 mL	235916	03/24/15 11:49	MWT	TAL NSH
Total/NA	Analysis	8011		1	34.5 mL	2 mL	236151	03/25/15 17:34	MWT	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	235877	03/24/15 10:30	AJD	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	236242	03/24/15 15:27	JBD	TAL NSH

Client Sample ID: MW-8

Date Collected: 03/19/15 15:00

Date Received: 03/21/15 08:30

Lab Sample ID: 490-74821-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	236064	03/25/15 07:56	JJR	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	235794	03/25/15 04:29	GWM	TAL NSH
Total/NA	Prep	8011			35.7 mL	2 mL	235916	03/24/15 11:49	MWT	TAL NSH
Total/NA	Analysis	8011		1	35.7 mL	2 mL	236151	03/25/15 17:52	MWT	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	235877	03/24/15 10:30	AJD	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	236242	03/24/15 15:42	JBD	TAL NSH

TestAmerica Nashville

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Client Sample ID: MW-9

Date Collected: 03/19/15 14:30

Date Received: 03/21/15 08:30

Lab Sample ID: 490-74821-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	236064	03/25/15 08:23	JJR	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	235794	03/25/15 05:02	GWM	TAL NSH
Total/NA	Prep	8011			34.9 mL	2 mL	235916	03/24/15 11:49	MWT	TAL NSH
Total/NA	Analysis	8011		1	34.9 mL	2 mL	236151	03/25/15 18:10	MWT	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	235877	03/24/15 10:30	AJD	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	236242	03/24/15 15:47	JBD	TAL NSH

Client Sample ID: MW-10

Date Collected: 03/19/15 14:00

Date Received: 03/21/15 08:30

Lab Sample ID: 490-74821-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	236064	03/25/15 08:50	JJR	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	235794	03/25/15 05:35	GWM	TAL NSH
Total/NA	Prep	8011			34.9 mL	2 mL	235916	03/24/15 11:49	MWT	TAL NSH
Total/NA	Analysis	8011		1	34.9 mL	2 mL	236151	03/25/15 18:28	MWT	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	235877	03/24/15 10:30	AJD	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	236242	03/24/15 15:52	JBD	TAL NSH

Client Sample ID: MW-11

Date Collected: 03/19/15 13:00

Date Received: 03/21/15 08:30

Lab Sample ID: 490-74821-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	236064	03/25/15 09:17	JJR	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	235794	03/25/15 06:07	GWM	TAL NSH
Total/NA	Prep	8011			34 mL	2 mL	235916	03/24/15 11:49	MWT	TAL NSH
Total/NA	Analysis	8011		1	34 mL	2 mL	236151	03/25/15 18:46	MWT	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	235877	03/24/15 10:30	AJD	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	236242	03/24/15 15:57	JBD	TAL NSH

Client Sample ID: MW-12

Date Collected: 03/19/15 16:00

Date Received: 03/21/15 08:30

Lab Sample ID: 490-74821-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	236064	03/25/15 09:45	JJR	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	235794	03/25/15 06:40	GWM	TAL NSH
Total/NA	Prep	8011			35.6 mL	2 mL	235916	03/24/15 11:49	MWT	TAL NSH
Total/NA	Analysis	8011		1	35.6 mL	2 mL	236151	03/26/15 09:17	MWT	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	235877	03/24/15 10:30	AJD	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	236242	03/24/15 16:02	JBD	TAL NSH

TestAmerica Nashville

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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Method Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL NSH
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	TAL NSH
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL NSH
200.8	Metals (ICP/MS)	EPA	TAL NSH

Protocol References:

EPA = US Environmental Protection Agency

NWTPH = Northwest Total Petroleum Hydrocarbon

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

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177



Certification Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-74821-1

Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C789	07-19-15

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COOLER RECEIPT FORM

Cooler Received/Opened On 3/21/2015 @ 0830

1. Tracking # 9643 (last 4 digits, FedEx)

Courier: Fed-ex IR Gun ID 97310166

2. Temperature of rep. sample or temp blank when opened: 24 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO... NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (initial) [Signature]

7. Were custody seals on containers: YES NO and Intact YES...NO... NA

Were these signed and dated correctly? YES...NO... NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES... NO...NA

14. Was there a Trip Blank in this cooler? YES... NO...NA If multiple coolers, sequence # _____

I certify that I unloaded the cooler and answered questions 7-14 (initial) [Signature]

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO... NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO... NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) [Signature]

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) [Signature]

I certify that I attached a label with the unique LIMS number to each container (initial) [Signature]

21. Were there Non-Conformance issues at login? YES... NO Was a NCM generated? YES... NO...# _____

Chain of Custody Record

Client Information		Lab P/N: Wagner, Heather		Carrier Tracking No(s):	
Client Contact: EMILY HARPER		E-Mail: heather.wagner@testamericainc.com		COC No: 490-35746-12098.1	
Company: Stantec Consulting Corp.		Phone: Paul Fairbairn		Page: 1 of 1	
Address: 11130 NE 33rd Place Suite 200		City: Bellevue		Job #: 185750037	
State, Zip: WA, 98004-1465		TAT Requested (days): STANDARDS		Preservation Codes:	
Phone: 425-298-1000(Tel)		Purchase Order Requested		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Email: paul.fairbairn@stantec.com		Project #: 49008223		M - Hexane N - Nitro O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2SO3 S - H2SO4 T - TSP Dodecalhydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)	
Site: 1015 GWM 25821		SSOW#:		Total Number of Containers:	
Sample Identification		Sample Date		Sample Time	
MW-3	3/19/15	1330	Water	Special Instructions/Note:	
MW-5	—	—	Water	NO SAMPLE	
MW-6	—	1530	Water		
MW-7	—	1630	Water		
MW-8	—	1500	Water		
MW-9	—	1430	Water		
MW-10	—	1400	Water		
MW-11	—	1300	Water		
MW-12	—	1600	Water		
Possible Hazard Identification		<input type="checkbox"/> Non-Hazard		<input type="checkbox"/> Flammable	
<input type="checkbox"/> Skin Irritant		<input type="checkbox"/> Poison B		<input type="checkbox"/> Unknown	
<input type="checkbox"/> Radiological		<input type="checkbox"/> Other (specify)			
Deliverable Requested: I, II, III, IV, Other (specify)		Date:		Time:	
Empty Kit Relinquished by:		Date/Time: 3/20/15		Date/Time: 3/21/15/0830	
Relinquished by:		Company: STANTEC Company		Company: [Signature]	
Relinquished by:		Date/Time:		Date/Time:	
Relinquished by:		Date/Time:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 2.4°C	



Weather	Fog	Rain	Snow	Wind	Clear
None	<input type="checkbox"/>				
Light	<input type="checkbox"/>				
Moderate	<input type="checkbox"/>				
Heavy	<input type="checkbox"/>				

CONTACT INFORMATION					
Company:	STANTEC				
Contact:	EMILY HARPER				
Phone:	425-869-9448 x162				
Address: 11130 NE 33rd Pl. Ste 200					
Special Instructions: BELLEVUE, WA 98004					
PROJECT INFORMATION					
Project ID:	1015 GWM 25821				
Project Description:	25821 RICHLAND				
Project Zip Code:	98148				
Sampling Date & Time:	3/19/15				
Sampled By:					
PO Number:	185750037				
TURN AROUND TIME CODES (TAT)					
STD - Standard (DEFAULT)	Rushes received after 2 pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.				
ND - Next Business Day					
SD - Same Business Day Rush					
WH - Weekend / Holiday					
Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume / Area (as applicable)	Notes (Time of day, Temp, RH, etc.)
MW-6	STERILE BOTTLE	NP	STD	250mL	15:30 3/19/15
MW-7	↓	↓	↓	↓	16:30 ↓
MW-9	↓	↓	↓	↓	14:30 ↓

REQUESTED SERVICES (Use checkboxes below)		Non-Culturable		Culturable										URIAR requests		
Spore Trap	Spore Trap Analysis - Other particles	Tape Swab	Bulk	1-Media Surface Fungi (Genus ID + Asp. spp.)	2-Media Surface Fungi (Genus ID + Asp. spp.)	3-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain & Counts (Culturable Air & Surface Bacteria)	Legionella culture	Total Coliform, E. coli (Presence/Absence)	Membrane Filtration (specify organism):	MPN Bacteria (specify organism):	QuantTray - Sewage Screen	Asbestos Analysis - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Analysis - PLM (EPA method 600/R-93-116)	PCR (specify test):
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE TYPE CODES		RELINQUISHED BY		DATE & TIME	
BC - BioCassette™	ST - Spore Trap; Zefon, Allergenco, Burkard ...	T - Tape	D - Dust	<i>[Signature]</i>	3/20/15 1300
ATIS - Anderson	P - Potable Water	SW - Swab	SO - Soil		
SAS - Surface Air Sampler	NP - Non-Potable Water	B - Bulk	O - Other:		
CP - Contact Plate					

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at <http://www.emlab.com/main/service/terms.html>

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Login Sample Receipt Checklist

Client: Stantec Consulting Corp.

Job Number: 490-74821-1

Login Number: 74821

List Source: TestAmerica Nashville

List Number: 1

Creator: Huckaba, Jimmy

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



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Nashville

2960 Foster Creighton Drive

Nashville, TN 37204

Tel: (615)726-0177

TestAmerica Job ID: 490-81805-1

TestAmerica Sample Delivery Group: 25821 Richland

Client Project/Site: 2Q15 GWM 25821

Revision: 1

For:

Stantec Consulting Corp.

11130 NE 33rd Place

Suite 200

Bellevue, Washington 98004-1465

Attn: Paul Fairbairn



Authorized for release by:

7/21/2015 4:30:58 PM

Heather Wagner, Project Manager I

(615)301-5763

heather.wagner@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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

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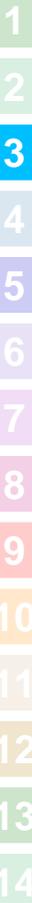
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Sample Summary

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-81805-1	MW-3	Water	06/30/15 18:45	07/02/15 08:45
490-81805-2	MW-6	Water	06/30/15 12:45	07/02/15 08:45
490-81805-3	MW-7	Water	06/30/15 14:00	07/02/15 08:45
490-81805-4	MW-8	Water	06/30/15 15:00	07/02/15 08:45
490-81805-5	MW-9	Water	06/30/15 15:45	07/02/15 08:45
490-81805-6	MW-10	Water	06/30/15 17:00	07/02/15 08:45
490-81805-7	MW-11	Water	06/30/15 18:00	07/02/15 08:45
490-81805-8	MW-12	Water	06/30/15 14:30	07/02/15 08:45



Case Narrative

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Job ID: 490-81805-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative 490-81805-1

Comments

REVISED REPORT: Revised to correct the GRO reporting limit. This report replaces the report issued 7/14/15.

Receipt

The samples were received on 7/2/2015 8:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.2° C.

GC/MS VOA

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

HPLC/IC

Method(s) 9056A: Reanalysis of the following sample was performed outside of the analytical holding time: MW-6 (490-81805-2).

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

GC VOA

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

GC Semi VOA

Method(s) 8011: The %RPD between the primary and confirmation column exceeded 40% for 1,3-Dichlorobenzene for the following samples: MW-6 (490-81805-2). The lower value has been reported and qualified in accordance with the laboratory's SOP.

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

Metals

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

VOA Prep

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

Definitions/Glossary

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

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

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Client Sample ID: MW-3
Date Collected: 06/30/15 18:45
Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			07/03/15 01:41	1
Ethylbenzene	ND		1.00		ug/L			07/03/15 01:41	1
Methyl tert-butyl ether	ND		1.00		ug/L			07/03/15 01:41	1
Toluene	ND		1.00		ug/L			07/03/15 01:41	1
Xylenes, Total	ND		3.00		ug/L			07/03/15 01:41	1
1,2-Dichloroethane	ND		1.00		ug/L			07/03/15 01:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		70 - 130		07/03/15 01:41	1
4-Bromofluorobenzene (Surr)	97		70 - 130		07/03/15 01:41	1
Dibromofluoromethane (Surr)	101		70 - 130		07/03/15 01:41	1
Toluene-d8 (Surr)	98		70 - 130		07/03/15 01:41	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			07/02/15 15:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	76		50 - 150		07/02/15 15:10	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0203		ug/L		07/06/15 16:22	07/06/15 22:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	111		50 - 150	07/06/15 16:22	07/06/15 22:39	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		07/02/15 16:31	07/09/15 12:40	1
Iron	ND		25.0		ug/L		07/02/15 16:31	07/09/15 12:40	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Client Sample ID: MW-6
Date Collected: 06/30/15 12:45
Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			07/03/15 02:08	1
Ethylbenzene	ND		1.00		ug/L			07/03/15 02:08	1
Methyl tert-butyl ether	ND		1.00		ug/L			07/03/15 02:08	1
Toluene	ND		1.00		ug/L			07/03/15 02:08	1
Xylenes, Total	ND		3.00		ug/L			07/03/15 02:08	1
1,2-Dichloroethane	ND		1.00		ug/L			07/03/15 02:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		70 - 130		07/03/15 02:08	1
4-Bromofluorobenzene (Surr)	98		70 - 130		07/03/15 02:08	1
Dibromofluoromethane (Surr)	101		70 - 130		07/03/15 02:08	1
Toluene-d8 (Surr)	98		70 - 130		07/03/15 02:08	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			07/02/15 16:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	72		50 - 150		07/02/15 16:26	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0201		ug/L		07/09/15 11:18	07/10/15 01:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	68		50 - 150	07/09/15 11:18	07/10/15 01:05	1

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	64500	H	500		ug/L			07/02/15 15:16	5
Sulfate	956000		5000		ug/L			07/02/15 15:16	5

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		07/02/15 16:31	07/09/15 13:05	1
Iron	2780		25.0		ug/L		07/02/15 16:31	07/09/15 13:05	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00200		mg/L		07/06/15 14:21	07/06/15 20:51	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Client Sample ID: MW-7
Date Collected: 06/30/15 14:00
Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			07/03/15 02:36	1
Ethylbenzene	ND		1.00		ug/L			07/03/15 02:36	1
Methyl tert-butyl ether	ND		1.00		ug/L			07/03/15 02:36	1
Toluene	ND		1.00		ug/L			07/03/15 02:36	1
Xylenes, Total	ND		3.00		ug/L			07/03/15 02:36	1
1,2-Dichloroethane	ND		1.00		ug/L			07/03/15 02:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		70 - 130		07/03/15 02:36	1
4-Bromofluorobenzene (Surr)	97		70 - 130		07/03/15 02:36	1
Dibromofluoromethane (Surr)	103		70 - 130		07/03/15 02:36	1
Toluene-d8 (Surr)	99		70 - 130		07/03/15 02:36	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			07/02/15 17:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	72		50 - 150		07/02/15 17:03	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0199		ug/L		07/09/15 11:18	07/10/15 01:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	74		50 - 150	07/09/15 11:18	07/10/15 01:23	1

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	1610		100		ug/L			07/02/15 14:16	1
Sulfate	385000	F1	1000		ug/L			07/02/15 14:16	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		07/02/15 16:31	07/09/15 13:10	1
Iron	3020		25.0		ug/L		07/02/15 16:31	07/09/15 13:10	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00200		mg/L		07/06/15 14:21	07/06/15 20:56	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Client Sample ID: MW-8
Date Collected: 06/30/15 15:00
Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			07/03/15 03:04	1
Ethylbenzene	ND		1.00		ug/L			07/03/15 03:04	1
Methyl tert-butyl ether	ND		1.00		ug/L			07/03/15 03:04	1
Toluene	ND		1.00		ug/L			07/03/15 03:04	1
Xylenes, Total	ND		3.00		ug/L			07/03/15 03:04	1
1,2-Dichloroethane	ND		1.00		ug/L			07/03/15 03:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 130		07/03/15 03:04	1
4-Bromofluorobenzene (Surr)	98		70 - 130		07/03/15 03:04	1
Dibromofluoromethane (Surr)	101		70 - 130		07/03/15 03:04	1
Toluene-d8 (Surr)	99		70 - 130		07/03/15 03:04	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			07/02/15 17:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	74		50 - 150		07/02/15 17:41	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0200		ug/L		07/06/15 16:22	07/06/15 23:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	104		50 - 150	07/06/15 16:22	07/06/15 23:32	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		07/02/15 16:31	07/09/15 13:16	1
Iron	1990		25.0		ug/L		07/02/15 16:31	07/09/15 13:16	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Client Sample ID: MW-9
Date Collected: 06/30/15 15:45
Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			07/03/15 03:30	1
Ethylbenzene	ND		1.00		ug/L			07/03/15 03:30	1
Methyl tert-butyl ether	ND		1.00		ug/L			07/03/15 03:30	1
Toluene	ND		1.00		ug/L			07/03/15 03:30	1
Xylenes, Total	ND		3.00		ug/L			07/03/15 03:30	1
1,2-Dichloroethane	ND		1.00		ug/L			07/03/15 03:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		70 - 130		07/03/15 03:30	1
4-Bromofluorobenzene (Surr)	97		70 - 130		07/03/15 03:30	1
Dibromofluoromethane (Surr)	102		70 - 130		07/03/15 03:30	1
Toluene-d8 (Surr)	98		70 - 130		07/03/15 03:30	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			07/02/15 18:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	75		50 - 150		07/02/15 18:18	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0198		ug/L		07/06/15 16:22	07/06/15 23:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	100		50 - 150	07/06/15 16:22	07/06/15 23:49	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		07/02/15 16:31	07/09/15 13:31	1
Iron	170		25.0		ug/L		07/02/15 16:31	07/09/15 13:31	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Client Sample ID: MW-10
Date Collected: 06/30/15 17:00
Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			07/03/15 03:58	1
Ethylbenzene	ND		1.00		ug/L			07/03/15 03:58	1
Methyl tert-butyl ether	ND		1.00		ug/L			07/03/15 03:58	1
Toluene	ND		1.00		ug/L			07/03/15 03:58	1
Xylenes, Total	ND		3.00		ug/L			07/03/15 03:58	1
1,2-Dichloroethane	ND		1.00		ug/L			07/03/15 03:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		70 - 130		07/03/15 03:58	1
4-Bromofluorobenzene (Surr)	97		70 - 130		07/03/15 03:58	1
Dibromofluoromethane (Surr)	102		70 - 130		07/03/15 03:58	1
Toluene-d8 (Surr)	97		70 - 130		07/03/15 03:58	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			07/02/15 18:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	74		50 - 150		07/02/15 18:55	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0204		ug/L		07/06/15 16:22	07/07/15 00:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	111		50 - 150	07/06/15 16:22	07/07/15 00:07	1

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	5590		100		ug/L			07/02/15 15:56	1
Sulfate	61300		1000		ug/L			07/02/15 15:56	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		07/02/15 16:31	07/09/15 13:36	1
Iron	3700		25.0		ug/L		07/02/15 16:31	07/09/15 13:36	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00200		mg/L		07/06/15 14:21	07/06/15 21:01	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Client Sample ID: MW-11
Date Collected: 06/30/15 18:00
Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-7
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			07/03/15 04:25	1
Ethylbenzene	ND		1.00		ug/L			07/03/15 04:25	1
Methyl tert-butyl ether	ND		1.00		ug/L			07/03/15 04:25	1
Toluene	ND		1.00		ug/L			07/03/15 04:25	1
Xylenes, Total	ND		3.00		ug/L			07/03/15 04:25	1
1,2-Dichloroethane	ND		1.00		ug/L			07/03/15 04:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		70 - 130		07/03/15 04:25	1
4-Bromofluorobenzene (Surr)	96		70 - 130		07/03/15 04:25	1
Dibromofluoromethane (Surr)	103		70 - 130		07/03/15 04:25	1
Toluene-d8 (Surr)	99		70 - 130		07/03/15 04:25	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			07/02/15 19:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	75		50 - 150		07/02/15 19:33	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0198		ug/L		07/06/15 16:22	07/07/15 00:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	121		50 - 150	07/06/15 16:22	07/07/15 00:24	1

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	5070		100		ug/L			07/02/15 16:16	1
Sulfate	60100		1000		ug/L			07/02/15 16:16	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		07/02/15 16:31	07/09/15 13:41	1
Iron	1080		25.0		ug/L		07/02/15 16:31	07/09/15 13:41	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00200		mg/L		07/06/15 14:21	07/06/15 21:07	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Client Sample ID: MW-12
Date Collected: 06/30/15 14:30
Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-8
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			07/03/15 04:52	1
Ethylbenzene	ND		1.00		ug/L			07/03/15 04:52	1
Methyl tert-butyl ether	ND		1.00		ug/L			07/03/15 04:52	1
Toluene	ND		1.00		ug/L			07/03/15 04:52	1
Xylenes, Total	ND		3.00		ug/L			07/03/15 04:52	1
1,2-Dichloroethane	ND		1.00		ug/L			07/03/15 04:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		70 - 130		07/03/15 04:52	1
4-Bromofluorobenzene (Surr)	96		70 - 130		07/03/15 04:52	1
Dibromofluoromethane (Surr)	105		70 - 130		07/03/15 04:52	1
Toluene-d8 (Surr)	99		70 - 130		07/03/15 04:52	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			07/09/15 12:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	74		50 - 150		07/09/15 12:10	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0199		ug/L		07/06/15 16:22	07/07/15 01:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	118		50 - 150	07/06/15 16:22	07/07/15 01:16	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		07/02/15 16:31	07/09/15 13:46	1
Iron	369		25.0		ug/L		07/02/15 16:31	07/09/15 13:46	1

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

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

Lab Sample ID: MB 490-261625/6

Matrix: Water

Analysis Batch: 261625

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			07/02/15 22:02	1
Ethylbenzene	ND		1.00		ug/L			07/02/15 22:02	1
Methyl tert-butyl ether	ND		1.00		ug/L			07/02/15 22:02	1
Toluene	ND		1.00		ug/L			07/02/15 22:02	1
Xylenes, Total	ND		3.00		ug/L			07/02/15 22:02	1
1,2-Dichloroethane	ND		1.00		ug/L			07/02/15 22:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		70 - 130		07/02/15 22:02	1
4-Bromofluorobenzene (Surr)	97		70 - 130		07/02/15 22:02	1
Dibromofluoromethane (Surr)	100		70 - 130		07/02/15 22:02	1
Toluene-d8 (Surr)	98		70 - 130		07/02/15 22:02	1

Lab Sample ID: LCS 490-261625/3

Matrix: Water

Analysis Batch: 261625

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	44.06		ug/L		88	80 - 121
Ethylbenzene	50.0	44.71		ug/L		89	80 - 130
Methyl tert-butyl ether	50.0	44.88		ug/L		90	72 - 133
Toluene	50.0	43.66		ug/L		87	80 - 126
Xylenes, Total	150	134.4		ug/L		90	80 - 132
1,2-Dichloroethane	50.0	45.21		ug/L		90	77 - 121

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		70 - 130
4-Bromofluorobenzene (Surr)	99		70 - 130
Dibromofluoromethane (Surr)	95		70 - 130
Toluene-d8 (Surr)	98		70 - 130

Lab Sample ID: LCSD 490-261625/4

Matrix: Water

Analysis Batch: 261625

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	47.07		ug/L		94	80 - 121	7	17
Ethylbenzene	50.0	46.71		ug/L		93	80 - 130	4	15
Methyl tert-butyl ether	50.0	45.29		ug/L		91	72 - 133	1	16
Toluene	50.0	45.38		ug/L		91	80 - 126	4	15
Xylenes, Total	150	138.8		ug/L		93	80 - 132	3	15
1,2-Dichloroethane	50.0	47.23		ug/L		94	77 - 121	4	17

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		70 - 130
4-Bromofluorobenzene (Surr)	99		70 - 130
Dibromofluoromethane (Surr)	98		70 - 130

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

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

Lab Sample ID: LCSD 490-261625/4
Matrix: Water
Analysis Batch: 261625

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

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	95		70 - 130

Lab Sample ID: 490-81805-1 MS
Matrix: Water
Analysis Batch: 261625

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
Benzene	ND		50.0	53.16		ug/L		106	75 - 133
Ethylbenzene	ND		50.0	52.77		ug/L		106	79 - 139
Methyl tert-butyl ether	ND		50.0	47.02		ug/L		94	66 - 141
Toluene	ND		50.0	50.60		ug/L		101	75 - 136
Xylenes, Total	ND		150	153.1		ug/L		102	74 - 141
1,2-Dichloroethane	ND		50.0	50.60		ug/L		101	64 - 136

Surrogate	MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	100		70 - 130
4-Bromofluorobenzene (Surr)	99		70 - 130
Dibromofluoromethane (Surr)	103		70 - 130
Toluene-d8 (Surr)	98		70 - 130

Lab Sample ID: 490-81805-1 MSD
Matrix: Water
Analysis Batch: 261625

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec. Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Benzene	ND		50.0	53.37		ug/L		107	75 - 133	0	17
Ethylbenzene	ND		50.0	52.65		ug/L		105	79 - 139	0	15
Methyl tert-butyl ether	ND		50.0	48.26		ug/L		97	66 - 141	3	16
Toluene	ND		50.0	50.13		ug/L		100	75 - 136	1	15
Xylenes, Total	ND		150	153.3		ug/L		102	74 - 141	0	15
1,2-Dichloroethane	ND		50.0	50.95		ug/L		102	64 - 136	1	17

Surrogate	MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	101		70 - 130
4-Bromofluorobenzene (Surr)	97		70 - 130
Dibromofluoromethane (Surr)	103		70 - 130
Toluene-d8 (Surr)	96		70 - 130

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 490-261430/7
Matrix: Water
Analysis Batch: 261430

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

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C6-C12	ND		100		ug/L			07/02/15 14:10	1

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

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

Lab Sample ID: MB 490-261430/7
Matrix: Water
Analysis Batch: 261430

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

Surrogate	<i>MB</i> %Recovery	<i>MB</i> Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	75		50 - 150		07/02/15 14:10	1

Lab Sample ID: LCS 490-261430/4
Matrix: Water
Analysis Batch: 261430

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C6-C12	1000	1029		ug/L		103	39 - 143

Surrogate	<i>LCS</i> %Recovery	<i>LCS</i> Qualifier	Limits
a,a,a-Trifluorotoluene	58		50 - 150

Lab Sample ID: LCSD 490-261430/5
Matrix: Water
Analysis Batch: 261430

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C6-C12	1000	1059		ug/L		106	39 - 143	3	18

Surrogate	<i>LCSD</i> %Recovery	<i>LCSD</i> Qualifier	Limits
a,a,a-Trifluorotoluene	59		50 - 150

Lab Sample ID: 490-81805-1 DU
Matrix: Water
Analysis Batch: 261430

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
C6-C12	ND		ND		ug/L		NC	18

Surrogate	<i>DU</i> %Recovery	<i>DU</i> Qualifier	Limits
a,a,a-Trifluorotoluene	74		50 - 150

Lab Sample ID: MB 490-263065/8
Matrix: Water
Analysis Batch: 263065

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

Analyte	<i>MB</i> Result	<i>MB</i> Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			07/09/15 11:38	1

Surrogate	<i>MB</i> %Recovery	<i>MB</i> Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	71		50 - 150		07/09/15 11:38	1

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

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

Lab Sample ID: LCS 490-263065/6
Matrix: Water
Analysis Batch: 263065

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C6-C12	1000	1125		ug/L		112	39 - 143
Surrogate		LCS %Recovery	LCS Qualifier				Limits
a,a,a-Trifluorotoluene		110					50 - 150

Lab Sample ID: LCSD 490-263065/7
Matrix: Water
Analysis Batch: 263065

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C6-C12	1000	1103		ug/L		110	39 - 143	2	18
Surrogate		LCSD %Recovery	LCSD Qualifier				Limits		
a,a,a-Trifluorotoluene		107					50 - 150		

Lab Sample ID: 490-81805-8 DU
Matrix: Water
Analysis Batch: 263065

Client Sample ID: MW-12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
C6-C12	ND		ND		ug/L		NC	18
Surrogate		DU %Recovery	DU Qualifier				Limits	
a,a,a-Trifluorotoluene		74					50 - 150	

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 490-262260/3-A
Matrix: Water
Analysis Batch: 262141

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 262260

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0200		ug/L		07/06/15 16:22	07/06/15 20:54	1
Surrogate		MB %Recovery	MB Qualifier				Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene		118					07/06/15 16:22	07/06/15 20:54	1

Lab Sample ID: LCS 490-262260/4-A
Matrix: Water
Analysis Batch: 262141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 262260

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.286	0.3367		ug/L		118	70 - 130
Surrogate		LCS %Recovery	LCS Qualifier				Limits
1,3-Dichlorobenzene		114					50 - 150

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 490-262260/5-A
Matrix: Water
Analysis Batch: 262141

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 262260

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.286	0.3514		ug/L		123	70 - 130	4	50
Surrogate		%Recovery	Qualifier						Limits
1,3-Dichlorobenzene		116							50 - 150

Lab Sample ID: MB 490-263189/2-A
Matrix: Water
Analysis Batch: 263371

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 263189

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0200		ug/L		07/09/15 11:18	07/09/15 17:59	1
Surrogate		%Recovery					Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene		130					07/09/15 11:18	07/09/15 17:59	1

Lab Sample ID: LCS 490-263189/3-A
Matrix: Water
Analysis Batch: 263371

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 263189

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.286	0.3475		ug/L		122	70 - 130
Surrogate		%Recovery	Qualifier				Limits
1,3-Dichlorobenzene		128					50 - 150

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-261722/14
Matrix: Water
Analysis Batch: 261722

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		100		ug/L			07/02/15 16:56	1

Lab Sample ID: LCS 490-261722/15
Matrix: Water
Analysis Batch: 261722

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	10000	10530		ug/L		105	80 - 120

Lab Sample ID: LCSD 490-261722/16
Matrix: Water
Analysis Batch: 261722

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	10000	10420		ug/L		104	80 - 120	1	20

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 490-81805-3 MS
Matrix: Water
Analysis Batch: 261722

Client Sample ID: MW-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1610		10000	11640		ug/L		100	80 - 120

Lab Sample ID: 490-81805-3 MSD
Matrix: Water
Analysis Batch: 261722

Client Sample ID: MW-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	1610		10000	11580		ug/L		100	80 - 120	1	20

Lab Sample ID: MB 490-261723/14
Matrix: Water
Analysis Batch: 261723

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1000		ug/L			07/02/15 16:56	1

Lab Sample ID: LCS 490-261723/15
Matrix: Water
Analysis Batch: 261723

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	100000	107900		ug/L		108	80 - 120

Lab Sample ID: LCSD 490-261723/16
Matrix: Water
Analysis Batch: 261723

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	100000	108000		ug/L		108	80 - 120	0	20

Lab Sample ID: 490-81805-3 MS
Matrix: Water
Analysis Batch: 261723

Client Sample ID: MW-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	385000	F1	100000	411800	F1	ug/L		27	80 - 120

Lab Sample ID: 490-81805-3 MSD
Matrix: Water
Analysis Batch: 261723

Client Sample ID: MW-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	385000	F1	100000	413300	F1	ug/L		28	80 - 120	0	20

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 490-261640/1-A
Matrix: Water
Analysis Batch: 263426

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 261640

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		07/02/15 16:31	07/09/15 12:30	1
Iron	ND		25.0		ug/L		07/02/15 16:31	07/09/15 12:30	1

Lab Sample ID: LCS 490-261640/2-A
Matrix: Water
Analysis Batch: 263426

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 261640

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	100	97.09		ug/L		97	85 - 115
Iron	1000	1024		ug/L		102	85 - 115

Lab Sample ID: 490-81805-1 MS
Matrix: Water
Analysis Batch: 263426

Client Sample ID: MW-3
Prep Type: Total/NA
Prep Batch: 261640

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	ND		100	97.41		ug/L		97	70 - 130
Iron	ND		1000	1079		ug/L		106	70 - 130

Lab Sample ID: 490-81805-1 MSD
Matrix: Water
Analysis Batch: 263426

Client Sample ID: MW-3
Prep Type: Total/NA
Prep Batch: 261640

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Lead	ND		100	98.08		ug/L		98	70 - 130	1	20
Iron	ND		1000	1097		ug/L		107	70 - 130	2	20

Lab Sample ID: MB 490-262216/1-B
Matrix: Water
Analysis Batch: 262430

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 262223

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00200		mg/L		07/06/15 14:21	07/06/15 19:50	1

Lab Sample ID: LCS 490-262216/2-B
Matrix: Water
Analysis Batch: 262430

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 262223

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.100	0.09490		mg/L		95	85 - 115

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

GC/MS VOA

Analysis Batch: 261625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-81805-1	MW-3	Total/NA	Water	8260B	
490-81805-1 MS	MW-3	Total/NA	Water	8260B	
490-81805-1 MSD	MW-3	Total/NA	Water	8260B	
490-81805-2	MW-6	Total/NA	Water	8260B	
490-81805-3	MW-7	Total/NA	Water	8260B	
490-81805-4	MW-8	Total/NA	Water	8260B	
490-81805-5	MW-9	Total/NA	Water	8260B	
490-81805-6	MW-10	Total/NA	Water	8260B	
490-81805-7	MW-11	Total/NA	Water	8260B	
490-81805-8	MW-12	Total/NA	Water	8260B	
LCS 490-261625/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 490-261625/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 490-261625/6	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 261430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-81805-1	MW-3	Total/NA	Water	NWTPH-Gx	
490-81805-1 DU	MW-3	Total/NA	Water	NWTPH-Gx	
490-81805-2	MW-6	Total/NA	Water	NWTPH-Gx	
490-81805-3	MW-7	Total/NA	Water	NWTPH-Gx	
490-81805-4	MW-8	Total/NA	Water	NWTPH-Gx	
490-81805-5	MW-9	Total/NA	Water	NWTPH-Gx	
490-81805-6	MW-10	Total/NA	Water	NWTPH-Gx	
490-81805-7	MW-11	Total/NA	Water	NWTPH-Gx	
LCS 490-261430/4	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 490-261430/5	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	
MB 490-261430/7	Method Blank	Total/NA	Water	NWTPH-Gx	

Analysis Batch: 263065

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-81805-8	MW-12	Total/NA	Water	NWTPH-Gx	
490-81805-8 DU	MW-12	Total/NA	Water	NWTPH-Gx	
LCS 490-263065/6	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 490-263065/7	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	
MB 490-263065/8	Method Blank	Total/NA	Water	NWTPH-Gx	

GC Semi VOA

Analysis Batch: 262141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-81805-1	MW-3	Total/NA	Water	8011	262260
490-81805-4	MW-8	Total/NA	Water	8011	262260
490-81805-5	MW-9	Total/NA	Water	8011	262260
490-81805-6	MW-10	Total/NA	Water	8011	262260
490-81805-7	MW-11	Total/NA	Water	8011	262260
490-81805-8	MW-12	Total/NA	Water	8011	262260
LCS 490-262260/4-A	Lab Control Sample	Total/NA	Water	8011	262260
LCSD 490-262260/5-A	Lab Control Sample Dup	Total/NA	Water	8011	262260

TestAmerica Nashville

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

GC Semi VOA (Continued)

Analysis Batch: 262141 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 490-262260/3-A	Method Blank	Total/NA	Water	8011	262260

Prep Batch: 262260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-81805-1	MW-3	Total/NA	Water	8011	
490-81805-4	MW-8	Total/NA	Water	8011	
490-81805-5	MW-9	Total/NA	Water	8011	
490-81805-6	MW-10	Total/NA	Water	8011	
490-81805-7	MW-11	Total/NA	Water	8011	
490-81805-8	MW-12	Total/NA	Water	8011	
LCS 490-262260/4-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 490-262260/5-A	Lab Control Sample Dup	Total/NA	Water	8011	
MB 490-262260/3-A	Method Blank	Total/NA	Water	8011	

Prep Batch: 263189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-81805-2	MW-6	Total/NA	Water	8011	
490-81805-3	MW-7	Total/NA	Water	8011	
LCS 490-263189/3-A	Lab Control Sample	Total/NA	Water	8011	
MB 490-263189/2-A	Method Blank	Total/NA	Water	8011	

Analysis Batch: 263371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-81805-2	MW-6	Total/NA	Water	8011	263189
490-81805-3	MW-7	Total/NA	Water	8011	263189
LCS 490-263189/3-A	Lab Control Sample	Total/NA	Water	8011	263189
MB 490-263189/2-A	Method Blank	Total/NA	Water	8011	263189

HPLC/IC

Analysis Batch: 261722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-81805-2	MW-6	Total/NA	Water	9056A	
490-81805-3	MW-7	Total/NA	Water	9056A	
490-81805-3 MS	MW-7	Total/NA	Water	9056A	
490-81805-3 MSD	MW-7	Total/NA	Water	9056A	
490-81805-6	MW-10	Total/NA	Water	9056A	
490-81805-7	MW-11	Total/NA	Water	9056A	
LCS 490-261722/15	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-261722/16	Lab Control Sample Dup	Total/NA	Water	9056A	
MB 490-261722/14	Method Blank	Total/NA	Water	9056A	

Analysis Batch: 261723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-81805-2	MW-6	Total/NA	Water	9056A	
490-81805-3	MW-7	Total/NA	Water	9056A	
490-81805-3 MS	MW-7	Total/NA	Water	9056A	
490-81805-3 MSD	MW-7	Total/NA	Water	9056A	
490-81805-6	MW-10	Total/NA	Water	9056A	
490-81805-7	MW-11	Total/NA	Water	9056A	

TestAmerica Nashville

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

HPLC/IC (Continued)

Analysis Batch: 261723 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 490-261723/15	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-261723/16	Lab Control Sample Dup	Total/NA	Water	9056A	
MB 490-261723/14	Method Blank	Total/NA	Water	9056A	

Metals

Prep Batch: 261640

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-81805-1	MW-3	Total/NA	Water	200.8	
490-81805-1 MS	MW-3	Total/NA	Water	200.8	
490-81805-1 MSD	MW-3	Total/NA	Water	200.8	
490-81805-2	MW-6	Total/NA	Water	200.8	
490-81805-3	MW-7	Total/NA	Water	200.8	
490-81805-4	MW-8	Total/NA	Water	200.8	
490-81805-5	MW-9	Total/NA	Water	200.8	
490-81805-6	MW-10	Total/NA	Water	200.8	
490-81805-7	MW-11	Total/NA	Water	200.8	
490-81805-8	MW-12	Total/NA	Water	200.8	
LCS 490-261640/2-A	Lab Control Sample	Total/NA	Water	200.8	
MB 490-261640/1-A	Method Blank	Total/NA	Water	200.8	

Filtration Batch: 262216

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-81805-2	MW-6	Dissolved	Water	Filtration	
490-81805-3	MW-7	Dissolved	Water	Filtration	
490-81805-6	MW-10	Dissolved	Water	Filtration	
490-81805-7	MW-11	Dissolved	Water	Filtration	
LCS 490-262216/2-B	Lab Control Sample	Dissolved	Water	Filtration	
MB 490-262216/1-B	Method Blank	Dissolved	Water	Filtration	

Prep Batch: 262223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-81805-2	MW-6	Dissolved	Water	200.8	262216
490-81805-3	MW-7	Dissolved	Water	200.8	262216
490-81805-6	MW-10	Dissolved	Water	200.8	262216
490-81805-7	MW-11	Dissolved	Water	200.8	262216
LCS 490-262216/2-B	Lab Control Sample	Dissolved	Water	200.8	262216
MB 490-262216/1-B	Method Blank	Dissolved	Water	200.8	262216

Analysis Batch: 262430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-81805-2	MW-6	Dissolved	Water	200.8	262223
490-81805-3	MW-7	Dissolved	Water	200.8	262223
490-81805-6	MW-10	Dissolved	Water	200.8	262223
490-81805-7	MW-11	Dissolved	Water	200.8	262223
LCS 490-262216/2-B	Lab Control Sample	Dissolved	Water	200.8	262223
MB 490-262216/1-B	Method Blank	Dissolved	Water	200.8	262223

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Metals (Continued)

Analysis Batch: 263426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-81805-1	MW-3	Total/NA	Water	200.8	261640
490-81805-1 MS	MW-3	Total/NA	Water	200.8	261640
490-81805-1 MSD	MW-3	Total/NA	Water	200.8	261640
490-81805-2	MW-6	Total/NA	Water	200.8	261640
490-81805-3	MW-7	Total/NA	Water	200.8	261640
490-81805-4	MW-8	Total/NA	Water	200.8	261640
490-81805-5	MW-9	Total/NA	Water	200.8	261640
490-81805-6	MW-10	Total/NA	Water	200.8	261640
490-81805-7	MW-11	Total/NA	Water	200.8	261640
490-81805-8	MW-12	Total/NA	Water	200.8	261640
LCS 490-261640/2-A	Lab Control Sample	Total/NA	Water	200.8	261640
MB 490-261640/1-A	Method Blank	Total/NA	Water	200.8	261640

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Client Sample ID: MW-3
Date Collected: 06/30/15 18:45
Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	261625	07/03/15 01:41	SLM	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	261430	07/02/15 15:10	BK	TAL NSH
Total/NA	Prep	8011			34.5 mL	2 mL	262260	07/06/15 16:22	MWT	TAL NSH
Total/NA	Analysis	8011		1	34.5 mL	2 mL	262141	07/06/15 22:39	MWT	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	261640	07/02/15 16:31	ZLN	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	263426	07/09/15 12:40	CME	TAL NSH

Client Sample ID: MW-6
Date Collected: 06/30/15 12:45
Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	261625	07/03/15 02:08	SLM	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	261430	07/02/15 16:26	BK	TAL NSH
Total/NA	Prep	8011			34.8 mL	2 mL	263189	07/09/15 11:18	MWT	TAL NSH
Total/NA	Analysis	8011		1	34.8 mL	2 mL	263371	07/10/15 01:05	MWT	TAL NSH
Total/NA	Analysis	9056A		5	10 mL		261722	07/02/15 15:16	JHS	TAL NSH
Total/NA	Analysis	9056A		5	10 mL		261723	07/02/15 15:16	JHS	TAL NSH
Dissolved	Prep	200.8			50 mL	50 mL	262223	07/06/15 14:21	ZLN	TAL NSH
Dissolved	Filtration	Filtration			50 mL	50 mL	262216	07/06/15 14:21	ZLN	TAL NSH
Dissolved	Analysis	200.8		1	50 mL	50 mL	262430	07/06/15 20:51	CME	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	261640	07/02/15 16:31	ZLN	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	263426	07/09/15 13:05	CME	TAL NSH

Client Sample ID: MW-7
Date Collected: 06/30/15 14:00
Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	261625	07/03/15 02:36	SLM	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	261430	07/02/15 17:03	BK	TAL NSH
Total/NA	Prep	8011			35.1 mL	2 mL	263189	07/09/15 11:18	MWT	TAL NSH
Total/NA	Analysis	8011		1	35.1 mL	2 mL	263371	07/10/15 01:23	MWT	TAL NSH
Total/NA	Analysis	9056A		1	10 mL		261722	07/02/15 14:16	JHS	TAL NSH
Total/NA	Analysis	9056A		1	10 mL		261723	07/02/15 14:16	JHS	TAL NSH
Dissolved	Prep	200.8			50 mL	50 mL	262223	07/06/15 14:21	ZLN	TAL NSH
Dissolved	Filtration	Filtration			50 mL	50 mL	262216	07/06/15 14:21	ZLN	TAL NSH
Dissolved	Analysis	200.8		1	50 mL	50 mL	262430	07/06/15 20:56	CME	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	261640	07/02/15 16:31	ZLN	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	263426	07/09/15 13:10	CME	TAL NSH

TestAmerica Nashville

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Client Sample ID: MW-8
Date Collected: 06/30/15 15:00
Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	261625	07/03/15 03:04	SLM	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	261430	07/02/15 17:41	BK	TAL NSH
Total/NA	Prep	8011			35 mL	2 mL	262260	07/06/15 16:22	MWT	TAL NSH
Total/NA	Analysis	8011		1	35 mL	2 mL	262141	07/06/15 23:32	MWT	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	261640	07/02/15 16:31	ZLN	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	263426	07/09/15 13:16	CME	TAL NSH

Client Sample ID: MW-9
Date Collected: 06/30/15 15:45
Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	261625	07/03/15 03:30	SLM	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	261430	07/02/15 18:18	BK	TAL NSH
Total/NA	Prep	8011			35.4 mL	2 mL	262260	07/06/15 16:22	MWT	TAL NSH
Total/NA	Analysis	8011		1	35.4 mL	2 mL	262141	07/06/15 23:49	MWT	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	261640	07/02/15 16:31	ZLN	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	263426	07/09/15 13:31	CME	TAL NSH

Client Sample ID: MW-10
Date Collected: 06/30/15 17:00
Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	261625	07/03/15 03:58	SLM	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	261430	07/02/15 18:55	BK	TAL NSH
Total/NA	Prep	8011			34.3 mL	2 mL	262260	07/06/15 16:22	MWT	TAL NSH
Total/NA	Analysis	8011		1	34.3 mL	2 mL	262141	07/07/15 00:07	MWT	TAL NSH
Total/NA	Analysis	9056A		1	10 mL		261722	07/02/15 15:56	JHS	TAL NSH
Total/NA	Analysis	9056A		1	10 mL		261723	07/02/15 15:56	JHS	TAL NSH
Dissolved	Prep	200.8			50 mL	50 mL	262223	07/06/15 14:21	ZLN	TAL NSH
Dissolved	Filtration	Filtration			50 mL	50 mL	262216	07/06/15 14:21	ZLN	TAL NSH
Dissolved	Analysis	200.8		1	50 mL	50 mL	262430	07/06/15 21:01	CME	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	261640	07/02/15 16:31	ZLN	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	263426	07/09/15 13:36	CME	TAL NSH

Client Sample ID: MW-11
Date Collected: 06/30/15 18:00
Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	261625	07/03/15 04:25	SLM	TAL NSH

TestAmerica Nashville

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Client Sample ID: MW-11

Date Collected: 06/30/15 18:00

Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	261430	07/02/15 19:33	BK	TAL NSH
Total/NA	Prep	8011			35.3 mL	2 mL	262260	07/06/15 16:22	MWT	TAL NSH
Total/NA	Analysis	8011		1	35.3 mL	2 mL	262141	07/07/15 00:24	MWT	TAL NSH
Total/NA	Analysis	9056A		1	10 mL		261722	07/02/15 16:16	JHS	TAL NSH
Total/NA	Analysis	9056A		1	10 mL		261723	07/02/15 16:16	JHS	TAL NSH
Dissolved	Prep	200.8			50 mL	50 mL	262223	07/06/15 14:21	ZLN	TAL NSH
Dissolved	Filtration	Filtration			50 mL	50 mL	262216	07/06/15 14:21	ZLN	TAL NSH
Dissolved	Analysis	200.8		1	50 mL	50 mL	262430	07/06/15 21:07	CME	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	261640	07/02/15 16:31	ZLN	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	263426	07/09/15 13:41	CME	TAL NSH

Client Sample ID: MW-12

Date Collected: 06/30/15 14:30

Date Received: 07/02/15 08:45

Lab Sample ID: 490-81805-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	261625	07/03/15 04:52	SLM	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	263065	07/09/15 12:10	GWM	TAL NSH
Total/NA	Prep	8011			35.2 mL	2 mL	262260	07/06/15 16:22	MWT	TAL NSH
Total/NA	Analysis	8011		1	35.2 mL	2 mL	262141	07/07/15 01:16	MWT	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	261640	07/02/15 16:31	ZLN	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	263426	07/09/15 13:46	CME	TAL NSH

Laboratory References:

EMLab Hou = EMLab P&K - Houston TCEQ Cert T104704489, Subcont.report available upon request, 6310 Rothway, Houston, TX 77040
TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Method Summary

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL NSH
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	TAL NSH
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL NSH
9056A	Anions, Ion Chromatography	SW846	TAL NSH
200.8	Metals (ICP/MS)	EPA	TAL NSH
Hydrocarbon Degrading Bacteria	General Sub Contract Method	NONE	EMLab Hou

Protocol References:

EPA = US Environmental Protection Agency

NONE = NONE

NWTPH = Northwest Total Petroleum Hydrocarbon

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

Laboratory References:

EMLab Hou = EMLab P&K - Houston TCEQ Cert T104704489, Subcont.report available upon request, 6310 Rothway, Houston, TX 77040

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Certification Summary

Client: Stantec Consulting Corp.
Project/Site: 2Q15 GWM 25821

TestAmerica Job ID: 490-81805-1
SDG: 25821 Richland

Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

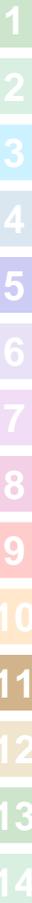
Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C789	07-19-15 *

Laboratory: EMLab P&K - Houston TCEQ Cert T104704489

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

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA-LAP, LLC	EMLAP		193549	01-01-16
Oklahoma	State Program	6		08-31-15
Texas	NELAP	6	T104704489-13-5	07-31-15

* Certification renewal pending - certification considered valid.





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Report for:

Ms. Heather Wagner
TestAmerica-Nashville, TN
 2960 Foster Creighton Drive
 Nashville, TN 37204

Regarding: Project: 490-08223
 EML ID: 1388081

Approved by:

Technical Manager
 Magzoub Ismail

Dates of Analysis:
 Hydrocarbon Degrading Bacteria: 07-13-2015

Service SOPs: Hydrocarbon Degrading Bacteria (EM-BT-S-1285)

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: TestAmerica-Nashville, TN
 C/O: Ms. Heather Wagner
 Re: 490-08223

Date of Sampling: 07-03-2015
 Date of Receipt: 07-03-2015
 Date of Report: 07-13-2015

CULTURE BACTERIA REPORT

Lab ID-Version‡ Location Analysis Date	Sample Size/ Report Unit	Medium	Dilution Factor	Bacterial ID	Colony Counts	CFU/unit	%
6380456-1 MW-6 Analysis date: 07/13/2015	Size: 1 ml Unit: 1 ml	Bushnell-Hass Agar	10	Hydrocarbon Degrading Bacteria	108	1,100 § Total: 1,100	100 100
Comments:							
6380457-1 MW-7 Analysis date: 07/13/2015	Size: 1 ml Unit: 1 ml	Bushnell-Hass Agar	10	Hydrocarbon Degrading Bacteria	96	960 § Total: 960	100 100
Comments:							

The limit of detection is a raw count of 1 at the lowest dilution plated. The analytical sensitivity is equal to 1 raw count/reporting unit x the dilution factor.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

§ Total has been rounded to two significant figures to reflect analytical precision.

COOLER RECEIPT



490-81805 Chain of Custody

Cooler Received/Opened On 7/2/2015 @ 0845

6736
6812

1. Tracking # 2238 (last 4 digits, FedEx)
Courier: FedEx IR Gun ID 12080142
2. Temperature of rep. sample or temp blank when opened: 1.2 Degrees Celsius
3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA
4. Were custody seals on outside of cooler? YES...NO...NA
If yes, how many and where: one front
5. Were the seals intact, signed, and dated correctly? YES...NO...NA
6. Were custody papers inside cooler? YES...NO...NA
DA
- I certify that I opened the cooler and answered questions 1-6 (initial) DA
7. Were custody seals on containers: YES NO and Intact YES...NO...NA
Were these signed and dated correctly? YES...NO...NA
8. Packing mat'l used? ~~Bubblewrap~~ Plastic bag Peanuts Vermiculite Foam Insert Paper Other None
9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None
10. Did all containers arrive in good condition (unbroken)? YES...NO...NA
11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA
12. Did all container labels and tags agree with custody papers? YES...NO...NA
- 13a. Were VOA vials received? YES...NO...NA
b. Was there any observable headspace present in any VOA vial? YES...NO...NA
14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # NA
- I certify that I unloaded the cooler and answered questions 7-14 (initial) DA
- 15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES..NO..NA
b. Did the bottle labels indicate that the correct preservatives were used YES..NO...NA
16. Was residual chlorine present? YES...NO...NA
- I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) DA
17. Were custody papers properly filled out (ink, signed, etc)? YES..NO...NA
18. Did you sign the custody papers in the appropriate place? YES..NO...NA
19. Were correct containers used for the analysis requested? YES..NO...NA
20. Was sufficient amount of sample sent in each container? YES..NO...NA
- I certify that I entered this project into LIMS and answered questions 17-20 (initial) DA
- I certify that I attached a label with the unique LIMS number to each container (initial) DA
21. Were there Non-Conformance issues at login? YES..NO Was a NCM generated? YES..NO..#

TestAmerica Nashville

2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record



Client Information

Company: **Stantec Consulting Corp.**
Address: 11130 NE 33rd Place Suite 200
City: BelleVue
State Zip: WA, 98004-1465
Phone: 425-298-1000(Tel)
Email: paul.fairbairn@stantec.com
Project Name: 2015 GWM 25821
Site: 25821 RICHLAND

Sampler: **EMILY HARPER**
Phone: 425-869-9448 x162
Lab Fw: Wagner, Heather
E-Mail: heather.wagner@testamericainc.com

Carrier Tracking No(s):

COC No: 187FS0037

Due Date Requested:

Analysis Requested

TAT Requested (days):

STANDARDS

PO #:
Purchase Order Requested

WQ #:

Project #:

ISSOW#:

Sample Identification

Sample ID	Sample Date	Sample Time	Sample Type (G-comp, G-grad)	Matrix (Mineral, Synthetic, Organic, Inorganic, Aqueous, Solid)	Field Filtered Sample (Yes or No)	Performs MS/MSD (Yes or No)	Analysis Requested	Total Number of Containers	Special Instructions/Note
MW-3	6/30/15			M			BTEX 8200, EDC, MDE		
MW-6				M			NW TPH-6		
MW-7				M			Total lead 200.8, total lead		
MW-8				M			EDB		
MW-9				M			HDB		
MW-10				M			NITRATE/SULFATE		
MW-11				M			DISSOLVED LEAD		
MW-12				M					

Loc: 490
81805

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Empty Kit Relinquished by:

Date:

Time:

Method of Shipment:

Relinquished by:

Date/Time: 7/1/15 10:15

Company: STANTEC

Received by:

Date/Time: 7/1/15 10:15

Company: TASEA

Relinquished by:

Date/Time: 7/1/15 12:45

Company: TASEA

Received by:

Date/Time: 7-2-15 08:45

Company: TASEA

Custody Seals Intact: _____ Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

- 1
- 2
- 3
- 4
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Wagner, Heather

From: Harper, Emily [Emily.Harper@stantec.com]
Sent: Wednesday, July 01, 2015 3:48 PM
To: Wagner, Heather
Subject: Dissolved lead, Nitrate/sulfate
Follow Up Flag: Follow up
Flag Status: Red
Attachments: 3698_001.pdf

Hi Heather,

Can dissolved lead and nitrate/sulfate data be extracted from the same bottle?

If so, I would like to have all 3 taken from wells MW-6, MW-7, MW-10 and MW-11 (as listed on this chain which Paco picked up this morning at the office).

Thanks,

Emily Harper
 Geologic Project Specialist
 Stantec

WE'VE MOVED!

We're excited to be in our new Bellevue office at the Rosen Bel-Kirk Center. Please note our new address and phone numbers.

11130 NE 33rd Place
 Suite 200
 Bellevue, WA 98004

Office: 425.869.9448 ex. 162
Cell: 585.615.4922
Fax: 425.869.1190
emily.harper@stantec.com



Design with community in mind

stantec.com



Please consider the environment before printing this email.

Login Sample Receipt Checklist

Client: Stantec Consulting Corp.

Job Number: 490-81805-1
SDG Number: 25821 Richland

Login Number: 81805

List Number: 1

Creator: Ford, Easton

List Source: TestAmerica Nashville

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



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-84442-1
Client Project/Site: 7-Eleven No. 25821
Revision: 1

For:
Stantec Consulting Corp.
11130 NE 33rd Place
Suite 200
Bellevue, Washington 98004-1465

Attn: Paul Fairbairn



Authorized for release by:
5/11/2017 12:34:28 PM

Heather Wagner, Project Manager I
(615)301-5763
heather.wagner@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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

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Sample Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-84442-2	CB-1 @ 10'	Solid	07/28/15 13:30	08/06/15 08:45
490-84442-3	CB-1 @ 15'	Solid	07/28/15 13:40	08/06/15 08:45
490-84442-4	CB-1 @ 20'	Solid	07/28/15 13:55	08/06/15 08:45
490-84442-6	CB-2 @ 10'	Solid	07/29/15 08:50	08/06/15 08:45
490-84442-7	CB-2 @ 15'	Solid	07/29/15 08:55	08/06/15 08:45
490-84442-8	CB-2 @ 20'	Solid	07/29/15 09:05	08/06/15 08:45
490-84442-10	CB-3 @ 5'	Solid	07/28/15 16:00	08/06/15 08:45
490-84442-11	CB-3 @ 15'	Solid	07/28/15 16:15	08/06/15 08:45
490-84442-12	CB-3 @ 20'	Solid	07/28/15 16:20	08/06/15 08:45
490-84442-14	CB-4 @ 5'	Solid	07/29/15 12:00	08/06/15 08:45
490-84442-15	CB-4 @ 18'	Solid	07/29/15 12:35	08/06/15 08:45
490-84442-16	CB-4 @ 20'	Solid	07/29/15 12:45	08/06/15 08:45
490-84442-18	CB-5 @ 10'	Solid	07/29/15 10:20	08/06/15 08:45
490-84442-19	CB-5 @ 15'	Solid	07/29/15 10:25	08/06/15 08:45
490-84442-20	CB-5 @ 20'	Solid	07/29/15 10:35	08/06/15 08:45
490-84442-22	EQRP-2	Water	07/28/15 07:15	08/06/15 08:45
490-84442-23	FB-2	Water	07/28/15 07:20	08/06/15 08:45
490-84442-24	TB-2	Water	07/28/15 07:25	08/06/15 08:45
490-84442-25	EQRR-2	Water	07/28/15 17:45	08/06/15 08:45

Case Narrative

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Job ID: 490-84442-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative 490-84442-1

Comments

REVISED REPORT: Revised to report the 8260 results for sample CB-2 @ 20' (490-84442-8) to the method detection limit (MDL). This report replaces the report issued 8/12/15.

Receipt

The samples were received on 8/5/2015 8:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9° C.

GC/MS VOA

Method(s) 8260B: Surrogate recovery for the following sample was outside control limits: CB-2 @ 20' (490-84442-8), CB-4 @ 18' (490-84442-15). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) 8260B: Due to sample matrix effect on the internal standard (ISTD), a dilution was required for the following sample: CB-4 @ 18' (490-84442-15).

Method(s) 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batches 490-271515, 490-271798.

Method(s) 8260B: Internal standard responses were outside of acceptance limits for the following samples: CB-2 @ 20' (490-84442-8) and CB-3 @ 20' (490-84442-12). The sample(s) shows evidence of matrix interference.

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

GC VOA

Method(s) 8015B, NWTPH-Gx: Surrogate recovery was outside acceptance limits for the following matrix spike (MS) sample: (490-84207-E-1 MS). The parent sample's surrogate recovery was within limits. This MS sample has been qualified and reported.

Method(s) NWTPH-Gx: Insufficient sample volume was prepared to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 490-271442.

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

GC Semi VOA

Method(s) NWTPH-Dx: There was insufficient contamination present for analyte C10-C24 to perform a pattern match for the following samples: CB-1 @ 10' (490-84442-2), CB-1 @ 15' (490-84442-3), CB-2 @ 20' (490-84442-8).

Method(s) NWTPH-Dx: The following sample contained a hydrocarbon pattern for analyte C10-C24 which does not match a typical Total Petroleum Hydrocarbon (TPH) pattern used by the laboratory for quantitative purposes: CB-3 @ 15' (490-84442-11).

Method(s) NWTPH-Dx: There was insufficient contamination present for analyte C24-C40 to perform a pattern match for the following samples: CB-2 @ 15' (490-84442-7) and CB-5 @ 20' (490-84442-20).

Method(s) NWTPH-Dx: The following samples contained a hydrocarbon pattern for analyte C24-C40 that most closely resembles a Motor oil product used by the laboratory for quantitative purposes: CB-1 @ 10' (490-84442-2), CB-2 @ 10' (490-84442-6), CB-2 @ 20' (490-84442-8), CB-3 @ 5' (490-84442-10), CB-3 @ 15' (490-84442-11), CB-3 @ 20' (490-84442-12).

Method(s) NWTPH-Dx: The following samples contained a hydrocarbon pattern which does not match a typical Total Petroleum Hydrocarbon (TPH) pattern used by the laboratory for quantitative purposes: CB-1 @ 20' (490-84442-4).

Method(s) NWTPH-Dx: The sample duplicate (DUP) precision for preparation batch 490-272089 was outside control limits. Sample non-homogeneity is suspected.

Case Narrative

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Job ID: 490-84442-1 (Continued)

Laboratory: TestAmerica Nashville (Continued)

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

Metals

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

Organic Prep

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

VOA Prep

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

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Definitions/Glossary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	ISTD response or retention time outside acceptable limits
X	Surrogate is outside control limits

GC Semi VOA

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

Metals

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

Glossary

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

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-1 @ 10'

Lab Sample ID: 490-84442-2

Date Collected: 07/28/15 13:30

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 91.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00183		mg/Kg	☼	08/07/15 09:30	08/08/15 19:57	1
1,2-Dibromoethane (EDB)	ND		0.00183		mg/Kg	☼	08/07/15 09:30	08/08/15 19:57	1
1,2-Dichloroethane	ND		0.00183		mg/Kg	☼	08/07/15 09:30	08/08/15 19:57	1
Benzene	ND		0.00183		mg/Kg	☼	08/07/15 09:30	08/08/15 19:57	1
Naphthalene	ND		0.00456		mg/Kg	☼	08/07/15 09:30	08/08/15 19:57	1
Toluene	ND		0.00183		mg/Kg	☼	08/07/15 09:30	08/08/15 19:57	1
Xylenes, Total	ND		0.00456		mg/Kg	☼	08/07/15 09:30	08/08/15 19:57	1
Methyl tert-butyl ether	ND		0.00183		mg/Kg	☼	08/07/15 09:30	08/08/15 19:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		70 - 130				08/07/15 09:30	08/08/15 19:57	1
4-Bromofluorobenzene (Surr)	103		70 - 130				08/07/15 09:30	08/08/15 19:57	1
Dibromofluoromethane (Surr)	101		70 - 130				08/07/15 09:30	08/08/15 19:57	1
Toluene-d8 (Surr)	99		70 - 130				08/07/15 09:30	08/08/15 19:57	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		6.70		mg/Kg	☼	08/07/15 09:15	08/08/15 01:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	61		50 - 150				08/07/15 09:15	08/08/15 01:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	4.83		4.25		mg/Kg	☼	08/07/15 16:32	08/09/15 01:47	1
Motor Oil Range Organics (C24-C40)	14.0		4.25		mg/Kg	☼	08/07/15 16:32	08/09/15 01:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	66		50 - 150				08/07/15 16:32	08/09/15 01:47	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	32.4		1.10		mg/Kg	☼	08/07/15 08:02	08/08/15 01:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92		0.10		%			08/07/15 11:04	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-1 @ 15'

Lab Sample ID: 490-84442-3

Date Collected: 07/28/15 13:40

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 90.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00199		mg/Kg	☼	08/07/15 09:30	08/08/15 20:28	1
1,2-Dibromoethane (EDB)	ND		0.00199		mg/Kg	☼	08/07/15 09:30	08/08/15 20:28	1
1,2-Dichloroethane	ND		0.00199		mg/Kg	☼	08/07/15 09:30	08/08/15 20:28	1
Benzene	ND		0.00199		mg/Kg	☼	08/07/15 09:30	08/08/15 20:28	1
Naphthalene	ND		0.00497		mg/Kg	☼	08/07/15 09:30	08/08/15 20:28	1
Toluene	ND		0.00199		mg/Kg	☼	08/07/15 09:30	08/08/15 20:28	1
Xylenes, Total	ND		0.00497		mg/Kg	☼	08/07/15 09:30	08/08/15 20:28	1
Methyl tert-butyl ether	ND		0.00199		mg/Kg	☼	08/07/15 09:30	08/08/15 20:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		70 - 130				08/07/15 09:30	08/08/15 20:28	1
4-Bromofluorobenzene (Surr)	100		70 - 130				08/07/15 09:30	08/08/15 20:28	1
Dibromofluoromethane (Surr)	102		70 - 130				08/07/15 09:30	08/08/15 20:28	1
Toluene-d8 (Surr)	98		70 - 130				08/07/15 09:30	08/08/15 20:28	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		5.07		mg/Kg	☼	08/07/15 09:15	08/08/15 02:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	60		50 - 150				08/07/15 09:15	08/08/15 02:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	4.57		4.33		mg/Kg	☼	08/07/15 16:32	08/09/15 02:22	1
Motor Oil Range Organics (C24-C40)	ND		4.33		mg/Kg	☼	08/07/15 16:32	08/09/15 02:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	62		50 - 150				08/07/15 16:32	08/09/15 02:22	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	5.63		1.10		mg/Kg	☼	08/07/15 08:02	08/08/15 01:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	91		0.10		%	-		08/07/15 11:04	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-1 @ 20'

Lab Sample ID: 490-84442-4

Date Collected: 07/28/15 13:55

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 82.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00201		mg/Kg	☼	08/07/15 09:30	08/08/15 20:59	1
1,2-Dibromoethane (EDB)	ND		0.00201		mg/Kg	☼	08/07/15 09:30	08/08/15 20:59	1
1,2-Dichloroethane	ND		0.00201		mg/Kg	☼	08/07/15 09:30	08/08/15 20:59	1
Benzene	ND		0.00201		mg/Kg	☼	08/07/15 09:30	08/08/15 20:59	1
Naphthalene	ND		0.00502		mg/Kg	☼	08/07/15 09:30	08/08/15 20:59	1
Toluene	ND		0.00201		mg/Kg	☼	08/07/15 09:30	08/08/15 20:59	1
Xylenes, Total	ND		0.00502		mg/Kg	☼	08/07/15 09:30	08/08/15 20:59	1
Methyl tert-butyl ether	ND		0.00201		mg/Kg	☼	08/07/15 09:30	08/08/15 20:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		70 - 130	08/07/15 09:30	08/08/15 20:59	1
4-Bromofluorobenzene (Surr)	105		70 - 130	08/07/15 09:30	08/08/15 20:59	1
Dibromofluoromethane (Surr)	101		70 - 130	08/07/15 09:30	08/08/15 20:59	1
Toluene-d8 (Surr)	100		70 - 130	08/07/15 09:30	08/08/15 20:59	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		5.93		mg/Kg	☼	08/07/15 09:15	08/08/15 03:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	60		50 - 150	08/07/15 09:15	08/08/15 03:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		4.00		mg/Kg	☼	08/10/15 12:14	08/10/15 21:10	1
Motor Oil Range Organics (C24-C40)	6.10		4.00		mg/Kg	☼	08/10/15 12:14	08/10/15 21:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	72		50 - 150	08/10/15 12:14	08/10/15 21:10	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	4.50		1.19		mg/Kg	☼	08/07/15 08:02	08/08/15 01:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82		0.10		%	-		08/07/15 11:04	1

TestAmerica Nashville

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-2 @ 10'

Lab Sample ID: 490-84442-6

Date Collected: 07/29/15 08:50

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 97.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00186		mg/Kg	☼	08/03/15 15:40	08/08/15 21:31	1
1,2-Dibromoethane (EDB)	ND		0.00186		mg/Kg	☼	08/03/15 15:40	08/08/15 21:31	1
1,2-Dichloroethane	ND		0.00186		mg/Kg	☼	08/03/15 15:40	08/08/15 21:31	1
Benzene	ND		0.00186		mg/Kg	☼	08/03/15 15:40	08/08/15 21:31	1
Naphthalene	ND		0.00465		mg/Kg	☼	08/03/15 15:40	08/08/15 21:31	1
Toluene	ND		0.00186		mg/Kg	☼	08/03/15 15:40	08/08/15 21:31	1
Xylenes, Total	ND		0.00465		mg/Kg	☼	08/03/15 15:40	08/08/15 21:31	1
Methyl tert-butyl ether	ND		0.00186		mg/Kg	☼	08/03/15 15:40	08/08/15 21:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		70 - 130	08/03/15 15:40	08/08/15 21:31	1
4-Bromofluorobenzene (Surr)	101		70 - 130	08/03/15 15:40	08/08/15 21:31	1
Dibromofluoromethane (Surr)	104		70 - 130	08/03/15 15:40	08/08/15 21:31	1
Toluene-d8 (Surr)	98		70 - 130	08/03/15 15:40	08/08/15 21:31	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		4.53		mg/Kg	☼	08/07/15 09:15	08/08/15 03:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	57		50 - 150	08/07/15 09:15	08/08/15 03:30	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		4.06		mg/Kg	☼	08/07/15 16:32	08/09/15 02:56	1
Motor Oil Range Organics (C24-C40)	15.8		4.06		mg/Kg	☼	08/07/15 16:32	08/09/15 02:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	52		50 - 150	08/07/15 16:32	08/09/15 02:56	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	6.03		1.02		mg/Kg	☼	08/07/15 08:02	08/08/15 01:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	98		0.10		%	-		08/07/15 11:04	1

TestAmerica Nashville

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-2 @ 15'

Lab Sample ID: 490-84442-7

Date Collected: 07/29/15 08:55

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 94.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00229		mg/Kg	☼	08/03/15 15:20	08/08/15 22:02	1
1,2-Dibromoethane (EDB)	ND		0.00229		mg/Kg	☼	08/03/15 15:20	08/08/15 22:02	1
1,2-Dichloroethane	ND		0.00229		mg/Kg	☼	08/03/15 15:20	08/08/15 22:02	1
Benzene	ND		0.00229		mg/Kg	☼	08/03/15 15:20	08/08/15 22:02	1
Naphthalene	ND		0.00571		mg/Kg	☼	08/03/15 15:20	08/08/15 22:02	1
Toluene	ND		0.00229		mg/Kg	☼	08/03/15 15:20	08/08/15 22:02	1
Xylenes, Total	ND		0.00571		mg/Kg	☼	08/03/15 15:20	08/08/15 22:02	1
Methyl tert-butyl ether	ND		0.00229		mg/Kg	☼	08/03/15 15:20	08/08/15 22:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		70 - 130	08/03/15 15:20	08/08/15 22:02	1
4-Bromofluorobenzene (Surr)	104		70 - 130	08/03/15 15:20	08/08/15 22:02	1
Dibromofluoromethane (Surr)	103		70 - 130	08/03/15 15:20	08/08/15 22:02	1
Toluene-d8 (Surr)	99		70 - 130	08/03/15 15:20	08/08/15 22:02	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		5.44		mg/Kg	☼	08/07/15 09:15	08/08/15 03:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	61		50 - 150	08/07/15 09:15	08/08/15 03:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		4.17		mg/Kg	☼	08/07/15 16:32	08/09/15 03:14	1
Motor Oil Range Organics (C24-C40)	6.00		4.17		mg/Kg	☼	08/07/15 16:32	08/09/15 03:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	56		50 - 150	08/07/15 16:32	08/09/15 03:14	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	6.23		1.06		mg/Kg	☼	08/07/15 08:02	08/08/15 01:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94		0.10		%			08/07/15 11:04	1

TestAmerica Nashville

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-2 @ 20'

Lab Sample ID: 490-84442-8

Date Collected: 07/29/15 09:05

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 87.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.109	0.0372	mg/Kg	☼	08/07/15 09:15	08/11/15 21:39	1
1,2-Dibromoethane (EDB)	ND		0.109	0.0547	mg/Kg	☼	08/07/15 09:15	08/11/15 21:39	1
1,2-Dichloroethane	ND		0.00150	0.000504	mg/Kg	☼	08/03/15 15:00	08/08/15 22:33	1
Benzene	ND		0.00150	0.000504	mg/Kg	☼	08/03/15 15:00	08/08/15 22:33	1
Naphthalene	ND		0.274	0.0930	mg/Kg	☼	08/07/15 09:15	08/11/15 21:39	1
Toluene	ND		0.109	0.0405	mg/Kg	☼	08/07/15 09:15	08/11/15 21:39	1
Xylenes, Total	ND		0.164	0.0679	mg/Kg	☼	08/07/15 09:15	08/11/15 21:39	1
Methyl tert-butyl ether	ND		0.00150	0.000722	mg/Kg	☼	08/03/15 15:00	08/08/15 22:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	154	X	70 - 130	08/03/15 15:00	08/08/15 22:33	1
1,2-Dichloroethane-d4 (Surr)	111		70 - 130	08/07/15 09:15	08/11/15 21:39	1
4-Bromofluorobenzene (Surr)	106	*	70 - 130	08/03/15 15:00	08/08/15 22:33	1
4-Bromofluorobenzene (Surr)	100		70 - 130	08/07/15 09:15	08/11/15 21:39	1
Dibromofluoromethane (Surr)	150	X	70 - 130	08/03/15 15:00	08/08/15 22:33	1
Dibromofluoromethane (Surr)	99		70 - 130	08/07/15 09:15	08/11/15 21:39	1
Toluene-d8 (Surr)	127	*	70 - 130	08/03/15 15:00	08/08/15 22:33	1
Toluene-d8 (Surr)	100		70 - 130	08/07/15 09:15	08/11/15 21:39	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		3.51		mg/Kg	☼	08/07/15 09:15	08/08/15 04:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	61		50 - 150	08/07/15 09:15	08/08/15 04:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	6.00		4.56		mg/Kg	☼	08/07/15 16:32	08/09/15 04:05	1
Motor Oil Range Organics (C24-C40)	14.0		4.56		mg/Kg	☼	08/07/15 16:32	08/09/15 04:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	65		50 - 150	08/07/15 16:32	08/09/15 04:05	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	3.20		1.14		mg/Kg	☼	08/07/15 08:02	08/08/15 01:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87		0.10		%			08/07/15 11:04	1

TestAmerica Nashville

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-3 @ 5'

Lab Sample ID: 490-84442-10

Date Collected: 07/28/15 16:00

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 98.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00258		mg/Kg	☼	08/03/15 14:40	08/08/15 23:04	1
1,2-Dibromoethane (EDB)	ND		0.00258		mg/Kg	☼	08/03/15 14:40	08/08/15 23:04	1
1,2-Dichloroethane	ND		0.00258		mg/Kg	☼	08/03/15 14:40	08/08/15 23:04	1
Benzene	ND		0.00258		mg/Kg	☼	08/03/15 14:40	08/08/15 23:04	1
Naphthalene	ND		0.00644		mg/Kg	☼	08/03/15 14:40	08/08/15 23:04	1
Toluene	ND		0.00258		mg/Kg	☼	08/03/15 14:40	08/08/15 23:04	1
Xylenes, Total	ND		0.00644		mg/Kg	☼	08/03/15 14:40	08/08/15 23:04	1
Methyl tert-butyl ether	ND		0.00258		mg/Kg	☼	08/03/15 14:40	08/08/15 23:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		70 - 130	08/03/15 14:40	08/08/15 23:04	1
4-Bromofluorobenzene (Surr)	107		70 - 130	08/03/15 14:40	08/08/15 23:04	1
Dibromofluoromethane (Surr)	101		70 - 130	08/03/15 14:40	08/08/15 23:04	1
Toluene-d8 (Surr)	105		70 - 130	08/03/15 14:40	08/08/15 23:04	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		7.01		mg/Kg	☼	08/07/15 09:15	08/08/15 04:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	64		50 - 150	08/07/15 09:15	08/08/15 04:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		4.00		mg/Kg	☼	08/07/15 16:32	08/09/15 04:22	1
Motor Oil Range Organics (C24-C40)	46.4		4.00		mg/Kg	☼	08/07/15 16:32	08/09/15 04:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	61		50 - 150	08/07/15 16:32	08/09/15 04:22	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	4.21		0.998		mg/Kg	☼	08/07/15 08:02	08/08/15 01:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	98		0.10		%	-		08/07/15 11:04	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-3 @ 15'

Lab Sample ID: 490-84442-11

Date Collected: 07/28/15 16:15

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 95.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00222		mg/Kg	☼	08/03/15 14:20	08/08/15 23:36	1
1,2-Dibromoethane (EDB)	ND		0.00222		mg/Kg	☼	08/03/15 14:20	08/08/15 23:36	1
1,2-Dichloroethane	ND		0.00222		mg/Kg	☼	08/03/15 14:20	08/08/15 23:36	1
Benzene	ND		0.00222		mg/Kg	☼	08/03/15 14:20	08/08/15 23:36	1
Naphthalene	ND		0.00556		mg/Kg	☼	08/03/15 14:20	08/08/15 23:36	1
Toluene	ND		0.00222		mg/Kg	☼	08/03/15 14:20	08/08/15 23:36	1
Xylenes, Total	ND		0.00556		mg/Kg	☼	08/03/15 14:20	08/08/15 23:36	1
Methyl tert-butyl ether	ND		0.00222		mg/Kg	☼	08/03/15 14:20	08/08/15 23:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		70 - 130	08/03/15 14:20	08/08/15 23:36	1
4-Bromofluorobenzene (Surr)	102		70 - 130	08/03/15 14:20	08/08/15 23:36	1
Dibromofluoromethane (Surr)	103		70 - 130	08/03/15 14:20	08/08/15 23:36	1
Toluene-d8 (Surr)	97		70 - 130	08/03/15 14:20	08/08/15 23:36	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	335		9.95		mg/Kg	☼	08/07/15 09:15	08/08/15 05:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	60		50 - 150	08/07/15 09:15	08/08/15 05:27	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	18.1		4.13		mg/Kg	☼	08/07/15 16:32	08/09/15 04:40	1
Motor Oil Range Organics (C24-C40)	9.83		4.13		mg/Kg	☼	08/07/15 16:32	08/09/15 04:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	60		50 - 150	08/07/15 16:32	08/09/15 04:40	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	6.28		1.04		mg/Kg	☼	08/07/15 08:02	08/08/15 01:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96		0.10		%	-		08/07/15 11:04	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-3 @ 20'

Lab Sample ID: 490-84442-12

Date Collected: 07/28/15 16:20

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 79.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00219		mg/Kg	☼	08/03/15 14:00	08/09/15 00:07	1
1,2-Dibromoethane (EDB)	ND		0.00219		mg/Kg	☼	08/03/15 14:00	08/09/15 00:07	1
1,2-Dichloroethane	ND		0.00219		mg/Kg	☼	08/03/15 14:00	08/09/15 00:07	1
Benzene	ND		0.00219		mg/Kg	☼	08/03/15 14:00	08/09/15 00:07	1
Naphthalene	ND		0.441		mg/Kg	☼	08/07/15 09:15	08/11/15 22:11	1
Toluene	ND		0.00219		mg/Kg	☼	08/03/15 14:00	08/09/15 00:07	1
Xylenes, Total	ND		0.00546		mg/Kg	☼	08/03/15 14:00	08/09/15 00:07	1
Methyl tert-butyl ether	ND		0.00219		mg/Kg	☼	08/03/15 14:00	08/09/15 00:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	123		70 - 130	08/03/15 14:00	08/09/15 00:07	1
1,2-Dichloroethane-d4 (Surr)	107		70 - 130	08/07/15 09:15	08/11/15 22:11	1
4-Bromofluorobenzene (Surr)	108 *		70 - 130	08/03/15 14:00	08/09/15 00:07	1
4-Bromofluorobenzene (Surr)	102		70 - 130	08/07/15 09:15	08/11/15 22:11	1
Dibromofluoromethane (Surr)	117		70 - 130	08/03/15 14:00	08/09/15 00:07	1
Dibromofluoromethane (Surr)	98		70 - 130	08/07/15 09:15	08/11/15 22:11	1
Toluene-d8 (Surr)	117		70 - 130	08/03/15 14:00	08/09/15 00:07	1
Toluene-d8 (Surr)	100		70 - 130	08/07/15 09:15	08/11/15 22:11	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		7.59		mg/Kg	☼	08/07/15 09:15	08/08/15 05:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	61		50 - 150	08/07/15 09:15	08/08/15 05:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		4.94		mg/Kg	☼	08/07/15 16:32	08/09/15 04:57	1
Motor Oil Range Organics (C24-C40)	18.2		4.94		mg/Kg	☼	08/07/15 16:32	08/09/15 04:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	54		50 - 150	08/07/15 16:32	08/09/15 04:57	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	3.31		1.21		mg/Kg	☼	08/07/15 08:02	08/08/15 01:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	79		0.10		%			08/07/15 11:04	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-4 @ 5'

Lab Sample ID: 490-84442-14

Date Collected: 07/29/15 12:00

Matrix: Solid

Date Received: 08/06/15 08:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00162		mg/Kg		07/29/15 12:00	08/07/15 15:56	1
1,2-Dibromoethane (EDB)	ND		0.00162		mg/Kg		07/29/15 12:00	08/07/15 15:56	1
1,2-Dichloroethane	ND		0.00162		mg/Kg		07/29/15 12:00	08/07/15 15:56	1
Benzene	ND		0.00162		mg/Kg		07/29/15 12:00	08/07/15 15:56	1
Naphthalene	ND		0.00405		mg/Kg		07/29/15 12:00	08/07/15 15:56	1
Toluene	ND		0.00162		mg/Kg		07/29/15 12:00	08/07/15 15:56	1
Xylenes, Total	ND		0.00405		mg/Kg		07/29/15 12:00	08/07/15 15:56	1
Methyl tert-butyl ether	ND		0.00162		mg/Kg		07/29/15 12:00	08/07/15 15:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		70 - 130				07/29/15 12:00	08/07/15 15:56	1
4-Bromofluorobenzene (Surr)	96		70 - 130				07/29/15 12:00	08/07/15 15:56	1
Dibromofluoromethane (Surr)	108		70 - 130				07/29/15 12:00	08/07/15 15:56	1
Toluene-d8 (Surr)	97		70 - 130				07/29/15 12:00	08/07/15 15:56	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		7.06		mg/Kg		07/29/15 12:00	08/08/15 06:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	59		50 - 150				07/29/15 12:00	08/08/15 06:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		10.0		mg/Kg		08/07/15 16:32	08/09/15 05:14	1
Motor Oil Range Organics (C24-C40)	ND		10.0		mg/Kg		08/07/15 16:32	08/09/15 05:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	66		50 - 150				08/07/15 16:32	08/09/15 05:14	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	4.85		0.994		mg/Kg		08/10/15 09:43	08/10/15 18:12	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-4 @ 18'

Lab Sample ID: 490-84442-15

Date Collected: 07/29/15 12:35

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 89.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00165		mg/Kg	☼	07/29/15 12:35	08/07/15 16:27	1
1,2-Dibromoethane (EDB)	ND		0.00165		mg/Kg	☼	07/29/15 12:35	08/07/15 16:27	1
1,2-Dichloroethane	ND		0.00165		mg/Kg	☼	07/29/15 12:35	08/07/15 16:27	1
Benzene	ND		0.00165		mg/Kg	☼	07/29/15 12:35	08/07/15 16:27	1
Naphthalene	ND		0.232		mg/Kg	☼	07/29/15 12:35	08/08/15 18:55	1
Toluene	ND		0.00165		mg/Kg	☼	07/29/15 12:35	08/07/15 16:27	1
Xylenes, Total	ND		0.00413		mg/Kg	☼	07/29/15 12:35	08/07/15 16:27	1
Methyl tert-butyl ether	ND		0.00165		mg/Kg	☼	07/29/15 12:35	08/07/15 16:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		70 - 130	07/29/15 12:35	08/07/15 16:27	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 130	07/29/15 12:35	08/08/15 18:55	1
4-Bromofluorobenzene (Surr)	145	* X	70 - 130	07/29/15 12:35	08/07/15 16:27	1
4-Bromofluorobenzene (Surr)	103		70 - 130	07/29/15 12:35	08/08/15 18:55	1
Dibromofluoromethane (Surr)	111		70 - 130	07/29/15 12:35	08/07/15 16:27	1
Dibromofluoromethane (Surr)	93		70 - 130	07/29/15 12:35	08/08/15 18:55	1
Toluene-d8 (Surr)	127		70 - 130	07/29/15 12:35	08/07/15 16:27	1
Toluene-d8 (Surr)	100		70 - 130	07/29/15 12:35	08/08/15 18:55	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	52.8		4.94		mg/Kg	☼	07/29/15 12:35	08/08/15 06:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	61		50 - 150	07/29/15 12:35	08/08/15 06:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		4.30		mg/Kg	☼	08/07/15 16:32	08/09/15 05:31	1
Motor Oil Range Organics (C24-C40)	ND		4.30		mg/Kg	☼	08/07/15 16:32	08/09/15 05:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	58		50 - 150	08/07/15 16:32	08/09/15 05:31	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	3.84		1.12		mg/Kg	☼	08/10/15 09:43	08/10/15 18:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90		0.10		%			08/08/15 11:44	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-4 @ 20'

Lab Sample ID: 490-84442-16

Date Collected: 07/29/15 12:45

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 92.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00197		mg/Kg	☼	07/29/15 12:45	08/07/15 16:58	1
1,2-Dibromoethane (EDB)	ND		0.00197		mg/Kg	☼	07/29/15 12:45	08/07/15 16:58	1
1,2-Dichloroethane	ND		0.00197		mg/Kg	☼	07/29/15 12:45	08/07/15 16:58	1
Benzene	ND		0.00197		mg/Kg	☼	07/29/15 12:45	08/07/15 16:58	1
Naphthalene	ND		0.00493		mg/Kg	☼	07/29/15 12:45	08/07/15 16:58	1
Toluene	ND		0.00197		mg/Kg	☼	07/29/15 12:45	08/07/15 16:58	1
Xylenes, Total	ND		0.00493		mg/Kg	☼	07/29/15 12:45	08/07/15 16:58	1
Methyl tert-butyl ether	ND		0.00197		mg/Kg	☼	07/29/15 12:45	08/07/15 16:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		70 - 130				07/29/15 12:45	08/07/15 16:58	1
4-Bromofluorobenzene (Surr)	103		70 - 130				07/29/15 12:45	08/07/15 16:58	1
Dibromofluoromethane (Surr)	101		70 - 130				07/29/15 12:45	08/07/15 16:58	1
Toluene-d8 (Surr)	98		70 - 130				07/29/15 12:45	08/07/15 16:58	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		2.72		mg/Kg	☼	07/29/15 12:45	08/08/15 07:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	57		50 - 150				07/29/15 12:45	08/08/15 07:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		4.31		mg/Kg	☼	08/07/15 16:32	08/09/15 06:06	1
Motor Oil Range Organics (C24-C40)	ND		4.31		mg/Kg	☼	08/07/15 16:32	08/09/15 06:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	65		50 - 150				08/07/15 16:32	08/09/15 06:06	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	4.86		1.04		mg/Kg	☼	08/10/15 09:43	08/10/15 18:31	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92		0.10		%	-		08/08/15 11:44	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-5 @ 10'

Lab Sample ID: 490-84442-18

Date Collected: 07/29/15 10:20

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 99.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00229		mg/Kg	☼	07/29/15 10:20	08/07/15 17:29	1
1,2-Dibromoethane (EDB)	ND		0.00229		mg/Kg	☼	07/29/15 10:20	08/07/15 17:29	1
1,2-Dichloroethane	ND		0.00229		mg/Kg	☼	07/29/15 10:20	08/07/15 17:29	1
Benzene	ND		0.00229		mg/Kg	☼	07/29/15 10:20	08/07/15 17:29	1
Naphthalene	ND		0.00573		mg/Kg	☼	07/29/15 10:20	08/07/15 17:29	1
Toluene	ND		0.00229		mg/Kg	☼	07/29/15 10:20	08/07/15 17:29	1
Xylenes, Total	ND		0.00573		mg/Kg	☼	07/29/15 10:20	08/07/15 17:29	1
Methyl tert-butyl ether	ND		0.00229		mg/Kg	☼	07/29/15 10:20	08/07/15 17:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		70 - 130				07/29/15 10:20	08/07/15 17:29	1
4-Bromofluorobenzene (Surr)	106		70 - 130				07/29/15 10:20	08/07/15 17:29	1
Dibromofluoromethane (Surr)	102		70 - 130				07/29/15 10:20	08/07/15 17:29	1
Toluene-d8 (Surr)	96		70 - 130				07/29/15 10:20	08/07/15 17:29	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		5.81		mg/Kg	☼	07/29/15 10:20	08/08/15 07:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	60		50 - 150				07/29/15 10:20	08/08/15 07:53	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		3.94		mg/Kg	☼	08/07/15 16:32	08/09/15 06:23	1
Motor Oil Range Organics (C24-C40)	ND		3.94		mg/Kg	☼	08/07/15 16:32	08/09/15 06:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	66		50 - 150				08/07/15 16:32	08/09/15 06:23	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	1.77		1.01		mg/Kg	☼	08/10/15 09:43	08/10/15 18:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	99		0.10		%	-		08/08/15 11:44	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-5 @ 15'

Lab Sample ID: 490-84442-19

Date Collected: 07/29/15 10:25

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 91.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00238		mg/Kg	☼	07/29/15 10:25	08/07/15 18:00	1
1,2-Dibromoethane (EDB)	ND		0.00238		mg/Kg	☼	07/29/15 10:25	08/07/15 18:00	1
1,2-Dichloroethane	ND		0.00238		mg/Kg	☼	07/29/15 10:25	08/07/15 18:00	1
Benzene	ND		0.00238		mg/Kg	☼	07/29/15 10:25	08/07/15 18:00	1
Naphthalene	ND		0.00595		mg/Kg	☼	07/29/15 10:25	08/07/15 18:00	1
Toluene	ND		0.00238		mg/Kg	☼	07/29/15 10:25	08/07/15 18:00	1
Xylenes, Total	ND		0.00595		mg/Kg	☼	07/29/15 10:25	08/07/15 18:00	1
Methyl tert-butyl ether	ND		0.00238		mg/Kg	☼	07/29/15 10:25	08/07/15 18:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		70 - 130				07/29/15 10:25	08/07/15 18:00	1
4-Bromofluorobenzene (Surr)	101		70 - 130				07/29/15 10:25	08/07/15 18:00	1
Dibromofluoromethane (Surr)	104		70 - 130				07/29/15 10:25	08/07/15 18:00	1
Toluene-d8 (Surr)	98		70 - 130				07/29/15 10:25	08/07/15 18:00	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		5.96		mg/Kg	☼	07/29/15 10:25	08/08/15 08:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	63		50 - 150				07/29/15 10:25	08/08/15 08:23	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		4.28		mg/Kg	☼	08/07/15 16:32	08/09/15 06:40	1
Motor Oil Range Organics (C24-C40)	ND		4.28		mg/Kg	☼	08/07/15 16:32	08/09/15 06:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	61		50 - 150				08/07/15 16:32	08/09/15 06:40	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	4.96		1.08		mg/Kg	☼	08/10/15 09:43	08/10/15 18:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92		0.10		%	-		08/10/15 11:14	1

TestAmerica Nashville

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-5 @ 20'

Lab Sample ID: 490-84442-20

Date Collected: 07/29/15 10:35

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 83.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00199		mg/Kg	☼	07/29/15 10:35	08/07/15 18:32	1
1,2-Dibromoethane (EDB)	ND		0.00199		mg/Kg	☼	07/29/15 10:35	08/07/15 18:32	1
1,2-Dichloroethane	ND		0.00199		mg/Kg	☼	07/29/15 10:35	08/07/15 18:32	1
Benzene	ND		0.00199		mg/Kg	☼	07/29/15 10:35	08/07/15 18:32	1
Naphthalene	ND		0.00498		mg/Kg	☼	07/29/15 10:35	08/07/15 18:32	1
Toluene	ND		0.00199		mg/Kg	☼	07/29/15 10:35	08/07/15 18:32	1
Xylenes, Total	ND		0.00498		mg/Kg	☼	07/29/15 10:35	08/07/15 18:32	1
Methyl tert-butyl ether	ND		0.00199		mg/Kg	☼	07/29/15 10:35	08/07/15 18:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 130	07/29/15 10:35	08/07/15 18:32	1
4-Bromofluorobenzene (Surr)	102		70 - 130	07/29/15 10:35	08/07/15 18:32	1
Dibromofluoromethane (Surr)	100		70 - 130	07/29/15 10:35	08/07/15 18:32	1
Toluene-d8 (Surr)	100		70 - 130	07/29/15 10:35	08/07/15 18:32	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	30.5		5.97		mg/Kg	☼	07/29/15 10:35	08/08/15 08:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	65		50 - 150	07/29/15 10:35	08/08/15 08:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		4.62		mg/Kg	☼	08/07/15 16:32	08/09/15 06:57	1
Motor Oil Range Organics (C24-C40)	5.60		4.62		mg/Kg	☼	08/07/15 16:32	08/09/15 06:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	62		50 - 150	08/07/15 16:32	08/09/15 06:57	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	3.95		1.20		mg/Kg	☼	08/10/15 09:43	08/10/15 18:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84		0.10		%			08/08/15 11:44	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: EQRP-2
Date Collected: 07/28/15 07:15
Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-22
Matrix: Water

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			08/07/15 23:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene</i>	98		50 - 150					08/07/15 23:31	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: FB-2
Date Collected: 07/28/15 07:20
Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-23
Matrix: Water

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			08/07/15 23:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene</i>	104		50 - 150					08/07/15 23:01	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: TB-2
Date Collected: 07/28/15 07:25
Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-24
Matrix: Water

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			08/07/15 22:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene</i>	100		50 - 150					08/07/15 22:32	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: EQRR-2

Date Collected: 07/28/15 17:45

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-25

Matrix: Water

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			08/08/15 00:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene</i>	101		50 - 150					08/08/15 00:00	1

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

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

Lab Sample ID: MB 490-271315/1-A

Matrix: Solid

Analysis Batch: 272311

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 271315

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.100		mg/Kg		08/06/15 15:37	08/11/15 17:17	1
1,2-Dibromoethane (EDB)	ND		0.100		mg/Kg		08/06/15 15:37	08/11/15 17:17	1
1,2-Dichloroethane	ND		0.100		mg/Kg		08/06/15 15:37	08/11/15 17:17	1
Benzene	ND		0.100		mg/Kg		08/06/15 15:37	08/11/15 17:17	1
Naphthalene	ND		0.250		mg/Kg		08/06/15 15:37	08/11/15 17:17	1
Toluene	ND		0.100		mg/Kg		08/06/15 15:37	08/11/15 17:17	1
Xylenes, Total	ND		0.250		mg/Kg		08/06/15 15:37	08/11/15 17:17	1
Methyl tert-butyl ether	ND		0.100		mg/Kg		08/06/15 15:37	08/11/15 17:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		70 - 130	08/06/15 15:37	08/11/15 17:17	1
4-Bromofluorobenzene (Surr)	102		70 - 130	08/06/15 15:37	08/11/15 17:17	1
Dibromofluoromethane (Surr)	94		70 - 130	08/06/15 15:37	08/11/15 17:17	1
Toluene-d8 (Surr)	97		70 - 130	08/06/15 15:37	08/11/15 17:17	1

Lab Sample ID: LCS 490-271315/2-A

Matrix: Solid

Analysis Batch: 272311

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 271315

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Ethylbenzene	2.50	2.445		mg/Kg		98	80 - 134
1,2-Dibromoethane (EDB)	2.50	2.640		mg/Kg		106	80 - 135
1,2-Dichloroethane	2.50	2.429		mg/Kg		97	65 - 134
Benzene	2.50	2.404		mg/Kg		96	75 - 127
Naphthalene	2.50	2.923		mg/Kg		117	69 - 150
Toluene	2.50	2.391		mg/Kg		96	80 - 132
Xylenes, Total	5.00	4.907		mg/Kg		98	80 - 137
Methyl tert-butyl ether	2.50	2.559		mg/Kg		102	70 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		70 - 130
4-Bromofluorobenzene (Surr)	102		70 - 130
Dibromofluoromethane (Surr)	97		70 - 130
Toluene-d8 (Surr)	100		70 - 130

Lab Sample ID: 490-84442-8 MS

Matrix: Solid

Analysis Batch: 272311

Client Sample ID: CB-2 @ 20'

Prep Type: Total/NA

Prep Batch: 271452

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Ethylbenzene	ND		2.74	1.583		mg/Kg	☼	58	23 - 161
1,2-Dibromoethane (EDB)	ND		2.74	2.600		mg/Kg	☼	95	18 - 156
1,2-Dichloroethane	ND		2.74	2.593		mg/Kg	☼	95	28 - 138
Benzene	ND		2.74	2.209		mg/Kg	☼	81	31 - 143
Naphthalene	ND		2.74	0.4322		mg/Kg	☼	16	10 - 176
Toluene	ND		2.74	1.897		mg/Kg	☼	69	30 - 155
Xylenes, Total	ND		5.47	2.835		mg/Kg	☼	52	25 - 162

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

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

Lab Sample ID: 490-84442-8 MS
Matrix: Solid
Analysis Batch: 272311

Client Sample ID: CB-2 @ 20'
Prep Type: Total/NA
Prep Batch: 271452

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Methyl tert-butyl ether	ND		2.74	2.821		mg/Kg	☼	103	28 - 141
Surrogate	%Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	103		70 - 130						
4-Bromofluorobenzene (Surr)	107		70 - 130						
Dibromofluoromethane (Surr)	98		70 - 130						
Toluene-d8 (Surr)	101		70 - 130						

Lab Sample ID: 490-84442-8 MSD
Matrix: Solid
Analysis Batch: 272311

Client Sample ID: CB-2 @ 20'
Prep Type: Total/NA
Prep Batch: 271452

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Ethylbenzene	ND		2.74	1.764		mg/Kg	☼	64	23 - 161	11	50
1,2-Dibromoethane (EDB)	ND		2.74	2.689		mg/Kg	☼	98	18 - 156	3	50
1,2-Dichloroethane	ND		2.74	2.611		mg/Kg	☼	95	28 - 138	1	50
Benzene	ND		2.74	2.362		mg/Kg	☼	86	31 - 143	7	50
Naphthalene	ND		2.74	0.5945		mg/Kg	☼	22	10 - 176	32	50
Toluene	ND		2.74	2.019		mg/Kg	☼	74	30 - 155	6	50
Xylenes, Total	ND		5.47	3.271		mg/Kg	☼	60	25 - 162	14	50
Methyl tert-butyl ether	ND		2.74	2.941		mg/Kg	☼	108	28 - 141	4	50
Surrogate	%Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	103		70 - 130								
4-Bromofluorobenzene (Surr)	105		70 - 130								
Dibromofluoromethane (Surr)	98		70 - 130								
Toluene-d8 (Surr)	100		70 - 130								

Lab Sample ID: MB 490-271515/7
Matrix: Solid
Analysis Batch: 271515

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00200		mg/Kg			08/07/15 13:44	1
1,2-Dibromoethane (EDB)	ND		0.00200		mg/Kg			08/07/15 13:44	1
1,2-Dichloroethane	ND		0.00200		mg/Kg			08/07/15 13:44	1
Benzene	ND		0.00200		mg/Kg			08/07/15 13:44	1
Naphthalene	ND		0.00500		mg/Kg			08/07/15 13:44	1
Toluene	ND		0.00200		mg/Kg			08/07/15 13:44	1
Xylenes, Total	ND		0.00500		mg/Kg			08/07/15 13:44	1
Methyl tert-butyl ether	ND		0.00200		mg/Kg			08/07/15 13:44	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		70 - 130					08/07/15 13:44	1
4-Bromofluorobenzene (Surr)	101		70 - 130					08/07/15 13:44	1
Dibromofluoromethane (Surr)	104		70 - 130					08/07/15 13:44	1
Toluene-d8 (Surr)	100		70 - 130					08/07/15 13:44	1

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

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

Lab Sample ID: LCS 490-271515/3
Matrix: Solid
Analysis Batch: 271515

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	0.0500	0.04984		mg/Kg		100	80 - 134
1,2-Dibromoethane (EDB)	0.0500	0.05403		mg/Kg		108	80 - 135
1,2-Dichloroethane	0.0500	0.05280		mg/Kg		106	65 - 134
Benzene	0.0500	0.05125		mg/Kg		102	75 - 127
Naphthalene	0.0500	0.05650		mg/Kg		113	69 - 150
Toluene	0.0500	0.04884		mg/Kg		98	80 - 132
Xylenes, Total	0.100	0.09923		mg/Kg		99	80 - 137
Methyl tert-butyl ether	0.0500	0.05334		mg/Kg		107	70 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		70 - 130
4-Bromofluorobenzene (Surr)	100		70 - 130
Dibromofluoromethane (Surr)	100		70 - 130
Toluene-d8 (Surr)	98		70 - 130

Lab Sample ID: LCSD 490-271515/4
Matrix: Solid
Analysis Batch: 271515

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Ethylbenzene	0.0500	0.04892		mg/Kg		98	80 - 134	2	50
1,2-Dibromoethane (EDB)	0.0500	0.05707		mg/Kg		114	80 - 135	5	50
1,2-Dichloroethane	0.0500	0.05484		mg/Kg		110	65 - 134	4	50
Benzene	0.0500	0.04988		mg/Kg		100	75 - 127	3	50
Naphthalene	0.0500	0.05899		mg/Kg		118	69 - 150	4	50
Toluene	0.0500	0.04878		mg/Kg		98	80 - 132	0	50
Xylenes, Total	0.100	0.09856		mg/Kg		99	80 - 137	1	50
Methyl tert-butyl ether	0.0500	0.05672		mg/Kg		113	70 - 136	6	50

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	108		70 - 130
4-Bromofluorobenzene (Surr)	99		70 - 130
Dibromofluoromethane (Surr)	102		70 - 130
Toluene-d8 (Surr)	100		70 - 130

Lab Sample ID: MB 490-271798/10
Matrix: Solid
Analysis Batch: 271798

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.00200		mg/Kg			08/08/15 17:21	1
1,2-Dibromoethane (EDB)	ND		0.00200		mg/Kg			08/08/15 17:21	1
1,2-Dichloroethane	ND		0.00200		mg/Kg			08/08/15 17:21	1
Benzene	ND		0.00200		mg/Kg			08/08/15 17:21	1
Naphthalene	ND		0.00500		mg/Kg			08/08/15 17:21	1
Toluene	ND		0.00200		mg/Kg			08/08/15 17:21	1
Xylenes, Total	ND		0.00500		mg/Kg			08/08/15 17:21	1

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

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

Lab Sample ID: MB 490-271798/10
Matrix: Solid
Analysis Batch: 271798

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		0.00200		mg/Kg			08/08/15 17:21	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		70 - 130					08/08/15 17:21	1
4-Bromofluorobenzene (Surr)	104		70 - 130					08/08/15 17:21	1
Dibromofluoromethane (Surr)	102		70 - 130					08/08/15 17:21	1
Toluene-d8 (Surr)	99		70 - 130					08/08/15 17:21	1

Lab Sample ID: MB 490-271798/11
Matrix: Solid
Analysis Batch: 271798

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.100		mg/Kg			08/08/15 17:52	1
1,2-Dibromoethane (EDB)	ND		0.100		mg/Kg			08/08/15 17:52	1
1,2-Dichloroethane	ND		0.100		mg/Kg			08/08/15 17:52	1
Benzene	ND		0.100		mg/Kg			08/08/15 17:52	1
Naphthalene	ND		0.250		mg/Kg			08/08/15 17:52	1
Toluene	ND		0.100		mg/Kg			08/08/15 17:52	1
Xylenes, Total	ND		0.250		mg/Kg			08/08/15 17:52	1
Methyl tert-butyl ether	ND		0.100		mg/Kg			08/08/15 17:52	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		70 - 130					08/08/15 17:52	1
4-Bromofluorobenzene (Surr)	98		70 - 130					08/08/15 17:52	1
Dibromofluoromethane (Surr)	96		70 - 130					08/08/15 17:52	1
Toluene-d8 (Surr)	98		70 - 130					08/08/15 17:52	1

Lab Sample ID: LCS 490-271798/3
Matrix: Solid
Analysis Batch: 271798

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	0.0500	0.04968		mg/Kg		99	80 - 134
1,2-Dibromoethane (EDB)	0.0500	0.05517		mg/Kg		110	80 - 135
1,2-Dichloroethane	0.0500	0.05058		mg/Kg		101	65 - 134
Benzene	0.0500	0.04931		mg/Kg		99	75 - 127
Naphthalene	0.0500	0.05869		mg/Kg		117	69 - 150
Toluene	0.0500	0.04801		mg/Kg		96	80 - 132
Xylenes, Total	0.100	0.09903		mg/Kg		99	80 - 137
Methyl tert-butyl ether	0.0500	0.05351		mg/Kg		107	70 - 136
Surrogate	%Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	102		70 - 130				
4-Bromofluorobenzene (Surr)	100		70 - 130				
Dibromofluoromethane (Surr)	99		70 - 130				
Toluene-d8 (Surr)	101		70 - 130				

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

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

Lab Sample ID: LCS 490-271798/6

Matrix: Solid

Analysis Batch: 271798

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	2.50	2.196		mg/Kg		88	80 - 134
1,2-Dibromoethane (EDB)	2.50	2.570		mg/Kg		103	80 - 135
1,2-Dichloroethane	2.50	2.547		mg/Kg		102	65 - 134
Benzene	2.50	2.383		mg/Kg		95	75 - 127
Naphthalene	2.50	2.496		mg/Kg		100	69 - 150
Toluene	2.50	2.336		mg/Kg		93	80 - 132
Xylenes, Total	5.00	4.364		mg/Kg		87	80 - 137
Methyl tert-butyl ether	2.50	2.667		mg/Kg		107	70 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		70 - 130
4-Bromofluorobenzene (Surr)	101		70 - 130
Dibromofluoromethane (Surr)	97		70 - 130
Toluene-d8 (Surr)	98		70 - 130

Lab Sample ID: LCSD 490-271798/4

Matrix: Solid

Analysis Batch: 271798

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	0.0500	0.04914		mg/Kg		98	80 - 134	1	50
1,2-Dibromoethane (EDB)	0.0500	0.05401		mg/Kg		108	80 - 135	2	50
1,2-Dichloroethane	0.0500	0.04947		mg/Kg		99	65 - 134	2	50
Benzene	0.0500	0.04879		mg/Kg		98	75 - 127	1	50
Naphthalene	0.0500	0.05638		mg/Kg		113	69 - 150	4	50
Toluene	0.0500	0.04840		mg/Kg		97	80 - 132	1	50
Xylenes, Total	0.100	0.09921		mg/Kg		99	80 - 137	0	50
Methyl tert-butyl ether	0.0500	0.05252		mg/Kg		105	70 - 136	2	50

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		70 - 130
4-Bromofluorobenzene (Surr)	101		70 - 130
Dibromofluoromethane (Surr)	99		70 - 130
Toluene-d8 (Surr)	100		70 - 130

Lab Sample ID: LCSD 490-271798/7

Matrix: Solid

Analysis Batch: 271798

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	2.50	2.366		mg/Kg		95	80 - 134	7	50
1,2-Dibromoethane (EDB)	2.50	2.694		mg/Kg		108	80 - 135	5	50
1,2-Dichloroethane	2.50	2.546		mg/Kg		102	65 - 134	0	50
Benzene	2.50	2.439		mg/Kg		98	75 - 127	2	50
Naphthalene	2.50	2.868		mg/Kg		115	69 - 150	14	50
Toluene	2.50	2.380		mg/Kg		95	80 - 132	2	50
Xylenes, Total	5.00	4.769		mg/Kg		95	80 - 137	9	50

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

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

Lab Sample ID: LCSD 490-271798/7
Matrix: Solid
Analysis Batch: 271798

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methyl tert-butyl ether	2.50	2.796		mg/Kg		112	70 - 136	5	50
Surrogate	%Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	110		70 - 130						
4-Bromofluorobenzene (Surr)	100		70 - 130						
Dibromofluoromethane (Surr)	100		70 - 130						
Toluene-d8 (Surr)	97		70 - 130						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 490-271442/30
Matrix: Solid
Analysis Batch: 271442

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		5.00		mg/Kg			08/08/15 01:04	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	60		50 - 150					08/08/15 01:04	1

Lab Sample ID: LCS 490-271442/29
Matrix: Solid
Analysis Batch: 271442

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
C6-C12	10.0	9.886		mg/Kg		99	70 - 130		
Surrogate	%Recovery	LCS Qualifier	Limits						
a,a,a-Trifluorotoluene	72		50 - 150						

Lab Sample ID: 490-84442-2 DU
Matrix: Solid
Analysis Batch: 271442

Client Sample ID: CB-1 @ 10'
Prep Type: Total/NA
Prep Batch: 271452

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	Prepared	Analyzed	RPD	RPD Limit
C6-C12	ND		ND		mg/Kg	☼			NC	10
Surrogate	%Recovery	DU Qualifier	Limits							
a,a,a-Trifluorotoluene	62		50 - 150							

Lab Sample ID: MB 490-271773/5
Matrix: Water
Analysis Batch: 271773

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			08/07/15 22:03	1

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

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

Lab Sample ID: MB 490-271773/5
Matrix: Water
Analysis Batch: 271773

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

Surrogate	%Recovery	MB MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	96		50 - 150		08/07/15 22:03	1

Lab Sample ID: LCS 490-271773/4
Matrix: Water
Analysis Batch: 271773

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

Analyte	Spike Added	LCS LCS Result Qualifier	Unit	D	%Rec	%Rec. Limits
C6-C12	1000	993.8	ug/L		99	39 - 143

Surrogate	%Recovery	LCS LCS Qualifier	Limits
a,a,a-Trifluorotoluene	99		50 - 150

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

Lab Sample ID: MB 490-271711/1-A
Matrix: Solid
Analysis Batch: 271825

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 271711

Analyte	Result	MB MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		4.00		mg/Kg		08/07/15 16:32	08/09/15 01:30	1
Motor Oil Range Organics (C24-C40)	ND		4.00		mg/Kg		08/07/15 16:32	08/09/15 01:30	1

Surrogate	%Recovery	MB MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	67		50 - 150	08/07/15 16:32	08/09/15 01:30	1

Lab Sample ID: LCS 490-271711/2-A
Matrix: Solid
Analysis Batch: 271825

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 271711

Analyte	Spike Added	LCS LCS Result Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	40.0	28.89	mg/Kg		72	55 - 129

Surrogate	%Recovery	LCS LCS Qualifier	Limits
o-Terphenyl	66		50 - 150

Lab Sample ID: 490-84442-2 DU
Matrix: Solid
Analysis Batch: 271825

Client Sample ID: CB-1 @ 10'
Prep Type: Total/NA
Prep Batch: 271711

Analyte	Sample Result	Sample Qualifier	DU DU Result Qualifier	Unit	D	RPD	Limit
#2 Diesel (C10-C24)	4.83		4.405	mg/Kg	☼	9	50
Motor Oil Range Organics (C24-C40)	14.0		11.17	mg/Kg	☼	22	50

Surrogate	%Recovery	DU DU Qualifier	Limits
o-Terphenyl	68		50 - 150

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

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

Lab Sample ID: 490-84442-15 DU

Matrix: Solid

Analysis Batch: 271825

Client Sample ID: CB-4 @ 18'

Prep Type: Total/NA

Prep Batch: 271711

Analyte	Sample	Sample	DU		Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
#2 Diesel (C10-C24)	ND		ND		mg/Kg	☼	31	50
Motor Oil Range Organics (C24-C40)	ND		ND		mg/Kg	☼	6	50
Surrogate	%Recovery	Qualifier	Limits					
<i>o</i> -Terphenyl	61		50 - 150					

Lab Sample ID: MB 490-272089/1-A

Matrix: Solid

Analysis Batch: 272023

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 272089

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		4.00		mg/Kg		08/10/15 12:14	08/10/15 20:52	1
Motor Oil Range Organics (C24-C40)	ND		4.00		mg/Kg		08/10/15 12:14	08/10/15 20:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	57		50 - 150				08/10/15 12:14	08/10/15 20:52	1

Lab Sample ID: LCS 490-272089/2-A

Matrix: Solid

Analysis Batch: 272023

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 272089

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	40.0	34.04		mg/Kg		85	55 - 129
Surrogate	%Recovery	Qualifier	Limits				
<i>o</i> -Terphenyl	76		50 - 150				

Lab Sample ID: 490-84442-4 DU

Matrix: Solid

Analysis Batch: 272023

Client Sample ID: CB-1 @ 20'

Prep Type: Total/NA

Prep Batch: 272089

Analyte	Sample	Sample	DU		Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
#2 Diesel (C10-C24)	ND		5.146		mg/Kg	☼	38	50
Motor Oil Range Organics (C24-C40)	6.10		11.74	F3	mg/Kg	☼	63	50
Surrogate	%Recovery	Qualifier	Limits					
<i>o</i> -Terphenyl	64		50 - 150					

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 490-271436/1-A
Matrix: Solid
Analysis Batch: 271991

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 271436

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.00		mg/Kg		08/07/15 08:02	08/08/15 00:16	1

Lab Sample ID: LCS 490-271436/2-A
Matrix: Solid
Analysis Batch: 271991

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 271436

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Lead	19.7	21.02		mg/Kg		107	80 - 120

Lab Sample ID: LCSD 490-271436/3-A
Matrix: Solid
Analysis Batch: 271991

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 271436

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Lead	20.2	21.07		mg/Kg		105	80 - 120	0	20

Lab Sample ID: MB 490-272013/1-A
Matrix: Solid
Analysis Batch: 272224

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 272013

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.977		mg/Kg		08/10/15 09:43	08/10/15 16:35	1

Lab Sample ID: LCS 490-272013/2-A
Matrix: Solid
Analysis Batch: 272224

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 272013

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Lead	19.8	21.03		mg/Kg		106	80 - 120

Lab Sample ID: LCSD 490-272013/3-A
Matrix: Solid
Analysis Batch: 272224

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 272013

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Lead	19.3	19.63		mg/Kg		102	80 - 120	7	20

Lab Sample ID: 490-84442-2 MS
Matrix: Solid
Analysis Batch: 272224

Client Sample ID: CB-1 @ 10'
Prep Type: Total/NA
Prep Batch: 272013

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Lead	39.4	F1	21.9	67.55	F1	mg/Kg	☼	129	75 - 125

Lab Sample ID: 490-84442-2 MSD
Matrix: Solid
Analysis Batch: 272224

Client Sample ID: CB-1 @ 10'
Prep Type: Total/NA
Prep Batch: 272013

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Lead	39.4	F1	21.9	59.00		mg/Kg	☼	90	75 - 125	14	20

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Method: Moisture - Percent Moisture

Lab Sample ID: 490-84442-3 DU
Matrix: Solid
Analysis Batch: 271539

Client Sample ID: CB-1 @ 15'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	91		90		%		0.6	20

Lab Sample ID: 490-84442-11 DU
Matrix: Solid
Analysis Batch: 271539

Client Sample ID: CB-3 @ 15'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	96		95		%		0.6	20

Lab Sample ID: 490-84442-19 DU
Matrix: Solid
Analysis Batch: 272068

Client Sample ID: CB-5 @ 15'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	92		99		%		7	20

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

GC/MS VOA

Prep Batch: 271315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 490-271315/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 490-271315/2-A	Lab Control Sample	Total/NA	Solid	5030B	

Prep Batch: 271452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-8	CB-2 @ 20'	Total/NA	Solid	5035	
490-84442-12	CB-3 @ 20'	Total/NA	Solid	5035	
490-84442-8 MS	CB-2 @ 20'	Total/NA	Solid	5035	
490-84442-8 MSD	CB-2 @ 20'	Total/NA	Solid	5035	

Prep Batch: 271460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-2	CB-1 @ 10'	Total/NA	Solid	5035	
490-84442-3	CB-1 @ 15'	Total/NA	Solid	5035	
490-84442-4	CB-1 @ 20'	Total/NA	Solid	5035	
490-84442-6	CB-2 @ 10'	Total/NA	Solid	5035	
490-84442-7	CB-2 @ 15'	Total/NA	Solid	5035	
490-84442-8	CB-2 @ 20'	Total/NA	Solid	5035	
490-84442-10	CB-3 @ 5'	Total/NA	Solid	5035	
490-84442-11	CB-3 @ 15'	Total/NA	Solid	5035	
490-84442-12	CB-3 @ 20'	Total/NA	Solid	5035	

Analysis Batch: 271515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-14	CB-4 @ 5'	Total/NA	Solid	8260B	271606
490-84442-15	CB-4 @ 18'	Total/NA	Solid	8260B	271606
490-84442-16	CB-4 @ 20'	Total/NA	Solid	8260B	271606
490-84442-18	CB-5 @ 10'	Total/NA	Solid	8260B	271606
490-84442-19	CB-5 @ 15'	Total/NA	Solid	8260B	271606
490-84442-20	CB-5 @ 20'	Total/NA	Solid	8260B	271606
MB 490-271515/7	Method Blank	Total/NA	Solid	8260B	
LCS 490-271515/3	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 490-271515/4	Lab Control Sample Dup	Total/NA	Solid	8260B	

Prep Batch: 271599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-15	CB-4 @ 18'	Total/NA	Solid	5035	

Prep Batch: 271606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-14	CB-4 @ 5'	Total/NA	Solid	5035	
490-84442-15	CB-4 @ 18'	Total/NA	Solid	5035	
490-84442-16	CB-4 @ 20'	Total/NA	Solid	5035	
490-84442-18	CB-5 @ 10'	Total/NA	Solid	5035	
490-84442-19	CB-5 @ 15'	Total/NA	Solid	5035	
490-84442-20	CB-5 @ 20'	Total/NA	Solid	5035	

Analysis Batch: 271798

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-2	CB-1 @ 10'	Total/NA	Solid	8260B	271460
490-84442-3	CB-1 @ 15'	Total/NA	Solid	8260B	271460

TestAmerica Nashville

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

GC/MS VOA (Continued)

Analysis Batch: 271798 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-4	CB-1 @ 20'	Total/NA	Solid	8260B	271460
490-84442-6	CB-2 @ 10'	Total/NA	Solid	8260B	271460
490-84442-7	CB-2 @ 15'	Total/NA	Solid	8260B	271460
490-84442-8	CB-2 @ 20'	Total/NA	Solid	8260B	271460
490-84442-10	CB-3 @ 5'	Total/NA	Solid	8260B	271460
490-84442-11	CB-3 @ 15'	Total/NA	Solid	8260B	271460
490-84442-12	CB-3 @ 20'	Total/NA	Solid	8260B	271460
490-84442-15	CB-4 @ 18'	Total/NA	Solid	8260B	271599
MB 490-271798/10	Method Blank	Total/NA	Solid	8260B	
MB 490-271798/11	Method Blank	Total/NA	Solid	8260B	
LCS 490-271798/3	Lab Control Sample	Total/NA	Solid	8260B	
LCS 490-271798/6	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 490-271798/4	Lab Control Sample Dup	Total/NA	Solid	8260B	
LCSD 490-271798/7	Lab Control Sample Dup	Total/NA	Solid	8260B	

Analysis Batch: 272311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-8	CB-2 @ 20'	Total/NA	Solid	8260B	271452
490-84442-12	CB-3 @ 20'	Total/NA	Solid	8260B	271452
MB 490-271315/1-A	Method Blank	Total/NA	Solid	8260B	271315
LCS 490-271315/2-A	Lab Control Sample	Total/NA	Solid	8260B	271315
490-84442-8 MS	CB-2 @ 20'	Total/NA	Solid	8260B	271452
490-84442-8 MSD	CB-2 @ 20'	Total/NA	Solid	8260B	271452

GC VOA

Analysis Batch: 271442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-2	CB-1 @ 10'	Total/NA	Solid	NWTPH-Gx	271452
490-84442-3	CB-1 @ 15'	Total/NA	Solid	NWTPH-Gx	271452
490-84442-4	CB-1 @ 20'	Total/NA	Solid	NWTPH-Gx	271452
490-84442-6	CB-2 @ 10'	Total/NA	Solid	NWTPH-Gx	271452
490-84442-7	CB-2 @ 15'	Total/NA	Solid	NWTPH-Gx	271452
490-84442-8	CB-2 @ 20'	Total/NA	Solid	NWTPH-Gx	271452
490-84442-10	CB-3 @ 5'	Total/NA	Solid	NWTPH-Gx	271452
490-84442-11	CB-3 @ 15'	Total/NA	Solid	NWTPH-Gx	271452
490-84442-12	CB-3 @ 20'	Total/NA	Solid	NWTPH-Gx	271452
490-84442-14	CB-4 @ 5'	Total/NA	Solid	NWTPH-Gx	271599
490-84442-15	CB-4 @ 18'	Total/NA	Solid	NWTPH-Gx	271599
490-84442-16	CB-4 @ 20'	Total/NA	Solid	NWTPH-Gx	271599
490-84442-18	CB-5 @ 10'	Total/NA	Solid	NWTPH-Gx	271599
490-84442-19	CB-5 @ 15'	Total/NA	Solid	NWTPH-Gx	271599
490-84442-20	CB-5 @ 20'	Total/NA	Solid	NWTPH-Gx	271599
MB 490-271442/30	Method Blank	Total/NA	Solid	NWTPH-Gx	
LCS 490-271442/29	Lab Control Sample	Total/NA	Solid	NWTPH-Gx	
490-84442-2 DU	CB-1 @ 10'	Total/NA	Solid	NWTPH-Gx	271452

Prep Batch: 271452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-2	CB-1 @ 10'	Total/NA	Solid	5035	

TestAmerica Nashville

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

GC VOA (Continued)

Prep Batch: 271452 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-3	CB-1 @ 15'	Total/NA	Solid	5035	
490-84442-4	CB-1 @ 20'	Total/NA	Solid	5035	
490-84442-6	CB-2 @ 10'	Total/NA	Solid	5035	
490-84442-7	CB-2 @ 15'	Total/NA	Solid	5035	
490-84442-8	CB-2 @ 20'	Total/NA	Solid	5035	
490-84442-10	CB-3 @ 5'	Total/NA	Solid	5035	
490-84442-11	CB-3 @ 15'	Total/NA	Solid	5035	
490-84442-12	CB-3 @ 20'	Total/NA	Solid	5035	
490-84442-2 DU	CB-1 @ 10'	Total/NA	Solid	5035	

Prep Batch: 271599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-14	CB-4 @ 5'	Total/NA	Solid	5035	
490-84442-15	CB-4 @ 18'	Total/NA	Solid	5035	
490-84442-16	CB-4 @ 20'	Total/NA	Solid	5035	
490-84442-18	CB-5 @ 10'	Total/NA	Solid	5035	
490-84442-19	CB-5 @ 15'	Total/NA	Solid	5035	
490-84442-20	CB-5 @ 20'	Total/NA	Solid	5035	

Analysis Batch: 271773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-22	EQRP-2	Total/NA	Water	NWTPH-Gx	
490-84442-23	FB-2	Total/NA	Water	NWTPH-Gx	
490-84442-24	TB-2	Total/NA	Water	NWTPH-Gx	
490-84442-25	EQR-2	Total/NA	Water	NWTPH-Gx	
MB 490-271773/5	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 490-271773/4	Lab Control Sample	Total/NA	Water	NWTPH-Gx	

GC Semi VOA

Prep Batch: 271711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-2	CB-1 @ 10'	Total/NA	Solid	3550B	
490-84442-3	CB-1 @ 15'	Total/NA	Solid	3550B	
490-84442-6	CB-2 @ 10'	Total/NA	Solid	3550B	
490-84442-7	CB-2 @ 15'	Total/NA	Solid	3550B	
490-84442-8	CB-2 @ 20'	Total/NA	Solid	3550B	
490-84442-10	CB-3 @ 5'	Total/NA	Solid	3550B	
490-84442-11	CB-3 @ 15'	Total/NA	Solid	3550B	
490-84442-12	CB-3 @ 20'	Total/NA	Solid	3550B	
490-84442-14	CB-4 @ 5'	Total/NA	Solid	3550B	
490-84442-15	CB-4 @ 18'	Total/NA	Solid	3550B	
490-84442-16	CB-4 @ 20'	Total/NA	Solid	3550B	
490-84442-18	CB-5 @ 10'	Total/NA	Solid	3550B	
490-84442-19	CB-5 @ 15'	Total/NA	Solid	3550B	
490-84442-20	CB-5 @ 20'	Total/NA	Solid	3550B	
MB 490-271711/1-A	Method Blank	Total/NA	Solid	3550B	
LCS 490-271711/2-A	Lab Control Sample	Total/NA	Solid	3550B	
490-84442-2 DU	CB-1 @ 10'	Total/NA	Solid	3550B	
490-84442-15 DU	CB-4 @ 18'	Total/NA	Solid	3550B	

TestAmerica Nashville

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

GC Semi VOA (Continued)

Analysis Batch: 271825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-2	CB-1 @ 10'	Total/NA	Solid	NWTPH-Dx	271711
490-84442-3	CB-1 @ 15'	Total/NA	Solid	NWTPH-Dx	271711
490-84442-6	CB-2 @ 10'	Total/NA	Solid	NWTPH-Dx	271711
490-84442-7	CB-2 @ 15'	Total/NA	Solid	NWTPH-Dx	271711
490-84442-8	CB-2 @ 20'	Total/NA	Solid	NWTPH-Dx	271711
490-84442-10	CB-3 @ 5'	Total/NA	Solid	NWTPH-Dx	271711
490-84442-11	CB-3 @ 15'	Total/NA	Solid	NWTPH-Dx	271711
490-84442-12	CB-3 @ 20'	Total/NA	Solid	NWTPH-Dx	271711
490-84442-14	CB-4 @ 5'	Total/NA	Solid	NWTPH-Dx	271711
490-84442-15	CB-4 @ 18'	Total/NA	Solid	NWTPH-Dx	271711
490-84442-16	CB-4 @ 20'	Total/NA	Solid	NWTPH-Dx	271711
490-84442-18	CB-5 @ 10'	Total/NA	Solid	NWTPH-Dx	271711
490-84442-19	CB-5 @ 15'	Total/NA	Solid	NWTPH-Dx	271711
490-84442-20	CB-5 @ 20'	Total/NA	Solid	NWTPH-Dx	271711
MB 490-271711/1-A	Method Blank	Total/NA	Solid	NWTPH-Dx	271711
LCS 490-271711/2-A	Lab Control Sample	Total/NA	Solid	NWTPH-Dx	271711
490-84442-2 DU	CB-1 @ 10'	Total/NA	Solid	NWTPH-Dx	271711
490-84442-15 DU	CB-4 @ 18'	Total/NA	Solid	NWTPH-Dx	271711

Analysis Batch: 272023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-4	CB-1 @ 20'	Total/NA	Solid	NWTPH-Dx	272089
MB 490-272089/1-A	Method Blank	Total/NA	Solid	NWTPH-Dx	272089
LCS 490-272089/2-A	Lab Control Sample	Total/NA	Solid	NWTPH-Dx	272089
490-84442-4 DU	CB-1 @ 20'	Total/NA	Solid	NWTPH-Dx	272089

Prep Batch: 272089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-4	CB-1 @ 20'	Total/NA	Solid	3550B	
MB 490-272089/1-A	Method Blank	Total/NA	Solid	3550B	
LCS 490-272089/2-A	Lab Control Sample	Total/NA	Solid	3550B	
490-84442-4 DU	CB-1 @ 20'	Total/NA	Solid	3550B	

Metals

Prep Batch: 271436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-2	CB-1 @ 10'	Total/NA	Solid	3051A	
490-84442-3	CB-1 @ 15'	Total/NA	Solid	3051A	
490-84442-4	CB-1 @ 20'	Total/NA	Solid	3051A	
490-84442-6	CB-2 @ 10'	Total/NA	Solid	3051A	
490-84442-7	CB-2 @ 15'	Total/NA	Solid	3051A	
490-84442-8	CB-2 @ 20'	Total/NA	Solid	3051A	
490-84442-10	CB-3 @ 5'	Total/NA	Solid	3051A	
490-84442-11	CB-3 @ 15'	Total/NA	Solid	3051A	
490-84442-12	CB-3 @ 20'	Total/NA	Solid	3051A	
MB 490-271436/1-A	Method Blank	Total/NA	Solid	3051A	
LCS 490-271436/2-A	Lab Control Sample	Total/NA	Solid	3051A	
LCSD 490-271436/3-A	Lab Control Sample Dup	Total/NA	Solid	3051A	

TestAmerica Nashville

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Metals (Continued)

Analysis Batch: 271991

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-2	CB-1 @ 10'	Total/NA	Solid	6010C	271436
490-84442-3	CB-1 @ 15'	Total/NA	Solid	6010C	271436
490-84442-4	CB-1 @ 20'	Total/NA	Solid	6010C	271436
490-84442-6	CB-2 @ 10'	Total/NA	Solid	6010C	271436
490-84442-7	CB-2 @ 15'	Total/NA	Solid	6010C	271436
490-84442-8	CB-2 @ 20'	Total/NA	Solid	6010C	271436
490-84442-10	CB-3 @ 5'	Total/NA	Solid	6010C	271436
490-84442-11	CB-3 @ 15'	Total/NA	Solid	6010C	271436
490-84442-12	CB-3 @ 20'	Total/NA	Solid	6010C	271436
MB 490-271436/1-A	Method Blank	Total/NA	Solid	6010C	271436
LCS 490-271436/2-A	Lab Control Sample	Total/NA	Solid	6010C	271436
LCSD 490-271436/3-A	Lab Control Sample Dup	Total/NA	Solid	6010C	271436

Prep Batch: 272013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-14	CB-4 @ 5'	Total/NA	Solid	3051A	
490-84442-15	CB-4 @ 18'	Total/NA	Solid	3051A	
490-84442-16	CB-4 @ 20'	Total/NA	Solid	3051A	
490-84442-18	CB-5 @ 10'	Total/NA	Solid	3051A	
490-84442-19	CB-5 @ 15'	Total/NA	Solid	3051A	
490-84442-20	CB-5 @ 20'	Total/NA	Solid	3051A	
MB 490-272013/1-A	Method Blank	Total/NA	Solid	3051A	
LCS 490-272013/2-A	Lab Control Sample	Total/NA	Solid	3051A	
LCSD 490-272013/3-A	Lab Control Sample Dup	Total/NA	Solid	3051A	
490-84442-2 MS	CB-1 @ 10'	Total/NA	Solid	3051A	
490-84442-2 MSD	CB-1 @ 10'	Total/NA	Solid	3051A	

Analysis Batch: 272224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-14	CB-4 @ 5'	Total/NA	Solid	6010C	272013
490-84442-15	CB-4 @ 18'	Total/NA	Solid	6010C	272013
490-84442-16	CB-4 @ 20'	Total/NA	Solid	6010C	272013
490-84442-18	CB-5 @ 10'	Total/NA	Solid	6010C	272013
490-84442-19	CB-5 @ 15'	Total/NA	Solid	6010C	272013
490-84442-20	CB-5 @ 20'	Total/NA	Solid	6010C	272013
MB 490-272013/1-A	Method Blank	Total/NA	Solid	6010C	272013
LCS 490-272013/2-A	Lab Control Sample	Total/NA	Solid	6010C	272013
LCSD 490-272013/3-A	Lab Control Sample Dup	Total/NA	Solid	6010C	272013
490-84442-2 MS	CB-1 @ 10'	Total/NA	Solid	6010C	272013
490-84442-2 MSD	CB-1 @ 10'	Total/NA	Solid	6010C	272013

General Chemistry

Analysis Batch: 271539

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-2	CB-1 @ 10'	Total/NA	Solid	Moisture	
490-84442-3	CB-1 @ 15'	Total/NA	Solid	Moisture	
490-84442-4	CB-1 @ 20'	Total/NA	Solid	Moisture	
490-84442-6	CB-2 @ 10'	Total/NA	Solid	Moisture	
490-84442-7	CB-2 @ 15'	Total/NA	Solid	Moisture	

TestAmerica Nashville

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

General Chemistry (Continued)

Analysis Batch: 271539 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-8	CB-2 @ 20'	Total/NA	Solid	Moisture	
490-84442-10	CB-3 @ 5'	Total/NA	Solid	Moisture	
490-84442-11	CB-3 @ 15'	Total/NA	Solid	Moisture	
490-84442-12	CB-3 @ 20'	Total/NA	Solid	Moisture	
490-84442-3 DU	CB-1 @ 15'	Total/NA	Solid	Moisture	
490-84442-11 DU	CB-3 @ 15'	Total/NA	Solid	Moisture	

Analysis Batch: 271796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-15	CB-4 @ 18'	Total/NA	Solid	Moisture	
490-84442-16	CB-4 @ 20'	Total/NA	Solid	Moisture	
490-84442-18	CB-5 @ 10'	Total/NA	Solid	Moisture	
490-84442-20	CB-5 @ 20'	Total/NA	Solid	Moisture	

Analysis Batch: 272068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-84442-19	CB-5 @ 15'	Total/NA	Solid	Moisture	
490-84442-19 DU	CB-5 @ 15'	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-1 @ 10'

Date Collected: 07/28/15 13:30

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			271539	08/07/15 11:04	BGD	TAL NSH

Client Sample ID: CB-1 @ 10'

Date Collected: 07/28/15 13:30

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-2

Matrix: Solid

Percent Solids: 91.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.981 g	5.00 mL	271460	08/07/15 09:30	MAH	TAL NSH
Total/NA	Analysis	8260B		1	5 g	5 mL	271798	08/08/15 19:57	WC1	TAL NSH
Total/NA	Prep	5035			4.371 g	5.00 mL	271452	08/07/15 09:15	MAH	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	0.1 mL	5 mL	271442	08/08/15 01:33	AMC	TAL NSH
Total/NA	Prep	3550B			25.68 g	1 mL	271711	08/07/15 16:32	LDC	TAL NSH
Total/NA	Analysis	NWTPH-Dx		1			271825	08/09/15 01:47	GMH	TAL NSH
Total/NA	Prep	3051A			0.497 g	100 mL	271436	08/07/15 08:02		TAL NSH
Total/NA	Analysis	6010C		1			271991	08/08/15 01:13	LEG	TAL NSH

Client Sample ID: CB-1 @ 15'

Date Collected: 07/28/15 13:40

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			271539	08/07/15 11:04	BGD	TAL NSH

Client Sample ID: CB-1 @ 15'

Date Collected: 07/28/15 13:40

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-3

Matrix: Solid

Percent Solids: 90.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.541 g	5.00 mL	271460	08/07/15 09:30	MAH	TAL NSH
Total/NA	Analysis	8260B		1	5 g	5 mL	271798	08/08/15 20:28	WC1	TAL NSH
Total/NA	Prep	5035			6.044 g	5.00 mL	271452	08/07/15 09:15	MAH	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	0.1 mL	5 mL	271442	08/08/15 02:31	AMC	TAL NSH
Total/NA	Prep	3550B			25.44 g	1 mL	271711	08/07/15 16:32	LDC	TAL NSH
Total/NA	Analysis	NWTPH-Dx		1			271825	08/09/15 02:22	GMH	TAL NSH
Total/NA	Prep	3051A			0.501 g	100 mL	271436	08/07/15 08:02		TAL NSH
Total/NA	Analysis	6010C		1			271991	08/08/15 01:17	LEG	TAL NSH

TestAmerica Nashville

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-1 @ 20'

Date Collected: 07/28/15 13:55

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			271539	08/07/15 11:04	BGD	TAL NSH

Client Sample ID: CB-1 @ 20'

Date Collected: 07/28/15 13:55

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-4

Matrix: Solid

Percent Solids: 82.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.076 g	5.00 mL	271460	08/07/15 09:30	MAH	TAL NSH
Total/NA	Analysis	8260B		1	5 g	5 mL	271798	08/08/15 20:59	WC1	TAL NSH
Total/NA	Prep	5035			6.322 g	5.00 mL	271452	08/07/15 09:15	MAH	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	0.1 mL	5 mL	271442	08/08/15 03:01	AMC	TAL NSH
Total/NA	Prep	3550B			30.52 g	1 mL	272089	08/10/15 12:14	LDC	TAL NSH
Total/NA	Analysis	NWTPH-Dx		1			272023	08/10/15 21:10	GMH	TAL NSH
Total/NA	Prep	3051A			0.512 g	100 mL	271436	08/07/15 08:02		TAL NSH
Total/NA	Analysis	6010C		1			271991	08/08/15 01:21	LEG	TAL NSH

Client Sample ID: CB-2 @ 10'

Date Collected: 07/29/15 08:50

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-6

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			271539	08/07/15 11:04	BGD	TAL NSH

Client Sample ID: CB-2 @ 10'

Date Collected: 07/29/15 08:50

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-6

Matrix: Solid

Percent Solids: 97.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.487 g	5.00 mL	271460	08/03/15 15:40	MAH	TAL NSH
Total/NA	Analysis	8260B		1	5 g	5 mL	271798	08/08/15 21:31	WC1	TAL NSH
Total/NA	Prep	5035			5.778 g	5.00 mL	271452	08/07/15 09:15	MAH	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	0.1 mL	5 mL	271442	08/08/15 03:30	AMC	TAL NSH
Total/NA	Prep	3550B			25.18 g	1 mL	271711	08/07/15 16:32	LDC	TAL NSH
Total/NA	Analysis	NWTPH-Dx		1			271825	08/09/15 02:56	GMH	TAL NSH
Total/NA	Prep	3051A			0.500 g	100 mL	271436	08/07/15 08:02		TAL NSH
Total/NA	Analysis	6010C		1			271991	08/08/15 01:26	LEG	TAL NSH

Client Sample ID: CB-2 @ 15'

Date Collected: 07/29/15 08:55

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-7

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			271539	08/07/15 11:04	BGD	TAL NSH

TestAmerica Nashville

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-2 @ 15'

Date Collected: 07/29/15 08:55

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-7

Matrix: Solid

Percent Solids: 94.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.645 g	5.00 mL	271460	08/03/15 15:20	MAH	TAL NSH
Total/NA	Analysis	8260B		1	5 g	5 mL	271798	08/08/15 22:02	WC1	TAL NSH
Total/NA	Prep	5035			5.168 g	5.00 mL	271452	08/07/15 09:15	MAH	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	0.1 mL	5 mL	271442	08/08/15 03:59	AMC	TAL NSH
Total/NA	Prep	3550B			25.45 g	1 mL	271711	08/07/15 16:32	LDC	TAL NSH
Total/NA	Analysis	NWTPH-Dx		1			271825	08/09/15 03:14	GMH	TAL NSH
Total/NA	Prep	3051A			0.503 g	100 mL	271436	08/07/15 08:02		TAL NSH
Total/NA	Analysis	6010C		1			271991	08/08/15 01:30	LEG	TAL NSH

Client Sample ID: CB-2 @ 20'

Date Collected: 07/29/15 09:05

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-8

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			271539	08/07/15 11:04	BGD	TAL NSH

Client Sample ID: CB-2 @ 20'

Date Collected: 07/29/15 09:05

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-8

Matrix: Solid

Percent Solids: 87.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			7.615 g	5.00 mL	271460	08/03/15 15:00	MAH	TAL NSH
Total/NA	Analysis	8260B		1	5 g	5 mL	271798	08/08/15 22:33	WC1	TAL NSH
Total/NA	Prep	5035			6.031 g	5.00 mL	271452	08/07/15 09:15	MAH	TAL NSH
Total/NA	Analysis	8260B		1	0.1 mL	5 mL	272311	08/11/15 21:39	WC1	TAL NSH
Total/NA	Prep	5035			10.287 g	5.00 mL	271452	08/07/15 09:15	MAH	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	0.1 mL	5 mL	271442	08/08/15 04:28	AMC	TAL NSH
Total/NA	Prep	3550B			25.12 g	1 mL	271711	08/07/15 16:32	LDC	TAL NSH
Total/NA	Analysis	NWTPH-Dx		1			271825	08/09/15 04:05	GMH	TAL NSH
Total/NA	Prep	3051A			0.501 g	100 mL	271436	08/07/15 08:02		TAL NSH
Total/NA	Analysis	6010C		1			271991	08/08/15 01:34	LEG	TAL NSH

Client Sample ID: CB-3 @ 5'

Date Collected: 07/28/15 16:00

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-10

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			271539	08/07/15 11:04	BGD	TAL NSH

TestAmerica Nashville

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-3 @ 5'

Lab Sample ID: 490-84442-10

Date Collected: 07/28/15 16:00

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 98.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.952 g	5.00 mL	271460	08/03/15 14:40	MAH	TAL NSH
Total/NA	Analysis	8260B		1	5 g	5 mL	271798	08/08/15 23:04	WC1	TAL NSH
Total/NA	Prep	5035			3.681 g	5.00 mL	271452	08/07/15 09:15	MAH	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	0.1 mL	5 mL	271442	08/08/15 04:58	AMC	TAL NSH
Total/NA	Prep	3550B			25.43 g	1 mL	271711	08/07/15 16:32	LDC	TAL NSH
Total/NA	Analysis	NWTPH-Dx		1			271825	08/09/15 04:22	GMH	TAL NSH
Total/NA	Prep	3051A			0.510 g	100 mL	271436	08/07/15 08:02		TAL NSH
Total/NA	Analysis	6010C		1			271991	08/08/15 01:39	LEG	TAL NSH

Client Sample ID: CB-3 @ 15'

Lab Sample ID: 490-84442-11

Date Collected: 07/28/15 16:15

Matrix: Solid

Date Received: 08/06/15 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			271539	08/07/15 11:04	BGD	TAL NSH

Client Sample ID: CB-3 @ 15'

Lab Sample ID: 490-84442-11

Date Collected: 07/28/15 16:15

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 95.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.701 g	5.00 mL	271460	08/03/15 14:20	MAH	TAL NSH
Total/NA	Analysis	8260B		1	5 g	5 mL	271798	08/08/15 23:36	WC1	TAL NSH
Total/NA	Prep	5035			2.689 g	5.00 mL	271452	08/07/15 09:15	MAH	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	0.1 mL	5 mL	271442	08/08/15 05:27	AMC	TAL NSH
Total/NA	Prep	3550B			25.31 g	1 mL	271711	08/07/15 16:32	LDC	TAL NSH
Total/NA	Analysis	NWTPH-Dx		1			271825	08/09/15 04:40	GMH	TAL NSH
Total/NA	Prep	3051A			0.503 g	100 mL	271436	08/07/15 08:02		TAL NSH
Total/NA	Analysis	6010C		1			271991	08/08/15 01:53	LEG	TAL NSH

Client Sample ID: CB-3 @ 20'

Lab Sample ID: 490-84442-12

Date Collected: 07/28/15 16:20

Matrix: Solid

Date Received: 08/06/15 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			271539	08/07/15 11:04	BGD	TAL NSH

Client Sample ID: CB-3 @ 20'

Lab Sample ID: 490-84442-12

Date Collected: 07/28/15 16:20

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 79.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.778 g	5.00 mL	271460	08/03/15 14:00	MAH	TAL NSH

TestAmerica Nashville

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-3 @ 20'

Date Collected: 07/28/15 16:20

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-12

Matrix: Solid

Percent Solids: 79.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 g	5 mL	271798	08/09/15 00:07	WC1	TAL NSH
Total/NA	Prep	5035			4.206 g	5.00 mL	271452	08/07/15 09:15	MAH	TAL NSH
Total/NA	Analysis	8260B		1	0.1 mL	5 mL	272311	08/11/15 22:11	WC1	TAL NSH
Total/NA	Prep	5035			5.032 g	5.00 mL	271452	08/07/15 09:15	MAH	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	0.1 mL	5 mL	271442	08/08/15 05:56	AMC	TAL NSH
Total/NA	Prep	3550B			25.57 g	1 mL	271711	08/07/15 16:32	LDC	TAL NSH
Total/NA	Analysis	NWTPH-Dx		1			271825	08/09/15 04:57	GMH	TAL NSH
Total/NA	Prep	3051A			0.522 g	100 mL	271436	08/07/15 08:02		TAL NSH
Total/NA	Analysis	6010C		1			271991	08/08/15 01:57	LEG	TAL NSH

Client Sample ID: CB-4 @ 5'

Date Collected: 07/29/15 12:00

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-14

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.167 g	5.00 mL	271606	07/29/15 12:00	MAH	TAL NSH
Total/NA	Analysis	8260B		1	5 g	5 mL	271515	08/07/15 15:56	RP	TAL NSH
Total/NA	Prep	5035			3.541 g	5.00 mL	271599	07/29/15 12:00	MAH	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	0.1 mL	5 mL	271442	08/08/15 06:25	AMC	TAL NSH
Total/NA	Prep	3550B			9.97 g	1 mL	271711	08/07/15 16:32	LDC	TAL NSH
Total/NA	Analysis	NWTPH-Dx		1			271825	08/09/15 05:14	GMH	TAL NSH
Total/NA	Prep	3051A			0.503 g	100 mL	272013	08/10/15 09:43		TAL NSH
Total/NA	Analysis	6010C		1			272224	08/10/15 18:12	TSC	TAL NSH

Client Sample ID: CB-4 @ 18'

Date Collected: 07/29/15 12:35

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-15

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			271796	08/08/15 11:44	LDC	TAL NSH

Client Sample ID: CB-4 @ 18'

Date Collected: 07/29/15 12:35

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-15

Matrix: Solid

Percent Solids: 89.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.744 g	5.00 mL	271606	07/29/15 12:35	MAH	TAL NSH
Total/NA	Analysis	8260B		1	5 g	5 mL	271515	08/07/15 16:27	RP	TAL NSH
Total/NA	Prep	5035			6.851 g	5.00 mL	271599	07/29/15 12:35	MAH	TAL NSH
Total/NA	Analysis	8260B		1	0.1 mL	5 mL	271798	08/08/15 18:55	WC1	TAL NSH
Total/NA	Prep	5035			6.38 g	5.00 mL	271599	07/29/15 12:35	MAH	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	0.1 mL	5 mL	271442	08/08/15 06:55	AMC	TAL NSH
Total/NA	Prep	3550B			25.93 g	1 mL	271711	08/07/15 16:32	LDC	TAL NSH

TestAmerica Nashville

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: CB-4 @ 18'

Date Collected: 07/29/15 12:35

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-15

Matrix: Solid

Percent Solids: 89.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1			271825	08/09/15 05:31	GMH	TAL NSH
Total/NA	Prep	3051A			0.499 g	100 mL	272013	08/10/15 09:43		TAL NSH
Total/NA	Analysis	6010C		1			272224	08/10/15 18:27	TSC	TAL NSH

Client Sample ID: CB-4 @ 20'

Date Collected: 07/29/15 12:45

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-16

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			271796	08/08/15 11:44	LDC	TAL NSH

Client Sample ID: CB-4 @ 20'

Date Collected: 07/29/15 12:45

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-16

Matrix: Solid

Percent Solids: 92.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.494 g	5.00 mL	271606	07/29/15 12:45	MAH	TAL NSH
Total/NA	Analysis	8260B		1	5 g	5 mL	271515	08/07/15 16:58	RP	TAL NSH
Total/NA	Prep	5035			11.749 g	5.00 mL	271599	07/29/15 12:45	MAH	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	0.1 mL	5 mL	271442	08/08/15 07:24	AMC	TAL NSH
Total/NA	Prep	3550B			25.11 g	1 mL	271711	08/07/15 16:32	LDC	TAL NSH
Total/NA	Analysis	NWTPH-Dx		1			271825	08/09/15 06:06	GMH	TAL NSH
Total/NA	Prep	3051A			0.522 g	100 mL	272013	08/10/15 09:43		TAL NSH
Total/NA	Analysis	6010C		1			272224	08/10/15 18:31	TSC	TAL NSH

Client Sample ID: CB-5 @ 10'

Date Collected: 07/29/15 10:20

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-18

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			271796	08/08/15 11:44	LDC	TAL NSH

Client Sample ID: CB-5 @ 10'

Date Collected: 07/29/15 10:20

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-18

Matrix: Solid

Percent Solids: 99.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.407 g	5.00 mL	271606	07/29/15 10:20	MAH	TAL NSH
Total/NA	Analysis	8260B		1	5 g	5 mL	271515	08/07/15 17:29	RP	TAL NSH
Total/NA	Prep	5035			4.38 g	5.00 mL	271599	07/29/15 10:20	MAH	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	0.1 mL	5 mL	271442	08/08/15 07:53	AMC	TAL NSH
Total/NA	Prep	3550B			25.60 g	1 mL	271711	08/07/15 16:32	LDC	TAL NSH
Total/NA	Analysis	NWTPH-Dx		1			271825	08/09/15 06:23	GMH	TAL NSH

TestAmerica Nashville

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			0.502 g	100 mL	272013	08/10/15 09:43		TAL NSH
Total/NA	Analysis	6010C		1			272224	08/10/15 18:36	TSC	TAL NSH

Client Sample ID: CB-5 @ 15'

Lab Sample ID: 490-84442-19

Date Collected: 07/29/15 10:25

Matrix: Solid

Date Received: 08/06/15 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			272068	08/10/15 11:14	LDC	TAL NSH

Client Sample ID: CB-5 @ 15'

Lab Sample ID: 490-84442-19

Date Collected: 07/29/15 10:25

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 91.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.592 g	5.00 mL	271606	07/29/15 10:25	MAH	TAL NSH
Total/NA	Analysis	8260B		1	5 g	5 mL	271515	08/07/15 18:00	RP	TAL NSH
Total/NA	Prep	5035			4.968 g	5.00 mL	271599	07/29/15 10:25	MAH	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	0.1 mL	5 mL	271442	08/08/15 08:23	AMC	TAL NSH
Total/NA	Prep	3550B			25.54 g	1 mL	271711	08/07/15 16:32	LDC	TAL NSH
Total/NA	Analysis	NWTPH-Dx		1			271825	08/09/15 06:40	GMH	TAL NSH
Total/NA	Prep	3051A			0.504 g	100 mL	272013	08/10/15 09:43		TAL NSH
Total/NA	Analysis	6010C		1			272224	08/10/15 18:40	TSC	TAL NSH

Client Sample ID: CB-5 @ 20'

Lab Sample ID: 490-84442-20

Date Collected: 07/29/15 10:35

Matrix: Solid

Date Received: 08/06/15 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			271796	08/08/15 11:44	LDC	TAL NSH

Client Sample ID: CB-5 @ 20'

Lab Sample ID: 490-84442-20

Date Collected: 07/29/15 10:35

Matrix: Solid

Date Received: 08/06/15 08:45

Percent Solids: 83.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.987 g	5.00 mL	271606	07/29/15 10:35	MAH	TAL NSH
Total/NA	Analysis	8260B		1	5 g	5 mL	271515	08/07/15 18:32	RP	TAL NSH
Total/NA	Prep	5035			5.959 g	5.00 mL	271599	07/29/15 10:35	MAH	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	0.1 mL	5 mL	271442	08/08/15 08:52	AMC	TAL NSH
Total/NA	Prep	3550B			25.82 g	1 mL	271711	08/07/15 16:32	LDC	TAL NSH
Total/NA	Analysis	NWTPH-Dx		1			271825	08/09/15 06:57	GMH	TAL NSH
Total/NA	Prep	3051A			0.498 g	100 mL	272013	08/10/15 09:43		TAL NSH
Total/NA	Analysis	6010C		1			272224	08/10/15 18:44	TSC	TAL NSH

TestAmerica Nashville

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Client Sample ID: EQRP-2

Date Collected: 07/28/15 07:15

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-22

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	271773	08/07/15 23:31	BSS	TAL NSH

Client Sample ID: FB-2

Date Collected: 07/28/15 07:20

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-23

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	271773	08/07/15 23:01	BSS	TAL NSH

Client Sample ID: TB-2

Date Collected: 07/28/15 07:25

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-24

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	271773	08/07/15 22:32	BSS	TAL NSH

Client Sample ID: EQRR-2

Date Collected: 07/28/15 17:45

Date Received: 08/06/15 08:45

Lab Sample ID: 490-84442-25

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	271773	08/08/15 00:00	BSS	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Method Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL NSH
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	TAL NSH
NWTPH-Dx	Northwest - Semi-Volatile Petroleum Products (GC)	NWTPH	TAL NSH
6010C	Metals (ICP)	SW846	TAL NSH
Moisture	Percent Moisture	EPA	TAL NSH

Protocol References:

EPA = US Environmental Protection Agency

NWTPH = Northwest Total Petroleum Hydrocarbon

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

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177



Accreditation/Certification Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No. 25821

TestAmerica Job ID: 490-84442-1

Laboratory: TestAmerica Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C789	07-19-17

The following analytes are included in this report, but are not accredited/certified under this accreditation/certification:

Analysis Method	Prep Method	Matrix	Analyte
8260B	5035	Solid	1,2-Dibromoethane (EDB)
8260B	5035	Solid	1,2-Dichloroethane
8260B	5035	Solid	Benzene
8260B	5035	Solid	Ethylbenzene
8260B	5035	Solid	Methyl tert-butyl ether
8260B	5035	Solid	Naphthalene
8260B	5035	Solid	Toluene
8260B	5035	Solid	Xylenes, Total

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

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Solids

COOLER RECEIPT I



Cooler Received/Opened On 8/5/2015 @ 8:45

1. Tracking # 5217 (last 4 digits, FedEx)

Courier: FedEx IR Gun ID 17610176

2. Temperature of rep. sample or temp blank when opened: 3.9 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (initial) ADH

7. Were custody seals on containers: YES NO and Intact YES...NO... NA

Were these signed and dated correctly? YES...NO... NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO... NA

14. Was there a Trip Blank in this cooler? YES...NO... NA If multiple coolers, sequence # NA

I certify that I unloaded the cooler and answered questions 7-14 (initial) ADH

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO... NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO... NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) ADH

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) ADH

I certify that I attached a label with the unique LIMS number to each container (initial) ADH

21. Were there Non-Conformance issues at login? YES NO Was a NCM generated? YES NO #

Chain of Custody Record

Client Information

Client Contact:
Paul Fairbairn

Phone:
heather.wagner@testamericainc.com

Lab P.M.:
Wagner, Heather

E-Mail:
heather.wagner@testamericainc.com

Carrier Tracking No(s):
490-40470-13744_1

Company:
Stantec Consulting Corp.

Address:
11130 NE 33rd Place Suite 200

City:
BelleVue

State, Zip:
WA, 98004-1465

Phone:
425-298-1000(Tel)

PO #:
MO290112

WO #:
ENFOS

Project #:
49008223

Project Name:
7-Eleven No. 25821

Site:
SSOW#

Site:
FORMER 7-ELEVEN No. 25821 RICHLAND

Project Name:
7-Eleven No. 25821

Project #:
49008223

Analysis Requested

Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)
8260B - (MOD) BTEX+MTBE+Naphthalene+EDB+EDC	N
NWTPH_Dx - C10-C40 Ranges	N
NWTPH_Gx - C6-C12 Range	N
8260B, NWTPH_Gx	N
8260B - BTEX Volatiles	N
NWTPH_Dx - DRO/ORO	N
200.8 - Lead	N
200.8 - Dissolved Lead (Lab to Filter)	N

Total Number of containers

Sample Identification	Sample Date	Sample Time	Sample Type	Sample Matrix	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of containers	Special Instructions/Note:
CB-1@5'	7/28/15	1315	G	Solid	X	X	PID = 0.0ppm	
CB-1@10'	7/28/15	1330	G	Solid	X	X	PID = 0.0ppm	
CB-1@15'	7/28/15	1340	G	Solid	X	X	PID = 3.6ppm	
CB-1@20'	7/28/15	1355	G	Solid	X	X	PID = 1.3ppm	
CB-1@25'	7/28/15	1410	G	Solid	X	X	PID = 0.0ppm	
CB-2@10'	7/29/15	0850	G	Solid	X	X	PID = 7.7ppm	
CB-2@15'	7/29/15	0855	G	Solid	X	X	PID = 10.5ppm	
CB-2@20'	7/29/15	0905	G	Solid	X	X	PID = 2.7ppm	
CB-2@25'	7/29/15	0915	G	Solid	X	X	PID = 2.3ppm	
CB-3@5'	7/28/15	1600	G	Solid	X	X	PID = 0.0ppm	
CB-3@15'	7/28/15	1615	G	Solid	X	X	PID = 1.2ppm	

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____

Relinquished by: *Heather Wagner* Date/Time: 7/31/2015 1332 Company: STANTEC

Relinquished by: *Paul Fairbairn* Date/Time: 8/4/15 1430 Company: TA-500

Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: Yes No Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: _____

Received by: _____ Date/Time: 7/31/15 1332 Company: TH SEH

Received by: _____ Date/Time: 8-5-15 08:45 Company: TAN

Received by: _____ Date/Time: _____ Company: _____

Received by: _____ Date/Time: _____ Company: _____

TestAmerica Nashville
 2960 Foster Creighton Drive
 Nashville, TN 37204
 Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

Client Information
 Client Contact: Paul Fairbairn
 Phone: [Blank]
 E-Mail: heather.wagner@testamericainc.com

Company: Stantec Consulting Corp.
 Address: 11130 NE 33rd Place Suite 200
 City: Bellevue
 State Zip: WA, 98004-1465
 Phone: 425-298-1000 (Tel)
 Email: paul.fairbairn@stantecc.com
 Project Name: 7-Eleven No. 25821
 Project #: 49008223
 SSOV#: [Blank]

Due Date Requested: [Blank]
TAT Requested (days): 5TD
PO #: MO230112
WO #: ENFOS
Project #: 49008223
Site: FORMER 7-ELEVEN SITE No. 25821

Lab P.M.: Wagner, Heather
Carrier Tracking No(s): [Blank]
Job #: [Blank]
COC No: 490-40470-13744.2
Page: Page 2 of 4

Analysis Requested

<input checked="" type="checkbox"/>	8260B - (MOD) BTEX+MTBE+Naphthalene+EDB+EDC
<input checked="" type="checkbox"/>	NWTPH_Dx - C10-C40 Ranges
<input checked="" type="checkbox"/>	NWTPH_Gx - C6-C12 Range
<input checked="" type="checkbox"/>	8260B, NWTPH_Gx
<input checked="" type="checkbox"/>	8260B - BTEX Volatiles
<input checked="" type="checkbox"/>	NWTPH_Dx - DRO/ORO
<input checked="" type="checkbox"/>	200.8 - Lead
<input checked="" type="checkbox"/>	200.8 - Dissolved Lead (Lab to Filter)

Special Instructions/Note: [Blank]

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=oil, B=brine, A=ash)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested	Total Number of containers	Special Instructions/Note:
CB-3@20'	7/28/15	1620	G	Solid		X	X			PID=0.0ppm
CB-3@25'	7/28/15	1635	G	Solid		X	X			PID=0.0ppm
CB-4@5'	7/29/15	1200	G	Solid		X	X			PID=0.0ppm
CB-4@18'	7/29/15	1235	G	Solid		X	X			PID=2.8ppm
CB-4@20'	7/29/15	1245	G	Solid		X	X			PID=2.5ppm
CB-4@25'	7/29/15	1255	G	Solid		X	X			PID=1.2ppm
CB-5@10'	7/29/15	1020	G	Solid		X	X			PID=1.3ppm
CB-5@15'	7/29/15	1025	G	Solid		X	X			PID=8.5ppm
CB-5@20'	7/29/15	1035	G	Water		X	X			PID=1.3ppm
CB-5@25'	7/29/15	1045	G	Water		X	X			PID=11.7ppm
EQRP-2	7/28/15	0715	-	Water		X	X			

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological

Deliverable Requested: I, II, III, IV, Other (specify) [Blank]

Empty Kit Relinquished by: [Blank] **Date:** [Blank] **Time:** [Blank] **Method of Shipment:** [Blank]

Relinquished by: [Signature] **Date/Time:** 7/31/2015 1332 **Company:** STANTEC

Relinquished by: [Signature] **Date/Time:** 8/4/15 1430 **Company:** [Blank]

Relinquished by: [Signature] **Date/Time:** [Blank] **Company:** [Blank]

Custody Seals Intact: Yes No **Custody Seal No.:** [Blank]

Cooler Temperature(s) °C and Other Remarks: [Blank]

Relinquished by: [Signature] **Date/Time:** 7/31/15 1332 **Company:** STANTEC

Relinquished by: [Signature] **Date/Time:** 8-5-15 08:45 **Company:** STANTEC

TestAmerica Nashville
 2960 Foster Creighton Drive
 Nashville, TN 37204
 Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

Client Information
 Client Contact: **Paul Fairbairn** Lab P.M.: **Wagner, Heather**
 Company: **Stantec Consulting Corp.** Phone: **heather.wagner@testamericainc.com**
 Address: **11130 NE 33rd Place Suite 200** Carrier Tracking No(s):
 City: **Bellevue** State, Zip: **WA, 98004-1465**
 Phone: **425-298-1000(Tel)** Fax: **425-298-1000(Fax)**
 Email: **paul.fairbairn@stantec.com** Project #: **ENFOS**
 Project Name: **7-Eleven No. 25821** SSOV#: **49008223**
 Site: **FORMER 7-ELEVEN No. 25821 RICHLAND**

Due Date Requested: **7/28/15** **Analysis Requested:**
 TAT Requested (days): **STD**
 PO #: **WO230112**
 Matrix: **Water**
 Matrix (Weave, Solid, O-wash, etc.): **Water**
 Preservation Code: **Water**

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested	Preservation Codes:
FB-2	7/28/15	0720	-	Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	8260B - (MOD) BTEX+MTBE+Naphthalene+EDB+EDC NWTPH_Dx - C10-C40 Ranges NWTPH_Gx - C6-C12 Range 8260B, NWTPH_Gx 8260B - BTEX Volatiles NWTPH_Dx - DRO/ORO 200.8 - Lead 200.8 - Dissolved Lead (Lab to Filter)	A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anion H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDTA M - Hexane N - None O - AsnA02 P - Na2CO3 Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - Acryl A
TB-2	7/28/15	0725	-	Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
EQR-2	7/28/15	1745	-	Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological

Deliverable Requested: I, II, III, IV, Other (specify) _____

Empty Kit Relinquished by: _____ Date: _____ Time: _____

Relinquished by: **Adrian DeLeon** Date/Time: **7/31/2015 1332** Company: **STANTEC**

Relinquished by: **Tommy Bunk** Date/Time: **8/4/15 1430** Company: _____

Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: Yes No **Custody Seal No.:** _____

Special Instructions/Note: _____

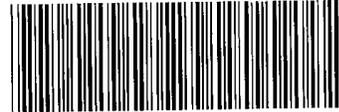
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Received by: _____ Date/Time: **7/31/15 1332** Company: **THSEA**

Received by: _____ Date/Time: **8-5-15 08:45** Company: _____

Cooler Temperature(s) °C and Other Remarks: _____

COOLER RECEIPT FORM



490-84442 Chain of Custody

Cooler Received/Opened On 8/7/2015 @ 0900

1. Tracking # 5524 (last 4 digits, FedEx)

Courier: Fed-ex IR Gun ID 17960357

2. Temperature of rep. sample or temp blank when opened: 3.3 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (initial) LF

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # NA

I certify that I unloaded the cooler and answered questions 7-14 (initial) LF

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) LF

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) LF

I certify that I attached a label with the unique LIMS number to each container (initial) LF

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#

Login Sample Receipt Checklist

Client: Stantec Consulting Corp.

Job Number: 490-84442-1

Login Number: 84442

List Source: TestAmerica Nashville

List Number: 1

Creator: Ford, Easton

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



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-88201-1
Client Project/Site: 7-Eleven No.25821

For:
Stantec Consulting Corp.
11130 NE 33rd Place
Suite 200
Bellevue, Washington 98004-1465

Attn: Paul Fairbairn



Authorized for release by:
10/12/2015 4:41:46 PM

Heather Wagner, Project Manager I
(615)301-5763
heather.wagner@testamericainc.com

LINKS

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results through
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Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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

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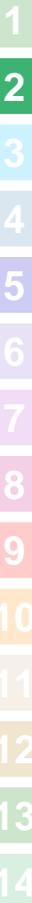


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Sample Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-88201-1	MW-3	Water	09/24/15 14:30	09/26/15 09:15
490-88201-2	MW-6	Water	09/24/15 17:00	09/26/15 09:15
490-88201-3	MW-7	Water	09/24/15 17:30	09/26/15 09:15
490-88201-4	MW-8	Water	09/24/15 16:00	09/26/15 09:15
490-88201-5	MW-9	Water	09/24/15 15:30	09/26/15 09:15
490-88201-6	MW-10	Water	09/24/15 15:00	09/26/15 09:15
490-88201-7	MW-11	Water	09/24/15 13:55	09/26/15 09:15
490-88201-8	MW-12	Water	09/24/15 16:30	09/26/15 09:15

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- 9
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- 11
- 12
- 13
- 14

Case Narrative

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Job ID: 490-88201-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative 490-88201-1

Comments

No additional comments.

Receipt

The samples were received on 9/26/2015 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2° C.

GC/MS VOA

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

HPLC/IC

Method(s) 9056A: Reanalysis of the following samples was performed outside of the analytical holding time due to a clogged auto sampler line : MW-8 (490-88201-4), MW-9 (490-88201-5), MW-10 (490-88201-6), MW-11 (490-88201-7) and MW-12 (490-88201-8).

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

GC VOA

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

GC Semi VOA

Method(s) 8011: The %RPD between the primary and confirmation column exceeded 40% for 1,3-Dichlorobenzene for the following samples: MW-6 (490-88201-2). The lower value has been reported and qualified in accordance with the laboratory's SOP.

Method(s) 8011: The continuing calibration verification (CCV) associated with batch 490-284990 recovered above the upper control limit for Ethylene Dibromide. The samples associated with this CCV were non-detect for the affected analytes; therefore, the data has been reported. The following samples are impacted: MW-3 (490-88201-1), MW-6 (490-88201-2), MW-7 (490-88201-3), MW-8 (490-88201-4), MW-9 (490-88201-5), MW-10 (490-88201-6), MW-11 (490-88201-7), MW-12 (490-88201-8).

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

Metals

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

VOA Prep

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

Definitions/Glossary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

HPLC/IC

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

Glossary

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

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Client Sample ID: MW-3
Date Collected: 09/24/15 14:30
Date Received: 09/26/15 09:15

Lab Sample ID: 490-88201-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			10/04/15 08:15	1
Ethylbenzene	ND		1.00		ug/L			10/04/15 08:15	1
Methyl tert-butyl ether	ND		1.00		ug/L			10/04/15 08:15	1
Naphthalene	ND		5.00		ug/L			10/04/15 08:15	1
Toluene	ND		1.00		ug/L			10/04/15 08:15	1
Xylenes, Total	ND		3.00		ug/L			10/04/15 08:15	1
1,2-Dichloroethane	ND		1.00		ug/L			10/04/15 08:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 130		10/04/15 08:15	1
4-Bromofluorobenzene (Surr)	104		70 - 130		10/04/15 08:15	1
Dibromofluoromethane (Surr)	102		70 - 130		10/04/15 08:15	1
Toluene-d8 (Surr)	99		70 - 130		10/04/15 08:15	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			09/28/15 17:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	88		50 - 150		09/28/15 17:06	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0200		ug/L		09/28/15 13:43	09/28/15 22:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	69		50 - 150	09/28/15 13:43	09/28/15 22:14	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		09/28/15 20:49	10/02/15 18:23	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00200		mg/L		09/29/15 13:31	10/01/15 20:24	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Client Sample ID: MW-6
Date Collected: 09/24/15 17:00
Date Received: 09/26/15 09:15

Lab Sample ID: 490-88201-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			10/04/15 08:41	1
Ethylbenzene	ND		1.00		ug/L			10/04/15 08:41	1
Methyl tert-butyl ether	ND		1.00		ug/L			10/04/15 08:41	1
Naphthalene	ND		5.00		ug/L			10/04/15 08:41	1
Toluene	ND		1.00		ug/L			10/04/15 08:41	1
Xylenes, Total	ND		3.00		ug/L			10/04/15 08:41	1
1,2-Dichloroethane	ND		1.00		ug/L			10/04/15 08:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		70 - 130		10/04/15 08:41	1
4-Bromofluorobenzene (Surr)	103		70 - 130		10/04/15 08:41	1
Dibromofluoromethane (Surr)	101		70 - 130		10/04/15 08:41	1
Toluene-d8 (Surr)	99		70 - 130		10/04/15 08:41	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			09/28/15 17:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	88		50 - 150		09/28/15 17:35	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0203		ug/L		09/28/15 13:43	09/28/15 21:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	93	p	50 - 150	09/28/15 13:43	09/28/15 21:57	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		09/28/15 20:49	10/02/15 18:28	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00200		mg/L		09/29/15 13:31	10/01/15 20:52	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Client Sample ID: MW-7
Date Collected: 09/24/15 17:30
Date Received: 09/26/15 09:15

Lab Sample ID: 490-88201-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			10/04/15 09:07	1
Ethylbenzene	ND		1.00		ug/L			10/04/15 09:07	1
Methyl tert-butyl ether	ND		1.00		ug/L			10/04/15 09:07	1
Naphthalene	ND		5.00		ug/L			10/04/15 09:07	1
Toluene	ND		1.00		ug/L			10/04/15 09:07	1
Xylenes, Total	ND		3.00		ug/L			10/04/15 09:07	1
1,2-Dichloroethane	ND		1.00		ug/L			10/04/15 09:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		70 - 130		10/04/15 09:07	1
4-Bromofluorobenzene (Surr)	103		70 - 130		10/04/15 09:07	1
Dibromofluoromethane (Surr)	103		70 - 130		10/04/15 09:07	1
Toluene-d8 (Surr)	100		70 - 130		10/04/15 09:07	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			09/28/15 18:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	90		50 - 150		09/28/15 18:05	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0199		ug/L		09/28/15 13:43	09/28/15 21:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	50		50 - 150	09/28/15 13:43	09/28/15 21:40	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		09/28/15 20:49	10/02/15 18:33	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00200		mg/L		09/29/15 13:31	10/01/15 20:58	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Client Sample ID: MW-8
Date Collected: 09/24/15 16:00
Date Received: 09/26/15 09:15

Lab Sample ID: 490-88201-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			10/04/15 09:33	1
Ethylbenzene	ND		1.00		ug/L			10/04/15 09:33	1
Methyl tert-butyl ether	ND		1.00		ug/L			10/04/15 09:33	1
Naphthalene	ND		5.00		ug/L			10/04/15 09:33	1
Toluene	ND		1.00		ug/L			10/04/15 09:33	1
Xylenes, Total	ND		3.00		ug/L			10/04/15 09:33	1
1,2-Dichloroethane	ND		1.00		ug/L			10/04/15 09:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		70 - 130		10/04/15 09:33	1
4-Bromofluorobenzene (Surr)	106		70 - 130		10/04/15 09:33	1
Dibromofluoromethane (Surr)	104		70 - 130		10/04/15 09:33	1
Toluene-d8 (Surr)	100		70 - 130		10/04/15 09:33	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			09/28/15 18:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	88		50 - 150		09/28/15 18:35	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0201		ug/L		09/28/15 13:43	09/28/15 21:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	69		50 - 150	09/28/15 13:43	09/28/15 21:22	1

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	2520	H	100		ug/L			09/28/15 17:00	1
Sulfate	120000		1000		ug/L			09/28/15 17:00	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		09/28/15 20:49	10/02/15 18:39	1
Iron	2600		25.0		ug/L		09/28/15 20:49	10/02/15 00:25	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00200		mg/L		09/29/15 13:31	10/01/15 21:15	1

TestAmerica Nashville

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Client Sample ID: MW-9
Date Collected: 09/24/15 15:30
Date Received: 09/26/15 09:15

Lab Sample ID: 490-88201-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			10/04/15 10:00	1
Ethylbenzene	ND		1.00		ug/L			10/04/15 10:00	1
Methyl tert-butyl ether	ND		1.00		ug/L			10/04/15 10:00	1
Naphthalene	ND		5.00		ug/L			10/04/15 10:00	1
Toluene	ND		1.00		ug/L			10/04/15 10:00	1
Xylenes, Total	ND		3.00		ug/L			10/04/15 10:00	1
1,2-Dichloroethane	ND		1.00		ug/L			10/04/15 10:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 130		10/04/15 10:00	1
4-Bromofluorobenzene (Surr)	104		70 - 130		10/04/15 10:00	1
Dibromofluoromethane (Surr)	103		70 - 130		10/04/15 10:00	1
Toluene-d8 (Surr)	99		70 - 130		10/04/15 10:00	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			09/28/15 19:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	92		50 - 150		09/28/15 19:04	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0201		ug/L		09/28/15 13:43	09/28/15 20:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	55		50 - 150	09/28/15 13:43	09/28/15 20:31	1

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	3270	H	100		ug/L			09/28/15 16:40	1
Sulfate	32600		1000		ug/L			09/28/15 16:40	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		09/28/15 20:49	10/02/15 18:44	1
Iron	144		25.0		ug/L		09/28/15 20:49	10/02/15 00:30	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00200		mg/L		09/29/15 13:31	10/01/15 21:20	1

TestAmerica Nashville

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Client Sample ID: MW-10
Date Collected: 09/24/15 15:00
Date Received: 09/26/15 09:15

Lab Sample ID: 490-88201-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			10/04/15 10:26	1
Ethylbenzene	ND		1.00		ug/L			10/04/15 10:26	1
Methyl tert-butyl ether	ND		1.00		ug/L			10/04/15 10:26	1
Naphthalene	ND		5.00		ug/L			10/04/15 10:26	1
Toluene	ND		1.00		ug/L			10/04/15 10:26	1
Xylenes, Total	ND		3.00		ug/L			10/04/15 10:26	1
1,2-Dichloroethane	ND		1.00		ug/L			10/04/15 10:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		70 - 130		10/04/15 10:26	1
4-Bromofluorobenzene (Surr)	105		70 - 130		10/04/15 10:26	1
Dibromofluoromethane (Surr)	102		70 - 130		10/04/15 10:26	1
Toluene-d8 (Surr)	100		70 - 130		10/04/15 10:26	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			09/28/15 19:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	89		50 - 150		09/28/15 19:34	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0199		ug/L		09/28/15 13:43	09/28/15 20:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	70		50 - 150	09/28/15 13:43	09/28/15 20:15	1

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	3920	H	100		ug/L			09/28/15 16:20	1
Sulfate	27400		1000		ug/L			09/28/15 16:20	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		09/28/15 20:49	10/02/15 18:49	1
Iron	1890		25.0		ug/L		09/28/15 20:49	10/02/15 00:36	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00200		mg/L		09/29/15 13:31	10/01/15 21:26	1

TestAmerica Nashville

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Client Sample ID: MW-11

Date Collected: 09/24/15 13:55

Date Received: 09/26/15 09:15

Lab Sample ID: 490-88201-7

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			10/04/15 10:52	1
Ethylbenzene	ND		1.00		ug/L			10/04/15 10:52	1
Methyl tert-butyl ether	ND		1.00		ug/L			10/04/15 10:52	1
Naphthalene	ND		5.00		ug/L			10/04/15 10:52	1
Toluene	ND		1.00		ug/L			10/04/15 10:52	1
Xylenes, Total	ND		3.00		ug/L			10/04/15 10:52	1
1,2-Dichloroethane	ND		1.00		ug/L			10/04/15 10:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 130		10/04/15 10:52	1
4-Bromofluorobenzene (Surr)	105		70 - 130		10/04/15 10:52	1
Dibromofluoromethane (Surr)	102		70 - 130		10/04/15 10:52	1
Toluene-d8 (Surr)	100		70 - 130		10/04/15 10:52	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			09/28/15 20:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	90		50 - 150		09/28/15 20:03	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0198		ug/L		09/28/15 13:43	09/28/15 19:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	64		50 - 150	09/28/15 13:43	09/28/15 19:58	1

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	3240	H	100		ug/L			09/28/15 16:00	1
Sulfate	103000		1000		ug/L			09/28/15 16:00	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		09/28/15 20:49	10/02/15 18:54	1
Iron	1130		25.0		ug/L		09/28/15 20:49	10/02/15 00:41	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00200		mg/L		09/29/15 13:31	10/01/15 21:31	1

TestAmerica Nashville

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Client Sample ID: MW-12
Date Collected: 09/24/15 16:30
Date Received: 09/26/15 09:15

Lab Sample ID: 490-88201-8
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			10/04/15 11:18	1
Ethylbenzene	ND		1.00		ug/L			10/04/15 11:18	1
Methyl tert-butyl ether	ND		1.00		ug/L			10/04/15 11:18	1
Naphthalene	ND		5.00		ug/L			10/04/15 11:18	1
Toluene	ND		1.00		ug/L			10/04/15 11:18	1
Xylenes, Total	ND		3.00		ug/L			10/04/15 11:18	1
1,2-Dichloroethane	ND		1.00		ug/L			10/04/15 11:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 130		10/04/15 11:18	1
4-Bromofluorobenzene (Surr)	103		70 - 130		10/04/15 11:18	1
Dibromofluoromethane (Surr)	103		70 - 130		10/04/15 11:18	1
Toluene-d8 (Surr)	100		70 - 130		10/04/15 11:18	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			09/28/15 20:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	87		50 - 150		09/28/15 20:33	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0201		ug/L		09/28/15 13:43	09/28/15 19:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	90		50 - 150	09/28/15 13:43	09/28/15 19:41	1

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	2430	H	100		ug/L			09/28/15 17:20	1
Sulfate	23300		1000		ug/L			09/28/15 17:20	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		09/28/15 20:49	10/02/15 18:59	1
Iron	273		25.0		ug/L		09/28/15 20:49	10/02/15 00:47	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00200		mg/L		09/29/15 13:31	10/01/15 21:37	1

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

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

Lab Sample ID: MB 490-286776/7
Matrix: Water
Analysis Batch: 286776

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.00		ug/L			10/04/15 05:11	1
Ethylbenzene	ND		1.00		ug/L			10/04/15 05:11	1
Methyl tert-butyl ether	ND		1.00		ug/L			10/04/15 05:11	1
Naphthalene	ND		5.00		ug/L			10/04/15 05:11	1
Toluene	ND		1.00		ug/L			10/04/15 05:11	1
Xylenes, Total	ND		3.00		ug/L			10/04/15 05:11	1
1,2-Dichloroethane	ND		1.00		ug/L			10/04/15 05:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 130		10/04/15 05:11	1
4-Bromofluorobenzene (Surr)	104		70 - 130		10/04/15 05:11	1
Dibromofluoromethane (Surr)	101		70 - 130		10/04/15 05:11	1
Toluene-d8 (Surr)	100		70 - 130		10/04/15 05:11	1

Lab Sample ID: LCS 490-286776/3
Matrix: Water
Analysis Batch: 286776

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	49.84		ug/L		100	80 - 121
Ethylbenzene	50.0	50.23		ug/L		100	80 - 130
Methyl tert-butyl ether	50.0	47.78		ug/L		96	72 - 133
Naphthalene	50.0	51.65		ug/L		103	62 - 138
Toluene	50.0	48.26		ug/L		97	80 - 126
Xylenes, Total	150	154.2		ug/L		103	80 - 132
1,2-Dichloroethane	50.0	49.51		ug/L		99	77 - 121

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		70 - 130
4-Bromofluorobenzene (Surr)	102		70 - 130
Dibromofluoromethane (Surr)	101		70 - 130
Toluene-d8 (Surr)	99		70 - 130

Lab Sample ID: LCSD 490-286776/4
Matrix: Water
Analysis Batch: 286776

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	49.16		ug/L		98	80 - 121	1	17
Ethylbenzene	50.0	50.11		ug/L		100	80 - 130	0	15
Methyl tert-butyl ether	50.0	47.33		ug/L		95	72 - 133	1	16
Naphthalene	50.0	49.63		ug/L		99	62 - 138	4	26
Toluene	50.0	48.64		ug/L		97	80 - 126	1	15
Xylenes, Total	150	153.2		ug/L		102	80 - 132	1	15
1,2-Dichloroethane	50.0	48.88		ug/L		98	77 - 121	1	17

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

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

Lab Sample ID: LCSD 490-286776/4
Matrix: Water
Analysis Batch: 286776

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

Surrogate	LCS D %Recovery	LCS D Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		70 - 130
4-Bromofluorobenzene (Surr)	102		70 - 130
Dibromofluoromethane (Surr)	101		70 - 130
Toluene-d8 (Surr)	100		70 - 130

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 490-285015/15
Matrix: Water
Analysis Batch: 285015

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			09/28/15 14:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	90		50 - 150		09/28/15 14:02	1

Lab Sample ID: MB 490-285015/20
Matrix: Water
Analysis Batch: 285015

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C12	ND		100		ug/L			09/28/15 16:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	88		50 - 150		09/28/15 16:36	1

Lab Sample ID: LCS 490-285015/18
Matrix: Water
Analysis Batch: 285015

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C6-C12	1000	804.5		ug/L		80	39 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	95		50 - 150

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 490-285064/2-A
Matrix: Water
Analysis Batch: 284990

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 285064

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0200		ug/L		09/28/15 13:43	09/28/15 17:25	1

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 490-285064/2-A
Matrix: Water
Analysis Batch: 284990

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 285064

Surrogate	%Recovery	MB MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	86		50 - 150	09/28/15 13:43	09/28/15 17:25	1

Lab Sample ID: LCS 490-285064/3-A
Matrix: Water
Analysis Batch: 284990

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 285064

Analyte	Spike Added	LCS LCS Qualifier	LCS Result	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.286		0.3608	ug/L		126	70 - 130

Surrogate	%Recovery	LCS LCS Qualifier	Limits
1,3-Dichlorobenzene	127		50 - 150

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-285091/3
Matrix: Water
Analysis Batch: 285091

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

Analyte	MB MB Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND	1000		ug/L			09/28/15 15:20	1

Lab Sample ID: LCS 490-285091/4
Matrix: Water
Analysis Batch: 285091

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

Analyte	Spike Added	LCS LCS Qualifier	LCS Result	Unit	D	%Rec	%Rec. Limits
Sulfate	100000		98340	ug/L		98	80 - 120

Lab Sample ID: MB 490-285092/3
Matrix: Water
Analysis Batch: 285092

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

Analyte	MB MB Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND	100		ug/L			09/28/15 15:20	1

Lab Sample ID: LCS 490-285092/4
Matrix: Water
Analysis Batch: 285092

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

Analyte	Spike Added	LCS LCS Qualifier	LCS Result	Unit	D	%Rec	%Rec. Limits
Nitrate as N	10000		9753	ug/L		98	80 - 120

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 490-285132/1-A
Matrix: Water
Analysis Batch: 286264

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 285132

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		25.0		ug/L		09/28/15 20:49	10/01/15 23:12	1

Lab Sample ID: MB 490-285132/1-A
Matrix: Water
Analysis Batch: 286961

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 285132

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		09/28/15 20:49	10/02/15 17:19	1

Lab Sample ID: LCS 490-285132/2-A
Matrix: Water
Analysis Batch: 286264

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 285132

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	1000	982.6		ug/L		98	85 - 115

Lab Sample ID: LCS 490-285132/2-A
Matrix: Water
Analysis Batch: 286961

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 285132

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	100	102.7		ug/L		103	85 - 115

Lab Sample ID: MB 490-285285/1-B
Matrix: Water
Analysis Batch: 286264

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 285287

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00200		mg/L		09/29/15 13:31	10/01/15 20:13	1

Lab Sample ID: LCS 490-285285/2-B
Matrix: Water
Analysis Batch: 286264

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 285287

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.100	0.09805		mg/L		98	85 - 115

Lab Sample ID: 490-88201-1 MS
Matrix: Water
Analysis Batch: 286264

Client Sample ID: MW-3
Prep Type: Dissolved
Prep Batch: 285287

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	ND		0.100	0.09779		mg/L		98	70 - 130

Lab Sample ID: 490-88201-1 MSD
Matrix: Water
Analysis Batch: 286264

Client Sample ID: MW-3
Prep Type: Dissolved
Prep Batch: 285287

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	ND		0.100	0.1003		mg/L		100	70 - 130	3	20

TestAmerica Nashville

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

- 1
- 2
- 3
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- 14

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

GC/MS VOA

Analysis Batch: 286776

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-88201-1	MW-3	Total/NA	Water	8260B	
490-88201-2	MW-6	Total/NA	Water	8260B	
490-88201-3	MW-7	Total/NA	Water	8260B	
490-88201-4	MW-8	Total/NA	Water	8260B	
490-88201-5	MW-9	Total/NA	Water	8260B	
490-88201-6	MW-10	Total/NA	Water	8260B	
490-88201-7	MW-11	Total/NA	Water	8260B	
490-88201-8	MW-12	Total/NA	Water	8260B	
LCS 490-286776/3	Lab Control Sample	Total/NA	Water	8260B	
LCS 490-286776/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 490-286776/7	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 285015

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-88201-1	MW-3	Total/NA	Water	NWTPH-Gx	
490-88201-2	MW-6	Total/NA	Water	NWTPH-Gx	
490-88201-3	MW-7	Total/NA	Water	NWTPH-Gx	
490-88201-4	MW-8	Total/NA	Water	NWTPH-Gx	
490-88201-5	MW-9	Total/NA	Water	NWTPH-Gx	
490-88201-6	MW-10	Total/NA	Water	NWTPH-Gx	
490-88201-7	MW-11	Total/NA	Water	NWTPH-Gx	
490-88201-8	MW-12	Total/NA	Water	NWTPH-Gx	
LCS 490-285015/18	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
MB 490-285015/15	Method Blank	Total/NA	Water	NWTPH-Gx	
MB 490-285015/20	Method Blank	Total/NA	Water	NWTPH-Gx	

GC Semi VOA

Analysis Batch: 284990

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-88201-1	MW-3	Total/NA	Water	8011	285064
490-88201-2	MW-6	Total/NA	Water	8011	285064
490-88201-3	MW-7	Total/NA	Water	8011	285064
490-88201-4	MW-8	Total/NA	Water	8011	285064
490-88201-5	MW-9	Total/NA	Water	8011	285064
490-88201-6	MW-10	Total/NA	Water	8011	285064
490-88201-7	MW-11	Total/NA	Water	8011	285064
490-88201-8	MW-12	Total/NA	Water	8011	285064
LCS 490-285064/3-A	Lab Control Sample	Total/NA	Water	8011	285064
MB 490-285064/2-A	Method Blank	Total/NA	Water	8011	285064

Prep Batch: 285064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-88201-1	MW-3	Total/NA	Water	8011	
490-88201-2	MW-6	Total/NA	Water	8011	
490-88201-3	MW-7	Total/NA	Water	8011	
490-88201-4	MW-8	Total/NA	Water	8011	
490-88201-5	MW-9	Total/NA	Water	8011	

TestAmerica Nashville

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

GC Semi VOA (Continued)

Prep Batch: 285064 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-88201-6	MW-10	Total/NA	Water	8011	
490-88201-7	MW-11	Total/NA	Water	8011	
490-88201-8	MW-12	Total/NA	Water	8011	
LCS 490-285064/3-A	Lab Control Sample	Total/NA	Water	8011	
MB 490-285064/2-A	Method Blank	Total/NA	Water	8011	

HPLC/IC

Analysis Batch: 285091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-88201-4	MW-8	Total/NA	Water	9056A	
490-88201-5	MW-9	Total/NA	Water	9056A	
490-88201-6	MW-10	Total/NA	Water	9056A	
490-88201-7	MW-11	Total/NA	Water	9056A	
490-88201-8	MW-12	Total/NA	Water	9056A	
LCS 490-285091/4	Lab Control Sample	Total/NA	Water	9056A	
MB 490-285091/3	Method Blank	Total/NA	Water	9056A	

Analysis Batch: 285092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-88201-4	MW-8	Total/NA	Water	9056A	
490-88201-5	MW-9	Total/NA	Water	9056A	
490-88201-6	MW-10	Total/NA	Water	9056A	
490-88201-7	MW-11	Total/NA	Water	9056A	
490-88201-8	MW-12	Total/NA	Water	9056A	
LCS 490-285092/4	Lab Control Sample	Total/NA	Water	9056A	
MB 490-285092/3	Method Blank	Total/NA	Water	9056A	

Metals

Prep Batch: 285132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-88201-1	MW-3	Total/NA	Water	200.8	
490-88201-2	MW-6	Total/NA	Water	200.8	
490-88201-3	MW-7	Total/NA	Water	200.8	
490-88201-4	MW-8	Total/NA	Water	200.8	
490-88201-5	MW-9	Total/NA	Water	200.8	
490-88201-6	MW-10	Total/NA	Water	200.8	
490-88201-7	MW-11	Total/NA	Water	200.8	
490-88201-8	MW-12	Total/NA	Water	200.8	
LCS 490-285132/2-A	Lab Control Sample	Total/NA	Water	200.8	
MB 490-285132/1-A	Method Blank	Total/NA	Water	200.8	

Filtration Batch: 285285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-88201-1	MW-3	Dissolved	Water	Filtration	
490-88201-1 MS	MW-3	Dissolved	Water	Filtration	
490-88201-1 MSD	MW-3	Dissolved	Water	Filtration	
490-88201-2	MW-6	Dissolved	Water	Filtration	
490-88201-3	MW-7	Dissolved	Water	Filtration	

TestAmerica Nashville

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Metals (Continued)

Filtration Batch: 285285 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-88201-4	MW-8	Dissolved	Water	Filtration	
490-88201-5	MW-9	Dissolved	Water	Filtration	
490-88201-6	MW-10	Dissolved	Water	Filtration	
490-88201-7	MW-11	Dissolved	Water	Filtration	
490-88201-8	MW-12	Dissolved	Water	Filtration	
LCS 490-285285/2-B	Lab Control Sample	Dissolved	Water	Filtration	
MB 490-285285/1-B	Method Blank	Dissolved	Water	Filtration	

Prep Batch: 285287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-88201-1	MW-3	Dissolved	Water	200.8	285285
490-88201-1 MS	MW-3	Dissolved	Water	200.8	285285
490-88201-1 MSD	MW-3	Dissolved	Water	200.8	285285
490-88201-2	MW-6	Dissolved	Water	200.8	285285
490-88201-3	MW-7	Dissolved	Water	200.8	285285
490-88201-4	MW-8	Dissolved	Water	200.8	285285
490-88201-5	MW-9	Dissolved	Water	200.8	285285
490-88201-6	MW-10	Dissolved	Water	200.8	285285
490-88201-7	MW-11	Dissolved	Water	200.8	285285
490-88201-8	MW-12	Dissolved	Water	200.8	285285
LCS 490-285285/2-B	Lab Control Sample	Dissolved	Water	200.8	285285
MB 490-285285/1-B	Method Blank	Dissolved	Water	200.8	285285

Analysis Batch: 286264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-88201-1	MW-3	Dissolved	Water	200.8	285287
490-88201-1 MS	MW-3	Dissolved	Water	200.8	285287
490-88201-1 MSD	MW-3	Dissolved	Water	200.8	285287
490-88201-2	MW-6	Dissolved	Water	200.8	285287
490-88201-3	MW-7	Dissolved	Water	200.8	285287
490-88201-4	MW-8	Dissolved	Water	200.8	285287
490-88201-4	MW-8	Total/NA	Water	200.8	285132
490-88201-5	MW-9	Dissolved	Water	200.8	285287
490-88201-5	MW-9	Total/NA	Water	200.8	285132
490-88201-6	MW-10	Dissolved	Water	200.8	285287
490-88201-6	MW-10	Total/NA	Water	200.8	285132
490-88201-7	MW-11	Dissolved	Water	200.8	285287
490-88201-7	MW-11	Total/NA	Water	200.8	285132
490-88201-8	MW-12	Dissolved	Water	200.8	285287
490-88201-8	MW-12	Total/NA	Water	200.8	285132
LCS 490-285132/2-A	Lab Control Sample	Total/NA	Water	200.8	285132
LCS 490-285285/2-B	Lab Control Sample	Dissolved	Water	200.8	285287
MB 490-285132/1-A	Method Blank	Total/NA	Water	200.8	285132
MB 490-285285/1-B	Method Blank	Dissolved	Water	200.8	285287

Analysis Batch: 286961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-88201-1	MW-3	Total/NA	Water	200.8	285132
490-88201-2	MW-6	Total/NA	Water	200.8	285132
490-88201-3	MW-7	Total/NA	Water	200.8	285132
490-88201-4	MW-8	Total/NA	Water	200.8	285132

TestAmerica Nashville

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Metals (Continued)

Analysis Batch: 286961 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-88201-5	MW-9	Total/NA	Water	200.8	285132
490-88201-6	MW-10	Total/NA	Water	200.8	285132
490-88201-7	MW-11	Total/NA	Water	200.8	285132
490-88201-8	MW-12	Total/NA	Water	200.8	285132
LCS 490-285132/2-A	Lab Control Sample	Total/NA	Water	200.8	285132
MB 490-285132/1-A	Method Blank	Total/NA	Water	200.8	285132

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Client Sample ID: MW-3
Date Collected: 09/24/15 14:30
Date Received: 09/26/15 09:15

Lab Sample ID: 490-88201-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	286776	10/04/15 08:15	AK1	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	285015	09/28/15 17:06	GWM	TAL NSH
Total/NA	Prep	8011			35 mL	2 mL	285064	09/28/15 13:43	SNR	TAL NSH
Total/NA	Analysis	8011		1	35 mL	2 mL	284990	09/28/15 22:14	SNR	TAL NSH
Dissolved	Prep	200.8			50 mL	50 mL	285287	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Filtration	Filtration			50 mL	50 mL	285285	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Analysis	200.8		1	50 mL	50 mL	286264	10/01/15 20:24	KKK	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	285132	09/28/15 20:49	RDF	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	286961	10/02/15 18:23	KKK	TAL NSH

Client Sample ID: MW-6
Date Collected: 09/24/15 17:00
Date Received: 09/26/15 09:15

Lab Sample ID: 490-88201-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	286776	10/04/15 08:41	AK1	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	285015	09/28/15 17:35	GWM	TAL NSH
Total/NA	Prep	8011			34.5 mL	2 mL	285064	09/28/15 13:43	SNR	TAL NSH
Total/NA	Analysis	8011		1	34.5 mL	2 mL	284990	09/28/15 21:57	SNR	TAL NSH
Dissolved	Prep	200.8			50 mL	50 mL	285287	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Filtration	Filtration			50 mL	50 mL	285285	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Analysis	200.8		1	50 mL	50 mL	286264	10/01/15 20:52	KKK	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	285132	09/28/15 20:49	RDF	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	286961	10/02/15 18:28	KKK	TAL NSH

Client Sample ID: MW-7
Date Collected: 09/24/15 17:30
Date Received: 09/26/15 09:15

Lab Sample ID: 490-88201-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	286776	10/04/15 09:07	AK1	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	285015	09/28/15 18:05	GWM	TAL NSH
Total/NA	Prep	8011			35.2 mL	2 mL	285064	09/28/15 13:43	SNR	TAL NSH
Total/NA	Analysis	8011		1	35.2 mL	2 mL	284990	09/28/15 21:40	SNR	TAL NSH
Dissolved	Prep	200.8			50 mL	50 mL	285287	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Filtration	Filtration			50 mL	50 mL	285285	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Analysis	200.8		1	50 mL	50 mL	286264	10/01/15 20:58	KKK	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	285132	09/28/15 20:49	RDF	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	286961	10/02/15 18:33	KKK	TAL NSH

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Client Sample ID: MW-8

Lab Sample ID: 490-88201-4

Date Collected: 09/24/15 16:00

Matrix: Water

Date Received: 09/26/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	286776	10/04/15 09:33	AK1	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	285015	09/28/15 18:35	GWM	TAL NSH
Total/NA	Prep	8011			34.9 mL	2 mL	285064	09/28/15 13:43	SNR	TAL NSH
Total/NA	Analysis	8011		1	34.9 mL	2 mL	284990	09/28/15 21:22	SNR	TAL NSH
Total/NA	Analysis	9056A		1	10 mL		285091	09/28/15 17:00	JHS	TAL NSH
Total/NA	Analysis	9056A		1	10 mL		285092	09/28/15 17:00	JHS	TAL NSH
Dissolved	Prep	200.8			50 mL	50 mL	285287	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Filtration	Filtration			50 mL	50 mL	285285	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Analysis	200.8		1	50 mL	50 mL	286264	10/01/15 21:15	KKK	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	285132	09/28/15 20:49	RDF	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	286264	10/02/15 00:25	KKK	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	285132	09/28/15 20:49	RDF	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	286961	10/02/15 18:39	KKK	TAL NSH

Client Sample ID: MW-9

Lab Sample ID: 490-88201-5

Date Collected: 09/24/15 15:30

Matrix: Water

Date Received: 09/26/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	286776	10/04/15 10:00	AK1	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	285015	09/28/15 19:04	GWM	TAL NSH
Total/NA	Prep	8011			34.9 mL	2 mL	285064	09/28/15 13:43	SNR	TAL NSH
Total/NA	Analysis	8011		1	34.9 mL	2 mL	284990	09/28/15 20:31	SNR	TAL NSH
Total/NA	Analysis	9056A		1	10 mL		285091	09/28/15 16:40	JHS	TAL NSH
Total/NA	Analysis	9056A		1	10 mL		285092	09/28/15 16:40	JHS	TAL NSH
Dissolved	Prep	200.8			50 mL	50 mL	285287	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Filtration	Filtration			50 mL	50 mL	285285	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Analysis	200.8		1	50 mL	50 mL	286264	10/01/15 21:20	KKK	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	285132	09/28/15 20:49	RDF	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	286264	10/02/15 00:30	KKK	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	285132	09/28/15 20:49	RDF	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	286961	10/02/15 18:44	KKK	TAL NSH

Client Sample ID: MW-10

Lab Sample ID: 490-88201-6

Date Collected: 09/24/15 15:00

Matrix: Water

Date Received: 09/26/15 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	286776	10/04/15 10:26	AK1	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	285015	09/28/15 19:34	GWM	TAL NSH
Total/NA	Prep	8011			35.2 mL	2 mL	285064	09/28/15 13:43	SNR	TAL NSH
Total/NA	Analysis	8011		1	35.2 mL	2 mL	284990	09/28/15 20:15	SNR	TAL NSH

TestAmerica Nashville

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Client Sample ID: MW-10
Date Collected: 09/24/15 15:00
Date Received: 09/26/15 09:15

Lab Sample ID: 490-88201-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	10 mL		285091	09/28/15 16:20	JHS	TAL NSH
Total/NA	Analysis	9056A		1	10 mL		285092	09/28/15 16:20	JHS	TAL NSH
Dissolved	Prep	200.8			50 mL	50 mL	285287	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Filtration	Filtration			50 mL	50 mL	285285	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Analysis	200.8		1	50 mL	50 mL	286264	10/01/15 21:26	KKK	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	285132	09/28/15 20:49	RDF	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	286264	10/02/15 00:36	KKK	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	285132	09/28/15 20:49	RDF	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	286961	10/02/15 18:49	KKK	TAL NSH

Client Sample ID: MW-11
Date Collected: 09/24/15 13:55
Date Received: 09/26/15 09:15

Lab Sample ID: 490-88201-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	286776	10/04/15 10:52	AK1	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	285015	09/28/15 20:03	GWM	TAL NSH
Total/NA	Prep	8011			35.3 mL	2 mL	285064	09/28/15 13:43	SNR	TAL NSH
Total/NA	Analysis	8011		1	35.3 mL	2 mL	284990	09/28/15 19:58	SNR	TAL NSH
Total/NA	Analysis	9056A		1	10 mL		285091	09/28/15 16:00	JHS	TAL NSH
Total/NA	Analysis	9056A		1	10 mL		285092	09/28/15 16:00	JHS	TAL NSH
Dissolved	Prep	200.8			50 mL	50 mL	285287	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Filtration	Filtration			50 mL	50 mL	285285	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Analysis	200.8		1	50 mL	50 mL	286264	10/01/15 21:31	KKK	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	285132	09/28/15 20:49	RDF	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	286264	10/02/15 00:41	KKK	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	285132	09/28/15 20:49	RDF	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	286961	10/02/15 18:54	KKK	TAL NSH

Client Sample ID: MW-12
Date Collected: 09/24/15 16:30
Date Received: 09/26/15 09:15

Lab Sample ID: 490-88201-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	286776	10/04/15 11:18	AK1	TAL NSH
Total/NA	Analysis	NWTPH-Gx		1	5 mL	5 mL	285015	09/28/15 20:33	GWM	TAL NSH
Total/NA	Prep	8011			34.8 mL	2 mL	285064	09/28/15 13:43	SNR	TAL NSH
Total/NA	Analysis	8011		1	34.8 mL	2 mL	284990	09/28/15 19:41	SNR	TAL NSH
Total/NA	Analysis	9056A		1	10 mL		285091	09/28/15 17:20	JHS	TAL NSH
Total/NA	Analysis	9056A		1	10 mL		285092	09/28/15 17:20	JHS	TAL NSH
Dissolved	Prep	200.8			50 mL	50 mL	285287	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Filtration	Filtration			50 mL	50 mL	285285	09/29/15 13:31	ZLN	TAL NSH
Dissolved	Analysis	200.8		1	50 mL	50 mL	286264	10/01/15 21:37	KKK	TAL NSH

TestAmerica Nashville

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.8			50 mL	50 mL	285132	09/28/15 20:49	RDF	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	286264	10/02/15 00:47	KKK	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	285132	09/28/15 20:49	RDF	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	286961	10/02/15 18:59	KKK	TAL NSH

Laboratory References:

EMLab Hou = EMLab P&K - Houston TCEQ Cert T104704489, Subcont.report available upon request, 6310 Rothway, Houston, TX 77040

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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Method Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL NSH
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	TAL NSH
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL NSH
9056A	Anions, Ion Chromatography	SW846	TAL NSH
200.8	Metals (ICP/MS)	EPA	TAL NSH
Hydrocarbon Degrading Bacteria	General Sub Contract Method	NONE	EMLab Hou

Protocol References:

EPA = US Environmental Protection Agency

NONE = NONE

NWTPH = Northwest Total Petroleum Hydrocarbon

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

Laboratory References:

EMLab Hou = EMLab P&K - Houston TCEQ Cert T104704489, Subcont.report available upon request, 6310 Rothway, Houston, TX 77040

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Certification Summary

Client: Stantec Consulting Corp.
Project/Site: 7-Eleven No.25821

TestAmerica Job ID: 490-88201-1

Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C789	07-19-16

Laboratory: EMLab P&K - Houston TCEQ Cert T104704489

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

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA-LAP, LLC	EMLAP		193549	01-01-16
Texas	NELAP	6	T104704489-15-7	07-31-16

- 1
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Report for:

Ms. Heather Wagner
TestAmerica-Nashville, TN
2960 Foster Creighton Drive
Nashville, TN 37204

Regarding: Project: 490-88201
EML ID: 1431407

Approved by:

Technical Manager
Magzoub Ismail

Dates of Analysis:
Hydrocarbon Degrading Bacteria: 10-08-2015

Service SOPs: Hydrocarbon Degrading Bacteria (EM-BT-S-1285)

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: TestAmerica-Nashville, TN
 C/O: Ms. Heather Wagner
 Re: 490-88201

Date of Sampling: 09-24-2015
 Date of Receipt: 09-29-2015
 Date of Report: 10-09-2015

CULTURE BACTERIA REPORT

Lab ID-Version‡ Location Analysis Date	Sample Size/ Report Unit	Medium	Dilution Factor	Bacterial ID	Colony Counts	CFU/unit	%
6600345-1 MW-8 Water Analysis date: 10/08/2015	Size: 1 ml Unit: 1 ml	Bushnell-Hass Agar	100	Hydrocarbon Degrading Bacteria	37	3,700 § Total: 3,700	100 100
Comments:							
6600346-1 MW-9 Water Analysis date: 10/08/2015	Size: 1 ml Unit: 1 ml	Bushnell-Hass Agar	100	Hydrocarbon Degrading Bacteria	141	14,000 § Total: 14,000	100 100
Comments:							
6600347-1 MW-10 Water Analysis date: 10/08/2015	Size: 1 ml Unit: 1 ml	Bushnell-Hass Agar	10,000	Hydrocarbon Degrading Bacteria	118	1,200,000 § Total: 1,200,000	100 100
Comments:							
6600348-1 MW-11 Water Analysis date: 10/08/2015	Size: 1 ml Unit: 1 ml	Bushnell-Hass Agar	1,000	Hydrocarbon Degrading Bacteria	226	230,000 § Total: 230,000	100 100
Comments:							
6600349-1 MW-12 Water Analysis date: 10/08/2015	Size: 1 ml Unit: 1 ml	Bushnell-Hass Agar	1,000	Hydrocarbon Degrading Bacteria	164	160,000 § Total: 160,000	100 100
Comments:							

The limit of detection is a raw count of 1 at the lowest dilution plated. The analytical sensitivity is equal to 1 raw count/reporting unit x the dilution factor.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

§ Total has been rounded to two significant figures to reflect analytical precision.

COOLER RECEIPT



490-88201 Chain of Custody

Cooler Received/Opened On 9/26/2015 @0915

1. Tracking # 2890 (last 4 digits, FedEx)

Courier: FedEx IR Gun ID 97310166

2. Temperature of rep. sample or temp blank when opened: 2.2 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (initial) HKG

7. Were custody seals on containers: YES NO and Intact YES...NO... NA

Were these signed and dated correctly? YES...NO... NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # NA

I certify that I unloaded the cooler and answered questions 7-14 (initial) ⊕

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO... NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO... NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) ⊕

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) ⊕

I certify that I attached a label with the unique LIMS number to each container (initial) ⊕

21. Were there Non-Conformance issues at login? YES NO Was a NCM generated? YES NO...#

TestAmerica Nashville
 2960 Foster Creighton Drive
 Nashville, TN 37204
 Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

Client Information
 Client Contact: Paul Fairbairn
 Company: Stantec Consulting Corp.
 Address: 11130 NE 33rd Place Suite 200
 City: Bellevue
 State Zip: WA 98004-1465
 Phone: 425-298-1000 (Tel)
 Email: paul.fairbairn@stamtec.com
 Project Name: 7-Eleven No. 25821
 Site: 25821 RICHLAND

Sampler: EMILY HARPER
Lab PM: Wagner, Heather
E-Mail: heather.wagner@testamericainc.com

Carrier/Tracking No(s): 490-40470-13744
Page: Page 4 of 4
Job #:

Due Date Requested:
TAT Requested (days): STANDARD

Analysis Requested:
 8260B - (MOD) BTEX+MTBE+Naphthalene+EDB+EDC
 NWTPH_Dx - C40-G40-Ranges
 NWTPH_Gx - C6-C12 Range
 8260B, NWTPH_Gx
 8260B - BTEX Volatiles
 NWTPH_Dx - DRO/ORO
 200.8 - Lead
 200.8 - Dissolved Lead (Lab to Filter)
 TOTAL IRON
 HYDROCARBON O&G BACTERIA
 SULFATE/NITRATE

Preservation Codes:
 A-HCL
 B- NaOH
 C - Zn Acetate
 D - Nitric Acid
 E - NaHSO4
 F - MeOH
 G - Amelior
 H - Acetic Acid
 I - Ice
 J - DI Water
 K - EDTA
 L - EDTA
 M - Hexane
 N - None
 O - AsNBQ2
 P - Na2OAS
 Q - Na2SO3
 R - Na2S2O3
 S - H2SO4
 T - TSP Dodecahydrate
 U - Acetone
 V - MCAA
 W - ph 4-5
 Z - other (specify)

Sample Identification	Sample Date	Sample Time	Sample Type (G=C-Comp, G=grab)	Matrix (W=Water, S=Soil, O=Material)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested	Total Number of containers	Special Instructions/Note
MW-3	9/24/15	1430		Water		X	X			
MW-Cp		1700				X	X			
MW-7		1730				X	X			
MW-8		1600				X	X			
MW-9		1530				X	X			
MW-10		1500				X	X			
MW-11		1355				X	X			
MW-12		1630				X	X			

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological

Deliverable Requested: I, II, III, IV, Other (specify)

Empty Kit Relinquished by: Date: Time: Method of Shipment:

Relinquished by: Date/Time: 9/25/15 1410 Company: STANTEC

Relinquished by: Date/Time: 9/25/15 1640 Company: TA Sea

Relinquished by: Date/Time: Received by: Received by: Date/Time: 9/25/15 1410 Company: T.H. SEH

Custody Seals Intact: Custody Seal No.: Cooler Temperature(s) °C and Other Remarks:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements:

Loc: 490
 88201

Login Sample Receipt Checklist

Client: Stantec Consulting Corp.

Job Number: 490-88201-1

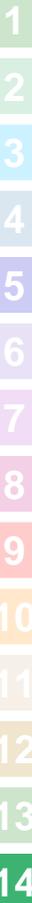
Login Number: 88201

List Source: TestAmerica Nashville

List Number: 1

Creator: Ford, Easton

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





3600 Fremont Ave. N.

Seattle, WA 98103

T: (206) 352-3790

F: (206) 352-7178

info@fremontanalytical.com

Stantec Consulting Corporation

Paul Fairbairn
11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

RE: 1Q16 GWM 25821

Lab ID: 1602219

February 22, 2016

Attention Paul Fairbairn:

Fremont Analytical, Inc. received 2 sample(s) on 2/18/2016 for the analyses presented in the following report.

Dissolved Metals by EPA Method 200.8

Total Metals by EPA Method 200.8

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,

A handwritten signature in black ink, appearing to read "Mike Ridgeway", written over a light blue horizontal line.

Mike Ridgeway
President



Date: 02/22/2016

CLIENT: Stantec Consulting Corporation
Project: 1Q16 GWM 25821
Lab Order: 1602219

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1602219-001	MW-10	02/09/2016 9:40 AM	02/18/2016 3:38 PM
1602219-002	MW-11	02/09/2016 10:45 AM	02/18/2016 3:38 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: Stantec Consulting Corporation**Project:** 1Q16 GWM 25821

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

WO#: 1602219

Date Reported: 2/22/2016

CLIENT: Stantec Consulting Corporation

Project: 1Q16 GWM 25821

Lab ID: 1602219-001

Client Sample ID: MW-10

Collection Date: 2/9/2016 9:40:00 AM

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Dissolved Metals by EPA Method 200.8</u>				Batch ID: 13054		Analyst: TN
Lead	ND	1.00		µg/L	1	2/22/2016 1:02:42 PM
<u>Total Metals by EPA Method 200.8</u>				Batch ID: 13055		Analyst: TN
Lead	3.92	1.00		µg/L	1	2/22/2016 2:45:40 PM

Lab ID: 1602219-002

Client Sample ID: MW-11

Collection Date: 2/9/2016 10:45:00 AM

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Dissolved Metals by EPA Method 200.8</u>				Batch ID: 13054		Analyst: TN
Lead	ND	1.00		µg/L	1	2/22/2016 1:06:15 PM
<u>Total Metals by EPA Method 200.8</u>				Batch ID: 13055		Analyst: TN
Lead	ND	1.00		µg/L	1	2/22/2016 2:49:13 PM

Work Order: 1602219
CLIENT: Stantec Consulting Corporation
Project: 1Q16 GWM 25821

QC SUMMARY REPORT
Dissolved Metals by EPA Method 200.8

Sample ID: MB-13054	SampType: MBLK	Units: µg/L	Prep Date: 2/22/2016	RunNo: 27813							
Client ID: MBLKW	Batch ID: 13054	Analysis Date: 2/22/2016	SeqNo: 523084								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 1.00

Sample ID: MB-13045FB	SampType: MBLK	Units: µg/L	Prep Date: 2/22/2016	RunNo: 27813							
Client ID: MBLKW	Batch ID: 13054	Analysis Date: 2/22/2016	SeqNo: 523085								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 1.00

NOTES:
Filter Blank

Sample ID: LCS-13054	SampType: LCS	Units: µg/L	Prep Date: 2/22/2016	RunNo: 27813							
Client ID: LCSW	Batch ID: 13054	Analysis Date: 2/22/2016	SeqNo: 523086								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 48.4 1.00 50.00 0 96.9 85 115

Sample ID: 1602212-001DDUP	SampType: DUP	Units: µg/L	Prep Date: 2/22/2016	RunNo: 27813							
Client ID: BATCH	Batch ID: 13054	Analysis Date: 2/22/2016	SeqNo: 523088								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 1.00 0 30

Sample ID: 1602212-001DMS	SampType: MS	Units: µg/L	Prep Date: 2/22/2016	RunNo: 27813							
Client ID: BATCH	Batch ID: 13054	Analysis Date: 2/22/2016	SeqNo: 523089								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 237 1.00 250.0 0.05000 94.8 70 130

Work Order: 1602219
CLIENT: Stantec Consulting Corporation
Project: 1Q16 GWM 25821

QC SUMMARY REPORT
Dissolved Metals by EPA Method 200.8

Sample ID: 1602212-001DMSD	SampType: MSD	Units: µg/L	Prep Date: 2/22/2016	RunNo: 27813							
Client ID: BATCH	Batch ID: 13054		Analysis Date: 2/22/2016	SeqNo: 523092							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	240	1.00	250.0	0.05000	96.2	70	130	237.0	1.43	30	



Date: 2/22/2016

Work Order: 1602219
CLIENT: Stantec Consulting Corporation
Project: 1Q16 GWM 25821

QC SUMMARY REPORT
Total Metals by EPA Method 200.8

Sample ID: MB-13055	SampType: MBLK	Units: µg/L	Prep Date: 2/22/2016	RunNo: 27815							
Client ID: MBLKW	Batch ID: 13055		Analysis Date: 2/22/2016	SeqNo: 523140							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 1.00

Sample ID: 1602208-001ADUP	SampType: DUP	Units: µg/L	Prep Date: 2/22/2016	RunNo: 27815							
Client ID: BATCH	Batch ID: 13055		Analysis Date: 2/22/2016	SeqNo: 523143							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 2.14 1.00 2.537 17.2 30

Sample ID: 1602208-001AMS	SampType: MS	Units: µg/L	Prep Date: 2/22/2016	RunNo: 27815							
Client ID: BATCH	Batch ID: 13055		Analysis Date: 2/22/2016	SeqNo: 523144							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 210 1.00 250.0 2.537 83.0 70 130

Sample ID: 1602208-001AMSD	SampType: MSD	Units: µg/L	Prep Date: 2/22/2016	RunNo: 27815							
Client ID: BATCH	Batch ID: 13055		Analysis Date: 2/22/2016	SeqNo: 523145							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 213 1.00 250.0 2.537 84.1 70 130 209.9 1.40 30

Sample ID: LCS-13055	SampType: LCS	Units: µg/L	Prep Date: 2/22/2016	RunNo: 27815							
Client ID: LCSW	Batch ID: 13055		Analysis Date: 2/22/2016	SeqNo: 523170							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 44.8 1.00 50.00 0 89.5 85 115

Client Name: **STANTEC**
 Logged by: **Erica Silva**

 Work Order Number: **1602219**
 Date Received: **2/18/2016 3:38:00 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
HNO3
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:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler 1	5.5
Cooler 2	2.0
Cooler 3	4.3
Sample 1	4.1
Sample 2	2.4
Sample 3	2.2

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



Sample Log-In Check List

Client Name: **STANTEC**

Work Order Number: **1602219**

Logged by: **Erica Silva**

Date Received: **2/18/2016 3:38:00 PM**

Item #	Temp °C
Temp Blank 1	6.2
Temp Blank 2	3.9

TestAmerica Nashville

Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

1002221



THE LEADER IN ENVIRONMENTAL TESTING
Lab No. _____

Client Information
Client Contact: Deirre Hanson
Phone: (414) 617-9381
Email: heather.wagner@testamericainc.com
Job P#: _____
Carrier Tracking No(s): _____

Company: Stantec Consulting Corp.
Address: 11130 NE 33rd Place Suite 200
City: Bellevue
State, Zip: WA, 98004-1465
Phone: 425-298-1000(Tel)
Email: paul.fairbairn@stantecc.com
Project Name: 1Q16 GWA 25821
Site: 25821 Richland
SSOW#: _____

Due Date Requested: _____
TAT Requested (days): _____
Standard: _____
PO #: _____
Purchase Order Requested: _____
WO #: _____

Project #: 185750037
Project Name: _____
SSOW#: _____

Analysis Requested
Field Filtered Sample (Yes or No) _____
Perform MS/MSD (Yes or No) _____
NWTPH-G _____
B260 BTEX _____
Total Lead _____
Dissolved Lead (all) _____
Nitrate/Sulfate _____
HDB _____
Total Number of containers _____

Special Instructions/Note:
Non-preserved, 250 ml Poly water filtered in the field. Non-preserved, 250 ml Poly was filtered in the field.

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grit)	Matrix (W=Water, S=Soil, O=Other)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	NWTPH-G	B260 BTEX	Total Lead	Dissolved Lead (all)	Nitrate/Sulfate	HDB	Total Number of containers	Special Instructions/Note:
MW-10	2/9/2016	0940	G	W					X	X					
MW-11	2/9/2016	1045	G	W					X	X					

Possible Hazard Identification
 Non-Hazard Flammable Irritant Corrosive Volatile Toxic Other (Specify) _____
 Deliverable Requested: I, II, III, IV, Other (Specify) _____
 Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____

Relinquished by: *Michael Valenti* Date/Time: 2/18/16 1300 Company: Stantec
 Received by: *Heather Wagner* Date/Time: 2/18/16 1330 Company: Stantec
 Relinquished by: *Heather Wagner* Date/Time: 2/18/16 1538 Company: Stantec
 Received by: *Heather Wagner* Date/Time: 2/18/16 1538 Company: Stantec

Custody Seal Intact: A Yes A No
Custody Seal No.: _____
Cooler Temperature(s) °C and Other Remarks: _____

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-107101-1

TestAmerica Sample Delivery Group: 25821 Richland
Client Project/Site: 2Q16 GWM 25821

For:

Stantec Consulting Corp.
11130 NE 33rd Place
Suite 200
Bellevue, Washington 98004-1465

Attn: Paul Fairbairn



Authorized for release by:
7/12/2016 3:59:02 PM

Heather Wagner, Project Manager I
(615)301-5763
heather.wagner@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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

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Sample Summary

Client: Stantec Consulting Corp.
Project/Site: 2Q16 GWM 25821

TestAmerica Job ID: 490-107101-1
SDG: 25821 Richland

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-107101-1	MW-11	Water	06/30/16 06:34	07/06/16 10:00

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Case Narrative

Client: Stantec Consulting Corp.
Project/Site: 2Q16 GWM 25821

TestAmerica Job ID: 490-107101-1
SDG: 25821 Richland

Job ID: 490-107101-1

Laboratory: TestAmerica Nashville

Narrative

**Job Narrative
490-107101-1**

Comments

No additional comments.

Receipt

The sample was received on 7/6/2016 10:00 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 21.8° C.

Metals

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

Field Service / Mobile Lab

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

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Definitions/Glossary

Client: Stantec Consulting Corp.
Project/Site: 2Q16 GWM 25821

TestAmerica Job ID: 490-107101-1
SDG: 25821 Richland

Glossary

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

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q16 GWM 25821

TestAmerica Job ID: 490-107101-1
SDG: 25821 Richland

Client Sample ID: MW-11

Lab Sample ID: 490-107101-1

Date Collected: 06/30/16 06:34

Matrix: Water

Date Received: 07/06/16 10:00

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		07/07/16 08:50	07/07/16 22:26	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		07/08/16 12:49	07/09/16 13:58	1

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: 2Q16 GWM 25821

TestAmerica Job ID: 490-107101-1
SDG: 25821 Richland

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 490-353413/1-A
Matrix: Water
Analysis Batch: 353777

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 353413

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		07/07/16 08:50	07/07/16 19:25	1

Lab Sample ID: LCS 490-353413/2-A
Matrix: Water
Analysis Batch: 353777

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 353413

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	100	100.8		ug/L		101	85 - 115

Lab Sample ID: LCSD 490-353413/3-A
Matrix: Water
Analysis Batch: 353777

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 353413

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	100	98.00		ug/L		98	85 - 115	3	20

Lab Sample ID: MB 490-353881/1-A
Matrix: Water
Analysis Batch: 354323

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 353881

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.00		ug/L		07/08/16 11:01	07/09/16 12:35	1

Lab Sample ID: LCS 490-353881/2-A
Matrix: Water
Analysis Batch: 354323

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 353881

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	100	96.01		ug/L		96	85 - 115

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: 2Q16 GWM 25821

TestAmerica Job ID: 490-107101-1
SDG: 25821 Richland

Metals

Prep Batch: 353413

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-107101-1	MW-11	Total/NA	Water	200.8	
LCS 490-353413/2-A	Lab Control Sample	Total/NA	Water	200.8	
LCSD 490-353413/3-A	Lab Control Sample Dup	Total/NA	Water	200.8	
MB 490-353413/1-A	Method Blank	Total/NA	Water	200.8	

Analysis Batch: 353777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-107101-1	MW-11	Total/NA	Water	200.8	353413
LCS 490-353413/2-A	Lab Control Sample	Total/NA	Water	200.8	353413
LCSD 490-353413/3-A	Lab Control Sample Dup	Total/NA	Water	200.8	353413
MB 490-353413/1-A	Method Blank	Total/NA	Water	200.8	353413

Prep Batch: 353881

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-107101-1	MW-11	Dissolved	Water	200.8	
LCS 490-353881/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
MB 490-353881/1-A	Method Blank	Total Recoverable	Water	200.8	

Analysis Batch: 354323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-107101-1	MW-11	Dissolved	Water	200.8	353881
LCS 490-353881/2-A	Lab Control Sample	Total Recoverable	Water	200.8	353881
MB 490-353881/1-A	Method Blank	Total Recoverable	Water	200.8	353881

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: 2Q16 GWM 25821

TestAmerica Job ID: 490-107101-1
SDG: 25821 Richland

Client Sample ID: MW-11

Date Collected: 06/30/16 06:34

Date Received: 07/06/16 10:00

Lab Sample ID: 490-107101-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.8			50 mL	50 mL	353881	07/08/16 12:49	ZLN	TAL NSH
Dissolved	Analysis	200.8		1	50 mL	50 mL	354323	07/09/16 13:58	KKK	TAL NSH
Total/NA	Prep	200.8			50 mL	50 mL	353413	07/07/16 08:50	ZLN	TAL NSH
Total/NA	Analysis	200.8		1	50 mL	50 mL	353777	07/07/16 22:26	KKK	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177



Method Summary

Client: Stantec Consulting Corp.
Project/Site: 2Q16 GWM 25821

TestAmerica Job ID: 490-107101-1
SDG: 25821 Richland

Method	Method Description	Protocol	Laboratory
200.8	Metals (ICP/MS)	EPA	TAL NSH

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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Certification Summary

Client: Stantec Consulting Corp.
Project/Site: 2Q16 GWM 25821

TestAmerica Job ID: 490-107101-1
SDG: 25821 Richland

Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

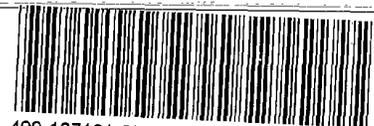
Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C789	07-19-16 *

* Certification renewal pending - certification considered valid.



COOLER RECEIPT FORM

Cooler Received/Opened On 7/6/2016 @ 1000



490-107101 Chain of Custody

Time Samples Removed From Cooler 130 Time Samples Placed In Storage 1346 (2 Hour Window)

- Tracking # 3861 (last 4 digits, FedEx) Courier: fedex
IR Gun ID 17960353 pH Strip Lot HC564992 Chlorine Strip Lot 072815A
- Temperature of rep. sample or temp blank when opened: 21.8 Degrees Celsius
- If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA
- Were custody seals on outside of cooler? YES..NO...NA
If yes, how many and where: 1 Flant
- Were the seals intact, signed, and dated correctly? YES..NO...NA
- Were custody papers inside cooler? YES..NO...NA

I certify that I opened the cooler and answered questions 1-6 (initial) _____

- Were custody seals on containers: YES NO and intact YES...NO...NA
Were these signed and dated correctly? YES...NO...NA
- Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None
- Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None
- Did all containers arrive in good condition (unbroken)? YES..NO...NA
- Were all container labels complete (#, date, signed, pres., etc)? YES..NO...NA
- Did all container labels and tags agree with custody papers? YES..NO...NA
- 13a. Were VOA vials received? YES...NO...NA
b. Was there any observable headspace present in any VOA vial? YES...NO...NA
14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # NA

I certify that I unloaded the cooler and answered questions 7-14 (initial) ACS

- 15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA
b. Did the bottle labels indicate that the correct preservatives were used YES..NO...NA
16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) ACS

17. Were custody papers properly filled out (ink, signed, etc)? YES..NO...NA
18. Did you sign the custody papers in the appropriate place? YES..NO...NA
19. Were correct containers used for the analysis requested? YES..NO...NA
20. Was sufficient amount of sample sent in each container? YES..NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) ACS

I certify that I attached a label with the unique LIMS number to each container (initial) ACS

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...# NA

Login Sample Receipt Checklist

Client: Stantec Consulting Corp.

Job Number: 490-107101-1

SDG Number: 25821 Richland

Login Number: 107101

List Number: 1

Creator: Stvartak, Anthony Q

List Source: TestAmerica Nashville

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



CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA

Appendix I UNREPORTED GROUNDWATER FIELD NOTES
May 25, 2017

Appendix I UNREPORTED GROUNDWATER FIELD NOTES



JOB NAME: Former 7-Eleven 25821

JOB NUMBER: 185750037

SITE ADDRESS: 1824 George Washington

START DATE: Thursday, March 19, 2015

Richland, WA

PREPARED FOR: Emily Harper

PREPARED BY: Emily Harper

NOTE:

REVIEWED BY: Paul Fairbairn

WORK DESCRIPTION:

1. Review H&S Plan.
2. Arrive onsite and check in with Station Manager and contact Paul Fairbairn.
3. Review HASP, conduct Health and Safety briefing and perform Site Walk to determine any traffic flow.
4. Gauge all site wells following gauging order on Sampling Request Form.
5. Low-flow purge and sample wells following the sampling order provided.
6. Take a drum for purge water. Store purge water in drums onsite, make sure they are labeled properly and secured.
7. Take an inventory of all waste drums generated by Stantec at the site, and mark locations on site plan.
8. Call Paul Fairbairn in the office prior to leaving the site.

Job Numbers:

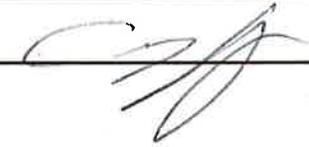
Onsite and Travel Time
185750037.300.0700

Contacts Information:

Paul Fairbairn in Stantec Office : (425) 869-9448x143
Paul Fairbairn Stantec Cell: (206) 369-8383

ANALYTICAL REQUIREMENTS:	EQUIPMENT NEEDED:
NWTPH-Gx	H&S plan
BTEX (8260)	Safety Equipment
Total Lead/Iron	Delineators
TOC/TIC	Mini cooler for product sample
Nitrate, Sulfate	Low-Flow Purging/Sampling Equipment
HBD	Oil/Water Interface Probe
	Disposable bailers/ Rope
	Peristaltic Pump & Tubing
	Drum and labels

AUTHORIZATION :

COMPLETED: 



1st QUARTER 2015 SAMPLING REQUEST

7-Eleven Service Station No. 25821- Located at 1824 George Washington; Richland, WA 99354

Project No.	Task	Project Manager		Date	Lab:	Client Contact:				
		Paul Fairbairn					TA	Jose Rios		
Well Number	Gaug. Freq.	Gaug. Order	Well Number	Samp. Order	Analyses	Well Depth	Top of Screen	Casing Dia.	Depth of Pump intake (ft bTOC)	Comments
MW-3		1		1	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE					
MW-5		2		2	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE					
MW-6		5		5	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE, HDB					
MW-7		4		4	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE, HDB					
MW-8		3		3	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE					
MW-9		6		9	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE, HDB					
MW-10		7		7	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE					
MW-11		8		8	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE					
MW-12		9		9	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE					

Notes:

- *Review and sign HASP prior to arriving on site. Check in with station manager and Stantec Project Manager Paul Fairbairn; Cell: 206 369 8383; Office: 425 298 1016
- * Implement Stantec low flow purging and sampling procedures.
- *NWTPH-Gx, BTEX (8260), MTBE, EDC, EDB
- *The wells are now historically clean, if product or sheen is found, use Stop Work Authority and contact the 7-Eleven Project Manager Paul Fairbairn immediately.
- *Please gauge all selected wells first and proceed to sample all wells unless otherwise noted.
- *Store water in drum on-site. Label drum with contents with a Non Hazardous Waste Drum label and note in the field log

No. wells gauged without sampling: _____
 Gallons Purged: _____
 Total wells sampled: _____



SITE VISITATION REPORT

1Q15 - Former 7-Eleven Service Station No. 25821- Richland, WA



Name(s) Emily Harper Date: 3/19/15 Time of Arrival Call-In: 17:00
 Arrival Time: 11:00 Departure Time: 17:30 Time of Departure Call-In: 17:20
 Who did you call? Paul Fairbairn

DRUM INVENTORY

<u>1</u>	WATER	<u>0</u>	CARBON	TOTAL OPEN TOP	<u>0</u>
<u>0</u>	SOIL	<u>0</u>	EMPTY	TOTAL BUNG TOP	<u>1</u>

(1) 20 gal bung top already onsite & has room

HEALTH AND SAFETY ASSESSMENT

Traffic and delineation	HASP and hospital directions
PPE and proper clothing	vehicle check (longer drive) - pass conditions
Proper lifting heavy items	pinch points
slips trips and falls (ice and slick surfaces)	misc items
cold stress	

DESCRIPTION OF ACTIVITIES ONSITE AND NOTES

11:00 ARRIVE ONSITE, text Paul
 11:05 set up decon & eqp.
 11:20 gauge wells
 12:25 sample wells
 16:50 finished sampling, clean up site
 17:20 text Paul
 17:30 depart site

JA


 Gauge Date: March 19, 2015

 Project Name: Former 7-Eleven #25821

 Field Technician: Emily Harper

 Project Number: 185750037

 DTP = Depth to Free Product (FP or NAPL) Below TOC
 DTW = Depth to Groundwater Below TOC
 DTB = Depth to Bottom of Well Casing Below TOC

 Flow through cell calibrated Y N

 Wells checked for product and gauged prior to commencement of bailing or purging the wells Y N

WELL OR LOCATION	MEASUREMENTS				PURGE? (Y/N)	SHEEN? (Y/N)	SAMPLE? (Y/N)	COMMENTS / PROBE CALIBRATION
	TIME	DTP (feet)	DTW (feet)	DTB (feet)				
MW-1	11:30	-	17.41	19.67	N	-	N	
MW-2	11:25	-	17.49	18.06	N	-	N	
MW-3	11:35	-	17.24	19.40	Y	N	Y	
MW-4	11:20	-	-	-	N	-	N	could not open
MW-5	11:50	-	16.49	16.49	N	-	N	DRY WELL
MW-6	12:05	-	16.37	19.24	Y	-	Y	
MW-7	12:10	-	16.17	18.14	Y	-	Y	
MW-8	11:45	-	16.31	26.79	Y	N	Y	
MW-9	11:55	-	10.02	21.89	Y	N	Y	
MW-10	11:40	-	17.08	23.10	Y	N	Y	
MW-11	12:15	-	16.85	22.44	Y	N	Y	
MW-12	12:00	-	21.65	15.58	Y	N	Y	



JOB NAME: Former 7-Eleven 25821

JOB NUMBER: 185750037

SITE ADDRESS: 1824 George Washington

START DATE: Tuesday, June 30, 2015

Richland, WA

PREPARED FOR: Emily Harper

PREPARED BY: Emily Harper

NOTE:

REVIEWED BY: Paul Fairbairn

WORK DESCRIPTION:

1. Review H&S Plan.
2. Arrive onsite and check in with Station Manager and contact Paul Fairbairn.
3. Review HASP, conduct Health and Safety briefing and perform Site Walk to determine any traffic flow.
4. Gauge all site wells following gauging order on Sampling Request Form.
5. Low-flow purge and sample wells following the sampling order provided.
6. Take a drum for purge water. Store purge water in drums onsite, make sure they are labeled properly and secured.
7. Take an inventory of all waste drums generated by Stantec at the site, and mark locations on site plan.
8. Call Paul Fairbairn in the office prior to leaving the site.

Job Numbers:

Onsite and Travel Time
185750037.300.0700

Contacts Information:

Paul Fairbairn in Stantec Office : (425) 869-9448x143
Paul Fairbairn Stantec Cell: (206) 369-8383

ANALYTICAL REQUIREMENTS:	EQUIPMENT NEEDED:
NWTPH-Gx	H&S plan
BTEX (8260)	Safety Equipment
Total Lead/Iron	Delineators
	Mini cooler for product sample
Nitrate, Sulfate MW-6,7	Low-Flow Purging/Sampling Equipment
HBD MW-6,7	Oil/Water Interface Probe
	Disposable bailers/ Rope
	Peristaltic Pump & Tubing
	Drum and labels

AUTHORIZATION : _____

COMPLETED:



2nd QUARTER 2015 SAMPLING REQUEST

7-Eleven Service Station No.25821- Located at 1824 George Washington; Richland, WA 99354

Project No.		Task		Project Manager		Date	Lab:	Client Contact:	
185750037		400.0700		Paul Fairbairn			TA	Jose Ribs	
Well Number	Gaug. Freq.	Gaug. Order	Well Number	Samp. Order	Analyses	Well Depth	Top of Screen	Depth of Pump Intake (ft bTOC)	Comments
MW-3		1		1	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE				
MW-5		2		2	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE				
MW-6		5		5	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE, HDB				
MW-7		4		4	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE, HDB				
MW-8		3		3	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE				
MW-9		6		9	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE, HDB				
MW-10		7		7	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE				
MW-11		8		8	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE				
MW-12		9		9	NWTPHG, BTEX (8260), Total Lead, EDB, EDC, MTBE				

Notes:

- *Review and sign HASP prior to arriving on site. Check in with station manager and Stantec Project Manager Paul Fairbairn; Cell: 206 369 8383; Office: 425 298 1016
- * Implement Stantec low flow purging and sampling procedures.
- *NWTPH-Gx, BTEX (8260), MTBE, EDC, EDB
- *The wells are now historically clean, if product or sheen is found, use Stop Work Authority and contact the 7-Eleven Project Manager Paul Fairbairn immediately.
- *Please gauge all selected wells first and proceed to sample all wells unless otherwise noted.
- *Store water in drum on-site. Label drum with contents with a Non Hazardous Waste Drum label and note in the field log

No. wells gauged without sampling: _____ Total wells sampled: _____

Gallons Purged: _____



SITE VISITATION REPORT

2Q15 - Former 7-Eleven Service Station No. 25821- Richland, WA



Name(s) Emily Harper Date: 6/30/15 Time of Arrival Call-In:
 Arrival Time: 10:30 Departure Time: 1900 Time of Departure Call-In: 1900
 Who did you call? Paul Fairbairn

DRUM INVENTORY

<u>1</u>	WATER	<u>0</u>	CARBON	TOTAL OPEN TOP	<u>0</u>
<u>0</u>	SOIL	<u>0</u>	EMPTY	TOTAL BUNG TOP	<u>1</u>

(1) 20 gal bung top onsite + has room

HEALTH AND SAFETY ASSESSMENT

Traffic and delineation	HASP and hospital directions
PPE and proper clothing	vehicle check (longer drive) - pass conditions
Proper lifting heavy items	pinch points
slips trips and falls (ice and slick surfaces)	misc items
cold stress	

DESCRIPTION OF ACTIVITIES ONSITE AND NOTES

10:30 ARRIVE ONSITE, PHONE NO SERVICE
 10:45 Gauge wells *Paint Locates *
 12:00 Sample wells
 18:45 done sampling, clean up site - paint locates
 1900 text paul & depart site

EW



Stantec
HYDROLOGIC DATA SHEET



Gauge Date: June 30, 2015

Project Name: Former 7-Eleven #25821

Field Technician: Emily Harper

Project Number: 185750037

DTP = Depth to Free Product (FP or NAPL) Below TOC
DTW = Depth to Groundwater Below TOC
DTB = Depth to Bottom of Well Casing Below TOC

Flow through cell calibrated Y N

Wells checked for product and gauged prior to commencement of bailing or purging the wells Y N

WELL OR LOCATION	MEASUREMENTS				PURGE? (Y/N)	SHEEN? (Y/N)	SAMPLE? (Y/N)	COMMENTS / PROBE CALIBRATION
	TIME	DTP (feet)	DTW (feet)	DTB (feet)				
MW-1	11:35		17.15	19.72	N	-	N	
MW-2	11:30	-	17.21	18.01	N	-	N	
MW-3	11:20		17.05	19.45	Y	N	Y	
MW-4	-		-	-	N	-	N	
MW-5	-	-	-	-	N	N	N	DRY WELL
MW-6	10:50		16.23	19.22	Y	N	Y	
MW-7	10:45		16.04	18.04	Y	N	Y	
MW-8	10:55		16.13	18.76	Y	N	Y	
MW-9	11:00		16.44	21.85	Y	N	Y	
MW-10	11:15		16.92	23.01	Y	N	Y	
MW-11	11:05		16.70	22.56	Y	N	Y	
MW-12	11:45		15.44	21.64	Y	N	Y	



Stantec



WATER SAMPLE FIELD DATA SHEET

PROJECT #: 185750037

Purged & Sampled By: Emily Harper

Well & Sample ID: MW-6

CLIENT NAME: 7-Eleven

Emily Harper

LOCATION: 1824 George Washington Way; Richland, WA

Purged & Sampled Date: Tuesday, June 30, 2015

START (2400hr): 12:00

Tuesday, June 30, 2015

Sample Time: 12:45

LOW-FLOW USED: YES

SAMPLE TYPE: Groundwater x

Surface Water

Treatment Effluent

Other

CASING DIAMETER: 2" 0 4" 6" 1"
Casing Volume: (liters per foot) (0.16) (0.6) (1.46)

DEPTH TO BOTTOM (feet) = 19.22
DEPTH TO WATER (feet) = 16.23
WATER COLUMN HEIGHT (feet) = 2.99

ACTUAL PURGE (L) = 2.002

FIELD MEASUREMENTS

Table with 8 columns: DATE, TIME, VOLUME, TEMP, CONDUCTIVITY, pH, COLOR, O.R.P. containing handwritten data for four samples.

Calculated Variance of Final Three Samples: Acceptable Variance Limits: ≤ 10%

≤ 10%

≤ 3%

≤ 0.1

≤ 10%

DEPTH TO PURGE INTAKE DURING PURGE: SAMPLE DTW: x

QTY OF SAMPLE VESSELS & PRESERVATIVE:

ANALYSES:

9-HCL VOA'S PER WELL

NWTPH-g

1 HNO3 poly

BTEX-g (8260)

1 plastic HDB container

HBD, Total Lead, EDB, EDC, MTBE

PURGING EQUIPMENT:

SAMPLING EQUIPMENT:

Geotech Peristaltic pump

YSI

Flow Through Cell Disconnected Prior to Sample Collection?: YES x NO

WELL PAD CONDITION: GOOD

WELL CASING CONDITION: GOOD

WELL VAULT CONDITION: GOOD

SEAL PRESENT?: YES BOLTS PRESENT?: 2/3

WELL INTEGRITY: GOOD

WELL TAG: N/A LOCK#: N/A

REMARKS:

SIGNATURE:



JOB NAME: Former 7-Eleven 25821

JOB NUMBER: 185750037

SITE ADDRESS: 1824 George Washington

START DATE: 9/24/15

Richland, WA

PREPARED FOR: Emily Harper

PREPARED BY: Emily Harper

NOTE:

REVIEWED BY: Paul Fairbairn

WORK DESCRIPTION:

1. Review H&S Plan.
2. Arrive onsite and check in with Station Manager and contact Paul Fairbairn.
3. Review HASP, conduct Health and Safety briefing and perform Site Walk to determine any traffic flow.
4. Gauge all site wells following gauging order on Sampling Request Form.
5. Low-flow purge and sample wells following the sampling order provided.
6. Take a drum for purge water. Store purge water in drums onsite, make sure they are labeled properly and secured.
7. Take an inventory of all waste drums generated by Stantec at the site, and mark locations on site plan.
8. Call Paul Fairbairn in the office prior to leaving the site.

Job Numbers:

Onsite and Travel Time
185750037.300.0700

Contacts Information:

Paul Fairbairn in Stantec Office: (425) 869-9448x143
Paul Fairbairn Stantec Cell: (206) 369-8383

ANALYTICAL REQUIREMENTS:	EQUIPMENT NEEDED:
NWTPH-Gx	H&S plan
BTEX (8260)	Safety Equipment
Total Lead/Iron, dissolved lead	Delineators
Nitrate, Sulfate	Mini cooler for product sample
HBD	Low-Flow Purging/Sampling Equipment
	Oil/Water Interface Probe
	Disposable bailers/ Rope
	Peristaltic Pump & Tubing
	Drum and labels

AUTHORIZATION :

COMPLETED: 



3rd QUARTER 2015 SAMPLING REQUEST

7-Eleven Service Station No. 25821 - Located at 1824 George Washington; Richland, WA 99354

Project No.		Task		Project Manager		Date		Lab:		Client Contact:	
185750037		400.0700		Paul Fairbairn				TA		Jose Rios	
Well Number	Gaug. Freq.	Gaug. Order	Well Number	Samp. Order	Analyses	Well Depth	Top of Screen	Casing Dia.	Depth of Pump Intake (ft. bTOC)	Comments	
MW-3		1		1	NWTPHG, BTEX (8260), Total Lead, dissolved lead, EDB, EDC, MTBE						
MW-5		2		2	NWTPHG, BTEX (8260), Total Lead, dissolved lead, EDB, EDC, MTBE						
MW-6		5		5	NWTPHG, BTEX (8260), Total Lead, Dissolved lead, EDB, EDC, MTBE, HDB, Sulfate, Nitrate, Total Iron						
MW-7		4		4	NWTPHG, BTEX (8260), Total Lead, Dissolved lead, EDB, EDC, MTBE, HDB, Sulfate, Nitrate, Total Iron						
MW-8		3		3	NWTPHG, BTEX (8260), Total Lead, dissolved lead, EDB, EDC, MTBE						
MW-9		6		9	NWTPHG, BTEX (8260), Total Lead, Dissolved lead, EDB, EDC, MTBE, HDB, Sulfate, Nitrate, Total Iron						
MW-10		7		7	NWTPHG, BTEX (8260), Total Lead, Dissolved lead, EDB, EDC, MTBE, HDB, Sulfate, Nitrate, Total Iron						
MW-11		8		8	NWTPHG, BTEX (8260), Total Lead, Dissolved lead, EDB, EDC, MTBE, HDB, Sulfate, Nitrate, Total Iron						
MW-12		9		9	NWTPHG, BTEX (8260), Total Lead, dissolved lead, EDB, EDC, MTBE						

Notes:

- *Review and sign HASP prior to arriving on site. Check in with station manager and Stantec Project Manager Paul Fairbairn: Cell: 206 369 8383; Office: 425 298 1016
- * Implement Stantec low flow purging and sampling procedures.
- *NWTPH-Gx, BTEX (8260), MTBE, EDC, EDB
- *The wells are now historically clean, if product or sheen is found, use Stop Work Authority and contact the 7-Eleven Project Manager Paul Fairbairn immediately.
- *Please gauge all selected wells first and proceed to sample all wells unless otherwise noted.
- *Store water in drum on-site. Label drum with contents with a Non Hazardous Waste Drum label and note in the field log

No. wells gauged without sampling: _____ Total wells sampled: _____
 Gallons Purged: _____



SITE VISITATION REPORT

3Q15 - Former 7-Eleven Service Station No. 25821- Richland, WA



Name(s) Emily Harper

Date: 9/24/15

Time of Arrival Call-In: 1200

Arrival Time: 1130

Departure Time: 1800

Time of Departure Call-In: 1800

Who did you call? Paul Fairbairn

DRUM INVENTORY

<u>1</u>	WATER	<u>-</u>	CARBON	TOTAL OPEN TOP	<u>7</u>
<u>1</u>	SOIL	<u>-</u>	EMPTY	TOTAL BUNG TOP	<u>1</u>

One 20 gal bung top for H₂O has room - debris cuttings still onsite

HEALTH AND SAFETY ASSESSMENT

Traffic and delineation	HASP and hospital directions
PPE and proper clothing	vehicle check (longer drive) - pass conditions
Proper lifting heavy items	pinch points
slips trips and falls (ice and slick surfaces)	misc items
cold stress	

DESCRIPTION OF ACTIVITIES ONSITE AND NOTES

11:30 ARRIVE ONSITE, set up eq. wait for traffic to die down
12:00 text paul, gauge wells b/w traffic wells
1320 sample wells
17:30 finish sampling wells, clean up site
1800 depart site, text paul

gao



Stantec
HYDROLOGIC DATA SHEET



Gauge Date: 9/24/13

Project Name: Former 7-Eleven #25821

Field Technician: Emily Harper

Project Number: 185750037

DTP = Depth to Free Product (FP or NAPL) Below TOC
DTW = Depth to Groundwater Below TOC
DTB = Depth to Bottom of Well Casing Below TOC

Flow through cell calibrated Y N

Wells checked for product and gauged prior to commencement of bailing or purging the wells Y N

WELL OR LOCATION	MEASUREMENTS				PURGE? (Y/N)	SHEEN? (Y/N)	SAMPLE? (Y/N)	COMMENTS / PROBE CALIBRATION
	TIME	DTP (feet)	DTW (feet)	DTB (feet)				
MW-1	12:45	-	16.91	19.78	N	-	N	
MW-2	13:10	-	16.96	18.04	N	-	N	
MW-3	12:40		16.84	19.46	Y	N	Y	
MW-4	-	-	-	-	N	-	N	Could not gain
MW-5	-	-	-	-	N	-	N	DRY WELL
MW-6	12:10	-	15.94	19.25	Y	N	Y	
MW-7	12:25	-	15.75	18.09	Y	N	Y	
MW-8	12:15	-	15.86	26.79	Y	N	Y	
MW-9	12:50	-	16.17	21.88	Y	N	Y	
MW-10	12:30	-	16.66	23.05	Y	N	Y	
MW-11	13:06		16.45	22.55	Y	N	Y	
MW-12	12:20	-	15.18	21.70	Y	N	Y	



Work Request Form

Project Name: Former 7-Eleven Store No. 25821 **Date:** 2/9/2016
Site Address: 1824 George Washington Way, Richland, Washington
Activity: Sampling of Monitoring Wells MW-10 and MW-11
Project No.: 185750037 **Task:** 500.0700
Project Manager: Paul Fairbairn
Business Unit Leader/Regional Manager: John Wainwright
Prepared by: Deitrie Hanson **Reviewed by:** Paul Fairbairn **Submitted to:** Jenn Heidy

WORK DESCRIPTION:

1. Arrive onsite and check in with Subway Restaurant manager and contact Paul Fairbairn.
2. Review HASP, conduct Health and Safety briefing and perform Site Walk to determine any traffic flow.
3. Open wells shown on attached table and let groundwater levels equilibrate.
4. Inspect well conditions note if any well needs repair.
5. Gauge all site wells following gauging order on Sampling Request Form.
6. Low-flow purge and sample wells following the sampling order provided.
7. Take a drum for purge water. Store purge water in drums onsite, make sure they are labeled properly and secured.
8. Take inventory of all waste drums generated by Stantec at the site, and mark locations on site plan.
9. Fill Out Equipment Billing Sheet for all equipment used on the job and attach with field notes
10. Call or text Paul Fairbairn in the office prior to leaving the site.
11. Turn in field notes to Jenn Heidy ASAP

ANALYTICAL REQUIREMENTS:	BOTTLES:	EQUIPMENT NEEDED:
NWTPH-G		H&S plan
BTEX 8260		Safety Equipment
Total Lead	250 mL poly w/ HN03	Delineators
Dissolved Lead (all)	250 mL poly w/ no pres-use	Test America Cooler with bottles
Nitrate	blue geotech filter	Low-Flow Purging/Sampling Equipment
Sulfate		Oil/Water Interface Probe
HDB		Disposable bailers/ Rope
		Peristaltic Pump & Tubing
		Drum and labels

ESTIMATED HOURS TO COMPLETE:

Billing Title	Billing Category	Authorized Hours to Complete	Task No.
Field Tech	Regular - Direct Labor	2 hours + 7 hours Travel	500.0700
Equipment Form	Regular - Direct Labor		500.0700
Bottle Order	Regular - Direct Labor	0.5	500.0115
Total Hours		9.5	

AUTHORIZATION: 

COMPLETED: 

Project Name: Former 7-Eleven Store No. 25821

Name(s): Deitrie Hanson Date: 2/9/2016 Time of Arrival Call-In: 0539
 Arrival Time: 0535 Departure Time: 1315 Time of Departure Call-In: 1257
 Weather Conditions: SUN CLOUDY RAIN SNOW Temperature: 30 F (30F-48F)

DRUM INVENTORY:

<u>1</u> WATER	<u> </u> CARBON	TOTAL OPEN TOP	<u> </u>
<u> </u> SOIL	<u> </u> EMPTY	TOTAL BUNG TOP	<u>1</u>

Please take a picture of anything not clearly labeled

HEALTH AND SAFETY ASSESSMENT:

Traffic and delineation	HASP and hospital directions
PPE	First aid kit
Weather/Cold stress	Fire extinguisher
Slips, trips, falls	Proper lifting of heavy items
Proper tools for each task	Bottle handling/glassware

DESCRIPTION OF ACTIVITIES ONSITE AND NOTES:

0515-0530 Loaded up equipment into FORD F250 at Katin's apartment 360° Daily Vehicle checklist.
 0530-0535 Drove from Katin's Apt. to FORMER 7-11 #25821 Richland (now Subway).
 0535-0539 Arrived on-site. Parked. Texted PM on-site.
 0539-0555 Reviewed HASP and RMS2 form. Signed RMS2. Donned PPE.
 0555-0610 Set-up 3 stage decon. with 1/2 oz. Alconox and orange delineators.
 0610 Started gauging wells.
 0825 Finished gauging wells. Gauged 11 of 12 wells, except MW-4.
 0825-0922 Set-up on MW-10. Geopump can't pull up wide diameter dedicated tubing. NEED to USE "nub" 3/8 inch diameter tubing.
 0940 sampled MW-10. 2 POLYS-Field filtered unpreserved 250mL POLY.
 1000 Closed well MW-10.
 1000-1023 Set-up on MW-11. 2 POLYS-used "nub" tubing.
 1023-1045 Began to purge via low-flow MW-11.
 1045 sampled MW-11. 2 POLYS-field filtered unpreserved 250mL POLY.
 1055-1100 Closed well MW-11.
 1100-12noon Decon equipment. Dumped purged groundwater into pre-existing drum. Secure it. Break down delineators. Packed up truck.
 12noon-1215 Took off PPE. Texted PM progress.
 (1215-1315) LUNCH at Subway sandwich restaurant at site.
 1315 Departed site to drive up George Wash. Way to 7-11 #25412 Richland.

Project Name: Former 7-Eleven Store No. 25821 **Project No.:** 185750037 **Task:** 500.0700
Project Manager: Paul Fairbairn **Lab:** TestAmerica
Field Technician: Deitrie Hanson

Well Number	Gauge Order	Sample Order	Analyses	Time	DTW (ft.)	DTB (ft.)	Sample? (Y/N)	Comments (Please Note Condition of Well)
MW-1	1			0622	17.52	19.50	N	Rainwater in well box
MW-2	2			0630	17.54	—	N	
MW-3	3			0635	17.36	19.30	N	Rainwater in well box
MW-5	4			0642	DRY	16.30	N	
MW-6	7			0724	16.49	19.05	N	
MW-7	6			0715	17.30	17.90	N	4 inch.
MW-8	5			0702	16.42	26.40	N	
MW-9	8			0736	16.74	21.70	N	WELL TAG No. BHV 324
MW-10	9	1	Total Lead and Dissolved Lead	0740	17.18	22.85	Y	WELL TAG No. BHV 323
MW-11	10	2	Total Lead and Dissolved Lead	0800	16.97	22.45	Y	WELL TAG No. BHV 322
MW-12	11			0815	15.72	21.45	N	WELL TAG No. BHV 321 WELL ID FROZEN SHUT

Estimated Gallons Purged:

NOTES:

Ice froze rubber well gaskets.
 Geopump does not work on largest "dedicated" tubing.
 MUST use smallest diameter "nub" 3/8 inch tubing.

DTP: Depth to Free Product (FP or NAPL) Below TOC
DTW: Depth to Groundwater Below TOC
DTB: Depth to Bottom of Well Casing Below TOC

Project Name: Former 7-Eleven Store No. 25821	Project No.: 185750037
Project Manager: Paul Fairbairn	Lab: TestAmerica
Field Technician: Deitrie Hanson	Well ID: MW-10

Date Purged: <u>2/9/2016</u>	Start (2400hr): <u>0921</u>	End (2400hr): <u>1000</u>
Date Sampled: <u>2/9/2016</u>	Sample Time (2400hr): <u>0940</u>	
Sample Type: <u>Groundwater</u>	Low-Flow Used? <u>Yes</u>	

Casing Diameter: 2" 3" _____ 4" _____
 Casing Volume (Gallons per foot): (0.17) (0.38) 0.67

Depth to Bottom (ft): 22.85
 Depth to Water (ft): 17.18
 Water Column Height (ft): 5.67 Actual Purge (gal): 0.80

Field Measurements							
Date	Time	Volume	Temp °C	Conductivity	pH	Color	O.R.P.
<u>2/9/16</u>	<u>0926</u>	<u>1QT</u>	<u>16.71</u>	<u>0.968</u>	<u>6.99</u>	<u>Opaque Gray</u>	<u>-140.4</u>
<u>2/9/16</u>	<u>0929</u>	<u>1QT</u>	<u>16.73</u>	<u>0.971</u>	<u>6.97</u>	<u>Opaque Gray</u>	<u>-141.0</u>
<u>2/9/16</u>	<u>0932</u>	<u>0.40QT</u>	<u>16.49</u>	<u>0.973</u>	<u>6.93</u>	<u>Opaque Gray</u>	<u>-113.0</u>
<u>2/9/16</u>	<u>0935</u>	<u>0.40QT</u>	<u>16.85</u>	<u>0.978</u>	<u>6.93</u>	<u>Opaque Gray</u>	<u>-105.6</u>
<u>2/9/16</u>	<u>0938</u>	<u>0.40QT</u>	<u>16.97</u>	<u>0.979</u>	<u>6.96</u>	<u>Opaque Gray</u>	<u>-117.9</u>

Deitrie Hanson 2-9-2016

Calculated Variance of Final Three Samples:
 Temp: 4.16% Conductivity: <1% pH: 0.0002 Color: same O.R.P.: <10%

Acceptable Variance Limits:
 Temp: ≤10% Conductivity: ≤3% pH: ≤0.1 Color: same O.R.P.: ≤10%

Depth to Purge Intake During Purge: 17.16 Sample DTW: 17.17

Quantity of Sample Vessel & Preservative:	Analyses:
TPH-G	
BTEX	
Total Lead	
Dissolved Lead (all)	
Purging Equipment:	Sampling Equipment:
Geotech Peristaltic Pump	YSI Meter

Flow Through Cell Disconnected Prior to Sample Collection?: Yes No _____

Well Pad Condition: GOOD Well Casing Condition: GOOD

Well Vault Condition: GOOD Seal Present?: Yes Bolts Present?: Yes

Well Integrity: GOOD Well Tag: BHV 323 2-9/16"

Signature: *Deitrie Hanson* Page 1 of 2

Project Name: Former 7-Eleven Store No. 25821 **Project No.:** 185750037
Project Manager: Paul Fairbairn **Lab:** TestAmerica
Field Technician: Deitrie Hanson **Well ID:** MW-11

Date Purged: 2/9/2016 Start (2400hr): 1023 End (2400hr): 1055
 Date Sampled: 2/9/2016 Sample Time (2400hr): 1045
 Sample Type: Groundwater Low-Flow Used?: Yes

Casing Diameter: 2" 3" _____ 4" _____
 Casing Volume (Gallons per foot): (0.17) (0.38) 0.67

Depth to Bottom (ft): 22.45
 Depth to Water (ft): 16.97
 Water Column Height (ft): 5.48 Actual Purge (gal): 0.80

Field Measurements

Date	Time	Volume	Temp	Conductivity	pH	Color	O.R.P.
<u>2/9/16</u>	<u>1028</u>	<u>1.0QT</u>	<u>4.91°C</u>	<u>0.818</u>	<u>7.35</u>	<u>Palegray</u>	<u>-53.7</u>
<u>2/9/16</u>	<u>1031</u>	<u>0.5QT</u>	<u>4.89°C</u>	<u>0.822</u>	<u>7.29</u>	<u>Palegray</u>	<u>-51.4</u>
<u>2/9/16</u>	<u>1034</u>	<u>0.5QT</u>	<u>4.57°C</u>	<u>0.833</u>	<u>7.25</u>	<u>Palegray</u>	<u>-51.3</u>
<u>2/9/16</u>	<u>1037</u>	<u>0.4QT</u>	<u>4.08°C</u>	<u>0.838</u>	<u>7.25</u>	<u>Palegray</u>	<u>-52.7</u>
<u>2/9/16</u>	<u>1040</u>	<u>0.4QT</u>	<u>4.20°C</u>	<u>0.863</u>	<u>7.23</u>	<u>Palegray</u>	<u>-51.3</u>
<u>2/9/16</u>	<u>1043</u>	<u>0.4QT</u>	<u>4.20°C</u>	<u>0.863</u>	<u>7.23</u>	<u>Palegray</u>	<u>-50.7</u>

Deitrie Hanson 2-9-2016

Calculated Variance of Final Three Samples:
 Temp: <1% Conductivity: <1% pH: 8.88 x 10⁻⁵ Color: same O.R.P.: <10%
Acceptable Variance Limits:
 Temp: ≤10% Conductivity: ≤3% pH: ≤0.1 Color: same O.R.P.: ≤10%

Depth to Purge Intake During Purge: 16.90 Sample DTW: 17.05

Quantity of Sample Vessel & Preservative:		Analyses:
TPH-G	Nitrate	
BTEX	Sulfate	
Total Lead	HDB	
Dissolved Lead (all)		
Purging Equipment:		Sampling Equipment:
Geotech Peristaltic Pump		YSI Meter

Flow Through Cell Disconnected Prior to Sample Collection?: Yes No _____
 Well Pad Condition: GOOD Well Casing Condition: GOOD
 Well Vault Condition: GOOD Seal Present?: yes Bolts Present?: Yes-2
 Well Integrity: GOOD Well Tag: BHV322 9/16"

Signature: *Deitrie Hanson* Page 2 of 2



Work Request Form

Project Name: Former 7-Eleven Store No. 25821 **Date:** 6/30/16
Site Address: 1824 George Washington Way, Richland, Washington
Activity: Sampling of Monitoring Wells MW-11
Project No.: 185750037 **Task:** 500.0700
Project Manager: Paul Fairbairn
Business Unit Leader/Regional Manager: John Wainwright
Prepared by: Deitrie Hanson **Reviewed by:** **Submitted to:**

WORK DESCRIPTION:

1. Arrive onsite and check in with Subway Restaurant manager and contact Paul Fairbairn.
2. Review HASP, conduct Health and Safety briefing and perform Site Walk to determine any traffic flow.
3. Open wells shown on attached table and let groundwater levels equilibrate.
4. Inspect well conditions note if any well needs repair.
5. Gauge all site wells following gauging order on Sampling Request Form.
6. Low-flow purge and sample wells following the sampling order provided.
7. Take a drum for purge water. Store purge water in drums onsite, make sure they are labeled properly and secured.
8. Take inventory of all waste drums generated by Stantec at the site, and mark locations on site plan.
9. Fill Out Equipment Billing Sheet for all equipment used on the job and attach with field notes
10. Call or text Paul Fairbairn in the office prior to leaving the site.
11. Turn in field notes to Jenn Heidy ASAP

ANALYTICAL REQUIREMENTS:	BOTTLES:	EQUIPMENT NEEDED:
Total Lead	250 mL poly w/ HN03	H&S plan
Dissolved Lead (all)	250 mL poly w/ no pres-use blue geotech filter	Safety Equipment
		Delineators
		Test America Cooler with bottles
		Low-Flow Purging/Sampling Equipment
		Oil/Water Interface Probe
		Disposable bailers/ Rope
		Peristaltic Pump & Tubing
		Drum and labels

ESTIMATED HOURS TO COMPLETE:

Billing Title	Billing Category	Authorized Hours to Complete	Task No.
Field Tech	Regular - Direct Labor	1 hours + 6 hours Travel	500.0700
Equipment Form	Regular - Direct Labor		500.0700
Bottle Order	Regular - Direct Labor	0.5	500.0115
Total Hours		7.5	

AUTHORIZATION:

COMPLETED: *Deitrie Hanson*

Project Name: Former 7-Eleven Store No. 25821

Name(s): Deitrie Hanson Date: 6/30/2016 Time of Arrival Call-In: 0529
 Arrival Time: 0528 Departure Time: 0810 Time of Departure Call-In: 0806
 Weather Conditions: (SUN) CLOUDY RAIN SNOW Temperature: 66 F

DRUM INVENTORY:

<u>1</u>	WATER	<u> </u>	CARBON	TOTAL OPEN TOP	<u> </u>
<u> </u>	SOIL	<u> </u>	EMPTY	TOTAL BUNG TOP	<u> </u>

Please take a picture of anything not clearly labeled

HEALTH AND SAFETY ASSESSMENT:

Traffic and delineation	HASP and hospital directions
PPE	First aid kit
Weather/Cold stress	Fire extinguisher
Slips, trips, falls	Proper lifting of heavy items
Proper tools for each task	Bottle handling/glassware

DESCRIPTION OF ACTIVITIES ONSITE AND NOTES:

0445-0500	Carried out all valuable gear: YSI, Geopump, WL from Katlin's Apt.
0500-0506	Walked 360° around Stantec. FORD F250. Filled out Daily Vehicle checklist.
0506-0523	Departed Katlin's Apt. Drove next door to 7-11 store #25412 Gas up truck.
0523-0528	Drove from 7-11 store #25412 to Former 7-11 #25821 Richland.
0528-0529	Arrived on-site. Parked. Texted PM on-site 0529.
0529-0557	Reviewed HASP. Signed RMS2 form. Signed HASP Acknowledgment. Donned PPE. Set-up delineators, 3-stage decon. Opened up Drum
0557-0610	Set-up on MW-11. Gauged well before, purged it.
0612	Began to purge well.
* 0634	sampled MW-11 for total and dissolved Pb-lead. Field filtered dissolved. Used wet ice from water cooler to pack sample cooler.
0657	Closed up well. Decon, WL, YSI. Pack up Geopump. Dumped purged water.
0658-0732	Rewrote label on drum. closed up drum. Took Pictures. Packed truck.
0732-0747	Took off PPE.
(0747-0802)	Break - went inside Subway. Restroom & breakfast checked out.
0802-0805	Walked 360° around truck. Filled in Daily Vehicle checklist.
0806	Texted PM departing site.
0810	Departed site.



Water Sample Field Data Sheet

Bellevue Office
JUNE 2016

Project Name: Former 7-Eleven Store No. 25821		Project No.: 185750037	
Project Manager: Paul Fairbairn		Lab: TestAmerica	
Field Technician: Deitrie Hanson		Well ID: MW-11	
Date Purged: <u>6/30/2016</u>	Start (2400hr): <u>0612</u>	End (2400hr): <u>0657</u>	
Date Sampled: <u>6/30/2016</u>	Sample Time (2400hr): <u>0634</u>		
Sample Type: <u>Groundwater</u>	Low-Flow Used? <u>Yes</u>		
Casing Diameter:	2" <u>X</u>	3" _____	4" _____
Casing Volume (Gallons per foot):	(0.17)	(0.38)	0.67
Depth to Bottom (ft): <u>22.78</u>	6.12 x 0.17 = 1.04 gal		
Depth to Water (ft): <u>16.66</u>			
Water Column Height (ft): <u>6.12</u>	Actual Purge (gal): <u>0.375 gal</u>		

Field Measurements							
Date	Time	Volume	Temp °C	Conductivity	pH	Color ^{pale}	O.R.P.
<u>6/30/16</u>	<u>0617</u>	<u>0.25QT</u>	<u>18.14</u>	<u>0.781</u>	<u>6.55</u>	<u>Cloudy gray</u>	<u>147.2</u>
<u>6/30/16</u>	<u>0620</u>	<u>0.25QT</u>	<u>18.09</u>	<u>0.784</u>	<u>6.64</u>	<u>Cloudy pale gray</u>	<u>140.8</u>
<u>6/30/16</u>	<u>0623</u>	<u>0.25QT</u>	<u>18.04</u>	<u>0.785</u>	<u>6.69</u>	<u>Cloudy pale gray</u>	<u>137.1</u>
<u>6/30/16</u>	<u>0626</u>	<u>0.25QT</u>	<u>18.05</u>	<u>0.786</u>	<u>6.74</u>	<u>Cloudy pale gray</u>	<u>133.0</u>
<u>6/30/16</u>	<u>0629</u>	<u>0.25QT</u>	<u>17.92</u>	<u>0.787</u>	<u>6.78</u>	<u>Cloudy pale gray</u>	<u>130.2</u>
<u>6/30/16</u>	<u>0632</u>	<u>0.25QT</u>	<u>17.91</u>	<u>0.788</u>	<u>6.81</u>	<u>Cloudy pale gray</u>	<u>127.3</u>
<u>Deitrie Hanson 6-30-16</u>							

Calculated Variance of Final Three Samples:

Temp: _____ Conductivity: _____ pH: _____ Color: _____ O.R.P.: _____

Acceptable Variance Limits:

Temp: _____ Conductivity: _____ pH: _____ Color: _____ O.R.P.: _____

Depth to Purge Intake During Purge: _____ Sample DTW: 16.46

Quantity of Sample Vessel & Preservative:	Analyses:
Total Lead	
Disolved Lead	
Purging Equipment:	Sampling Equipment:
Geotech Peristaltic Pump	YSI Meter

Flow Through Cell Disconnected Prior to Sample Collection?: Yes X No _____

Well Pad Condition: GOOD Well Casing Condition: GOOD

Well Vault Condition: GOOD Seal Present?: Yes-torn Bolts Present?: Yes 2-9/16"

Well Integrity: GOOD Well Tag: BHV322

Client Information Client Contact: Paul Fairbairn Phone: (425) 289-7357 E-Mail: heather.wagner@testamericainc.com		Lab PM: Wagner, Heather Carrier Tracking No(s):	
Company: Stantec Consulting Corp. Address: 11130 NE 33rd Place Suite 200 City: Bellevue State, Zip: WA, 98004-1465 Phone: 425-298-1000(Tel) Email: paul.fairbairn@stantec.com		Job #: Store No. 17224 Page: Page 1 of 1	
Project Name: 2Q16 GWM 25821 Site: 25821 Richland		Analysis Requested Analysis Requested:	
Due Date Requested: (AT Requested (days):		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecylhydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - ph 4-5 L - EDA Z - other (specify) Other:	
PO #: Purchase Order Requested WO #:		Total Number of Containers:	
Project #: 185750037 SOW#:		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/>	
Sample Identification Sample Date: 6/30/16 Sample Time: 0634 Sample Type (C=Comp, G=Grab): G Matrix (W=water, S=solid, O=soil/ore): W Preservation Code: W		Total Lead: XX Dissolved Lead (all): Nitrate/Sulfate: HDS:	
MW-11		Special Instructions/Note: NON-PRESERVED 250ML POLY WAS FILTERED IN THE FIELD	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Flammable <input type="checkbox"/> Volatile <input type="checkbox"/> Other (specify)			
Deliverable Requested: <input type="checkbox"/> I, II, III, IV, Other (specify)			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Drive For _____ Months			
Special Instructions/QC Requirements:			
Empty Kit Relinquished by: <i>Debbie Shuman</i> Relinquished by: <i>Debbie Shuman</i> Date/Time: 7/5/16 1128 Company: SIANTEC		Method of Shipment: Received by: <i>Debbie Shuman</i> Date/Time: 7/5/16 1128 Company: TAF	
Relinquished by:		Received by:	
Relinquished by:		Received by:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.:			
Cooler Temperature(s) °C and Other Remarks:			

CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA

Appendix J BOS-200®
May 25, 2017

Appendix J BOS-200®



EUGENE
32986 Roberts Court, Coburg, OR 97408
P.O. Box 71158, Eugene, OR 97401
(541) 484-9484

PORTLAND
25195 SW Parkway Ave, Suite 207
Wilsonville, OR 97070
(503) 570-9484

July 18, 2014

Paul Fairbairn
Stantec
12034 134th Court Northeast Suite 102
Redmond WA 98052

RE: Cost Proposal for In-Situ Site Remediation using BOS 200®

FOR: Facility No. 25821
1824 George Washington Way; Richland, WA

Dear Mr. Fairbairn:

Please find enclosed an electronic copy of a proposal to remediate residual concentrations of gasoline-range organics (GRO) and related volatile organic compounds (VOCs) present in saturated soil and groundwater in select locations beneath the above referenced site. In-situ remediation will be conducted using conditioned activated carbon and biological remediation agents (i.e., BOS 200® and hydrocarbon-degrading microbes) to reduce and/or eliminate subsurface contamination.

Should you have any questions regarding the scope of work or cost proposal, please do not hesitate to contact me at your convenience. Thank you for the opportunity to be of service. We look forward to working on this project with you.

Sincerely,

BB&A Environmental

A handwritten signature in black ink, appearing to read 'Randall J. Boese', is written over a light blue horizontal line.

Randall J. Boese, RG
Principal / President

Enclosures



EUGENE
32986 Roberts Court, Coburg, OR 97408
P.O. Box 71158, Eugene, OR 97401
(541) 484-9484

PORTLAND
25195 SW Parkway Ave, Suite 207
Wilsonville, OR 97070
(503) 570-9484

WORK PLAN AND AGREEMENT

Cost Proposal for In-Situ Site Remediation using BOS 200®

CLIENT INFORMATION

Stantec
12034 134th Court Northeast Suite 102
Redmond WA 98052
Contact : Paul Fairbairn, Project Manager
Office : (425) 298-1016
Cell : (206) 369-8383
Email : Paul.Fairbairn@stantec.com

SITE LOCATION

Facility No. 25821
1824 George Washington Way; Richland, WA

PURPOSE

The purpose of this proposal is to outline services related to supply and injection of BOS 200® and conditioned bacteria into subsurface soil and groundwater at the above referenced site to "Trap and Treat" residual elevated concentrations of gasoline-range organics (GRO) and related volatile organic compounds (VOCs). The dosing of BOS 200® and bacteria concentrate in select areas has been determine based on analytical soil and groundwater data received via email on July 10, 2014. The following are the cleanup goals for the site:

- ▶ MTCA Method A for Soil for Groundwater

Residual Soil Impact

In 2000, gasoline-range organics (GRO) and related VOCs in soil were detected above Washington State Department of Ecology (Ecology) Model Toxic Control Act (MTCA) Cleanup Levels (CULs) in borings B1 through B7.

Groundwater Impact

Recent groundwater data collected in 2014 indicate a primary area of groundwater impact above MTCA A in the vicinity of monitoring well MW-6. Monitoring well MW-6 contains elevated dissolved benzene and MW-6 contains elevated GRO in excess of MTCA A CUL.

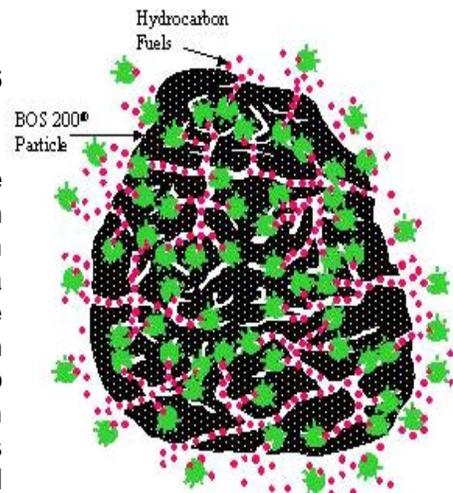
Overview (Injection Design - Saturated Zone)

The proposed areas targeted for treatment have been assessed to include soil and groundwater impact in the primarily in the northeast portion of the former UST excavation area. BOS 200[®] provides utilizes two (2) proven technologies to effectively remediate petroleum hydrocarbon sites. The two technologies are 1) the trapping of the contaminants via carbon adsorption, and 2) the subsequent treatment via biological degradation within the BOS 200[®] matrix as the product incorporates both aerobic and anaerobic biological processes. These two (2) proven and very powerful remediation mechanisms make what is called the “Trap and Treat” process. The “Trap” provides the immediate mass reduction and plume control, while the “Treat” provides the continued long term remedial degradation.

The product comes as a fine grained dry material which consists of: carbon, calcium sulfate, nitrate, phosphate, and ammonia in a proprietary blend. BOS-200[®] is 77% by weight carbon and up to 19% gypsum, the sulfate source. Gypsum is 79% by weight sulfate which translates to approximately 15% by weight sulfate in BOS 200[®]. The BOS 200[®] is mixed with water and a facultative blend of microbes (inoculation with aerobic and anaerobic microbes) to create a solids suspension. This is now an ideal environment for the biological process, where hydrocarbons are adsorbed on to BOS 200[®] particles made up of:

- ▶ Electron Acceptors: oxygen, nitrate, ammonia and sulfate (primary);
- ▶ Nutrients - phosphorus and nitrogen; and
- ▶ Aerobic and anaerobic blend of microbes (over 26 species of microbes);

The success in achieving cleanup goals is not just in the product installed, but the distribution of the product in subsurface. Distribution is controlled by the injection techniques used (i.e., vertical and horizontal spacing is a function of soil type, high pressure injection vs. low pressure injection, and top down vs. bottom up). For this site, given the soil type and contaminant mass, BB&A proposes to optimize the injectate distribution by 1) using top down techniques; 2) using relatively high pressure injections (enough pressure to provide localized soil lifting and propagation of BOS 200[®] from the injection tip); and 3) adjusting the horizontal and vertical injection spacing.



It is expected that the injection pressures will vary from 100 to 600 psig (measured at the discharge of the injection pump - the injection system pressure losses are approximately 100 psig – for hoses, valves and injection tips). Additionally, in clay-rich soils there is typically a break pressure (soil lifting pressure) that is sustained momentarily and then the pressure drops off. The discussion of the vertical and horizontal injection spacing is provided below for each of the injection areas.

SCOPE OF SERVICES

1.0 UNDERGROUND INJECTION CONTROL (UIC) PERMITTING

An underground injection control (UIC) permit will be obtained from the Department of Ecology (DOE) prior to injection of BOS-200® bacteria concentrate.

2.0 INJECTION DESIGN

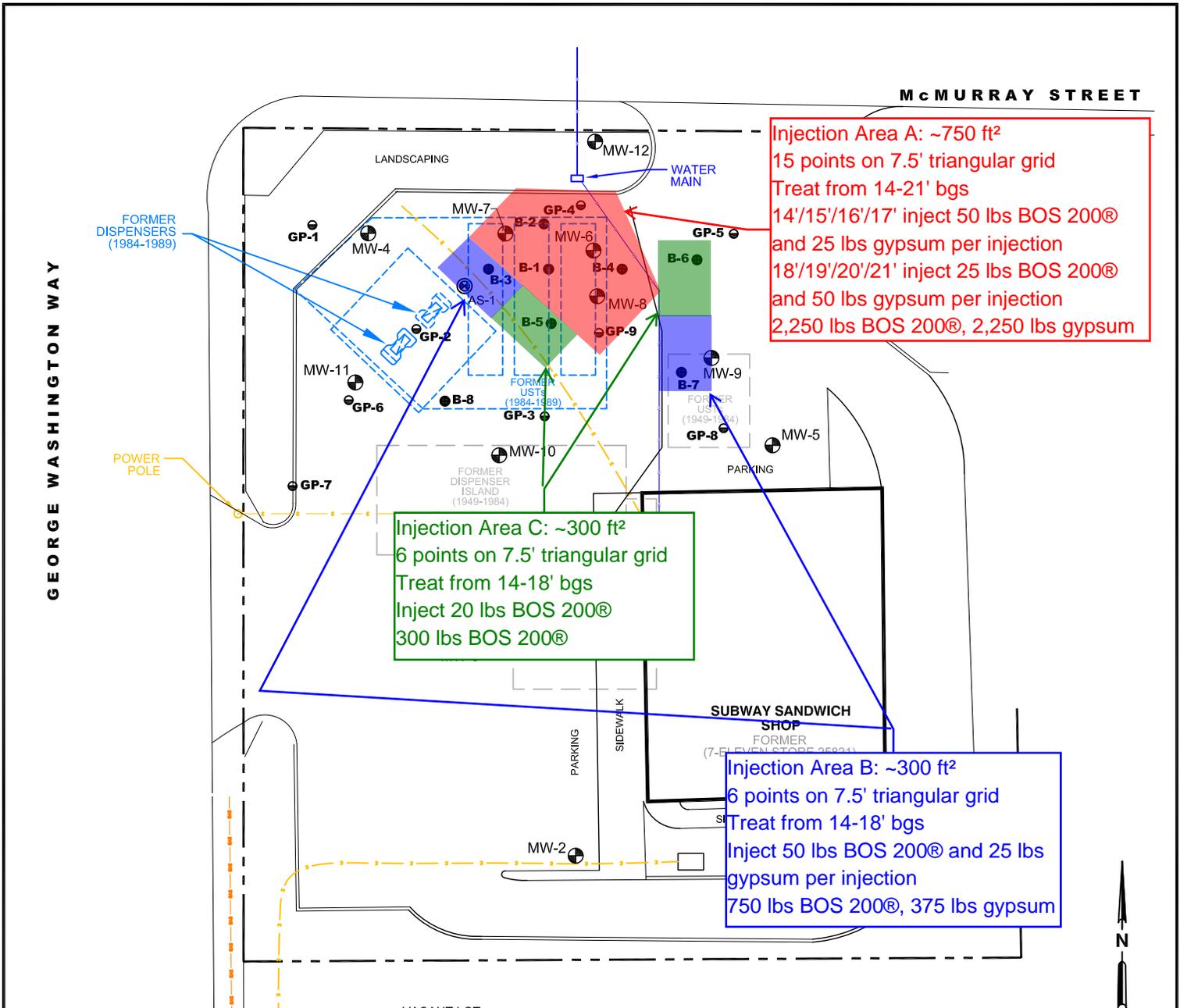
2.1 Target Zones, Injections, and Dosing

Based upon a review of analytical data collected from soil borings provided by Stantec, the target zone of treatment (vertical distribution of contamination) is estimated to be between four (4) and 13 feet BLS. Treatment at the site consists of a single target area as described below (see embedded **Figure** for Proposed Treatment Area).

INJECTION AREA A

Defined by groundwater analyses from monitoring well MW6 and soil data from B1, B3, and B4. Treatment Area: ~750 ft²

- Number of Injection Points (IP) & Horizontal Spacing: 15 points on 7.5' centers
- Injections and Vertical Spacing: Eight (8) injections with alternating depths of 15', 17', 19', and 21', in odd numbered injections points (i.e. IP1, IP3, etc.); and seven (7) injections with alternating depths 14', 16', 18', and 20' BLS in even numbered injections points (i.e., IP2, IP4, etc.).
- BOS200® Loading: 150 pounds (lbs) of BOS 200® and 150 pounds of per Gypsum per Injection Point. Total loading for Area A = 2,250 lbs of BOS 200® and 2,250 lbs of Gypsum with varied loadings by depth.
 - ▶ 14', 15', 16' and 17': 50 lbs of BOS 200® and 25 lbs Gypsum
 - ▶ 18', 19', 20' and 21': 25 lbs of BOS 200® and 50 lbs Gypsum
- The groundwater loading 50-gallons per injection interval/shot:
- The bacteria dosing schedule is:
 - 10 lbs of BOS-200® - 92 ml
 - 15 lbs of BOS-200® - 138 ml
 - 20 lbs of BOS-200® - 184 ml
 - 25 lbs of BOS-200® - 231 ml
 - 30 lbs of BOS-200® - 277 ml
 - 50 lbs of BOS-200® - 461 ml



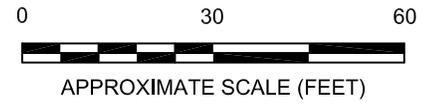
Injection Area A: ~750 ft²
 15 points on 7.5' triangular grid
 Treat from 14-21' bgs
 14/15/16/17 inject 50 lbs BOS 200®
 and 25 lbs gypsum per injection
 18/19/20/21 inject 25 lbs BOS 200®
 and 50 lbs gypsum per injection
 2,250 lbs BOS 200®, 2,250 lbs gypsum

Injection Area C: ~300 ft²
 6 points on 7.5' triangular grid
 Treat from 14-18' bgs
 Inject 20 lbs BOS 200®
 300 lbs BOS 200®

Injection Area B: ~300 ft²
 6 points on 7.5' triangular grid
 Treat from 14-18' bgs
 Inject 50 lbs BOS 200® and 25 lbs
 gypsum per injection
 750 lbs BOS 200®, 375 lbs gypsum

LEGEND:

- SUBJECT PROPERTY LINE BOUNDARY
- MW-1 ● MONITORING WELL LOCATION
- AS-1 ● AIR SPARGE WELL LOCATION
- B-1 ● SOIL BORING (IT, DECEMBER 2000)
- GP-1 ● SOIL BORING (SECOR, AUGUST 2004)
- - - - - ELECTRIC LINE
- — — — — WATER LINE
- — — — — GAS LINE
- WASCHER MOBIL SERVICE STATION (1949-1984)
- 7-ELEVEN DISPENSER ISLAND (1984-1989)
- CURRENT SITE FEATURES-SUBWAY SANDWICH SHOP



- NS NOT SAMPLED
- µg/L MICROGRAMS PER LITER
- BOLD** INDICATES CONCENTRATION ABOVE MTOA METHOD A CLEANUP LEVEL
- PID PHOTOIONIZATION DETECTOR

No warranty is made by Stantec as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed electronically, and may be updated without notification. Any reproduction may result in a loss of scale and or information.

<p>11130 NE 33RD PLACE, SUITE 200 BELLEVUE, WASHINGTON PHONE: (425) 869-9448 FAX: (425) 869-1190</p>	FOR: FACILITY NO. 25821 1824 GEORGE WASHINGTON WAY RICHLAND, WASHINGTON	FIGURE:	
	JOB NUMBER: 185750037	DRAWN BY: BLG	CHECKED BY: DH
			DATE: JUNE 2014

INJECTION AREA B

Defined by soil data from B3 and B7.

Treatment Area: ~300 ft²

- Number of Injection Points (IP) & Horizontal Spacing: Six (6) points on 7.5' centers
- Injections and Vertical Spacing: Three (3) injections with alternating depths of 13', 15', and 17', in odd numbered injections points; and three (3) injections with alternating depths 14', 16', and 18' BLS in even numbered injections points.
- BOS 200® Loading: 150 pounds (lbs) of BOS 200® and 75 pounds of per Gypsum per Injection Point. Total loading for Area A = 900 lbs of BOS 200® and 525 lbs of Gypsum.
 - ▶ 13', 14', 15', 16', 17', and 18': 50 lbs of BOS 200® and 25 lbs Gypsum
- The groundwater loading 50-gallons per injection interval/shot:
- The bacteria dosing schedule is:
 - 50 lbs of BOS-200® - 461 ml

INJECTION AREA C

Defined by soil data from B5 and B6.

Treatment Area: ~300 ft²

- Number of Injection Points (IP) & Horizontal Spacing: Six (6) points on 7.5' centers
- Injections and Vertical Spacing: Three (3) injections with alternating depths of 13', 15', and 17', in odd numbered injections points; and three (3) injections with alternating depths 14', 16', and 18' BLS in even numbered injections points.
- BOS 200® Loading: 60 pounds (lbs) of BOS 200® per Injection Point. Total loading for Area A = 360 lbs of BOS 200®.
 - ▶ 13', 14', 15', 16', 17', and 18': 20 lbs of BOS 200®
- The groundwater loading 50-gallons per injection interval/shot:
- The bacteria dosing schedule is:
 - 10 lbs of BOS-200® - 92 ml
 - 15 lbs of BOS-200® - 138 ml
 - 20 lbs of BOS-200® - 184 ml
 - 25 lbs of BOS-200® - 231 ml
 - 30 lbs of BOS-200® - 277 ml
 - 50 lbs of BOS-200® - 461 ml

CONDITIONS AND LIMITATIONS:

1. The professional and construction services of BB&A Environmental will be rendered using the degree of care and skill ordinarily exercised under similar circumstances by reputable engineering and construction firms practicing in this or similar locations. No other warranty express or implied is made.
2. The conclusions and recommendations reached from this assessment will be based only on the data provided by others and observations made during field investigations. The accuracy of these findings should not be considered as scientific certainties, but rather as professional opinion based upon selected and limited data.
3. The services to be performed consist solely of those described within the Scope of Service outlined above. Other environmental assessment services (e.g., waste characterizations, soil and water sampling, compliance audits, wetlands determinations, etc.) are not included in the Scope of Work of this Level I assessment. These services may be provided as an expansion of the Scope of Service outlined above or as an additional phase of the investigation.
4. This proposal is based upon performing the assessment under Level D or less health and safety protection. If unsafe physical or chemical conditions are encountered at the site, all work will be temporarily halted, the client notified, and a new scope of work negotiated.
5. BB&A Environmental does not assume the responsibility for reporting to any local, state, or federal public agencies any conditions at the site that may present a potential danger to public health, safety, or the environment. Notification to appropriate agencies as required by law is the responsibility of the client.
6. If the subject property and facilities are not owned by the client, the client warrants that all necessary permissions for BB&A Environmental to enter onto the site for the purpose of performing the Scope of Work outlined above has been obtained.
7. Monthly invoices will include all services performed through the end of the month and all payments received through the end of the month. Terms will be net 15 days from the date of invoice. Late charge of 1.5%.
8. If a dispute arises between the parties pertaining to this Agreement, the dispute shall be determined by arbitration in accordance with the arbitration provisions of Oregon Revised Statutes. Each party shall choose an arbitrator, and the two arbitrators shall choose a third. If the choice of the second or third arbitrator is not made within ten (10) days of the choosing of the prior arbitrator, either party may apply to the presiding judge of the Lane County Circuit Court to appoint the required arbitrator. The parties shall be entitled to conduct discovery in accordance with the Oregon Rules of Civil Procedure, subject to limitation by the arbitrator to secure just and efficient resolution of the dispute. If the amount in controversy exceeds \$10,000.00, the arbitrator's decision shall include a statement specifying in reasonable detail the basis for and computation of the amount of the award, if any. The arbitration shall take place in Lane County, Oregon, and the award of the arbitrator shall have the effect provided in Oregon Revised Statutes governing arbitration. Cost of the arbitration shall be shared equally by the parties, and each party shall pay its own attorney fees incurred in connection with the arbitration.

Dated: 7/18/14

BB&A Environmental



Signature

Randall J. Boese
Name (Printed or Typed)

President
Title

ACCEPTANCE OF PROPOSAL

You are hereby authorized to furnish all materials and labor required to complete the work detailed in the above Agreement, for which the undersigned agrees to pay the amount stated in said Agreement in accordance with the terms and conditions thereof.

Cost Proposal for BOS-200® Injection

Date: _____

Signature

Name (Printed or Typed)

Title



TRAP & TREAT® - BOS 200®

Based on years of experience using a variety of injectable technologies, ranging from augmented bioremediation to Fenton chemistry using hydrogen peroxide, it became clear that a better mousetrap was needed. As a consequence of this line of thought, an idealized product was defined having the following characteristics.

1. Can reduce contaminant concentrations quickly to regulatory standards.
2. Works in a variety of soil and groundwater conditions.
3. Is non-toxic and has no adverse impact on soil properties or groundwater quality.
4. Is applicable to a variety of contaminants.
5. Is reasonably cost-effective, at least in comparison to existing remedies.
6. Is a passive system, easily installed using equipment common to the industry.

The above six characteristics are the heart and sole of RPI's Trap & Treat® concept. The trap portion is designed around an immediate and predictable impact, observable in groundwater and soil after installation of the product. This aspect of BOS 200® is due to the presence of activated carbon in the product. In other words, the "Trap" is absorption by the activated carbon. Significant reductions in contaminant concentrations are typically realized in a matter of hours.

BOS 200® does not stop at stabilization of contamination. Absorption is just the first step in the process. Treatment is accomplished through biodegradation of the absorbed contaminants. In general, whenever the following conditions are present,

Microorganisms + Electron Donors + Electron Acceptors + Nutrients.

The result is metabolic by-products + energy + new microorganisms (Wiedemeier, 1999).

In this case, petroleum-degrading microorganisms are the "bugs" and hydrocarbon contaminants are the electron donors. Hydrocarbon degraders are very robust and can thrive under a wide range of conditions. In fact, they have been known to withstand pressures of hundreds of bars, pH conditions ranging from 1 to 10, temperatures from 0° to 75° C, and salinities greater than normal seawater (Freeze and Cherry, 1979). In the last decade, a great deal of research has been conducted on the role and importance of electron acceptors and nutrients within hydrocarbon plumes and the consensus is that the rate of biodegradation is limited by a lack of electron acceptors rather than a lack of nutrients. BOS 200® contains selected nutrients including phosphorus and nitrogen, and it contains a variety of electron acceptors that can be utilized under aerobic or anaerobic conditions.

A complete story of the electron acceptors must begin in the mixing tank. The product is shipped as a dry powder, which is mixed with water in the field to prepare an injectable slurry. One feature of activated carbon is that it has quite an affinity for oxygen. It adsorbs oxygen as the BOS 200® is manufactured, stored, and from the aerated water during the mixing operation. In short, the product is saturated with oxygen before injection into the contaminated formation. The product contains additional electron acceptors in the form of nitrate, ammonia and a time-release source of sulfate. The source of the time-release sulfate is gypsum or calcium sulfate.

Gypsum has been used by farmers for centuries as a soil conditioner and is not very soluble in water. However its solubility is such that a low but persistent concentration of sulfate can be maintained in groundwater for a number of years with a single application. A hidden benefit of this chemistry has to do with phosphorus. During manufacture, a small amount of ammonium phosphate is blended into the mix. This readily dissolves when mixed with water. However, calcium phosphate is virtually insoluble in water and so the available phosphate is rapidly precipitated out of solution, into and onto the activated carbon during the mixing operation. This provides a bio-available form of phosphorus (an essential nutrient) to the microorganisms that cannot be washed out by groundwater seep.

For thermodynamic reasons, microorganisms preferentially utilize those electron acceptors that provide the greatest amount of free energy during respiration (Bower 1992). The driving force for the biodegradation of petroleum hydrocarbons is the transfer of electrons from the donor (hydrocarbon) to the electron acceptor. The organism derives energy from this process and the more energy it can derive, the more attractive the process becomes. The high end of the energy spectrum is represented by aerobic utilization of oxygen as the electron acceptor. An overview of the next steps along the energy path is given by the following.

Nitrate reduction, Fe⁺³ reduction, Sulfate reduction, and the last stop is given by methanogenic respiration.

The concept of respiration is important in that the organism literally breaths nitrate or sulfate while oxidizing hydrocarbons. In each case above, the energy derived decreases as one moves down from nitrate toward methanogenic respiration. It is clear that if oxygen is available, it will be the preferred electron acceptor. The catch is that organisms must be present that can take advantage of prevailing conditions at any given time. When the material is first injected, it is saturated with oxygen. Consequently, no matter what the prevailing condition is within the plume, the prevailing condition within the BOS 200® is initially aerobic. Once the oxygen is consumed, nitrate will become the next favored electron acceptor, finally settling into sulfate reduction along with some methanogenic respiration. This process can be short-circuited by a persistent source of a higher energy acceptor. For example, if a sustainable source of oxygen is available, the dominant mechanism for degradation will remain aerobic.

This points to an important concept. Much discussion in the literature is devoted to the apparent advantage indigenous microorganisms have over cultured bacteria that one might add to the mix. It is widely held that existing organisms have become accustomed to the prevailing condition and already “occupy the niche”. As a result, it is very hard for a new organism to take

over or to even get a foothold in the existing biocosm. In fact, the BOS 200 represents a new niche that is very attractive to bacteria. Bugs love activated carbon. We take advantage of this by mixing bacteria with the product when preparing the injectable slurry. The product is inoculated with bacteria before it is installed. This is an important step because the new niche is already occupied by bacteria designed to degrade hydrocarbons before it is installed. Shortly after installation, hydrocarbons are adsorbed and the niche is full.

RPI recommends and uses a specific blend of microorganisms with its product. It is a customized culture of facultative anaerobes that can take advantage of the wide swing in conditions presented by the installed BOS 200[®]. As a result, there are organisms present that can use the oxygen initially present. Further, there are nitrate reducers, iron reducers, sulfate reducers, fermenters, and methanogens. No matter what condition exists within the activated carbon, there are microorganisms present to take advantage.

Metabolic by-products vary depending on what metabolic pathway is being used for hydrocarbon degradation. Carbon dioxide and water are common although many other compounds are possible, including various alcohols and volatile fatty acids. Acetate turns out to be produced by aerobic conditions as well as by anaerobic fermentation, and under methanogenic respiration. Other products include lactate, formate, butyrate, isobutyrate, pyruvate, and propionate along with methane.

When BOS 200 is mixed with water, the resulting slurry has elevated concentrations of nitrate, sulfate, and chloride. This results in elevated concentrations in the groundwater wherever the material is injected. Under normal conditions, contaminant levels drop literally overnight. Initially, nitrate levels within the treatment area range from 50 ppm to perhaps as high as 250 ppm with sulfate ranging from 200 ppm to 1500 ppm. Chloride is initially somewhere between 50 ppm and 150 ppm. At first, microbes utilize oxygen. When oxygen is depleted, nitrate is the next highest energy electron acceptor. The first step in the de-nitrification is the formation of nitrite. Over the first month or two (post injection), nitrate levels typically drop and low levels of nitrite are often observed. The nitrite and nitrate are normally consumed within the first two months and nitrate falls to levels below regulatory standards. At about the same time, measurable levels of acetate can begin to show up. Finally, fermentation, sulfate reduction, and methanogenic respiration become the dominant pathways.

Regulators often postulate that the disappearance of nitrate is simply due to the natural dispersion from groundwater movement and diffusion. Chloride can be used as an internal measure of these effects as there are no biological demands for this species nor are there chemical demands that are commonly encountered in groundwater plumes. As a result, the behavior of chloride over time is a good indication of natural forces such as groundwater seep and diffusion. It should be noted that neither chloride nor nitrate is adsorbed by activated carbon. In fact, activated carbon is virtually transparent to charged inorganic species. As described above, nitrate typically plummets over the first two months, falling from an initial value of over 100 ppm to less than 5 ppm. Chloride, on the other hand, typically remains fairly stable over this same time period. Given such performance, it is hard to argue that the disappearance of nitrate is not due to its consumption in anaerobic respiration.

CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA

Appendix K WASTE DOCUMENTATION
May 25, 2017

Appendix K WASTE DOCUMENTATION



***24 HOUR EMERGENCY RESPONSE, CALL (877) 577-2669 ***

SHIPPING PAPER

Lading Manifest: 942022-13

SHIPPER / CUSTOMER 7-ELEVEN # 25821		DELIVERY DATE	JOB # 1724588
ADDRESS 1824 GEORGE WASHINGTON WAY		POINT OF CONTACT LARRY HOOTHART	
CITY, STATE, ZIP RICHLAND WA 99354		PHONE # (949) 460-5200	
CARRIER / TRANSPORTER BURLINGTON ENVIRONMENTAL, LLC		PHONE # (253) 383-3044	
CONSIGNEE / FACILITY BURLINGTON ENVIRONMENTAL, LLC.		POINT OF CONTACT	
ADDRESS 20245 77TH AVENUE SOUTH		PHONE # (253) 872-8030	
CITY, STATE, ZIP KENT, WA 98032			

HM #	US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	Containers		Total Quantity	UOM
		No.	Type		
A	MATERIAL NOT REGULATED BY DOT	7	DM	3500	P
B	MATERIAL NOT REGULATED BY DOT	2	DM	1,200	P
C					
D					

Special Handling Instruction and Additional Information:

a) 551166-01 - NON HAZARDOUS SOIL - LP01 STAB01 (1) b) 565227-01 - WELL PURGE WATER - WAT13 (2) FIELD SERVICE ORDER 228017

Placards Provided YES _____ NO _____

SHIPPER'S CERTIFICATION: "I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations." I also certify that all times listed above are true and correct.

(SHIPPER) PRINT OR TYPE NAME X Brandy Trout	SIGNATURE X	MONTH 10	DAY 25	YEAR 13
(CARRIER/TRANSPORTER) PRINT OR TYPE NAME X Tim Orsborn	SIGNATURE X	MONTH 10	DAY 25	YEAR 13
(CONSIGNEE/FACILITY) PRINT OR TYPE NAME X Christine Crisostomo	SIGNATURE X	MONTH 11	DAY 07	YEAR 13

CONSIGNEE

'13 NOV 7 PM 11:16



24/7 HOUR EMERGENCY RESPONSE, CALL (877) 577-2669 ***

SHIPPING PAPER

Lading Manifest: 323026-14

SHIPPER / CUSTOMER 7-ELEVEN 25821		DELIVERY DATE	JOB #1946459
ADDRESS 1824 GEORGE WASHINGTON WAY		POINT OF CONTACT LARRY MOOTHART	
CITY, STATE, ZIP RICHLAND WA 99354		PHONE # (949) 460-5200	
CARRIER / TRANSPORTER BURLINGTON ENVIRONMENTAL, LLC		PHONE # (253) 383-3044	
CONSIGNEE / FACILITY BURLINGTON ENVIRONMENTAL, LLC.		POINT OF CONTACT	
ADDRESS 20245 79TH AVENUE SOUTH		PHONE # (253) 872-8030	
CITY, STATE, ZIP KENT WA 98032			

HM	US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	Containers No.	Type	Total Quantity	UOM
A	MATERIAL NOT REGULATED BY DOT	1	EM	450	P
B	MATERIAL NOT REGULATED BY DOT	2	DM	330	P
C	MATERIAL NOT REGULATED BY DOT	2	DM	477	P
D					

Special Handling Instruction and Additional Information:

a) 554172.005-00 - NON-HAZARDOUS WATER - HAZ05 (4) b) 554172.005-00 - NON-HAZARDOUS WATER - HAZ05 (5) c) 554172.005-00 - NON-HAZARDOUS WATER - HAZ05 (6) ZSO 247431

Placards Provided YES _____ NO _____

SHIPPER'S CERTIFICATION: "I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I also certify that all times listed above are true and correct.

(SHIPPER) PRINT OR TYPE NAME x Matt Etchison on behalf of 7-11	SIGNATURE [Signature]	MONTH 11	DAY 14	YEAR 14
(CARRIER/TRANSPORTER) PRINT OR TYPE NAME x Matt Etchison	SIGNATURE [Signature]	MONTH 11	DAY 14	YEAR 14
(CONSIGNEE/FACILITY) PRINT OR TYPE NAME x George Cruz	SIGNATURE [Signature]	MONTH 11	DAY 23	YEAR 14

25821
1088110

CONSIGNEE

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***24 HOUR EMERGENCY RESPONSE, CALL (877) 577-2669 ***

SHIPPING PAPER

Lading Manifest: 723494-15

SHIPPER / CUSTOMER 7-ELEVEN 25821		DELIVERY DATE	JOB # 2198773
ADDRESS 1824 GEORGE WASHINGTON WAY		POINT OF CONTACT LARRY MOOTHART	
CITY, STATE, ZIP RICHLAND WA 99354		PHONE # (949)460-5200	
CARRIER / TRANSPORTER BURLINGTON ENVIRONMENTAL, LLC		PHONE # (253)383-3044	
CONSIGNEE / FACILITY BURLINGTON ENVIRONMENTAL, LLC.		POINT OF CONTACT	
ADDRESS 20245 77TH AVENUE SOUTH		PHONE # (253)872-8030	
CITY, STATE, ZIP KENT , WA 98032			

HM	US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	Containers		Total Quantity	UOM
		No.	Type		
A	MATERIAL NOT REGULATED BY DOT	4	DM	3200	P
B C3167	MATERIAL NOT REGULATED BY DOT	1	DM	250	P
C					
D					

Special Handling Instruction and Additional Information:
 a) 551166.022-00 - IDW SOIL - SPAB01 (3) b) 554172.005-01 - IDW WATER - MAT05 (4) P80 258900

Placards Provided YES _____ NO _____

SHIPPER'S CERTIFICATION: "I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations." I also certify that all times listed above are true and correct.

(SHIPPER) PRINT OR TYPE NAME X JAMES PABLO ON BEHALF OF 7-ELEVEN	SIGNATURE 	MONTH 10	DAY 2	YEAR 15
(CARRIER/TRANSPORTER) PRINT OR TYPE NAME X JAMES PABLO	SIGNATURE 	MONTH 10	DAY 2	YEAR 15
(CONSIGNEE/FACILITY) PRINT OR TYPE NAME X Stephanie Hutchins	SIGNATURE X Stephanie Hutchins	MONTH 10	DAY 15	YEAR 15

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1240393

CONSIGNEE

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SHIPPING PAPER

Lading Manifest: 763527-15

SHIPPER / CUSTOMER 7-ELEVEN 25821		DELIVERY DATE	JOB #198773
ADDRESS 1824 GEORGE WASHINGTON WAY		POINT OF CONTACT LARRY MOOTHART	
CITY, STATE, ZIP RICHLAND WA 99354		PHONE # (949)460-5200	
CARRIER / TRANSPORTER BURLINGTON ENVIRONMENTAL, LLC		PHONE # (253)383-3044	
CONSIGNEE / FACILITY BURLINGTON ENVIRONMENTAL, LLC.		POINT OF CONTACT	
ADDRESS 20245 77TH AVENUE SOUTH		PHONE # (253)872-8030	
CITY, STATE, ZIP KENT , WA 98032			

HM	US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	Containers		Total Quantity	UOM
		No.	Type		
A	MATERIAL NOT REGULATED BY DOT	3	DM	3000	P
B	<i>CH7916</i>				
C					
D					

Special Handling Instruction and Additional Information:

a) 551166.022-00 - IDW SOIL - STAB01 (9) FSO 258908 - 2

Placards Provided YES _____ NO _____

SHIPPER'S CERTIFICATION: "I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations." I also certify that all times listed above are true and correct.

(SHIPPER) PRINT OR TYPE NAME	SIGNATURE	MONTH	DAY	YEAR
X JAMES PABLO <i>OF 7 ELEVEN 25821</i>	<i>[Signature]</i>	11	6	15
(CARRIER/TRANSPORTER) PRINT OR TYPE NAME	SIGNATURE	MONTH	DAY	YEAR
X JAMES PABLO	<i>[Signature]</i>	11	6	15
(CONSIGNEE/FACILITY) PRINT OR TYPE NAME	SIGNATURE	MONTH	DAY	YEAR
X Megan Swick	<i>[Signature]</i>	11	22	15

05821
6255541

CONSIGNEE

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CLEANUP ACTION REPORT
FORMER 7-ELEVEN STORE 25821
1824 GEORGE WASHINGTON WAY, RICHLAND, WA

Appendix L HORIZONTAL GROUNDWATER SEEPAGE VELOCITY CALCULATION
May 25, 2017

Appendix L HORIZONTAL GROUNDWATER SEEPAGE VELOCITY CALCULATION

APPENDIX L
GROUNDWATER SEEPAGE VELOCITY CALCULATION

Former 7-Eleven Store No. 25821
1824 George Washington Way, Richland, WA

Seepage velocity formula:

$$V_{gw} = (K)(i)(U)/n$$

where:

V_{gw} = seepage velocity (ft/day)
K = hydraulic conductivity (cm/sec)
 i = hydraulic gradient (unitless)
U = unit conversion factor [2,834.646 (ft/day)/(cm/sec)]
 n = porosity (unitless)

Site specific parameters:

$K = 9.2 \times 10^{-3}$ cm/sec ⁽¹⁾
 $i = 0.0069$ ft/ft ⁽²⁾
U = 2834.646 [(ft/day)/(cm/sec)]
 $n = 0.25$ (unitless)

$$V_{gw} = [(9.2 \times 10^{-3} \text{ cm/sec}) * (0.0031 \text{ ft/ft}) * (2,834.646 \text{ (ft/day)/(cm/sec)})] / 0.25$$

$V_{gw} = 0.71977$ ft/day
 $V_{gw} = 262.7$ ft/year

Notes:

⁽¹⁾ = The saturated hydraulic conductivity for site soil was estimated using typical values for Burbank loamy fine sand, gravelly substratum (9.2×10^{-3} cm/sec) which provides a conservative value for soils in the vicinity of the Site. The saturated hydraulic conductivity was obtained from the Natural Resources Conservation Service Web Soil Survey.

⁽²⁾ = hydraulic gradient from First Quarter 2016 (February 9, 2016) groundwater sampling event.