Kennedy/Jenks Consultants

32001 32nd Avenue South, Suite 100
Federal Way, Washington 98001
253-835-6400
FAX: 253-952-3435

Site Investigation
Wishram Railyard
Wishram, Washington

August 2012

Prepared for

BNSF Railway Company
2454 Occidental Avenue South, Suite 1A
Seattle, Washington 98134

K/J Project No. 1196010*00

SITE INVESTIGATION
Wishram Railyard, Wishram, Washington

Prepared for

BNSF RAILWAY COMPANY

Prepared by:

Joe R. Sawdey
Project Hydrogeologist

Reviewed by:

Ty Schreiner
Vice President

Prepared by

KENNEDY/JENKS CONSULTANTS
ENGINEERS AND SCIENTISTS
32001 32nd Avenue South, Suite 100
Federal Way, Washington 98001
(253) 835-6400

K/J 1196010*00

August 2012

Table of Contents

Table of Contents (Continued)

List of Tables

List of Figures

List of Appendices

Section 1: Introduction

Kennedy/Jenks Consultants completed an environmental investigation at the BNSF Railway Company (BNSF) railyard in Wishram, Washington (site). A vicinity map showing the location of the site is included as Figure 1.

The investigation was conducted to further characterize site hydrogeology and evaluate soil and groundwater quality in two areas where past assessments (Kennedy/Jenks Consultants 2003, 2004, 2010, and others) revealed the presence of chemicals of concern (COCs) in the subsurface. The two locations include 1) the area next to the current Maintenance Shop and 2) the area associated with the former Powerhouse facility. The site map (see Figure 2) shows these locations.

This site investigation report (report) describes site investigation activities and presents soil and reconnaissance groundwater analytical data for samples collected at the site in January and February 2012. The report also includes the installation details for three air sparge (AS) wells and four soil vapor extraction (SVE) wells. The SVE and AS wells were installed for remediation purposes in the vicinity of the Maintenance Shop (Figure 2).

The objectives of this investigation included:

- Review past reports and analytical data to assist in soil boring and monitoring well placement.
- Review historical information for the site to further identify potential sources of encountered COCs.
- Investigate the former Powerhouse and Maintenance Shop areas using soil borings with continuous sampling using direct-push techniques.
- Install shallow monitoring wells (WMW-8, WMW-9, WMW-10, and WMW-11) to provide further definition regarding the distribution of hydrocarbon compounds in groundwater.
- Install three AS wells and four SVE wells to support construction of remediation systems.

Section 2: Site Background and Past Findings

2.1 Site Location

Wishram is located in Klickitat County, Washington, approximately 13 miles northeast of The Dalles, Oregon, and 0.75 mile south of Washington State Route 14. The site, consisting of the western half of the Wishram railyard, lies between the town of Wishram and the northern shoreline of the Columbia River, within the southwestern quarter of Section 17, Township 2 north, Range 15, east of the Willamette Meridian.

2.2 Site Description

The site is approximately 2,000 feet long, ranges from 150 to 720 feet wide, and encompasses approximately 20 acres, including land no longer occupied by BNSF (Kennedy/Jenks Consultants 2004b). The site is bounded by the town of Wishram to the north, the vacant portion of the railyard to the east, the Columbia River to the south and southwest, and railroad right-of-way to the west. Onsite structures include a small Amtrak depot, storage building, maintenance shop that includes office and tool storage, two mainline tracks, and three active track spurs.

2.3 Current and Historical Site Operations

The site was constructed between 1910 and 1912 by the Spokane, Portland, and Seattle (SP&S) Railway and later merged with Burlington Northern (BN), which then merged with BNSF. Historically, the site included many facilities to accommodate the locomotive traffic. These facilities included a 12-stall/6-track engine house, turntable, Powerhouse, fueling platform, boiler house, and depot.

The site was used primarily for railcar switching, conducted on approximately 35 track spurs that extended from the far eastern end of the site to the former engine house (Kennedy/Jenks Consultants 2004b). Most of the track spurs and facilities have been removed. Current site operations include Amtrak passenger service at the depot and limited railcar switching on track spurs located just south of the depot. A track truck maintenance facility is also currently in operation at the site.

Information regarding historical use and storage of petroleum fuel onsite was collected from several sources. The *Site Assessment Report, Wishram Railyard, Wishram, Washington* (Kennedy/Jenks Consultants 2004b), provides a list of known former aboveground storage tanks (ASTs) and underground storage tanks (USTs), along with the approximate locations and contents of the tanks. Multiple historical maps (see Appendix A) were used to identify onsite petroleum appurtenances, including oil tanks, an oil sump, oil/fuel piping, an oil unloading track, diesel piping, and a diesel fueling spur (Figure 3). The approximate duration of various fueling practices was obtained from station maps (Appendix A), as well as literature regarding SP&S Railway history (Grande 1992; Austin and Dill 1996, Woods 1974). The SP&S Railway histories also included useful historical photographs (see Appendix B) and site maps spanning the history of the site. Information obtained from these references is summarized below.

Fueling of locomotives took place onsite from approximately 1912 to the 1970s. Initially, site power demands appear to have been provided by steam generation through Bunker fuel. The former Powerhouse appears to have been used to generate steam to power the site (see Steam Pipe System Map in Appendix A).

Reported locations of fuel storage are shown in a historical photograph of the site (see Appendix B) and were identified using past reports, historical maps, and the historical documents mentioned above. The approximate former locations of these features are also displayed with previous sampling locations on Figure 3.

Based on available information, Bunker fuel use onsite was phased out during the late 1940s or early 1950s, when locomotives switched to diesel generators for power (Grande 1992). The Powerhouse was demolished between 1956 and 1960.

Diesel fueling continued onsite from approximately the late 1940s to the 1970s on either a fueling platform or fuel spur (Untitled Map, 1956, in Appendix A). During this time, diesel fuel was reportedly stored primarily in two 100,000-gallon ASTs (Figure 3) and connected by underground piping to fueling platform on the southern side of the mainline tracks. The 100,000-gallon tanks were removed and fueling ceased during the late 1970s (Kennedy/Jenks Consultants 2004b).

2.4 Past Findings / Remediation Activities

Two primary soil removal events have occurred onsite to remove accessible petroleum-containing soils. Figure 2 displays the approximate boundaries of these excavations, and Figure 3 displays storage tanks removed during the excavations. During the first excavation, which occurred between January and April 2002, RMCAT Environmental Services, Inc. (RMCAT) of Portland, Oregon, removed a 30,000-gallon UST located west of the former Boiler House and associated petroleum-containing soil (see Figures 2 and 3) (Kennedy/Jenks Consultants 2004a). The tank reportedly had been used to store heating oil from the early 1970s until 1982 (BNSF 1988). Confirmation sampling revealed residual petroleum hydrocarbons above Ecology Model Toxics Control Act (MTCA) Method A soil cleanup levels remain in soil above the bedrock around the excavation area. Further removal of the hydrocarbon was not possible due to the presence of bedrock.

The findings presented in the *Site Assessment Report, Wishram, Washington*, dated August 2004 (Kennedy/Jenks Consultants), served as the primary source of data for initiating the second site soil excavation in 2005. Soil/groundwater analytical results indicated elevated concentrations of COCs (primarily hydrocarbon compounds) in three areas onsite: 1) an area west of the Maintenance Shop near a former Pump House foundation, 2) the former fueling platform, and 3) the former Powerhouse. Excavation activities at these locations are documented in the *Remediation Documentation Report, Wishram, Washington*, dated March 2007.

The following findings from the 2005 excavation project are relevant to this report:

- Former Powerhouse
  - Removed a large, oval-like, oil/fuel piping system that apparently connected the former fueling platform area to the former Powerhouse (Figure 3). The system included Bunker oil-filled pipes, as well as steam pipes.
  - Discovered a 40-foot-long by 12-foot-wide by 15-foot-deep concrete vault next to the former Powerhouse (Figure 3). During the excavation, approximately 250 tons of petroleum-containing soil were removed from this vault, which was subsequently backfilled with clean soil. The steam pipe system map (Appendix A) identifies the vault as an oil sump.
  - Observed that well WMW-2, in which dense non-aqueous phase liquid (DNAPL) had been encountered, was installed in oily timber associated with the base of the above-mentioned concrete vault/oil sump. Well WMW-2 was abandoned, because the well had been completed in oily timbers and was not representative of site conditions.

- Maintenance Shop
  - Removed the former Pump House and the majority of related diesel fuel piping. Petroleum-filled piping remaining in place following the excavation activities have been cleaned of all fuel. Conditions encountered during the 2005 excavation activities led to the assumption the former Pump House had delivered diesel fuel to the fueling platform via underground piping. An untitled SP&S Railway station map appears to confirm this assumption (Appendix A).

- Summary for all areas
  - Following completion of remedial activities: removed one underground lube oil storage tank, and the former Pump House and well WMW-2 was abandoned; pressure washed the oil-sump/concrete vault walls; excavated approximately 3,656 tons of contaminated soil, and transported it to an offsite disposal facility; and recycled approximately 1,800 gallons of fuel and oil removed from abandoned piping, as well as approximately 10 tons of cleaned, abandoned piping (scrap).

Post-excavation confirmation sampling and groundwater monitoring events (Kennedy/Jenks Consultants 2007, 2010a, 2010b, 2010c) indicate residual concentrations of petroleum hydrocarbons that exceeded MTCA Method A soil and groundwater cleanup levels in site soil and groundwater. In addition, light non-aqueous phase liquid (LNAPL) was encountered in well WMW-7; the most recent (March 2012) measured product thickness in well WMW-7 was 0.18 foot.

2.5 Hydrogeology

Site hydrogeologic conditions are dominated by the effects of historical, large-scale geoengineering projects in the area, including filling to create the site in the late 1800s and construction of The Dalles Dam, with subsequent upstream flooding of the Columbia River Gorge in 1957.

Wishram is located on a basalt bench at the base of an approximately 500-foot-high cliff that descends nearly vertically from the Columbia Plateau into the Columbia River Gorge. Early photographs indicate that before construction of the The Dalles Dam, basalt bedrock sloped southward from Wishram to the Columbia River channel, which was approximately 40 feet lower and up to several hundred feet farther south of the current shoreline. A map displaying the estimated depth to underlying bedrock for a select portion of the site is included (Figure 4). When the railyard was constructed, sand was reportedly excavated from large dunes at the western end Wishram and used to fill a portion of the basalt slope to create flat areas for track and maintenance buildings. After completion of The Dalles Dam in 1957, the river stage rose to a level approximately 10 to 15 feet below the ground surface elevation of the site, creating Lake Celilo, and through loss from the lake, produced an artificial saturated zone within the sand fill beneath the site.

A potentiometric surface map was created using groundwater elevation data collected on 12 and 14 March 2012 (Figure 5). Based on historical monitoring results (Table 1), the hydraulic gradient of shallow groundwater can shift from either predominantly north or south depending on local recharge conditions.

Groundwater monitoring using pressure transducers was conducted from 14 March 2012 through 9 April 2012 to assess the impacts of daily fluctuations in Lake Celilo on site groundwater. Water level measurements were made at 10-minute intervals in wells WMW-1, WMW-8, WMW-9, and WMW-10. These continuous water level data has been plotted with Lake Celilo stage data (as measured at The Dalles Dam) provided by U.S. Army Corps of Engineer's databases (Figure 6). (Note: Stage elevations at The Dalles Dam are likely a few feet lower than stage elevations in Lake Celilo adjacent to the site.) The data collected display a responsive potentiometric surface to daily Lake Celilo fluctuations caused by variable discharge rates from the The Dalles Dam. Changes in Lake Celilo stage seem to propagate through the saturated zone and dissipate as a function of distance from the bank.

Wells WMW-1 and WMW-11 water level fluctuations (located within approximately 60 feet from the bank) display the largest water level changes due to water level fluctuations in Lake Celilo. Well WMW-8 (the furthest well from the lake included in the monitoring) shows no obvious response to Lake Celilo fluctuations.

Section 3: Site Activities

Site activities described in this section occurred during January through February 2012. Activities included advancing direct-push soil borings with continuous sampling, hollow-stem auger drilling and well installation, well development, groundwater and soil sample collection for analytical testing, and air sparge/soil vapor extraction (AS/SVE) well installation.

Soil samples for lithologic logging and laboratory analysis were collected using a 2.5-inch outside diameter, 60-inch-long, MC5© soil sampling system (Geoprobe Systems 2012) with disposable polyvinyl chloride (PVC) liners. Reconnaissance groundwater samples for laboratory analysis were collected from temporary wells using a peristaltic pump, with a target depth of 3 to 5 feet below the water table.

3.1 Site Investigation Activities

3.1.1 Maintenance Shop Area

Monitoring wells WMW-8, WMW-9, WMW-10, and WMW-11 were installed onsite from 2 through 3 February 2012 (Figure 2). Drilling activities were performed by Major Drilling of Sherwood, Oregon, and observed by a Kennedy/Jenks Consultants geologist. Prior to well installation, direct-push probing included collecting soil samples using the MC5© sampling system to record subsurface soil conditions, including lithologic composition, visual observations, and hydrocarbon presence. Well boring were then advanced using hollow-stem auger drilling techniques with an 8-inch outside diameter bit.

General well construction design is described below. Complete construction design and dimensions for individual wells are provided in Appendix C. Monitoring wells were installed to depths ranging from 22 to 23.5 feet below ground surface (bgs). The wells were constructed with 2-inch schedule 40 PVC blank casing with 15 feet of 0.010-inch slotted screens at the base of the well. Well construction depths were targeted to provide approximately 2 feet of screen above historical high water levels. Sand filter pack consisting of 10-20 silica sand was installed within the annular space from the depth of the boring to approximately 1.5 feet above the top of the well screens. The wells were then sealed with 3/8-inch bentonite chips and hydrated in place. Flush-mounted well monuments set in concrete were used to complete the wells at ground surface. Well development included surging and bailing with disposable bailers. Approximately 10 gallons of water was bailed from each well and contained in drums onsite. Drummed purge water was subsequently transported offsite for recycling at Thermo Fluids in Portland, Oregon.

On 16 and 17 January 2012, reconnaissance groundwater samples were collected via temporary wells from AS-12-1, AS-12-2, AS-12-3, RB1, RB2, RB3, and RB4 (Figure 2) and submitted for laboratory analysis (Table 2). The RBx sample locations were intended to span the length of the former fueling platform on the southern side of the mainline tracks where prior sampling activities had not been conducted. Well AS-12-X groundwater samples were collected prior to sparge well installation to assess groundwater quality at that location prior to starting the air sparging system.

Each groundwater sample collected from these locations was submitted for the following analyses:

- Gasoline-range hydrocarbons using Northwest Total Petroleum Hydrocarbons as Gasoline Extended (NWTPH-Gx)
- Diesel and oil-range hydrocarbons using Northwest Total Petroleum Hydrocarbons as Diesel and Oil Extended (NWTPH-Dx) (with silica gel cleanup)
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8260B.

Analytical results of reconnaissance groundwater samples are summarized in Table 2. No groundwater sample contained BTEX compounds or gasoline-range hydrocarbon concentrations exceeding Ecology's MTCA Method A cleanup levels for groundwater. Reconnaissance groundwater samples from wells AS-12-2, AS-12-3, RB-1, RB-3, and RB-4 contained concentrations of diesel-range hydrocarbons exceeding MTCA Method A cleanup levels for groundwater (see Figure 2). Samples collected at wells AS-12-2 and AS-12-3 were the only reconnaissance groundwater samples analyzed that contained concentrations of oil-range hydrocarbons exceeding MTCA Method A cleanup levels (Table 2). The laboratory analytical report is included in Appendix D.

The data were used in conjunction with results from past sampling efforts to delineate the approximate distribution of hydrocarbon-containing soil and groundwater in the vicinity of the Maintenance Shop (Figure 7). Field observations indicated hydrocarbon impacts in this vicinity are localized to the upper few feet above and below the water table (smear zone, including LNAPL in well WMW-7) and are not associated with the deeper saturated zone impacts in the vicinity of the former Powerhouse (discussed below). In general, hydrocarbon impacts in the vicinity of the Maintenance Building consist primarily of weathered diesel and oil-range range hydrocarbon, which appear to originate near the former excavation area north of the mainline tracks, near the former fueling platform, and west of the former Boiler House (Figure 7).

3.1.2 Former Powerhouse Area

Between 10 January and 4 February 2012, 14 soil borings (B-12-X) were advanced to depths up to 68.5 feet bgs in an area next to the former Powerhouse (Figure 2). Boring logs describing subsurface lithologic conditions are included in Appendix C. Borings were advanced using direct-push probing methods, and continuous sampling occurred using a 5-foot-long MC5© sampling system.

During sampling, a viscous black/brown petroleum product was encountered in multiple borings advanced in this area. The petroleum product was typically encountered at depths below the water table (in the saturated zone), and typically was not encountered until depths lower than 25 feet bgs, and extended to depths up to 68 feet bgs in some locations. This material may represent an aged bunker fuel associated with past fueling and power generation at the site. Figure 3 shows the location of some of the former fueling appurtenances in relation to the soil boring locations near the former Powerhouse.

Soil samples were collected for laboratory analysis at depths ranging from 12 to 68 feet bgs around the former Powerhouse. These samples were analyzed using one or more of the following analytical tests:

- Gasoline-range hydrocarbons using NWTPH-Gx
- Diesel and oil-range hydrocarbons using NWTPH-Dx
- BTEX by EPA Method 8260B
- Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270C in select on monitoring (SIM) mode (up to two samples)
- Volatile petroleum hydrocarbons (VPH) by NWTPH/VPH
- Extractable petroleum hydrocarbons (EPH) by NWTPH/EPH.

The results of the soil sample chemical analyses are summarized in Table 3. With the exception of samples from four soil borings (B-12-5, B-12-6, B-12-9, and B-12-10), all boring locations contained hydrocarbon concentrations above MTCA Method A soil cleanup levels for diesel- and oil-range hydrocarbons. Five soil borings (B-12-1, B-12-2, B-12-3, B-12-4, and B-12-11) contained soils with gasoline-range hydrocarbons exceeding MTCA Method A cleanup levels. Soil samples B-12-2-40 and B-12-4-40 were analyzed for PAHs by EPA Method 8270C in SIM mode. Both samples exceeded MTCA Method A cleanup levels for naphthalene compounds, including methylnaphthalene compounds (Table 3). Other semivolatile organic compounds (SVOCs) were not detected above MTCA Method A/B soil cleanup levels.

The laboratory chromatographs provided in Appendix E display differences between encountered petroleum hydrocarbon types. Hydrocarbons in the saturated zone near the former Powerhouse have distinctly different chromatographic signatures from those encountered near the water table in the vicinity of the Maintenance Shop.

The estimated horizontal distribution of petroleum-containing soils near the former Powerhouse is displayed on Figure 7, and the estimated vertical distribution is displayed on multiple cross-sections created for the site (see Figure 8 for cross-section locations and Figures 8a, 8b, and 8c for actual cross-sections).

3.2 AS/SVE Well Installation

This section describes the completion of AS and SVE wells at the site. AS/SVE construction activities are summarized in a separate report.

3.2.1 AS Wells

Three AS wells (AS-12-1, AS-12-2, and AS-12-3) and four SVE wells (SVE-12-1, SVE-12-2, SVE-12-3, and SVE-12-4) were installed between 12 and 16 January 2012 (Figure 2). Complete well construction and soil boring logs for these wells are included in Appendix C. AS wells were installed to depths ranging from 19.3 to 19.5 feet bgs using a 3.25-inch

direct-push rod. The AS wells were constructed using 2-inch schedule 40 PVC blank casing with 2.5 feet of 0.010-inch slotted screen at the base of the well.

Sparge well construction depths were targeted to ensure that the screen was at least 5 feet below the water table. The sand filter pack consisting of 10-20 silica sand was installed within the annular space from the depth of the boring to approximately 1.5 feet above the top of the slotted screens. The wells were then sealed with granular bentonite and hydrated in place. Wells were developed using disposable bailers, with at least 10 gallons bailed per well. Produced water was staged in drums onsite and later transported to Thermofluids of Clackamas, Oregon. Less water was bailed from well AS-12-1 due to a material encountered within the well, which limited bailer submersion. Completing the surface of the wells was postponed until completion of system construction.

3.2.2 SVE Wells

SVE wells were installed to depths ranging from 8.5 to 10.4 feet bgs using hollow-stem augers with a 10-inch drill bit. Complete well construction and soil boring logs for these wells are included in Appendix C. The SVE wells were constructed using 4-inch Schedule 40 PVC blank casing with 3 or 4 feet of 0.020-inch slotted screens at the base of the well. The sand filter pack consisting of 10-20 silica sand was installed in the annular space from the depth of the boring to approximately 0.5 foot above the top of the slotted screens. The wells were then sealed with 3/8-inch bentonite chips and hydrated in place. Completion of the surface of the wells was postponed until completion of system construction.

Section 4: Summary

4.1 Maintenance Shop Area

The findings of the investigation, combined with results of past investigation and remedial activities, were used to estimate the distribution of hydrocarbon-containing groundwater in the Maintenance Shop area (Figure 7). Reconnaissance groundwater samples collected from wells AS-12-2, AS-12-3, RB1, RB3, and RB4 contained concentrations of diesel-range hydrocarbons above MTCA Method A cleanup levels (Table 2). Reconnaissance groundwater samples from wells AS-12-2 and AS-12-3 contained concentrations of oil-range hydrocarbons above MTCA Method A groundwater cleanup levels (Table 2).

Laboratory chromatographic data and field observations (Appendix C) indicate that impacts in the Maintenance Shop area likely resulted from diesel fueling/storage activities from the 1950s through the 1970s. Available data suggest that hydrocarbon compounds in the Maintenance Shop area originate primarily from the former 30,000-gallon UST in the Boiler House area, as it is the farthest upgradient location in which hydrocarbons have been detected.

However, a downgradient contributing source might have included the former Pump House and associated fuel lines. Figure 3 depicts the former 30,000-gallon oil/diesel tank as well as the former Pump House and former fueling spur associated with this area. Soil samples collected in this area (following soil removal in 2002) contained diesel and oil-range hydrocarbon concentrations up to 15,700 milligrams per kilogram (mg/kg) and 10,500 mg/kg, respectively (Kennedy/Jenks Consultants 2004b).

Based on the shallow depth (as little as 12 feet below grade) of the bedrock below the Maintenance Building area and the seasonal fluctuations observed in shallow groundwater, it appears that hydrocarbon migration from areas north of the mainline tracks is partially influenced by the topography of the bedrock surface. The bedrock is deeper (greater than 20 feet below grade) south of the mainline tracks, and hydrocarbon migration appears to be dominated by seasonal and temporal groundwater flow patterns.

4.2 Former Powerhouse Area

Fourteen soil borings were advanced near the former Powerhouse area. With the exception of B-12-3, B-12-5, B-12-6, and B-12-9, a thick viscous black hydrocarbon was encountered in each boring. Soil samples affected by the Bunker fuel contained concentrations of gasoline, diesel, and oil-range hydrocarbons exceeding MTCA Method A cleanup levels for soil (Table 3).

The horizontal distribution of the heavy oil in the saturated zone is displayed on Figure 7. The vertical distribution of the soils affected by Bunker fuel is displayed with cross-sections constructed from boring logs (Figure 8). In the center of the soil containing Bunker fuel, the vertical hydrocarbon thickness is approximately 40 feet. Toward the edges of the Bunker fuel containing areas, the vertical thickness is less than 10 feet. The Bunker fuel was found exclusively in the saturated zone. The current presence of the NAPL in the saturated zone is likely the consequence of large-scale Columbia River flooding after construction of The Dalles

Dam in 1957. Potential mobility and migration paths of the submerged Bunker fuel is currently unknown.

The presence of heavy oil in the saturated zone had been delineated by soil borings. The eastern, northeastern and, to a lesser extent, southern boundary of the Bunker fuel-containing soil has been delineated by borings bereft of apparent hydrocarbon impacts (clean borings) in these directions. Clean borings in other directions were inhibited by shallow bedrock that limits soil boring depths.

References

Austin, Ed and Tom Dill. 1996. SP&S: The Spokane Portland & Seattle Railway. Published and Copyrighted by Pacific Fast Mail, Edmunds, Washington.

BNSF Railway Company (BNSF). 1988. UST database records.

Grande, Walter R. 1992. The Northwest's Own Railway: Spokane, Portland & Seattle Railway and its Subsidiaries. Published and Copyrighted by Grande Press, Portland, Oregon.

Kennedy/Jenks Consultants. 2003. UST Site Assessment and Removal Report, Wishram, Washington. Prepared by Kennedy/Jenks Consultants for BNSF Railway Company. October 2003.

Kennedy/Jenks Consultants. 2004a. UST Site Assessment Report, Wishram, Washington. Prepared by Kennedy/Jenks Consultants for BNSF Railway Company. February 2004.

Kennedy/Jenks Consultants. 2004b. Site Assessment Report, Wishram Railyard, Washington. Prepared by Kennedy/Jenks Consultants for BNSF Railway Company. August 2004.

Kennedy/Jenks Consultants. 2007. Remediation Documentation Report, Wishram, Washington. Prepared by Kennedy/Jenks Consultants for BNSF Railway Company. March 2007.

Kennedy/Jenks Consultants. 2010a. Groundwater Monitoring Report, Wishram, Washington. Prepared by Kennedy/Jenks Consultants for BNSF Railway Company. March 2010.

Kennedy/Jenks Consultants. 2010c. Supplemental Site Remediation, Wishram Railyard, Washington. Prepared by Kennedy/Jenks Consultants for BNSF Railway Company. August 2010.

Kennedy/Jenks Consultants. 2010b. Supplemental Site Investigation – MW-7 Area, Wishram, Washington. Prepared by Kennedy/Jenks Consultants for BNSF Railway Company. September 2010.

Wood, Charles and Dorothy. 1974. The Northwest's Own Railway. Copyrighted and Published by Superior Publishing Company. Seattle, Washington.

Tables

TABLE 1

GROUNDWATER ELEVATION MEASUREMENTS
BNSF WISHRAM, WASHINGTON

Well ID	Date	Well Elevation (TOC)	Depth to LNAPL (feet) [a]	Depth to Groundwater (feet)	LNAPL Thickness (feet) [b]	Groundwater Elevation (feet above datum)
WMW-1	9/17/03	172.51[c]	-- [d]	15.88	--	156.63
	4/15/04	172.51	--	10.46	--	162.05
	7/13/04	172.51	--	10.78	--	161.73
	11/9/06	172.51	--	9.60	--	162.91
	7/3/07	172.51	--	9.85	--	162.66
	8/16/07	172.51	--	10.55	--	161.96
	4/16/08	172.51	--	10.10	--	162.41
	8/21/08	172.51	--	10.59	--	161.92
	3/12/09	172.51	--	10.15	--	162.36
	9/10/09	172.51	--	10.44	--	162.07
	7/7/11	172.51	--	9.96	--	162.55
	3/12/12	172.48 [e]	--	10.36	--	162.12
	3/14/12	172.48	--	10.28	--	162.20
WMW-2 [g]	9/18/03[f]	173.12[c]	--	--	--	--
	4/15/04	173.12	LNAPL [h]	10.81	LNAPL	162.31
	7/13/04	173.12	--	11.08	0.00 (F)	162.04
WMW-3	9/17/03	173.03[c]		16.37	--	156.66
	4/16/04	173.03	--	10.32	--	162.71
	7/13/04	173.03	10.64	10.65	0.01	162.38
	11/9/06	173.03	--	10.20	--	162.83
	7/3/07	173.03	--	10.08	--	162.95
	8/16/07	173.03	--	10.65	--	162.38
	4/16/08	173.03	--	10.14	--	162.89
	8/21/08	173.03	--	10.89	--	162.14
	3/12/12	173.03 [e]	--	10.58	--	162.45
	3/14/12	173.03	--	10.67	--	162.36
WMW-4 [j]	9/18/03[i]	173.18[c]	--	--	--	--
	4/15/04	173.18	--	11.10	--	162.08
	7/13/04	173.18	--	11.40	--	161.78
WMW-5	4/16/04	172.60[c]	--	10.12	--	162.48
	7/13/04	172.60	--	10.40	--	162.20
	11/9/06	172.60	--	11.00	--	161.60
	7/3/07	172.60	--	9.79	--	162.81
	8/16/07	172.60	--	10.35	--	162.25
	4/16/08	172.60	--	9.91	--	162.69
	8/21/08	172.60	--	10.53	--	162.07
	3/12/09	172.60	--	10.09	--	162.51
	9/10/09	172.60	--	10.62	--	161.98
	7/7/11	172.60	--	9.80	--	162.80
	3/12/12	172.67 [e]	--	10.18	--	162.49
	3/14/12	172.67	--	10.24	--	162.43

TABLE 1

GROUNDWATER ELEVATION MEASUREMENTS
BNSF WISHRAM, WASHINGTON

Well ID	Date	Well Elevation (TOC)	Depth to LNAPL (feet) [a]	Depth to Groundwater (feet)	LNAPL Thickness (feet) [b]	Groundwater Elevation (feet above datum)
WMW-6 [k]	4/16/04	173.08[c]	LNAPL	10.46	LNAPL	162.62
	7/13/04	173.08	10.82	10.83	0.01	162.25
WMW-7	4/16/04	174.12[c]	--	10.43	0.00 (S)	163.69
	7/13/04	174.12	10.97	11.04	0.07	163.08
	7/3/07	174.12	10.40	10.58	0.18	163.54
	8/16/07	174.12	LNAPL	11.00	LNAPL	163.12
	4/16/08	174.12	10.50	10.66	0.16	163.46
	8/21/08	174.12	11.59	12.19	0.60	161.93
	3/12/09	174.12	11.31	11.45	0.14	162.67
	9/10/2009[l]	174.12	12.10	13.60	1.50	160.52
	7/7/2011[l]	174.12	11.10	11.10	<0.01	163.02
	3/12/2012[l]	174.13 [e]	11.52	11.66	0.14	162.47
	3/14/12	174.13	11.56	11.74	0.18	162.39
MW-8	3/12/12	173.80 [e]	--	11.11	--	162.69
	3/14/12	173.80	--	11.17	--	162.63
MW-9	3/12/12	173.21[e]	--	10.83	--	162.38
	3/14/12	173.21	--	10.86	--	162.35
MW-10	3/12/12	173.07[e]	--	10.91	--	162.16
	3/14/12	173.07	--	10.82	--	162.25
MW-11	3/12/12	173.00[e]	--	10.90	--	162.10
	3/14/12	173.00	--	10.81	--	162.19

Notes:

(a) LNAPL = light non-aqueous phase liquid
(b) The following symbols indicate observed conditions of groundwater:
LNAPL = presence of light non-aqueous phase liquid (thickness not measured);
(S) = sheen; (F) = film
(c) Groundwater elevations are based on a wellhead top-of-casing survey relative to an arbitrary vertical datum of 100 feet, which was established at a temporary benchmark located near the Wishram Post Office.
(d) "--" indicates not applicable.
(e) Groundwater elevations are based on a wellhead top-of-casing survey relative to the North American Vertical Datum-1988 (NAVD88).
(f) Monitoring well was dry. Sample collected from purge water drum.
(g) Monitoring well WMW-2 was removed during excavation in November 2005. Results are not representative of groundwater conditions because the well screen was positioned within a localized mass of oil-coated timbers.
(h) LNAPL observed in well, but no depth or thickness measurement provided.
(i) No information on depth to water noted on purge form.
(j) Monitoring well WMW-4 appears to have been destroyed in summer 2006.
(k) Monitoring well WMW-6 was removed during excavation and removal of the adjacent lubricating oil underground storage tank (UST) in 2006.

TABLE 2

DIRECT-PUSH RECONNAISSANCE GROUNDWATER ANALYTICAL RESULTS
JANUARY-FEBRUARY 2012
BNSF WISHRAM, WASHINGTON

Chemical	Sparge Wells			Recon. Borings					RL[b]	MDL[c]	MTCA Method A [d]
	AS-12-1	AS-12-2	AS-12-3	RB1	RB2	DUP-1[a]	RB3	RB4			
Volatile Organic Compounds (BTEX)[e] (µg/kg)[f]											
Benzene	ND [g]	ND	0.17 J	ND	ND	ND	ND	ND	1	0.15	5
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	1	0.15	40
Ethylbenzene	ND	0.31 J [h]	1.1	ND	ND	ND	ND	ND	1	0.15	30
m-Xylene + p-Xylene	ND	0.77 J	1.4 J	ND	ND	ND	ND	ND	2	0.3	NA
o-Xylene	ND	ND	0.41 J	ND	ND	ND	ND	ND	1	0.15	NA
Total Xylenes	ND	0.77	1.81	ND	ND	ND	ND	ND	NA	NA	20
Volatile Petroleum Products[i] (mg/kg)[j]											
Gasoline	0.043 J	0.2	0.390	0.078	ND	ND	0.076	0.020 J	0.05	0.01	1
Semi-Volatile Petroleum Products[k] (mg/kg)											
#2 Diesel (C10-C22)	0.19 Y [l]	**3.7**	**2.8 Y**	**1.0 Y**	0.13 Y	0.20 Y	**1.8 Y**	**0.63 Y**	0.12	0.069	0.5
Motor Oil (>C24-C36)	0.085 J	**1.3**	**0.52 Y**	0.37 Y	0.089 J	0.11 J	0.28 Y	0.21 J	0.24	0.045	0.5

Notes:

(a) DUP-1 is a duplicate sample of RB2.
(b) RL= Reporting Limit
(c) MDL = Method Detection Limit
(d) Model Toxics Control Act (MTCA; WAC 173-340) Method A industrial groundwater cleanup levels.
(e) By EPA Method 8260B.
(f) µg/kg = micrograms per kilogram
(g) ND = Not detected
(h) J = Result is less than the RL but greater than or equal to the MDL; the concentration is an approximate value.
(i) By Ecology Method NWTPH-Gx
(j) mg/kg = milligrams per kilogram
(k) By Ecology Method NWTPH-Dx
(l) Y = The chromatogrphic response resembles a typical fuel pattern.

Values detected above MTCA Method A cleanup level in bold.

TABLE 3

DIRECT-PUSH SUBSURFACE SOIL ANALYTICAL RESULTS
JANUARY-FEBRUARY 2012
BNSF WISHRAM, WASHINGTON

Analyte	Sample Designation (Boring ID - Depth (feet below ground surface)						MTCA Method A Industrial Soil Cleanup Level[a]
	B-12-1		B-12-2			B-12-3	
	32 feet	59 feet	12 feet	40 feet	55 feet	13 feet	
TPH (mg/kg)[b]							
Gasoline-range Hydrocarbons	***700 B***	1.5 J	***1,000 B***	***380***	<4.6[c]	***1,300 B***	100/30[d]
Diesel-range Hydrocarbons	***12,000 Y***	<28	***38,000 Y***	***5,400 Y / 5,800 BY*** [r]	33 Y	***28,000 Y***	2,000[e]
Oil-range Hydrocarbons	***14,000 Y***	20 J	***71,000 Y***	***6,300 Y / 5,500 Y***	54 J	***2,700 Y***	2,000[e]
BTEX (µg/kg)[f]							
Benzene	<25	<17	***89 J***	<18	<18	<180	30
Toluene	<62	<43	160 J	<45	<46	<450	7,000
Ethylbenzene	<62	<43	170 J	<45	<46	<450	6,000
m-Xylene + p-Xylene	660	<43	470 J	<45	<46	490	NA[g]
o-Xylene	<62	<43	340 J	<45	<46	<450	NA
Total Xylenes	691	<86	810 J	<90	<92	715	9,000
VPH (mg/kg)[h]							
C10 - C12 Aliphatics	---[i]	0.25 JB	---	18 B	---	140 B	NA
C10 - C12 Aromatics	---	1.4 J	---	43	---	260	NA
C12 - C13 Aromatics	---	0.88 JB	---	38 B	---	340 B	NA
C8 - C10 Aliphatics	---	<2.2	---	25	---	23	NA
C8 - C10 Aromatics	---	0.78 JB	---	24 B	---	25 B	NA
C5 - C6 Aliphatics	---	0.61 JB	---	0.57 JB	---	1.1 JB	NA
C6 - C8 Aliphatics	---	0.65 JB	---	8.9 B	---	3.4 JB	NA
Total VPH	---	4.4 JB	---	160 B	---	790 B	NA
EPH (mg/kg)[j]							
C10 - C12 Aliphatics	---	<5.6	---	260	---	1,500	NA
C12 - C16 Aliphatics	---	<5.6	---	880	---	8,500	NA
C16 - C21 Aliphatics	---	1.7 J	---	970	---	7,800	NA
C21 - C34 Aliphatics	---	2.2 J	---	1,500	---	1,500	NA
C10 - C12 Aromatics	---	<5.6	---	32	---	330	NA
C12 - C16 Aromatics	---	<5.6	---	250	---	3,000	NA
C16 - C21 Aromatics	---	1.9 J	---	990	---	5,700	NA
C21 - C34 Aromatics	---	4.2 J	---	1,600	---	1,000	NA
PAHs (µg/kg)[k]							
Naphthalene	---	---	---	***100***	---	---	5,000[l]
2-Methylnaphthalene	---	---	---	***3,100***	---	---	5,000[l]
1-Methylnaphthalene	---	---	---	***2,400***	---	---	5,000[l]
Acenaphthylene	---	---	---	280	---	---	NA[k]
Acenaphthene	---	---	---	680	---	---	2.1E+08[m]
Fluorene	---	---	---	1,800	---	---	1.4E+08[m]
Phenanthrene	---	---	---	1,600	---	---	NA
Anthracene	---	---	---	190	---	---	1.1E+09[m]
Fluoranthene	---	---	---	230	---	---	1.4E+08[m]
Pyrene	---	---	---	300	---	---	1.1E+08[m]
Benzo(g,h,i)perylene	---	---	---	30 J	---	---	NA
cPAHs (ug/kg)[n]							
Benzo(a)anthracene	---	---	---	55 J	---	---	NA
Chrysene	---	---	---	420	---	---	NA
Benzo(b)fluoranthene	---	---	---	120	---	---	NA
Benzo(k)fluoranthene	---	---	---	<65	---	---	NA
Benzo(a)pyrene	---	---	---	29 J	---	---	NA
Indeno(1,2,3-cd)pyrene	---	---	---	<65	---	---	NA
Dibenz(a,h)anthracene	---	---	---	<65	---	---	NA
Total cPAHs (ug/kg)[o]							
Non-Detects Included[p]	---	---	---	60.5	---	---	2,000
Non-Detects Excluded[q]	---	---	---	50.7	---	---	2,000

TABLE 3

DIRECT-PUSH SUBSURFACE SOIL ANALYTICAL RESULTS
JANUARY-FEBRUARY 2012
BNSF WISHRAM, WASHINGTON

Analyte	Sample Designation (Boring ID - Depth (feet below ground surface)						MTCA Method A Industrial Soil Cleanup Level[a]
	B-12-4		B-12-5	B-12-6	B-12-7	B-12-8	
	40 ft	68 ft	45 ft	45 ft	24 ft	37 ft	
TPH (mg/kg)[b]							
Gasoline-range Hydrocarbons	***1,300 B***	4.1 JB	---[i]	<5.5[c]	25	1.9 J	100/30[d]
Diesel-range Hydrocarbons	***45,000 Y / 65,000 B***	14 J	<30	12 JB	470 BY	***340 BY***	2,000[e]
Oil-range Hydrocarbons	***53,000 Y / 67,000***	24 J	<61	<63	530 Y	***1,700 Y***	2,000[e]
BTEX (µg/kg)[f]							
Benzene	<160	<18	---	<22	<18	<20	30
Toluene	<410	<45	---	<55	<45	<49	7,000
Ethylbenzene	<410	<45	---	<55	<45	<49	6,000
m-Xylene + p-Xylene	850	<45	---	<55	<45	<49	NA[g]
o-Xylene	<410	<45	---	<55	<45	<49	NA
Total Xylenes	1,055	<90	---	<110	<90	<98	9,000
VPH (mg/kg)[h]							
VPH	---	---	---	---	---	---	NA
EPH (mg/kg)[j]							
EPH	---	---	---	---	---	---	NA
PAHs (µg/kg)[k]							
Naphthalene	***4,500***	---	---	---	---	---	5,000[l]
2-Methylnaphthalene	***27,000***	---	---	---	---	---	5,000[l]
1-Methylnaphthalene	***22,000***	---	---	---	---	---	5,000[l]
Acenaphthylene	1,200	---	---	---	---	---	NA[k]
Acenaphthene	4,600	---	---	---	---	---	2.1E+08[m]
Fluorene	16,000	---	---	---	---	---	1.4E+08[m]
Phenanthrene	28,000	---	---	---	---	---	NA
Anthracene	<56	---	---	---	---	---	1.1E+09[m]
Fluoranthene	2,100	---	---	---	---	---	1.4E+08[m]
Pyrene	2,900	---	---	---	---	---	1.1E+08[m]
Benzo(g,h,i)perylene	330	---	---	---	---	---	NA
cPAHs (µg/kg)[n]							
Benzo(a)anthracene	<56	---	---	---	---	---	NA
Chrysene	4,500	---	---	---	---	---	NA
Benzo(b)fluoranthene	1,200	---	---	---	---	---	NA
Benzo(k)fluoranthene	<56	---	---	---	---	---	NA
Benzo(a)pyrene	320	---	---	---	---	---	NA
Indeno(1,2,3-cd)pyrene	230	---	---	---	---	---	NA
Dibenz(a,h)anthracene	200	---	---	---	---	---	NA
Total cPAHs (µg/kg)[o]							
Non-Detects Included[p]	534	---	---	---	---	---	2,000
Non-Detects Excluded[q]	528	---	---	---	---	---	2,000

TABLE 3

DIRECT-PUSH SUBSURFACE SOIL ANALYTICAL RESULTS
JANUARY-FEBRUARY 2012
BNSF WISHRAM, WASHINGTON

	Sample Designation (Boring ID - Depth (feet below ground surface)						MTCA Method A Industrial Soil Cleanup Level[a]
	B-12-9	B-12-10	B-12-11	B-12-12		B-12-13	
Analyte	40 ft	40 ft	35 ft	12 ft	23 ft	30 ft	
TPH (mg/kg)[b]							
Gasoline-range Hydrocarbons	<4.9[c]	<4.7	***1,100***	---[i]	---	---	100/30[d]
Diesel-range Hydrocarbons	12 JB	14 JB	***52,000 BY***	***30,000 BY***	***42,000 BY***	***7,200 BY***	2,000[e]
Oil-range Hydrocarbons	<59	<61	***61,000 Y***	***1,700 Y***	***52,000 Y***	***10,000 Y***	2,000[e]
BTEX (µg/kg)[f]							
Benzene	<20	<19	***140 J***	---	---	---	30
Toluene	<49	<47	<990	---	---	---	7,000
Ethylbenzene	<49	<47	<990	---	---	---	6,000
m-Xylene + p-Xylene	<49	<47	900 J	---	---	---	NA[g]
o-Xylene	<49	<47	<990	---	---	---	NA
Total Xylenes	<98	<94	1,395 J	---	---	---	9,000
VPH (mg/kg)[h]							
VPH	---	---	---	---	---	---	NA
EPH (mg/kg)[j]							
EPH	---	---	---	---	---	---	NA
PAHs (µg/kg)[k]							
PAHs	---	---	---	---	---	---	NA
cPAHs (µg/kg)[n]							
cPAHs	---	---	---	---	---	---	NA

Notes:

(a) Model Toxics Control Act (MTCA; WAC 173-340) Method A industrial soil cleanup levels (Ecology 2007).

(b) Samples were analyzed for diesel- and oil-range total petroleum hydrocarbons (TPH) by Ecology Method NWTPH-Dx(extended), and gasoline-range TPH by Ecology Method NWTPH-G.

(c) "<" denotes that the analyte was not detected at a concentration above the indicated laboratory reporting limit.

(d) TPH screening levels based on MTCA Method A industrial soil cleanup levels (Ecology 2007). For gasoline mixtures without benzene and total ethylbenzene, toluene and xylenes less than 1% of the gasoline mixture the cleanup level is 100 mg/kg. For all other gasoline mixtures, the cleanup level is 30 mg/kg.

(e) Cleanup level is for diesel-range + oil-range TPH.

(f) Benzene, toluene, ethylbenzene and xylenes (BTEX) analyzed by EPA Method 8260B.

(g) "NA" denotes no cleanup level established.

(h) Volatile petroleum hydrocarbons (VPH) analyzed by Ecology Method NWTPH/VPH.

(i) "---" denotes that the sample was not analyzed for the indicated analyte.

(j) Extractable petroleum hydrocarbons (EPH) analyzed by Ecology Method NWTPH/EPH.

(k) Samples were analyzed for polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270C in select ion monitoring (SIM) mode.

(l) Cleanup level is for the total of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.

(m) MTCA Method C industrial soil cleanup level from Ecology's online CLARC database (Method A cleanup level not available).

(n) Samples were analyzed for carcinogenic polycyclic aromatic hydrocarbons (cPAHs) by EPA Method 8270C in SIM mode.

(o) Total cPAHs are based on benzo(a)pyrene equivalent values. Individual detected cPAH concentrations were multiplied by benzo(a)pyrene toxicity equivalency factors (TEFs) prior to summation (per WAC 173-340-708).

(p) A value of 1/2 the laboratory method reporting limit (MRL) was used for total cPAH summation for non-detected cPAH analytes for TEF summation.

(q) Non-detected cPAH analytes were excluded from the TEF summation for total cPAHs.

(r) If two values are presented in notation XX / YY, XX value represents a result without use of a silica gel cleanup. YY values represent a result with use of a silica gel cleanup.

mg/kg = milligrams per kilogram

µg/km = micrograms per kilogram

J - laboratory data flag indicating an estimate concentration below the MRL (method reporting limit) but above the MDL (method detection limit).

Y - laboratory data flag indicating that the chromatographic response resembles a typical fuel pattern.

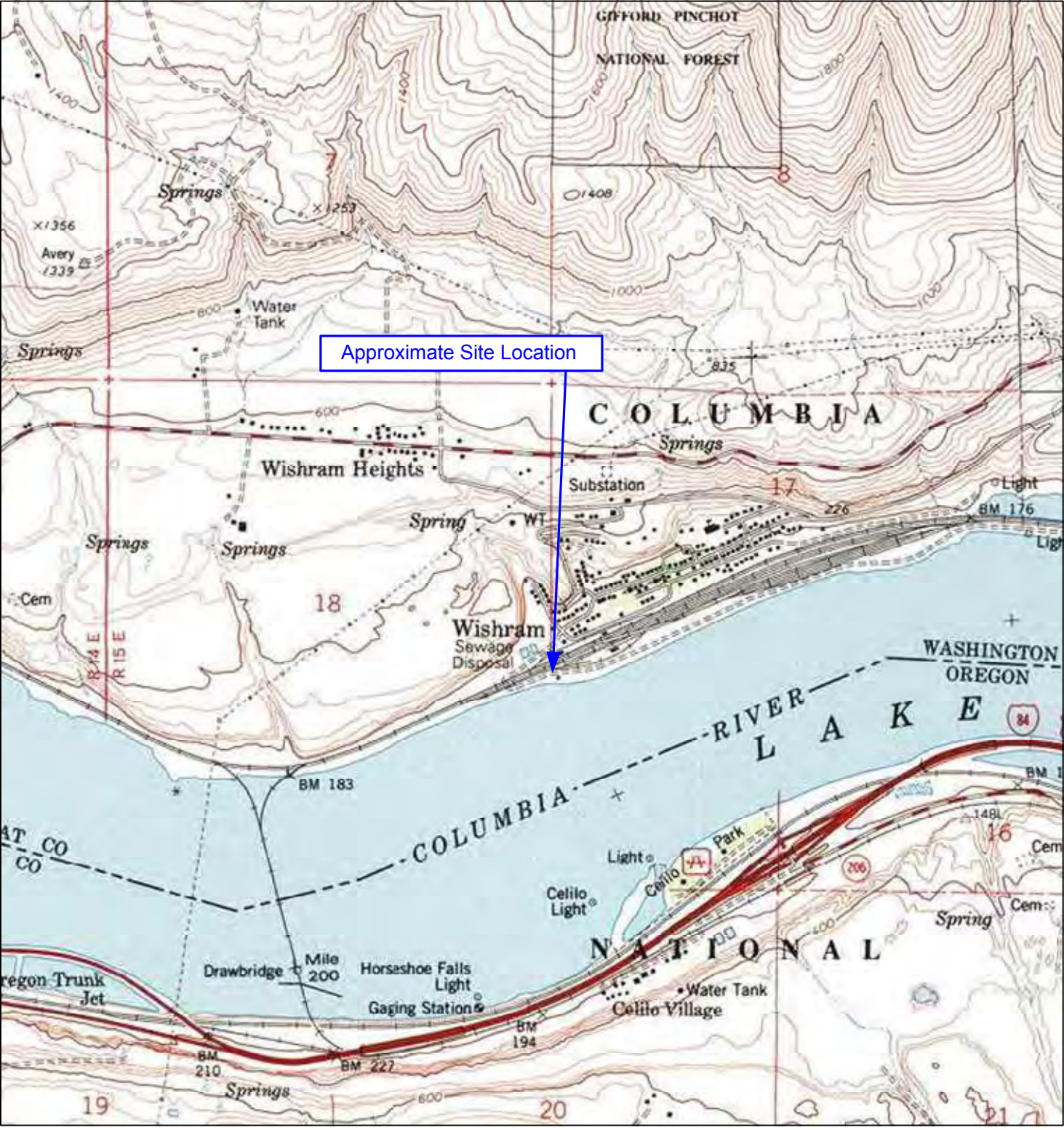
B - laboratory data flag indicating that the compound was also detected in the method blank.

TABLE 3-A. TEFs for cPAHs

cPAH Analyte	TEF
Benzo(a)anthracene	0.1
Chrysene	0.01
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.1
Benzo(a)pyrene	1
Indeno(1,2,3-cd)pyrene	0.1
Dibenz(a,h)anthracene	0.1

Analyte concentrations exceeding the indicated cleanup level are shown in bold and italics.

Figures



Map Source: USGS 7.5 Minute Topographic Quadrangle, Wishram, WA 1994

N
W E
S

0 1/2 1

Approximate Scale in Miles

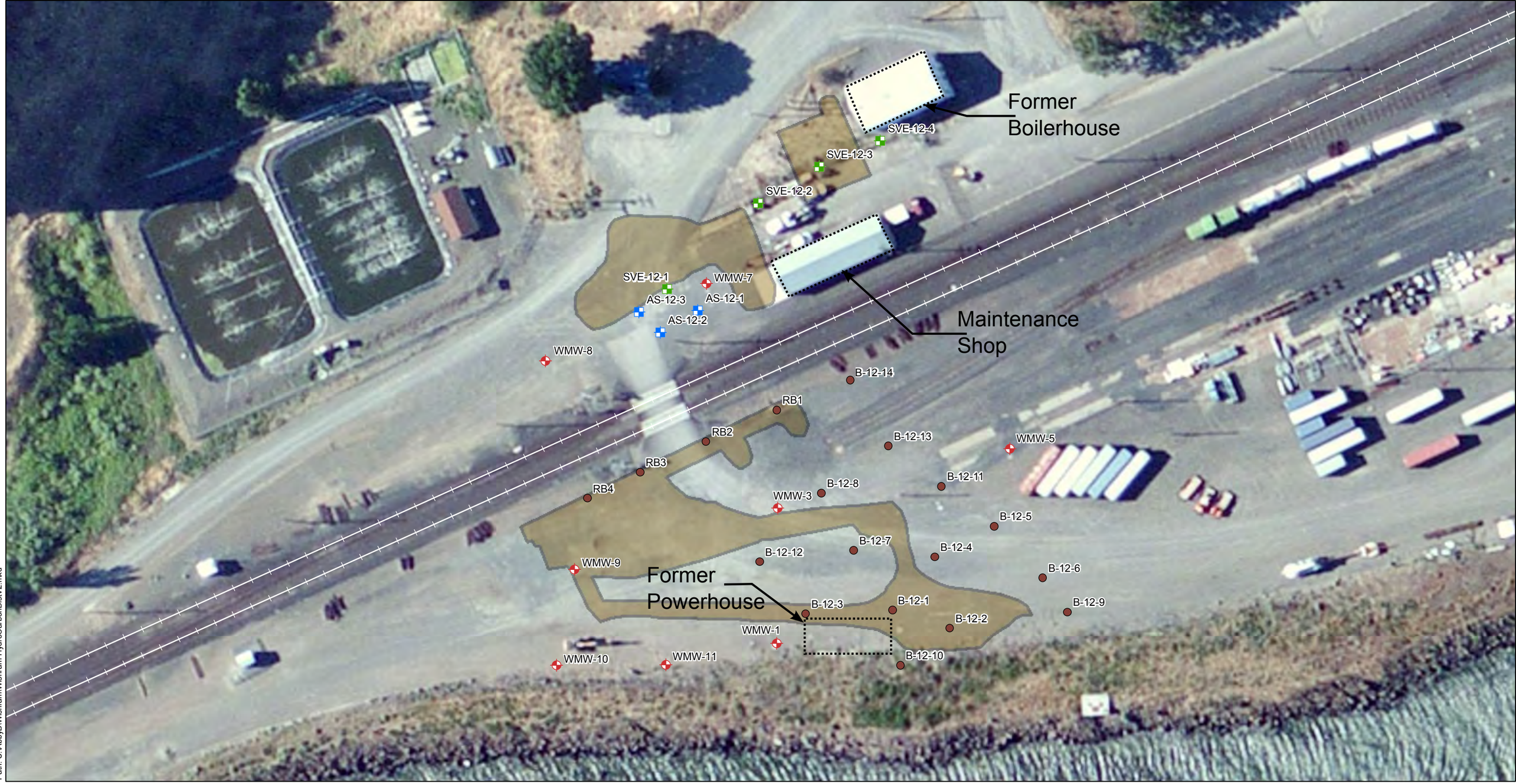
Kennedy/Jenks Consultants

Wishram, Washington

Vicinity Map

1196010*00

Figure 1



Path: U:\Abby\Wishram\Wishram-HydroCarbonDistV2.mxd

Legend

- Monitoring Well
- Soil Boring Location
- SVE Well
- Air Sparge Well
- Approximate Previous Excavation Area

All locations are approximate.
This layer contains the Bing Maps aerial imagery with labels web mapping service, which provides worldwide orthographic aerial and satellite imagery with roads and labels overlaid.

N

0 50 100

Scale: Feet

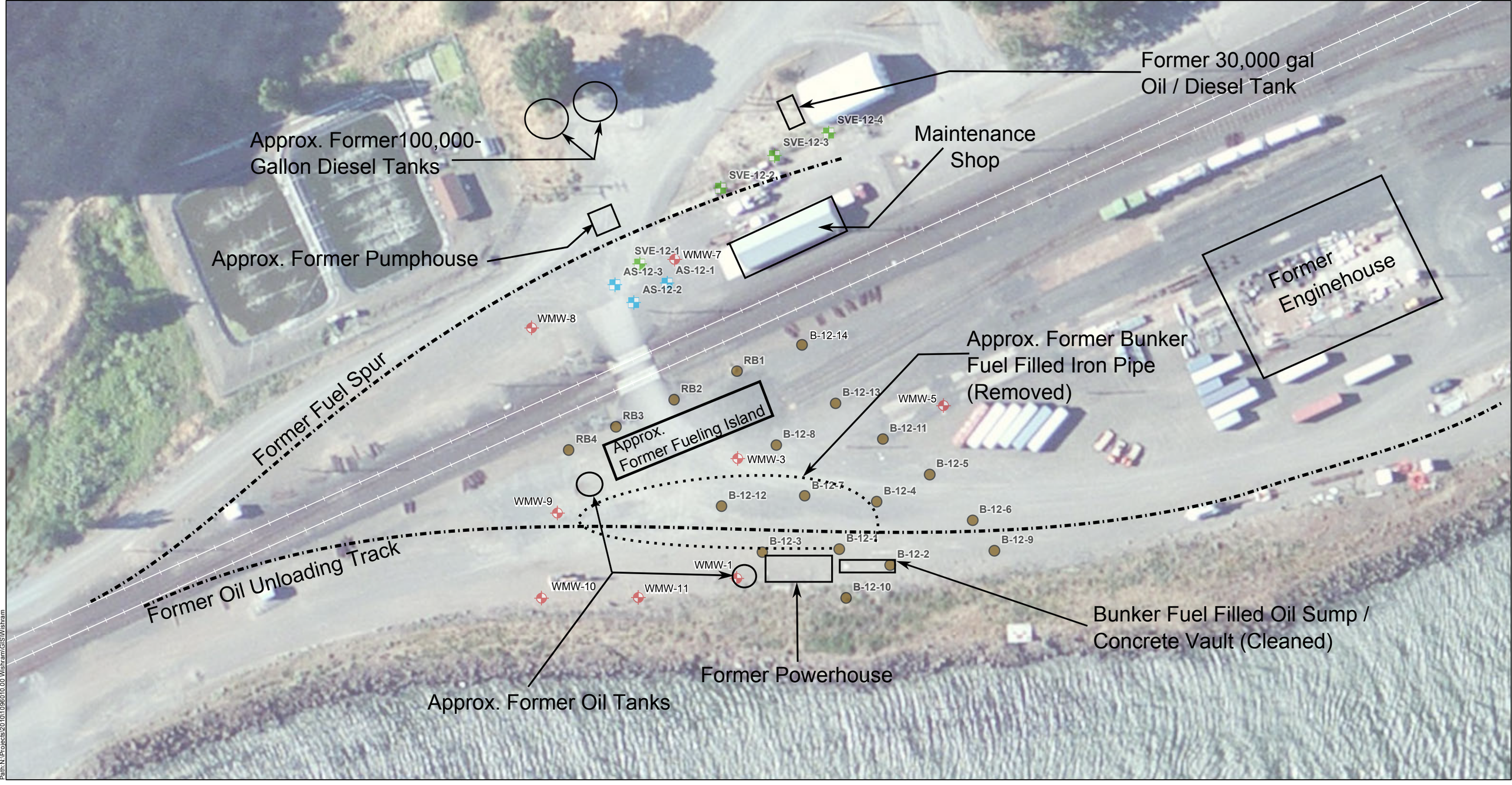
Kennedy/Jenks Consultants

Wishram, Washington

Sampling Location Map

1196010*00

Figure 2



Path:N:\Projects\2010\1096010.00 Wishram\GIS\Wishram

- Monitoring Well
- Soil Boring Location
- SVE Well
- Air Sparge Well

All locations are approximate.
This layer contains the Bing Maps aerial imagery with labels web mapping service, which provides worldwide orthographic aerial and satellite imagery with roads and labels overlaid.

N

0 50 100

Scale: Feet

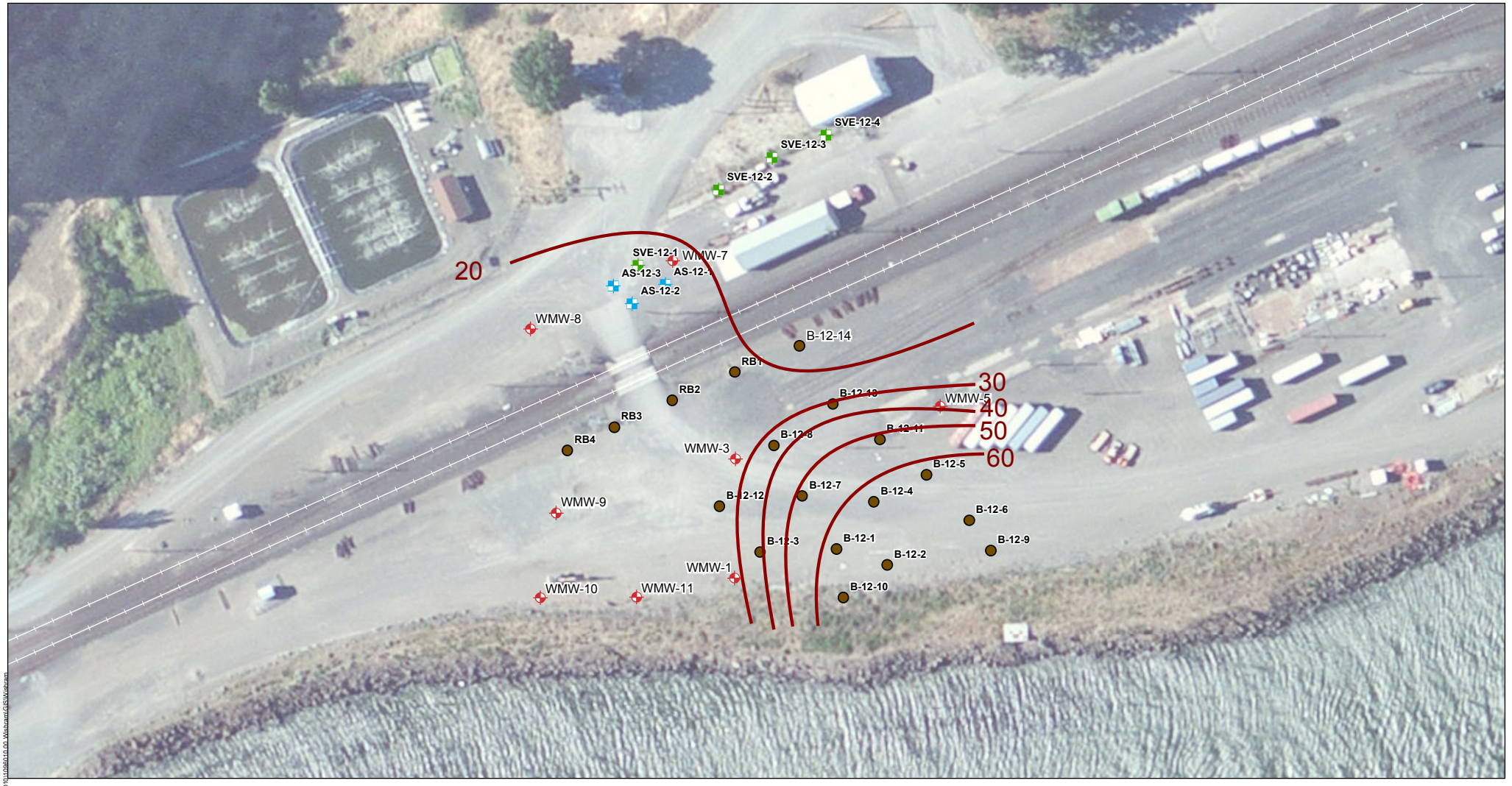
Kennedy/Jenks Consultants

Wishram, Washington

Current and Former Facilities / Storage Tanks

1196010*00

Figure 3



Path:N:\Projects\2010\1060010.00\Wishram\GIS\Wishram

- Monitoring Well
- Soil Boring Location
- SVE Well
- Air Sparge Well
- Bedrock Contour

All locations are approximate.
This layer contains the Bing Maps aerial imagery with labels web mapping service, which provides worldwide orthographic aerial and satellite imagery with roads and labels overlaid.

N

0 50 100

Scale: Feet

Kennedy/Jenks Consultants

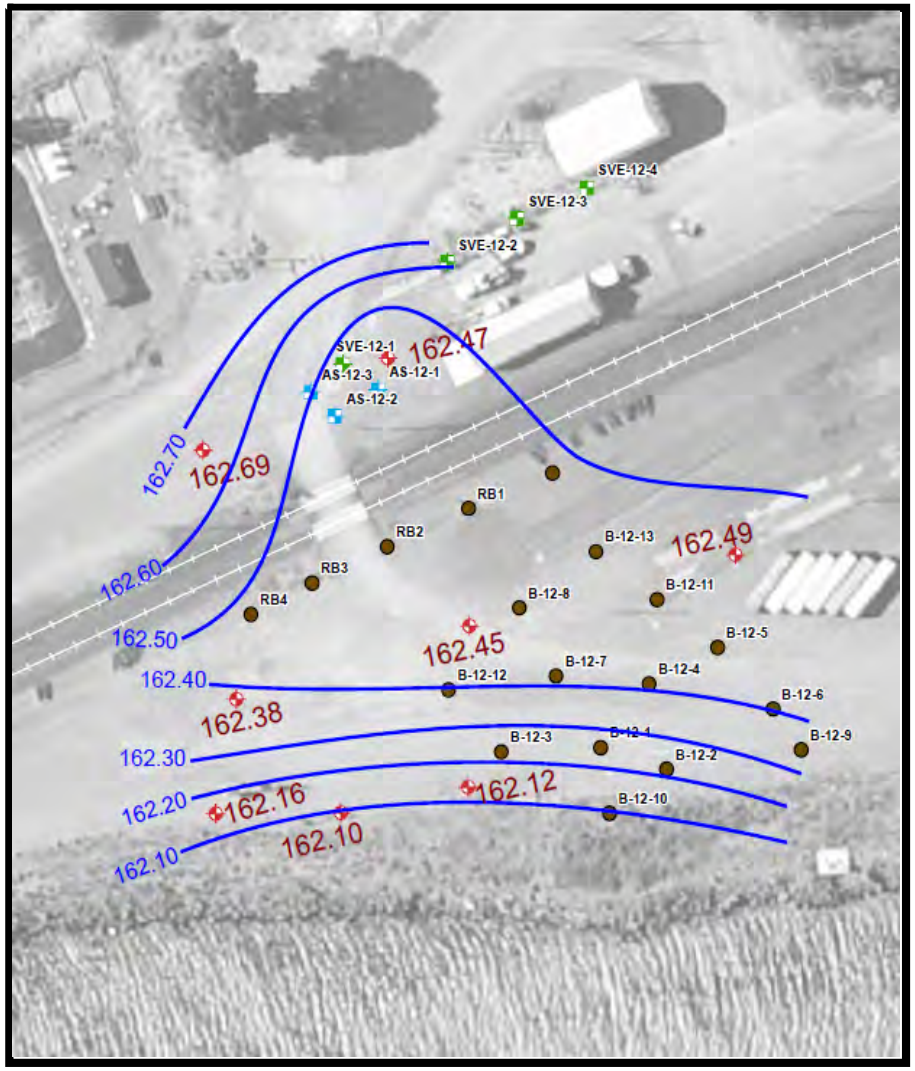
Wishram, Washington

Approximate Bedrock Topography

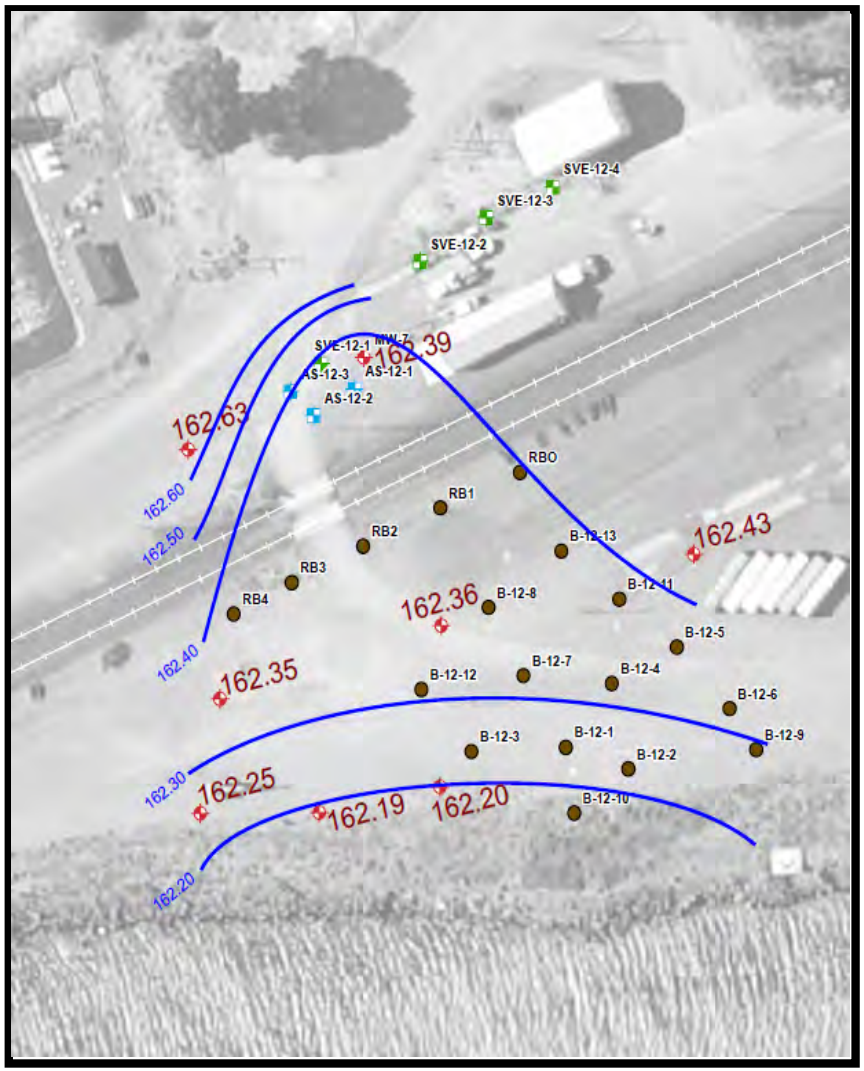
1196010*00

Figure 4

12 March 2012



14 March 2012



Path: U:\Abby\BWishram\Wishram-HydroCarbonDist.mxd

Legend

- Monitoring Well
- Soil Boring Location
- SVE Well
- Air Sparge Well
- Groundwater Surface

All locations are approximate.
This layer contains the Bing Maps aerial imagery with labels web mapping service, which provides worldwide orthographic aerial and satellite imagery with roads and labels overlaid.

N

0 50 100

Scale: Feet

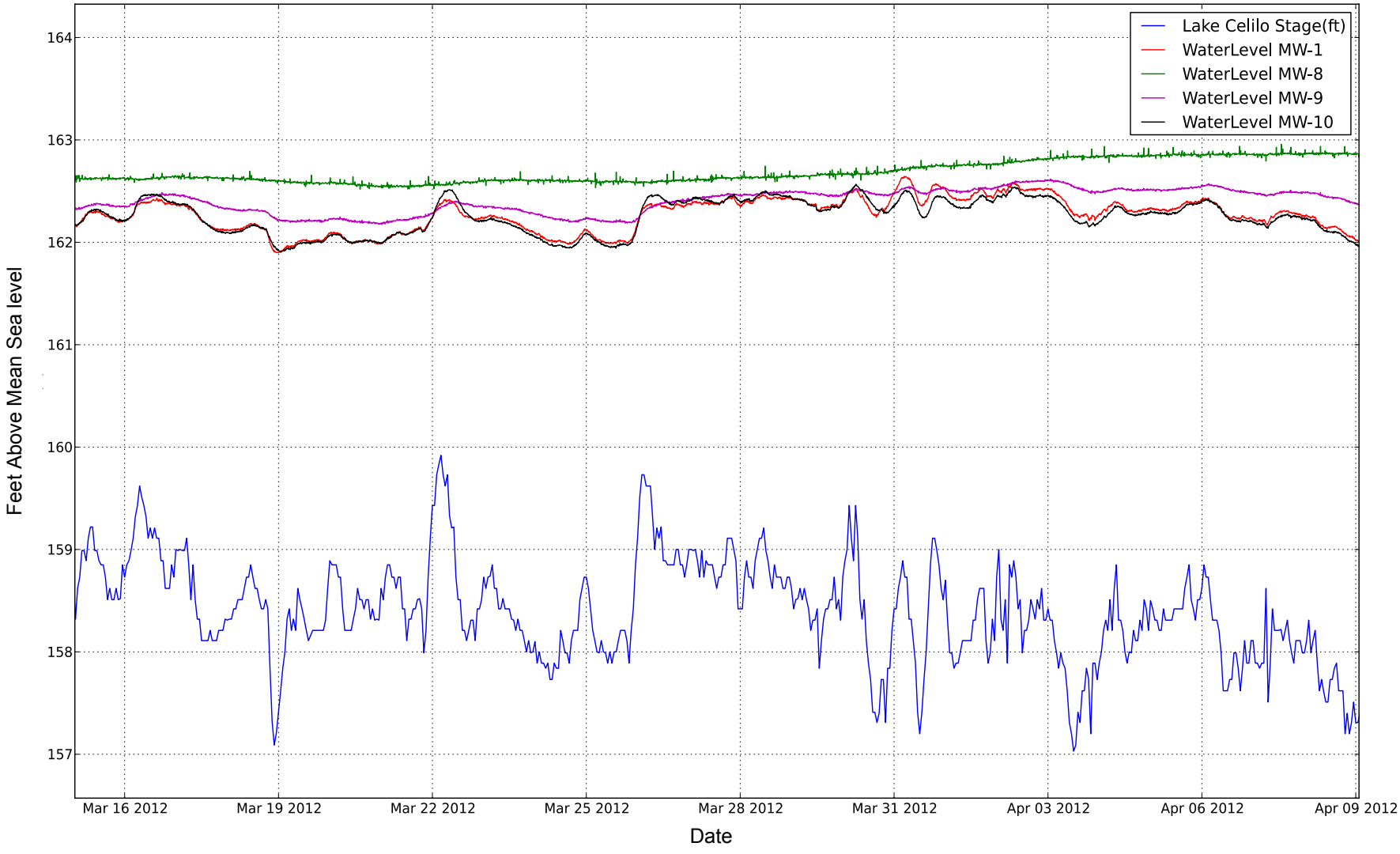
Kennedy/Jenks Consultants

Wishram, Washington

Potentiometric Surface Maps
March 12 and 14 2012

1196010*00

Figure 5



Kennedy/Jenks Consultants

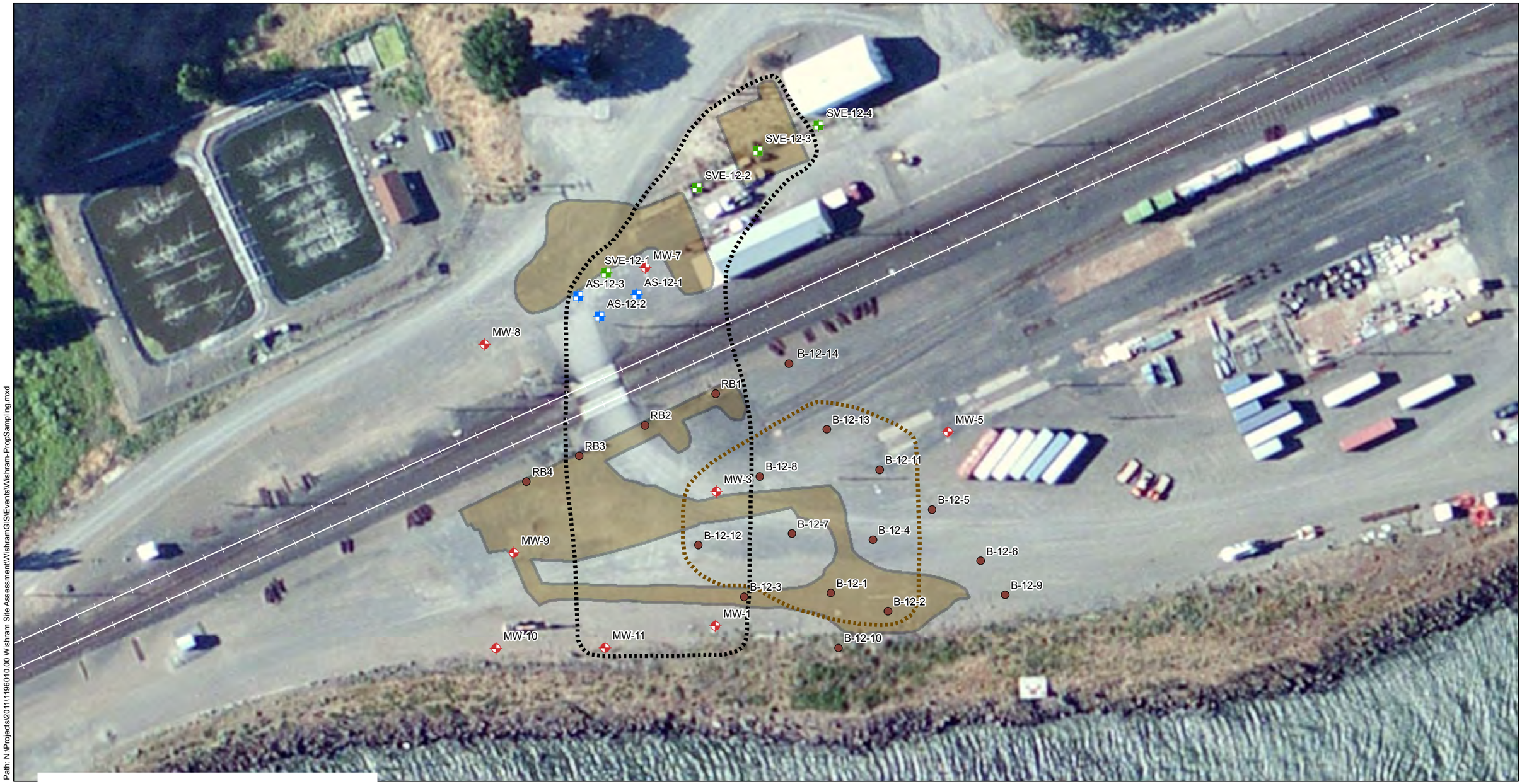
Wishram, WA

Site Groundwater and Lake Celilo Levels

1196010*00

Figure 6

Notes
:(1) Lake Celilo stage is based on The Dalles Dam
forebay elevations (provided by the Army Corps of Engineers).
Actual stage at Wishram site (upstream) is expected to be higher
(2) Water levels corrected to mean sea level



Path: N:\Projects\2011\1196010.00 Wishram Site Assessment\WishramGIS\Events\Wishram-PropSampling.mxd

Legend

Existing Sampling Locations

- Monitoring Well
- Soil Boring Location
- SVE Well
- Air Sparge Well
- Approximate Distribution of Hydrocarbon
- Approximate Previous Excavation Area

All locations are approximate.
This layer contains the Bing Maps aerial imagery with labels web mapping service, which provides worldwide orthographic aerial and satellite imagery with roads and labels overlaid.

N

0 50 100

Scale: Feet

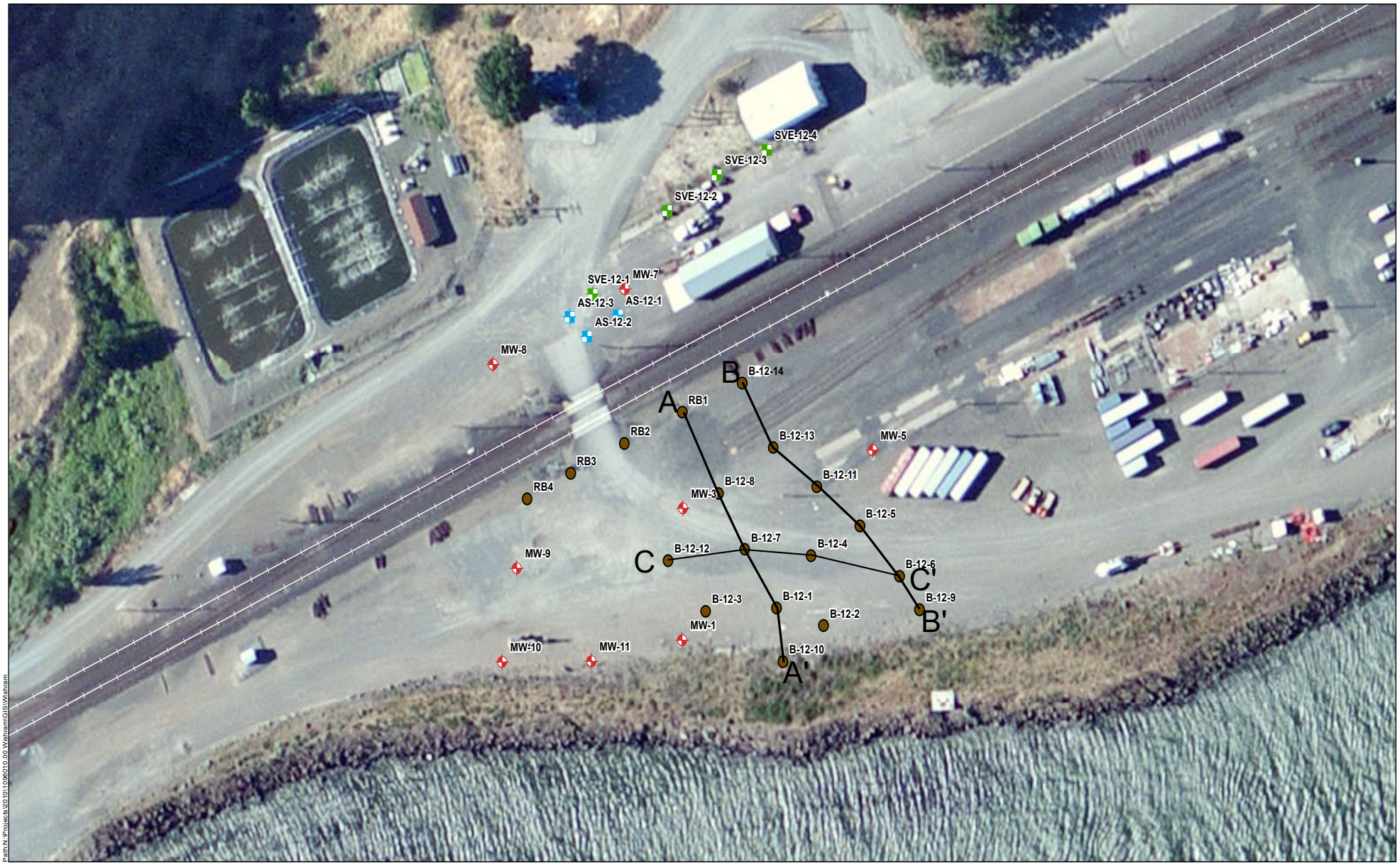
Kennedy/Jenks Consultants

Wishram, Washington

Approximate Hydrocarbon Distribution

1196010*00

Figure 7



Path:N:\Projects\2010\1096010.00 Wishram\GIS\Wishram

- Monitoring Well
- Soil Boring Location
- SVE Well
- Air Sparge Well

All locations are approximate.
This layer contains the Bing Maps aerial imagery with labels web mapping service, which provides worldwide orthographic aerial and satellite imagery with roads and labels overlaid.

N

0 50 100

Scale: Feet

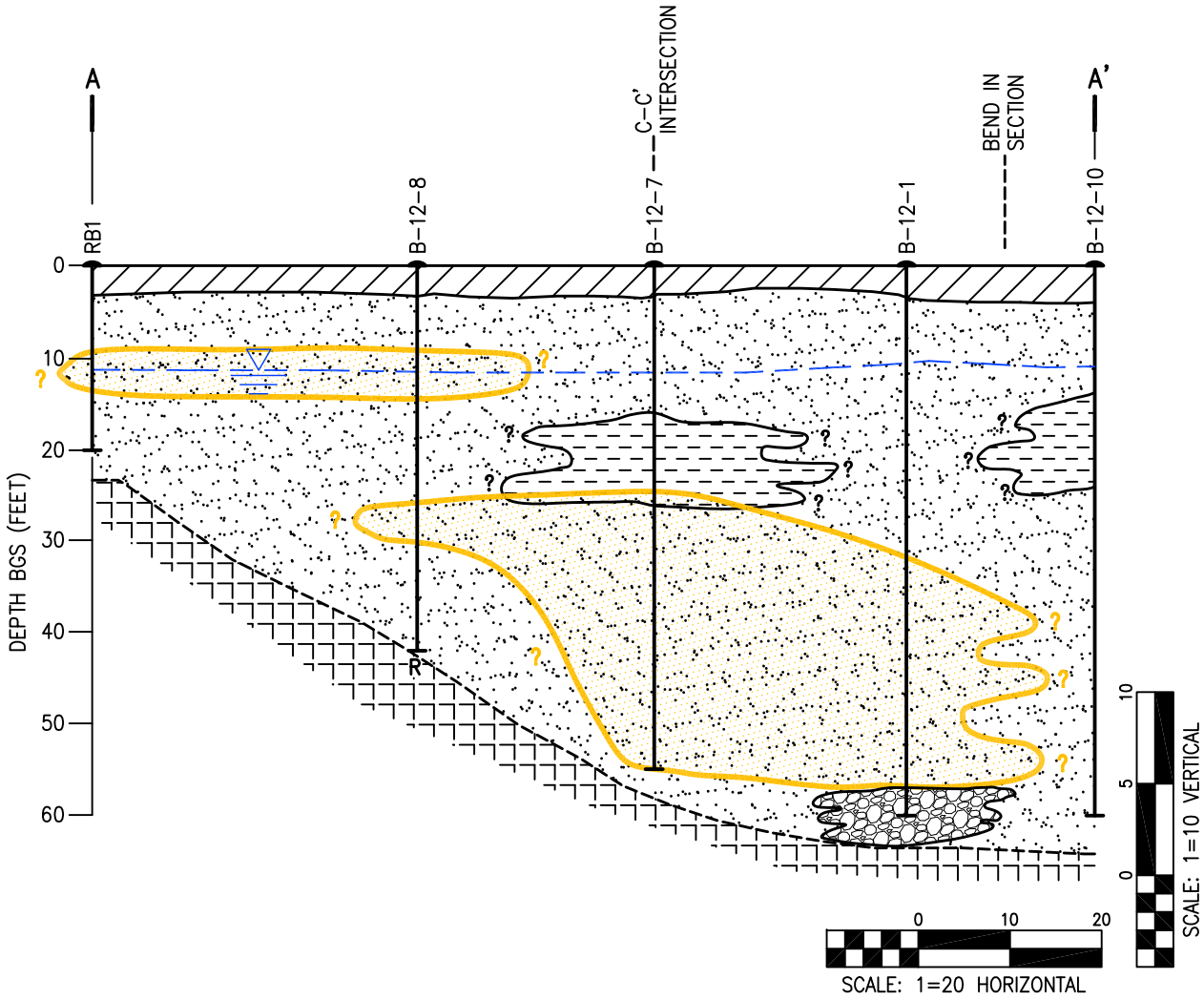
Kennedy/Jenks Consultants

Wishram, Washington

Cross Section Transect

1196010*00

Figure 8



LEGEND:

- SAND, SILT, GRAVEL FILL MATERIALS.
- POORLY GRADED SAND WITH SOME SILT LOCALLY.
- CLAYEY SAND WITH SILT.
- WELL GRADED GRAVEL
- APPARENT HYDROCARBON – CONTAINING SOILS.
- INTERPRETED BEDROCK.
- APPROXIMATE WATER TABLE.

NOTES:

1. ALL LOCATIONS AND DEPTHS ARE APPROXIMATE.
2. R = BOTTOM DEPTH DETERMINED BY REFUSAL.

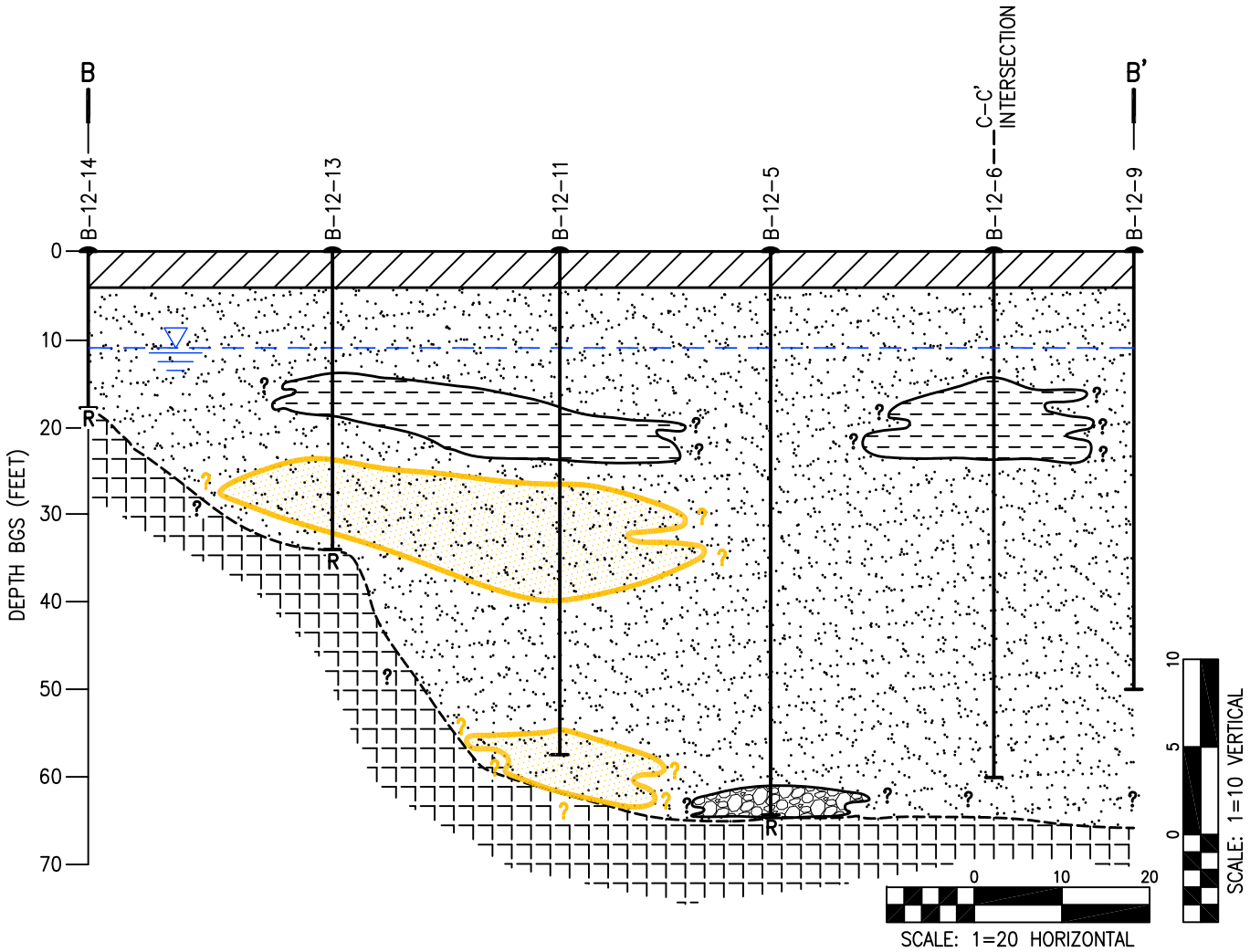
Kennedy/Jenks Consultants

WISHRAM, WASHINGTON

FORMER POWERHOUSE SITE
GENERALIZED CROSS SECTION A-A'

1196010.00\FIG-8A

FIGURE 8A



LEGEND:

- SAND, SILT, GRAVEL FILL MATERIALS.
- POORLY GRADED SAND WITH SOME SILT LOCALLY.
- CLAYEY SAND WITH SILT.
- WELL GRADED GRAVEL
- APPARENT HYDROCARBON – CONTAINING SOILS.
- INTERPRETED BEDROCK.
- APPROXIMATE WATER TABLE.

NOTES:

1. ALL LOCATIONS AND DEPTHS ARE APPROXIMATE.
2. R = BOTTOM DEPTH DETERMINED BY REFUSAL.

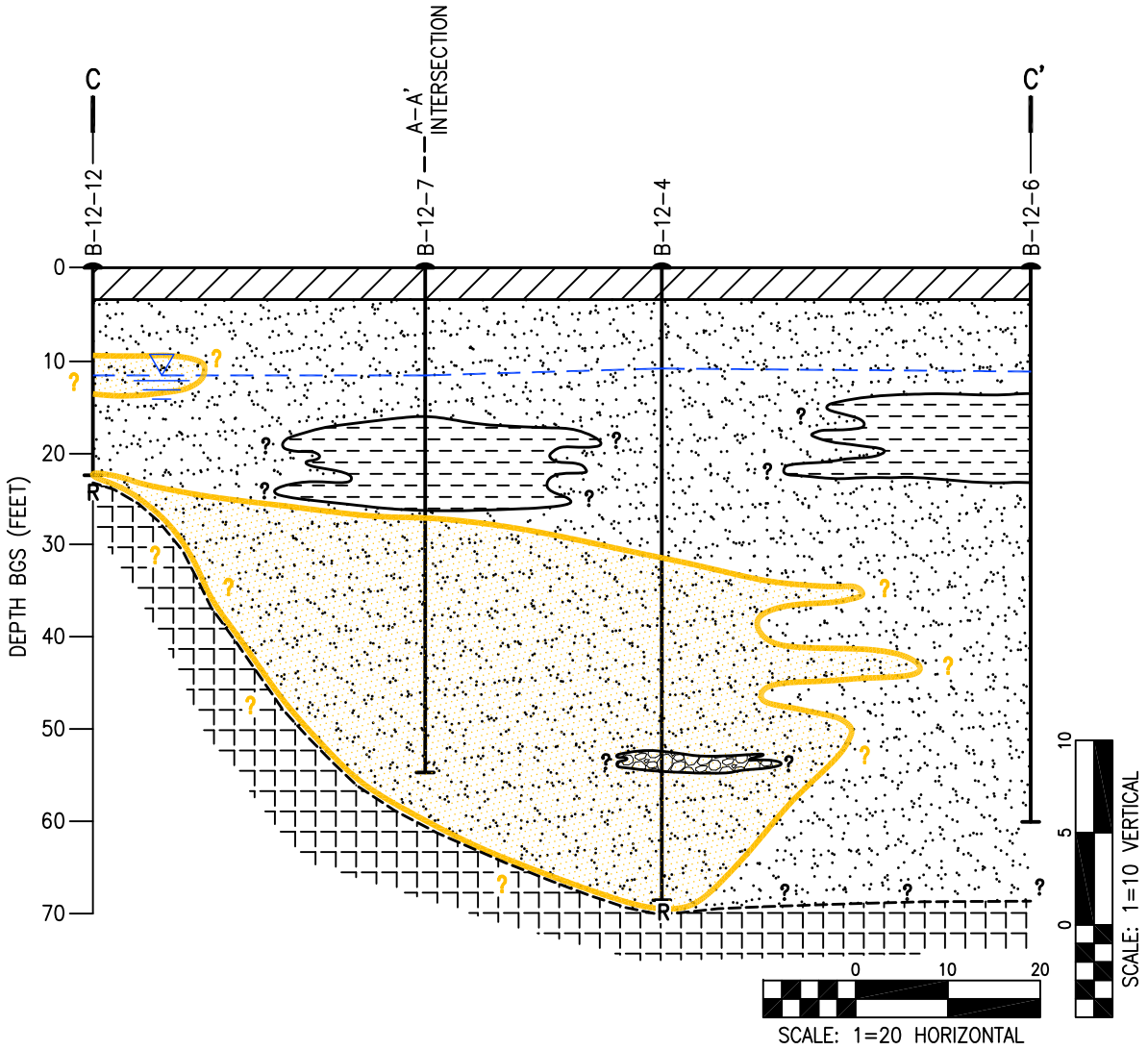
Kennedy/Jenks Consultants

WISHRAM, WASHINGTON

FORMER POWERHOUSE SITE
GENERALIZED CROSS SECTION B-B'

1196010.00\FIG-8B

FIGURE 8B



LEGEND:

- SAND, SILT, GRAVEL FILL MATERIALS.
- POORLY GRADED SAND WITH SOME SILT LOCALLY.
- CLAYEY SAND WITH SILT.
- WELL GRADED GRAVEL
- APPARENT HYDROCARBON – CONTAINING SOILS.
- INTERPRETED BEDROCK.
- APPROXIMATE WATER TABLE.

NOTES:

1. ALL LOCATIONS AND DEPTHS ARE APPROXIMATE.
2. R = BOTTOM DEPTH DETERMINED BY REFUSAL.

Kennedy/Jenks Consultants

WISHRAM, WASHINGTON

FORMER POWERHOUSE SITE
GENERALIZED CROSS SECTION C-C'

1196010.00\FIG-8C

FIGURE 8C

Appendix A

Station Maps


SCHEDULE OF PROPERTY.
No. GRANTOR GRANTEE INSTRUMENT DATE RECORD CUST. No. REMARKS
1 William C. Parsons O.T. Ry. B. & S. April 15 1910 May 27 1910 Bk. 29 Pg 102 0185
1 O.T. Ry. W.C. Parsons Agreement April 15 1910 Oct. 4 1910 " 30 " 132 0185A
2 W. C. Parsons O.T. Ry. B. & S. Oct. 1 1910 Oct. 4 1910 " 30 " 130 0185B
4 Francis A. Seufert et ux. Dec 6 1910 May 11 1912 " 34 " 460 0247C
5 Francis A. Seufert et ux. W. D. May 5 1910 May 1 1912 " 34 " 409 0247B
6 Francis A. Seufert et ux. B. & S. May 5 1910 May 1 1912 " 34 " 412 0247
6 F. A. Seufert et ux. Dec. of App. April 13 1912 May 1 1912 " 34 " 410 0247A
COLUMBIA
RIVER
OREGON
WASHINGTON
To Bend
1-250' Thru Draw-over Canal.
812+93.6 STATE LINE (Line between V Wash 1 and V Ore 1)
M.P. 0.73
6 Spans 250' T.P.Tr.
Lot 1
Lot 2
Lot 3
Lot 4
WISHRAM
FALLBRIDGE
Station Map V Wash 1 S-1 Station 1128 to 851
TUMWATER
T2N R15E W.M.
T2N R14E W.M.
To Portland
S. P. & S. Ry.
INDEX
R16E. R14E. T1N. T2N.
DO NOT ALTER
This tracing is an exact copy of one submitted to I. C. C. Div. of Valuation on June 30, 1916.
State of Oregon
County of Multnomah
I, the undersigned, officer of the Oregon Trunk Railway do hereby certify that this is a correct Right of Way and Track Map, in a series of one primary sheet and two supplemental sheet of said railroad from survey station 1180+883 to survey station 812+936, State of Washington, prepared from the records of said company.
Chief Engineer.
Correct
Subscribed and sworn to before me this ______ day of ______ 1916.
Notary Public in and for the State of Oregon
My commission expires ______ 1916.
Right of Way and Track Map
OREGON TRUNK RAILWAY
Station 1180+88.3 to Station 812+93.6
Scale 1" = 400' June 30 1916
Office Chief Engineer
Portland Oregon
V-Wash 1
1
DO NOT ALTER
This tracing is an exact copy of one submitted to I. C. C. Div. of Valuation on June 30, 1916.
R-7-15

SCHEDULE OF PROPERTY

No.	GRANTOR	GRANTEE	INSTRUMENT	DATE	RECORD			CUST. No.	REMARKS.
1	William C. Parsons	O.T. Ry.	B & S.	April 15 1910	May. 27 1910	Bk 29	Pg. 102	0185	Reserves right to buy shore lands.
1	O.T. Ry.	W.C. Parsons	Agreement	April 15 1910	Oct. 4 1910	" 30	" 132	0185A	Regards station, irr. pipe & road X'ing.
2	W. C. Parsons	O.T. Ry.	B. & S.	Oct. 1 1910	Oct. 4 1910	" 30	" 130	0185B	
3	" " "	" " "	" " "	" " "	" " "	" "	" "	" " "	
4	Francis A. Seufert et ux.	" " "	" " "	Dec 6 1910	May 11 1912	" 34	" 460	0247C	
5	Francis A. Seufert et ux.	" " "	W. D	May 5 1910	May 1 1912	" 34	" 409	0247B	

DO NOT ALTER
This tracing is an exact copy of one submitted to I. C. C. Div. of Valuation on June 30, 1916.

R/W MAP 102527
STATION MAP 62366
Method 3 Date 3/2/2002 Initials

STATION MAP
OREGON TRUNK RY.
FALLBRIDGE
STA. 1128+93.9 TO STA. 1073+33.9

Scale: 1"=100' June 30, 1916.

Office of Chief Engineer
Portland Ore.

V-Wash 1
S1

Sheet No S1 of supplemental sheets of Oregon Trunk Railway from survey station 1128+93.9 to survey station 1073+33.9.

Chief Engineer

DO NOT ALTER
This tracing is an exact copy of one submitted to I. C. C. Div. of Valuation on June 30, 1916.

D-1-1

STA# 62366 R/W# 62619

WISHRAM, WA. NO. 2

1 of 2

STATION MAP
OREGON TRUNK RAILWAY

WISHRAM

STATION 1128+93² TO STATION 1073+33²

SCALE: 1"-100 FEET NOV. 1, 1960

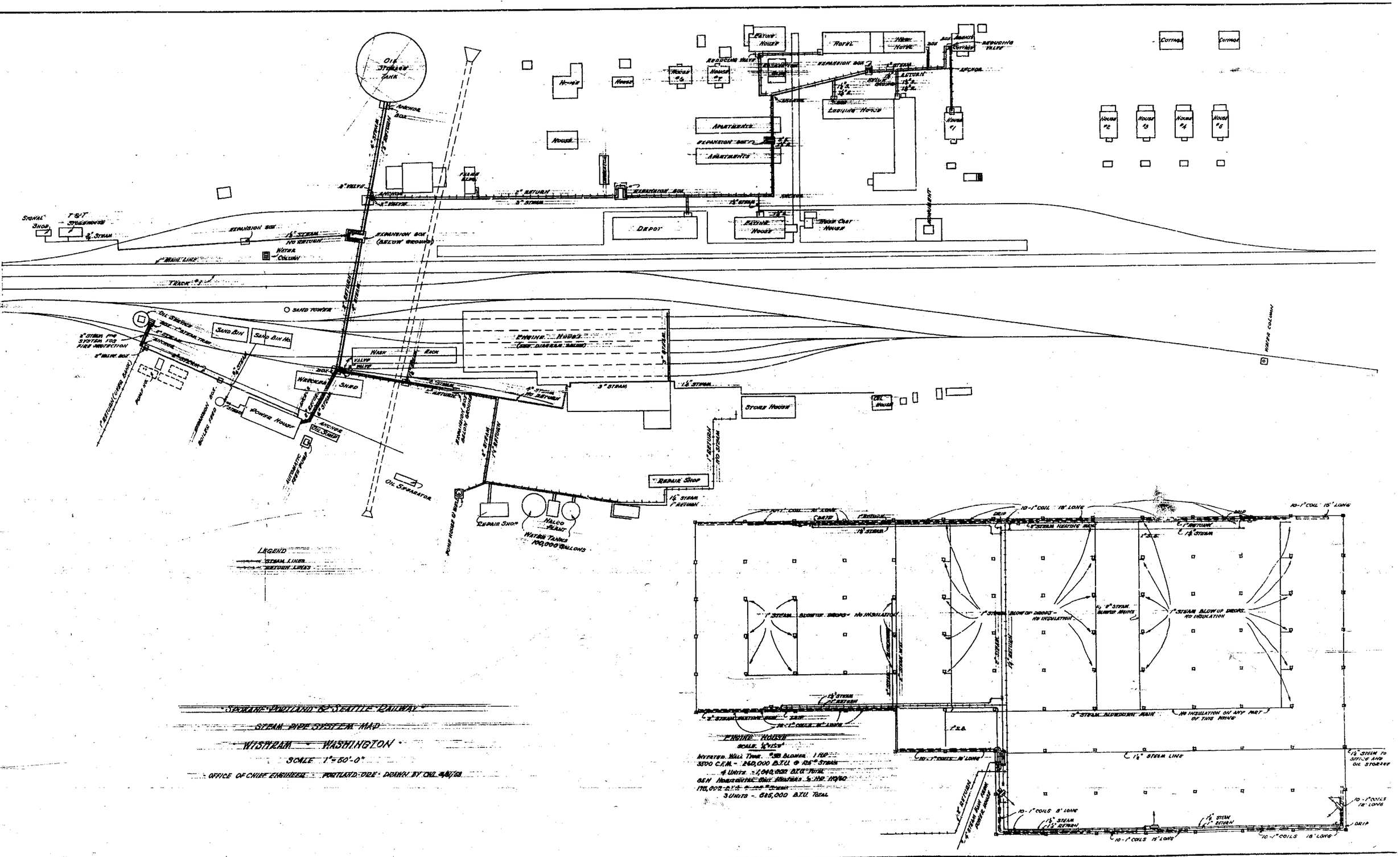
OFFICE OF CHIEF ENGINEER PORTLAND, ORE.

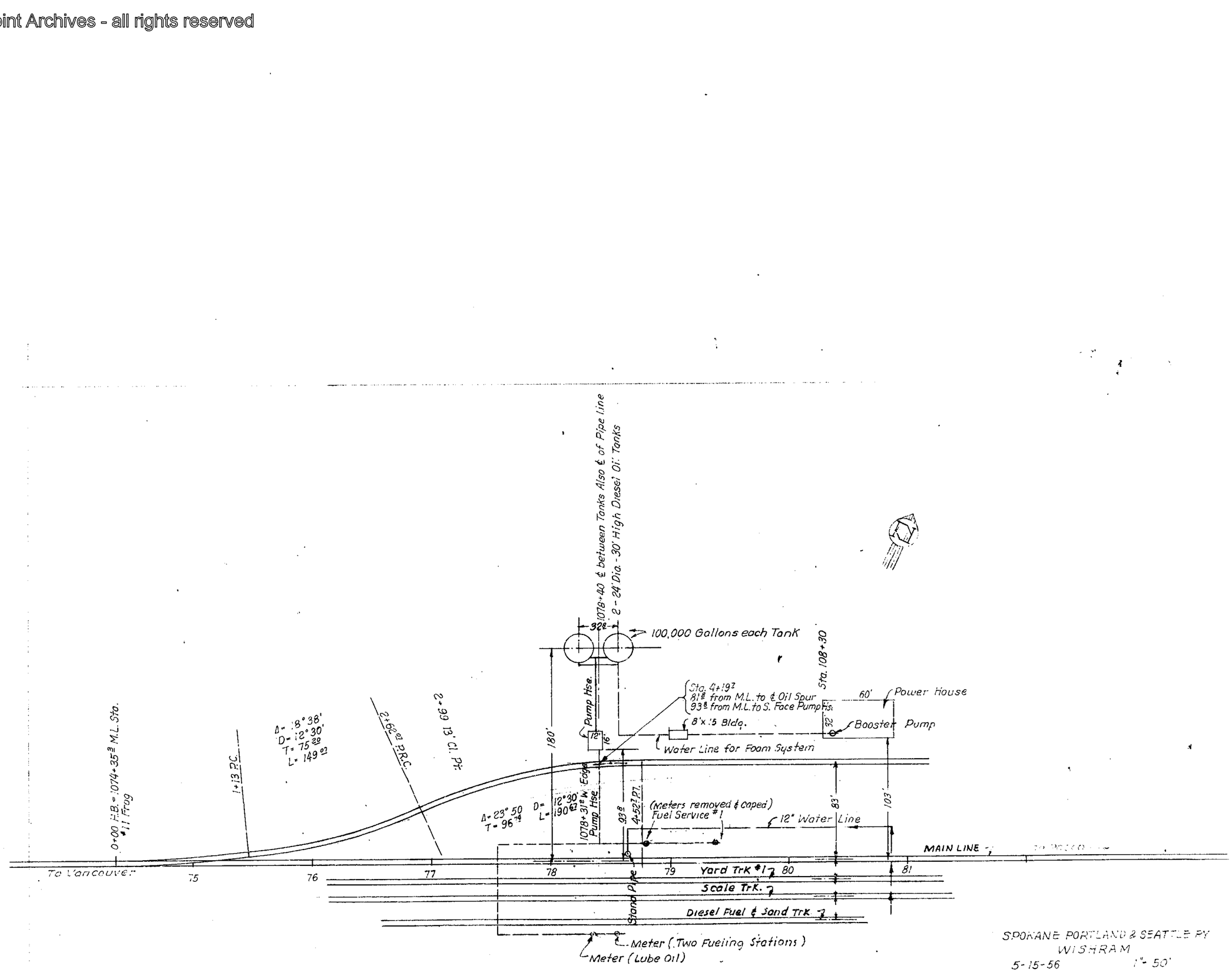
V-Wash-1
S1

D-1-1

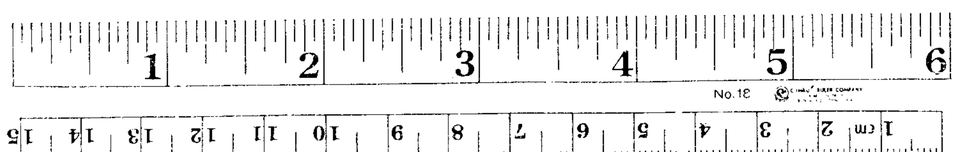
Note:
Tracks, Buildings & other Facilities outlined in red are property of Spokane, Portland & Seattle Railway Co. For current Leases, see Record Print on D-1-14


LEGEND
TRACKAGE
ORG. CENTERLINE (LVL 54)
ORG. CENTERLINE RADIALS (LVL 54)
YARD TRKS RY. OWNED (LVL 9)
YARD TRKS IND. OWNED (LVL 9)
LAND LINES
R.O.W. LINES (LVL 16)
PARCEL LINES (LVL 15)
DEED NUMBERS (LVL 25)
PARCEL NUMBER (LVL 25)
FORMER R/W LINES (LVL 15)
AREA SOLD (LVL 62)
EASEMENTS (LVL 18)
LEASE LINES (LVL 20)
BASE & MERIDIAN (LVL 19)
PARRISH & TOWNSHIP (LVL 19)
SECTION (LVL 19)
CITY LIMITS (LVL 19)
BLOCK LINES (LVL 19)
LOT LINES (LVL 19)
ROAD CENTERLINES (LVL 30)
NON-RY PARCELS (LVL 19)
CULVERT (LVL 34)
PREDECESSOR RAILROAD (LVL 58)
STATE (LVL 58)
VALUATION SECTION (LVL 58)
VALUATION MAP (LVL 58)
HAZ. UTILITIES
LVL 42= RY. CO. OWNED
LVL 43= IND. CO. OWNED
FUEL LINE
GAS LINE
OIL LINES
TOXIC CHEMICAL LINES
TOXIC GAS LINES
GAS METER
GAS VALVE
HAZ MTL VALVES
HAZ MTL SUPPORT CLMN
NON-HAZ. UTILITIES
LVL 38= RY. CO. OWNED
LVL 39= IND. CO. OWNED
AIR LINES
CABLE TV LINES
ELECTRIC LINES
HIGH VOLTAGE ELEC. LINES
SEWER LINES
STEAM LINES
STORM LINES
TELEPHONE LINES
WATER LINES
CATCH BASIN
FIRE HYDRANT
SEWER MANHOLE
SUPPORT COLUMNS
WATER METER
WATER VALVE
FIBER OPTIC LINES (LVL 41)
COLUMBIA RIVER
MATCH MARK s62365
MATCH MARK s62367
Water Elev. 190.1 Sept. 18, 1910
Parcel 1004
Parcel 1002
Parcel 1
Parcel 2
Parcel 3
Parcel 5
Lot 1
Lot 2
Lot 3
Lot 4
DIKE
Sewage Disposal System
Flowage Esmt given to USA by SP&S RY and OT RY 0341 909 From Columbia River bank across R/W
Could Not Locate Linen As Of 6/4/2009
SP&S RY WA-03 25
OT RY WA-01 S-01
SECTION 17 SECTION 18
N
STATION MAP
OREGON TRUNK RAILWAY
WISHRAM
KLICTITAT COUNTY, WA
STATION 1128+93³ TO STATION 1073+33⁷
SCALE: 1" = 100 FEET NOV. 1, 1960
OFFICE OF CHIEF ENGINEER PORTLAND, ORE.
Note: Tracks, Buildings & other Facilities outlined in red are property of Spokane, Portland & Seattle Railway Co. For current Leases, see Record Print on D-1-TA
These plans and any copies are and shall remain the property of BNSF RAILWAY COMPANY ("BNSF") and are not to be used, relied upon, copied, duplicated, reprinted or reproduced in any manner without prior written permission of BNSF. These plans are not a survey of the parcel(s) depicted ("Parcels") and do not purport to be, and may not be relied upon as: (a) an accurate reflection of the boundaries or improvements to the Parcels, (b) evidence of ownership or other interest in the Parcels by BNSF or other parties, or (c) evidence of the easements or other matters affecting title to the Parcels. No warranty, express or implied, is given with respect to such matters.
BNSF RAILWAY
Station Map
WISHRAM, WA #2
County KLICTITAT
Line Segment 0047
Formerly SP&S RY
SCALE
200 100 0 100 200
Chief Engineer's Office
Sheet 2 of 3
C.E. s62366
These plans are the property of The Burlington Northern & Santa Fe Railway and are not to be loaned or used, copied, printed, duplicated, photographed or reproduced in any way in whole or in part without permission from said company.
Revised: 09/25/2009

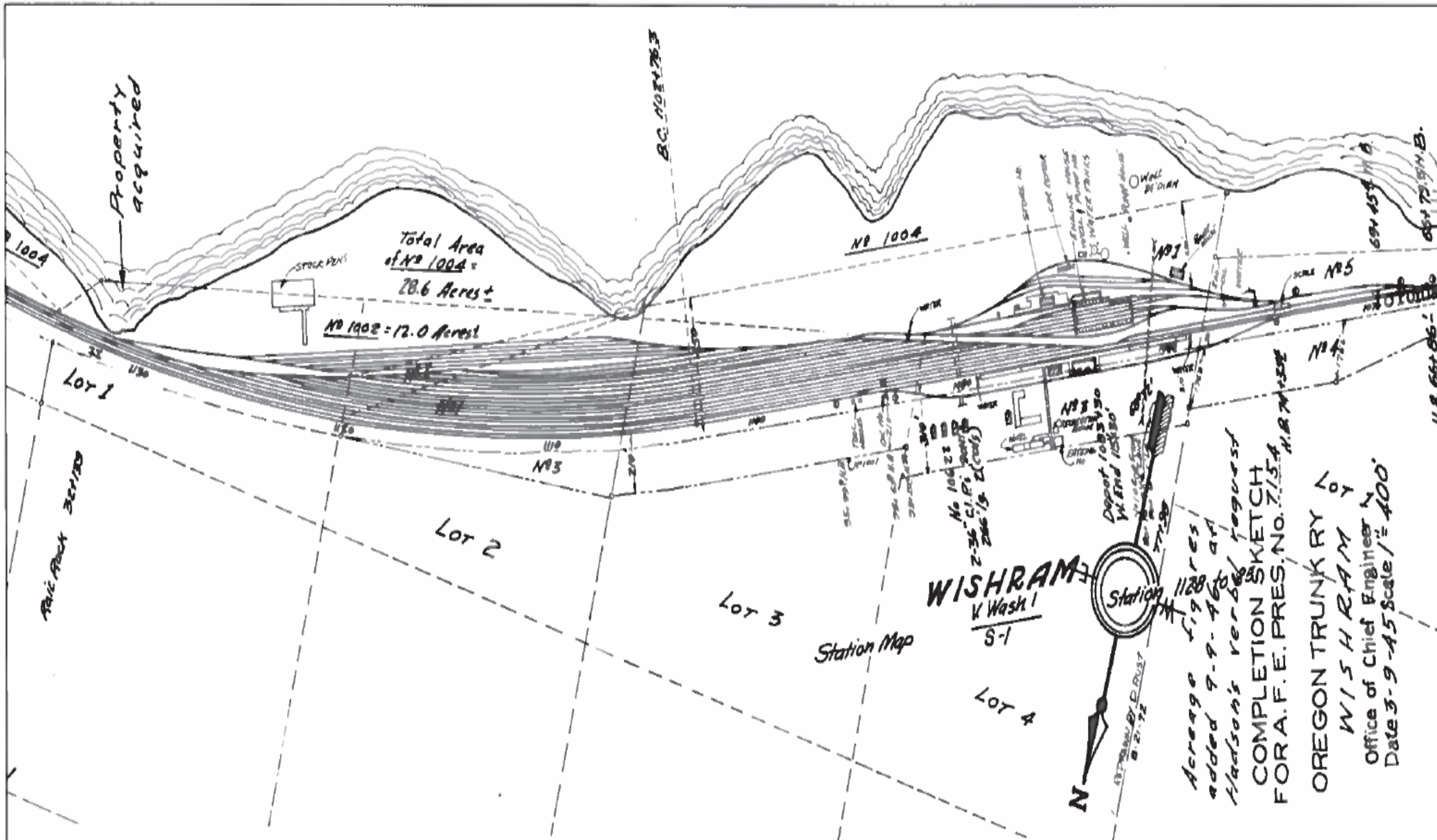


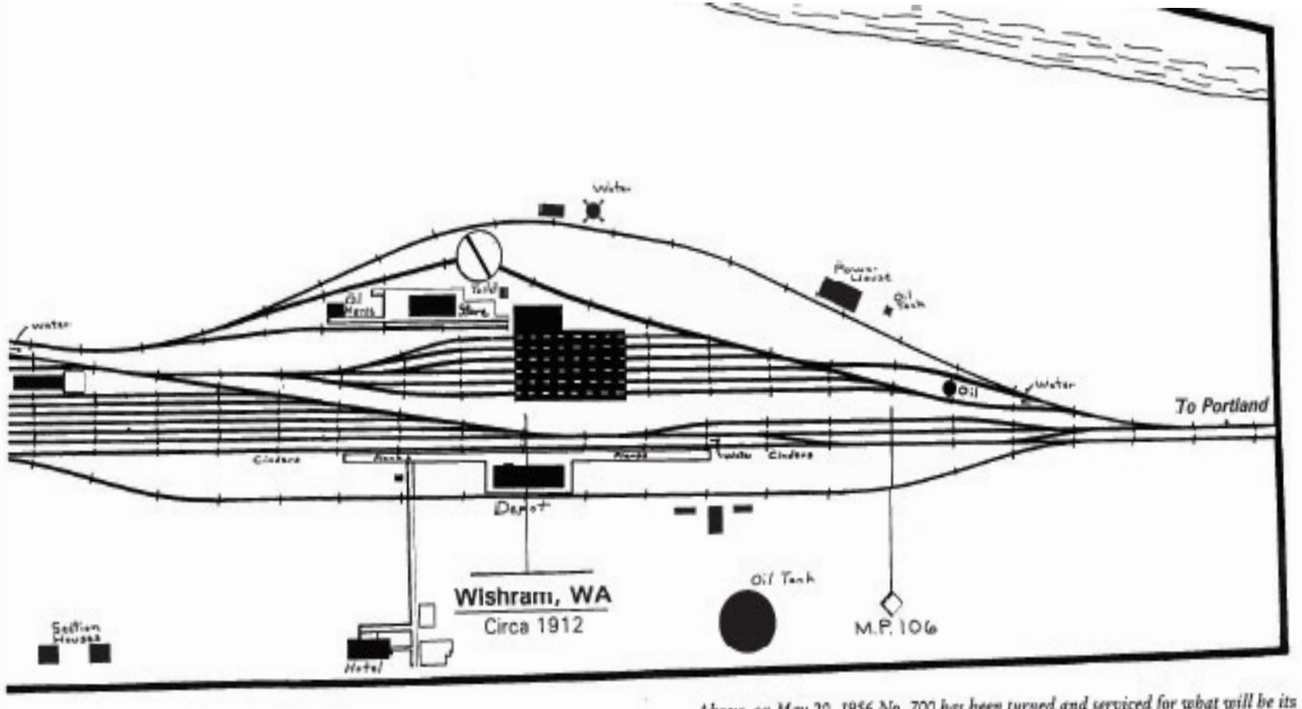


SPOKANE PORTLAND & SEATTLE RY
WISHRAM
5-15-56 1" = 50'

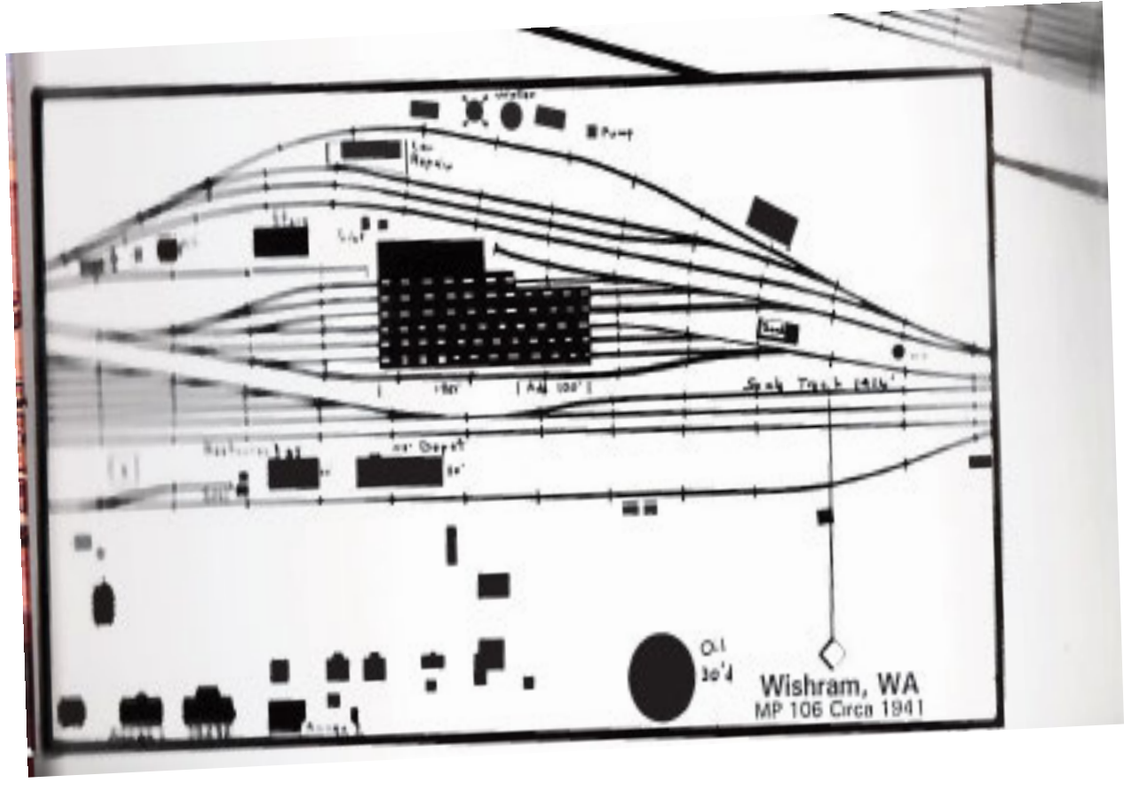


IF PORTIONS OF THIS DOCUMENT ARE NOT SUITABLE FOR REPRODUCTION IT IS DUE TO THE QUALITY OF THE DOCUMENT.


Property acquired
Total Area of No 1004 = 28.6 Acres±
No 1002 = 12.0 Acres±
No 1004
Lot 1
Lot 2
Lot 3
Lot 4
No 3
No 4
No 5
WISHRAM
V Wash 1
S-1
Station
Station Map
Acreage figures added 9-9-46 at Hadson's verbal request
COMPLETION SKETCH
FOR A.F.E. PRES. No. 7154
OREGON TRUNK RY
WISHRAM
Office of Chief Engineer
Date 3-9-45 Scale 1" = 400'
N



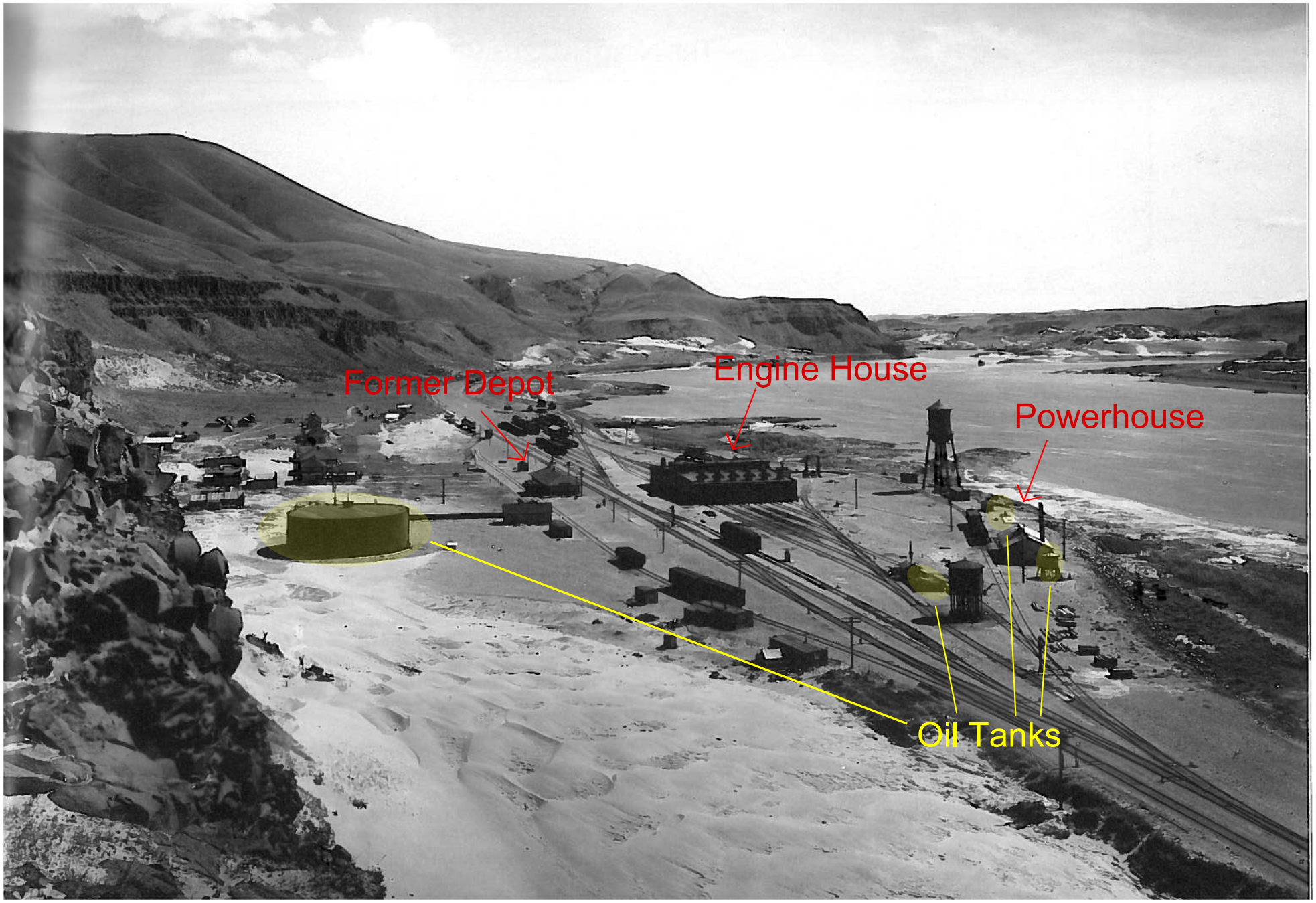
Above, on May 20, 1956 No. 700 has been turned and serviced for what will be its last run back to Portland. (Bob Wenzel)



Appendix B

Site Photographs

Wishram railyard overview, view to the west.



Wishram Site Photo (circa 1920s)

Kennedy/Jenks Consultants

1196010*00

Appendix C

Boring and Well Construction Logs

Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: W of Maintenance Facility		**Well Name**	AS-12-1
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 3.5"	**Project Number**	1196010.02
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 19.3 ft. bgs
BLANK CASING: 2" Schedule 40 PVC	FROM 0 TO 16.75 FT.	DATE STARTED: 1/12/12	DATE COMPLETED: 1/12/12
SLOTTED CASING: 2" 0.010 slot	FROM 16.75 TO 19.3 FT.	INITIAL WATER DEPTH (FT): N/A	STATIC WATER DEPTH (FT): 12.43
SIZE AND TYPE OF FILTER PACK: 10-20 Silica Sand	FROM 14.5 TO 19.3 FT.	LOGGED BY: J.Sawdey	
SEAL: Granular Bent. - Hydrated	FROM 1 TO 14.5 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ■ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: Cement	FROM 0 TO 1 FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	3.5								Sand, silt, and gravel fill material
SS	5		5			0.1 / NS		SP	**Poorly graded SAND** Brown, Tan, fine sand, some very fine sand, poorly graded, soft, dry - wet
SS	5		10			10.2 / SS			Petroleum-like odor and sheen Wet.
SS	4.3		15	AS-12-1		0.3 / NS		SP	**Poorly graded SAND** Gray, gray brown, fine and medium sand, poorly graded, soft, wet

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS, WS, MS, SS = No sheen, Weak sheen, Moderate sheen, Strong sheen
3. bgs = below ground surface
4. Direct-Push with 2.25" diameter push rod for soil sample. Install AS-12-1 with 3.25" direct push rod after appropriate depth determined from temp wells/soil samples
5. Petroleum-like odor and sheen from approximately 10' to 13.5' bgs

KJ PNW WK DRAFT AS_SVEWELLS2.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: W of Maintenance Facility	**Well Name:** AS-12-2
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard — **Project Name:** BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 3.5" — **Project Number:** 1196010.02
ISOLATION CASING: N/A	FROM N/A TO N/A FT.
BLANK CASING: 2" Schedule 40 PVC	FROM 0 TO 16.75 FT.
SLOTTED CASING: 2" 0.010 slot	FROM 16.75 TO 19.25 FT.
SIZE AND TYPE OF FILTER PACK: 10-20 Silica Sand	FROM 15.5 TO 19.25 FT.
SEAL: Granular Bent. - Hydrated	FROM 2 TO 15.5 FT.
GROUT: Cement	FROM 0 TO 2 FT.

ELEVATION AND DATUM: bgs	TOTAL DEPTH: 19.3 ft. bgs
DATE STARTED: 1/13/12	DATE COMPLETED: 1/13/12
INITIAL WATER DEPTH (FT): N/A	STATIC WATER DEPTH (FT): 12.49
LOGGED BY: J.Sawdey	
SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ■ SURFACE HOUSING ☐ STAND PIPE _____ FT.

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
									Sand, silt, and gravel fill material
SS	4					0.0 / NS		SM	**Silty SAND with gravel** Brown, silty sand, with abundant large gravels, well graded, dry
SS	5		5						
SS	5		10			41.2 / SS		SP	**Poorly graded SAND** Light brow, tan, very fine and fine sand, poorly graded, subrounded to rounded grains, red-brown staining in part, soft, damp Petroleum-like odor and sheen
SS	4.3		15	AS-12-2		0.3 / WS		SP	**Poorly graded SAND** Light gray, gray, fine sand, poorly graded, subrounded to rounded grains, very soft, wet

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS, WS, MS, SS = No sheen, Weak sheen, Moderate sheen, Strong sheen
3. bgs = below ground surface
4. Direct-Push with 2.25" diameter push rod for soil sample. Install AS-12-2 with 3.25" direct push rod after appropriate depth determined from temp wells/soil samples
5. Petroleum-like odor and sheen from approximately 8.5' to 12.5' bgs

KJ PNW WK DRAFT AS_SVEWELLS2.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: W of Maintenance Facility		**Well Name**	AS-12-3
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 3.5"	**Project Number**	1196010.02
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 19.5 ft. bgs
BLANK CASING: 2" Schedule 40 PVC	FROM 0 TO 17.0 FT.	DATE STARTED: 1/16/12	DATE COMPLETED: 1/16/12
SLOTTED CASING: 2" 0.010 slot	FROM 17.0 TO 19.5 FT.	INITIAL WATER DEPTH (FT): N/A	STATIC WATER DEPTH (FT): 12.44
SIZE AND TYPE OF FILTER PACK: 10-20 Silica Sand	FROM 15.0 TO 19.5 FT.	LOGGED BY: J.Sawdey	
SEAL: Granular Bent. - Hydrated	FROM 2 TO 15 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ■ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: Cement	FROM 0 TO 2 FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	2.5								Silty sand and gravels, road fill material
			5			0.5 / NS		SP/ SM	**Poorly graded SAND with silt** Brown, dark brown, tan, fine sand, some very fine and some silt, poor to moderate grading, subrounded grains, soft, damp
SS	5					51.7 / SS			**Poorly graded SAND with silt** Gray, light gray, fine sand, some very fine sand and some silt, poor to moderate grading, subrounded grains, soft, damp-wet
			10					SP/ SM	Petroleum-like odor and sheen
SS	5								Wet
						71.1 / SS			
			15			/ NS		SP	**Poorly graded SAND** Mottled gray and brown, Coarse grained sand zone, subangular to subrounded, wet
SS	4.5			AS-12-3		4.5 / NS		SP	**Poorly graded SAND** Brown, dark brown, fine to medium sand, moderate to poorly graded, rounded grains, soft, wet

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS, WS, MS, SS = No sheen, Weak sheen, Moderate sheen, Strong sheen
3. bgs = below ground surface
4. Direct-Push with 2.25" diameter push rod for soil sample. Install AS-12-3 with 3.25" direct push rod after appropriate depth determined from temp wells/soil samples
5. Petroleum-like odor and sheen from approximately 8' to 14' bgs

KJ PNW WK DRAFT AS_SVEWELLS2.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: S of Main line tracks		**Well Name**	MW-10
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Hollow Stem Auger	DRILL BIT(S) SIZE: 8"	**Project Number**	1196010.02
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 25.0 ft. bgs
BLANK CASING: 2" Schedule 40 PVC	FROM 0 TO 7.5 FT.	DATE STARTED: 2/2/12	DATE COMPLETED: 2/2/12
SLOTTED CASING: 2" 0.010 slot	FROM 7.5 TO 22.5 FT.	INITIAL WATER DEPTH (FT): N/A	STATIC WATER DEPTH (FT): 11.1
SIZE AND TYPE OF FILTER PACK: 10-20 Silica Sand	FROM 6 TO 22.5 FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips - Hydrated	FROM 2 TO 6 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ■ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: Cement	FROM 0 TO 2 FT.		

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
									Sand, silt, gravel, fill material, dry
SS	3.5								**Poorly graded SAND** Light brown, brown, tan brown, fine sand, very poorly graded, trace silt (<5%), moderately dense, dry
			5			0.0 / NS			
SS	5							SP	
			10			0.0 / NS			
SS	5								SAA; except wet and softer
			15			0.0 / NS			
SS	5								**Poorly graded SAND with silt** Brown, dark brown, fine sand with up to 40% silt, very soft, wet
			20			0.0 / NS		SP/ SM	
SS	2.5								
			25						

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS, WS, MS, SS = No sheen, Weak sheen, Moderate sheen, Strong sheen
3. bgs = below ground surface
4. Direct-Push with 2.25" diameter push rod for soil sample. Install MW-10 with 8" diameter hollow stem augers after appropriate depth determined from temp wells/soil samples
5. No petroleum-like odor or sheen observed in this borehole

KJ PNW WK DRAFT AS_SVEWELLS2.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: E of MW-10		**Well Name**	MW-11
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Hollow Stem Auger	DRILL BIT(S) SIZE: 8"	**Project Number**	1196010.02
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 25.0 ft. bgs
BLANK CASING: 2" Schedule 40 PVC	FROM 0 TO 7 FT.	DATE STARTED: 2/3/12	DATE COMPLETED: 2/3/12
SLOTTED CASING: 2" Schedule 40 PVC	FROM 7 TO 22 FT.	INITIAL WATER DEPTH (FT): N/A	STATIC WATER DEPTH (FT): 11
SIZE AND TYPE OF FILTER PACK: 10-20 Silica Sand	FROM 5 TO 22 FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips - Hydrated	FROM 2 TO 5 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ■ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: Cement	FROM 0 TO 2 FT.		

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	3								Sand, silt, gravel fill material, dry
SS	5		5			0.0 / NS		SP/ SM	**Poorly graded SAND with silt** Light brown, brown, tan brown, fine sand with some silt (~10%), poorly graded, moderately soft, dry
SS	5		10			1.2 / NS			
SS	5		15			11.7 / MS		SP/ SM	**Poorly graded SAND with silt** Light gray, gray, brown gray, fine sand with some silt (~10%), poorly graded, very soft, very wet, petroleum-like odor
SS	5								
SS	2		20			12.8 / SS			SAA; except lighter gray and more silt (30-40%), petroleum-like odor
			25			62.9 / SS			

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS, WS, MS, SS = No sheen, Weak sheen, Moderate sheen, Strong sheen
3. bgs = below ground surface
4. Direct-Push with 2.25" diameter push rod for soil sample. Install MW-11 with 8" diameter hollow stem augers after appropriate depth determined from temp wells/soil samples
5. Petroleum-like odor and sheen from approximately 15' to 25' bgs.

KJ PNW WK DRAFT AS_SVEWELLS2.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: W of Maintenance Facility		**Well Name**	MW-8
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Hollow Stem Auger	DRILL BIT(S) SIZE: 8"	**Project Number**	1196010.02
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 25.0 ft. bgs
BLANK CASING: 2" Schedule 40 PVC	FROM 0 TO 7 FT.	DATE STARTED: 2/3/12	DATE COMPLETED: 2/3/12
SLOTTED CASING: 2" 0.010 slot	FROM 7 TO 22 FT.	INITIAL WATER DEPTH (FT): N/A	STATIC WATER DEPTH (FT): 11.5
SIZE AND TYPE OF FILTER PACK: 10-20 Silica Sand	FROM 5 TO 22 FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips - Hydrated	FROM 2 TO 5 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ■ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: Cement	FROM 0 TO 2 FT.		

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	3.5								Sand, silt, gravel fill material, dry
SS	5		5			0.0 / NS		SP	**Poorly graded SAND** Light brown, brown, tan brown, Fine sand, some very fine, some silt (<5%), poor to moderate grading, subrounded to rounded grains, moderately soft, dry
SS	5		10			5.4 / SS		SP	**Poorly graded SAND** Gray brown, light gray brown, Fine sand, poorly graded, very soft, wet, petroleum-like odor
SS	5		15			0.3 / WS			Light brown, brown, medium sand, poorly graded with ~10% silt, moderately dense, wet
SS	2		20			0.0 / NS			SAA; except more fine grained and siltier (~20%)
			25			0.0 / NS			

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS, WS, MS, SS = No sheen, Weak sheen, Moderate sheen, Strong sheen
3. bgs = below ground surface
4. Direct-Push with 2.25" diameter push rod for soil sample. Install MW-8 with 8" diameter hollow stem augers after appropriate depth determined from temp wells/soil samples
5. Petroleum-like odor and sheen from approximately 9.5' to 12' bgs.

KJ PNW WK DRAFT AS_SVEWELLS2.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: S of Main line tracks	**Well Name** MW-9
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard — **Project Name** BNSF Wishram
DRILLING METHOD(S): Hollow Stem Auger	DRILL BIT(S) SIZE: 8" — **Project Number** 1196010.02
ISOLATION CASING: N/A	FROM N/A TO N/A FT.
BLANK CASING: 2" Schedule 40 PVC	FROM 0 TO 6.5 FT.
SLOTTED CASING: 2" 0.010 slot	FROM 8.5 TO 23.5 FT.
SIZE AND TYPE OF FILTER PACK: 10-20 Silica Sand	FROM 6.5 TO 23.5 FT.
SEAL: 3/8" Bent. Chips - Hydrated	FROM 2 TO 6.5 FT.
GROUT: Cement	FROM 0 TO 2 FT.

ELEVATION AND DATUM: bgs	TOTAL DEPTH: 25.0 ft. bgs
DATE STARTED: 2/2/12	DATE COMPLETED: 2/2/12
INITIAL WATER DEPTH (FT): N/A	STATIC WATER DEPTH (FT): 11.5
LOGGED BY: J.Sawdey	
SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ■ SURFACE HOUSING ☐ STAND PIPE _____ FT.

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	3.5		0						Sand, silt, gravel, fill material, dry
SS	5		5			0.0 / NS		SW	**Well-graded SAND** Dark brown, brown, medium sand, coarse in part, fine in part, well graded, subrounded grains, moderately soft, dry - damp
SS	5		10			0.0 / NS		SP	**Poorly graded SAND** Light brown, tan, fine sand, very poorly graded, soft, damp becoming wet at 11.5'
SS	5		15			0.0 / NS		SP	**Poorly graded SAND** Brown, gray brown, medium sand, poorly graded, moderately dense, wet
SS	3.5		20			0.0 / NS		SP/ SM	**Poorly graded SAND with silt** Brown, dark brown, fine sand, poorly graded with up to 15% silt, dense, wet
			25			0.0 / NS			

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS, WS, MS, SS = No sheen, Weak sheen, Moderate sheen, Strong sheen
3. bgs = below ground surface
4. Direct-Push with 2.25" diameter push rod for soil sample. Install MW-9 with 8" diameter hollow stem augers after appropriate depth determined from temp wells/soil samples
5. No petroleum-like odor or sheen observed

KJ PNW WK DRAFT AS_SVEWELLS2.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: W of Maintenance Facility		**Well Name**	SVE-12-1
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Hollow Stem Auger	DRILL BIT(S) SIZE: 10"	**Project Number**	1196010.02
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 22.0 ft. bgs
BLANK CASING: 4" Schedule 40 PVC	FROM 0 TO 5.5 FT.	DATE STARTED: 1/16/12	DATE COMPLETED: 1/16/12
SLOTTED CASING: 4" 0.020 slot	FROM 5.5 TO 8.5 FT.	INITIAL WATER DEPTH (FT): N/A	STATIC WATER DEPTH (FT): 12.38
SIZE AND TYPE OF FILTER PACK: 10-20 Silica Sand	FROM 5 TO 8.5 FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips - Hydrated	FROM 2 TO 5 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ■ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: Cement	FROM 0 TO 2 FT.		

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	3								Silty sand and coarse to fine gravel
SS	5		5			0.4 / NS		SP/ SM	**Poorly graded SAND with silt** Light brown, tan, fine sand, some silt, poorly graded, subrounded grains, moderately soft, dry
SS	4		10			0.4 / NS 99.4 / SS		SP/ SM	**Poorly graded SAND with silt** Light gray, gray, fine sand, some silt, poorly graded, subrounded grains, very soft, wet Petroleum-like odor and sheen
SS	5		15			0.7 / NS		SP/ SM	**Poorly graded SAND with silt** Brown, dark brown, fine and medium sand, some coarse, some silt, poor to moderate grading, rounded grains, soft, wet
SS	2		20			1.4 / NS			@ 22' refusal, bedrock, basalt, weathered, Columbia River Basalt Group

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS, WS, MS, SS = No sheen, Weak sheen, Moderate sheen, Strong sheen
3. bgs = below ground surface
4. Direct-Push with 2.25" diameter push rod for soil sample. Install SVE-12-1 with 10" diameter hollow stem augers after appropriate depth determined from temp wells/soil samples
5. Petroleum-like odor and sheen from approximately 11' to 15' bgs

KJ PNW WK DRAFT AS_SVEWELLS2.GPJ KJ PNW.GDT 8/2/12

Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: NW of Maintenance Facility		**Well Name**	SVE-12-2
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Hollwo Stem Auger	DRILL BIT(S) SIZE: 10"	**Project Number**	1196010.02
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 16.0 ft. bgs
BLANK CASING: 4" Schedule 40 PVC	FROM 0 TO 6.0 FT.	DATE STARTED: 1/15/12	DATE COMPLETED: 1/15/12
SLOTTED CASING: 4" 0.020 slot	FROM 6.0 TO 9 FT.	INITIAL WATER DEPTH (FT): N/A	STATIC WATER DEPTH (FT): 12.16
SIZE AND TYPE OF FILTER PACK: 10-20 Silica Sand	FROM 5 TO 9 FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips - Hydrated	FROM 2 TO 5 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ■ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: Cement	FROM 0 TO 2 FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	2								Silty sand, gravel, fill material, dry
						0.0 / NS			
			5						**Poorly graded SAND with silt**
SS	5					/ NS		SP/ SM	Brown, light dark brown, fine sand with some very fine sand, some silt, poorly graded, subrounded to rounded grains, moderately soft, damp
			10						**Poorly graded SAND with silt**
SS	5					45.7 / SS		SP/ SM	Gray, light gray, fine sand with some very fine sand, some silt, poorly graded, subrounded to rounded grains, soft, wet Petroleum-like odor and sheen
			15						**Poorly graded SAND**
SS	1					0.3 / NS		SP	Brown, dark brown, medium sand with some coarse grains, moderately graded, moderately soft, wet @ 16' refusal, bedrock, basalt, dark gray, moderately weathered, Columbia River Basalt Group

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS, WS, MS, SS = No sheen, Weak sheen, Moderate sheen, Strong sheen
3. bgs = below ground surface
4. Direct-Push with 2.25" diameter push rod for soil sample. Install SVE-12-2 with 10" diameter hollow stem augers after appropriate depth determined from temp wells/soil samples
5. Petroleum-like odor and sheen from approximately 11.5' to 14' bgs

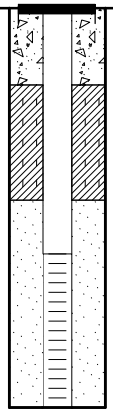
KJ PNW WK DRAFT AS_SVEWELLS2.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: N of Maintenance Facility		**Well Name**	SVE-12-3
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Hollow Stem Auger	DRILL BIT(S) SIZE: 10"	**Project Number**	1196010.02
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 12.0 ft. bgs
BLANK CASING: 4" Schedule 40 PVC	FROM 0 TO 6.4 FT.	DATE STARTED: 1/13/12	DATE COMPLETED: 1/13/12
SLOTTED CASING: 4" 0.020 slot	FROM 6.4 TO 10.4 FT.	INITIAL WATER DEPTH (FT): N/A	
SIZE AND TYPE OF FILTER PACK: 10-20 Silica Sand	FROM 5.0 TO 10.4 FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips - Hydrated	FROM 2 TO 5 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ■ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: Cement	FROM 0 TO 2 FT.		

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	3					0.0 / NO/NS			Silty sand and gravel, well graded fill material, dry
			5						
SS	5					0.0 / NO/NS			Brown, dark red brown, fine sand, small amounts of very fine sand, rounded grains, moderately soft, damp - dry - wet
			10						@11' Saturated soil samples
SS	2								@12' geoprobe refusal, not interpreted as bedrock

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS, WS, MS, SS = No sheen, Weak sheen, Moderate sheen, Strong sheen
3. bgs = below ground surface
4. Direct-Push with 2.25" diameter push rod for soil sample. Install SVE-12-3 with 10" diameter hollow stem augers after appropriate depth determined from temp wells/soil samples
5. No petroleum-like odor or sheen observed in this boring

KJ PNW WK DRAFT AS_SVEWELLS2.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: N of Maintenance Facility		**Well Name**	SVE-12-4
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Hollow Stem Auger	DRILL BIT(S) SIZE: 10"	**Project Number**	1196010.02
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 10.1 ft. bgs
BLANK CASING: 4" Schedule 40 PVC	FROM 0 TO 6.1 FT.	DATE STARTED: 1/13/12	DATE COMPLETED: 1/13/12
SLOTTED CASING: 4" 0.020 slot	FROM 6.1 TO 10.1 FT.	INITIAL WATER DEPTH (FT): N/A	
SIZE AND TYPE OF FILTER PACK: 10-20 Silica Sand	FROM 5.0 TO 10.1 FT.	LOGGED BY: J. Sawdey	
SEAL: 3/8" Bent. Chips - Hydrated	FROM 2 TO 5 FT.	SAMPLING METHODS: Logging Cuttings	WELL COMPLETION: ■ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: Cement	FROM 0 TO 2 FT.		

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	4								Sandy silty gravel, large gravel cobbles (up to 6" diameter)
			5			0.1 / NO/NS			**Poorly graded SAND** Brown, dark brown, fine sand, with some very fine sand and silts, poorly graded, soft, dry
SS	5							SP	
SS	0.1		10			0.0 / NO/NS			

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS, WS, MS, SS = No sheen, Weak sheen, Moderate sheen, Strong sheen
3. bgs = below ground surface
4. Install SVE-12-3 with 10" diameter hollow stem augers. Lithology interpretations from logging cuttings.
5. No petroleum-like odor or sheen observed in this boring

KJ PNW WK DRAFT AS_SVEWELLS2.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: South of tracks, East of road overpass		**Boring Name**	RB1
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010.02
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 20.0 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 1/16/12	DATE COMPLETED: 1/16/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): N/A	STATIC WATER DEPTH (FT): 11.24
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 20 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	2.5								Silt, sand, gravel, fill material
			5			0.2 / NS		SW/ SM	**Well-graded SAND with silt** light brown, light red brown, fine sand, some silt, very poorly graded, very soft, damp
SS	5								**Poorly graded SAND** light to dark gray, fine sand, some medium sand, poorly graded, subrounded to rounded grains, soft, damp-wet
			10			39.1 / SS			Petroleum-like odor and sheen
SS	5							SP	Wet.
			15			45.7 / SS			
SS	5			RB1		/ WS		SP	**Poorly graded SAND** Light gray, light brown, brown, medium and fine sand, poorly graded, subrounded grains, moderate soft, wet, petroleum-like odor
			20						

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. Petroleum-like odor and sheen encountered from approximately 10' to 15' bgs

KJ PNW WK DRAFT FUELINGSANDINGAREA.GPJ KJ PNW.GDT 8/2/12

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: South of tracks, East of road overpass		**Boring Name**	RB2
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010.02
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 20.0 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 1/17/12	DATE COMPLETED: 1/17/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): N/A	STATIC WATER DEPTH (FT): 13.28
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 20 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	4								Sand, silt, gravel
			5			0.0 / NS			**Poorly graded SAND with silt** Brown, light brown, fine sand, poorly graded, some very fine sand and silt, subrounded to rounded grains, soft, damp - wet
SS	5								
			10			0.1 / NS		SP/ SM	
SS	5								Wet.
			15			0.1 / NS			SAA, except medium and fine sand
SS	5			RB2					
			20						

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. No petroleum-like odor or sheen encountered in this boring.

KJ PNW WK DRAFT FUELINGSANDINGAREA.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: South of tracks, West of road overpass		**Boring Name**	RB3
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010.02
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 20.0 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 1/16/12	DATE COMPLETED: 1/16/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): N/A	STATIC WATER DEPTH (FT): 12.05
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 20 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	3								Sand, silt, gravel fill material
SS	5		5			0.2 / NS		SP/ SM	**Poorly graded SAND with silt** Brown, light brown, tan, fine with some very fine sand, poorly graded, subrounded to rounded grains, soft, damp - dry
SS	5		10			8.4 / SS		SP/ SM	**Poorly graded SAND with silt** Light gray, gray, fine with some very fine sand, some silt, poorly graded, soft, wet, petroleum-like odor. Petroleum like odor, iridescent sheen. Wet.
SS	5		15	RB3		1.8 / NS		SM	**Silty SAND** Brown, tan, silty sand, soft, wet
			20						

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. Petroleum-like odor and sheen encountered from approximately 9' to 14' bgs.

KJ PNW WK DRAFT FUELINGSANDINGAREA.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: South of tracks, West of road overpass		**Boring Name**	RB4
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010.02
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 20.0 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 1/16/12	DATE COMPLETED: 1/16/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): N/A	STATIC WATER DEPTH (FT): 12.01
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 20 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	3								Silt, sand, gravel, fill material
SS	5		5			0.0 / NS			**Poorly graded SAND with silt** Light brown, brown, dark brown, fine sand, some very fine, some silt, poorly graded, subrounded, moderately soft
SS	5		10			0.1 / NS		SP/ SM	Wet.
SS	5		15						SAA, except more medium sand, becoming more coarse with depth
SS	5			RB4		0.1 / NS		CL/ ML	**Silty CLAY with sand** Light brown, brown, silty sandy clay, soft, low, damp
			20						

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. No petroleum-like odor or sheen encountered in this boring.

KJ PNW WK DRAFT FUELINGSANDINGAREA.GPJ KJ PNW.GDT 8/2/12

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: Former Powerhouse Area		**Boring Name**	B-12-1
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010*00
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 60.0 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 1/10/12	DATE COMPLETED: 1/10/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): 11.0	
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 60 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	2		0						Silt, sand, gravel, fill material, dry
SS	4		5			0.0 / NS		SP	**Poorly graded SAND** Light brown, tan, poorly graded fine to medium sand, rounded to well rounded, soft, dry
SS	5		10		11 ▽				Wet
SS	5		15			0.0 / NS			**Poorly graded SAND with silt** Gray, dark gray, poorly graded medium sand, some fine, rounded to well rounded, very soft, wet
SS	5		20			0.1 / NS			6 inch layer black coaly/woody material
SS	5		25			4.1 / SS		SP/ SM	
SS	5		30	B-12-1-32		61.5 / SS			@ 32'; Apperance of black/brown hydrocarbon in sands, strong petroleum odor with black/brown sheen
			35						

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Project Name BNSF Wishram **Project Number** 1196010*00 **Boring Name** B-12-1

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	5								**Poorly graded SAND** Gray, dark gray, black/brown hydrocarbon presence, moderate to poorly graded medium sand, well rounded, some fine sand, strong petroleum-like odor and sheen, damp/wet
			40			50.7 / SS			
SS	5								
			45			110 / SS		SP	
SS	5								Gray, moderately firm clay layer (3"), moderately dense, low plasticity, damp/wet
			50						Gravel layer (6") with fine to medium sand, petroleum-like odor and sheen
SS	5								
			55			141.5 / SS			
SS	5								Gradual decreasing visible black / brown hydrocarbon presence in sands
			60	B-12-1-59				GP	**Poorly graded GRAVEL with sand** Well graded, rounded gravels, abundant sand, moderately dense

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. Petroleum-like odor and sheen encountered from approximately 30' to 55' bgs

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: Former Powerhouse Area		**Boring Name**	B-12-10
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010*00
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 60.0 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 2/1/12	DATE COMPLETED: 2/1/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): 11.0	
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 60 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
									Woody, rooty, oraganic soil
SS	3								Sand, silt, gravel, and concrete rubble fill material
			5			0.0 / NS			**Poorly graded SAND** Light brown, light brown gray, tan, fine sand, very poorly graded, soft - moderately firm, damp - dry
SS	5							SP	
			10		11 ▽	0.0 / NS			
SS	5								
			15			0.0 / NS			**Clayey SAND** Brown, dark brown, very fine and fine sand, approximately 25% silt, and 20% clay, very soft, low plasticity, wet
SS	5							SC	
			20						
SS	5								
			25			0.0 / NS			**Poorly graded SAND** Light gray, gray, fine to medium sand, <5% silt, poorly graded, soft, wet
SS	5								
			30			0.1 / NS		SP	
SS	5								
			35						

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Project Name BNSF Wishram **Project Number** 1196010*00 **Boring Name** B-12-10

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	5					0.1 / NS		SP	**Poorly graded SAND** Light gray, gray, fine to medium sand, <5% silt, poorly graded, soft, wet ***(Continued)***
			40	B-12-10-40		0.1 / NS			
SS	5								**Poorly graded SAND** Light gray, gray, gray brown, coarse sand, moderately graded with some medium sand, dense, damp
			45			0.1 / NS		SP	@ 45' Thin layer well graded gravel (up to 1/2" diam), dense, damp
SS	5								
			50			0.0 / NS			**Poorly graded SAND** Light gray, gray, gray brown, coarse to very coarse sand, moderate grading, dense, wet
SS	5							SP	
			55			0.0 / NS			
SS	5								
			60	B-12-10-60		0.1 / NS			

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. No petroleum-like odor or sheen encountered in this boring

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: Former Powerhouse Area		**Boring Name**	B-12-11
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010*00
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 55.0 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 2/2/12	DATE COMPLETED: 2/2/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): 11.0	
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 55 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	2								Sand, silt, gravel fill material, with some cinders, dry
			5			0.0 / NS		SP	**Poorly graded SAND** Light brown, brown, tan, fine sand, poorly graded, soft, dry
SS	4								
			10		11 ▽	0.0 / NS			
SS	5			B-12-11-11				SP/ SM	**Poorly graded SAND with silt** Light gray brown, gray brown, fine sand, poorly graded with ~15% silt, and minor amounts of clay (<<5%), very soft, wet
			15			0.0 / NS			
SS	5								**Silty CLAY** Gray, gray brown, silty clay, variable silt % (10 - 35), and variable firmness (v soft - firm), variable, damp
			20			0.0 / NS		CL/ ML	
SS	5								
			25			0.5 / NS			**Poorly graded SAND** Light gray, gray, gray brown, medium sand, poorly graded, moderately dense, damp - wet @ 26': Black/brown hydrocarbon presence
SS	5								
			30			15.3 / SS		SP	
SS	5								
			35	B-12-11-35					***(See next page for lithology description)***

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

Project Name BNSF Wishram **Project Number** 1196010*00 **Boring Name** B-12-11

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
						114.6 / SS			Abundant lean clay layers, strong petroleum-like odor and sheen
SS	5								**Poorly graded SAND** Light gray, gray, gray brown, medium sand, poorly graded, moderately dense, damp - wet ***(Continued)***
			40	B-12-Spec.Grav		87.5 / SS			@ 40': Begin gradual decrease black/brown hydrocarbon staining, occasional pockets
SS	5								
			45			101.9 / SS		SP	
SS	5								
			50			2.0 / NS			
SS	5								@55': Return black/brown hydrocarbon staining
			55	B-12-11-55		103.9 / SS			

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. Petroleum-like odor and sheen encountered from approximately 25' to 40' and 55' bgs.

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: Former Powerhouse Area		**Boring Name**	B-12-12
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010*00
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 22.5 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 2/4/12	DATE COMPLETED: 2/4/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): 12.0	
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 22.5 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	3								Sand, silt, gravel fill material, dry
			5			/ NS			**Poorly graded SAND with silt** Light brown, fine sand with some (~10%) silt, and some very fine sand, poorly graded, moderately soft, dry
SS	5							SP/ SM	
			10			0.0 / NS			
SS	5			B-12-12	12 ▽	73.1 / SS			**Poorly graded SAND with silt** Gray, dark gray, dark gray brown, fine sand with some (~10%) silt, and some very fine sand, poorly graded, soft, wet, strong petroleum-like odor and sheen
			15			0.0 / NS			
SS	5							SP/ SM	
			20						
SS	2.5			B-12-23		34.2 / SS			SAA; except lighter gray and more silt (~25%) and minor clay (<5%) @22.5': Refusal, black/brown hydrocarbon in shoe with basalt

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. Petroleum-like odor and sheen encountered from approximately 10.5' to 13' and 20' to 22.5' bgs.

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: Former Powerhouse Area		**Boring Name**	B-12-13
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010*00
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 33.5 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 2/4/12	DATE COMPLETED: 2/4/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): 11.0	
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 33.5 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	3								Sand, silt, gravel fill material, dry
SS	5		5			0.0 / NS		SP	**Poorly graded SAND** Light brown, brown, brown gray, fine to medium sand, moderate grading, trace of silt (<5%), moderate soft, dry
SS	5		10		11 ▽	0.0 / NS		SP/ SM	**Poorly graded SAND with silt** Light brown, brown, brown gray, fine to medium sand, moderate grading with ~25% silt, soft, wet
SS	5		15			0.0 / NS		ML/ CL	**Clayey SILT with sand** Dark brown, very dark brown, clayey silt with ~10% fine sand, very dense and firm, damp
SS	5		20			3.0 / NS		SP/ SM	**Poorly graded SAND with silt** Dark gray brown, dark brown, fine sand with abundant silt (>30%) and some clay (<5%), dense, wet
SS	5		25			32.4 / SS			@24': Appearance of black/brown hydrocarbon presence
SS	3.5		30	B-12-13-30		3.0 / SS		SP	**Poorly graded SAND** Brown, light brown, medium sand, poorly graded, some fine sands, moderately dense, wet, petroleum-like odor and sheen

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Project Name BNSF Wishram **Project Number** 1196010*00 **Boring Name** B-12-13

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. Petroleum-like odor and sheen encountered from approximately 25' to 33.5' bgs

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: Former Powerhouse Area		**Boring Name**	B-12-14
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010*00
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 17.5 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 2/4/12	DATE COMPLETED: 2/4/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): 10.0	
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 17.5 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	2								Sand, silt, gravel fill material, dry
			5			0.0 / NS			**Poorly graded SAND with silt** Light brown, brown, fine sand, poorly graded, ~20% silt, dry-wet
SS	4								
			10		10 ▽	0.8 / NS		SP/ SM	
SS	5								
			15			0.1 / NS			
SS	2.5								Refusal @ 17.5' bgs

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. No petroleum-like odor or sheen encountered in this boring

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: Former Powerhouse Area	**Boring Name:** B-12-2
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard — **Project Name:** BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25" — **Project Number:** 1196010*00
ISOLATION CASING: N/A	FROM N/A TO N/A FT.
BLANK CASING: N/A	FROM N/A TO N/A FT.
SLOTTED CASING: N/A	FROM N/A TO N/A FT.
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.
SEAL: 3/8" Bent. Chips	FROM 0 TO 55 FT.
GROUT: N/A	FROM N/A TO N/A FT.

ELEVATION AND DATUM: bgs	TOTAL DEPTH: 55.0 ft. bgs
DATE STARTED: 1/10/12	DATE COMPLETED: 1/11/12
INITIAL WATER DEPTH (FT): 12.0	
LOGGED BY: J.Sawdey	
SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	2								No Recovery
			5			1.4 / NS		SW	**Well-graded SAND with gravel** Light brown, brown, tan, fine to medium well graded sand with gravel, some carbonaceous material, soft, dry
SS	3					23.5 / NS			**WOOD DEBRIS** Black stained, oily tar-like fill material (some woody material and other debris) moslty silty, becoming very dense, hard, damp, petroleum-like odor
			10						
SS	4			B-12-2-12	12 ▽	14.5 / NS		Wood	
			15						
SS	5							SP/ SM	**Poorly graded SAND with silt** Dark brown, very fine grained sand with silt, more silty in places, soft, wet, petroleum like-odor
			20			1.3 / NS		CL/ ML	**Sandy silty CLAY** Pale gray, very stiff clay, dense, low, damp
SS	5								**Poorly graded SAND** Gray, light gray, very fine and fine poorly graded sand, some medium grains, rounded, wet
			25			2.2 / WS			
SS	5							SP	
			30			1.6 / NS			
SS	5								@32.5 ft. (bgs) appearance of black/brown hydrocarbon in sands, strong petroleum odor with black/brown sheen
			35						

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

Project Name BNSF Wishram **Project Number** 1196010*00 **Boring Name** B-12-2

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	5					121 / SS			**Poorly graded SAND** Gray, light gray, very fine and fine poorly graded sand, some medium grains, rounded, wet ***(Continued)***
									SAA except with more medium sands
			40	B-12-2-40		76.4 / SS			
SS	5								
			45			10 / WS		SP	
SS	5								@46 ft. (bgs) gradual decreasing visual black/brown hydrocarbon staining
			50			0.9 / NS			
SS	5								
			55	B-12-2-55					

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. Petroleum coated woody material encountered from approximately 7' to 16' bgs.
5. Petroleum-like odor and sheen encountered from approximately 30' to 45' bgs.

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: Former Powerhouse Area		**Boring Name**	B-12-3
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010*00
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 37.0 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 1/11/12	DATE COMPLETED: 1/11/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): 13.0	
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 37 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	3								Sand and gravel fill material
SS	5		5			0.9 / NS		SP	**Poorly graded SAND with gravel** Brown, redbrown, predominately fine poorly graded sand, some large gravels, soft, dry
SS	4		10	B-12-3-13	13 ▽	56.5 / SS		SP	**Poorly graded SAND** Light brown, tan, fine poorly graded sand, soft, dry
SS	5		15					SP	**Poorly graded SAND** Dark gray, SAA, with distinct color change to dark gray @13 ft, very soft, wet
SS	5		20			1.7 / WS		SP	**Poorly graded SAND** Light brown, tan, fine to medium sand, moderate to poor grading, rounded, moderately soft, wet
SS	5		25			1.6 / NS		SP	
SS	5		30			1.5 / NS		SP	
SS	5		35					SP	SAA, more gray in color, more medium sand

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Project Name BNSF Wishram **Project Number** 1196010*00 **Boring Name** B-12-3

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	2					1.1 / NS 0.8 / NS		SP	@37' Refusal

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. Petroleum-like odor and sheen encountered from approximately 12' to 14' bgs.

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: Former Powerhouse Area		**Boring Name**	B-12-4
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010*00
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 68.0 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 1/11/12	DATE COMPLETED: 1/12/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): 12.0	
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 68 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	4		0						Sand, silt, gravel fill
SS	5		5			0.0 / NS			**Poorly graded SAND** Brown, light brown / tan, fine poorly graded sand, subrounded to rounded grains, soft, damp
SS	5		10			0.0 / NS		SP	
SS	5		12						Wet
SS	5		15			0.0 / NS			
SS	5		20			0.0 / NS			**Poorly graded SAND** Gray, very fine to fine sand, poorly graded, subrounded grains, soft, wet
SS	5		25			0.0 / NS		SP	SAA, except with fine to medium sand
SS	5		30			1.8 / WS			@30.5 ft appearance of black/brown hydrocarbon in sands, strong petroleum odor with black/brown sheen
SS	5		35					SP	**Poorly graded SAND** Black/ brown, stained medium and fine sand, poor to moderate grading, soft, wet, petroleum-like odor and sheen

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Project Name BNSF Wishram **Project Number** 1196010*00 **Boring Name** B-12-4

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	5					29.7 / SS			**Poorly graded SAND** Black/ brown, stained medium and fine sand, poor to moderate grading, soft, wet, petroleum-like odor and sheen ***(Continued)***
SS	5		40	B-12-4-40		53.1 / SS		SP	
SS	5		45			70.1 / SS			
SS	5		50			50.9 / SS			
SS	5		55			0.4 / NS		CL/ ML	**Silty CLAY with sand** Pale gray, moderately firm silty and sandy clay, moderately dense, low, damp
SS	5		60			50.1 / SS		SP	**Poorly graded SAND** Gray, medium gray, fine to medium sand, moderately graded, black/brown stain dispersed in discrete pockets, dense, wet, petroleum-like odor and sheen
SS	5		65					GW/ GM	**Well-graded GRAVEL with silt and sand** Well graded gravel, about 40% fine sand and some silt, occasional silty clay stringers, wet
SS	3			B-12-4-68		102.3 / SS		SP	**Poorly graded SAND** Black/brown, stained medium and fine sand, poor to moderate grading, soft, wet, petroleum-like odor and sheen @ 68 ft, Refusal

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. Petroleum-like odor and sheen encountered from approximately 30' to 68' bgs

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: Former Powerhouse Area		**Boring Name**	B-12-5
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010*00
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 64.5 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 1/17/12	DATE COMPLETED: 1/17/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): 13.0	
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 64.5 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	2								Sand, silt, gravel, road fill material
SS	4		5			0.0 / NS			**Poorly graded SAND with silt** Light brown, tan, fine sand, very poorly graded, trace silt and very fine sand, subrounded grains, soft, damp
SS	4		10			0.0 / NS			SAA, with more medium sand grains
SS	4		13					SP/ SM	Wet.
SS	5		15			0.0 / NS			
SS	5		20			0.0 / NS			More silty
SS	5		25			0.0 / NS			**Poorly graded SAND with silt** Brown, dark brown, medium sand, some coarse, moderately graded, some silt, soft, wet
SS	5		30			0.0 / NS		SP/ SM	
SS	5		35						

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Project Name BNSF Wishram **Project Number** 1196010*00 **Boring Name** B-12-5

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	5					0.0 / NS		SP/ SM	**Poorly graded SAND with silt** Brown, dark brown, medium sand, some coarse, moderately graded, some silt, soft, wet ***(Continued)***
			40	B-12-5-40		0.3 / NS			**Well-graded SAND** Brown, dar brown, medium sand, coarse in part, fine in part, moderately graded, soft, wet
SS	5								
			45			0.4 / NS			
SS	5								
			50			0.0 / NS		SW	Thin (~1cm) wide clay stringers
SS	5								
			55			0.0 / NS			
SS	5								
			60			0.0 / NS			
SS	4.5					0.0 / NS		GW	**Well-graded GRAVEL with sand** Well graded rounded gravels, abundant sand (30%) and some silt, wet
									@64.5 ft, Refusal

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. No petroleum-like odor or sheen encountered in this boring

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: Former Powerhouse Area		**Boring Name**	B-12-6
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010*00
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 60.0 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 1/31/12	DATE COMPLETED: 1/31/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): 13.0	
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 60.0 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	3		0			0.0 / NS			Sand, silt, and gravel fill material, dry
SS	5		5			0.0 / NS		SP	**Poorly graded SAND** Light brown, brown, fine sand, very poorly graded, <5% silt, moderately soft, dry
SS	5		10	13 ▽		0.0 / NS			
SS	5		15			0.0 / NS		SC	**Clayey SAND** Light brown, light gray, silty (~10%) clayey (~20%) very fine to fine sand, moderately soft, low to moderate plasticity, wet
SS	5		20			0.0 / NS			
SS	5		25			0.0 / NS		SP/ SM	**Poorly graded SAND with silt** Brown, dark brown, fine to medium sand, poorly graded, trace (<5%) silt, moderately dense, wet
SS	5		30			0.0 / NS			
			35						SAA, except with medium to coarse sand

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Project Name BNSF Wishram **Project Number** 1196010*00 **Boring Name** B-12-6

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	5		40			0.0 / NS		SP/ SM	**Poorly graded SAND with silt** Brown, dark brown, fine to medium sand, poorly graded, trace (<5%) silt, moderately dense, wet ***(Continued)***
SS	5								Brown, medium sand, poorly graded, intermitten discontinous clay pockets, moderately dense, damp
SS	5		45	B-12-6-45					
SS	5		50			0.0 / NS			SAA, except gray to gray brown in color, coarse grained, and more abundant clay pockets
SS	5		55						
SS	5		60	B-12-6-60		0.0 / NS			

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. B-12-6 sampled to 35', sample rods slipped through rubber and abandoned down hole. Move probing rig 1.5' W, continue logging.
5. No petroleum-like odor or sheen encountered in this boring

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: Former Powerhouse Area		**Boring Name**	B-12-7
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010*00
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 55.0 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 1/31/12	DATE COMPLETED: 1/31/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): 12.0	
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 55 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	0								Sand, silt, and gravel fill material, dry
SS	5		5			0.0 / NS		SP/ SM	**Poorly graded SAND with silt** Light brown, tan, fine sand, some very fine, some silt (<10%), poor to moderate grading, moderately soft, dry - damp
SS	5		10		12 ▽	0.0 / NS			
SS	5			B-12-7-13				SP	**Poorly graded SAND** Dark gray brown, dark brown, fine sand, trace silt (<5%), very saturated, poorly graded, very soft, wet
SS	4.5		15			0.3 / NS			
SS	5		20			28.7 / WS		SC	**Clayey SAND** Dark brown gray, dark brown, fine to very fine sand, ~20% silt, 10% clay, poor to moderate grading, very soft, wet
SS	4		25	B-12-7-24		31.9 / SS			
				B-12-7-28					**Poorly graded SAND** Gray, brown gray, black/brown hydrocarbon stained medium sand, poorly graded, subrounded to rounded grains, moderately dense, damp @ 26' : Appearance of black /brown hydrocarbon in sands, strong petroleum-like odor with black/brown sheen
SS	5		30			51.9 / SS		SP	
			35						

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Project Name BNSF Wishram **Project Number** 1196010*00 **Boring Name** B-12-7

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	5								**Poorly graded SAND** Gray, brown gray, black/brown hydrocarbon stained medium sand, poorly graded, subrounded to rounded grains, moderately dense, damp ***(Continued)***
			40			75.6 / SS			
SS	5								
			45			80.8 / SS		SP	SAA, except coarser grained (medium to coarse sands), petroleum-like odor
SS	5								
			50			65.2 / SS			
SS	5								@ 55' black/brown petroleum sheen and odor present until total depth of 55', with no indication of dissipating
			55	B-12-7-55		74.4 / SS			

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. Petroleum-like odor and sheen encountered from approximately 25' to 55' bgs.

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: Former Powerhouse Area		**Boring Name**	B-12-8
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010*00
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 37.5 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 2/1/12	DATE COMPLETED: 2/1/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): 10.5	
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 37.5 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	0								Sand, silt, and gravel fill material, dry
SS	5		5			0.0 / NS		SP/ SM	**Poorly graded SAND with silt** Brown, light brown, tan, fine sand with some (~10%) silt and some very fine sand, poorly graded, subrounded, soft, dry-damp
SS	5		10	B-12-8-11	10.5 ▽	11.9 / SS		SP	**Poorly graded SAND** Dark gray, dark gray brown, fine sand, trace (<5%) silts and clays, poorly graded, subrounded to rounded grains, soft, wet, petroleum-like odor and sheen
SS	4.5		15						
SS	5		20			0.0 / NS		SP	**Poorly graded SAND** Gray brown, gray, medium sand, poorly graded, rounded grains, moderately dense, wet
SS	4		25			22.3 / SS		SP/ SM	**Poorly graded SAND with silt** Gray brown, gray, medium sand with variable amounts of silts (ranging from ~10 to 30%) poorly graded rounded grains, moderately dense, wet, petroleum-like odor and sheen
SS	5		30			31.7 / SS			@ 27 - 30': trace black/brown bubbly sheen. Dissipated and gone by total depth of 37.5'
			35						

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Project Name BNSF Wishram **Project Number** 1196010*00 **Boring Name** B-12-8

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	2.5			B-12-8-37				SP/ SM	

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. Petroleum-like odor and sheen encountred from approximately 10' to 13' and 27' to 30' bgs

Boring Log

Kennedy/Jenks Consultants

BORING LOCATION: Former Powerhouse Area		**Boring Name**	B-12-9
DRILLING COMPANY: Major Drilling	DRILLER: Jerry Richard	**Project Name**	BNSF Wishram
DRILLING METHOD(S): Direct-Push	DRILL BIT(S) SIZE: 2.25"	**Project Number**	1196010*00
ISOLATION CASING: N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM: bgs	TOTAL DEPTH: 50.0 ft. bgs
BLANK CASING: N/A	FROM N/A TO N/A FT.	DATE STARTED: 2/1/12	DATE COMPLETED: 2/1/12
SLOTTED CASING: N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT): 10.0	
SIZE AND TYPE OF FILTER PACK: N/A	FROM N/A TO N/A FT.	LOGGED BY: J.Sawdey	
SEAL: 3/8" Bent. Chips	FROM 0 TO 50 FT.	SAMPLING METHODS: Macro Core Liner	WELL COMPLETION: ☐ SURFACE HOUSING ☐ STAND PIPE _____ FT.
GROUT: N/A	FROM N/A TO N/A FT.		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	3								Sand, silt, and gravel fill material, dry
SS	5		5			0.1 / NS		SP/ SM	**Poorly graded SAND with silt** Brown, red brown, fine sand with some silt (~10%), poorly graded, soft, dry
SS	5		10		10 ▽	0.0 / NS		SP	**Poorly graded SAND** Light gray brown, brown gray, fine sand with traces of silt and very fine sand, poorly graded, rounded grains, soft, wet
SS	5		15						
SS	5		20			0.0 / NS			
SS	5							Wood	**WOOD DEBRIS** Light tan/brown, Wood debris
SS	5		25			0.0 / NS		SP	**Poorly graded SAND** Brown, brown gray, medium sand, poorly graded, moderately dense, damp
SS	5		30						
			35			0.0 / NS			

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

F-40.1
(6-87) (3-88) (8-90)

Project Name BNSF Wishram **Project Number** 1196010*00 **Boring Name** B-12-9

SAMPLES TYPE	SAMPLES RECOV. (FEET)	SAMPLES PENETR. RESIST. BLOWS/6"	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID PPM / ST	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	5								**Poorly graded SAND with silt** Brown, brown gray, medium to coarse sands, variable amounts of silt (~10-35%), moderately graded,, dense, wet - damp
			40	B-12-9-40		0.1 / NS			
SS	5							SP/ SM	
			45						
SS	5					0.1 / NS			
			50						

NOTES

1. PID PPM = Photo ionization detector reading in parts per million
2. ST = Sheen test: NS,WS, MS, SS = No sheen, Weak sheen, Moderate Sheen, Strong Sheen
3. bgs = below ground surface
4. No petroleum-like odor or sheen encountered in this boring

KJ PNW WK DRAFT POWERHOUSEAREABORINGS.GPJ KJ PNW.GDT 8/2/12

Appendix D

Laboratory Analytical Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 580-30818-1
Client Project/Site: BNSF Wishram

For:
Kennedy/Jenks Consultants
32001-32nd Ave South, Suite 100
Federal Way, Washington 98001

Attn: Joseph Sawdey

Kristine D. Allen

Authorized for release by:
2/6/2012 4:22:37 PM

Kristine Allen
Project Manager I
kristine.allen@testamericainc.com

Table of Contents

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30818-1

Job ID: 580-30818-1

Laboratory: TestAmerica Seattle

Narrative

Receipt

One cooler was received via UPS Ground on Friday, January 20, 2012. This cooler was received without the Chain of Custody (COC). The remaining two coolers of the project were received with the corresponding COC arrived on Monday, January 23, 2012. The project began on Monday after receipt was complete.

The COC requests a 48 hour rush turn around time on these samples. Per client request, samples were logged in for a standard ten business day turn around time.

Twelve HCl preserved voa vials were received as trip blanks, but were not listed on the COC. They were recorded on the COC, logged-in, and labeled.

The following samples had a collection time reported on sample containers that differed from that of the sample times recorded on the COC. All samples were logged in following the information provided on the COC.

For NWTPH-Dx sample containers, sample AS-12-3 (580-30818-1) reports a collection time of 09:35 on the sample container while the COC lists a collection time of 09:30. Sample RB4 (580-30818-4) reports a collection time of 14:30 on the sample container while the COC lists a collection time of 14:25.

The following sampling times were respectively reported on the sample containers of the voa vials:
AS-12-3 (580-30818-1) : 09:20 or 09:25
AS-12-2 (580-30818-2): 10:15 or 10:20
AS-12-1 (580-30818-3): 14:50 or 14:55
RB4 (580-30818-4): 14:15 or 14:20
RB3 (580-30818-5) : 15:30 or 15:35
RB2 (580-30818-6), : 10:15 or 10:20
RB1 (580-30818-7): 08:40 or 08:45
DUP-1 (580-30818-8): 10:20 or 10:25

These are the sample times for all samples as reported on the COC:
AS-12-3 (580-30818-1) : 09:30
AS-12-2 (580-30818-2): 10:25
AS-12-1 (580-30818-3): 15:00
RB4 (580-30818-4): 14:25
RB3 (580-30818-5) : 15:40
RB2 (580-30818-6): 10:30
RB1 (580-30818-7): 08:55
DUP-1 (580-30818-8) : 10:35

All other samples were received in good condition within temperature requirements.

GC/MS VOA

No analytical or quality issues were noted.

GC Semi VOA - Method NWTPH-Dx

The results in the #2 Diesel (C10-C24) and Motor Oil (>C24-C36) ranges for samples AS-12-3 (580-30818-1) and RB3 (580-30818-5) are due primarily to weathered/degraded diesel fuel. The Y qualifier was added to the affected sample ranges and reported.

The results in the #2 Diesel (C10-C24) and Motor Oil (>C24-C36) ranges for samples AS-12-2 (580-30818-2), AS-12-1 (580-30818-3), RB4 (580-30818-4), RB2 (580-30818-6), RB1 (580-30818-7) and DUP-1 (580-30818-8) are due primarily to a mixture of what most closely resembles heavily weathered/degraded diesel fuel, and/or a mineral/transformer oil range product. The Y qualifier was added to the affected sample ranges and reported.

No other analytical or quality issues were noted.

Organic Prep

Job ID: 580-30818-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

No analytical or quality issues were noted.

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30818-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
Y	The chromatographic response resembles a typical fuel pattern.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30818-1

Client Sample ID: AS-12-3
Date Collected: 01/16/12 09:30
Date Received: 01/23/12 09:25

Lab Sample ID: 580-30818-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.17	J	1.0	0.15	ug/L			01/25/12 19:01	1
Toluene	ND		1.0	0.15	ug/L			01/25/12 19:01	1
Ethylbenzene	1.1		1.0	0.15	ug/L			01/25/12 19:01	1
m-Xylene & p-Xylene	1.4	J	2.0	0.30	ug/L			01/25/12 19:01	1
o-Xylene	0.41	J	1.0	0.15	ug/L			01/25/12 19:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*		*01/25/12 19:01*	*1*
Toluene-d8 (Surr)	*102*		*85 - 120*		*01/25/12 19:01*	*1*
Ethylbenzene-d10	*104*		*80 - 120*		*01/25/12 19:01*	*1*
Trifluorotoluene (Surr)	*102*		*80 - 120*		*01/25/12 19:01*	*1*
4-Bromofluorobenzene (Surr)	*106*		*75 - 120*		*01/25/12 19:01*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.39		0.050	0.010	mg/L			01/25/12 19:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*50 - 150*		*01/25/12 19:01*	*1*
Trifluorotoluene (Surr)	*105*		*50 - 150*		*01/25/12 19:01*	*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)	2.8	Y	0.12	0.069	mg/L		01/23/12 12:27	01/24/12 20:01	1
Motor Oil (>C24-C36)	0.52	Y	0.24	0.045	mg/L		01/23/12 12:27	01/24/12 20:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*80*		*50 - 150*	*01/23/12 12:27*	*01/24/12 20:01*	*1*

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30818-1

Client Sample ID: AS-12-2
Date Collected: 01/13/12 10:25
Date Received: 01/23/12 09:25

Lab Sample ID: 580-30818-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.15	ug/L			01/25/12 19:23	1
Toluene	ND		1.0	0.15	ug/L			01/25/12 19:23	1
Ethylbenzene	**0.31**	**J**	1.0	0.15	ug/L			01/25/12 19:23	1
m-Xylene & p-Xylene	**0.77**	**J**	2.0	0.30	ug/L			01/25/12 19:23	1
o-Xylene	ND		1.0	0.15	ug/L			01/25/12 19:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*		*01/25/12 19:23*	*1*
Toluene-d8 (Surr)	*102*		*85 - 120*		*01/25/12 19:23*	*1*
Ethylbenzene-d10	*105*		*80 - 120*		*01/25/12 19:23*	*1*
Trifluorotoluene (Surr)	*101*		*80 - 120*		*01/25/12 19:23*	*1*
4-Bromofluorobenzene (Surr)	*105*		*75 - 120*		*01/25/12 19:23*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**0.20**		0.050	0.010	mg/L			01/25/12 19:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*50 - 150*		*01/25/12 19:23*	*1*
Trifluorotoluene (Surr)	*105*		*50 - 150*		*01/25/12 19:23*	*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)	**3.7**	**Y**	0.12	0.069	mg/L		01/23/12 12:27	01/24/12 20:22	1
Motor Oil (>C24-C36)	**1.3**	**Y**	0.24	0.045	mg/L		01/23/12 12:27	01/24/12 20:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*72*		*50 - 150*	*01/23/12 12:27*	*01/24/12 20:22*	*1*

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30818-1

Client Sample ID: AS-12-1
Date Collected: 01/12/12 15:00
Date Received: 01/23/12 09:25

Lab Sample ID: 580-30818-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.15	ug/L			01/25/12 20:30	1
Toluene	ND		1.0	0.15	ug/L			01/25/12 20:30	1
Ethylbenzene	ND		1.0	0.15	ug/L			01/25/12 20:30	1
m-Xylene & p-Xylene	ND		2.0	0.30	ug/L			01/25/12 20:30	1
o-Xylene	ND		1.0	0.15	ug/L			01/25/12 20:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*97*		*80 - 120*		*01/25/12 20:30*	*1*
Toluene-d8 (Surr)	*102*		*85 - 120*		*01/25/12 20:30*	*1*
Ethylbenzene-d10	*104*		*80 - 120*		*01/25/12 20:30*	*1*
Trifluorotoluene (Surr)	*101*		*80 - 120*		*01/25/12 20:30*	*1*
4-Bromofluorobenzene (Surr)	*106*		*75 - 120*		*01/25/12 20:30*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**0.043**	**J**	0.050	0.010	mg/L			01/25/12 20:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*50 - 150*		*01/25/12 20:30*	*1*
Trifluorotoluene (Surr)	*104*		*50 - 150*		*01/25/12 20:30*	*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)	**0.19**	**Y**	0.12	0.069	mg/L		01/23/12 12:27	01/24/12 20:44	1
Motor Oil (>C24-C36)	**0.085**	**J**	0.24	0.045	mg/L		01/23/12 12:27	01/24/12 20:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*92*		*50 - 150*	*01/23/12 12:27*	*01/24/12 20:44*	*1*

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30818-1

Client Sample ID: RB4
Date Collected: 01/16/12 14:25
Date Received: 01/23/12 09:25

Lab Sample ID: 580-30818-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.15	ug/L			01/25/12 20:52	1
Toluene	ND		1.0	0.15	ug/L			01/25/12 20:52	1
Ethylbenzene	ND		1.0	0.15	ug/L			01/25/12 20:52	1
m-Xylene & p-Xylene	ND		2.0	0.30	ug/L			01/25/12 20:52	1
o-Xylene	ND		1.0	0.15	ug/L			01/25/12 20:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*		*01/25/12 20:52*	*1*
Toluene-d8 (Surr)	*102*		*85 - 120*		*01/25/12 20:52*	*1*
Ethylbenzene-d10	*104*		*80 - 120*		*01/25/12 20:52*	*1*
Trifluorotoluene (Surr)	*105*		*80 - 120*		*01/25/12 20:52*	*1*
4-Bromofluorobenzene (Surr)	*105*		*75 - 120*		*01/25/12 20:52*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**0.020**	**J**	0.050	0.010	mg/L			01/25/12 20:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*50 - 150*		*01/25/12 20:52*	*1*
Trifluorotoluene (Surr)	*108*		*50 - 150*		*01/25/12 20:52*	*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)	**0.63**	**Y**	0.12	0.069	mg/L		01/23/12 12:27	01/24/12 21:06	1
Motor Oil (>C24-C36)	**0.21**	**J**	0.24	0.045	mg/L		01/23/12 12:27	01/24/12 21:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*96*		*50 - 150*	*01/23/12 12:27*	*01/24/12 21:06*	*1*

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30818-1

Client Sample ID: RB3
Date Collected: 01/16/12 15:40
Date Received: 01/23/12 09:25

Lab Sample ID: 580-30818-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.15	ug/L			01/25/12 21:15	1
Toluene	ND		1.0	0.15	ug/L			01/25/12 21:15	1
Ethylbenzene	ND		1.0	0.15	ug/L			01/25/12 21:15	1
m-Xylene & p-Xylene	ND		2.0	0.30	ug/L			01/25/12 21:15	1
o-Xylene	ND		1.0	0.15	ug/L			01/25/12 21:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*		*01/25/12 21:15*	*1*
Toluene-d8 (Surr)	*102*		*85 - 120*		*01/25/12 21:15*	*1*
Ethylbenzene-d10	*104*		*80 - 120*		*01/25/12 21:15*	*1*
Trifluorotoluene (Surr)	*103*		*80 - 120*		*01/25/12 21:15*	*1*
4-Bromofluorobenzene (Surr)	*106*		*75 - 120*		*01/25/12 21:15*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**0.076**		0.050	0.010	mg/L			01/25/12 21:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*50 - 150*		*01/25/12 21:15*	*1*
Trifluorotoluene (Surr)	*107*		*50 - 150*		*01/25/12 21:15*	*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)	**1.8**	**Y**	0.12	0.069	mg/L		01/23/12 12:27	01/24/12 21:28	1
Motor Oil (>C24-C36)	**0.28**	**Y**	0.24	0.045	mg/L		01/23/12 12:27	01/24/12 21:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*91*		*50 - 150*	*01/23/12 12:27*	*01/24/12 21:28*	*1*

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30818-1

Client Sample ID: RB2
Date Collected: 01/17/12 10:30
Date Received: 01/23/12 09:25

Lab Sample ID: 580-30818-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.15	ug/L			01/25/12 21:37	1
Toluene	ND		1.0	0.15	ug/L			01/25/12 21:37	1
Ethylbenzene	ND		1.0	0.15	ug/L			01/25/12 21:37	1
m-Xylene & p-Xylene	ND		2.0	0.30	ug/L			01/25/12 21:37	1
o-Xylene	ND		1.0	0.15	ug/L			01/25/12 21:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*		*01/25/12 21:37*	*1*
Toluene-d8 (Surr)	*102*		*85 - 120*		*01/25/12 21:37*	*1*
Ethylbenzene-d10	*105*		*80 - 120*		*01/25/12 21:37*	*1*
Trifluorotoluene (Surr)	*102*		*80 - 120*		*01/25/12 21:37*	*1*
4-Bromofluorobenzene (Surr)	*106*		*75 - 120*		*01/25/12 21:37*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.010	mg/L			01/25/12 21:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*50 - 150*		*01/25/12 21:37*	*1*
Trifluorotoluene (Surr)	*104*		*50 - 150*		*01/25/12 21:37*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**0.13**	**Y**	0.12	0.069	mg/L		01/23/12 12:27	01/24/12 21:49	1
Motor Oil (>C24-C36)	**0.089**	**J**	0.24	0.045	mg/L		01/23/12 12:27	01/24/12 21:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*95*		*50 - 150*	*01/23/12 12:27*	*01/24/12 21:49*	*1*

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30818-1

Client Sample ID: RB1
Date Collected: 01/17/12 08:55
Date Received: 01/23/12 09:25

Lab Sample ID: 580-30818-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.15	ug/L			01/25/12 22:45	1
Toluene	ND		1.0	0.15	ug/L			01/25/12 22:45	1
Ethylbenzene	ND		1.0	0.15	ug/L			01/25/12 22:45	1
m-Xylene & p-Xylene	ND		2.0	0.30	ug/L			01/25/12 22:45	1
o-Xylene	ND		1.0	0.15	ug/L			01/25/12 22:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*		*01/25/12 22:45*	*1*
Toluene-d8 (Surr)	*102*		*85 - 120*		*01/25/12 22:45*	*1*
Ethylbenzene-d10	*105*		*80 - 120*		*01/25/12 22:45*	*1*
Trifluorotoluene (Surr)	*104*		*80 - 120*		*01/25/12 22:45*	*1*
4-Bromofluorobenzene (Surr)	*106*		*75 - 120*		*01/25/12 22:45*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**0.078**		0.050	0.010	mg/L			01/25/12 22:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*50 - 150*		*01/25/12 22:45*	*1*
Trifluorotoluene (Surr)	*108*		*50 - 150*		*01/25/12 22:45*	*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)	**1.0**	**Y**	0.12	0.069	mg/L		01/23/12 12:27	01/24/12 22:54	1
Motor Oil (>C24-C36)	**0.37**	**Y**	0.24	0.045	mg/L		01/23/12 12:27	01/24/12 22:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*89*		*50 - 150*	*01/23/12 12:27*	*01/24/12 22:54*	*1*

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30818-1

Client Sample ID: DUP-1
Date Collected: 01/17/12 10:35
Date Received: 01/23/12 09:25

Lab Sample ID: 580-30818-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.15	ug/L			01/25/12 23:07	1
Toluene	ND		1.0	0.15	ug/L			01/25/12 23:07	1
Ethylbenzene	ND		1.0	0.15	ug/L			01/25/12 23:07	1
m-Xylene & p-Xylene	ND		2.0	0.30	ug/L			01/25/12 23:07	1
o-Xylene	ND		1.0	0.15	ug/L			01/25/12 23:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*		*01/25/12 23:07*	*1*
Toluene-d8 (Surr)	*103*		*85 - 120*		*01/25/12 23:07*	*1*
Ethylbenzene-d10	*104*		*80 - 120*		*01/25/12 23:07*	*1*
Trifluorotoluene (Surr)	*105*		*80 - 120*		*01/25/12 23:07*	*1*
4-Bromofluorobenzene (Surr)	*106*		*75 - 120*		*01/25/12 23:07*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.010	mg/L			01/25/12 23:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*50 - 150*		*01/25/12 23:07*	*1*
Trifluorotoluene (Surr)	*107*		*50 - 150*		*01/25/12 23:07*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**0.20**	**Y**	0.12	0.069	mg/L		01/23/12 12:27	01/24/12 23:15	1
Motor Oil (>C24-C36)	**0.11**	**J**	0.24	0.045	mg/L		01/23/12 12:27	01/24/12 23:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*93*		*50 - 150*	*01/23/12 12:27*	*01/24/12 23:15*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-104095/32
Matrix: Water
Analysis Batch: 104095

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.15	ug/L			01/25/12 11:56	1
Toluene	ND		1.0	0.15	ug/L			01/25/12 11:56	1
Ethylbenzene	ND		1.0	0.15	ug/L			01/25/12 11:56	1
m-Xylene & p-Xylene	ND		2.0	0.30	ug/L			01/25/12 11:56	1
o-Xylene	ND		1.0	0.15	ug/L			01/25/12 11:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*97*		*80 - 120*		*01/25/12 11:56*	*1*
Toluene-d8 (Surr)	*101*		*85 - 120*		*01/25/12 11:56*	*1*
Ethylbenzene-d10	*104*		*80 - 120*		*01/25/12 11:56*	*1*
Trifluorotoluene (Surr)	*102*		*80 - 120*		*01/25/12 11:56*	*1*
4-Bromofluorobenzene (Surr)	*106*		*75 - 120*		*01/25/12 11:56*	*1*

Lab Sample ID: LCS 580-104095/33
Matrix: Water
Analysis Batch: 104095

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			25.0	25.9		ug/L		104	80 - 120		
Toluene			25.0	25.6		ug/L		102	75 - 120		
Ethylbenzene			25.0	24.8		ug/L		99	75 - 125		
m-Xylene & p-Xylene			50.0	50.4		ug/L		101	75 - 130		
o-Xylene			25.0	25.2		ug/L		101	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Fluorobenzene (Surr)	*97*		*80 - 120*
Toluene-d8 (Surr)	*102*		*85 - 120*
Ethylbenzene-d10	*104*		*80 - 120*
Trifluorotoluene (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*106*		*75 - 120*

Lab Sample ID: LCSD 580-104095/34
Matrix: Water
Analysis Batch: 104095

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			25.0	25.4		ug/L		102	80 - 120	2	30
Toluene			25.0	24.5		ug/L		98	75 - 120	4	30
Ethylbenzene			25.0	24.2		ug/L		97	75 - 125	2	30
m-Xylene & p-Xylene			50.0	48.8		ug/L		98	75 - 130	3	30
o-Xylene			25.0	24.8		ug/L		99	80 - 120	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Fluorobenzene (Surr)	*98*		*80 - 120*
Toluene-d8 (Surr)	*102*		*85 - 120*
Ethylbenzene-d10	*104*		*80 - 120*
Trifluorotoluene (Surr)	*95*		*80 - 120*
4-Bromofluorobenzene (Surr)	*105*		*75 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-30818-6 MS
Matrix: Water
Analysis Batch: 104095

Client Sample ID: RB2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		20.1	22.2		ug/L		111	80 - 120
Toluene	ND		20.1	21.2		ug/L		106	75 - 120
Ethylbenzene	ND		20.1	20.8		ug/L		104	75 - 125
m-Xylene & p-Xylene	ND		40.1	41.9		ug/L		104	75 - 130
o-Xylene	ND		20.1	21.0		ug/L		105	80 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Fluorobenzene (Surr)	*98*		*80 - 120*
Toluene-d8 (Surr)	*101*		*85 - 120*
Ethylbenzene-d10	*104*		*80 - 120*
Trifluorotoluene (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*105*		*75 - 120*

Lab Sample ID: 580-30818-6 MSD
Matrix: Water
Analysis Batch: 104095

Client Sample ID: RB2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		20.1	22.1		ug/L		110	80 - 120	0	30
Toluene	ND		20.1	21.4		ug/L		107	75 - 120	1	30
Ethylbenzene	ND		20.1	21.0		ug/L		105	75 - 125	1	30
m-Xylene & p-Xylene	ND		40.1	42.6		ug/L		106	75 - 130	2	30
o-Xylene	ND		20.1	21.5		ug/L		107	80 - 120	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Fluorobenzene (Surr)	*97*		*80 - 120*
Toluene-d8 (Surr)	*102*		*85 - 120*
Ethylbenzene-d10	*104*		*80 - 120*
Trifluorotoluene (Surr)	*106*		*80 - 120*
4-Bromofluorobenzene (Surr)	*105*		*75 - 120*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-104093/39
Matrix: Water
Analysis Batch: 104093

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.010	mg/L			01/25/12 11:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*50 - 150*		*01/25/12 11:56*	*1*
Trifluorotoluene (Surr)	*105*		*50 - 150*		*01/25/12 11:56*	*1*

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

Lab Sample ID: LCS 580-104093/40
Matrix: Water
Analysis Batch: 104093

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline			1.00	0.839		mg/L		84	79 - 110		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*50 - 150*
Trifluorotoluene (Surr)	*97*		*50 - 150*

Lab Sample ID: LCSD 580-104093/41
Matrix: Water
Analysis Batch: 104093

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
Gasoline			1.00	0.841		mg/L		84	79 - 110	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*50 - 150*
Trifluorotoluene (Surr)	*94*		*50 - 150*

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

Lab Sample ID: MB 580-103958/1-B
Matrix: Water
Analysis Batch: 104033

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 103958

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.13	0.073	mg/L		01/23/12 12:27	01/24/12 18:55	1
Motor Oil (>C24-C36)	ND		0.25	0.048	mg/L		01/23/12 12:27	01/24/12 18:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*94*		*50 - 150*	*01/23/12 12:27*	*01/24/12 18:55*	*1*

Lab Sample ID: LCS 580-103958/2-B
Matrix: Water
Analysis Batch: 104033

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 103958

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			5.00	4.05		mg/L		81	70 - 130		
Motor Oil (>C24-C36)			5.00	4.33		mg/L		87	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*67*		*50 - 150*

Lab Sample ID: LCSD 580-103958/3-B
Matrix: Water
Analysis Batch: 104033

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 103958

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			5.00	4.28		mg/L		86	70 - 130	5	30
Motor Oil (>C24-C36)			5.00	4.54		mg/L		91	70 - 130	5	30

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30818-1

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

Lab Sample ID: LCSD 580-103958/3-B
Matrix: Water
Analysis Batch: 104033

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 103958

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl	76		50 - 150

Lab Chronicle

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30818-1

Client Sample ID: AS-12-3
Lab Sample ID: 580-30818-1
Date Collected: 01/16/12 09:30
Matrix: Water
Date Received: 01/23/12 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	104095	01/25/12 19:01	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	104093	01/25/12 19:01	JMB	TAL SEA
Total/NA	Prep	3510C			103958	01/23/12 12:27	RS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	104033	01/24/12 20:01	KKW	TAL SEA

Client Sample ID: AS-12-2
Lab Sample ID: 580-30818-2
Date Collected: 01/13/12 10:25
Matrix: Water
Date Received: 01/23/12 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	104095	01/25/12 19:23	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	104093	01/25/12 19:23	JMB	TAL SEA
Total/NA	Prep	3510C			103958	01/23/12 12:27	RS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	104033	01/24/12 20:22	KKW	TAL SEA

Client Sample ID: AS-12-1
Lab Sample ID: 580-30818-3
Date Collected: 01/12/12 15:00
Matrix: Water
Date Received: 01/23/12 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	104095	01/25/12 20:30	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	104093	01/25/12 20:30	JMB	TAL SEA
Total/NA	Prep	3510C			103958	01/23/12 12:27	RS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	104033	01/24/12 20:44	KKW	TAL SEA

Client Sample ID: RB4
Lab Sample ID: 580-30818-4
Date Collected: 01/16/12 14:25
Matrix: Water
Date Received: 01/23/12 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	104095	01/25/12 20:52	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	104093	01/25/12 20:52	JMB	TAL SEA
Total/NA	Prep	3510C			103958	01/23/12 12:27	RS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	104033	01/24/12 21:06	KKW	TAL SEA

Client Sample ID: RB3
Lab Sample ID: 580-30818-5
Date Collected: 01/16/12 15:40
Matrix: Water
Date Received: 01/23/12 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	104095	01/25/12 21:15	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	104093	01/25/12 21:15	JMB	TAL SEA
Total/NA	Prep	3510C			103958	01/23/12 12:27	RS	TAL SEA

Lab Chronicle

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30818-1

Client Sample ID: RB3

Lab Sample ID: 580-30818-5

Date Collected: 01/16/12 15:40
Matrix: Water
Date Received: 01/23/12 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	104033	01/24/12 21:28	KKW	TAL SEA

Client Sample ID: RB2

Lab Sample ID: 580-30818-6

Date Collected: 01/17/12 10:30
Matrix: Water
Date Received: 01/23/12 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	104095	01/25/12 21:37	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	104093	01/25/12 21:37	JMB	TAL SEA
Total/NA	Prep	3510C			103958	01/23/12 12:27	RS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	104033	01/24/12 21:49	KKW	TAL SEA

Client Sample ID: RB1

Lab Sample ID: 580-30818-7

Date Collected: 01/17/12 08:55
Matrix: Water
Date Received: 01/23/12 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	104095	01/25/12 22:45	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	104093	01/25/12 22:45	JMB	TAL SEA
Total/NA	Prep	3510C			103958	01/23/12 12:27	RS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	104033	01/24/12 22:54	KKW	TAL SEA

Client Sample ID: DUP-1

Lab Sample ID: 580-30818-8

Date Collected: 01/17/12 10:35
Matrix: Water
Date Received: 01/23/12 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	104095	01/25/12 23:07	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	104093	01/25/12 23:07	JMB	TAL SEA
Total/NA	Prep	3510C			103958	01/23/12 12:27	RS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	104033	01/24/12 23:15	KKW	TAL SEA

Laboratory References:

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

Certification Summary

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30818-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Seattle	Alaska	Alaska UST	10	UST-022
TestAmerica Seattle	Alaska	TA-Port Heiden Mobile Lab	10	UST-093
TestAmerica Seattle	California	NELAC	9	1115CA
TestAmerica Seattle	Florida	NELAC	4	E871074
TestAmerica Seattle	L-A-B	DoD ELAP		L2236
TestAmerica Seattle	L-A-B	ISO/IEC 17025		L2236
TestAmerica Seattle	Louisiana	NELAC	6	05016
TestAmerica Seattle	Montana	MT DEQ UST	8	N/A
TestAmerica Seattle	Oregon	NELAC	10	WA100007
TestAmerica Seattle	USDA	USDA		P330-11-00222
TestAmerica Seattle	Washington	State Program	10	C553

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30818-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-30818-1	AS-12-3	Water	01/16/12 09:30	01/23/12 09:25
580-30818-2	AS-12-2	Water	01/13/12 10:25	01/23/12 09:25
580-30818-3	AS-12-1	Water	01/12/12 15:00	01/23/12 09:25
580-30818-4	RB4	Water	01/16/12 14:25	01/23/12 09:25
580-30818-5	RB3	Water	01/16/12 15:40	01/23/12 09:25
580-30818-6	RB2	Water	01/17/12 10:30	01/23/12 09:25
580-30818-7	RB1	Water	01/17/12 08:55	01/23/12 09:25
580-30818-8	DUP-1	Water	01/17/12 10:35	01/23/12 09:25

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

☒ Rush
☐ Short Hold

Chain of Custody Record

30818

Client: Kennedy Jenks
Client Contact: Joseph Sawdey
Date: 1/18/12
Chain of Custody Number: 13675
Address: 32001 32nd Ave S, Suite 100
Telephone Number (Area Code)/Fax Number: 253 835 6400
Lab Number:
Page ____ of ____
City: Federal Way State: WA Zip Code: 98001
Sampler: J. Sawdey
Lab Contact: K. Allen
Project Name and Location (State): BNSF Wishram
Billing Contact:
Contract/Purchase Order/Quote No.: 196010

Analysis (Attach list if more space is needed)

	Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	NWTPH_Dx	NWTPH_Gx	8260B
1	AS-12-3	1/16/12	0930		X						X			X	X	X
2	AS-12-2	1/13/12	1025		X						X			X	X	X
3	AS-12-1	1/12/12	1500		X						X			X	X	X
4	RB4	1/16/12	1425		X						X			X	X	X
5	RB3	1/16/12	1540		X						X			X	X	X
6	RB2	1/17/12	1030		X						X			X	X	X
7	RB1	1/17/12	0855		X						X			X	X	X
8	Dup-1	1/17/12	1035		X						X			X	X	X
9	Trip Blank 1/23/12 SK Prepped 1/6/12															

Special Instructions/ Conditions of Receipt

Cooler/TB Dig/IR cor 7.6 unc 7.6 @ Lab
Cooler Dsc lg grblue
Wet/Packs Packing bubble
w/i UPA Gr.

Cooler/TB Dig/IR cor 1.7 unc 1.5 @ Lab
Cooler Dsc lg blue wh
Wet/Packs Packing bubble
w/o UPA Gr.

Cooler: ☐ Yes ☐ No Cooler Temp: ______

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☒ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☐ Other ______

QC Requirements (Specify)

	Sign/Print	Date	Time		Sign/Print	Date	Time
1. Relinquished By	[signature] Joseph Sawdey	1/18/12	1430	1. Received By	Cathy Gamble / Cathy Gamble	1/23/12	9:25
2. Relinquished By				2. Received By			
3. Relinquished By				3. Received By			

Comments

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

Login Sample Receipt Checklist

Client: Kennedy/Jenks Consultants

Job Number: 580-30818-1

Login Number: 30818

List Source: TestAmerica Seattle

List Number: 1

Creator: Gamble, Cathy

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
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.	False	Refer to Job Narrative for details.
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time.	False	Refer to Job Narrative for details.
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	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 580-30758-1
Client Project/Site: BNSF Wishram Monitoring

For:
Kennedy/Jenks Consultants
32001-32nd Ave South, Suite 100
Federal Way, Washington 98001

Attn: Joseph Sawdey

Kristine D. Allen

Authorized for release by:
2/2/2012 4:07:11 PM

Kristine Allen
Project Manager I
kristine.allen@testamericainc.com

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

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

Table of Contents

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Job ID: 580-30758-1

Laboratory: TestAmerica Seattle

Narrative

Receipt
The Chain of Custody (COC) requested an ASAP turnaround - after conversation with the client the samples have been logged in for a five business day TAT.

No analyses were requested on the COC for Sample B-12-1-15 (580-30758-10). Per client request, this sample will be tested for NWTPH-Dx, NWTPH-Gx and 8260B (BTEX).
VPH/EPH analyses were added for samples B-12-3-13 (580-30758-4), B-12-40 (580-30758-5) and B-12-1-59 (580-30758-7) per client request.
A trip blank was received with these samples. It was not recorded on the COC. The client requested this sample to be tested for NWTPH-Gx and 8260B (BTEX).

Sample collection date and time was not recorded on the COC for sample B-12-1-15 (580-30758-10). The sample was logged in using sample collection information provided on the sample label.

The tared, methanol preserved vials for each client sample had an additional label affixed to them.

All other samples were received in good condition within temperature requirements.

GC/MS VOA - Method 8260B
The following samples were diluted due to the nature of the sample matrix: B-12-4-40 (580-30758-1), B-12-3-13 (580-30758-4) and B-12-2-12 (580-30758-8). Elevated reporting limits (RLs) are provided.

GC/MS VOA - NWTPH/VPH
The method blank for analysis batch 103966 contained several ranges above the method detection limit. These target analyte concentrations were less than 1/2 the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Recovery of the surrogate, 4-Bromofluorobenzene, was outside control limits for the following samples: (580-30758-4 MS), (580-30758-4 MSD), B-12-3-13 (580-30758-4) and B-12-2-40 (580-30758-5). The surrogate, BFB-PID, was outside of control limits for sample B-12-2-40 (580-30758-5). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. The affected data have been qualified "4" and are reported.

GC/MS VOA - NWTPH-Gx
The following samples were diluted due to the nature of the sample matrix: B-12-4-40 (580-30758-1), B-12-3-13 (580-30758-4) and B-12-2-12 (580-30758-8). Elevated reporting limits (RLs) are provided.

Sample B-12-1-59 (580-30758-7) was reanalyzed (RA) due to the likelihood of carryover from a previously analyzed heavily contaminated sample.

The continuing calibration blank (CCB) for analysis batch 103962 contained GRO analyte greater than the method detection limit (MDL). The detection in the CCB was flagged "J" and all associated samples were flagged "B."

The matrix spike duplicate (MSD) recovery for analysis batch 103962 were outside control limits. The associated laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) recovery met acceptance criteria.

No other analytical or quality issues were noted.

GC/MS Semi VOA - Method 8270C SIM
The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analysis batch 104359 were outside control limits. The relative percent difference (RPD) is also outside of control limits for Pyrene. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

GC Semi VOA - Method NWTPH/EPH
The following samples were diluted due to the nature of the sample matrix: B-12-3-13 (580-30758-4) and B-12-2-12 (580-30758-8).

Job ID: 580-30758-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

Elevated reporting limits (RLs) are provided.

Surrogate recoveries of 1-Chlorooctadecane and o-Terphenyl for the following samples from analysis batch 104360 were outside control limits: (580-30758-4 MS), (580-30758-4 MSD), B-12-3-13 (580-30758-4). Evidence of matrix interference is present; this sample required a 10X dilution due to high target analytes. The affected surrogates have been qualified and reported.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analysis batch 104360 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria. The affected data have been qualified "4" and are reported.

GC Semi VOA -Method NWTPH-Dx
The following samples were diluted due to the nature of the sample matrix: B-12-4-40 (580-30758-1), B-12-3-13 (580-30758-4), B-12-2-12 (580-30758-8) and B-12-1-32 (580-30758-9). Elevated reporting limits (RLs) are provided.

The results in the #2 Diesel (C10-C24) and Motor Oil (>C24-C36) ranges for samples B-12-4-40 (580-30758-1), B-12-3-13 (580-30758-4), B-12-2-40 (580-30758-5), B-12-2-12 (580-30758-8) and B-12-1-32 (580-30758-9) are due primarily to a complex mixture of weathered diesel fuel, a mineral/transformer oil range product, and motor oil. The Y qualifier was added to the affected sample ranges and reported.

The results in the #2 Diesel range for sample B-12-2-55 (580-30758-3) are due to heavily weathered/degraded diesel fuel or a mineral/transformer oil range product, and/or possible biogenic interference. The Y qualifier was added to the affected sample ranges and reported.

No other analytical or quality issues were noted.

General Chemistry
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
F	MS or MSD exceeds the control limits
F	RPD of the MS and MSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F	MS or MSD exceeds the control limits
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
I	Indicates the presence of an interference, recovery is not calculated.
X	Surrogate is outside control limits
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

GC Semi VOA

Qualifier	Qualifier Description
Y	The chromatographic response resembles a typical fuel pattern.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
I	Indicates the presence of an interference, recovery is not calculated.
X	Surrogate is outside control limits
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.

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
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Client Sample ID: B-12-4-40
Date Collected: 01/11/12 15:45
Date Received: 01/19/12 09:50

Lab Sample ID: 580-30758-1
Matrix: Solid
Percent Solids: 88.8

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		160	41	ug/Kg	☼	01/23/12 10:21	01/23/12 20:42	10
Toluene	ND		410	100	ug/Kg	☼	01/23/12 10:21	01/23/12 20:42	10
Ethylbenzene	ND		410	100	ug/Kg	☼	01/23/12 10:21	01/23/12 20:42	10
m-Xylene & p-Xylene	**850**		410	100	ug/Kg	☼	01/23/12 10:21	01/23/12 20:42	10
o-Xylene	ND		410	100	ug/Kg	☼	01/23/12 10:21	01/23/12 20:42	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*	*01/23/12 10:21*	*01/23/12 20:42*	*10*
Toluene-d8 (Surr)	*102*		*80 - 120*	*01/23/12 10:21*	*01/23/12 20:42*	*10*
Ethylbenzene-d10	*104*		*70 - 120*	*01/23/12 10:21*	*01/23/12 20:42*	*10*
4-Bromofluorobenzene (Surr)	*107*		*70 - 120*	*01/23/12 10:21*	*01/23/12 20:42*	*10*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**4500**		56	22	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
2-Methylnaphthalene	**27000**		56	22	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
1-Methylnaphthalene	**22000**		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
Acenaphthylene	**1200**		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
Acenaphthene	**4600**		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
Fluorene	**16000**		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
Phenanthrene	**28000**		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
Anthracene	ND		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
Fluoranthene	**2100**		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
Pyrene	**2900**		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
Benzo[a]anthracene	ND		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
Chrysene	**4500**		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
Benzo[b]fluoranthene	**1200**		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
Benzo[k]fluoranthene	ND		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
Benzo[a]pyrene	**320**		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
Indeno[1,2,3-cd]pyrene	**230**		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
Dibenz(a,h)anthracene	**200**		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10
Benzo[g,h,i]perylene	**330**		56	17	ug/Kg	☼	01/23/12 12:14	01/30/12 15:12	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*72*		*42 - 151*	*01/23/12 12:14*	*01/30/12 15:12*	*10*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**1300**	**B**	41	5.1	mg/Kg	☼	01/23/12 10:21	01/23/12 20:42	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*50 - 150*	*01/23/12 10:21*	*01/23/12 20:42*	*10*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**45000**	**Y**	1400	310	mg/Kg	☼	01/22/12 09:19	01/24/12 14:55	50
Motor Oil (>C24-C36)	**53000**	**Y**	2700	500	mg/Kg	☼	01/22/12 09:19	01/24/12 14:55	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*89*		*50 - 150*	*01/22/12 09:19*	*01/24/12 14:55*	*50*

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Client Sample ID: B-12-4-40
Date Collected: 01/11/12 15:45
Date Received: 01/19/12 09:50

Lab Sample ID: 580-30758-1
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89		0.10	0.10	%			01/20/12 13:16	1
Percent Moisture	11		0.10	0.10	%			01/20/12 13:16	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Client Sample ID: B-12-4-68
Date Collected: 01/12/12 11:10
Date Received: 01/19/12 09:50

Lab Sample ID: 580-30758-2
Matrix: Solid
Percent Solids: 81.8

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		18	4.5	ug/Kg	☼	01/23/12 10:21	01/23/12 19:34	1
Toluene	ND		45	11	ug/Kg	☼	01/23/12 10:21	01/23/12 19:34	1
Ethylbenzene	ND		45	11	ug/Kg	☼	01/23/12 10:21	01/23/12 19:34	1
m-Xylene & p-Xylene	ND		45	11	ug/Kg	☼	01/23/12 10:21	01/23/12 19:34	1
o-Xylene	ND		45	11	ug/Kg	☼	01/23/12 10:21	01/23/12 19:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*97*		*80 - 120*	*01/23/12 10:21*	*01/23/12 19:34*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*	*01/23/12 10:21*	*01/23/12 19:34*	*1*
Ethylbenzene-d10	*104*		*70 - 120*	*01/23/12 10:21*	*01/23/12 19:34*	*1*
4-Bromofluorobenzene (Surr)	*105*		*70 - 120*	*01/23/12 10:21*	*01/23/12 19:34*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**4.1**	**J B**	4.5	0.57	mg/Kg	☼	01/23/12 10:21	01/23/12 19:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*50 - 150*	*01/23/12 10:21*	*01/23/12 19:34*	*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)	**14**	**J**	28	6.5	mg/Kg	☼	01/22/12 09:19	01/24/12 15:39	1
Motor Oil (>C24-C36)	**24**	**J**	57	10	mg/Kg	☼	01/22/12 09:19	01/24/12 15:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*105*		*50 - 150*	*01/22/12 09:19*	*01/24/12 15:39*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**82**		0.10	0.10	%			01/20/12 13:16	1
Percent Moisture	**18**		0.10	0.10	%			01/20/12 13:16	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Client Sample ID: B-12-2-55
Date Collected: 01/11/12 09:00
Date Received: 01/19/12 09:50

Lab Sample ID: 580-30758-3
Matrix: Solid
Percent Solids: 79.2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		18	4.6	ug/Kg	☼	01/23/12 10:21	01/23/12 17:42	1
Toluene	ND		46	11	ug/Kg	☼	01/23/12 10:21	01/23/12 17:42	1
Ethylbenzene	ND		46	11	ug/Kg	☼	01/23/12 10:21	01/23/12 17:42	1
m-Xylene & p-Xylene	ND		46	11	ug/Kg	☼	01/23/12 10:21	01/23/12 17:42	1
o-Xylene	ND		46	11	ug/Kg	☼	01/23/12 10:21	01/23/12 17:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*97*		*80 - 120*	*01/23/12 10:21*	*01/23/12 17:42*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*01/23/12 10:21*	*01/23/12 17:42*	*1*
Ethylbenzene-d10	*103*		*70 - 120*	*01/23/12 10:21*	*01/23/12 17:42*	*1*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*	*01/23/12 10:21*	*01/23/12 17:42*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		4.6	0.57	mg/Kg	☼	01/23/12 10:21	01/23/12 17:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*50 - 150*	*01/23/12 10:21*	*01/23/12 17:42*	*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)	**33**	**Y**	31	7.0	mg/Kg	☼	01/22/12 09:19	01/24/12 16:01	1
Motor Oil (>C24-C36)	**54**	**J**	62	11	mg/Kg	☼	01/22/12 09:19	01/24/12 16:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*106*		*50 - 150*	*01/22/12 09:19*	*01/24/12 16:01*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**79**		0.10	0.10	%			01/20/12 13:16	1
Percent Moisture	**21**		0.10	0.10	%			01/20/12 13:16	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Client Sample ID: B-12-3-13
Date Collected: 01/11/12 11:30
Date Received: 01/19/12 09:50

Lab Sample ID: 580-30758-4
Matrix: Solid
Percent Solids: 80.2

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		180	45	ug/Kg	☼	01/23/12 10:21	01/23/12 21:49	10
Toluene	ND		450	110	ug/Kg	☼	01/23/12 10:21	01/23/12 21:49	10
Ethylbenzene	ND		450	110	ug/Kg	☼	01/23/12 10:21	01/23/12 21:49	10
m-Xylene & p-Xylene	**490**		450	110	ug/Kg	☼	01/23/12 10:21	01/23/12 21:49	10
o-Xylene	ND		450	110	ug/Kg	☼	01/23/12 10:21	01/23/12 21:49	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*	*01/23/12 10:21*	*01/23/12 21:49*	*10*
Toluene-d8 (Surr)	*102*		*80 - 120*	*01/23/12 10:21*	*01/23/12 21:49*	*10*
Ethylbenzene-d10	*105*		*70 - 120*	*01/23/12 10:21*	*01/23/12 21:49*	*10*
4-Bromofluorobenzene (Surr)	*106*		*70 - 120*	*01/23/12 10:21*	*01/23/12 21:49*	*10*

Method: NWTPH/VPH - Northwest - Volatile Pertroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C12 Aliphatics	**140**	**B**	11	0.56	mg/Kg	☼	01/23/12 11:59	01/23/12 15:42	5
C10-C12 Aromatics	**260**		11	0.56	mg/Kg	☼	01/23/12 11:59	01/23/12 15:42	5
C12-C13 Aromatics	**340**	**B**	11	0.56	mg/Kg	☼	01/23/12 11:59	01/23/12 15:42	5
C8-C10 Aliphatics	**23**		11	0.56	mg/Kg	☼	01/23/12 11:59	01/23/12 15:42	5
C8-C10 Aromatics	**25**	**B**	11	0.56	mg/Kg	☼	01/23/12 11:59	01/23/12 15:42	5
C5-C6 Aliphatics	**1.1**	**J B**	11	0.56	mg/Kg	☼	01/23/12 11:59	01/23/12 15:42	5
C6-C8 Aliphatics	**3.4**	**J B**	11	0.56	mg/Kg	☼	01/23/12 11:59	01/23/12 15:42	5
Total VPH	**790**	**B**	79	0.56	mg/Kg	☼	01/23/12 11:59	01/23/12 15:42	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BFB - PID	*109*		*60 - 140*	*01/23/12 11:59*	*01/23/12 15:42*	*5*
4-Bromofluorobenzene	*151*	*X I*	*60 - 140*	*01/23/12 11:59*	*01/23/12 15:42*	*5*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**1300**	**B**	45	5.6	mg/Kg	☼	01/23/12 10:21	01/23/12 21:49	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*50 - 150*	*01/23/12 10:21*	*01/23/12 21:49*	*10*

Method: NWTPH/EPH - Northwest - Extractable Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C12 Aliphatics	**1500**		250	4.7	mg/Kg	☼	01/23/12 15:00	01/31/12 08:16	10
C12-C16 Aliphatics	**8500**		250	49	mg/Kg	☼	01/23/12 15:00	01/31/12 08:16	10
C16-C21 Aliphatics	**7800**		250	49	mg/Kg	☼	01/23/12 15:00	01/31/12 08:16	10
C21-C34 Aliphatics	**1500**		250	49	mg/Kg	☼	01/23/12 15:00	01/31/12 08:16	10
C10-C12 Aromatics	**330**		250	3.5	mg/Kg	☼	01/23/12 15:00	01/31/12 08:16	10
C12-C16 Aromatics	**3000**		250	49	mg/Kg	☼	01/23/12 15:00	01/31/12 08:16	10
C16-C21 Aromatics	**5700**		250	49	mg/Kg	☼	01/23/12 15:00	01/31/12 08:16	10
C21-C34 Aromatics	**1000**		250	49	mg/Kg	☼	01/23/12 15:00	01/31/12 08:16	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*0*	*D I X*	*60 - 140*	*01/23/12 15:00*	*01/31/12 08:16*	*10*
1-Chlorooctadecane	*0*	*D I X*	*60 - 140*	*01/23/12 15:00*	*01/31/12 08:16*	*10*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil (>C24-C36)	**2700**	**Y**	57	10	mg/Kg	☼	01/22/12 09:19	01/24/12 16:23	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Client Sample ID: B-12-3-13
Date Collected: 01/11/12 11:30
Date Received: 01/19/12 09:50

Lab Sample ID: 580-30758-4
Matrix: Solid
Percent Solids: 80.2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*72*		*50 - 150*	*01/22/12 09:19*	*01/24/12 16:23*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**28000**	**Y**	290	65	mg/Kg	☼	01/22/12 09:19	01/26/12 09:54	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*58*		*50 - 150*	*01/22/12 09:19*	*01/26/12 09:54*	*10*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**80**		0.10	0.10	%			01/20/12 13:16	1
Percent Moisture	**20**		0.10	0.10	%			01/20/12 13:16	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Client Sample ID: B-12-2-40
Date Collected: 01/10/12 16:00
Date Received: 01/19/12 09:50

Lab Sample ID: 580-30758-5
Matrix: Solid
Percent Solids: 75.1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		18	4.5	ug/Kg	☼	01/23/12 10:21	01/23/12 18:05	1
Toluene	ND		45	11	ug/Kg	☼	01/23/12 10:21	01/23/12 18:05	1
Ethylbenzene	ND		45	11	ug/Kg	☼	01/23/12 10:21	01/23/12 18:05	1
m-Xylene & p-Xylene	ND		45	11	ug/Kg	☼	01/23/12 10:21	01/23/12 18:05	1
o-Xylene	ND		45	11	ug/Kg	☼	01/23/12 10:21	01/23/12 18:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*97*		*80 - 120*	*01/23/12 10:21*	*01/23/12 18:05*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*01/23/12 10:21*	*01/23/12 18:05*	*1*
Ethylbenzene-d10	*103*		*70 - 120*	*01/23/12 10:21*	*01/23/12 18:05*	*1*
4-Bromofluorobenzene (Surr)	*112*		*70 - 120*	*01/23/12 10:21*	*01/23/12 18:05*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**100**		65	26	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
2-Methylnaphthalene	**3100**		65	26	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
1-Methylnaphthalene	**2400**		65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
Acenaphthylene	**280**		65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
Acenaphthene	**680**		65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
Fluorene	**1800**		65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
Phenanthrene	**1600**		65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
Anthracene	**190**		65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
Fluoranthene	**230**		65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
Pyrene	**300**		65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
Benzo[a]anthracene	**55**	**J**	65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
Chrysene	**420**		65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
Benzo[b]fluoranthene	**120**		65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
Benzo[k]fluoranthene	ND		65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
Benzo[a]pyrene	**29**	**J**	65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
Indeno[1,2,3-cd]pyrene	ND		65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
Dibenz(a,h)anthracene	ND		65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10
Benzo[g,h,i]perylene	**30**	**J**	65	20	ug/Kg	☼	01/23/12 12:14	01/30/12 16:10	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*67*		*42 - 151*	*01/23/12 12:14*	*01/30/12 16:10*	*10*

Method: NWTPH/VPH - Northwest - Volatile Pertroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C12 Aliphatics	**18**	**B**	2.2	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 17:54	1
C10-C12 Aromatics	**43**		2.2	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 17:54	1
C12-C13 Aromatics	**38**	**B**	2.2	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 17:54	1
C8-C10 Aliphatics	**25**		2.2	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 17:54	1
C8-C10 Aromatics	**24**	**B**	2.2	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 17:54	1
C5-C6 Aliphatics	**0.57**	**J B**	2.2	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 17:54	1
C6-C8 Aliphatics	**8.9**	**B**	2.2	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 17:54	1
Total VPH	**160**	**B**	16	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 17:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BFB - PID	*141*	*X I*	*60 - 140*	*01/23/12 11:59*	*01/23/12 17:54*	*1*
4-Bromofluorobenzene	*401*	*X I*	*60 - 140*	*01/23/12 11:59*	*01/23/12 17:54*	*1*

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Client Sample ID: B-12-2-40
Date Collected: 01/10/12 16:00
Date Received: 01/19/12 09:50

Lab Sample ID: 580-30758-5
Matrix: Solid
Percent Solids: 75.1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	380		4.5	0.56	mg/Kg	☼	01/23/12 10:21	01/23/12 18:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*130*		*50 - 150*	*01/23/12 10:21*	*01/23/12 18:05*	*1*

Method: NWTPH/EPH - Northwest - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C12 Aliphatics	260		26	0.50	mg/Kg	☼	01/23/12 15:00	01/30/12 12:47	1
C12-C16 Aliphatics	880		26	5.3	mg/Kg	☼	01/23/12 15:00	01/30/12 12:47	1
C16-C21 Aliphatics	970		26	5.3	mg/Kg	☼	01/23/12 15:00	01/30/12 12:47	1
C21-C34 Aliphatics	1500		26	5.3	mg/Kg	☼	01/23/12 15:00	01/30/12 12:47	1
C10-C12 Aromatics	32		26	0.38	mg/Kg	☼	01/23/12 15:00	01/30/12 12:47	1
C12-C16 Aromatics	250		26	5.3	mg/Kg	☼	01/23/12 15:00	01/30/12 12:47	1
C16-C21 Aromatics	990		26	5.3	mg/Kg	☼	01/23/12 15:00	01/30/12 12:47	1
C21-C34 Aromatics	1600		26	5.3	mg/Kg	☼	01/23/12 15:00	01/30/12 12:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*95*		*60 - 140*	*01/23/12 15:00*	*01/30/12 12:47*	*1*
1-Chlorooctadecane	*78*		*60 - 140*	*01/23/12 15:00*	*01/30/12 12:47*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	5400	Y	31	7.0	mg/Kg	☼	01/22/12 09:19	01/24/12 16:44	1
Motor Oil (>C24-C36)	6300	Y	62	11	mg/Kg	☼	01/22/12 09:19	01/24/12 16:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*116*		*50 - 150*	*01/22/12 09:19*	*01/24/12 16:44*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	75		0.10	0.10	%			01/20/12 13:16	1
Percent Moisture	25		0.10	0.10	%			01/20/12 13:16	1

Client Sample ID: B-12-1-59
Date Collected: 01/10/12 14:00
Date Received: 01/19/12 09:50

Lab Sample ID: 580-30758-7
Matrix: Solid
Percent Solids: 87.7

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		17	4.3	ug/Kg	☼	01/23/12 10:21	01/23/12 18:27	1
Toluene	ND		43	11	ug/Kg	☼	01/23/12 10:21	01/23/12 18:27	1
Ethylbenzene	ND		43	11	ug/Kg	☼	01/23/12 10:21	01/23/12 18:27	1
m-Xylene & p-Xylene	ND		43	11	ug/Kg	☼	01/23/12 10:21	01/23/12 18:27	1
o-Xylene	ND		43	11	ug/Kg	☼	01/23/12 10:21	01/23/12 18:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*97*		*80 - 120*	*01/23/12 10:21*	*01/23/12 18:27*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*	*01/23/12 10:21*	*01/23/12 18:27*	*1*
Ethylbenzene-d10	*102*		*70 - 120*	*01/23/12 10:21*	*01/23/12 18:27*	*1*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*	*01/23/12 10:21*	*01/23/12 18:27*	*1*

Method: NWTPH/VPH - Northwest - Volatile Pertroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C12 Aliphatics	**0.25**	**J B**	2.2	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 18:47	1
C10-C12 Aromatics	**1.4**	**J**	2.2	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 18:47	1
C12-C13 Aromatics	**0.88**	**J B**	2.2	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 18:47	1
C8-C10 Aliphatics	ND		2.2	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 18:47	1
C8-C10 Aromatics	**0.78**	**J B**	2.2	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 18:47	1
C5-C6 Aliphatics	**0.61**	**J B**	2.2	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 18:47	1
C6-C8 Aliphatics	**0.65**	**J B**	2.2	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 18:47	1
Total VPH	**4.4**	**J B**	15	0.11	mg/Kg	☼	01/23/12 11:59	01/23/12 18:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BFB - PID	*104*		*60 - 140*	*01/23/12 11:59*	*01/23/12 18:47*	*1*
4-Bromofluorobenzene	*106*		*60 - 140*	*01/23/12 11:59*	*01/23/12 18:47*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**1.5**	**J**	4.3	0.54	mg/Kg	☼	01/23/12 10:21	01/24/12 17:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*50 - 150*	*01/23/12 10:21*	*01/24/12 17:48*	*1*

Method: NWTPH/EPH - Northwest - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C12 Aliphatics	ND		5.6	0.11	mg/Kg	☼	01/23/12 15:00	01/30/12 13:14	1
C12-C16 Aliphatics	ND		5.6	1.1	mg/Kg	☼	01/23/12 15:00	01/30/12 13:14	1
C16-C21 Aliphatics	**1.7**	**J**	5.6	1.1	mg/Kg	☼	01/23/12 15:00	01/30/12 13:14	1
C21-C34 Aliphatics	**2.2**	**J**	5.6	1.1	mg/Kg	☼	01/23/12 15:00	01/30/12 13:14	1
C10-C12 Aromatics	ND		5.6	0.081	mg/Kg	☼	01/23/12 15:00	01/30/12 13:14	1
C12-C16 Aromatics	ND		5.6	1.1	mg/Kg	☼	01/23/12 15:00	01/30/12 13:14	1
C16-C21 Aromatics	**1.9**	**J**	5.6	1.1	mg/Kg	☼	01/23/12 15:00	01/30/12 13:14	1
C21-C34 Aromatics	**4.2**	**J**	5.6	1.1	mg/Kg	☼	01/23/12 15:00	01/30/12 13:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*89*		*60 - 140*	*01/23/12 15:00*	*01/30/12 13:14*	*1*
1-Chlorooctadecane	*85*		*60 - 140*	*01/23/12 15:00*	*01/30/12 13:14*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		28	6.5	mg/Kg	☼	01/22/12 09:19	01/24/12 17:06	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Client Sample ID: B-12-1-59
Date Collected: 01/10/12 14:00
Date Received: 01/19/12 09:50

Lab Sample ID: 580-30758-7
Matrix: Solid
Percent Solids: 87.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil (>C24-C36)	20	J	57	10	mg/Kg	☼	01/22/12 09:19	01/24/12 17:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*109*		*50 - 150*	*01/22/12 09:19*	*01/24/12 17:06*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88		0.10	0.10	%			01/20/12 13:16	1
Percent Moisture	12		0.10	0.10	%			01/20/12 13:16	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Client Sample ID: B-12-2-12
Date Collected: 01/10/12 15:00
Date Received: 01/19/12 09:50

Lab Sample ID: 580-30758-8
Matrix: Solid
Percent Solids: 92.3

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	89	J	200	50	ug/Kg	☼	01/23/12 10:21	01/23/12 22:12	10
Toluene	160	J	500	120	ug/Kg	☼	01/23/12 10:21	01/23/12 22:12	10
Ethylbenzene	170	J	500	120	ug/Kg	☼	01/23/12 10:21	01/23/12 22:12	10
m-Xylene & p-Xylene	470	J	500	120	ug/Kg	☼	01/23/12 10:21	01/23/12 22:12	10
o-Xylene	340	J	500	120	ug/Kg	☼	01/23/12 10:21	01/23/12 22:12	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*	*01/23/12 10:21*	*01/23/12 22:12*	*10*
Toluene-d8 (Surr)	*102*		*80 - 120*	*01/23/12 10:21*	*01/23/12 22:12*	*10*
Ethylbenzene-d10	*104*		*70 - 120*	*01/23/12 10:21*	*01/23/12 22:12*	*10*
4-Bromofluorobenzene (Surr)	*106*		*70 - 120*	*01/23/12 10:21*	*01/23/12 22:12*	*10*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	1000	B	50	6.2	mg/Kg	☼	01/23/12 10:21	01/23/12 22:12	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*50 - 150*	*01/23/12 10:21*	*01/23/12 22:12*	*10*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	38000	Y	1300	290	mg/Kg	☼	01/22/12 09:19	01/24/12 17:28	50
Motor Oil (>C24-C36)	71000	Y	2600	470	mg/Kg	☼	01/22/12 09:19	01/24/12 17:28	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*114*		*50 - 150*	*01/22/12 09:19*	*01/24/12 17:28*	*50*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92		0.10	0.10	%			01/20/12 13:16	1
Percent Moisture	7.7		0.10	0.10	%			01/20/12 13:16	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Client Sample ID: B-12-1-32
Date Collected: 01/10/12 11:00
Date Received: 01/19/12 09:50

Lab Sample ID: 580-30758-9
Matrix: Solid
Percent Solids: 71.8

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		25	6.2	ug/Kg	☼	01/23/12 10:21	01/23/12 22:34	1
Toluene	ND		62	16	ug/Kg	☼	01/23/12 10:21	01/23/12 22:34	1
Ethylbenzene	ND		62	16	ug/Kg	☼	01/23/12 10:21	01/23/12 22:34	1
m-Xylene & p-Xylene	**660**		62	16	ug/Kg	☼	01/23/12 10:21	01/23/12 22:34	1
o-Xylene	ND		62	16	ug/Kg	☼	01/23/12 10:21	01/23/12 22:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*	*01/23/12 10:21*	*01/23/12 22:34*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*	*01/23/12 10:21*	*01/23/12 22:34*	*1*
Ethylbenzene-d10	*104*		*70 - 120*	*01/23/12 10:21*	*01/23/12 22:34*	*1*
4-Bromofluorobenzene (Surr)	*117*		*70 - 120*	*01/23/12 10:21*	*01/23/12 22:34*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**700**	**B**	6.2	0.78	mg/Kg	☼	01/23/12 10:21	01/23/12 22:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*145*		*50 - 150*	*01/23/12 10:21*	*01/23/12 22:34*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**12000**	**Y**	1600	370	mg/Kg	☼	01/22/12 09:19	01/24/12 18:34	50
Motor Oil (>C24-C36)	**14000**	**Y**	3200	590	mg/Kg	☼	01/22/12 09:19	01/24/12 18:34	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*116*		*50 - 150*	*01/22/12 09:19*	*01/24/12 18:34*	*50*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**72**		0.10	0.10	%			01/20/12 13:16	1
Percent Moisture	**28**		0.10	0.10	%			01/20/12 13:16	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Client Sample ID: Trip Blank
Date Collected: 01/10/12 00:00
Date Received: 01/19/12 09:50

Lab Sample ID: 580-30758-11
Matrix: Solid

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		16	4.0	ug/Kg		01/23/12 10:21	01/23/12 17:20	1
Toluene	ND		40	10	ug/Kg		01/23/12 10:21	01/23/12 17:20	1
Ethylbenzene	ND		40	10	ug/Kg		01/23/12 10:21	01/23/12 17:20	1
m-Xylene & p-Xylene	ND		40	10	ug/Kg		01/23/12 10:21	01/23/12 17:20	1
o-Xylene	ND		40	10	ug/Kg		01/23/12 10:21	01/23/12 17:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*	*01/23/12 10:21*	*01/23/12 17:20*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*01/23/12 10:21*	*01/23/12 17:20*	*1*
Ethylbenzene-d10	*104*		*70 - 120*	*01/23/12 10:21*	*01/23/12 17:20*	*1*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*	*01/23/12 10:21*	*01/23/12 17:20*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		4.0	0.50	mg/Kg		01/23/12 10:21	01/23/12 17:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*50 - 150*	*01/23/12 10:21*	*01/23/12 17:20*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-103945/1-A
Matrix: Solid
Analysis Batch: 103964

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 103945

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		16	4.0	ug/Kg		01/23/12 10:21	01/23/12 15:28	1
Toluene	ND		40	10	ug/Kg		01/23/12 10:21	01/23/12 15:28	1
Ethylbenzene	ND		40	10	ug/Kg		01/23/12 10:21	01/23/12 15:28	1
m-Xylene & p-Xylene	ND		40	10	ug/Kg		01/23/12 10:21	01/23/12 15:28	1
o-Xylene	ND		40	10	ug/Kg		01/23/12 10:21	01/23/12 15:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*97*		*80 - 120*	*01/23/12 10:21*	*01/23/12 15:28*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*01/23/12 10:21*	*01/23/12 15:28*	*1*
Ethylbenzene-d10	*103*		*70 - 120*	*01/23/12 10:21*	*01/23/12 15:28*	*1*
Trifluorotoluene (Surr)	*103*		*65 - 140*	*01/23/12 10:21*	*01/23/12 15:28*	*1*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*	*01/23/12 10:21*	*01/23/12 15:28*	*1*

Lab Sample ID: LCS 580-103945/4-A
Matrix: Solid
Analysis Batch: 103964

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 103945

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			800	812		ug/Kg		102	75 - 125		
Toluene			800	808		ug/Kg		101	70 - 125		
Ethylbenzene			800	796		ug/Kg		100	75 - 125		
m-Xylene & p-Xylene			1600	1600		ug/Kg		100	80 - 125		
o-Xylene			800	796		ug/Kg		100	75 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Fluorobenzene (Surr)	*97*		*80 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*
Ethylbenzene-d10	*103*		*70 - 120*
Trifluorotoluene (Surr)	*100*		*65 - 140*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*

Lab Sample ID: LCSD 580-103945/5-A
Matrix: Solid
Analysis Batch: 103964

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 103945

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			800	808		ug/Kg		101	75 - 125	0	30
Toluene			800	800		ug/Kg		100	70 - 125	1	30
Ethylbenzene			800	788		ug/Kg		99	75 - 125	1	30
m-Xylene & p-Xylene			1600	1600		ug/Kg		100	80 - 125	0	30
o-Xylene			800	796		ug/Kg		100	75 - 125	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Fluorobenzene (Surr)	*97*		*80 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*
Ethylbenzene-d10	*104*		*70 - 120*
Trifluorotoluene (Surr)	*98*		*65 - 140*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-30758-2 MS
Matrix: Solid
Analysis Batch: 103964

Client Sample ID: B-12-4-68
Prep Type: Total/NA
Prep Batch: 103945

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		907	986		ug/Kg	☼	109	75 - 125
Toluene	ND		907	959		ug/Kg	☼	106	70 - 125
Ethylbenzene	ND		907	959		ug/Kg	☼	106	75 - 125
m-Xylene & p-Xylene	ND		1810	1950		ug/Kg	☼	108	80 - 125
o-Xylene	ND		907	959		ug/Kg	☼	106	75 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Fluorobenzene (Surr)	*97*		*80 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*
Ethylbenzene-d10	*104*		*70 - 120*
4-Bromofluorobenzene (Surr)	*105*		*70 - 120*

Lab Sample ID: 580-30758-2 MSD
Matrix: Solid
Analysis Batch: 103964

Client Sample ID: B-12-4-68
Prep Type: Total/NA
Prep Batch: 103945

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		907	968		ug/Kg	☼	107	75 - 125	2	30
Toluene	ND		907	954		ug/Kg	☼	105	70 - 125	0	30
Ethylbenzene	ND		907	936		ug/Kg	☼	103	75 - 125	2	30
m-Xylene & p-Xylene	ND		1810	1940		ug/Kg	☼	107	80 - 125	1	30
o-Xylene	ND		907	963		ug/Kg	☼	106	75 - 125	0	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Fluorobenzene (Surr)	*98*		*80 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*
Ethylbenzene-d10	*103*		*70 - 120*
4-Bromofluorobenzene (Surr)	*105*		*70 - 120*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-103957/1-A
Matrix: Solid
Analysis Batch: 104359

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 103957

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		5.0	2.0	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
2-Methylnaphthalene	ND		5.0	2.0	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
1-Methylnaphthalene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
Acenaphthylene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
Acenaphthene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
Fluorene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
Phenanthrene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
Anthracene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
Fluoranthene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
Pyrene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
Benzo[a]anthracene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
Chrysene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
Benzo[b]fluoranthene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-103957/1-A
Matrix: Solid
Analysis Batch: 104359

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 103957

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
Benzo[a]pyrene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
Indeno[1,2,3-cd]pyrene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
Dibenz(a,h)anthracene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1
Benzo[g,h,i]perylene	ND		5.0	1.5	ug/Kg		01/23/12 12:14	01/30/12 14:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*88*		*42 - 151*	*01/23/12 12:14*	*01/30/12 14:33*	*1*

Lab Sample ID: LCS 580-103957/2-A
Matrix: Solid
Analysis Batch: 104359

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 103957

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	1000	877		ug/Kg		88	64 - 129
2-Methylnaphthalene	1000	833		ug/Kg		83	65 - 125
1-Methylnaphthalene	1000	853		ug/Kg		85	48 - 148
Acenaphthylene	999	947		ug/Kg		95	69 - 129
Acenaphthene	1000	917		ug/Kg		92	65 - 130
Fluorene	1000	1090		ug/Kg		109	68 - 128
Phenanthrene	1000	873		ug/Kg		87	65 - 125
Anthracene	1000	928		ug/Kg		93	73 - 123
Fluoranthene	1000	862		ug/Kg		86	61 - 121
Pyrene	1000	853		ug/Kg		85	54 - 134
Benzo[a]anthracene	1000	800		ug/Kg		80	64 - 124
Chrysene	1000	797		ug/Kg		80	71 - 126
Benzo[b]fluoranthene	1000	907		ug/Kg		91	66 - 136
Benzo[k]fluoranthene	1000	845		ug/Kg		84	63 - 143
Benzo[a]pyrene	1000	839		ug/Kg		84	68 - 128
Indeno[1,2,3-cd]pyrene	1000	716		ug/Kg		72	59 - 139
Dibenz(a,h)anthracene	999	755		ug/Kg		76	57 - 142
Benzo[g,h,i]perylene	1000	644		ug/Kg		64	57 - 142

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*76*		*42 - 151*

Lab Sample ID: 580-30758-1 MS
Matrix: Solid
Analysis Batch: 104359

Client Sample ID: B-12-4-40
Prep Type: Total/NA
Prep Batch: 103957

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	4500		1090	4630	4	ug/Kg	☼	12	64 - 129
2-Methylnaphthalene	27000		1090	25000	4	ug/Kg	☼	-228	65 - 125
1-Methylnaphthalene	22000		1090	19700	4	ug/Kg	☼	-183	48 - 148
Acenaphthylene	1200		1090	1710	F	ug/Kg	☼	51	69 - 129
Acenaphthene	4600		1090	3870	4	ug/Kg	☼	-68	65 - 130
Fluorene	16000		1090	14000	4	ug/Kg	☼	-199	68 - 128
Phenanthrene	28000		1090	28600	4	ug/Kg	☼	61	65 - 125
Anthracene	ND		1090	1610	F	ug/Kg	☼	148	73 - 123

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 580-30758-1 MS
Matrix: Solid
Analysis Batch: 104359

Client Sample ID: B-12-4-40
Prep Type: Total/NA
Prep Batch: 103957

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoranthene	2100		1090	2640	F	ug/Kg	☼	46	61 - 121
Pyrene	2900		1090	3720		ug/Kg	☼	76	54 - 134
Benzo[a]anthracene	ND		1090	1390	F	ug/Kg	☼	127	64 - 124
Chrysene	4500		1090	4280	4	ug/Kg	☼	-20	71 - 126
Benzo[b]fluoranthene	1200		1090	1740	F	ug/Kg	☼	49	66 - 136
Benzo[k]fluoranthene	ND		1090	797		ug/Kg	☼	73	63 - 143
Benzo[a]pyrene	320		1090	957	F	ug/Kg	☼	58	68 - 128
Indeno[1,2,3-cd]pyrene	230		1090	883		ug/Kg	☼	60	59 - 139
Dibenz(a,h)anthracene	200		1090	842		ug/Kg	☼	59	57 - 142
Benzo[g,h,i]perylene	330		1090	838	F	ug/Kg	☼	47	57 - 142

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Terphenyl-d14	*66*		*42 - 151*

Lab Sample ID: 580-30758-1 MSD
Matrix: Solid
Analysis Batch: 104359

Client Sample ID: B-12-4-40
Prep Type: Total/NA
Prep Batch: 103957

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	4500		1060	4440	4	ug/Kg	☼	-5	64 - 129	4	26
2-Methylnaphthalene	27000		1060	24300	4	ug/Kg	☼	-298	65 - 125	3	27
1-Methylnaphthalene	22000		1060	18900	4	ug/Kg	☼	-267	48 - 148	4	30
Acenaphthylene	1200		1060	1910		ug/Kg	☼	71	69 - 129	11	28
Acenaphthene	4600		1060	4480	4	ug/Kg	☼	-12	65 - 130	15	27
Fluorene	16000		1060	13300	4	ug/Kg	☼	-271	68 - 128	5	31
Phenanthrene	28000		1060	27000	4	ug/Kg	☼	-85	65 - 125	6	28
Anthracene	ND		1060	1700	F	ug/Kg	☼	160	73 - 123	6	27
Fluoranthene	2100		1060	2100	F	ug/Kg	☼	-4	61 - 121	23	36
Pyrene	2900		1060	2640	F	ug/Kg	☼	-24	54 - 134	34	31
Benzo[a]anthracene	ND		1060	1600	F	ug/Kg	☼	150	64 - 124	14	27
Chrysene	4500		1060	3700	4	ug/Kg	☼	-76	71 - 126	15	26
Benzo[b]fluoranthene	1200		1060	1790	F	ug/Kg	☼	55	66 - 136	3	31
Benzo[k]fluoranthene	ND		1060	902		ug/Kg	☼	85	63 - 143	12	31
Benzo[a]pyrene	320		1060	1040		ug/Kg	☼	68	68 - 128	9	30
Indeno[1,2,3-cd]pyrene	230		1060	848		ug/Kg	☼	59	59 - 139	4	29
Dibenz(a,h)anthracene	200		1060	769	F	ug/Kg	☼	54	57 - 142	9	30
Benzo[g,h,i]perylene	330		1060	815	F	ug/Kg	☼	46	57 - 142	3	28

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Terphenyl-d14	*64*		*42 - 151*

Method: NWTPH/VPH - Northwest - Volatile Pertroleum Hydrocarbons (GC)

Lab Sample ID: MB 580-103956/1-A
Matrix: Solid
Analysis Batch: 103966

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 103956

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C12 Aliphatics	0.118	J	2.0	0.10	mg/Kg		01/23/12 11:59	01/23/12 14:23	1

Method: NWTPH/VPH - Northwest - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: MB 580-103956/1-A
Matrix: Solid
Analysis Batch: 103966

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 103956

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C12 Aromatics	ND		2.0	0.10	mg/Kg		01/23/12 11:59	01/23/12 14:23	1
C12-C13 Aromatics	0.216	J	2.0	0.10	mg/Kg		01/23/12 11:59	01/23/12 14:23	1
C8-C10 Aliphatics	ND		2.0	0.10	mg/Kg		01/23/12 11:59	01/23/12 14:23	1
C8-C10 Aromatics	0.130	J	2.0	0.10	mg/Kg		01/23/12 11:59	01/23/12 14:23	1
C5-C6 Aliphatics	0.676	J	2.0	0.10	mg/Kg		01/23/12 11:59	01/23/12 14:23	1
C6-C8 Aliphatics	0.289	J	2.0	0.10	mg/Kg		01/23/12 11:59	01/23/12 14:23	1
Total VPH	1.36	J	14	0.10	mg/Kg		01/23/12 11:59	01/23/12 14:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BFB - PID	*103*		*60 - 140*	*01/23/12 11:59*	*01/23/12 14:23*	*1*
4-Bromofluorobenzene	*101*		*60 - 140*	*01/23/12 11:59*	*01/23/12 14:23*	*1*

Lab Sample ID: LCS 580-103956/2-A
Matrix: Solid
Analysis Batch: 103966

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 103956

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C10-C12 Aliphatics	4.00	4.49		mg/Kg		112	70 - 130
C10-C12 Aromatics	4.00	4.17		mg/Kg		104	70 - 130
C12-C13 Aromatics	8.00	7.17		mg/Kg		90	70 - 130
C8-C10 Aliphatics	8.00	8.39		mg/Kg		105	70 - 130
C8-C10 Aromatics	16.0	16.9		mg/Kg		105	70 - 130
C5-C6 Aliphatics	8.00	7.17		mg/Kg		90	70 - 130
C6-C8 Aliphatics	4.00	3.71		mg/Kg		93	70 - 130
Total VPH	64.0	64.2		mg/Kg		100	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
BFB - PID	*103*		*60 - 140*
4-Bromofluorobenzene	*100*		*60 - 140*

Lab Sample ID: 580-30758-4 MS
Matrix: Solid
Analysis Batch: 103966

Client Sample ID: B-12-3-13
Prep Type: Total/NA
Prep Batch: 103956

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
C10-C12 Aliphatics	140		22.5	168	4	mg/Kg	☼	135	70 - 130
C10-C12 Aromatics	260		22.5	288	4	mg/Kg	☼	122	70 - 130
C12-C13 Aromatics	340	B	45.1	384	4	mg/Kg	☼	106	70 - 130
C8-C10 Aliphatics	23		45.1	81.2		mg/Kg	☼	129	70 - 130
C8-C10 Aromatics	25	B	90.2	122		mg/Kg	☼	108	70 - 130
C5-C6 Aliphatics	1.1		45.1	40.0		mg/Kg	☼	86	70 - 130
C6-C8 Aliphatics	3.4		22.5	34.4	4	mg/Kg	☼	138	70 - 130
Total VPH	790		361	1180		mg/Kg	☼	110	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
BFB - PID	*110*		*60 - 140*
4-Bromofluorobenzene	*151*	*X I*	*60 - 140*

Method: NWTPH/VPH - Northwest - Volatile Pertroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 580-30758-4 MSD
Matrix: Solid
Analysis Batch: 103966

Client Sample ID: B-12-3-13
Prep Type: Total/NA
Prep Batch: 103956

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C10-C12 Aliphatics	140		22.5	163	4	mg/Kg	☼	116	70 - 130	3	25
C10-C12 Aromatics	260		22.5	290	4	mg/Kg	☼	128	70 - 130	0	25
C12-C13 Aromatics	340	B	45.1	377	4	mg/Kg	☼	92	70 - 130	2	25
C8-C10 Aliphatics	23		45.1	82.5	4	mg/Kg	☼	132	70 - 130	2	25
C8-C10 Aromatics	25	B	90.2	122		mg/Kg	☼	108	70 - 130	0	25
C5-C6 Aliphatics	1.1		45.1	39.8		mg/Kg	☼	86	70 - 130	0	25
C6-C8 Aliphatics	3.4		22.5	32.2		mg/Kg	☼	128	70 - 130	7	25
Total VPH	790		361	1170		mg/Kg	☼	108	70 - 130	1	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
BFB - PID	*109*		*60 - 140*
4-Bromofluorobenzene	*151*	*X I*	*60 - 140*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-103945/1-A
Matrix: Solid
Analysis Batch: 103962

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 103945

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		4.0	0.50	mg/Kg		01/23/12 10:21	01/23/12 15:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*50 - 150*	*01/23/12 10:21*	*01/23/12 15:28*	*1*
Trifluorotoluene (Surr)	*108*		*50 - 150*	*01/23/12 10:21*	*01/23/12 15:28*	*1*

Lab Sample ID: MB 580-103945/1-A
Matrix: Solid
Analysis Batch: 104066

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 103945

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		4.0	0.50	mg/Kg		01/23/12 10:21	01/24/12 15:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*50 - 150*	*01/23/12 10:21*	*01/24/12 15:55*	*1*
Trifluorotoluene (Surr)	*109*		*50 - 150*	*01/23/12 10:21*	*01/24/12 15:55*	*1*

Lab Sample ID: LCS 580-103945/2-A
Matrix: Solid
Analysis Batch: 103962

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 103945

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline			40.0	36.2		mg/Kg		91	68 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*50 - 150*
Trifluorotoluene (Surr)	*103*		*50 - 150*

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

Lab Sample ID: LCSD 580-103945/3-A
Matrix: Solid
Analysis Batch: 103962

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 103945

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline			40.0	36.9		mg/Kg		92	68 - 120	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*50 - 150*
Trifluorotoluene (Surr)	*102*		*50 - 150*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) - DL

Lab Sample ID: 580-30758-1 MS
Matrix: Solid
Analysis Batch: 103962

Client Sample ID: B-12-4-40
Prep Type: Total/NA
Prep Batch: 103945

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline - DL	1300	B	475	1960		mg/Kg	☼	141	50 - 150		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr) - DL	*105*		*50 - 150*

Lab Sample ID: 580-30758-1 MSD
Matrix: Solid
Analysis Batch: 103962

Client Sample ID: B-12-4-40
Prep Type: Total/NA
Prep Batch: 103945

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline - DL	1300	B	475	2010	F	mg/Kg	☼	152	50 - 150	3	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr) - DL	*105*		*50 - 150*

Method: NWTPH/EPH - Northwest - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 580-103975/1-B
Matrix: Solid
Analysis Batch: 104360

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 103975

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C12 Aliphatics	ND		5.0	0.095	mg/Kg		01/23/12 15:00	01/30/12 10:34	1
C12-C16 Aliphatics	ND		5.0	1.0	mg/Kg		01/23/12 15:00	01/30/12 10:34	1
C16-C21 Aliphatics	ND		5.0	1.0	mg/Kg		01/23/12 15:00	01/30/12 10:34	1
C21-C34 Aliphatics	ND		5.0	1.0	mg/Kg		01/23/12 15:00	01/30/12 10:34	1
C10-C12 Aromatics	ND		5.0	0.072	mg/Kg		01/23/12 15:00	01/30/12 10:34	1
C12-C16 Aromatics	ND		5.0	1.0	mg/Kg		01/23/12 15:00	01/30/12 10:34	1
C16-C21 Aromatics	ND		5.0	1.0	mg/Kg		01/23/12 15:00	01/30/12 10:34	1
C21-C34 Aromatics	ND		5.0	1.0	mg/Kg		01/23/12 15:00	01/30/12 10:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*75*		*60 - 140*	*01/23/12 15:00*	*01/30/12 10:34*	*1*

Method: NWTPH/EPH - Northwest - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: MB 580-103975/1-B
Matrix: Solid
Analysis Batch: 104360

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 103975

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	82		60 - 140	01/23/12 15:00	01/30/12 10:34	1

Lab Sample ID: LCS 580-103975/2-B
Matrix: Solid
Analysis Batch: 104424

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 103975

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C10-C12 Aliphatics	6.67	5.13		mg/Kg		77	70 - 130
C12-C16 Aliphatics	13.3	11.7		mg/Kg		88	70 - 130
C16-C21 Aliphatics	20.0	18.8		mg/Kg		94	70 - 130
C21-C34 Aliphatics	40.0	37.0		mg/Kg		93	70 - 130
C10-C12 Aromatics	6.67	5.20		mg/Kg		78	70 - 130
C12-C16 Aromatics	20.0	18.1		mg/Kg		90	70 - 130
C16-C21 Aromatics	40.0	34.9		mg/Kg		87	70 - 130
C21-C34 Aromatics	53.3	57.7		mg/Kg		108	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	87		60 - 140
1-Chlorooctadecane	83		60 - 140

Lab Sample ID: 580-30758-4 MS
Matrix: Solid
Analysis Batch: 104360

Client Sample ID: B-12-3-13
Prep Type: Total/NA
Prep Batch: 103975

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
C10-C12 Aliphatics	1500		8.14	1260	E 4	mg/Kg	☼	-3025	70 - 130
C12-C16 Aliphatics	8500		16.3	8130	E 4	mg/Kg	☼	-2281	70 - 130
C16-C21 Aliphatics	7800		24.4	8750	E 4	mg/Kg	☼	4039	70 - 130
C21-C34 Aliphatics	1500		48.9	1820	E 4	mg/Kg	☼	715	70 - 130
C10-C12 Aromatics	330		8.14	251	E 4	mg/Kg	☼	-999	70 - 130
C12-C16 Aromatics	3000		24.4	2180	E 4	mg/Kg	☼	-3396	70 - 130
C16-C21 Aromatics	5700		48.9	4670	E 4	mg/Kg	☼	-2011	70 - 130
C21-C34 Aromatics	1000		65.2	967	E 4	mg/Kg	☼	-45	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl	0	I X	60 - 140
1-Chlorooctadecane	0	I X	60 - 140

Lab Sample ID: 580-30758-4 MSD
Matrix: Solid
Analysis Batch: 104360

Client Sample ID: B-12-3-13
Prep Type: Total/NA
Prep Batch: 103975

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C10-C12 Aliphatics	1500		8.19	1270	E 4	mg/Kg	☼	-2866	70 - 130	1	25
C12-C16 Aliphatics	8500		16.4	8460	E 4	mg/Kg	☼	-223	70 - 130	4	25
C16-C21 Aliphatics	7800		24.6	9260	E 4	mg/Kg	☼	6067	70 - 130	6	25
C21-C34 Aliphatics	1500		49.1	1960	E 4	mg/Kg	☼	1006	70 - 130	8	25
C10-C12 Aromatics	330		8.19	252	E 4	mg/Kg	☼	-986	70 - 130	0	25
C12-C16 Aromatics	3000		24.6	2280	E 4	mg/Kg	☼	-2946	70 - 130	5	25

Method: NWTPH/EPH - Northwest - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 580-30758-4 MSD — **Client Sample ID: B-12-3-13**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 104360 — **Prep Batch: 103975**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C16-C21 Aromatics	5700		49.1	5080	E 4	mg/Kg	☼	-1162	70 - 130	8	25
C21-C34 Aromatics	1000		65.5	1080	E 4	mg/Kg	☼	123	70 - 130	11	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl	*0*	*I X*	*60 - 140*
1-Chlorooctadecane	*0*	*I X*	*60 - 140*

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

Lab Sample ID: MB 580-103895/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 104033 — **Prep Batch: 103895**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		25	5.7	mg/Kg		01/22/12 09:19	01/24/12 14:13	1
Motor Oil (>C24-C36)	ND		50	9.1	mg/Kg		01/22/12 09:19	01/24/12 14:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*108*		*50 - 150*	*01/22/12 09:19*	*01/24/12 14:13*	*1*

Lab Sample ID: LCS 580-103895/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 104033 — **Prep Batch: 103895**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	455		mg/Kg		91	70 - 125
Motor Oil (>C24-C36)	500	473		mg/Kg		95	64 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*88*		*50 - 150*

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

Lab Sample ID: 580-30758-1 DU — **Client Sample ID: B-12-4-40**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 104033 — **Prep Batch: 103895**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
#2 Diesel (C10-C24) - RADL	45000	Y	43900		mg/Kg	☼	3	35
Motor Oil (>C24-C36) - RADL	53000	Y	52100		mg/Kg	☼	2	35

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
o-Terphenyl - RADL	*57*		*50 - 150*

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Method: D 2216 - Percent Moisture

Lab Sample ID: 580-30758-1 DU
Matrix: Solid
Analysis Batch: 103855

Client Sample ID: B-12-4-40
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	89			89		%				0.5	20
Percent Moisture	11			11		%				4	20

Client Sample ID: B-12-4-40

Lab Sample ID: 580-30758-1

Date Collected: 01/11/12 15:45

Matrix: Solid

Date Received: 01/19/12 09:50

Percent Solids: 88.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	DL		103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	8260B	DL	10	103964	01/23/12 20:42	JMB	TAL SEA
Total/NA	Prep	3550B			103957	01/23/12 12:14	RS	TAL SEA
Total/NA	Analysis	8270C SIM		10	104359	01/30/12 15:12	CM	TAL SEA
Total/NA	Prep	5035	DL		103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx	DL	10	103962	01/23/12 20:42	JMB	TAL SEA
Total/NA	Prep	3550B	RADL		103895	01/22/12 09:19	RD	TAL SEA
Total/NA	Analysis	NWTPH-Dx	RADL	50	104033	01/24/12 14:55	KKW	TAL SEA
Total/NA	Analysis	D 2216		1	103855	01/20/12 13:16	RD	TAL SEA

Client Sample ID: B-12-4-68

Lab Sample ID: 580-30758-2

Date Collected: 01/12/12 11:10

Matrix: Solid

Date Received: 01/19/12 09:50

Percent Solids: 81.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	8260B		1	103964	01/23/12 19:34	JMB	TAL SEA
Total/NA	Prep	5035			103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	103962	01/23/12 19:34	JMB	TAL SEA
Total/NA	Prep	3550B			103895	01/22/12 09:19	RD	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	104033	01/24/12 15:39	KKW	TAL SEA
Total/NA	Analysis	D 2216		1	103855	01/20/12 13:16	RD	TAL SEA

Client Sample ID: B-12-2-55

Lab Sample ID: 580-30758-3

Date Collected: 01/11/12 09:00

Matrix: Solid

Date Received: 01/19/12 09:50

Percent Solids: 79.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	8260B		1	103964	01/23/12 17:42	JMB	TAL SEA
Total/NA	Prep	5035			103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	103962	01/23/12 17:42	JMB	TAL SEA
Total/NA	Prep	3550B			103895	01/22/12 09:19	RD	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	104033	01/24/12 16:01	KKW	TAL SEA
Total/NA	Analysis	D 2216		1	103855	01/20/12 13:16	RD	TAL SEA

Client Sample ID: B-12-3-13

Lab Sample ID: 580-30758-4

Date Collected: 01/11/12 11:30

Matrix: Solid

Date Received: 01/19/12 09:50

Percent Solids: 80.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	DL		103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	8260B	DL	10	103964	01/23/12 21:49	JMB	TAL SEA
Total/NA	Prep	5035	DL		103945	01/23/12 10:21	JMB	TAL SEA

Client Sample ID: B-12-3-13

Lab Sample ID: 580-30758-4

Date Collected: 01/11/12 11:30
Matrix: Solid
Date Received: 01/19/12 09:50
Percent Solids: 80.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Gx	DL	10	103962	01/23/12 21:49	JMB	TAL SEA
Total/NA	Prep	5035			103956	01/23/12 11:59	MAT	TAL SEA
Total/NA	Analysis	NWTPH/VPH		5	103966	01/23/12 15:42	MAT	TAL SEA
Total/NA	Prep	3550B			103895	01/22/12 09:19	RD	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	104033	01/24/12 16:23	KKW	TAL SEA
Total/NA	Prep	3550B	RADL		103895	01/22/12 09:19	RD	TAL SEA
Total/NA	Analysis	NWTPH-Dx	RADL	10	104222	01/26/12 09:54	KKW	TAL SEA
Total/NA	Prep	3550B	DL		103975	01/23/12 15:00	GH	TAL SEA
Total/NA	Analysis	NWTPH/EPH	DL	10	104424	01/31/12 08:16	EK	TAL SEA
Total/NA	Analysis	D 2216		1	103855	01/20/12 13:16	RD	TAL SEA

Client Sample ID: B-12-2-40

Lab Sample ID: 580-30758-5

Date Collected: 01/10/12 16:00
Matrix: Solid
Date Received: 01/19/12 09:50
Percent Solids: 75.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	8260B		1	103964	01/23/12 18:05	JMB	TAL SEA
Total/NA	Prep	3550B			103957	01/23/12 12:14	RS	TAL SEA
Total/NA	Analysis	8270C SIM		10	104359	01/30/12 16:10	CM	TAL SEA
Total/NA	Prep	5035			103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	103962	01/23/12 18:05	JMB	TAL SEA
Total/NA	Prep	5035			103956	01/23/12 11:59	MAT	TAL SEA
Total/NA	Analysis	NWTPH/VPH		1	103966	01/23/12 17:54	MAT	TAL SEA
Total/NA	Prep	3550B			103895	01/22/12 09:19	RD	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	104033	01/24/12 16:44	KKW	TAL SEA
Total/NA	Prep	3550B			103975	01/23/12 15:00	GH	TAL SEA
Total/NA	Analysis	NWTPH/EPH		1	104360	01/30/12 12:47	EK	TAL SEA
Total/NA	Analysis	D 2216		1	103855	01/20/12 13:16	RD	TAL SEA

Client Sample ID: B-12-1-59

Lab Sample ID: 580-30758-7

Date Collected: 01/10/12 14:00
Matrix: Solid
Date Received: 01/19/12 09:50
Percent Solids: 87.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	8260B		1	103964	01/23/12 18:27	JMB	TAL SEA
Total/NA	Prep	5035			103956	01/23/12 11:59	MAT	TAL SEA
Total/NA	Analysis	NWTPH/VPH		1	103966	01/23/12 18:47	MAT	TAL SEA
Total/NA	Prep	5035	RA		103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx	RA	1	104066	01/24/12 17:48	JMB	TAL SEA
Total/NA	Prep	3550B			103895	01/22/12 09:19	RD	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	104033	01/24/12 17:06	KKW	TAL SEA
Total/NA	Prep	3550B			103975	01/23/12 15:00	GH	TAL SEA

Lab Chronicle

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Client Sample ID: B-12-1-59

Lab Sample ID: 580-30758-7

Date Collected: 01/10/12 14:00
Matrix: Solid
Date Received: 01/19/12 09:50
Percent Solids: 87.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH/EPH		1	104360	01/30/12 13:14	EK	TAL SEA
Total/NA	Analysis	D 2216		1	103855	01/20/12 13:16	RD	TAL SEA

Client Sample ID: B-12-2-12

Lab Sample ID: 580-30758-8

Date Collected: 01/10/12 15:00
Matrix: Solid
Date Received: 01/19/12 09:50
Percent Solids: 92.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	DL		103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	8260B	DL	10	103964	01/23/12 22:12	JMB	TAL SEA
Total/NA	Prep	5035	DL		103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx	DL	10	103962	01/23/12 22:12	JMB	TAL SEA
Total/NA	Prep	3550B	RADL		103895	01/22/12 09:19	RD	TAL SEA
Total/NA	Analysis	NWTPH-Dx	RADL	50	104033	01/24/12 17:28	KKW	TAL SEA
Total/NA	Analysis	D 2216		1	103855	01/20/12 13:16	RD	TAL SEA

Client Sample ID: B-12-1-32

Lab Sample ID: 580-30758-9

Date Collected: 01/10/12 11:00
Matrix: Solid
Date Received: 01/19/12 09:50
Percent Solids: 71.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	8260B		1	103964	01/23/12 22:34	JMB	TAL SEA
Total/NA	Prep	5035			103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	103962	01/23/12 22:34	JMB	TAL SEA
Total/NA	Prep	3550B	RADL		103895	01/22/12 09:19	RD	TAL SEA
Total/NA	Analysis	NWTPH-Dx	RADL	50	104033	01/24/12 18:34	KKW	TAL SEA
Total/NA	Analysis	D 2216		1	103855	01/20/12 13:16	RD	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-30758-11

Date Collected: 01/10/12 00:00
Matrix: Solid
Date Received: 01/19/12 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	8260B		1	103964	01/23/12 17:20	JMB	TAL SEA
Total/NA	Prep	5035			103945	01/23/12 10:21	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	103962	01/23/12 17:20	JMB	TAL SEA

Laboratory References:

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

Certification Summary

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Seattle	Alaska	Alaska UST	10	UST-022
TestAmerica Seattle	Alaska	TA-Port Heiden Mobile Lab	10	UST-093
TestAmerica Seattle	California	NELAC	9	1115CA
TestAmerica Seattle	Florida	NELAC	4	E871074
TestAmerica Seattle	L-A-B	DoD ELAP		L2236
TestAmerica Seattle	L-A-B	ISO/IEC 17025		L2236
TestAmerica Seattle	Louisiana	NELAC	6	05016
TestAmerica Seattle	Montana	MT DEQ UST	8	N/A
TestAmerica Seattle	Oregon	NELAC	10	WA100007
TestAmerica Seattle	USDA	USDA		P330-11-00222
TestAmerica Seattle	Washington	State Program	10	C553

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-30758-1	B-12-4-40	Solid	01/11/12 15:45	01/19/12 09:50
580-30758-2	B-12-4-68	Solid	01/12/12 11:10	01/19/12 09:50
580-30758-3	B-12-2-55	Solid	01/11/12 09:00	01/19/12 09:50
580-30758-4	B-12-3-13	Solid	01/11/12 11:30	01/19/12 09:50
580-30758-5	B-12-2-40	Solid	01/10/12 16:00	01/19/12 09:50
580-30758-7	B-12-1-59	Solid	01/10/12 14:00	01/19/12 09:50
580-30758-8	B-12-2-12	Solid	01/10/12 15:00	01/19/12 09:50
580-30758-9	B-12-1-32	Solid	01/10/12 11:00	01/19/12 09:50
580-30758-11	Trip Blank	Solid	01/10/12 00:00	01/19/12 09:50

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

☒ Rush
☐ Short Hold

Chain of Custody Record

2/2/2012

Client	Client Contact	Date	Chain of Custody Number
Kennedy Jenks	Joe Sawtelle	1-17-12	13676
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page ____ of ____**
32001 32nd Ave S, Suite 100	253-835-6400	30758	
City / State / Zip Code	**Sampler / Lab Contact**		
Federal Way / WA / 98001	J. Sawtelle / K. Allen		
Project Name and Location (State)	**Billing Contact**		
BNSF Wishram	Kristen Lee		
Contract/Purchase Order/Quote No.			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Methanol	Analysis: 8270C_SIM	NWTPH-Dx	NWTPH-Gx	8260B	Special Instructions/ Conditions of Receipt
-1 B-12-4-40	1/11/12	1545				X	X						X	X	X	X	X	
-2 B-12-4-68	1/12/12	1110				X	X						X		X	X	X	
-3 B-12-2-55	1/11/12	0900				X	X						X		X	X	X	
-4 B-12-3-13	1/11/12	1130				X	X						X		X	X	X	
-5 B-12-2-40	1/10/12	1600				X	X						X	X	X	X	X	
-6 B-12-4-12	1/11/12	1430				X	X						X		X	X	X	
-7 B-12-1-59	1/10/12	1400				X	X						X		X	X	X	
-8 B-12-2-12	1/10/12	1500				X	X						X		X	X	X	
-9 B-12-1-32	1/10/12	1100				X	X						X		X	X	X	
-10 B-12-1-15																		
-11 Trip Blank																		

Cooler: ☐ Yes ☐ No Cooler Temp:_____

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☒ Other ASAP

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By Sign/Print: Joseph Sawtelle	1-17-12	@1800	1. Received By Sign/Print: Tom Blankinship	1/19/12	0950
2. Relinquished By Sign/Print:			2. Received By Sign/Print:		
3. Relinquished By Sign/Print:			3. Received By Sign/Print:		

Comments: If possible, provide Hydrocarbon-Specific Analysis

Lg Blue/wh wet/bubble UPS Grnd

A2TB = 2.2/2.0 w/cs

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

Login Sample Receipt Checklist

Client: Kennedy/Jenks Consultants

Job Number: 580-30758-1

Login Number: 30758
List Number: 1
Creator: Blankinship, Tom

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is 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.	False	No sample date and/or time on COC, logged in per container labels for sample -10
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	False	Received Trip Blank(s) not listed on COC.
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	Client attached additional labels to tared MeOH vials.
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	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 580-30758-2
Client Project/Site: BNSF Wishram Monitoring

For:
Kennedy/Jenks Consultants
32001-32nd Ave South, Suite 100
Federal Way, Washington 98001

Attn: Joseph Sawdey

Authorized for release by:
2/21/2012 2:00:01 PM
Melissa Armstrong
Project Manager I
melissa.armstrong@testamericainc.com

Designee for

Kristine Allen
Project Manager I
kristine.allen@testamericainc.com

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

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

Table of Contents

Case Narrative

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-2

Job ID: 580-30758-2

Laboratory: TestAmerica Seattle

Narrative

Receipt
The chain of custody doesn't have the sampling date or time for sample -10. The sample was logged in with the information found on the labels.

A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

The tared methanol-preserved vials for each client sample had an additional label affixed to them.

All other samples were received in good condition within temperature requirements.

GC Semi VOA - Method NWTPH-Dx
Due to the level of dilution required for the following samples in analysis batch 580-105186, surrogate recoveries are not reported: B-12-4-40 (580-30758-1) and (580-30758-1) DU.

The results in the #2 Diesel (C10-C24) and Motor Oil (>C24-C36) ranges for sample B-12-2-40 (580-30758-2) are due primarily to a complex mixture of a gasoline/kerosene range product, weathered diesel fuel, a mineral/transformer oil range product, and motor oil. The affected analyte ranges are qualified "Y" and have been reported.

In analytical batch 580-105066, the method blank for preparation batch 580-105005 contained #2 Diesel (C10-C24) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed. The value should be considered as estimate, and has been flagged “J”. The associated sample results have been flagged “B”.

No other analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

Definitions/Glossary

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-2

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
X	Surrogate is outside control limits
Y	The chromatographic response resembles a typical fuel pattern.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-2

Client Sample ID: B-12-4-40
Date Collected: 01/11/12 15:45
Date Received: 01/19/12 09:50

Lab Sample ID: 580-30758-1
Matrix: Solid
Percent Solids: 88.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	65000	B	1400	310	mg/Kg	☼	01/22/12 09:35	02/13/12 14:55	50
Motor Oil (>C24-C36)	67000		2700	500	mg/Kg	☼	01/22/12 09:35	02/13/12 14:55	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*733*	*X*	*50 - 150*	*01/22/12 09:35*	*02/13/12 14:55*	*50*

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-2

Client Sample ID: B-12-2-40
Date Collected: 01/10/12 16:00
Date Received: 01/19/12 09:50

Lab Sample ID: 580-30758-5
Matrix: Solid
Percent Solids: 75.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	5800	B Y	31	7.0	mg/Kg	☼	01/22/12 09:35	02/10/12 13:19	1
Motor Oil (>C24-C36)	5500	Y	62	11	mg/Kg	☼	01/22/12 09:35	02/10/12 13:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*104*		*50 - 150*	*01/22/12 09:35*	*02/10/12 13:19*	*1*

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-2

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

Lab Sample ID: MB 580-105005/1-B
Matrix: Solid
Analysis Batch: 105066

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105005

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	7.05	J	25	5.7	mg/Kg		01/22/12 09:35	02/10/12 11:53	1
Motor Oil (>C24-C36)	ND		50	9.1	mg/Kg		01/22/12 09:35	02/10/12 11:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*125*		*50 - 150*	*01/22/12 09:35*	*02/10/12 11:53*	*1*

Lab Sample ID: LCS 580-105005/2-B
Matrix: Solid
Analysis Batch: 105066

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105005

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	506		mg/Kg		101	64 - 127
Motor Oil (>C24-C36)	500	529		mg/Kg		106	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*114*		*50 - 150*

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

Lab Sample ID: 580-30758-1 DU
Matrix: Solid
Analysis Batch: 105186

Client Sample ID: B-12-4-40
Prep Type: Total/NA
Prep Batch: 105005

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
#2 Diesel (C10-C24) - RADL	65000	B	57000		mg/Kg	☼	12	35
Motor Oil (>C24-C36) - RADL	67000		59100		mg/Kg	☼	13	35

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
o-Terphenyl - RADL	*635*	*X*	*50 - 150*

Lab Chronicle

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-2

Client Sample ID: B-12-4-40

Lab Sample ID: 580-30758-1

Date Collected: 01/11/12 15:45
Matrix: Solid
Date Received: 01/19/12 09:50
Percent Solids: 88.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B	RADL		105005	01/22/12 09:35	GH	TAL SEA
Total/NA	Analysis	NWTPH-Dx	RADL	50	105186	02/13/12 14:55	KKW	TAL SEA

Client Sample ID: B-12-2-40

Lab Sample ID: 580-30758-5

Date Collected: 01/10/12 16:00
Matrix: Solid
Date Received: 01/19/12 09:50
Percent Solids: 75.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			105005	01/22/12 09:35	GH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	105066	02/10/12 13:19	KKW	TAL SEA

Laboratory References:

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

Certification Summary

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-2

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Seattle	Alaska	Alaska UST	10	UST-022
TestAmerica Seattle	Alaska	TA-Port Heiden Mobile Lab	10	UST-093
TestAmerica Seattle	California	NELAC	9	1115CA
TestAmerica Seattle	Florida	NELAC	4	E871074
TestAmerica Seattle	L-A-B	DoD ELAP		L2236
TestAmerica Seattle	L-A-B	ISO/IEC 17025		L2236
TestAmerica Seattle	Louisiana	NELAC	6	05016
TestAmerica Seattle	Montana	MT DEQ UST	8	N/A
TestAmerica Seattle	Oregon	NELAC	10	WA100007
TestAmerica Seattle	USDA	USDA		P330-11-00222
TestAmerica Seattle	Washington	State Program	10	C553

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-30758-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-30758-1	B-12-4-40	Solid	01/11/12 15:45	01/19/12 09:50
580-30758-5	B-12-2-40	Solid	01/10/12 16:00	01/19/12 09:50

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

☒ Rush
☐ Short Hold

Chain of Custody Record

2/21/2012

Client	Client Contact	Date	Chain of Custody Number
Kennedy Jenks	Joe Sawtelle	1-17-12	13676
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page ____ of ____**
32001 32nd Ave S, Suite 100	253-835-6400	30758	
City / State / Zip Code	**Sampler / Lab Contact**		
Federal Way / WA / 98001	J. Sawtelle / K. Allen		
Project Name and Location (State)	**Billing Contact**		
BNSF Wishram	Kristen Lee		
Contract/Purchase Order/Quote No.			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Methanol	Analysis: 8270C_SIM	NWTPH-Dx	NWTPH-Gx	8260B	Special Instructions/ Conditions of Receipt
-1 B-12-4-40	1/11/12	1545				X	X						X	X	X	X	X	
-2 B-12-4-68	1/12/12	1110				X	X						X		X	X	X	
-3 B-12-2-55	1/11/12	0900				X	X						X		X	X	X	
-4 B-12-3-13	1/11/12	1130				X	X						X		X	X	X	
-5 B-12-2-40	1/10/12	1600				X	X						X	X	X	X	X	
-6 B-12-4-12	1/11/12	1430				X	X						X		X	X	X	
-7 B-12-1-59	1/10/12	1400				X	X						X		X	X	X	
-8 B-12-2-12	1/10/12	1500				X	X						X		X	X	X	
-9 B-12-1-32	1/10/12	1100				X	X						X		X	X	X	
-10 B-12-1-15																		
-11 Trip Blank																		

Cooler	Possible Hazard Identification	Sample Disposal	(A fee may be assessed if samples are retained longer than 1 month)
☐ Yes ☐ No Cooler Temp:____	☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown	☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months	

Turn Around Time Required (business days)
☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☒ Other ASAP

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By Sign/Print: Joseph Sawtelle	1-17-12	@1800	1. Received By Sign/Print: Tom Blankinship	1/19/12	0950
2. Relinquished By Sign/Print			2. Received By Sign/Print		
3. Relinquished By Sign/Print			3. Received By Sign/Print		

Comments: If possible, provide Hydrocarbon-Specific Analysis

Lg Blue/wh wet/bubble UPS Grnd
A2TB = 2.2/2.0 w/cs

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

Login Sample Receipt Checklist

Client: Kennedy/Jenks Consultants

Job Number: 580-30758-2

Login Number: 30758
List Number: 1
Creator: Blankinship, Tom

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is 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.	False	No sample date and/or time on COC, logged in per container labels for sample -10
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	False	Received Trip Blank(s) not listed on COC.
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	Client attached additional labels to tared MeOH vials.
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	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 580-30930-1
Client Project/Site: BNSF Wishram

For:
Kennedy/Jenks Consultants
32001-32nd Ave South, Suite 100
Federal Way, Washington 98001

Attn: Joseph Sawdey

Kristine D. Allen

Authorized for release by:
2/9/2012 5:03:30 PM

Kristine Allen
Project Manager I
kristine.allen@testamericainc.com

Table of Contents

Case Narrative

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30930-1

Job ID: 580-30930-1

Laboratory: TestAmerica Seattle

Narrative

Receipt
Samples were received at the laboratory outside of the required temperature criteria at 20.0C. Samples were not received on ice. Client noted that the samples were stored in the refrigerator until delivery.

GC Semi VOA
No analytical or quality issues were noted.

General Chemistry
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

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
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
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: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30930-1

Client Sample ID: B-12-5-45
Date Collected: 01/17/12 13:00
Date Received: 01/27/12 13:05

Lab Sample ID: 580-30930-1
Matrix: Solid
Percent Solids: 80.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		30	6.9	mg/Kg	☼	01/30/12 11:48	01/31/12 16:10	1
Motor Oil (>C24-C36)	ND		61	11	mg/Kg	☼	01/30/12 11:48	01/31/12 16:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*103*		*50 - 150*	*01/30/12 11:48*	*01/31/12 16:10*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**80**		0.10	0.10	%			01/30/12 13:15	1
Percent Moisture	**20**		0.10	0.10	%			01/30/12 13:15	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30930-1

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

Lab Sample ID: MB 580-104399/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 104460 — **Prep Batch: 104399**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		25	5.7	mg/Kg		01/30/12 11:48	01/31/12 15:27	1
Motor Oil (>C24-C36)	ND		50	9.1	mg/Kg		01/30/12 11:48	01/31/12 15:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*101*		*50 - 150*	*01/30/12 11:48*	*01/31/12 15:27*	*1*

Lab Sample ID: LCS 580-104399/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 104460 — **Prep Batch: 104399**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			500	495		mg/Kg		99	70 - 125		
Motor Oil (>C24-C36)			500	509		mg/Kg		102	64 - 127		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*83*		*50 - 150*

Lab Sample ID: 580-30930-1 DU — **Client Sample ID: B-12-5-45**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 104460 — **Prep Batch: 104399**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
#2 Diesel (C10-C24)	ND			ND		mg/Kg	☼			NC	35
Motor Oil (>C24-C36)	ND			ND		mg/Kg	☼			NC	35

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
o-Terphenyl	*103*		*50 - 150*

Method: D 2216 - Percent Moisture

Lab Sample ID: 580-30930-1 DU — **Client Sample ID: B-12-5-45**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 104411

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	80			80		%				0.4	20
Percent Moisture	20			20		%				2	20

Lab Chronicle

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30930-1

Client Sample ID: B-12-5-45
Date Collected: 01/17/12 13:00
Date Received: 01/27/12 13:05

Lab Sample ID: 580-30930-1
Matrix: Solid
Percent Solids: 80.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			104399	01/30/12 11:48	RS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	104460	01/31/12 16:10	KKW	TAL SEA
Total/NA	Analysis	D 2216		1	104411	01/30/12 13:15	MT	TAL SEA

Laboratory References:

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

Certification Summary

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30930-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Seattle	Alaska	Alaska UST	10	UST-022
TestAmerica Seattle	Alaska	TA-Port Heiden Mobile Lab	10	UST-093
TestAmerica Seattle	California	NELAC	9	1115CA
TestAmerica Seattle	Florida	NELAC	4	E871074
TestAmerica Seattle	L-A-B	DoD ELAP		L2236
TestAmerica Seattle	L-A-B	ISO/IEC 17025		L2236
TestAmerica Seattle	Louisiana	NELAC	6	05016
TestAmerica Seattle	Montana	MT DEQ UST	8	N/A
TestAmerica Seattle	Oregon	NELAC	10	WA100007
TestAmerica Seattle	USDA	USDA		P330-11-00222
TestAmerica Seattle	Washington	State Program	10	C553

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram

TestAmerica Job ID: 580-30930-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-30930-1	B-12-5-45	Solid	01/17/12 13:00	01/27/12 13:05

1 2 3 4 5 6 7 8 9 10 11

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

☐ Rush
☐ Short Hold

Chain of Custody Record

30930

Client: BNSF Kennedy/Jenks
Client Contact: Joseph Sawdey
Date: 1/27/12
Chain of Custody Number: 13674
Address: 32001 32nd Ave S, Suite 100
Telephone Number (Area Code)/Fax Number: 235 835 6406
Lab Number:
Page ___ of ___
City: Federal Way
State: WA
Zip Code: 98001
Sampler: JRS
Lab Contact: K. Allen
Project Name and Location (State): BNSF Wishram
Billing Contact: Kristen
Contract/Purchase Order/Quote No.: 1196010

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: NWTPH-Dx
B-12-5-4.5	1/17/12	1300				X	X						X

Special Instructions/Conditions of Receipt:
Pulled out of fridge before delivery.
IR = 20.0/20.0
Bubble
no ice
w/o C.S

Cooler: ☐ Yes ☐ No Cooler Temp: ______

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☐ Other ______

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By Sign/Print: [signature] Joseph Sawdey	1/27/12	1300	1. Received By Sign/Print: [signature]	1/27/12	1305
2. Relinquished By Sign/Print:			2. Received By Sign/Print:		
3. Relinquished By Sign/Print:			3. Received By Sign/Print:		

Comments: Hold time expires 1/31/12 please extract ASAP

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

Login Sample Receipt Checklist

Client: Kennedy/Jenks Consultants

Job Number: 580-30930-1

Login Number: 30930
List Number: 1
Creator: Kalicki, Samantha

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Pulled out of fridge before drop-off.
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
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 sample IDs on the containers 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	Not needed.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	No voa vial rec'd.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 580-31095-1
Client Project/Site: BNSF Wishram Monitoring

For:
Kennedy/Jenks Consultants
32001-32nd Ave South, Suite 100
Federal Way, Washington 98001

Attn: Joseph Sawdey

Pamela R. Johnson

Authorized for release by:
2/20/2012 2:57:39 PM
Pam Johnson
Project Manager I
pamr.johnson@testamericainc.com

Designee for

Kristine Allen
Project Manager I
kristine.allen@testamericainc.com

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

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

Table of Contents

Job ID: 580-31095-1

Laboratory: TestAmerica Seattle

Narrative

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA - Method 8260B
The following sample B-12-11-35 (580-31095-13) was diluted due to the nature of the sample matrix (Oily film in MeOH kit). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

GC Semi VOA - Method NWTPH-Dx
In analytical batch 105278, the results in the #2 Diesel (C10-C24) and Motor Oil (>C24-C36) ranges for samples B-12-7-24 (580-31095-5) and B-12-8-37 (580-31095-8) are due primarily to a mixture of heavily weathered/degraded diesel fuel, and/or a mineral/transformer oil range product, and motor oil. The affected analyte ranges are qualified "Y" and have been reported.

In analytical batch 105384, the results in the #2 Diesel (C10-C24) and Motor Oil (>C24-C36) ranges for sample B-12-11-35 (580-31095-13) are due primarily to a mixture of heavily weathered/degraded diesel fuel, and/or a mineral/transformer oil range product, and motor oil. The affected analyte ranges are qualified "Y" and have been reported.

In analytical batch 105384, the surrogate recovery for the following sample B-12-11-35 (580-31095-13) from preparation batch 105275 was outside control limits. Evidence of matrix interference is present, due to the high concentration of target analytes. This sample required a 10X dilution.

In analytical batches 105278 and 105384 the method blank for preparation batch MB 580-105275/1-A contained #2 Diesel (C12-C24) at a level that was above the method detection limit but below the reporting limit. The values should be considered as an estimate, and have been flagged “J”. The associated sample results have been flagged “B”.

No other analytical or quality issues were noted.

General Chemistry
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
Y	The chromatographic response resembles a typical fuel pattern.
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31095-1

Client Sample ID: B-12-6-45
Date Collected: 01/31/12 11:45
Date Received: 02/06/12 10:40

Lab Sample ID: 580-31095-1
Matrix: Solid
Percent Solids: 73.4

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		22	5.5	ug/Kg	☼	02/10/12 14:07	02/13/12 22:12	1
Toluene	ND		55	14	ug/Kg	☼	02/10/12 14:07	02/13/12 22:12	1
Ethylbenzene	ND		55	14	ug/Kg	☼	02/10/12 14:07	02/13/12 22:12	1
m-Xylene & p-Xylene	ND		55	14	ug/Kg	☼	02/10/12 14:07	02/13/12 22:12	1
o-Xylene	ND		55	14	ug/Kg	☼	02/10/12 14:07	02/13/12 22:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*99*		*80 - 120*	*02/10/12 14:07*	*02/13/12 22:12*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*	*02/10/12 14:07*	*02/13/12 22:12*	*1*
Ethylbenzene-d10	*104*		*70 - 120*	*02/10/12 14:07*	*02/13/12 22:12*	*1*
4-Bromofluorobenzene (Surr)	*105*		*70 - 120*	*02/10/12 14:07*	*02/13/12 22:12*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		5.5	0.69	mg/Kg	☼	02/10/12 14:07	02/13/12 22:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*50 - 150*	*02/10/12 14:07*	*02/13/12 22:12*	*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)	**12**	**J B**	32	7.2	mg/Kg	☼	02/14/12 08:44	02/14/12 18:14	1
Motor Oil (>C24-C36)	ND		63	12	mg/Kg	☼	02/14/12 08:44	02/14/12 18:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*102*		*50 - 150*	*02/14/12 08:44*	*02/14/12 18:14*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**73**		0.10	0.10	%			02/15/12 09:48	1
Percent Moisture	**27**		0.10	0.10	%			02/15/12 09:48	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31095-1

Client Sample ID: B-12-7-24
Date Collected: 01/31/12 13:50
Date Received: 02/06/12 10:40

Lab Sample ID: 580-31095-5
Matrix: Solid
Percent Solids: 75.7

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		18	4.5	ug/Kg	☼	02/10/12 14:07	02/13/12 23:18	1
Toluene	ND		45	11	ug/Kg	☼	02/10/12 14:07	02/13/12 23:18	1
Ethylbenzene	ND		45	11	ug/Kg	☼	02/10/12 14:07	02/13/12 23:18	1
m-Xylene & p-Xylene	ND		45	11	ug/Kg	☼	02/10/12 14:07	02/13/12 23:18	1
o-Xylene	ND		45	11	ug/Kg	☼	02/10/12 14:07	02/13/12 23:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*	*02/10/12 14:07*	*02/13/12 23:18*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*02/10/12 14:07*	*02/13/12 23:18*	*1*
Ethylbenzene-d10	*102*		*70 - 120*	*02/10/12 14:07*	*02/13/12 23:18*	*1*
4-Bromofluorobenzene (Surr)	*103*		*70 - 120*	*02/10/12 14:07*	*02/13/12 23:18*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**25**		4.5	0.57	mg/Kg	☼	02/10/12 14:07	02/13/12 23:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*50 - 150*	*02/10/12 14:07*	*02/13/12 23:18*	*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)	**470**	**B Y**	31	7.0	mg/Kg	☼	02/14/12 08:44	02/14/12 18:39	1
Motor Oil (>C24-C36)	**530**	**Y**	61	11	mg/Kg	☼	02/14/12 08:44	02/14/12 18:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*98*		*50 - 150*	*02/14/12 08:44*	*02/14/12 18:39*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**76**		0.10	0.10	%			02/15/12 09:48	1
Percent Moisture	**24**		0.10	0.10	%			02/15/12 09:48	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31095-1

Client Sample ID: B-12-8-37
Date Collected: 02/01/12 10:10
Date Received: 02/06/12 10:40

Lab Sample ID: 580-31095-8
Matrix: Solid
Percent Solids: 74.6

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		20	4.9	ug/Kg	☼	02/10/12 14:07	02/14/12 00:23	1
Toluene	ND		49	12	ug/Kg	☼	02/10/12 14:07	02/14/12 00:23	1
Ethylbenzene	ND		49	12	ug/Kg	☼	02/10/12 14:07	02/14/12 00:23	1
m-Xylene & p-Xylene	ND		49	12	ug/Kg	☼	02/10/12 14:07	02/14/12 00:23	1
o-Xylene	ND		49	12	ug/Kg	☼	02/10/12 14:07	02/14/12 00:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*	*02/10/12 14:07*	*02/14/12 00:23*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*02/10/12 14:07*	*02/14/12 00:23*	*1*
Ethylbenzene-d10	*102*		*70 - 120*	*02/10/12 14:07*	*02/14/12 00:23*	*1*
4-Bromofluorobenzene (Surr)	*103*		*70 - 120*	*02/10/12 14:07*	*02/14/12 00:23*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**1.9**	**J**	4.9	0.61	mg/Kg	☼	02/10/12 14:07	02/14/12 00:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*50 - 150*	*02/10/12 14:07*	*02/14/12 00:23*	*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)	**340**	**B Y**	33	7.5	mg/Kg	☼	02/14/12 08:44	02/14/12 19:04	1
Motor Oil (>C24-C36)	**1700**	**Y**	66	12	mg/Kg	☼	02/14/12 08:44	02/14/12 19:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*103*		*50 - 150*	*02/14/12 08:44*	*02/14/12 19:04*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**75**		0.10	0.10	%			02/15/12 09:48	1
Percent Moisture	**25**		0.10	0.10	%			02/15/12 09:48	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31095-1

Client Sample ID: B-12-9-40
Date Collected: 02/01/12 12:30
Date Received: 02/06/12 10:40

Lab Sample ID: 580-31095-9
Matrix: Solid
Percent Solids: 79.1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		20	4.9	ug/Kg	☼	02/10/12 14:07	02/14/12 00:45	1
Toluene	ND		49	12	ug/Kg	☼	02/10/12 14:07	02/14/12 00:45	1
Ethylbenzene	ND		49	12	ug/Kg	☼	02/10/12 14:07	02/14/12 00:45	1
m-Xylene & p-Xylene	ND		49	12	ug/Kg	☼	02/10/12 14:07	02/14/12 00:45	1
o-Xylene	ND		49	12	ug/Kg	☼	02/10/12 14:07	02/14/12 00:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*99*		*80 - 120*	*02/10/12 14:07*	*02/14/12 00:45*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*02/10/12 14:07*	*02/14/12 00:45*	*1*
Ethylbenzene-d10	*103*		*70 - 120*	*02/10/12 14:07*	*02/14/12 00:45*	*1*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*	*02/10/12 14:07*	*02/14/12 00:45*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		4.9	0.62	mg/Kg	☼	02/10/12 14:07	02/14/12 00:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*50 - 150*	*02/10/12 14:07*	*02/14/12 00:45*	*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)	**12**	**J B**	30	6.8	mg/Kg	☼	02/14/12 08:44	02/14/12 19:28	1
Motor Oil (>C24-C36)	ND		59	11	mg/Kg	☼	02/14/12 08:44	02/14/12 19:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*108*		*50 - 150*	*02/14/12 08:44*	*02/14/12 19:28*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**79**		0.10	0.10	%			02/15/12 09:48	1
Percent Moisture	**21**		0.10	0.10	%			02/15/12 09:48	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31095-1

Client Sample ID: B-12-10-40
Date Collected: 02/01/12 15:45
Date Received: 02/06/12 10:40

Lab Sample ID: 580-31095-10
Matrix: Solid
Percent Solids: 75.1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		19	4.7	ug/Kg	☼	02/10/12 14:07	02/14/12 01:07	1
Toluene	ND		47	12	ug/Kg	☼	02/10/12 14:07	02/14/12 01:07	1
Ethylbenzene	ND		47	12	ug/Kg	☼	02/10/12 14:07	02/14/12 01:07	1
m-Xylene & p-Xylene	ND		47	12	ug/Kg	☼	02/10/12 14:07	02/14/12 01:07	1
o-Xylene	ND		47	12	ug/Kg	☼	02/10/12 14:07	02/14/12 01:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*	*02/10/12 14:07*	*02/14/12 01:07*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*02/10/12 14:07*	*02/14/12 01:07*	*1*
Ethylbenzene-d10	*103*		*70 - 120*	*02/10/12 14:07*	*02/14/12 01:07*	*1*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*	*02/10/12 14:07*	*02/14/12 01:07*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		4.7	0.59	mg/Kg	☼	02/10/12 14:07	02/14/12 01:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*50 - 150*	*02/10/12 14:07*	*02/14/12 01:07*	*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)	**14**	**J B**	30	6.9	mg/Kg	☼	02/14/12 08:44	02/14/12 19:54	1
Motor Oil (>C24-C36)	ND		61	11	mg/Kg	☼	02/14/12 08:44	02/14/12 19:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*105*		*50 - 150*	*02/14/12 08:44*	*02/14/12 19:54*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**75**		0.10	0.10	%			02/15/12 09:48	1
Percent Moisture	**25**		0.10	0.10	%			02/15/12 09:48	1

Client Sample ID: B-12-11-35

Date Collected: 02/02/12 10:40
Date Received: 02/06/12 10:40

Lab Sample ID: 580-31095-13

Matrix: Solid
Percent Solids: 89.4

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**140**	**J**	400	99	ug/Kg	☼	02/10/12 14:07	02/14/12 04:24	25
Toluene	ND		990	250	ug/Kg	☼	02/10/12 14:07	02/14/12 04:24	25
Ethylbenzene	ND		990	250	ug/Kg	☼	02/10/12 14:07	02/14/12 04:24	25
m-Xylene & p-Xylene	**900**	**J**	990	250	ug/Kg	☼	02/10/12 14:07	02/14/12 04:24	25
o-Xylene	ND		990	250	ug/Kg	☼	02/10/12 14:07	02/14/12 04:24	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*	*02/10/12 14:07*	*02/14/12 04:24*	*25*
Toluene-d8 (Surr)	*101*		*80 - 120*	*02/10/12 14:07*	*02/14/12 04:24*	*25*
Ethylbenzene-d10	*102*		*70 - 120*	*02/10/12 14:07*	*02/14/12 04:24*	*25*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*	*02/10/12 14:07*	*02/14/12 04:24*	*25*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**1100**		99	12	mg/Kg	☼	02/10/12 14:07	02/14/12 04:24	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*50 - 150*	*02/10/12 14:07*	*02/14/12 04:24*	*25*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**52000**	**B Y**	270	60	mg/Kg	☼	02/14/12 08:44	02/15/12 11:52	10
Motor Oil (>C24-C36)	**61000**	**Y**	530	97	mg/Kg	☼	02/14/12 08:44	02/15/12 11:52	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*0*	*X*	*50 - 150*	*02/14/12 08:44*	*02/15/12 11:52*	*10*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**89**		0.10	0.10	%			02/15/12 09:48	1
Percent Moisture	**11**		0.10	0.10	%			02/15/12 09:48	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31095-1

Client Sample ID: Trip Blank
Date Collected: 01/31/12 00:00
Date Received: 02/06/12 10:40

Lab Sample ID: 580-31095-16
Matrix: Solid

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		16	4.0	ug/Kg		02/10/12 14:07	02/13/12 19:39	1
Toluene	ND		40	10	ug/Kg		02/10/12 14:07	02/13/12 19:39	1
Ethylbenzene	ND		40	10	ug/Kg		02/10/12 14:07	02/13/12 19:39	1
m-Xylene & p-Xylene	ND		40	10	ug/Kg		02/10/12 14:07	02/13/12 19:39	1
o-Xylene	ND		40	10	ug/Kg		02/10/12 14:07	02/13/12 19:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*	*02/10/12 14:07*	*02/13/12 19:39*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*02/10/12 14:07*	*02/13/12 19:39*	*1*
Ethylbenzene-d10	*103*		*70 - 120*	*02/10/12 14:07*	*02/13/12 19:39*	*1*
4-Bromofluorobenzene (Surr)	*103*		*70 - 120*	*02/10/12 14:07*	*02/13/12 19:39*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		4.0	0.50	mg/Kg		02/10/12 14:07	02/13/12 19:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*50 - 150*	*02/10/12 14:07*	*02/13/12 19:39*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-105127/1-A
Matrix: Solid
Analysis Batch: 105242

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105127

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		16	4.0	ug/Kg		02/10/12 14:07	02/13/12 17:49	1
Toluene	ND		40	10	ug/Kg		02/10/12 14:07	02/13/12 17:49	1
Ethylbenzene	ND		40	10	ug/Kg		02/10/12 14:07	02/13/12 17:49	1
m-Xylene & p-Xylene	ND		40	10	ug/Kg		02/10/12 14:07	02/13/12 17:49	1
o-Xylene	ND		40	10	ug/Kg		02/10/12 14:07	02/13/12 17:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*98*		*80 - 120*	*02/10/12 14:07*	*02/13/12 17:49*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*	*02/10/12 14:07*	*02/13/12 17:49*	*1*
Ethylbenzene-d10	*102*		*70 - 120*	*02/10/12 14:07*	*02/13/12 17:49*	*1*
Trifluorotoluene (Surr)	*104*		*65 - 140*	*02/10/12 14:07*	*02/13/12 17:49*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 120*	*02/10/12 14:07*	*02/13/12 17:49*	*1*

Lab Sample ID: LCS 580-105127/4-A
Matrix: Solid
Analysis Batch: 105242

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105127

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	800	844		ug/Kg		106	75 - 125
Toluene	800	832		ug/Kg		104	70 - 125
Ethylbenzene	800	808		ug/Kg		101	75 - 125
m-Xylene & p-Xylene	1600	1670		ug/Kg		105	80 - 125
o-Xylene	800	832		ug/Kg		104	75 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Fluorobenzene (Surr)	*98*		*80 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*
Ethylbenzene-d10	*104*		*70 - 120*
Trifluorotoluene (Surr)	*101*		*65 - 140*
4-Bromofluorobenzene (Surr)	*103*		*70 - 120*

Lab Sample ID: LCSD 580-105127/5-A
Matrix: Solid
Analysis Batch: 105242

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 105127

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	800	860		ug/Kg		108	75 - 125	2	30
Toluene	800	852		ug/Kg		107	70 - 125	2	30
Ethylbenzene	800	840		ug/Kg		105	75 - 125	4	30
m-Xylene & p-Xylene	1600	1690		ug/Kg		106	80 - 125	1	30
o-Xylene	800	848		ug/Kg		106	75 - 125	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Fluorobenzene (Surr)	*98*		*80 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*
Ethylbenzene-d10	*103*		*70 - 120*
Trifluorotoluene (Surr)	*103*		*65 - 140*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-31095-5 MS
Matrix: Solid
Analysis Batch: 105242

Client Sample ID: B-12-7-24
Prep Type: Total/NA
Prep Batch: 105127

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		907	1000		ug/Kg	☼	111	75 - 125
Toluene	ND		907	968		ug/Kg	☼	107	70 - 125
Ethylbenzene	ND		907	968		ug/Kg	☼	107	75 - 125
m-Xylene & p-Xylene	ND		1810	1960		ug/Kg	☼	108	80 - 125
o-Xylene	ND		907	977		ug/Kg	☼	108	75 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Fluorobenzene (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*102*		*80 - 120*
Ethylbenzene-d10	*103*		*70 - 120*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*

Lab Sample ID: 580-31095-5 MSD
Matrix: Solid
Analysis Batch: 105242

Client Sample ID: B-12-7-24
Prep Type: Total/NA
Prep Batch: 105127

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		907	990		ug/Kg	☼	109	75 - 125	1	30
Toluene	ND		907	959		ug/Kg	☼	106	70 - 125	1	30
Ethylbenzene	ND		907	954		ug/Kg	☼	105	75 - 125	1	30
m-Xylene & p-Xylene	ND		1810	1930		ug/Kg	☼	106	80 - 125	2	30
o-Xylene	ND		907	968		ug/Kg	☼	107	75 - 125	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Fluorobenzene (Surr)	*98*		*80 - 120*
Toluene-d8 (Surr)	*100*		*80 - 120*
Ethylbenzene-d10	*103*		*70 - 120*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-105127/1-A
Matrix: Solid
Analysis Batch: 105240

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105127

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		4.0	0.50	mg/Kg		02/10/12 14:07	02/13/12 17:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*50 - 150*	*02/10/12 14:07*	*02/13/12 17:49*	*1*
Trifluorotoluene (Surr)	*109*		*50 - 150*	*02/10/12 14:07*	*02/13/12 17:49*	*1*

Lab Sample ID: LCS 580-105127/2-A
Matrix: Solid
Analysis Batch: 105240

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105127

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	40.0	36.8		mg/Kg		92	68 - 120

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

Lab Sample ID: LCS 580-105127/2-A
Matrix: Solid
Analysis Batch: 105240

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105127

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		50 - 150
Trifluorotoluene (Surr)	100		50 - 150

Lab Sample ID: LCSD 580-105127/3-A
Matrix: Solid
Analysis Batch: 105240

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 105127

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline			40.0	37.3		mg/Kg		93	68 - 120	1	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		50 - 150
Trifluorotoluene (Surr)	103		50 - 150

Lab Sample ID: 580-31095-1 MS
Matrix: Solid
Analysis Batch: 105240

Client Sample ID: B-12-6-45
Prep Type: Total/NA
Prep Batch: 105127

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline	ND		64.0	63.2		mg/Kg	☼	99	50 - 150		

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	105		50 - 150

Lab Sample ID: 580-31095-1 MSD
Matrix: Solid
Analysis Batch: 105240

Client Sample ID: B-12-6-45
Prep Type: Total/NA
Prep Batch: 105127

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	ND		64.0	60.7		mg/Kg	☼	95	50 - 150	4	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		50 - 150

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

Lab Sample ID: MB 580-105275/1-A
Matrix: Solid
Analysis Batch: 105278

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105275

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	7.01	J	25	5.7	mg/Kg		02/14/12 08:44	02/14/12 16:10	1
Motor Oil (>C24-C36)	ND		50	9.1	mg/Kg		02/14/12 08:44	02/14/12 16:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	103		50 - 150	02/14/12 08:44	02/14/12 16:10	1

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

Lab Sample ID: LCS 580-105275/2-A
Matrix: Solid
Analysis Batch: 105278

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105275

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			500	546		mg/Kg		109	70 - 125		
Motor Oil (>C24-C36)			500	513		mg/Kg		103	64 - 127		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*92*		*50 - 150*

Lab Chronicle

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31095-1

Client Sample ID: B-12-6-45

Lab Sample ID: 580-31095-1

Date Collected: 01/31/12 11:45
Matrix: Solid
Date Received: 02/06/12 10:40
Percent Solids: 73.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			105127	02/10/12 14:07	JMB	TAL SEA
Total/NA	Analysis	8260B		1	105242	02/13/12 22:12	JMB	TAL SEA
Total/NA	Prep	5035			105127	02/10/12 14:07	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	105240	02/13/12 22:12	JMB	TAL SEA
Total/NA	Prep	3550B			105275	02/14/12 08:44	RD	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	105278	02/14/12 18:14	KKW	TAL SEA
Total/NA	Analysis	D 2216		1	105394	02/15/12 09:48	RD	TAL SEA

Client Sample ID: B-12-7-24

Lab Sample ID: 580-31095-5

Date Collected: 01/31/12 13:50
Matrix: Solid
Date Received: 02/06/12 10:40
Percent Solids: 75.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			105127	02/10/12 14:07	JMB	TAL SEA
Total/NA	Analysis	8260B		1	105242	02/13/12 23:18	JMB	TAL SEA
Total/NA	Prep	5035			105127	02/10/12 14:07	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	105240	02/13/12 23:18	JMB	TAL SEA
Total/NA	Prep	3550B			105275	02/14/12 08:44	RD	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	105278	02/14/12 18:39	KKW	TAL SEA
Total/NA	Analysis	D 2216		1	105394	02/15/12 09:48	RD	TAL SEA

Client Sample ID: B-12-8-37

Lab Sample ID: 580-31095-8

Date Collected: 02/01/12 10:10
Matrix: Solid
Date Received: 02/06/12 10:40
Percent Solids: 74.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			105127	02/10/12 14:07	JMB	TAL SEA
Total/NA	Analysis	8260B		1	105242	02/14/12 00:23	JMB	TAL SEA
Total/NA	Prep	5035			105127	02/10/12 14:07	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	105240	02/14/12 00:23	JMB	TAL SEA
Total/NA	Prep	3550B			105275	02/14/12 08:44	RD	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	105278	02/14/12 19:04	KKW	TAL SEA
Total/NA	Analysis	D 2216		1	105394	02/15/12 09:48	RD	TAL SEA

Client Sample ID: B-12-9-40

Lab Sample ID: 580-31095-9

Date Collected: 02/01/12 12:30
Matrix: Solid
Date Received: 02/06/12 10:40
Percent Solids: 79.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			105127	02/10/12 14:07	JMB	TAL SEA
Total/NA	Analysis	8260B		1	105242	02/14/12 00:45	JMB	TAL SEA
Total/NA	Prep	5035			105127	02/10/12 14:07	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	105240	02/14/12 00:45	JMB	TAL SEA
Total/NA	Prep	3550B			105275	02/14/12 08:44	RD	TAL SEA

Lab Chronicle

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31095-1

Client Sample ID: B-12-9-40

Lab Sample ID: 580-31095-9

Date Collected: 02/01/12 12:30
Matrix: Solid
Date Received: 02/06/12 10:40
Percent Solids: 79.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Dx		1	105278	02/14/12 19:28	KKW	TAL SEA
Total/NA	Analysis	D 2216		1	105394	02/15/12 09:48	RD	TAL SEA

Client Sample ID: B-12-10-40

Lab Sample ID: 580-31095-10

Date Collected: 02/01/12 15:45
Matrix: Solid
Date Received: 02/06/12 10:40
Percent Solids: 75.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			105127	02/10/12 14:07	JMB	TAL SEA
Total/NA	Analysis	8260B		1	105242	02/14/12 01:07	JMB	TAL SEA
Total/NA	Prep	5035			105127	02/10/12 14:07	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	105240	02/14/12 01:07	JMB	TAL SEA
Total/NA	Prep	3550B			105275	02/14/12 08:44	RD	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	105278	02/14/12 19:54	KKW	TAL SEA
Total/NA	Analysis	D 2216		1	105394	02/15/12 09:48	RD	TAL SEA

Client Sample ID: B-12-11-35

Lab Sample ID: 580-31095-13

Date Collected: 02/02/12 10:40
Matrix: Solid
Date Received: 02/06/12 10:40
Percent Solids: 89.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	DL		105127	02/10/12 14:07	JMB	TAL SEA
Total/NA	Analysis	8260B	DL	25	105242	02/14/12 04:24	JMB	TAL SEA
Total/NA	Prep	5035	DL		105127	02/10/12 14:07	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx	DL	25	105240	02/14/12 04:24	JMB	TAL SEA
Total/NA	Prep	3550B	DL		105275	02/14/12 08:44	RD	TAL SEA
Total/NA	Analysis	NWTPH-Dx	DL	10	105384	02/15/12 11:52	KKW	TAL SEA
Total/NA	Analysis	D 2216		1	105394	02/15/12 09:48	RD	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-31095-16

Date Collected: 01/31/12 00:00
Matrix: Solid
Date Received: 02/06/12 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			105127	02/10/12 14:07	JMB	TAL SEA
Total/NA	Analysis	8260B		1	105242	02/13/12 19:39	JMB	TAL SEA
Total/NA	Prep	5035			105127	02/10/12 14:07	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	105240	02/13/12 19:39	JMB	TAL SEA

Laboratory References:

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

Certification Summary

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31095-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Seattle	Alaska	Alaska UST	10	UST-022
TestAmerica Seattle	Alaska	TA-Port Heiden Mobile Lab	10	UST-093
TestAmerica Seattle	California	NELAC	9	1115CA
TestAmerica Seattle	Florida	NELAC	4	E871074
TestAmerica Seattle	L-A-B	DoD ELAP		L2236
TestAmerica Seattle	L-A-B	ISO/IEC 17025		L2236
TestAmerica Seattle	Louisiana	NELAC	6	05016
TestAmerica Seattle	Montana	MT DEQ UST	8	N/A
TestAmerica Seattle	Oregon	NELAC	10	WA100007
TestAmerica Seattle	USDA	USDA		P330-11-00222
TestAmerica Seattle	Washington	State Program	10	C553

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31095-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-31095-1	B-12-6-45	Solid	01/31/12 11:45	02/06/12 10:40
580-31095-5	B-12-7-24	Solid	01/31/12 13:50	02/06/12 10:40
580-31095-8	B-12-8-37	Solid	02/01/12 10:10	02/06/12 10:40
580-31095-9	B-12-9-40	Solid	02/01/12 12:30	02/06/12 10:40
580-31095-10	B-12-10-40	Solid	02/01/12 15:45	02/06/12 10:40
580-31095-13	B-12-11-35	Solid	02/02/12 10:40	02/06/12 10:40
580-31095-16	Trip Blank	Solid	01/31/12 00:00	02/06/12 10:40

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

☐ Rush
☐ Short Hold

Chain of Custody Record

Client: Kennedy/Jenks
Client Contact: Joe Sawdey / Ty Schreiner
Date: 2-3-12
Chain of Custody Number: 12795

Address: 32001 32nd Ave S, Suite 100
Telephone Number (Area Code)/Fax Number: 253 835 6900
Lab Number: 31095
Page 1 of 2

City: Federal Way | State: WA | Zip Code: 98001
Sampler: JRS
Lab Contact: K Allen
Analysis (Attach list if more space is needed)

Project Name and Location (State): BNSF Wishram, WA
Billing Contact

Contract/Purchase Order/Quote No.: 1196001

Special Instructions/ Conditions of Receipt

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil		Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	MeOH	NWTPH-Dx	NWTPH-Gx	8260B		Special Instructions
B-12-6-45	1/31/12	1145				X		X						X	X	X	X	1	per client hold
B-12-6-60	1/31/12	1300				X		X						X	X	X	X	2	
B-12-7-13	1/31/12	1330																3	
B-12-7-28	1/31/12	1420																4	
B-12-7-24	1/31/12	1350																5	
B-12-7-55	1/31/12	1545																6	
B-12-8-11	2/1/12	0820																7	
B-12-8-37	2/1/12	1010																8	
B-12-9-40	2/1/12	1230																9	
B-12-10-40	2/1/12	1545																10	
B-12-10-60	2/1/12	1640																11	
B-12-11-55	2/2/12	1200																12	

Cooler: ☐ Yes ☐ No Cooler Temp: ______

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☐ Other ______

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By Sign/Print: Joseph Sawdey	2-3-12	1500	1. Received By Sign/Print: Tom Blankinship / Blankinship	2/6/12	1040
2. Relinquished By Sign/Print			2. Received By Sign/Print		
3. Relinquished By Sign/Print			3. Received By Sign/Print		

Comments: Lg Blue/wh W/CS 4.3 2/6/12
wet/bubble to UPS Grnd AITB = 4.1/4.2

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

☐ Rush
☐ Short Hold

Chain of Custody Record

2/20/2012

Client	Client Contact	Date	Chain of Custody Number
Kennedy Jenks	Joe Sandberg / Ty Schreiner	2-3-12	12794
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 2 of 2**
32001 32nd Ave S, Suite 100	253-835-6400	31095	
City / State / Zip Code	**Sampler**	**Lab Contact**	
Federal Way / WA / 98001	JRS		
Project Name and Location (State)	**Billing Contact**		
BNSF Wishram, WA			
Contract/Purchase Order/Quote No.			
1196010			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Methanol	Analysis: NWTPH-Dx	NWTPH-Gx	8260B	Specific Gravity										Special Instructions/ Conditions of Receipt
B-12-11-35	2/2/12	1040				X	X						X	X	X	X										13	hold
B-12-11-11	2/2/12	0945				X	X						X	X	X	X										14	
B-12-Specific Gravity	2/2/12	1015				X	X										X									15	
Hard-TRIP BLANK	—	—				X									X	X										16	

Cooler	Possible Hazard Identification	Sample Disposal	(A fee may be assessed if samples are retained longer than 1 month)
☐ Yes ☐ No Cooler Temp:_____	☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months	

Turn Around Time Required (business days)
☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By Sign/Print: Joseph Sandberg	2-3-12	1500	1. Received By Sign/Print: Tom Blankinship / BKinship	2/6/12	1040
2. Relinquished By Sign/Print			2. Received By Sign/Print		
3. Relinquished By Sign/Print			3. Received By Sign/Print		

Comments Run Specific gravity on brown/black petroleum product coating the soil sample

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

Login Sample Receipt Checklist

Client: Kennedy/Jenks Consultants

Job Number: 580-31095-1

Login Number: 31095

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is 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 sample IDs on the containers 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	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 580-31073-1
Client Project/Site: BNSF Wishram Monitoring

For:
Kennedy/Jenks Consultants
32001-32nd Ave South, Suite 100
Federal Way, Washington 98001

Attn: Joseph Sawdey

Pamela R. Johnson

Authorized for release by:
2/20/2012 12:19:59 PM
Pam Johnson
Project Manager I
pamr.johnson@testamericainc.com

Designee for

Kristine Allen
Project Manager I
kristine.allen@testamericainc.com

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

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

Table of Contents

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31073-1

Job ID: 580-31073-1

Laboratory: TestAmerica Seattle

Narrative

Comments
No additional comments.

Receipt
The following samples B-12-12-23 (580-31073-1), B-12-12-12 (580-31073-2), 1DW-Composite (580-31073-3) and B-12-13-3D (580-31073-4) were received at the laboratory outside the required temperature criteria. The samples were kept in the client's refrigerator prior to delivery, but were received at the lab, without ice, at 10.8°C.

All other samples were received in good condition.

GC Semi VOA - Method NWTPH-Dx
In analytical batch 105494, the matrix duplicate %RPD for #2 Diesel (C10-C24) and Motor Oil (>C24-C36) ranges associated with preparation batch 105430 were outside the control limits due to matrix interference. This sample required a 10X dilution due to high target analytes.

In analytical batch 105494, the surrogate recovery for the following samples B-12-12-23 (580-31073-1), (580-31073-1DU), B-12-12-12 (580-31073-2) from preparation batch 105430 were outside control limits. Evidence of matrix interference is present, as these samples required dilutions due to high target analytes; therefore, re-extraction and/or re-analysis was not performed.

In analytical batch 105494, the results in the #2 Diesel (C10-C24) and Motor Oil (>C24-C36) ranges for samples B-12-12-23 (580-31073-1), 1DW-Composite (580-31073-3), and B-12-13-3D (580-31073-4) are due to a complex mixture of what most closely resembles weathered diesel fuel, and/or a mineral/transformer oil range product, and motor oil.

In analytical batch 105494, the results in the #2 Diesel (C10-C24) and Motor Oil (>C24-C36) ranges for sample B-12-12-12 (580-31073-2) are due to weathered diesel fuel.

The affected analyte ranges are qualified "Y" and have been reported.

In analytical batch 105494, the method blank for preparation batch 105430 contained #2 Diesel (C10-C24) at levels that were above the method detection limit but below the reporting limit. The values should be considered as estimates, and have been flagged “J”. The associated sample results have been flagged “B”.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

Definitions/Glossary

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31073-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
Y	The chromatographic response resembles a typical fuel pattern.
X	Surrogate is outside control limits
F	Duplicate RPD exceeds the control limit
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31073-1

Client Sample ID: B-12-12-23
Date Collected: 02/04/12 10:15
Date Received: 02/06/12 12:00

Lab Sample ID: 580-31073-1
Matrix: Solid
Percent Solids: 89.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	42000	Y B	270	61	mg/Kg	☼	02/15/12 13:01	02/16/12 15:11	10
Motor Oil (>C24-C36)	52000	Y	530	97	mg/Kg	☼	02/15/12 13:01	02/16/12 15:11	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*274*	*X*	*50 - 150*	*02/15/12 13:01*	*02/16/12 15:11*	*10*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89		0.10	0.10	%			02/10/12 14:25	1
Percent Moisture	11		0.10	0.10	%			02/10/12 14:25	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31073-1

Client Sample ID: B-12-12-12
Date Collected: 02/04/12 10:00
Date Received: 02/06/12 12:00

Lab Sample ID: 580-31073-2
Matrix: Solid
Percent Solids: 79.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil (>C24-C36)	1700	Y	62	11	mg/Kg	☼	02/15/12 13:01	02/16/12 12:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	30000	B Y	150	35	mg/Kg	☼	02/15/12 13:01	02/16/12 16:01	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*329*	*X*	*50 - 150*	*02/15/12 13:01*	*02/16/12 16:01*	*5*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80		0.10	0.10	%			02/10/12 14:25	1
Percent Moisture	20		0.10	0.10	%			02/10/12 14:25	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31073-1

Client Sample ID: 1DW-Composite
Date Collected: 02/04/12 13:00
Date Received: 02/06/12 12:00

Lab Sample ID: 580-31073-3
Matrix: Solid
Percent Solids: 84.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	3600	B Y	28	6.5	mg/Kg	☼	02/15/12 13:01	02/16/12 12:42	1
Motor Oil (>C24-C36)	3200	Y	57	10	mg/Kg	☼	02/15/12 13:01	02/16/12 12:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*114*		*50 - 150*	*02/15/12 13:01*	*02/16/12 12:42*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.2	J	2.6	0.28	mg/Kg	☼	02/13/12 16:27	02/14/12 23:27	1
Barium	78		0.44	0.087	mg/Kg	☼	02/13/12 16:27	02/14/12 23:27	1
Cadmium	0.50		0.44	0.17	mg/Kg	☼	02/13/12 16:27	02/14/12 23:27	1
Chromium	12		1.1	0.34	mg/Kg	☼	02/13/12 16:27	02/14/12 23:27	1
Lead	4.6		1.3	0.13	mg/Kg	☼	02/13/12 16:27	02/14/12 23:27	1
Selenium	ND		4.4	0.17	mg/Kg	☼	02/13/12 16:27	02/14/12 23:27	1
Silver	ND		0.87	0.49	mg/Kg	☼	02/13/12 16:27	02/14/12 23:27	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0047	J	0.013	0.0041	mg/Kg	☼	02/10/12 10:35	02/10/12 12:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Extractable Organic	ND		20	10	mg/Kg	☼		02/12/12 09:00	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85		0.10	0.10	%			02/10/12 14:25	1
Percent Moisture	15		0.10	0.10	%			02/10/12 14:25	1

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31073-1

Client Sample ID: B-12-13-3D
Date Collected: 02/04/12 12:00
Date Received: 02/06/12 12:00

Lab Sample ID: 580-31073-4
Matrix: Solid
Percent Solids: 73.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	7200	B Y	33	7.4	mg/Kg	☼	02/15/12 13:01	02/16/12 13:06	1
Motor Oil (>C24-C36)	10000	Y	65	12	mg/Kg	☼	02/15/12 13:01	02/16/12 13:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*108*		*50 - 150*	*02/15/12 13:01*	*02/16/12 13:06*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	73		0.10	0.10	%			02/10/12 14:25	1
Percent Moisture	27		0.10	0.10	%			02/10/12 14:25	1

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

Lab Sample ID: MB 580-105430/1-B
Matrix: Solid
Analysis Batch: 105494

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105430

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	10.2	J	25	5.7	mg/Kg		02/15/12 13:01	02/16/12 10:38	1
Motor Oil (>C24-C36)	ND		50	9.1	mg/Kg		02/15/12 13:01	02/16/12 10:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*86*		*50 - 150*	*02/15/12 13:01*	*02/16/12 10:38*	*1*

Lab Sample ID: LCS 580-105430/2-B
Matrix: Solid
Analysis Batch: 105494

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105430

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			500	494		mg/Kg		99	64 - 127		
Motor Oil (>C24-C36)			500	500		mg/Kg		100	70 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*85*		*50 - 150*

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

Lab Sample ID: 580-31073-1 DU
Matrix: Solid
Analysis Batch: 105494

Client Sample ID: B-12-12-23
Prep Type: Total/NA
Prep Batch: 105430

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
#2 Diesel (C10-C24) - DL	42000	Y B		28400	F	mg/Kg	☼			40	35
Motor Oil (>C24-C36) - DL	52000	Y		34500	F	mg/Kg	☼			40	35

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
o-Terphenyl - DL	*204*	*X*	*50 - 150*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 580-105248/17-A
Matrix: Solid
Analysis Batch: 105371

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105248

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		3.0	0.32	mg/Kg		02/13/12 16:27	02/14/12 21:13	1
Barium	ND		0.50	0.10	mg/Kg		02/13/12 16:27	02/14/12 21:13	1
Cadmium	ND		0.50	0.20	mg/Kg		02/13/12 16:27	02/14/12 21:13	1
Chromium	ND		1.3	0.39	mg/Kg		02/13/12 16:27	02/14/12 21:13	1
Lead	ND		1.5	0.15	mg/Kg		02/13/12 16:27	02/14/12 21:13	1
Selenium	ND		5.0	0.20	mg/Kg		02/13/12 16:27	02/14/12 21:13	1
Silver	ND		1.0	0.56	mg/Kg		02/13/12 16:27	02/14/12 21:13	1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 580-105248/18-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 105371 — **Prep Batch: 105248**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	200	193		mg/Kg		97	80 - 120
Barium	200	197		mg/Kg		98	80 - 120
Cadmium	5.00	4.95		mg/Kg		99	80 - 120
Chromium	20.0	18.7		mg/Kg		94	80 - 120
Lead	50.0	49.6		mg/Kg		99	80 - 120
Selenium	200	192		mg/Kg		96	80 - 120
Silver	30.0	28.6		mg/Kg		95	75 - 120

Lab Sample ID: LCSD 580-105248/19-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 105371 — **Prep Batch: 105248**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	200	191		mg/Kg		96	80 - 120	1	20
Barium	200	196		mg/Kg		98	80 - 120	0	20
Cadmium	5.00	4.94		mg/Kg		99	80 - 120	0	20
Chromium	20.0	18.9		mg/Kg		95	80 - 120	1	20
Lead	50.0	49.4		mg/Kg		99	80 - 120	0	20
Selenium	200	189		mg/Kg		95	80 - 120	2	20
Silver	30.0	28.7		mg/Kg		96	75 - 120	0	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 580-105100/13-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 105116 — **Prep Batch: 105100**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.017	0.0053	mg/Kg		02/10/12 10:35	02/10/12 11:41	1

Lab Sample ID: LCS 580-105100/14-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 105116 — **Prep Batch: 105100**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.167	0.162		mg/Kg		97	80 - 120

Lab Sample ID: LCSD 580-105100/15-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 105116 — **Prep Batch: 105100**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.167	0.167		mg/Kg		100	80 - 120	3	20

Lab Sample ID: LCSSRM 580-105100/16-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 105116 — **Prep Batch: 105100**

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	16.3	19.7		mg/Kg		121	51.1 - 148.9

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31073-1

Method: 9023 - Organic Halides, Extractable (EOX)

Lab Sample ID: MB 680-228847/1
Matrix: Solid
Analysis Batch: 228847

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Extractable Organic	ND		20	10	mg/Kg			02/12/12 09:00	1

Lab Sample ID: LCS 680-228847/2
Matrix: Solid
Analysis Batch: 228847

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Halogens, Extractable Organic			49.2	34.2		mg/Kg		70	60 - 140		

Lab Sample ID: 580-31073-3 MS
Matrix: Solid
Analysis Batch: 228847

Client Sample ID: 1DW-Composite
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Halogens, Extractable Organic	ND		57.5	45.6		mg/Kg	☼	79	60 - 140		

Lab Sample ID: 580-31073-3 MSD
Matrix: Solid
Analysis Batch: 228847

Client Sample ID: 1DW-Composite
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Halogens, Extractable Organic	ND		52.1	55.8		mg/Kg	☼	107	60 - 140	20	50

Lab Chronicle

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31073-1

Client Sample ID: B-12-12-23

Lab Sample ID: 580-31073-1

Date Collected: 02/04/12 10:15
Matrix: Solid
Date Received: 02/06/12 12:00
Percent Solids: 89.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B	DL		105430	02/15/12 13:01	GH	TAL SEA
Total/NA	Analysis	NWTPH-Dx	DL	10	105494	02/16/12 15:11	EK	TAL SEA
Total/NA	Analysis	D 2216		1	105131	02/10/12 14:25	KKW	TAL SEA

Client Sample ID: B-12-12-12

Lab Sample ID: 580-31073-2

Date Collected: 02/04/12 10:00
Matrix: Solid
Date Received: 02/06/12 12:00
Percent Solids: 79.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B	DL		105430	02/15/12 13:01	GH	TAL SEA
Total/NA	Analysis	NWTPH-Dx	DL	5	105494	02/16/12 16:01	EK	TAL SEA
Total/NA	Prep	3550B			105430	02/15/12 13:01	GH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	105494	02/16/12 12:17	EK	TAL SEA
Total/NA	Analysis	D 2216		1	105131	02/10/12 14:25	KKW	TAL SEA

Client Sample ID: 1DW-Composite

Lab Sample ID: 580-31073-3

Date Collected: 02/04/12 13:00
Matrix: Solid
Date Received: 02/06/12 12:00
Percent Solids: 84.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			105430	02/15/12 13:01	GH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	105494	02/16/12 12:42	EK	TAL SEA
Total/NA	Prep	7471A			105100	02/10/12 10:35	PAB	TAL SEA
Total/NA	Analysis	7471A		1	105116	02/10/12 12:16	FCW	TAL SEA
Total/NA	Prep	3050B			105248	02/13/12 16:27	PAB	TAL SEA
Total/NA	Analysis	6010B		1	105371	02/14/12 23:27	SP	TAL SEA
Total/NA	Analysis	D 2216		1	105131	02/10/12 14:25	KKW	TAL SEA
Total/NA	Analysis	9023		1	228847	02/12/12 09:00	CN	TAL SAV

Client Sample ID: B-12-13-3D

Lab Sample ID: 580-31073-4

Date Collected: 02/04/12 12:00
Matrix: Solid
Date Received: 02/06/12 12:00
Percent Solids: 73.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			105430	02/15/12 13:01	GH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	105494	02/16/12 13:06	EK	TAL SEA
Total/NA	Analysis	D 2216		1	105131	02/10/12 14:25	KKW	TAL SEA

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

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

Certification Summary

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31073-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Seattle	Alaska	Alaska UST	10	UST-022
TestAmerica Seattle	Alaska	TA-Port Heiden Mobile Lab	10	UST-093
TestAmerica Seattle	California	NELAC	9	1115CA
TestAmerica Seattle	Florida	NELAC	4	E871074
TestAmerica Seattle	L-A-B	DoD ELAP		L2236
TestAmerica Seattle	L-A-B	ISO/IEC 17025		L2236
TestAmerica Seattle	Louisiana	NELAC	6	05016
TestAmerica Seattle	Montana	MT DEQ UST	8	N/A
TestAmerica Seattle	Oregon	NELAC	10	WA100007
TestAmerica Seattle	USDA	USDA		P330-11-00222
TestAmerica Seattle	Washington	State Program	10	C553
TestAmerica Savannah	A2LA	DoD ELAP		0399-01
TestAmerica Savannah	A2LA	ISO/IEC 17025		399.01
TestAmerica Savannah	Alabama	State Program	4	41450
TestAmerica Savannah	Arkansas	Arkansas DOH	6	N/A
TestAmerica Savannah	Arkansas	State Program	6	88-0692
TestAmerica Savannah	California	NELAC	9	3217CA
TestAmerica Savannah	Colorado	State Program	8	N/A
TestAmerica Savannah	Connecticut	State Program	1	PH-0161
TestAmerica Savannah	Delaware	State Program	3	N/A
TestAmerica Savannah	Florida	NELAC	4	E87052
TestAmerica Savannah	Georgia	Georgia EPD	4	N/A
TestAmerica Savannah	Georgia	State Program	4	803
TestAmerica Savannah	Guam	State Program	9	09-005r
TestAmerica Savannah	Hawaii	State Program	9	N/A
TestAmerica Savannah	Illinois	NELAC	5	200022
TestAmerica Savannah	Indiana	State Program	5	N/A
TestAmerica Savannah	Iowa	State Program	7	353
TestAmerica Savannah	Kentucky	Kentucky UST	4	18
TestAmerica Savannah	Kentucky	State Program	4	90084
TestAmerica Savannah	Louisiana	NELAC	6	30690
TestAmerica Savannah	Louisiana	NELAC	6	LA100015
TestAmerica Savannah	Maine	State Program	1	GA00006
TestAmerica Savannah	Maryland	State Program	3	250
TestAmerica Savannah	Massachusetts	State Program	1	M-GA006
TestAmerica Savannah	Michigan	State Program	5	9925
TestAmerica Savannah	Mississippi	State Program	4	N/A
TestAmerica Savannah	Montana	State Program	8	CERT0081
TestAmerica Savannah	Nebraska	State Program	7	TestAmerica-Savannah
TestAmerica Savannah	New Jersey	NELAC	2	GA769
TestAmerica Savannah	New Mexico	State Program	6	N/A
TestAmerica Savannah	New York	NELAC	2	10842
TestAmerica Savannah	North Carolina	North Carolina DENR	4	269
TestAmerica Savannah	North Carolina	North Carolina PHL	4	13701
TestAmerica Savannah	Oklahoma	State Program	6	9984
TestAmerica Savannah	Pennsylvania	NELAC	3	68-00474
TestAmerica Savannah	Puerto Rico	State Program	2	GA00006
TestAmerica Savannah	Rhode Island	State Program	1	LAO00244
TestAmerica Savannah	South Carolina	State Program	4	98001
TestAmerica Savannah	Tennessee	State Program	4	TN02961
TestAmerica Savannah	Texas	NELAC	6	T104704185-08-TX
TestAmerica Savannah	USDA	USDA		SAV 3-04
TestAmerica Savannah	Vermont	State Program	1	87052

Certification Summary

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31073-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Savannah	Virginia	NELAC	3	460161
TestAmerica Savannah	Virginia	State Program	3	302
TestAmerica Savannah	Washington	State Program	10	C1794
TestAmerica Savannah	West Virginia	West Virginia DEP	3	94
TestAmerica Savannah	West Virginia	West Virginia DHHR (DW)	3	9950C
TestAmerica Savannah	Wisconsin	State Program	5	999819810
TestAmerica Savannah	Wyoming	State Program	8	8TMS-Q

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: Kennedy/Jenks Consultants
Project/Site: BNSF Wishram Monitoring

TestAmerica Job ID: 580-31073-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-31073-1	B-12-12-23	Solid	02/04/12 10:15	02/06/12 12:00
580-31073-2	B-12-12-12	Solid	02/04/12 10:00	02/06/12 12:00
580-31073-3	1DW-Composite	Solid	02/04/12 13:00	02/06/12 12:00
580-31073-4	B-12-13-3D	Solid	02/04/12 12:00	02/06/12 12:00

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

☐ Rush

☐ Short Hold

Chain of Custody Record

2/20/2012

Client	Client Contact	Date	Chain of Custody Number
Kennedy Jenks	Joe Sawtay	2/6/12	13071
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page**
32001 32nd Ave S	253-835-6401	31073	1 of 1
City / **State** / **Zip Code**	**Sampler**	**Lab Contact**	
Federal Way / WA / 98001	JDS	K. Allen	
Project Name and Location (State)	**Billing Contact**		
BNSF Wishram			
Contract/Purchase Order/Quote No.			
117601D			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: NWTPH-Dx	RCRA Metals	Fax	Special Instructions/ Conditions of Receipt
B-12-12-23	2-4-12	1015				X	X						X			-1
B-12-12-12	2-4-12	1000											X			-2
IDW - Composite	2-4-12	1300											X	X	X	-3
B-12-13-3D	2-4-12	1200											X			-4

Cooler	Possible Hazard Identification	Sample Disposal	(A fee may be assessed if samples are retained longer than 1 month)
☐ Yes ☐ No Cooler Temp:_____	☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months	

Turn Around Time Required (business days)
☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☐ Other _____

QC Requirements (Specify)

	Relinquished By Sign/Print	Date	Time	Received By Sign/Print	Date	Time
1.	Joe Sawtay	2-6-12	1200	Tom Blankinship	2/6/12	1200
2.						
3.						

Comments

client drop box w/dividers no ice IR = 10.8/11.1

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

Login Sample Receipt Checklist

Client: Kennedy/Jenks Consultants

Job Number: 580-31073-1

Login Number: 31073
List Number: 1
Creator: Blankinship, Tom

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	client states samples were kept in refridgerator prior to delivery.
Cooler Temperature is acceptable.	False	10.8
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 sample IDs on the containers 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	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Kennedy/Jenks Consultants

Job Number: 580-31073-1

Login Number: 31073
List Number: 1
Creator: Barnett, Eddie T

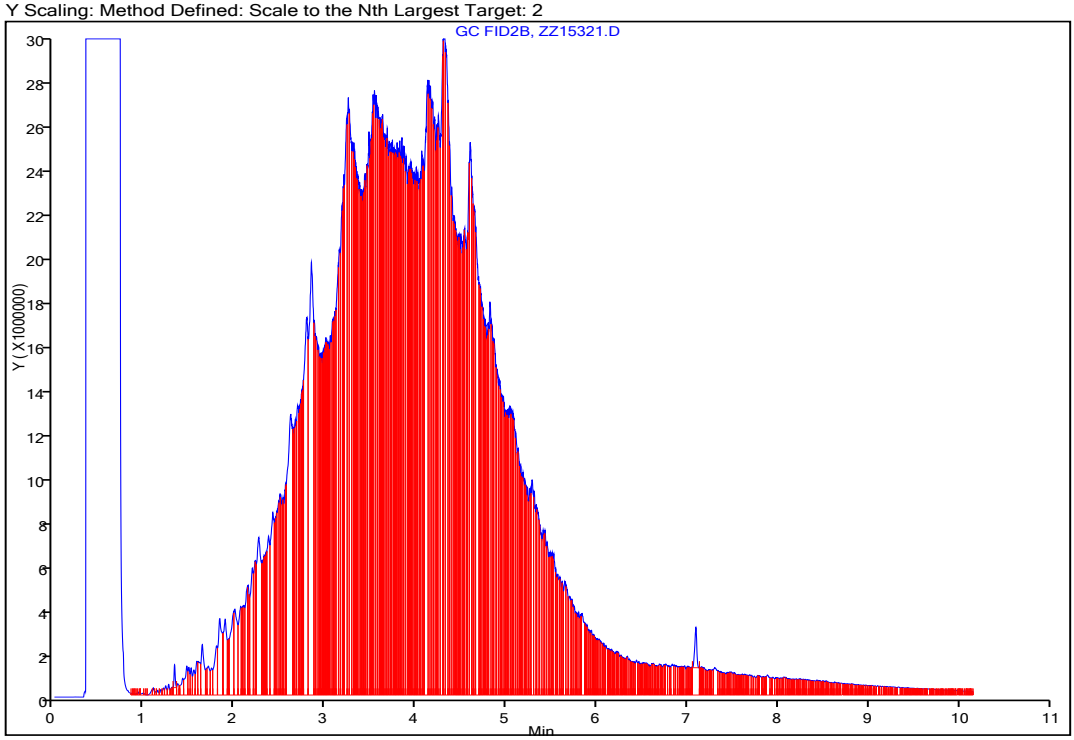
List Source: TestAmerica Savannah
List Creation: 02/10/12 10:28 AM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is 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?	N/A	
There are no discrepancies between the sample IDs on the containers 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	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix E

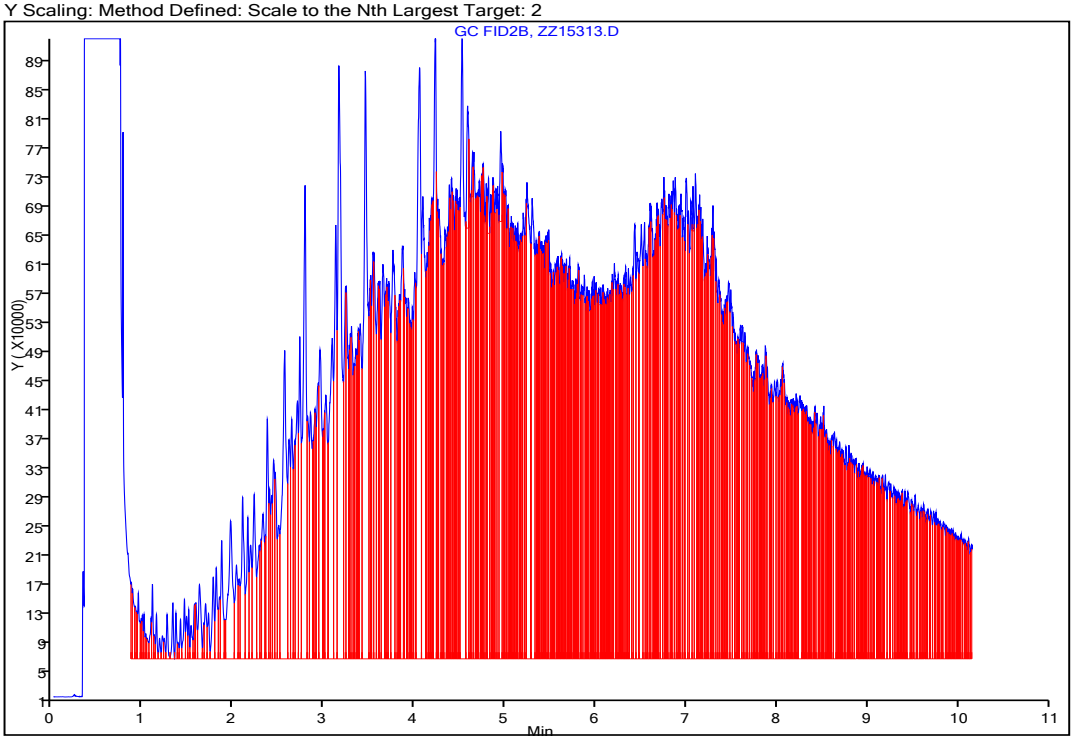
Chromatographs

Report Date: 25-Jan-2012 08:32:14 Chrom Revision: 1.2 13-Jul-2011 10:43:06
Data File: \\tacsvr5\ChromData\TAC017\20120124-21281.b\ZZ15321.D
Injection Date: 24-Jan-2012 16:23:11 Limit Group: NWTPH-DX Standard list
Client ID: B-12-3-13 Instrument ID: TAC017
Lims Batch ID: 104033 Lims Sample ID: 9
Operator ID: KKW Injection Vol: 1.00 ul
Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Smear Zone Hydrocarbon Chromatograph

Report Date: 24-Jan-2012 15:18:09 Chrom Revision: 1.2 13-Jul-2011 10:43:06
Data File: \\tacsvr5\ChromData\TAC017\20120124-21281.b\ZZ15313.D
Injection Date: 24-Jan-2012 14:55:48 Limit Group: NWTPH-DX Standard list
Client ID: B-12-4-40 Instrument ID: TAC017
Lims Batch ID: 104033 Lims Sample ID: 5
Operator ID: KKW Injection Vol: 1.00 ul
Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Saturated Zone Hydrocarbon Chromatograph

Kennedy/Jenks Consultants

Figure 8

Chromatographic signatures

Wishram, WA

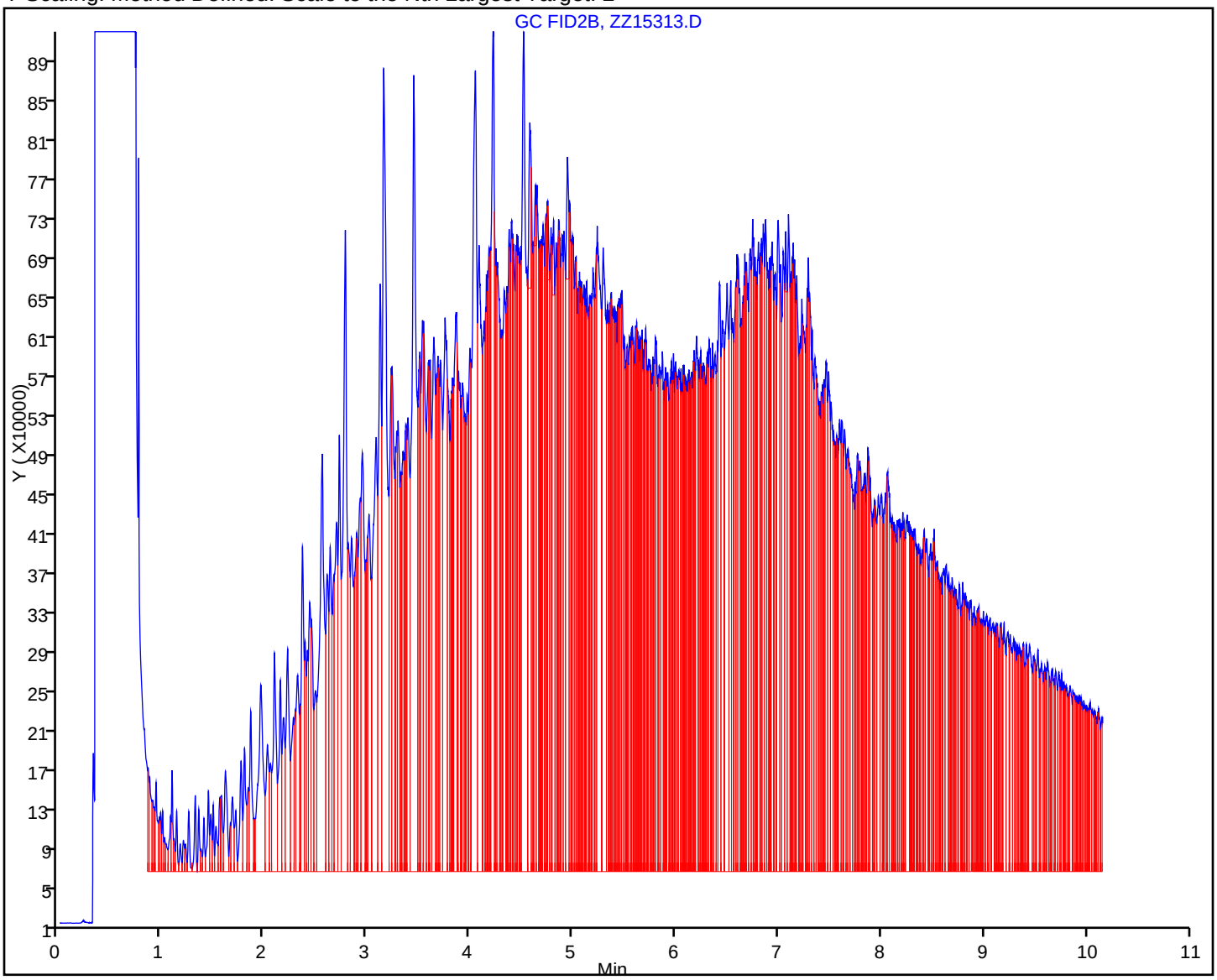
1196010*00

Report Date: 24-Jan-2012 15:18:09 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File: \\tacsvr5\ChromData\TAC017\20120124-21281.b\ZZ15313.D

Injection Date:	24-Jan-2012 14:55:48	Limit Group:	NWTPH-DX Standard list
Client ID:	B-12-4-40	Instrument ID:	TAC017
Lims Batch ID:	104033	Lims Sample ID:	5
Operator ID:	KKW	Injection Vol:	1.00 ul

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2

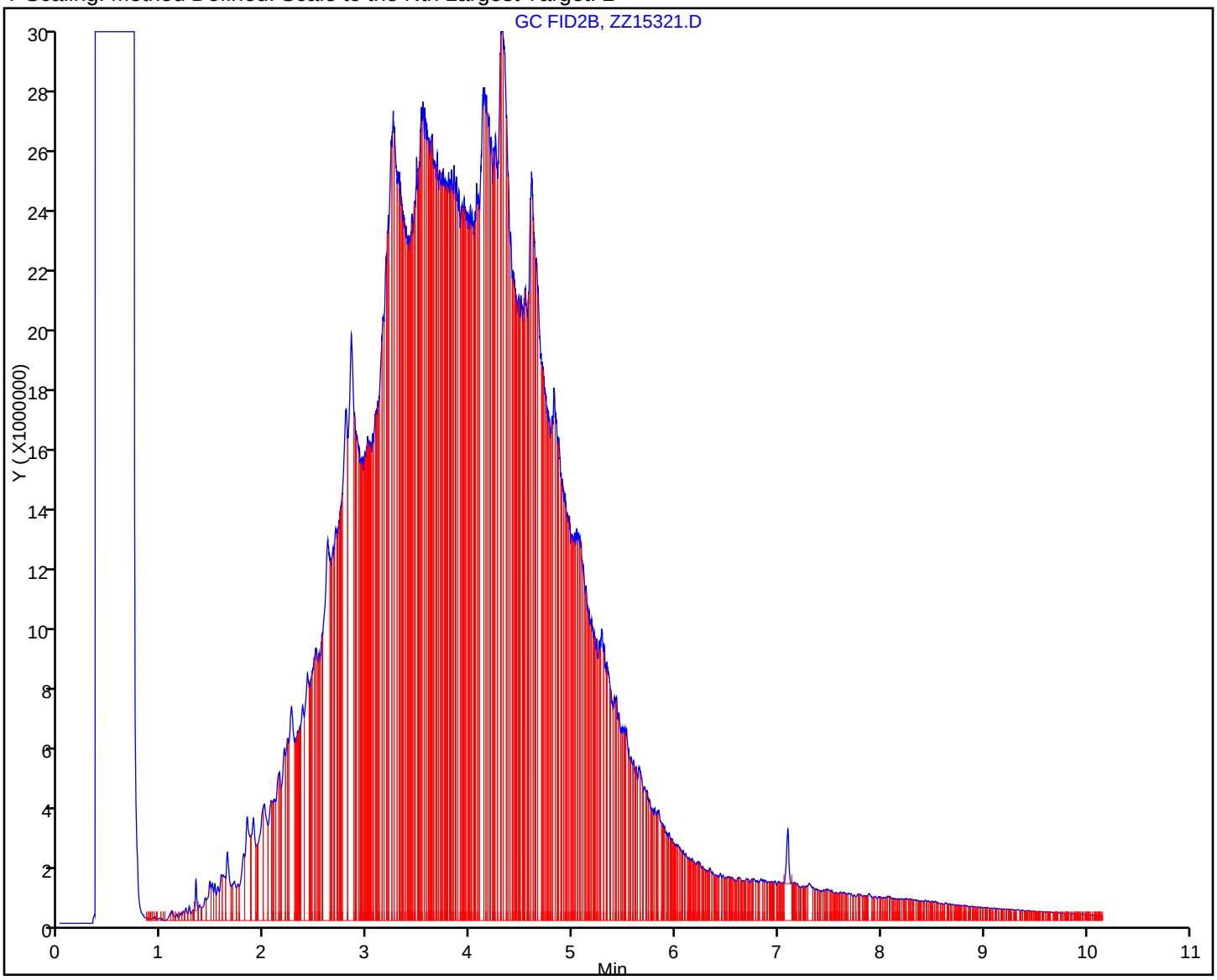


Report Date: 25-Jan-2012 08:32:14 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File: \\tacsvr5\ChromData\TAC017\20120124-21281.b\ZZ15321.D

Injection Date:	24-Jan-2012 16:23:11	Limit Group:	NWTPH-DX Standard list
Client ID:	B-12-3-13	Instrument ID:	TAC017
Lims Batch ID:	104033	Lims Sample ID:	9
Operator ID:	KKW	Injection Vol:	1.00 ul

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2

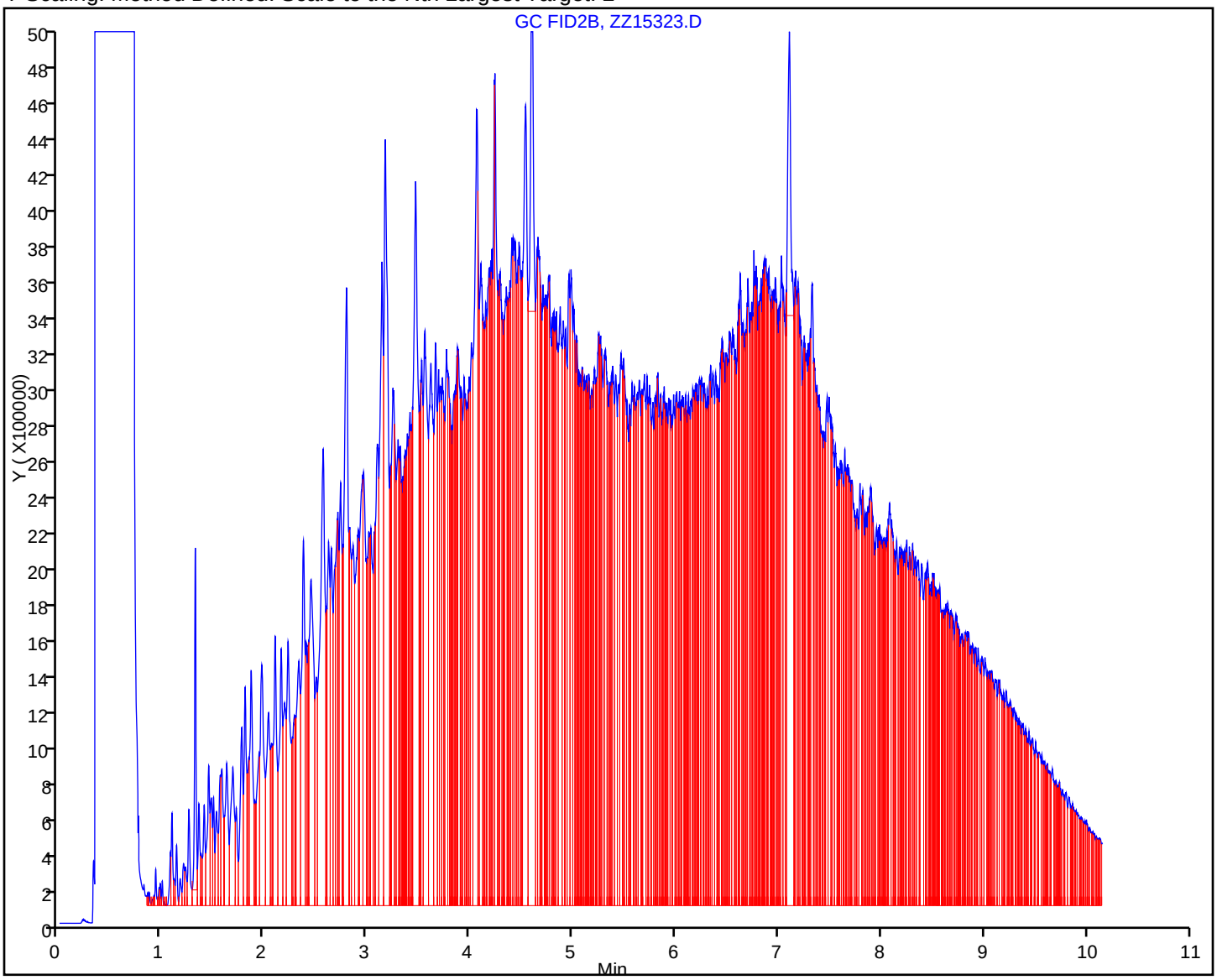


Report Date: 25-Jan-2012 08:32:34 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File: \\tacsvr5\ChromData\TAC017\20120124-21281.b\ZZ15323.D

Injection Date:	24-Jan-2012 16:44:57	Limit Group:	NWTPH-DX Standard list
Client ID:	B-12-2-40	Instrument ID:	TAC017
Lims Batch ID:	104033	Lims Sample ID:	10
Operator ID:	KKW	Injection Vol:	1.00 ul

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2

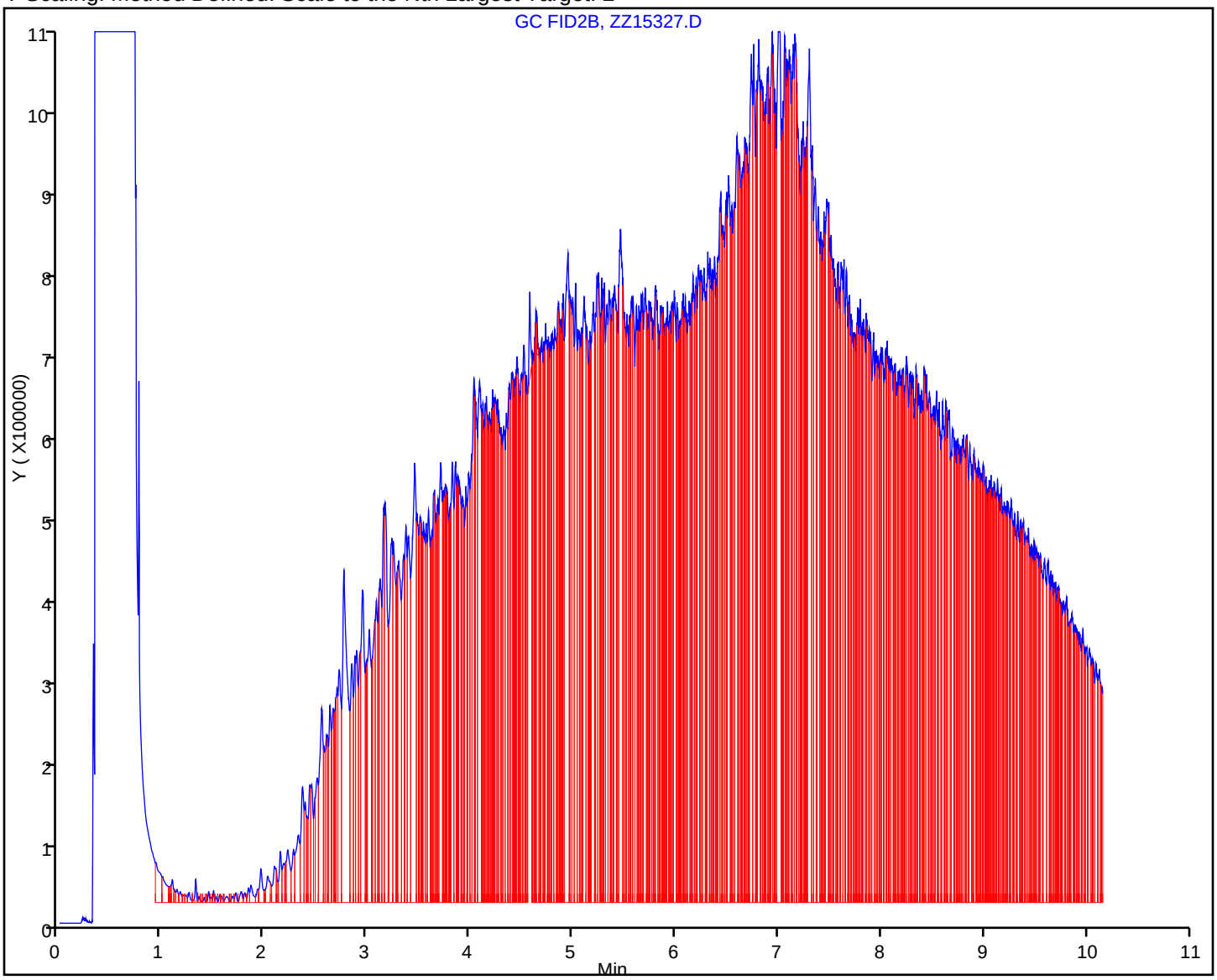


Report Date: 25-Jan-2012 08:33:53 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File: \\tacsvr5\ChromData\TAC017\20120124-21281.b\ZZ15327.D

Injection Date:	24-Jan-2012 17:28:22	Limit Group:	NWTPH-DX Standard list
Client ID:	B-12-2-12	Instrument ID:	TAC017
Lims Batch ID:	104033	Lims Sample ID:	12
Operator ID:	KKW	Injection Vol:	1.00 ul

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2

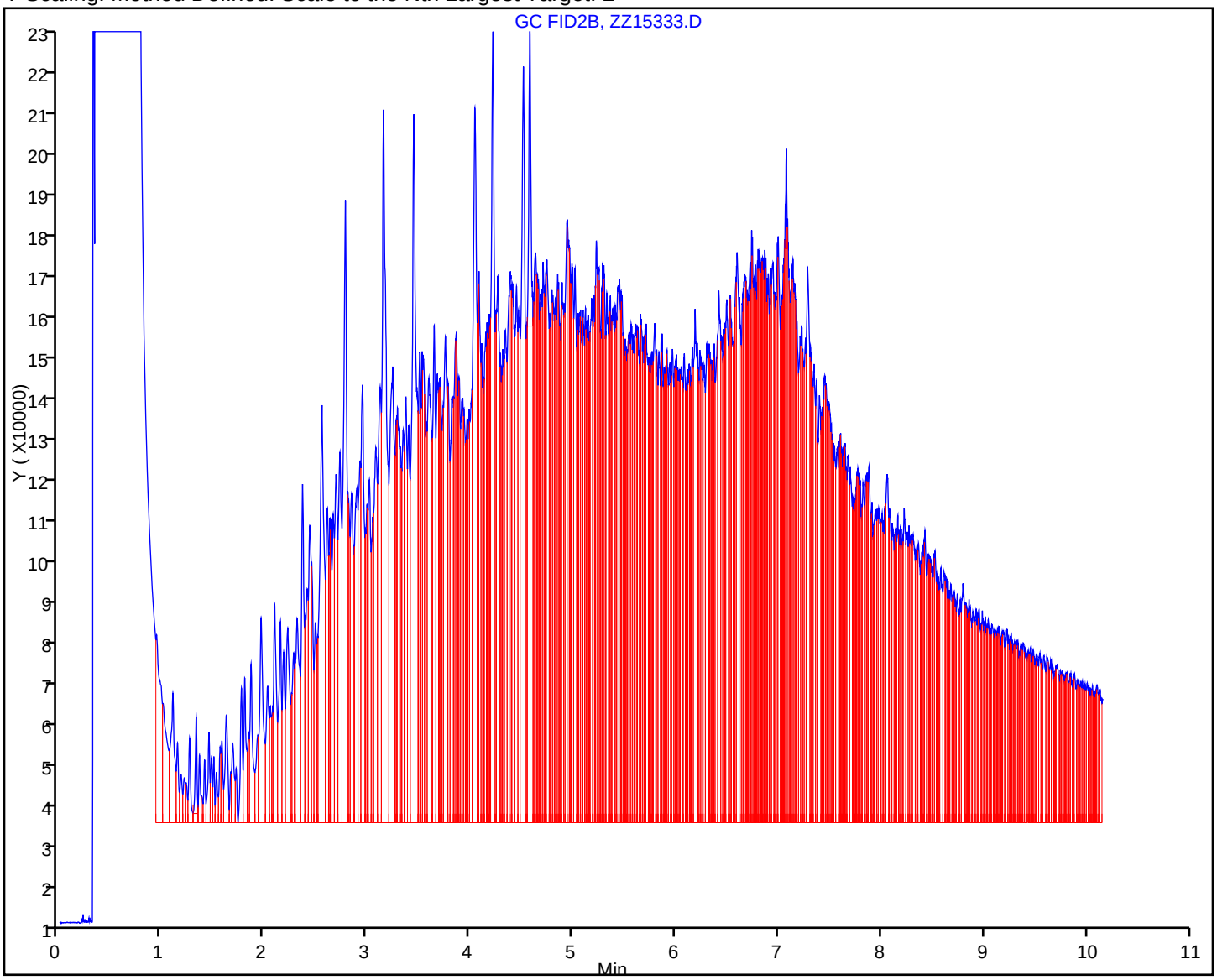


Report Date: 25-Jan-2012 08:34:21 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File: \\tacsvr5\ChromData\TAC017\20120124-21281.b\ZZ15333.D

Injection Date:	24-Jan-2012 18:34:03	Limit Group:	NWTPH-DX Standard list
Client ID:	B-12-1-32	Instrument ID:	TAC017
Lims Batch ID:	104033	Lims Sample ID:	15
Operator ID:	KKW	Injection Vol:	1.00 ul

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2

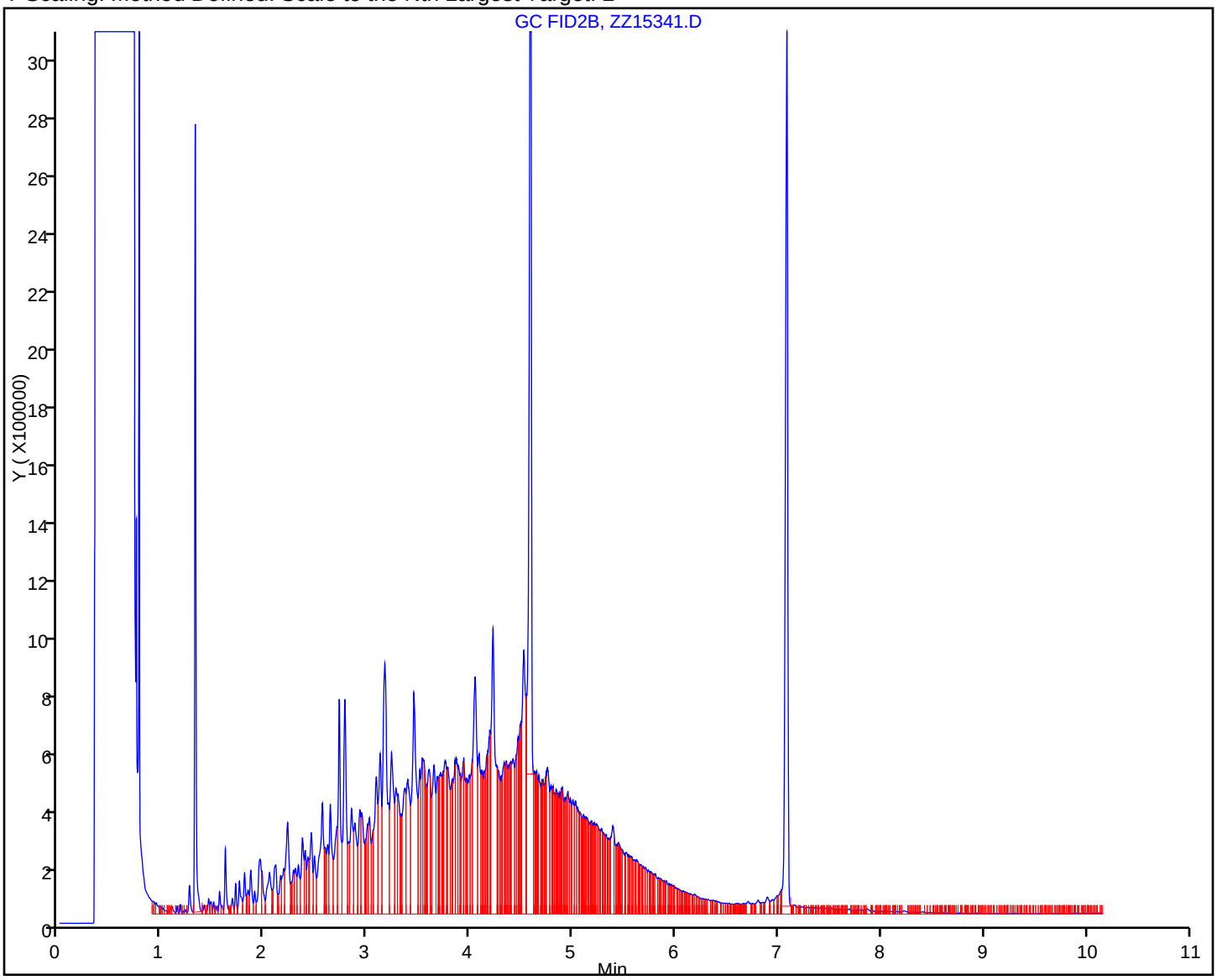


Report Date: 25-Jan-2012 08:35:19 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File: \\tacsvr5\ChromData\TAC017\20120124-21281.b\ZZ15341.D

Injection Date:	24-Jan-2012 20:01:11	Limit Group:	NWTPH-DX Standard list
Client ID:	AS-12-3	Instrument ID:	TAC017
Lims Batch ID:	104033	Lims Sample ID:	19
Operator ID:	KKW	Injection Vol:	1.00 ul

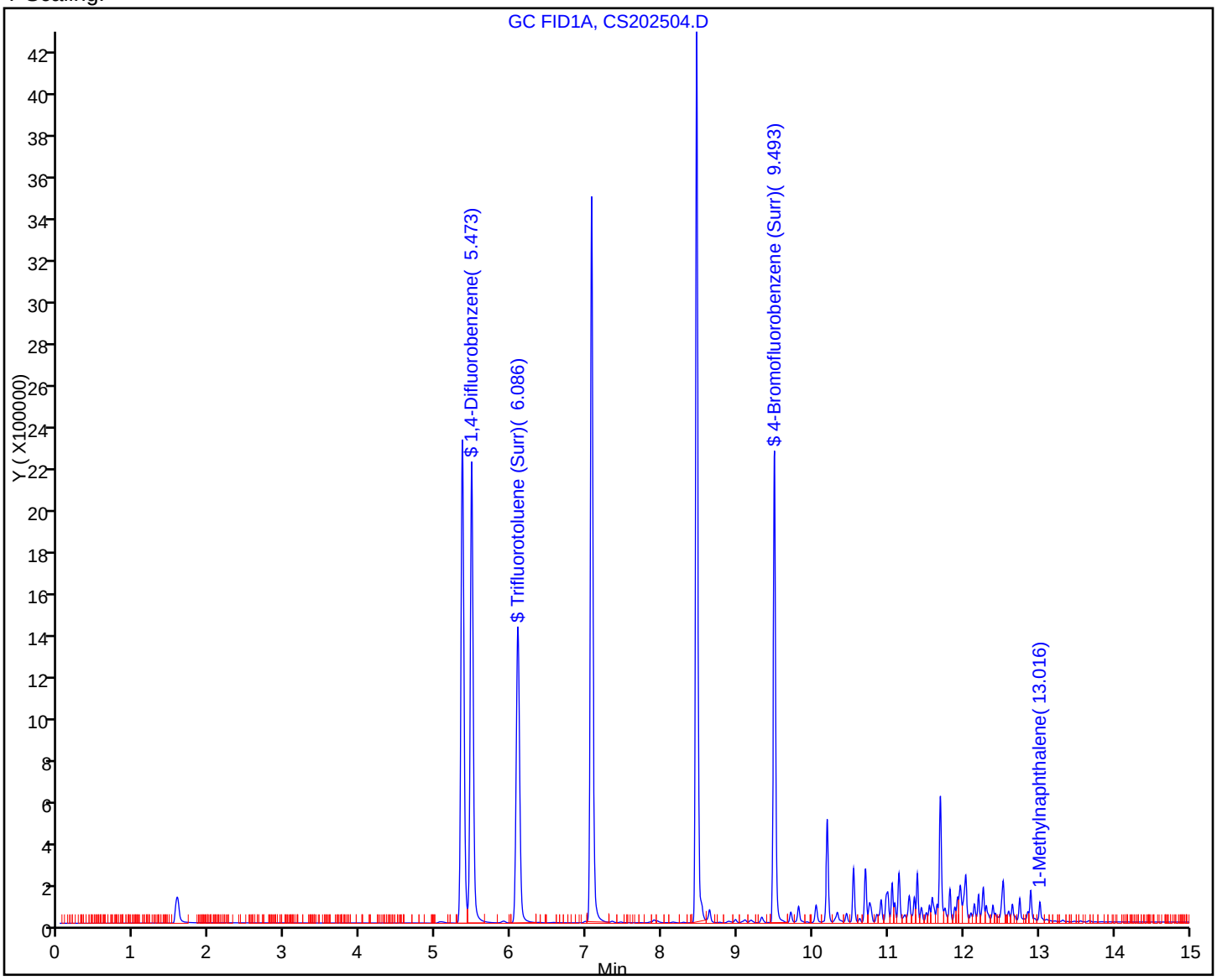
Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Report Date: 26-Jan-2012 13:07:49 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File:	\\tacsvr5\ChromData\TAC003\20120124-21289.b\CS202504.D		
Injection Date:	25-Jan-2012 19:01:05	Limit Group:	NWTPH-GX
Client ID:	AS-12-3	Instrument ID:	TAC003
Lims Batch ID:	104093	Lims Sample ID:	56
Operator ID:	JMB		

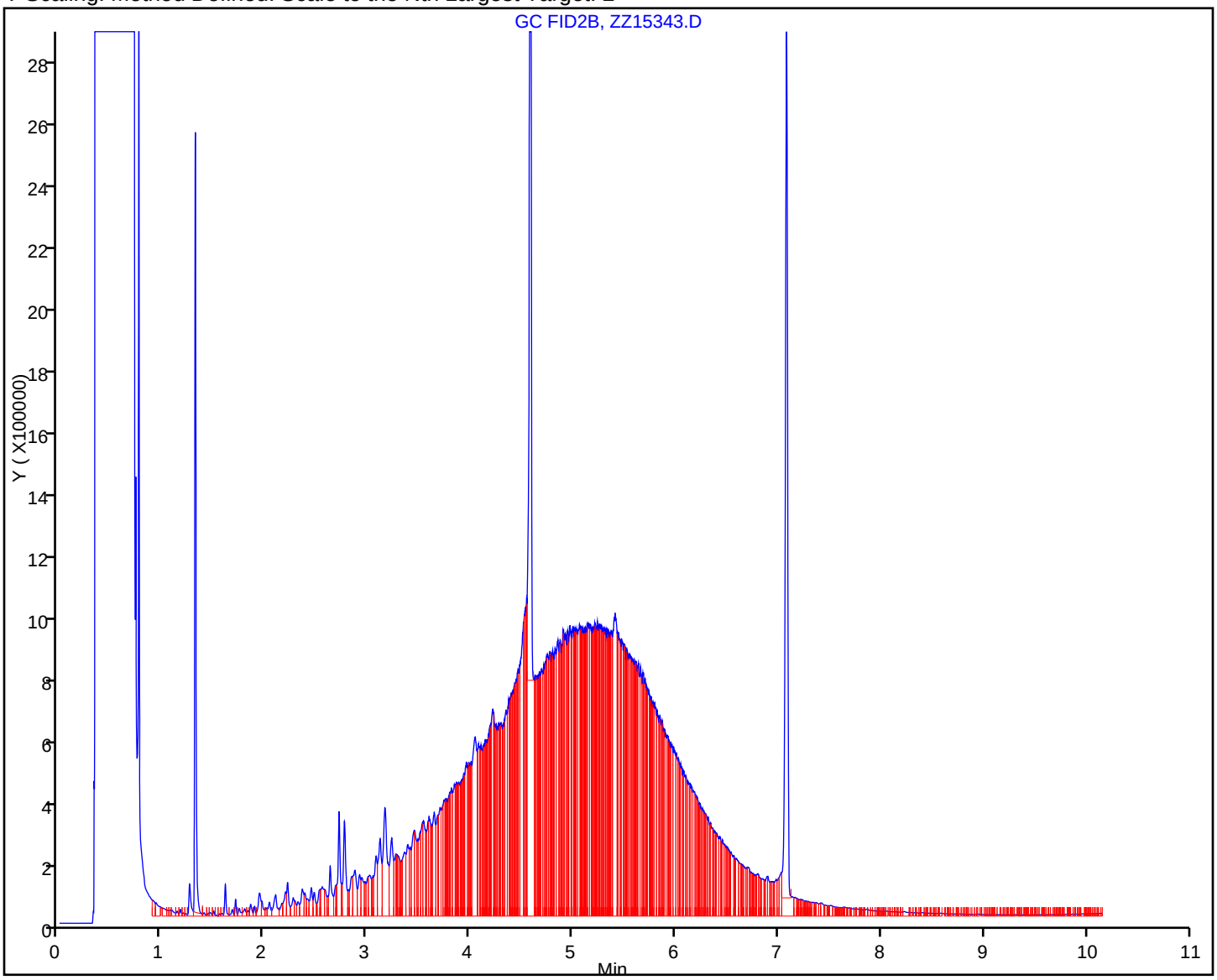
Y Scaling:



Report Date: 25-Jan-2012 08:35:31 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File:	\\tacsvr5\ChromData\TAC017\20120124-21281.b\ZZ15343.D		
Injection Date:	24-Jan-2012 20:22:59	Limit Group:	NWTPH-DX Standard list
Client ID:	AS-12-2	Instrument ID:	TAC017
Lims Batch ID:	104033	Lims Sample ID:	20
Operator ID:	KKW	Injection Vol:	1.00 ul

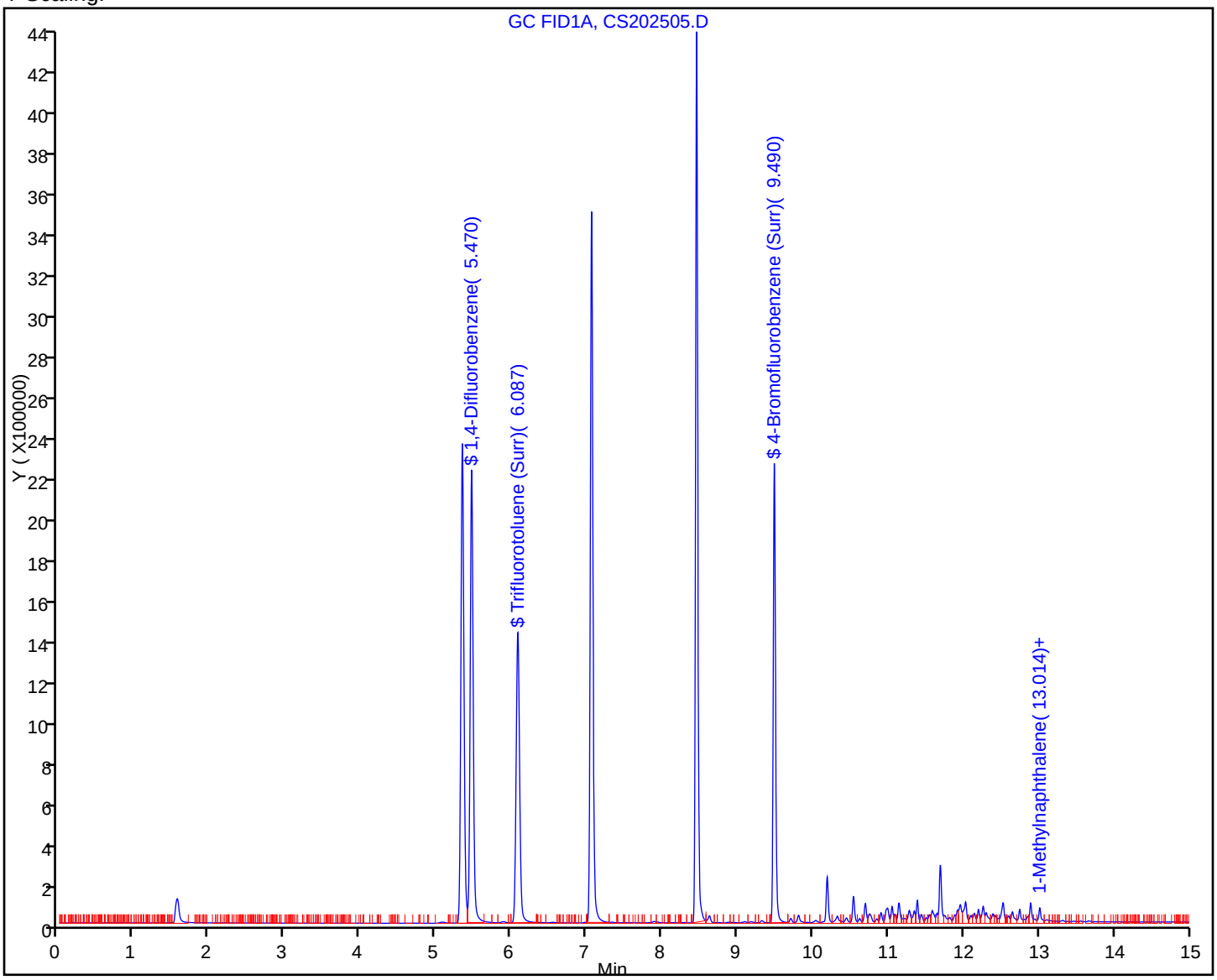
Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Report Date: 26-Jan-2012 13:08:01 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File:	\\tacsvr5\ChromData\TAC003\20120124-21289.b\CS202505.D		
Injection Date:	25-Jan-2012 19:23:28	Limit Group:	NWTPH-GX
Client ID:	AS-12-2	Instrument ID:	TAC003
Lims Batch ID:	104093	Lims Sample ID:	57
Operator ID:	JMB		

Y Scaling:

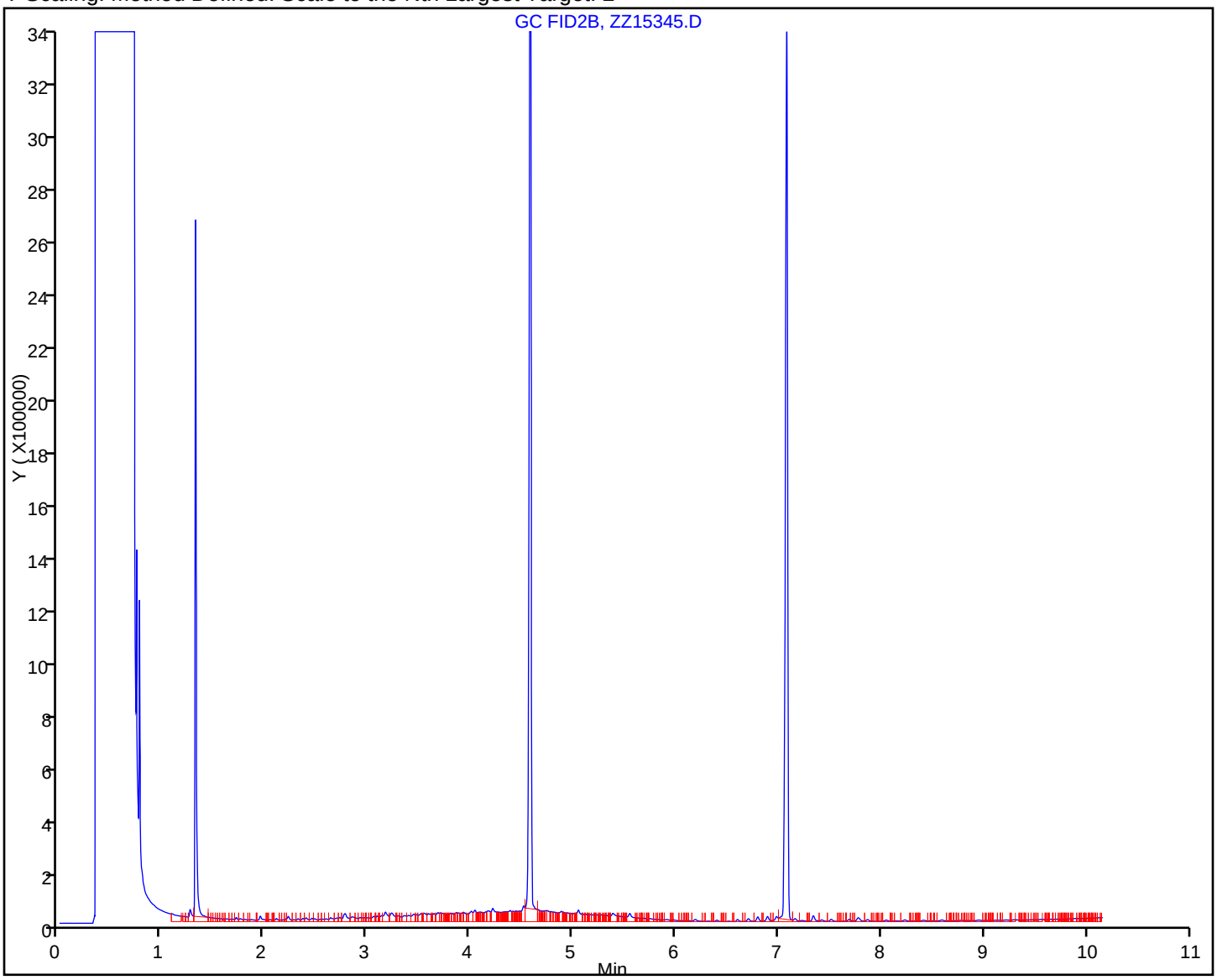


Report Date: 25-Jan-2012 08:35:38 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File: \\tacsvr5\ChromData\TAC017\20120124-21281.b\ZZ15345.D

Injection Date:	24-Jan-2012 20:44:35	Limit Group:	NWTPH-DX Standard list
Client ID:	AS-12-1	Instrument ID:	TAC017
Lims Batch ID:	104033	Lims Sample ID:	21
Operator ID:	KKW	Injection Vol:	1.00 ul

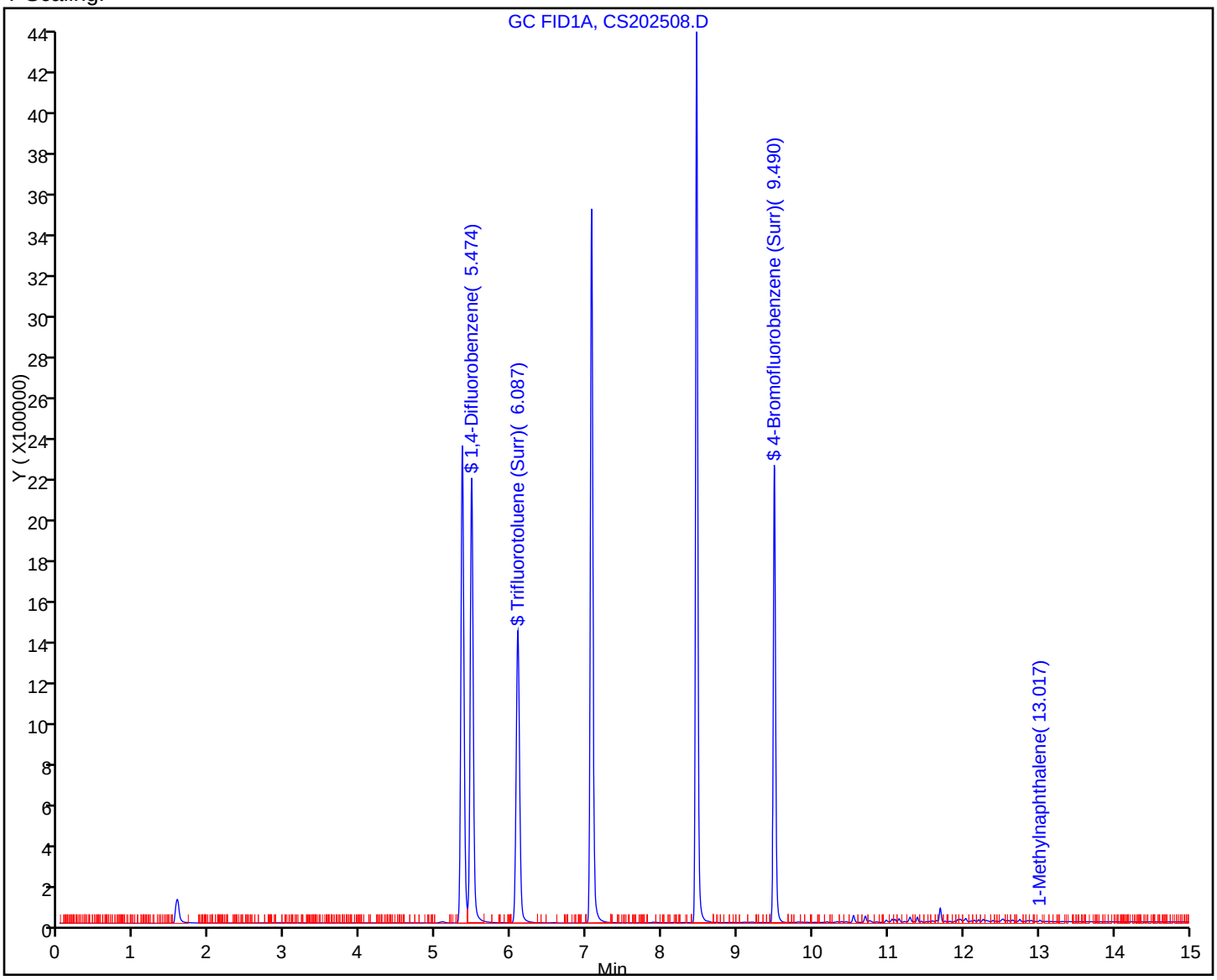
Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Report Date: 26-Jan-2012 13:08:21 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File:	\\tacsvr5\ChromData\TAC003\20120124-21289.b\CS202508.D		
Injection Date:	25-Jan-2012 20:30:31	Limit Group:	NWTPH-GX
Client ID:	AS-12-1	Instrument ID:	TAC003
Lims Batch ID:	104093	Lims Sample ID:	60
Operator ID:	JMB		

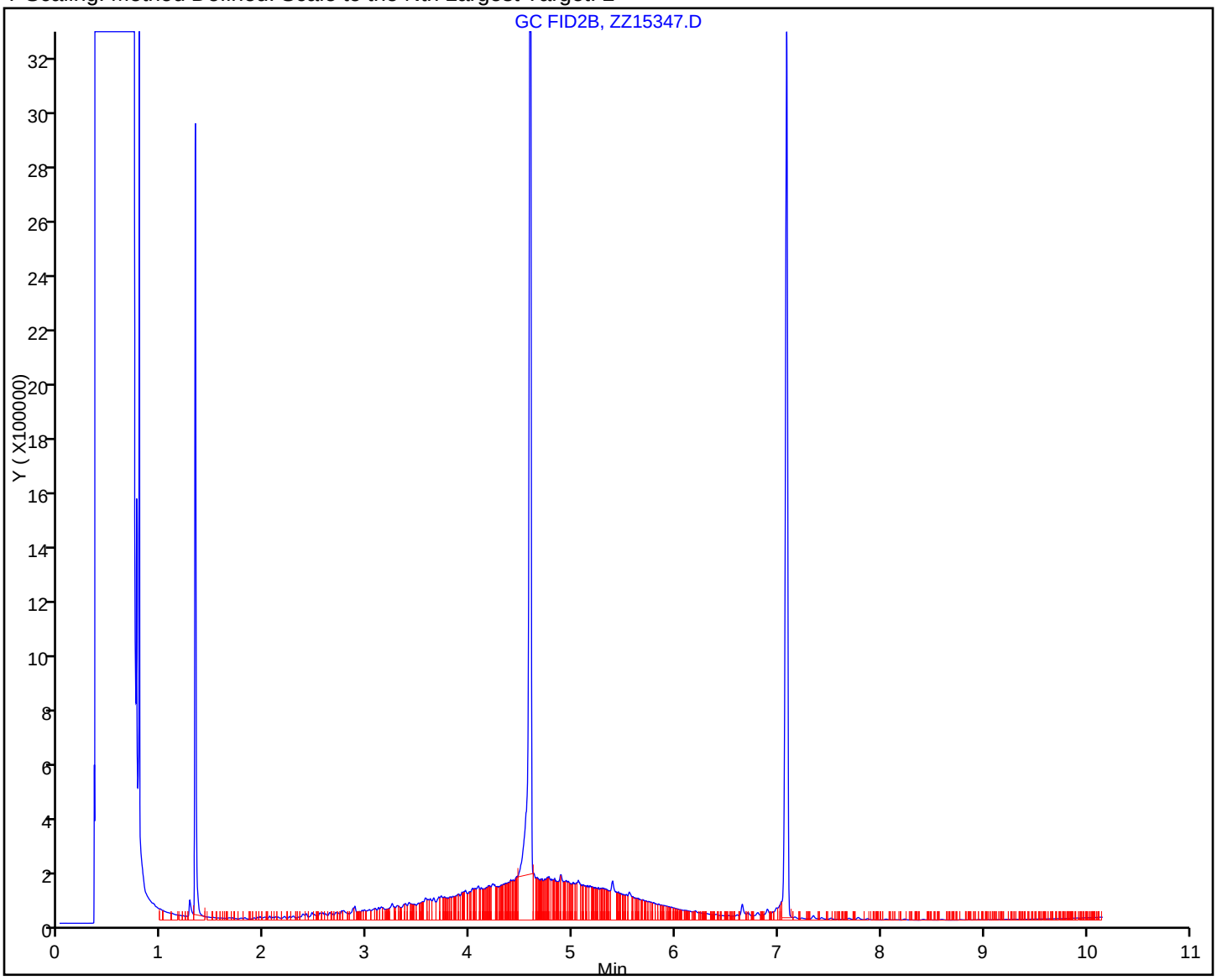
Y Scaling:



Report Date: 25-Jan-2012 08:35:44 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File:	\\tacsvr5\ChromData\TAC017\20120124-21281.b\ZZ15347.D		
Injection Date:	24-Jan-2012 21:06:20	Limit Group:	NWTPH-DX Standard list
Client ID:	RB4	Instrument ID:	TAC017
Lims Batch ID:	104033	Lims Sample ID:	22
Operator ID:	KKW	Injection Vol:	1.00 ul

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Report Date: 26-Jan-2012 13:08:26 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File: \\tacsvr5\ChromData\TAC003\20120124-21289.b\CS202509.D

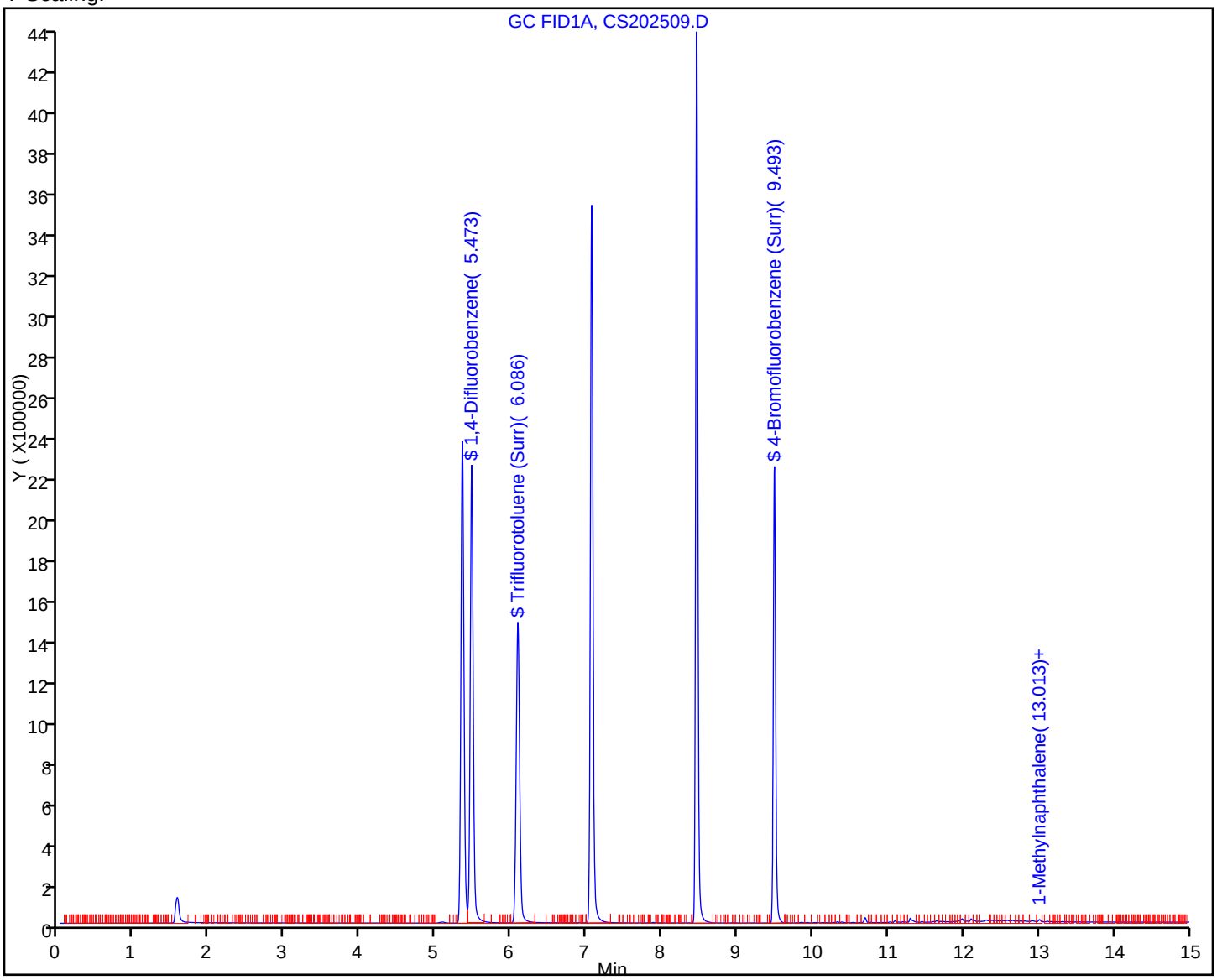
Injection Date: 25-Jan-2012 20:52:48 Limit Group: NWTPH-GX

Client ID: RB4 Instrument ID: TAC003

Lims Batch ID: 104093 Lims Sample ID: 61

Operator ID: JMB

Y Scaling:

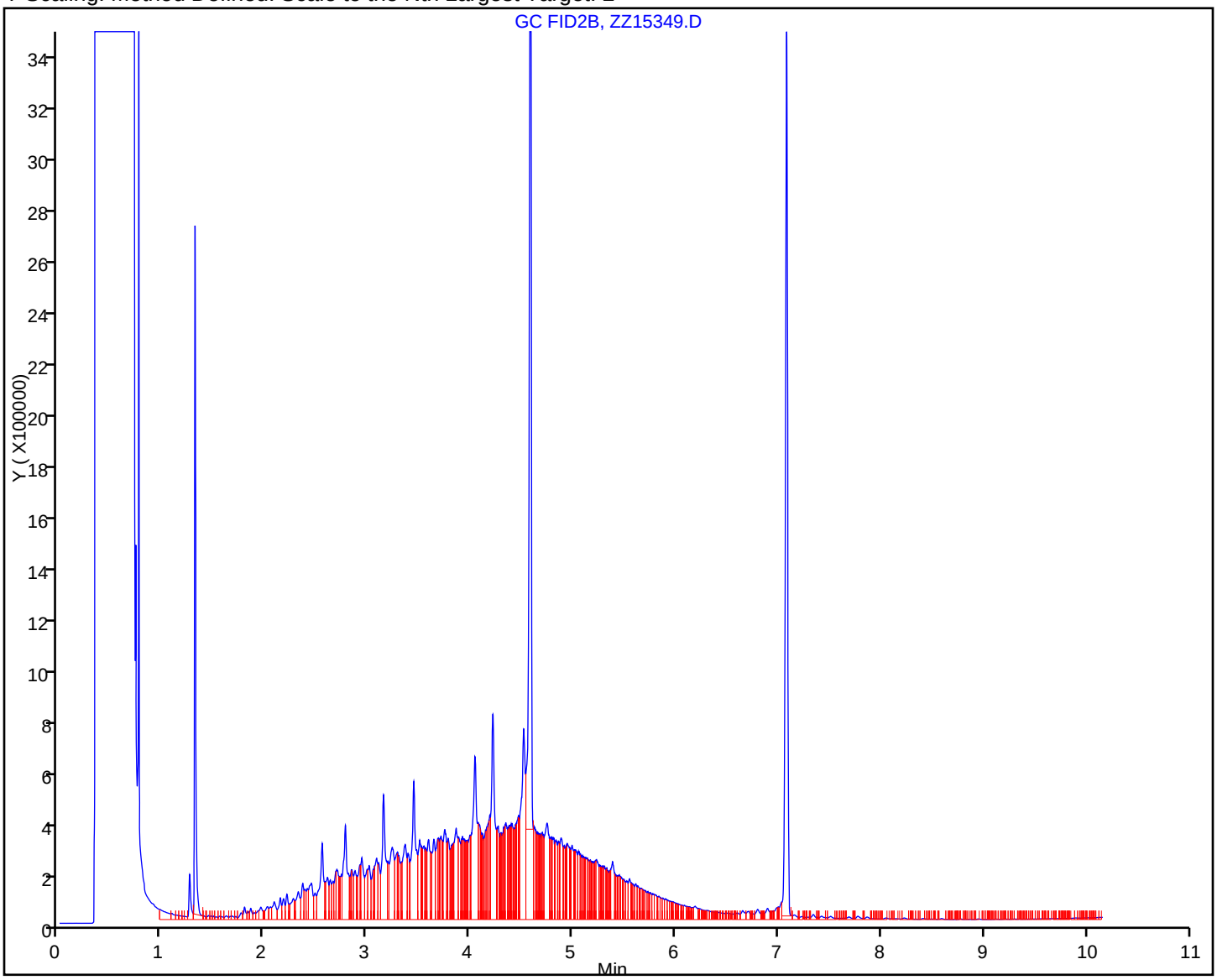


Report Date: 25-Jan-2012 08:35:51 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File: \\tacsvr5\ChromData\TAC017\20120124-21281.b\ZZ15349.D

Injection Date:	24-Jan-2012 21:28:02	Limit Group:	NWTPH-DX Standard list
Client ID:	RB3	Instrument ID:	TAC017
Lims Batch ID:	104033	Lims Sample ID:	23
Operator ID:	KKW	Injection Vol:	1.00 ul

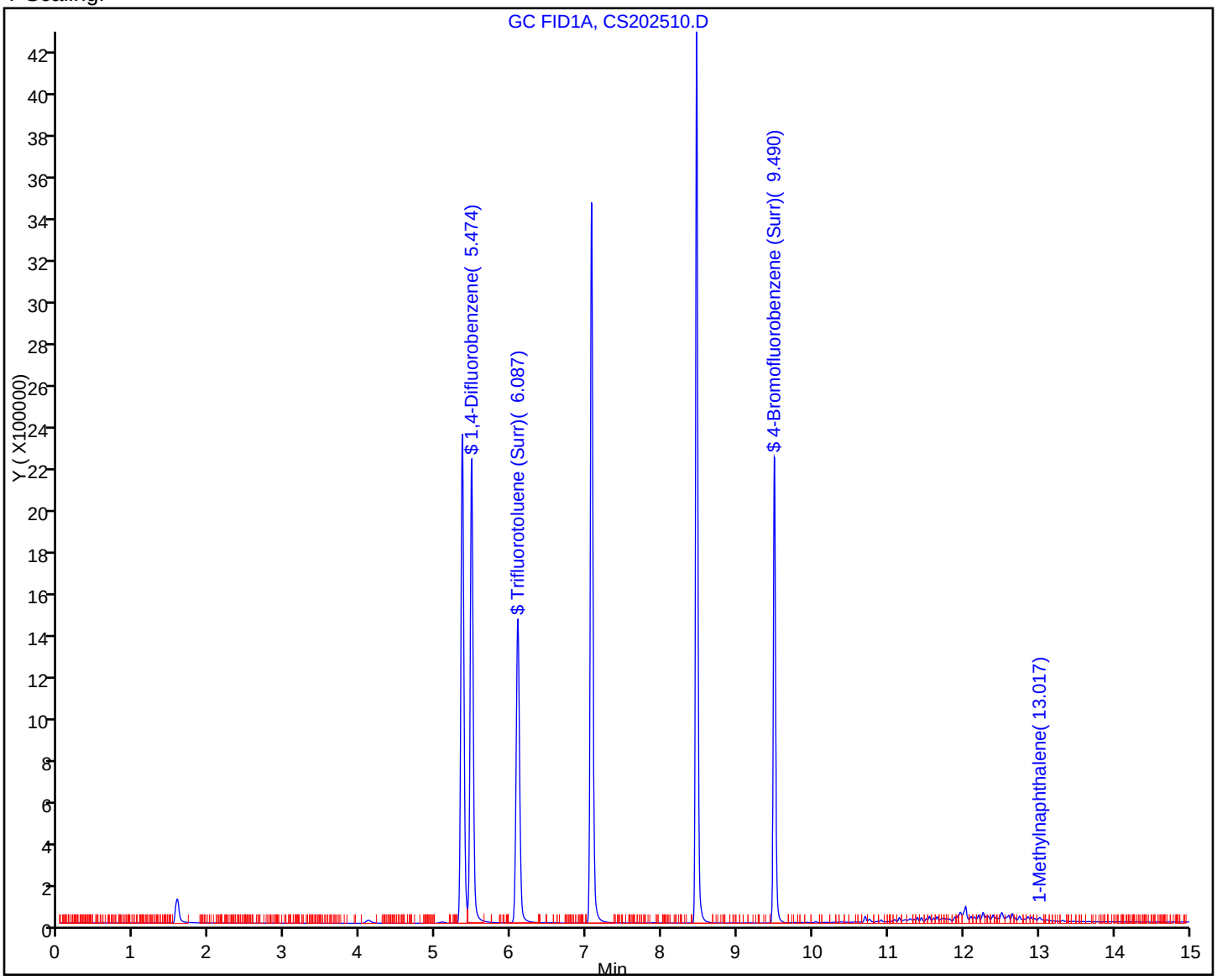
Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Report Date: 26-Jan-2012 13:08:36 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File:	\\tacsvr5\ChromData\TAC003\20120124-21289.b\CS202510.D		
Injection Date:	25-Jan-2012 21:15:06	Limit Group:	NWTPH-GX
Client ID:	RB3	Instrument ID:	TAC003
Lims Batch ID:	104093	Lims Sample ID:	62
Operator ID:	JMB		

Y Scaling:

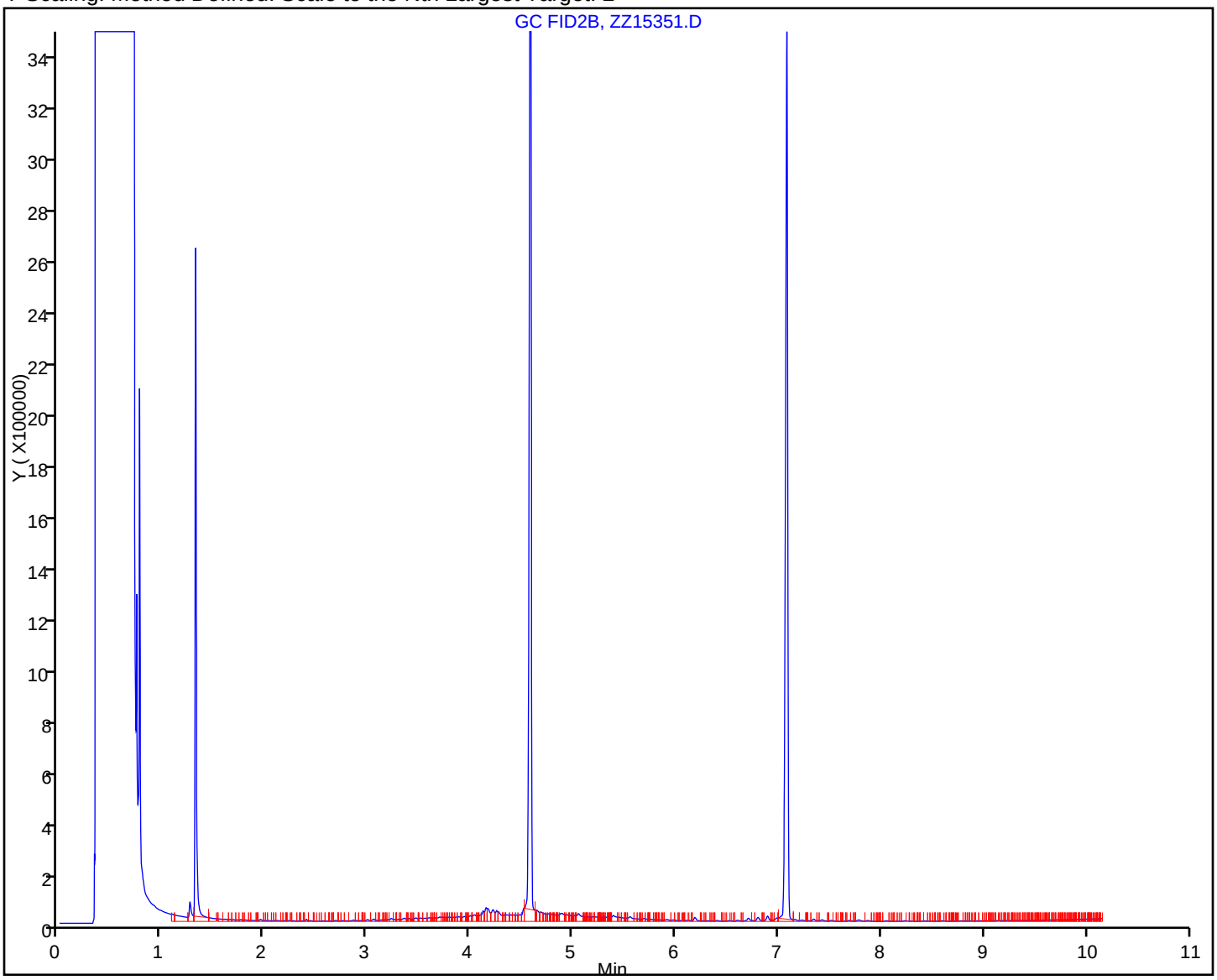


Report Date: 25-Jan-2012 08:35:57 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File: \\tacsvr5\ChromData\TAC017\20120124-21281.b\ZZ15351.D

Injection Date:	24-Jan-2012 21:49:45	Limit Group:	NWTPH-DX Standard list
Client ID:	RB2	Instrument ID:	TAC017
Lims Batch ID:	104033	Lims Sample ID:	24
Operator ID:	KKW	Injection Vol:	1.00 ul

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2

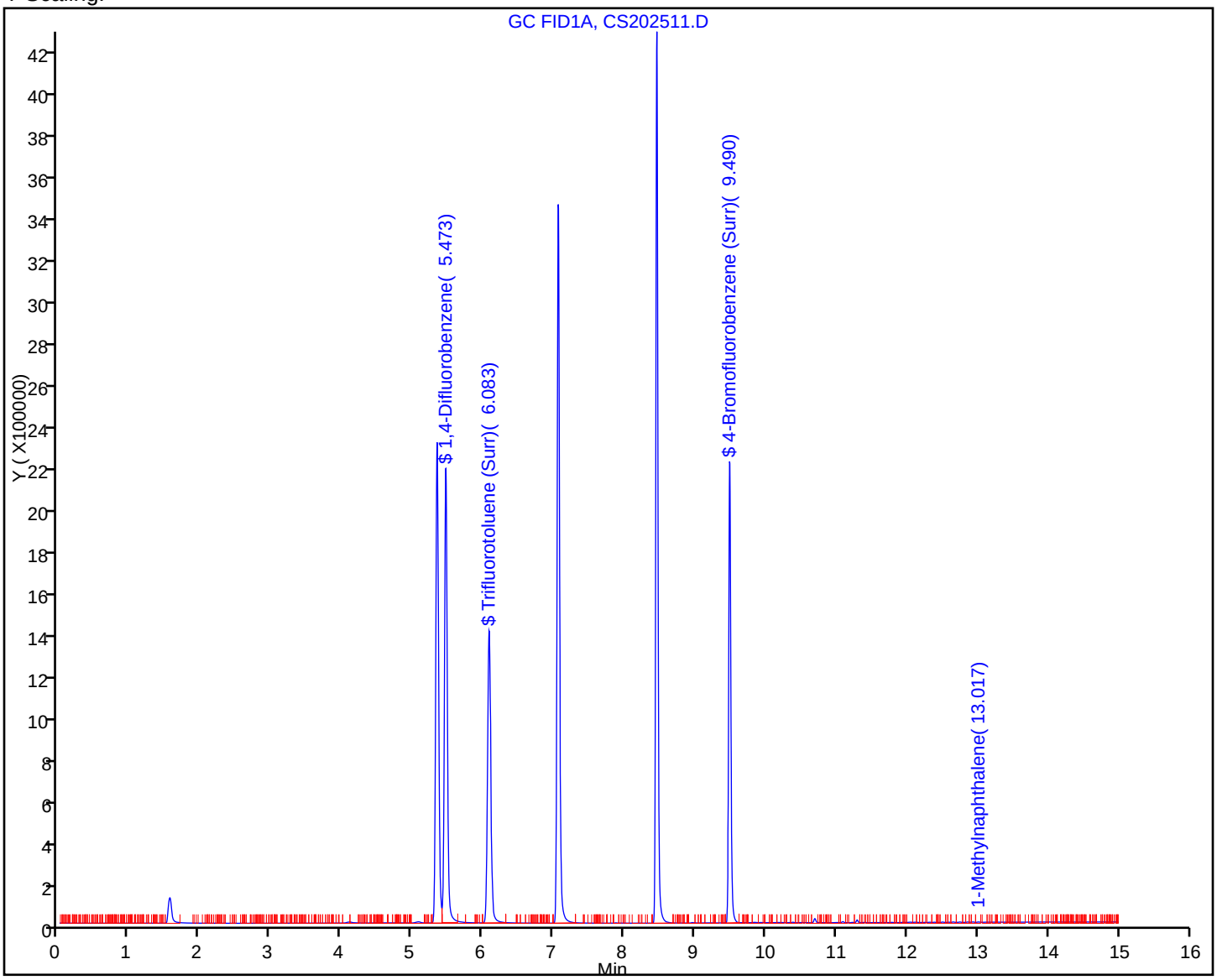


Report Date: 26-Jan-2012 13:08:42 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File: \\tacsvr5\ChromData\TAC003\20120124-21289.b\CS202511.D

Injection Date:	25-Jan-2012 21:37:21	Limit Group:	NWTPH-GX
Client ID:	RB2	Instrument ID:	TAC003
Lims Batch ID:	104093	Lims Sample ID:	63
Operator ID:	JMB		

Y Scaling:

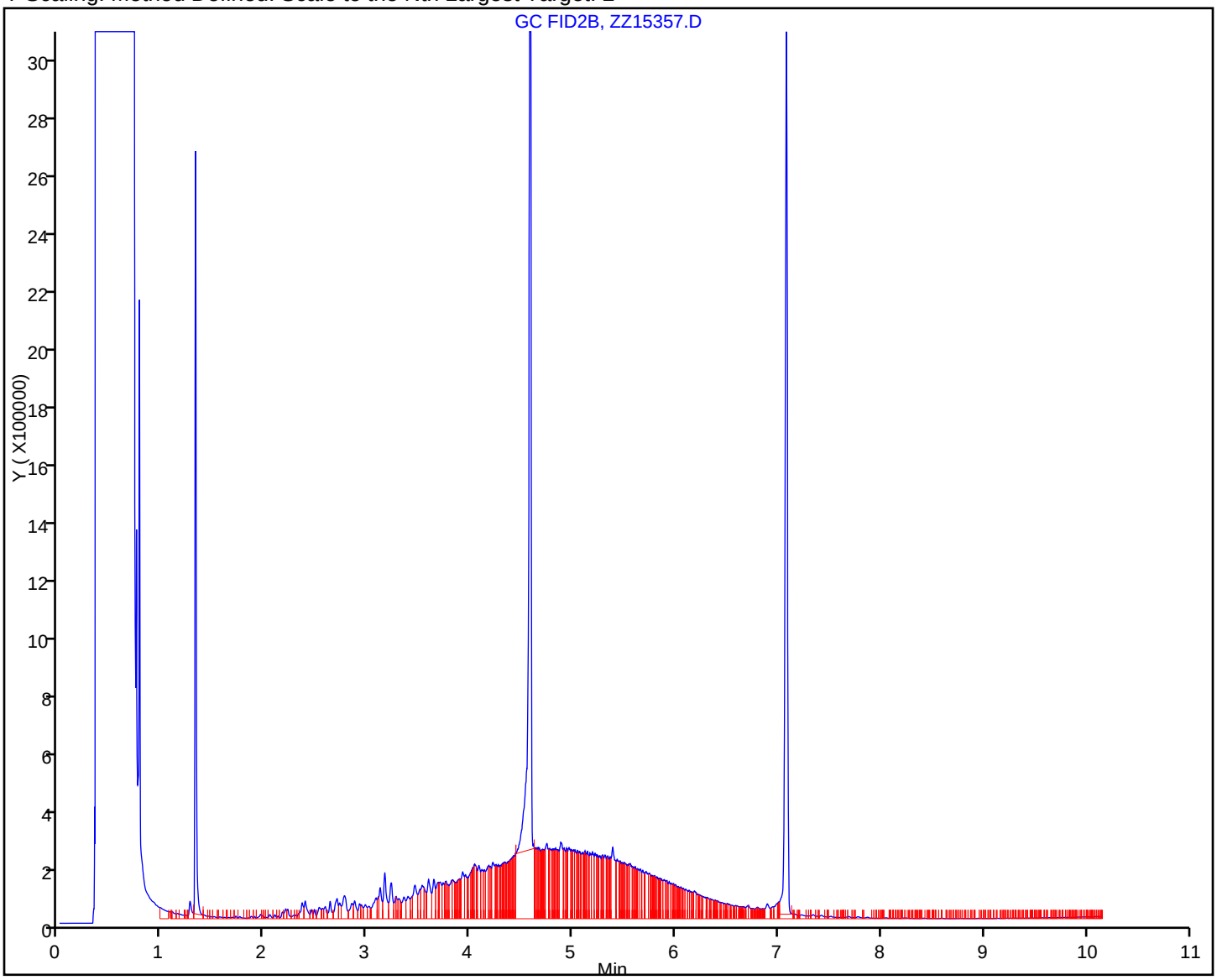


Report Date: 25-Jan-2012 08:36:19 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File: \\tacsvr5\ChromData\TAC017\20120124-21281.b\ZZ15357.D

Injection Date:	24-Jan-2012 22:54:34	Limit Group:	NWTPH-DX Standard list
Client ID:	RB1	Instrument ID:	TAC017
Lims Batch ID:	104033	Lims Sample ID:	27
Operator ID:	KKW	Injection Vol:	1.00 ul

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2

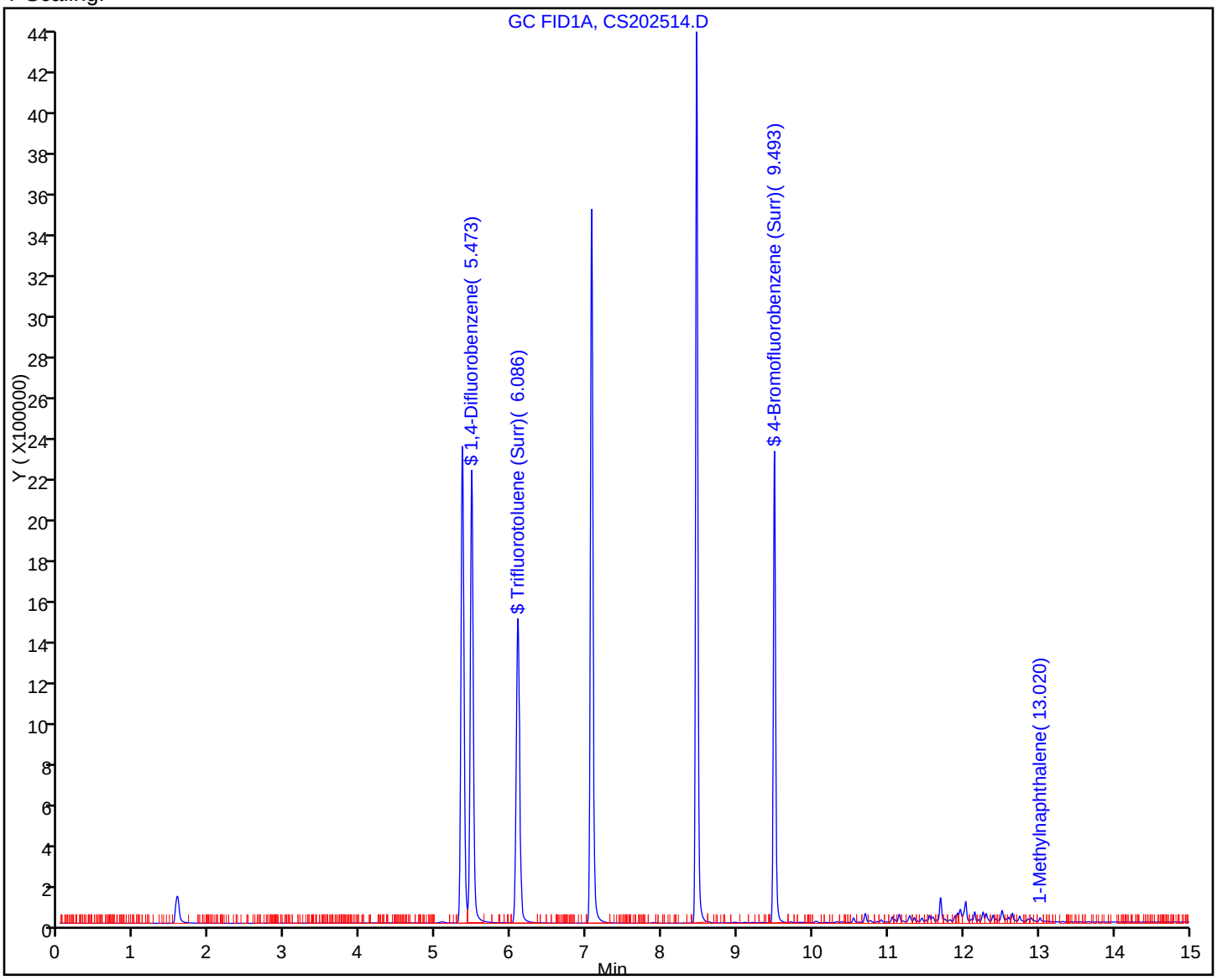


Report Date: 26-Jan-2012 13:08:49 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File: \\tacsvr5\ChromData\TAC003\20120124-21289.b\CS202514.D

Injection Date:	25-Jan-2012 22:45:04	Limit Group:	NWTPH-GX
Client ID:	RB1	Instrument ID:	TAC003
Lims Batch ID:	104093	Lims Sample ID:	64
Operator ID:	JMB		

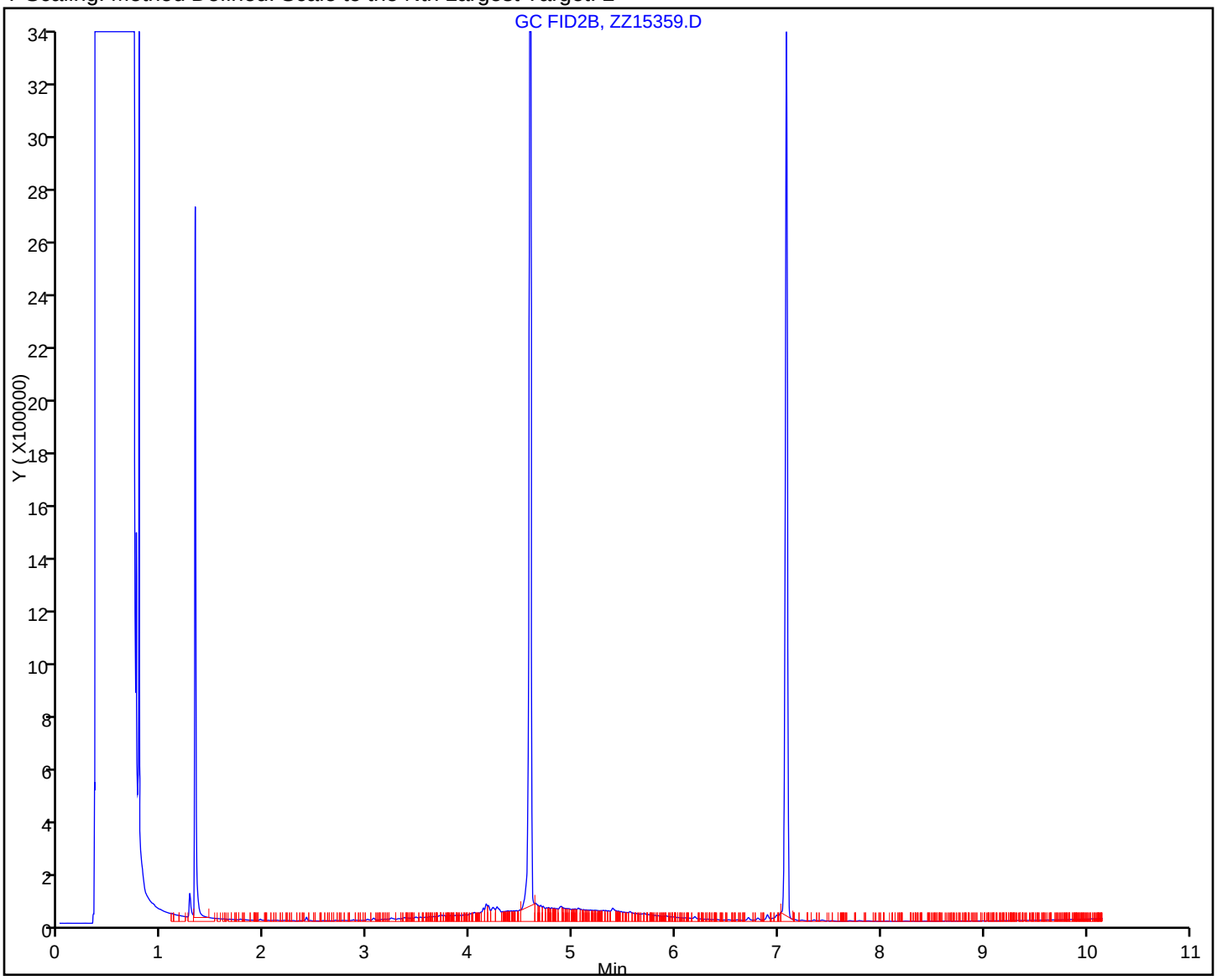
Y Scaling:



Report Date: 25-Jan-2012 08:36:26 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File:	\\tacsvr5\ChromData\TAC017\20120124-21281.b\ZZ15359.D		
Injection Date:	24-Jan-2012 23:15:56	Limit Group:	NWTPH-DX Standard list
Client ID:	DUP-1	Instrument ID:	TAC017
Lims Batch ID:	104033	Lims Sample ID:	28
Operator ID:	KKW	Injection Vol:	1.00 ul

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Report Date: 26-Jan-2012 13:08:54 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File: \\tacsvr5\ChromData\TAC003\20120124-21289.b\CS202515.D

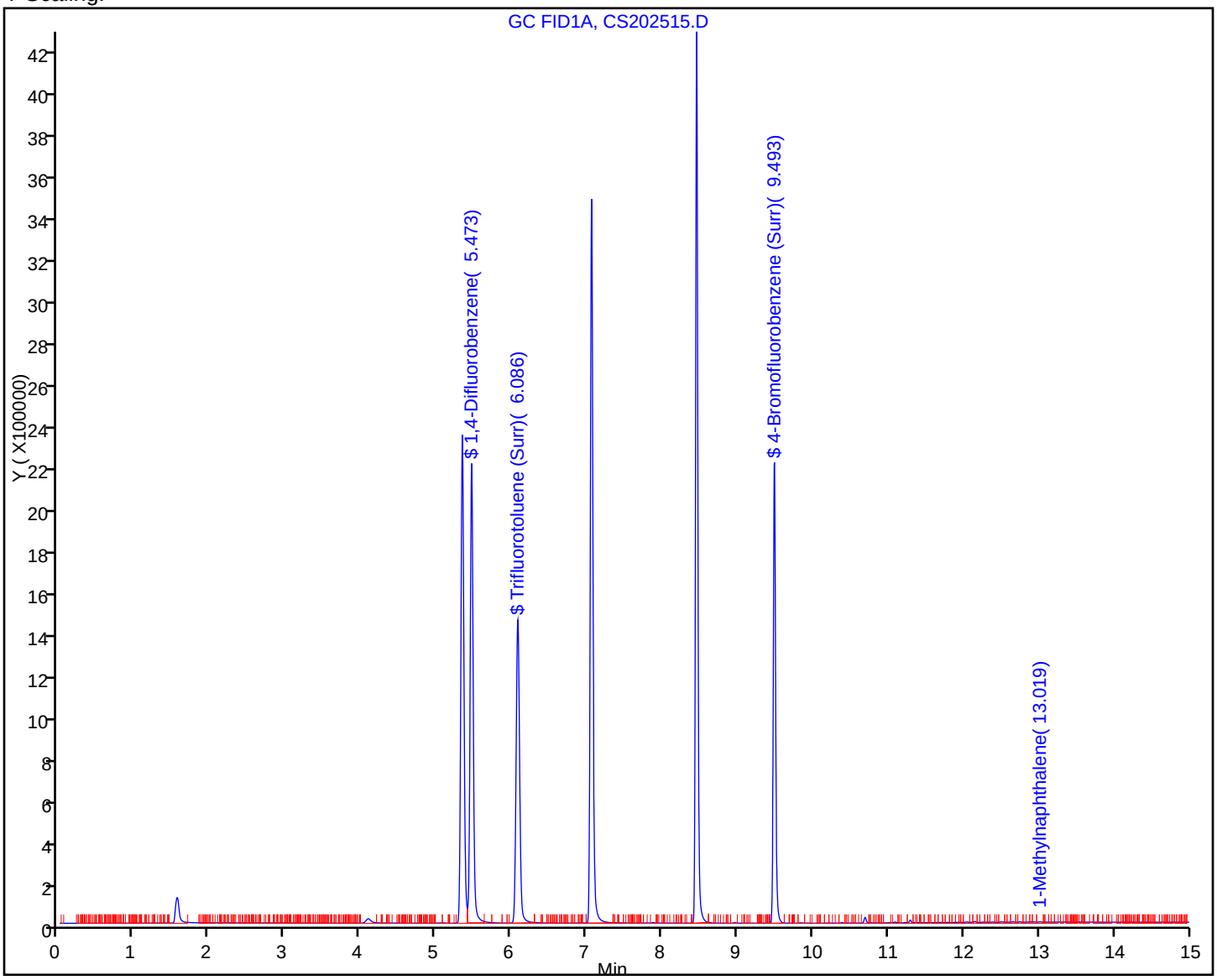
Injection Date: 25-Jan-2012 23:07:35 Limit Group: NWTPH-GX

Client ID: DUP-1 Instrument ID: TAC003

Lims Batch ID: 104093 Lims Sample ID: 65

Operator ID: JMB

Y Scaling:



Report Date: 01-Feb-2012 08:16:53 Chrom Revision: 1.2 13-Jul-2011 10:43:06

Data File: \\tacsvr5\ChromData\TAC017\20120131-21379.b\ZZ15581.D

Injection Date:	31-Jan-2012 16:10:37	Limit Group:	NWTPH-DX Standard list
Client ID:	B-12-5-45	Instrument ID:	TAC017
Lims Batch ID:	104460	Lims Sample ID:	5
Operator ID:	EKK	Injection Vol:	1.00 ul

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2