RISK-BASED CORRECTIVE ACTION DETERMINATION





JIFFY LUBE #1011 2025 NE BROADWAY STREET PORTLAND, MULTNOMAH COUNTY, OREGON

Report Prepared for and Reliance Provided to:

Lube Management Corp. 7430 Creek Road # 200 Sandy, UT 84093

Point Source Solutions Project No: OR161223-3B April 7, 2017 Field Work Conducted and Report Prepared in General Accordance with the following:

ASTM Standard Practice E1903

Oregon State Board of Geologist Examiners Professional Practices Guideline (May 2014)

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Point Source Solutions LLC (Point Source) is pleased to provide the results from the Risk-Based Corrective Action Determination prepared for 2025 NE Broadway Street, Portland, Oregon, 97232 ("Site"). This investigation was performed in accordance with Point Source's Proposal OR170201.6A as authorized by Lube Management Corporation on March 6, 2017.

The Property is improved with a 1,176 square-foot auto-lube center constructed in 1987. Multnomah County identifies the Property as tax lot 1N1E26DD12800 totaling 0.21 acres.

The Property occupies an area that is bound to the north by Crown Royal Apartments; to the east by NE 21st Avenue, beyond which is the Zeller Chapel of the Roses; to the south by NE Broadway Street, beyond which is a 7-Eleven store and the Banfield Pet Hospital; and to the west by Thai Pod (restaurant).

The Site is currently occupied by Jiffy Lube #1011.

1.0 PURPOSE

The purpose of this investigation is to:

- Assess onsite subsurface conditions to evaluate if there has been a release of hazardous substances; determine the nature and extent of the impacts to soil, soil vapor and groundwater, if any; and evaluate potential threats from these releases to the beneficial use of the Site.
- Develop a Conceptual Site Model (CSM).
- Complete a Beneficial Land and Water Use determination (BLWUD).
- Develop a list of Contaminants of Interest (COI) based upon the characteristics of the identified release.
- Compare Contaminants of Potential Concern (COPC) concentrations to the Oregon Department of Environmental Quality (ODEQ) Risk Based Concentrations (RBCs) for potentially complete exposure pathways.

This investigation was completed in general accordance with ASTM E1903-11, Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process. These methodologies are described as representing good commercial and customary practice for conducting a Phase II ESA of a property for the purpose of evaluating recognized environmental conditions.

The information provided in this report describes the work performed and provides documentation of the data and evaluation that constitutes the factual findings of the investigation.

2.0 BACKGROUND INFORMATION

Point Source performed a Phase I ESA (Point Source Project No. OR161223-3 dated January 12, 2017) on 2025 NE Broadway Street, Portland, Oregon, 97232 in general conformance with the scope and limitations of ASTM Practice E 1527-05. This report was prepared for Deck and Babs, LLC. Below is an excerpt from the Phase I ESA report.

This assessment revealed environmental concerns in connection with the Site.



• A service station occupied the Property from at least 1935 through 1985. According to permits obtained through the City of Portland Fire Prevention & Rescue, four USTs containing a total of 20,000-gallons of fuel were located on the Property. A permit issued to Oil Can Henry's in 1986 indicates that the tanks were removed. However, building plans (obtained through the City of Portland Building Department) for the current Property building constructed in 1987 indicate that the tanks were to be abandoned in place (filled with gravel). No reports or documentation associated with decommissioning these USTs were disclosed as a result of this assessment. The tanks and potential contamination associated with these tanks may be present in the subsurface environment at the Property.

3.0 SOILS, GEOLOGY & GROUNDWATER CHARACTERISTICS

The Site is situated in the Willamette Valley (Orr, Orr, Baldwin, 1992). The Willamette Valley is a structural depression with hills of moderate relief separating broad alluvial flats. It lies between the Cascade Range and the Coast Range and extends from the Portland Basin southward to a point near the city of Cottage Grove. The Willamette Valley consists of numerous terraces and reworked floodplains mostly of Pleistocene and recent age. Regional geology consists of a stratigraphic sequence of largely Quaternary sediments and flow deposits associated with the Willamette River and its tributaries, overlying older parent rock including Cascade volcanic rocks, and Columbia River Basalts. The Site is located at approximately 160 feet above mean sea level. No bedrock was observed in the vicinity of the Property. The estimated depth to bedrock at the Property is greater than 50 feet below the ground surface (bgs).

Site soils are mapped predominantly as Urban Land-Latourell complex. Urban land is soil that has been disturbed and modified by streets, buildings and other structures. Soils encountered during this excavation include clayey silt, silt and sand to a maximum explored depth of 39 feet bgs.

According to a well log search conducted on the Oregon Water Resources Department (OWRD) website, no significant shallow groundwater resources have been encountered in wells advanced in close proximity of the Property. Water was not encountered in borings up to 40 feet in depth advanced during this investigation. The water-bearing units within the area are comprised of alluvium.

Based on a review of the Portland, Oregon Quadrangle 7.5 minute series topographic map, the inferred groundwater flow at the site is to the west toward the Willamette River located approximately 1.1 miles west southwest at its closed point. According to the USEPA Ground Water Handbook, Vol.1 Ground Water and Contamination, September 1990, the water table typically conforms to surface topography.

4.0 SCOPE OF WORK

The purpose of the subsurface environmental investigation is to collect soil, soil vapor and groundwater samples on the Site to confirm the presence or absence of contaminants related to past use of the Site and support closure of the UST release with the ODEQ.

4.1 AREAS OF POTENTIAL CONCERN, PROPOSED BORINGS AND ANALYSIS

Based upon the past and current configuration and use of the Site, the following areas were identified for investigation. Boring locations are depicted on the attached Boring Location Diagram (Figure 4).

Area of Potential Concern	Borings
Former service station on Site from 1935 to 1985	SB1 and SB6 – SB16



Boring	Media	Analytical Methods	Detection Limit
SB1 and SB6 – SB16	Soil	NWTPH-Dx/Gx, EPA 8260 (VOCs) and EPA 7000 (Lead)	RBCs for Vapor Intrusion in a Residential Setting or Less
SS1	Sub-slab Vapor	EPA TO15 (Gx/Volatile Organic Compounds)	RBCs for Vapor Intrusion in an Occupational Setting or Less
SV1-SV2	Soil Vapor	EPA TO15 (Gx/Volatile Organic Compounds)	RBCs for Vapor Intrusion in a Residential Setting or Less

4.2 UTILITY LOCATING

Prior to initiating the field activities, Oregon law requires that, at least 48 hours prior to the initiation of any subsurface work (drilling, backhoe operation, etc.), a utility inspection be performed at the Site. This inspection consists of the marking of underground utility locations by authorized utility locating personnel. The utility inspection was performed prior to the drilling activities.

The ticket number for the utility inspection is 17037445.

4.3 HEALTH AND SAFETY PLAN

A site specific Safety Plan was read by field personnel. A toolbox safety meeting was conducted at the site prior to the commencement of the fieldwork. Topics included potential exposure to contaminants of interest, personal protective equipment (drilling and media contact), location of first aid kit, and location/directions to closest emergency medical facility.

4.4 GEOPHYSICAL INVESTIGATION

A Geophysical Survey of the Site was performed by Pacific Geophysics on February 27, 2017. No anomalies suspected of representing underground storage tanks were detected. A distinct disturbed zone of soil believed to represent a former tankhold was located on the southeast portion of the Site in the vicinity of the former service station.

A copy of the Geophysical Survey is presented in in Appendix IV.

5.0 SAMPLING METHODOLOGY and QA/QC

5.1 Soil Samples

Soil Borings SB1 and SB6 through SB16 were advanced Geoprobe macro tooling with an acetate liner, driven by a truck mounted probe. Soil samples were obtained continuously from the surface using a 4-foot-long, 2-inch diameter sample tool lined with an acetate sleeve. The sampling tool was driven in 4-foot intervals until the target depth was achieved.

Soils were field-screened using visual, sheen, and olfactory observations, and for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID). Headspace vapor screening was conducted on representative samples placed in a sealed plastic bag. The tip of a PID was inserted into a hole in the bag, and the presence of VOCs was measured. Readings are collected in parts per million (ppm). Notes on visual appearance, odor, and PID readings were recorded on the field boring logs.

Soil samples were collected in 4-ounce glassware with Teflon-lined lids. Each sample was labeled for



identification and stored in an iced cooler. Soil cuttings generated during the advancement of the borings were visually inspected for discoloration, and monitored for odors.

5.2 Groundwater Samples

Groundwater was not encountered to a maximum explored depth of 40 feet below ground surface during this investigation.

5.3 Soil Gas Samples

The sub-slab soil gas probe (sample SS1), consisting of a pre-fabricated stainless steel screen and casing, was manually inserted into a 1-inch diameter hole drilled within the concrete building slab using a rotary hammer hand drill.

The soil gas probes (samples SV1 and SV2), consisting of a pre-fabricated stainless steel screen and casing (Geoprobe PRT Sampler), was driven to a depth of five feet below ground surface with direct push tooling.

Samples (SS1, SV1 and SV2) were collected in 1 liter sample canisters provided by Freidman & Bruya Environmental Chemists. The sample canister, Teflon tubing, vacuum gauges and flow rate orifice apparatus were connected in the sample string. Vacuum gauges and sample canister vacuum were checked before initiating sample collection. The air volume within the collection apparatus and Teflon tubing was purged prior to sample collection. A bentonite seal was applied to the point of ground penetration and at the exit of the Teflon tubing through the Geoprobe tool string. Paper towels saturated with 2-Propanol were placed over the bentonite seals and equipment fittings during sample collection as a leak check compound. The sampling trains were purged of a minimum of three dead volumes prior to sample collection. A clean pair of disposable nitrile gloves was worn during the collection of each sample.

All tooling was decontaminated in a water and detergent solution and rinsed in tap water between samples and boring locations. Samples were placed in laboratory provided containers. One transport blank was prepared.

Chain of Custody was maintained for all samples.

6.0 SUBSURFACE INVESTIGATION

6.1 Sampling

The subsurface investigation was conducted on February 28, 2017 and March 13-15, 2017. During the investigation, soil borings were advanced by Point Source Solutions as follows.

- Boring SB1 was completed to 20 feet bgs along the south property line fronting NE Broadway
 approximately 30 feet south southeast of the south edge of the former tankhold. A soil sample was
 collected at 20.0 feet bgs at this location. No indications of contamination were noted in the
 continuous soil cores collected from this boring.
- Boring SB6 was completed to 20 feet bgs along the north side of the former tankhold. A soil sample
 was collected at 20.0 feet bgs at this location. No indications of contamination were noted in the
 continuous soil cores collected from this boring.



- Boring SB6b was completed to 28 feet bgs along the north side of the former tankhold (next to SB6 for the purpose of collecting a deeper soil sample). A soil sample was collected at 28.0 feet bgs at this location. No indications of contamination were noted in the continuous soil cores collected from this boring.
- Boring SB7 was completed to 12 feet bgs along the east side of the former tankhold. A soil sample
 was collected at 12.0 feet bgs at this location. Refusal was met at 12.0 feet bgs in this boring. No
 indications of contamination were noted in the continuous soil cores collected from this boring.
- Boring SB8 was completed to 20 feet bgs along the south side of the former tankhold. A soil sample
 was collected at 20.0 feet bgs at this location. No indications of contamination were noted in the
 continuous soil cores collected from this boring.
- Boring SB9 was completed to 20 feet bgs along the west side of the former tankhold where the
 tankhold appears to extend beneath the existing structure on the Site. A soil sample was collected
 at 20.0 feet bgs at this location. No indications of contamination were noted in the continuous soil
 cores collected from this boring.
- Boring SB10 was completed to 28 feet bgs in the center west area of the former tankhold. Soil samples were collected at depths of 11.0 feet bgs, 18 feet bgs and 28.0 feet bgs at this location.
 Soil staining was noted from 8-24 feet bgs in this soil boring. Petroleum odor was noted from 8-28 feet bgs in this boring.
- Boring SB10b was completed to 39 feet bgs in the center west area of the former tankhold (next to SB10 for the purpose of collecting a deeper soil sample). Soil samples were collected at depths of 2.0 feet bgs and 39.0 feet bgs at this location. The sampling apparatus was advanced in a closed tip configuration from 4 feet bgs to 36 feet bgs. Soil staining was not noted from 36-39 feet bgs in this soil boring. Petroleum odor was noted from 36-39 feet bgs in this boring although PID readings ranged from 350 ppm at 36.5 feet bgs to 35 ppm at 39 feet bgs.
- Boring SB11 was completed to 28 feet bgs approximately 10 feet north of SB10 (approximately midway between SB10 and the north side of the former tankhold). Soil samples were collected at depths of 12.0 feet bgs and 28.0 feet bgs at this location. Soil staining and petroleum odor was noted from 9.5-28 feet bgs in this boring.
- Boring SB12 was completed to 16 feet bgs in the center east area of the former tankhold. A soil sample was collected at 16.0 feet bgs at this location. Soil staining and petroleum odor was noted from 8-16 feet bgs in this boring.
- Boring SB13 was completed to 24 feet bgs approximately 10 feet east of SB12 (approximately midway between SB12 and the east side of the former tankhold). A soil sample was collected at 24.0 feet bgs at this location. Soil staining and petroleum odor was noted from 12-24 feet bgs in this boring.
- Boring SB14 was completed to 16 feet bgs approximately 10 feet south of SB10 (approximately midway between SB10 and the south side of the former tankhold). A soil sample was collected at 13.0 feet bgs at this location. Soil staining and petroleum odor was noted from 13-16 feet bgs in this boring.



Fill and native soil consisting of clayey silt, silt, sand and occasional gravel was encountered in these borings.

Groundwater was not encountered at the maximum explored depth of 39 feet below ground surface in these borings.

Sub-slab vapor sampling and soil vapor sampling were conducted on March 10, 2017.

- Sub-Slab 1 was collected in the sub-grade service bay of the shop building.
- Soil Vapor 1 and Soil Vapor 2 were collected at the north Property line abutting the Crown Royal Apartments.

The sample locations are illustrated on Figure 4. Boring logs are presented in Appendix I.

6.2 Laboratory Analytical Results

Soil samples collected on February 28, 2017 and March 13-15, 2017 were transported under chain of custody to Wy'East Environmental Sciences, Inc. (Wy'East) for analysis.

 Sixteen soil samples were analyzed by NWTPH-Gx for gasoline range petroleum hydrocarbons. The soil sample with the highest concentration of Gx was further analyzed by EPA Method 8260B for volatile organic compounds and EPA Method 7000 for lead. Eight of these soil samples were analyzed by NWTPH-Dx for diesel range petroleum hydrocarbons.

Sub-slab and Soil vapor samples collected on March 10, 2017 were transported under chain of custody to Friedman & Bruya Environmental Chemists for analysis.

• Three soil vapor samples were analyzed by EPA Method TO-15. EPA Method TO-15 is used for the analysis of volatile organic compounds in air using a 1-liter Summa canister.

The sample analytical results are summarized in Tables 1 and 2 below.

The laboratory analytical reports and chain-of-custody forms are included as Appendix II.

	TABLE 1- SOIL SAMPLES							
	LABORATORY ANALYTICAL RESULTS – NWTPH-GX/DX/ VOCS/LEAD (MG/KG)							
SAMPLE	DEPTH	DATE	NWTPH - GX/DX/HO	VOCS EPA 8260	Lead EPA 7000			
SB1-S1	20.0′	02/28/17	Gas – None Detected Diesel – None Detected Oil – None Detected	Not Analyzed	Not Analyzed			
SB6-S1	20.0′	02/28/17	Gas – None Detected Diesel – None Detected Oil – None Detected	Not Analyzed	Not Analyzed			
SB6b-S1	28.0′	03/13/17	Gas – None Detected	Not Analyzed	Not Analyzed			
SB7-S1	12.0′	02/28/17	Gas – None Detected Diesel – None Detected Oil – None Detected	Not Analyzed	Not Analyzed			
SB8-S1	20.0′	02/28/17	Gas – None Detected Diesel – None Detected	Not Analyzed	Not Analyzed			



	LA	BORATORY ANALY	TABLE 1- SOIL SAMPLE	•	
SAMPLE	DEPTH	DATE	NWTPH - GX/DX/HO	VOCS EPA 8260	Lead EPA 7000
			Oil – None Detected		
SB9-S1	20.0′	02/28/17	Gas – None Detected Diesel – None Detected Oil – None Detected	Not Analyzed	Not Analyzed
SB10-S1	11.0′	02/28/17	Gas – 19,300 Diesel – None Detected Oil – None Detected	Ethylbenzene — 65.1 Naphthalene — 127 Styrene — 0.752 Toluene — 0.651 124-TMB — 371 135-TMB — 189 Xylenes - 470	Not Analyzed
SB10-S2	18.0′	02/28/17	Gas – 4,220 Diesel – None Detected Oil – None Detected	Not Analyzed	Not Analyzed
SB10-S3	28.0′	02/28/17	Gas – 8,490 Diesel – None Detected Oil – None Detected	Not Analyzed	Not Analyzed
SB10b-S1	2.0′	03/10/17	GX – 132	Not Analyzed	Not Analyzed
SB10b-S2	39.0′	03/10/17	Gas – None Detected	Not Analyzed	Not Analyzed
SB11-S1	12.0′	03/13/17	Gas - 22,600	Not Analyzed	Not Analyzed
SB11-S2	28.0′	03/13/17	Gas – None Detected	Not Analyzed	Not Analyzed
SB12-S1	16.0′	03/13/17	Gas – 45,600	Ethylbenzene – 1,190 Naphthalene – 151 Toluene – 14.5 124-TMB – 7,830 135-TMB – 1,360 Xylenes – 8,180	<u>Lead – 56</u>
SB13-S1	24.0′	03/13/17	Gas – 37	Not Analyzed	Not Analyzed
SB14-S1	13.0′	03/13/17	Gas - 21,300	Not Analyzed	Not Analyzed

Table 1 Notes:

Concentrations are only presented for regulated VOCs. Various VOCs were detected in these samples without corresponding soil vapor RBCs.

	TABLE 2- SOIL VAPOR SAMPLES LABORATORY ANALYTICAL RESULTS –VOCS/GAS (C4-C12 HYDROCARBONS) (UG/M³)						
Sample	Depth	Date	Location	VOCS BY EPA TO-15	Gasoline		
Sub-slab 1 (SS1)	0.5′	03/10/17	Shop Service Pit	Benzene – 4.0 Ethylbenzene – 3.1 Tetrachloroethene – 300 Toluene – 23.0 Total Xylenes – 15.4	None Detected		
Soil Vapor 1 (SV1)	5.0′	03/10/17	North Property Line	Tetrachloroethene – 15 Total Xylenes – 6.9	None Detected		
Soil Vapor 2 (SV2)	5.0′	03/10/17	North Property Line	Tetrachloroethene – 15 Toluene – 2.2	None Detected		



Table 3 Notes:

Concentrations are only presented for regulated VOCs. Various VOCs were detected in these samples without corresponding soil vapor RBCs.

Concentrations of 2-proponol (highest 1,200 ug/m³) used as a leak detector gas are not indicative of significant sample breakthrough.

6.3 Quality Assurance/Quality Control Review

Laboratory QA/QC measures were performed through data validation of available analytical data generated as part of these sampling events. Data validation considered the following:

- Method Detection and/or Reporting Limits
- Laboratory Matrix Blanks
- Sample Holding Times
- Surrogate and Matrix Spike Recoveries, and
- Laboratory Duplicate Analysis Results

Wy'East did not report any qualifiers, which would indicate problems with the soil sample results. According to the lab reports, all analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Exceptions are qualified in the analytical report. In cases where there is insufficient sample material provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.

Friedman & Bruya reported the following data qualifiers for the submitted soil vapor samples.

- The calibration results for acrylonitrile, pentane, cyclopentane and vinyl acetate in samples SS1, SV1 and SV2 were outside of acceptance criteria. The reported values are estimates.
- The 2-propanol response in sample SV2 exceeded the valid instrument calibration range. The reported value is an estimate.

7.0 NATURE AND EXTENT OF CONTAMINATION

7.1 Primary Source(s) of Contamination

The primary sources of contamination include the following.

• A release of gasoline to soil from former underground storage tanks located east of the current Site building. A service station occupied the Site from at least 1935 through 1985.

7.1.1 Soil

Gasoline-range petroleum hydrocarbons; various VOCs including ethylbenzene, naphthalene, styrene, toluene, 124 TMB, 135 TMB, total xylenes and MTBE; and lead were detected at maximum concentrations in the soil samples (10-16 feet bgs) collected in SB10, SB11 and SB12 near the center of the former tankhold. Samples collected from these borings along the perimeter of the tank hold did not contain detectible levels of these contaminants. Low levels of gasoline-range petroleum hydrocarbons



(132 mg/kg) are present in shallow (0-3 feet bgs) soils in SB10b. This area likely is the location of pump islands associated with the storage tanks decommissioned in 1985.

Point Source estimates the quantity of gasoline-range petroleum hydrocarbon impacted soil present in this area to be between 600 and 700 cubic yards based on a an average thickness 20 foot lens of contaminated material spread over an aerial extent of 900 square feet.

7.1.2 Groundwater

Groundwater was not encountered to a depth of 40 feet below ground surface.

7.1.3 Soil Vapor

Various VOCs including benzene, ethylbenzene, tetrachloroethene, toluene and total xylenes were detected in the sub-slab vapor sample collected in the shop.

Various VOCs including tetrachloroethene, toluene and total xylenes were detected in the two soil vapor samples collected on the north property line.

7.2 Contaminants of Interest/Contaminants of Potential Concern

To identify compounds detected in site soils and groundwater that are most likely to be of concern to human health, detected concentrations of these contaminants were compared to a series of risk-based screening criteria that cover the range of potential human activities that may be practiced on the Property currently or in the future.

Compounds with detected concentrations were identified as being COIs. It should be noted that the identification of COIs does not indicate that an unacceptable risk or that a threat exists. Also, COI identification does not necessarily indicate that remediation of a specific environmental media is required. Screening criteria are purposely conservative so chemicals that may contribute to site risk can be further evaluated. The COIs for the Property include petroleum hydrocarbons (gas and oil), metals, VOCs, PAHs and PCBs detected in soil, sub-slab vapor and groundwater samples.

	CONTMINANTS OF INTEREST					
Contaminant	Soil Max Concentration mg/kg	Depth	Groundwater Max Concentration ug/L	Soil Vapor Max Concentration ug/m3		
TPH-GX	45,600	16.0′	NA	Not Detected		
Benzene	Not Detected		NA	4.0		
Ethylbenzene	1,190	16.0′	NA	3.1		
Naphthalene	151	16.0′	NA	Not Detected		
Styrene	0.752	11.0′	NA	Not Detected		
Tetrachloroethene	Not Detected		NA	300		
Toluene	14.5	16.0′	NA	23.0		
124 TMB	7,830	16.0′		Not Detected		
135 TMB	1,360	16.0′		Not Detected		
Total Xylenes	8,180	16.0′	NA	15.4		
Lead	56	16.0′	NA	NA		



COIs that have concentrations less than their RBCs can be screened out. Constituents that remain after the screening are COPCs.

The COPCs have been carried forward for the risk screening discussed below.

8.0 BENEFICIAL LAND AND WATER USE DETERMINATION

The purpose of the BLWUD is to collect and document information regarding the current and reasonably likely future beneficial uses of land and water in the locality of the facility (LOF). Beneficial use determinations provide the basis for the development of exposure scenarios discussed later in this report. The BLWUD was completed in accordance with the ODEQ's Guidance for Conducting Beneficial Water Use Determinations at Environmental Cleanup Sites (ODEQ, 1998) and Guidance for Consideration of Land Use (ODEQ, 1998).

Groundwater was not encountered in borings advanced by Point Source and refusal on the Site was met prior to providing evidence of adequate separation between documented contamination of soil and groundwater therefore a Beneficial Use of Groundwater evaluation was conducted.

Based upon a review of well logs in Section 26, depth to first water at the Site is estimated to be in excess of 50 feet below ground surface.

- M125396 located at 1624 NE Hancock Street (1,026 feet to the NE) indicates water was not encountered to a depth of 75 feet below ground surface.
- M92788 located at 1421 NE Halsey Street (2,138 feet to the ESE) indicates water was not encountered to a depth of 50 feet below ground surface.

8.1 Locality of Facility

The LOF is defined by ODEQ as any point where human or ecological receptors may reasonably come into contact with site-related contaminants. Point Source assumes that the LOF extends to the Site boundaries.

8.2 Summary of Water Use

The apartment building to the north and surrounding businesses to the east, south and west are all provided water by the Portland Water Bureau. According to the Portland Water Bureau, the main water supply for the district is the Bull Run Watershed. Drinking water is stored in two reservoirs with up to 9.9 million gallons of usable water in storage. Based on our review of the available data information from the Portland Water Bureau, the Property and immediately surrounding areas are connected to the municipal water supply system.

The Property (TL 1N1E26DD12800) is located in the SE ¼ of the SE ¼ of Section 26, T.1N, R.1E. All well log records available from the Oregon Water Resources Department (OWRD) for Sections 26 and 35 of T.1N, R.1E were reviewed.

Well ID	Owner	Address	Distance (FT)	Use	H2O	
SECTION 35	SECTION 35					
MULT1086	Lloyd Corporation	720 NE 12 th Av	3,410′	Industrial	121'	
MULT1087	Jantzen, Inc.	1939 NE Glisan St	3,430′	Other	123′	



Well ID	Owner	Address	Distance (FT)	Use	H2O	
MULT1088	Tonkin Motor Company	Unknown	Unknown	Other	42'	
MULT1090	Sheraton Hotel Corporation	720 NE 12 th Av	3,410′	Industrial	121'	
MULT1091	Lloyd Corporation	Unknown	Unknown	Irrigation	30'	
MULT1092	Sheraton Hotel Corporation	720 NE 12 th Av	3,410′	Industrial	121'	
MULT1093	PPS - Benson High School	546 NE 12th Ave	3,440′	Cathodic	Unknown	
MULT82884	Cavenaugh and Cavenaugh	1111 E. Burnside St	5,170′	Thermal/Injection	96'	
MULT83130	Cavenaugh and Cavenaugh	1111 E. Burnside St	5,170′	Thermal	96′	
MULT86581	Burnside Rocket	1111 E. Burnside St	5,170′	Thermal	Unknown	
MULT86582	Burnside Rocket	1111 E. Burnside St	<mark>5,170'</mark>	Domestic/Thermal	Unknown	
MULT105401	John Rowe	217 SE 14 th Ave	<mark>5,500'</mark>	Domestic/Abandon	Unknown	
MULT116498	P7 Jantzen LLC	1939 NE Glisan St	3,430′	Industrial/Abadon	116′	
SECTION 26	SECTION 26					
	No water well logs are filed WITH OWRD for this section.					

Research of well logs filed with the OWRD revealed no drinking water supply wells within 1000 feet of the Property.

The closest well identified as a water well was installed in December 1957 at 720 NE 12th Avenue, Portland for Sheraton Hotel Corporation to a depth of 272 feet. The static water level was logged at 121 feet. This well is located approximately 3,410 feet southeast of the Site. Google Maps indicates that the property at this address is no longer present. Structures in the area include a parking lot, and roadway.

Copies of the well logs are included in Appendix III.

8.3 Summary of Land Use

The current zoning of the Site is Storefront Commercial (CS). CS zoning allows for a full range of retail, service and business uses with a local and regional market area. Industrial uses are allowed but are limited in size to avoid adverse effects different in kind or amount than commercial uses and to ensure that they do not dominate the character of the commercial area. Based on the BLWUD, development of the Site for commercial use (current use) is allowed.

With the exception of the north adjoining property the remaining adjoining properties are zoned CS.

The east adjoining property is zoned R1-Medium Density Residential. This property is currently developed with the Crown Royal Apartments.

9.0 CONCEPTUAL SITE MODEL

A CSM defines the potentially complete exposure pathways through which human or ecological receptors may be exposed to site contaminants under current or anticipated future land use conditions. A discussion of Site geology and hydrogeology, potential contaminant sources, and the nature and



extent of contamination are presented above. An evaluation of current and reasonably likely future receptor-exposure pathway analysis is presented below.

A Conceptual Site Model was developed for the Site and is included as Figure 5 of this report.

The Summary of the Conceptual Site Model, which includes the reasoning for accepting or rejecting exposure scenarios, is included as Figure 6.

9.1 Potential Human Receptors

Potential receptors are those individuals who might be likely exposed to the COIs under current and reasonably likely future land-use conditions. Current land use at the site and surrounding areas is zoned C3 and C3-MR1 which allows for commercial (north, east and south) and medium density residential (west) uses. Future development is expected to be for commercial/retail purposes. Current and potential human receptors that have been identified in the risk-based screening include the following:

- Adults in the occupational scenario (current Property use);
- Adults in the construction/excavation worker scenario;
- Residential occupants of the north adjoining property; and,
- Future residential occupants on and off site.

9.1.1 Exposure Pathways for Soil

The following summarizes the potential and/or complete exposure pathways for soil.

- Soil Ingestion, Dermal Contact, and Inhalation These exposure pathways are considered
 potentially complete for future construction and excavation workers only. Underground utilities
 may be modified in the future within the LOF making it possible that future excavation and
 construction workers could be exposed to Site contamination during utility maintenance and
 construction activities.
- Volatilization to Outdoor Air This pathway is considered potentially complete for current on-site
 occupational receptors, current adjoining residential receptors, and future on-site and adjoining
 residential/urban residential receptors.
- Vapor Intrusion into Buildings This pathway is considered potentially complete for current on-site
 occupational receptors, current adjoining residential receptors, and future on-site and adjoining
 residential/urban residential receptors.
- Leaching to Groundwater This pathway considers soil leaching to groundwater used for tap water.
 Based upon the results of the Beneficial Water Use Survey, groundwater in the vicinity of the site is not used as a drinking water source.

9.1.2 Exposure Pathways for Groundwater

The following summarizes the potential exposure pathways for groundwater.

Ingestion and Inhalation from Tap Water – This exposure pathway is considered incomplete
because drinking water wells are not located in or near the LOF and the Site and surrounding area



receives drinking water from the Bull Run watershed via the City of Portland.

9.1.3 Exposure Pathways for Soil Vapor

None of the detected concentrations in soil vapor samples exceed any of their respective RBCs.

9.2 Potential Ecological Receptors

Ecological receptors on the Property are not anticipated since there is no ecological habitat present within the assumed LOF.

10.0 RISK SCREENING

The COPCs for the Site include gasoline-range petroleum hydrocarbons, ethylbenzene, xylenes, naphthalene, 124-TMB, 135 TMB, and lead. Analytical results were compared to ODEQ RBCs (November 2015) for the applicable exposure pathways discussed above.

A summary of COPCs that exceed applicable RBCs is presented below.

	cc	DNTAMINANTS OF POTENTIAL CONC	CERN (COPCs)
СОРС	Medium	Pathway	Receptor
TPH-Gx	Soil	Soil Ingestion, Dermal Contact and Inhalation	All current and future on-site receptors except for Excavation Workers
		Vapor Intrusion into Buildings	Future on site residential/urban residential receptors Current adjoining residential receptors
		Volatilization to Outdoor Air	Future on site residential/urban residential receptors Current adjoining residential receptors
		Leaching to Groundwater	All current and future receptors
Ethylbenzene	Soil	Soil Ingestion, Dermal Contact and Inhalation	Current on site occupational and future residential/urban residential receptors
		Vapor Intrusion into Buildings	Current on site occupational and future residential/urban residential receptors Current adjoining residential receptors
		Volatilization to Outdoor Air	Current on site occupational and future residential/urban residential receptors Current adjoining residential receptors
		Leaching to Groundwater	All current and future receptors
Xylenes	Soil	Soil Ingestion, Dermal Contact and Inhalation	Future on site residential/urban residential receptors
		Vapor Intrusion into Buildings	Future on site residential/urban residential receptors
		Leaching to Groundwater	Current adjoining residential receptors All current and future receptors
Naphthalene	Soil	Soil Ingestion, Dermal Contact and Inhalation	Current on site occupational receptors and Future residential/urban residential receptors
		Vapor Intrusion into Buildings	Current on site occupational and future residential/urban residential receptors



	CONTAMINANTS OF POTENTIAL CONCERN (COPCs)					
СОРС	Medium	Pathway	Receptor			
			Current adjoining residential receptors			
		Volatilization to Outdoor Air	Current on site occupational and future residential/urban residential receptors Current adjoining residential receptors			
		Leaching to Groundwater	All current and future receptors			
124-TMB	Soil	Soil Ingestion, Dermal Contact and Inhalation	All current and future on site receptors except for Excavation Workers			
		Vapor Intrusion into Buildings	Current on site occupational and future residential/urban residential receptors Current adjoining residential receptors			
		Volatilization to Outdoor Air	Current on site occupational and future residential/urban residential receptors Current adjoining residential receptors			
		Leaching to Groundwater	All current and future receptors			
135-TMB	Soil	Soil Ingestion, Dermal Contact and Inhalation	Future on site residential receptors			
		Leaching to Groundwater	All current and future receptors			
Lead	Soil	Leaching to Groundwater	All current and future receptors			

10.1 Soil

COPCs detected in soil exceed the following RBCs.

- TPH-Gx in soil levels (highest 45,600 mg/kg) exceed the Soil Ingestion, Dermal Contact and Inhalation RBCs for residential and urban residential, occupational, and construction worker receptors.
 - This pathway is considered incomplete because impacted soils are greater than 3 feet below ground surface and are therefore not accessible to these receptors.
- TPH-Gx in soil levels (highest 45,600 mg/kg) exceed the Vapor Intrusion into Buildings RBCs and the Volatilization to outdoor Air RBCs for residential, urban residential, and occupational receptors.
 - These pathways are considered complete but have been eliminated based upon the results of the soil vapor sampling.
- TPH-Gx in soil levels (highest 45,600 mg/kg) exceed Leaching to Groundwater RBCs for residential, urban residential and occupational receptors.
 - This pathway has been eliminated based upon the results of the BLWD and because the impacted soil does not extend within 10 feet of the expected seasonally high water table.
- Ethylbenzene in soil levels (highest 1,190 mg/kg) exceed the Soil Ingestion, Dermal Contact and Inhalation RBCs for residential, urban residential, and occupational receptors.
 - This pathway is considered incomplete because impacted soils are greater than 3 feet below



ground surface and are therefore not accessible to these receptors.

• Ethylbenzene in soil levels (highest 1190 mg/kg) exceed the Vapor Intrusion into Buildings RBCs and the Volatilization to outdoor Air RBCs for residential, urban residential, and occupational receptors.

These pathways are considered complete but have been eliminated based upon the results of the soil vapor sampling.

• Ethylbenzene in soil levels (highest 1190 mg/kg) exceed Leaching to Groundwater RBCs for residential, urban residential and occupational receptors.

This pathway has been eliminated based upon the results of the BLWD and because the impacted soil does not extend within 10 feet of the expected seasonally high water table

• Xylenes in soil levels (highest 1,190 mg/kg) exceed the Soil Ingestion, Dermal Contact and Inhalation RBCs for residential and urban residential receptors.

This pathway is considered incomplete because impacted soils are greater than 3 feet below ground surface and are therefore not accessible to these receptors.

• Xylenes in soil levels (highest 1,190 mg/kg) exceed the Vapor Intrusion into Buildings RBCs for residential and urban residential receptors.

These pathways are considered complete but have been eliminated based upon the results of the soil vapor sampling.

• Xylenes in soil levels (highest 1,190 mg/kg) exceed Leaching to Groundwater RBCs for residential, urban residential and occupational receptors.

This pathway has been eliminated based upon the results of the BLWD and because the impacted soil does not extend within 10 feet of the expected seasonally high water table

• Naphthalene in soil levels (highest 151 mg/kg) exceed the Soil Ingestion, Dermal Contact and Inhalation RBCs for residential, urban residential, and occupational receptors.

This pathway is considered incomplete because impacted soils are greater than 3 feet below ground surface and are therefore not accessible to these receptors.

• Naphthalene in soil levels (highest 151 mg/kg) exceed the Vapor Intrusion into Buildings RBCs and the Volatilization to outdoor Air RBCs for residential, urban residential, and occupational receptors.

These pathways are considered complete but have been eliminated based upon the results of the soil vapor sampling.

 Naphthalene in soil levels (highest 151 mg/kg) exceed Leaching to Groundwater RBCs for residential, urban residential and occupational receptors.

This pathway has been eliminated based upon the results of the BLWD and because the impacted soil does not extend within 10 feet of the expected seasonally high water table.

• 1,2,4-TMB in soil levels (highest 7,830 mg/kg) exceed the Soil Ingestion, Dermal Contact and Inhalation RBCs for residential and urban residential, occupational, and construction worker



receptors.

This pathway is considered incomplete because impacted soils are greater than 3 feet below ground surface and are therefore not accessible to these receptors.

• 1,2,4-TMB in soil levels (highest 7,830 mg/kg) exceed the Vapor Intrusion into Buildings RBCs and the Volatilization to outdoor Air RBCs for residential, urban residential, and occupational receptors.

These pathways are considered complete but have been eliminated based upon the results of the soil vapor sampling.

• 1,2,4-TMB in soil levels (highest 7,830 mg/kg) exceed Leaching to Groundwater RBCs for residential, urban residential and occupational receptors.

This pathway has been eliminated based upon the results of the BLWD and because the impacted soil does not extend within 10 feet of the expected seasonally high water table.

• 1,3,5-TMB in soil levels (highest 1,360 mg/kg) exceed the Soil Ingestion, Dermal Contact and Inhalation RBCs for residential receptors.

This pathway is considered incomplete because impacted soils are greater than 3 feet below ground surface and are therefore not accessible to these receptors.

• Lead in soil levels (highest 56 mg/kg) exceed Leaching to Groundwater RBCs for residential, urban residential and occupational receptors.

This pathway has been eliminated based upon the results of the BLWD and because the impacted soil does not extend within 10 feet of the expected seasonally high water table.

10.2 Groundwater

Groundwater was not encountered to a depth of 40 feet below ground surface. Based on the findings of the BLWUD, the use of groundwater at the Site for drinking water purposes is not expected. Based upon well logs in the area, depth to first water at the Site is estimated to be in excess of 50 feet below ground surface.

With the removal of the Ingestion and Inhalation from Tapwater pathway, TPH-Gx and VOCs potentially present in groundwater do not exceed applicable RBCs.

10.3 Soil Vapor

No COPCs were identified.

11.0 FINDINGS

The investigation, field screening of samples, and laboratory analytical results indicated the following:

Although gasoline-range hydrocarbons were detected in SB10b at less than 3 feet bgs, the
concentration of Gx at that depth (132 mg/kg) does not exceed soil ingestion RBC for any receptor.
Field screening of soil in the remaining borings did not indicate the presence of shallow
contaminated soil. This area likely is the location of pump islands associated with the storage tanks
decommissioned from the southeast portion of the Site in 1985.



- Gasoline-range petroleum hydrocarbons as well as various VOCs were detected in soil samples collected in SB10, SB11, SB12, SB13 and SB14 which represent locations within the former tankhold. Samples collected from borings advanced along the perimeter of the former tankhold not contain detectible levels of these contaminants. Point Source estimates the quantity of gasoline-range petroleum hydrocarbon impacted soil present in this area to be between 600 and 700 cubic yards based on a an average thickness 20 foot lens of contaminated material spread over an aerial extent of 900 square feet.
- Various VOCs were detected in the sub-slab vapor sample collected in the shop at levels below soil vapor RBCs for any receptor.
- Various VOCs were detected in the soil vapor samples collected on the north property line at levels below soil vapor RBCs for any receptor.

12.0 CONCLUSIONS

Based on the BLWUD and the CSM, and upon the soil and soil vapor sampling results; none of the COPCs exceed the RBCs for applicable exposure scenarios.

No further corrective action is recommended.

This report should be submitted to the Oregon Department of Environmental Quality with a request for closure.

This report is intended for the exclusive use of Lube Management Corporation or entities specified by Lube Management Corporation. This report and findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, nor relied upon by any other party, in whole or in part without prior written consent of Point Source.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Prepared by:

Gil Cobb, Registered Geologist (Oregon #G1440)

Reviewed By:

Jeff Jackman, Environmental Professional

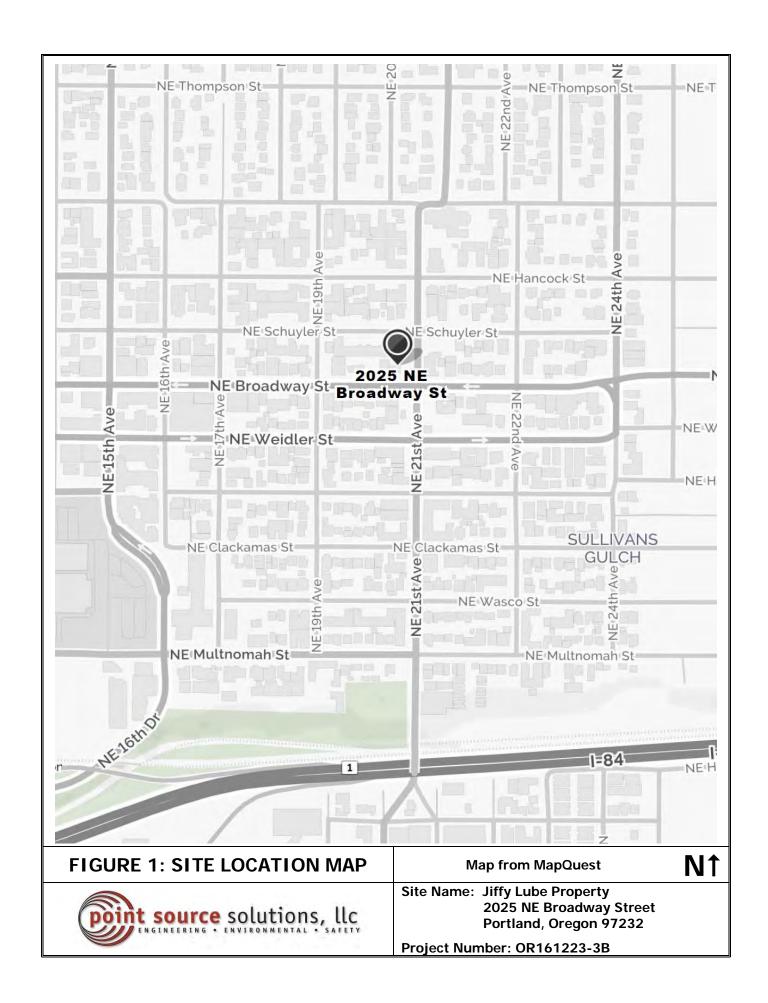
Point Source Solutions, LLC 10445 SW Canyon Road, Suite 115 Beaverton, Oregon 97005

Phone: 503.236.5885 Fax: 503.224.0449

www.pointsourcesolutions.com



FIGURES



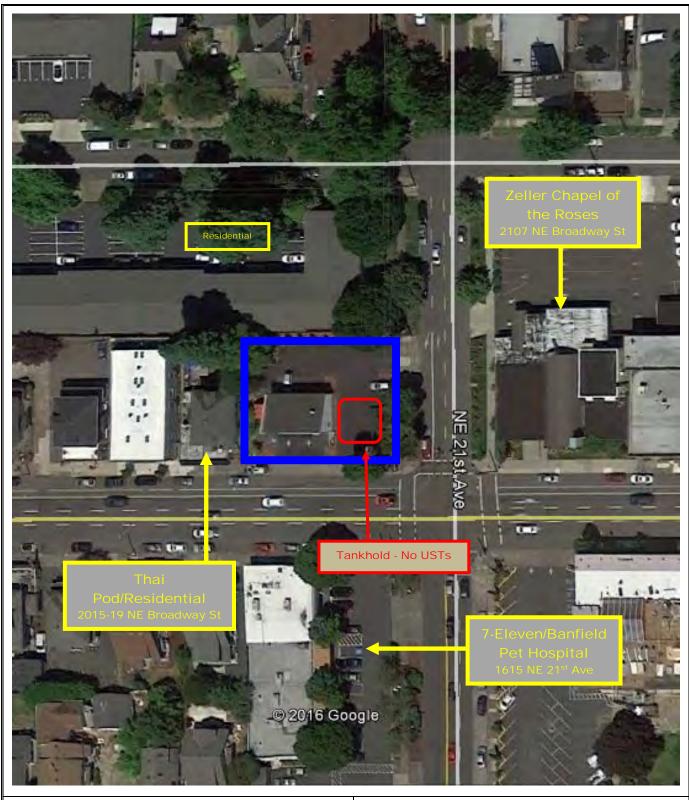


FIGURE 2: SITE PLAN

From Google Earth 2016

N↑



Site Name: Jiffy Lube Property 2025 NE Broadway Street Portland, Oregon 97232

Project Number: OR161223-3B

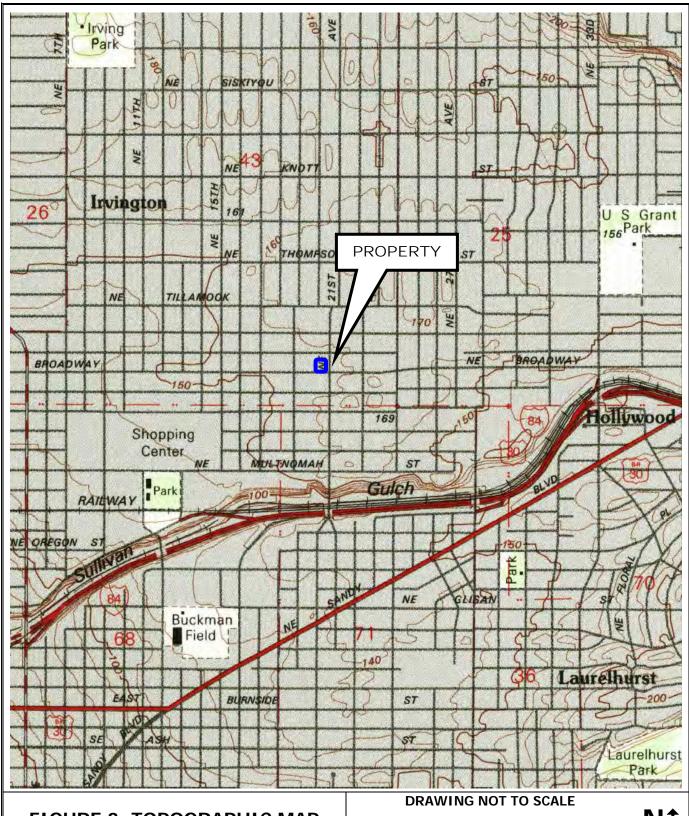


FIGURE 3: TOPOGRAPHIC MAP



Source: USGS 7.5 Minute Topographic Map Portland, OR Quadrangle 1990

Site Name: Jiffy Lube Property 2025 NE Broadway Street Portland, Oregon 97232

Project Number: OR161223-3B

N↑

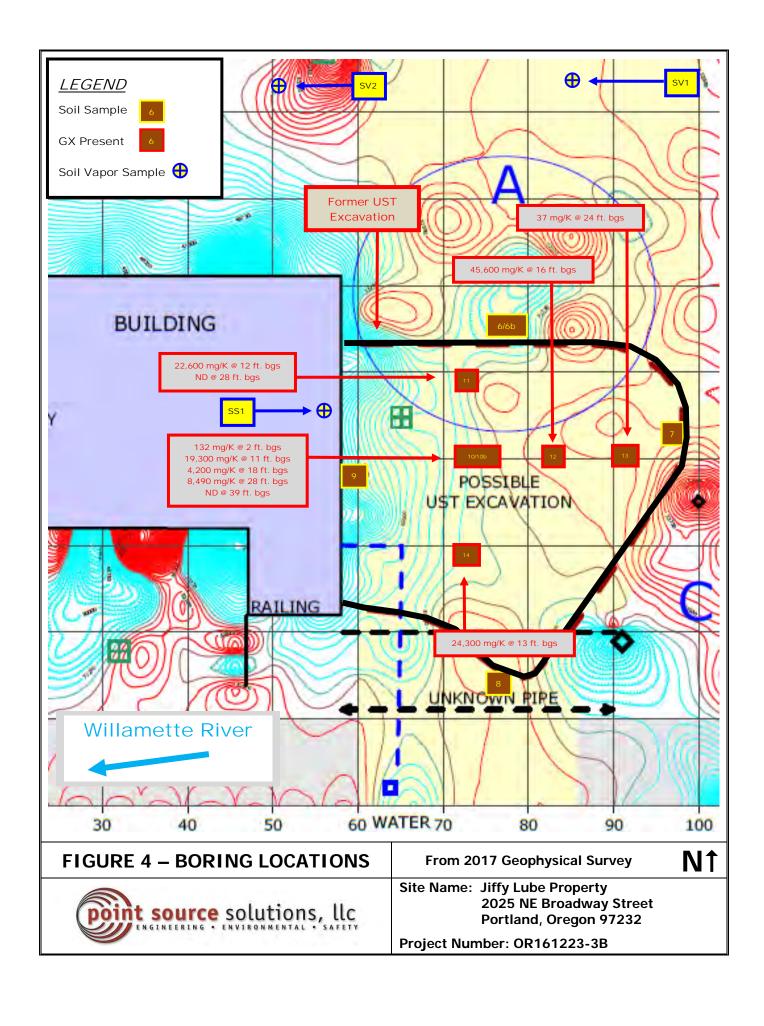
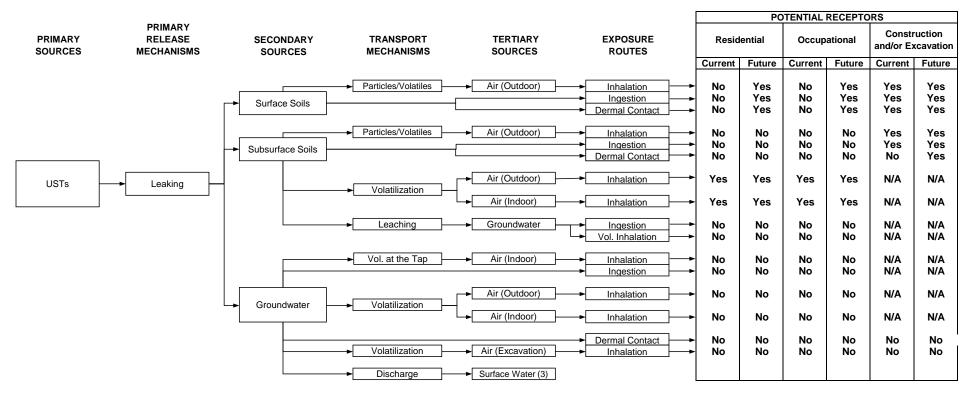


Figure 5: RBDM Conceptual Site Model



Notes:

Yes= This route is a primary source of exposure.

No= There is no exposure by this route.

Figure 6: SUMMARY OF CONCEPTUAL SITE MODEL

Potentially Exposed Population	Exposure Route, Medium and Exposure Point	Was This Pathway Selected?	Reason for Selection or Exclusion
CURRENT LAND USE: Com			
Employees	Surface soils	Yes	Pathway selected for future exposure
Residents (in area)	(all exposure routes)	Yes	scenarios only. Shallow contamination is
Exc./Const. Workers		Yes	capped with asphalt, and currently inaccessible.
Employees	Subsurface soils	No	
Residents (in area)	ingestion, dermal	No	Impacted soils are not accessible.
Const. Workers	contact, inhalation	No	_
Excavation Workers		Yes	Impacted soils may become accessible during future utility work.
Employees	Cubaurfaceaila	Yes	
Employees Residents (in area)	Subsurface soils volatilization to outdoor	Yes	Impacted subsurface soils are present.
Exc./Const. Workers	air	No	Not a receptor scenario
Exc./ const. Workers		110	Trot a receptor security
Employees	Subsurface soils vapor	Yes	Impacted subsurface soils present within
Residents (in area)	intrusion into buildings	Yes	near the current on-site building and within 100 feet of a residential structure.
Exc./Const. Workers		No	Not a receptor scenario
Employees	Subsurface soils	No	Impacted subsurface soils do not extend
Residents (in area)	leaching to groundwater	No	to within 10 feet of the seasonally high water table. BWUD indicates no drinking water wells within 1000 feet.
Exc./Const. Workers		No	Not a receptor scenario
Employees	Groundwater	No	Groundwater is not imposted
Residents (in area)	Ingestion and inhalation	No	Groundwater is not impacted
Exc./Const. Workers	of tap water	No	Not a receptor scenario
Employees	Groundwater	No	
Residents (in area)	Volatilization to outdoor	No	Groundwater is not impacted
Exc./Const. Workers	air	No	Not a receptor scenario
Employees	Groundwater	No	
Residents (in area)	Vapor intrusion into	No	Groundwater is not impacted
Exc./Const. Workers	buildings	No	Not a receptor scenario.
			1
Exc./Const. Workers	Groundwater in excavation	No	Groundwater is not impacted



APPENDICES



APPENDIX I SOIL BORING LOGS



PROJECT: Jiffy Lube #10	11	DATE : 2/28/17				
CLIENT: Lube Manageme	ent Corp	DRILLED BY: Point Source Solutions				
LOCATION: 2025 NE Bro Portland, Ore	•	BORING METHOD: Push Probe				
GEOLOGIST: Gil Cobb		SAMPLING METHOD: Continuous				
ELEV. GL: NA ELEV. TOC: NA		INITIAL WL: NA	STATIC WL: NA	TD: 20.0'		

DEPTH FEET	CORE REC	SAMPLE DEPTH	SAMPLE ID	SAMPLE/CORE DESCRIPTION	PID (PPM)
0 – 4.0'	80%			0 - 0.5 feet gravel; 0.5 – 4.0 feet dry, brown clayey silt with some medium sand.	0
4.0' - 8.0'	80%			4.0-5.5 feet dry dark brown silt, sand; $5.5-7.0$ feet moist brown clayey silt; $7.0-8.0$ feet light brown sandy silt	0
8.0' - 12.0'	100%			8.0 – 12.0 feet dry light brown silty sand.	0
12.0' - 16.0'	60%			12.0 – 16.0 feet dry light brown silty sand., lens of angular gravel at 13.0 feet	0
16.0' - 20.0'	90%	20.0'	SB1-S1	16.0 – 20.0 feet dry light brown silty sand.	0



PROJECT: Jiffy Lube #1011

DATE: 2/28/17

CLIENT: Lube Management Corp

DRILLED BY: Point Source Solutions

LOCATION: 2025 NE Broadway Street Portland, Oregon

BORING METHOD: Push Probe

SAMPLING METHOD: Continuous

ELEV. GL: NA

ELEV. TOC: NA

INITIAL WL: NA

STATIC WL: NA

TD: 20.0'

DEPTH FEET	CORE REC	SAMPLE DEPTH	SAMPLE ID	SAMPLE/CORE DESCRIPTION	PID (PPM)
0 – 4.0'	60%			0 – 2.0 feet pulverized concrete and gravel, hard driving; 2.0 – 4.0 feet dry brown silty coarse sand.	0
4.0' - 8.0'	80%			4.0 – 4.5 feet pulverized concrete and dry brown silty coarse sand; 4.5 – 8.0 dry brown silty coarse sand with some organic staining and rust.	0
8.0' - 12.0'	75%			8.0 – 12.0 feet moist light brown sandy silt, pulverized concrete at 11.0 feet, shoe jammed with rock.	0
12.0' - 16.0'	60%			12.0 – 16.0 feet dry light brown silty sand, pulverized concrete at 12.0.	0
16.0' - 20.0'	50%	20.0'	SB6-S1	6.0 – 20.0 feet dry light brown silty sand, black angular gravel at 18.0 feet.	0



BORING SB6b

PROJECT: Jiffy Lube #1011 DATE: 3/10/17

CLIENT: Lube Management Corp DRILLED BY: Point Source Solutions

LOCATION: 2025 NE Broadway Street Portland, Oregon BORING METHOD: Push Probe

GEOLOGIST: Gil Cobb SAMPLING METHOD: Continuous

ELEV. GL: NA ELEV. TOC: NA INITIAL WL: NA STATIC WL: NA TD: 28.0'

DEPTH FEET	CORE REC	SAMPLE DEPTH	SAMPLE ID	SAMPLE/CORE DESCRIPTION	PID (PPM)
0.0' - 20.0'	NA			Advanced tool string to 20 feet. Soil not screened.	
20.0' – 24.0'	60%			20.0 – 24.0 feet light brown sandy silt, no petroleum staining/no odor.	0.6
24.0' – 28.0'	60%	28	SB6b-S1	24.0 – 28.0 feet brown sandy silt, no petroleum staining/no odor.	0.3
	l				



 PROJECT: Jiffy Lube #1011
 DATE: 2/28/17

 CLIENT: Lube Management Corp
 DRILLED BY: Point Source Solutions

 LOCATION: 2025 NE Broadway Street Portland, Oregon
 BORING METHOD: Push Probe

 GEOLOGIST: Gil Cobb
 SAMPLING METHOD: Continuous

 ELEV. GL: NA
 ELEV. TOC: NA
 INITIAL WL: NA
 STATIC WL: NA
 TD: 12.0'

1.0 – 4.0' feet unsorted mix of brown sand, slay, silt, gravel, pulverized concrete, and gravel. 4.0' - 8.0' 60% 4.0 – 8.0 unsorted mix of brown sand, slay, silt, gravel, pulverized concrete, and gravel. 8.0' - 12.0' 40% 12.0' SB7-S1 SB7-S1 1.0 – 4.0 feet unsorted mix of brown sand, slay, silt, gravel, pulverized concrete, and gravel; 11.0 - 12.0 feet light brown sandy silt, progress refusal at 12.0 due to					SAMPLE/CORE DESCRIPTION	PID (PPM)
concrete, and gravel. 8.0' - 12.0' 40% 12.0' SB7-S1 concrete, and gravel. 8.0 - 11.0 feet unsorted mix of brown sand, slay, silt, gravel, pulverized concrete, and gravel; 11.0 - 12.0 feet light brown sandy silt, progress refusal at 12.0 due to	- 4.0'	1.0' 50%			1.0 – 4.0 feet unsorted mix of brown sand, slay, silt, gravel, pulverized	0
8.0' - 12.0' 40% 12.0' SB7-S1 concrete, and gravel; 0 11.0 - 12.0 feet light brown sandy silt, progress refusal at 12.0 due to	0' - 8.0'	8.0' 60%			4.0 – 8.0 unsorted mix of brown sand, slay, silt, gravel, pulverized concrete, and gravel.	0
	' - 12.0'	12.0' 40%	12.0'	SB7-S1	concrete, and gravel; 11.0 - 12.0 feet light brown sandy silt, progress refusal at 12.0 due to	0



PROJECT: Jiffy Lube #1011

CLIENT: Lube Management Corp

DRILLED BY: Point Source Solutions

LOCATION: 2025 NE Broadway Street Portland, Oregon

BORING METHOD: Push Probe

SAMPLING METHOD: Continuous

ELEV. GL: NA

ELEV. TOC: NA

INITIAL WL: NA

STATIC WL: NA

TD: 20.0'

DEPTH FEET	CORE REC	SAMPLE DEPTH	SAMPLE ID	SAMPLE/CORE DESCRIPTION	PID (PPM)
				0 - 0.5 feet asphalt	
0 – 4.0'	60%			0.5 - 1.0 feet coarse dark brown sand and gravel;	0
				1.0 – 4.0 feet dry brown silty sand	
4.0' - 8.0'	10%			4.0 – 8.0 pulverized asphalt.	0
0.01.40.01	750/			8.0 – 12.0 feet dry brown silty medium sand with some gravel;	
8.0' - 16.0'	75%			12.0 – 16.0 feet dry light brown silty sand	0
16.0' - 20.0'	90%	20.0'	SB8-S1	16.0 – 20.0 feet dry light brown silty sand.	0



PROJECT: Jiffy Lube #1011

CLIENT: Lube Management Corp

DRILLED BY: Point Source Solutions

LOCATION: 2025 NE Broadway Street Portland, Oregon

BORING METHOD: Push Probe

SAMPLING METHOD: Continuous

ELEV. GL: NA

ELEV. TOC: NA

INITIAL WL: NA

STATIC WL: NA

TD: 20.0'

DEPTH FEET	CORE REC	SAMPLE DEPTH	SAMPLE ID	SAMPLE/CORE DESCRIPTION	PID (PPM)
0 – 4.0'	60%			0 – 1.0 feet moist pulverized concrete and gravel, hard driving; 1.0 – 4.0 feet brown silt with some clay and sand.	2.0
4.0' - 12.0'	85%			 4.0 – 10 feet moist brown sand with some silt and clay; 10.0 – 11.0 feet dry brown silty coarse sand with some organic staining and rust; 11.0 – 12.0 feet light brown silty sand 	0
12.0' - 16.0'	50%			12.0 – 13.0 feet moist brown silt with some sand and clay; 13.0 – 14.0 feet grey organic silt with rust; 14.0 – 16.0 light brown silty sand.	0.1
16.0' - 20.0'	60%	20.0'	SB9-S1	16.0 – 20.0 feet dry light brown silty sand.	0.0



PROJECT: Jiffy Lube #1011

DATE: 2/28/17

CLIENT: Lube Management Corp

DRILLED BY: Point Source Solutions

LOCATION: 2025 NE Broadway Street Portland, Oregon

BORING METHOD: Push Probe

SAMPLING METHOD: Continuous

ELEV. GL: NA

ELEV. TOC: NA

INITIAL WL: NA

STATIC WL: NA

TD: 28.0'

DEDTH	CORE	SAMPLE	SAMPLE	SAMPLE/CORE DESCRIPTION	DID.
DEPTH FEET	REC	DEPTH	ID	SAMPLE/CORE DESCRIPTION	PID (PPM)
0 – 4.0'	60%			0 – 1.0 feet gravel and silt, hard driving; 1.0 – 4.0 feet dry brown silty coarse and fine sand.	0
4.0' - 8.0'	90%			4.0 – 5.0 feet brown silt with a lens of dark grey sand; 5.0 – 6.5 light grey silt with gravel, possible petroleum odor and staining; 6.5 – 8.0 feet brown sand, heavy petroleum staining/heavy odor in shoe.	6.2
8.0' - 12.0'	80%	11.0'	SB10-S1	8.0 – 12.0 feet silty sand, heavy petroleum staining/heavy odor.	850
12.0' - 16.0'	80%			12.0 – 16.0 feet silty sand, heavy petroleum staining/heavy odor.	1000
16.0' - 20.0'	75%	18.0'	SB10-S2	12.0 – 20.0 feet silty sand, moderate petroleum staining/light odor.	970
20.0' - 24.0'	60%			20.0 – 24.0 feet light brown silty sand, light petroleum staining/moderate odor.	1,170
24.0' – 28.0'	75%	28.0'	SB10-S3	24.0 – 28.0 feet light brown silty sand, no petroleum staining/moderate odor.	1,140



BORING SB10b

PROJECT: Jiffy Lube #1011

CLIENT: Lube Management Corp

DRILLED BY: Point Source Solutions

LOCATION: 2025 NE Broadway Street Portland, Oregon

BORING METHOD: Push Probe

SAMPLING METHOD: Continuous

ELEV. GL: NA

ELEV. TOC: NA

INITIAL WL: NA

STATIC WL: NA

TD: 39.0'

DEPTH FEET	CORE REC	SAMPLE DEPTH	SAMPLE ID	SAMPLE/CORE DESCRIPTION	PID (PPM)
0 – 4.0'	100%	2.0'	SB10b-S1	0 – 0.5 feet asphalt; 0.5 – 1.5 feet dry brown silty coarse and fine sand; 0.5 – 4.0 feet grey silt with plastic fragments, possible light petroleum staining and odor	5.0
4.0' - 36.0'	NA			Advanced tool string to 36 feet. Soil not screened.	
36.0' – 39.0'	90%	39.0'	SB10b-S2	36.0 - 38.0 feet greyish brown silty fine sand, no petroleum staining/ heavy odor; 38.0 - 38.5 feet slightly moist, coarse dark grey sand, no petroleum staining/moderate odor; 38.5 - 39.0 feet dry, light brown silty sand, no petroleum staining/light odor, progress refusal at 39'.	350 35



PROJECT: Jiffy Lube #1011

CLIENT: Lube Management Corp

DRILLED BY: Point Source Solutions

LOCATION: 2025 NE Broadway Street Portland, Oregon

BORING METHOD: Push Probe

SAMPLING METHOD: Continuous

ELEV. GL: NA

ELEV. TOC: NA

INITIAL WL: NA

STATIC WL: NA

TD: 28.0'

DEPTH FEET	CORE REC	SAMPLE DEPTH	SAMPLE ID	SAMPLE/CORE DESCRIPTION	PID (PPM)
				0. 0.5 feet conheits	, ,
0 – 4.0'	40%			0 – 0.5 feet asphalt; 0.5 – 3.5' brown silt with some sand and gravel;	3.6
0 – 4.0	40 /6			3.5 – 4.0' pulverized concrete.	3.0
				·	
4.0' - 8.0'	75%			4.0 – 4.5 feet pulverized concrete; 4.5 – 6.5 brown silt with some clay;	
4.0 - 8.0	7576			6.5 – 8.0 feet light brown silt with some sand, organic staining, rust.	0.4
				8.0 – 9.0 feet light brown silt with some sand;	0.4
				9.0 – 9.5 feet pulverized concrete and gravel;	
8.0' - 12.0'	60%			9.5 – 12.0 feet light brown sandy silt, heavy petroleum odor/heavy	
				staining at 12.0.	300
12.0' - 16.0'	50%	12.0'	SB11-S1	12.0 – 16.0 feet silty sand, heavy petroleum odor/heavy staining.	297
16.0' - 20.0'	90%			16.0 – 20.0 feet silty sand, moderate petroleum odor/moderate staining.	112
20.0' - 24.0'	80%			20.0 – 22.0 feet light brown silty sand, moderate petroleum odor/moderate staining.	142
				22.0 – 24.0 feet light brown silty sand, light petroleum odor/no staining.	14.0
				24.0 – 25.0 feet light brown silty sand, light petroleum odor/moderate staining;	355
24.0' – 28.0'	80%	28.0'	SB11-S2	25. – 25.5 feet light brown silty sand, light petroleum odor/no staining;	
				25.5 – 28.0 feet light brown silty sand, light petroleum odor/moderate staining.	7.0



PROJECT: Jiffy Lube #1011

CLIENT: Lube Management Corp

DRILLED BY: Point Source Solutions

LOCATION: 2025 NE Broadway Street Portland, Oregon

BORING METHOD: Push Probe

SAMPLING METHOD: Continuous

ELEV. GL: NA

ELEV. TOC: NA

INITIAL WL: NA

STATIC WL: NA

TD: 16.0'

DEPTH FEET	CORE REC	SAMPLE DEPTH	SAMPLE ID	SAMPLE/CORE DESCRIPTION	PID (PPM)
0 – 4.0'	50%			0 – 0.5 feet asphalt; 0.5 – 4.0 feet brown silt with some sand and gravel;	0
4.0' - 8.0'	50%			4.0-8.0 dry brown silt with some pulverized asphalt/concrete and coarse brown sand.	5.4
8.0' - 12.0'	75%			8.0 - 12.0 light brown silty sand, with some rust. Light petroleum odor/no staining at 12 feet.	300
12.0' - 16.0'	50%	12.0'	SB12-S1	12.0 – 16.0 feet silty sand, moderate petroleum odor/light staining.	2200
		-			



PROJECT: Jiffy Lube #1011 DATE: 3/13/17

CLIENT: Lube Management Corp DRILLED BY: Point Source Solutions

LOCATION: 2025 NE Broadway Street Portland, Oregon BORING METHOD: Push Probe

GEOLOGIST: Gil Cobb SAMPLING METHOD: Continuous

ELEV. GL: NA ELEV. TOC: NA INITIAL WL: NA STATIC WL: NA TD: 24.0'

DEPTH FEET	CORE REC	SAMPLE DEPTH	SAMPLE ID	SAMPLE/CORE DESCRIPTION	PID (PPM)
0 – 4.0'	75%			0 – 0.5 feet asphalt; 0.5 – 4.0 dry brown silt with some pulverized asphalt/concrete, coarse brown sand, and gravel.	1.2
4.0' - 8.0'	60%			4.0 – 8.0 dry brown silt with some pulverized asphalt/concrete, coarse brown sand, and gravel.	0.4
8.0' - 12.0'	60%			8.0 – 10.0 feet light brown silt with pulverized asphalt; 10.0 – 12.0 feet light brown silty sand	3.6 2.7
12.0' - 16.0'	50%			12.0 – 16.0 feet light brown silty sand, no petroleum odor/light staining at 16 feet.	9.0
16.0' - 20.0'	0%			No recovery.	
20.0' - 24.0'	30%	24'	SB13-S1	20.0 – 23.0 feet light brown silty sand, light petroleum odor/no staining. 23.0 – 24.0 feet light brown silty sand, moderate petroleum odor/light staining. Progress refusal at 24 feet.	35 369



PROJECT: Jiffy Lube #1011

CLIENT: Lube Management Corp

DRILLED BY: Point Source Solutions

LOCATION: 2025 NE Broadway Street Portland, Oregon

BORING METHOD: Push Probe

SAMPLING METHOD: Continuous

ELEV. GL: NA

ELEV. TOC: NA

INITIAL WL: NA

STATIC WL: NA

TD: 18.0'

DEPTH FEET	CORE REC	SAMPLE DEPTH	SAMPLE ID	SAMPLE/CORE DESCRIPTION	PID (PPM)
0 – 4.0'	75%			0 – 0.5 feet asphalt; 0.5 – 4.0 dry brown silt with some pulverized asphalt/concrete.	1.3
4.0' - 8.0'	75%			4.0 – 8.0 dry brown silt with some pulverized asphalt/concrete.	0.5
8.0' - 12.0'	35%			8.0 – 12.0 feet dry brown silt with some pulverized asphalt/concrete.	1.7
12.0' - 18.0'	90%	13.0'	SB14-S1	12.0 – 13.0 feet coarse brown sand; 13.0 – 16.0 feet dry brown silty sand, heavy petroleum odor/heavy staining; 16.0 – 18.0 feet sandy silt, moderate petroleum odor/heavy staining.	750 1100



APPENDIX II LABORATORY ANALYTICAL REPORTS

Wy'East Analytical Report #87248B dated March 2, 2017 Wy'East Analytical Report #87281 dated March 13, 2017 Wy'East Analytical Report #87285 dated March 15, 2017 Friedman & Bruya Analytical Report dated March 21, 2017



3/2/17

Point Source Solutions 10445 SW Canyon Rd Suite 115 Portland, OR 97214

Re: OR161223-3A

Dear Point Source Solutions

Enclosed are the results of analysis for samples received by the laboratory on 3/1/2017 The results related only to the samples included in this report.

The project was assigned a report number of 87248B

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

CY Chan

QA Officer



NW-TPHDx LABORATORY REPORT

Point Source Solutions

10445 SW Canyon Rd Suite 115

Portland, OR 97214

SITE NAME: Jiffy Lube C.O.C. NUMBER:

87248B

SITE LOCATION:

2025 NE Broadway

REPORT DATE:

3/2/17

PROJECT NUMBER: OR161223-3A

Analytical Method: NWTPH-Dx

Preparation Method: EPA3545A

Analytes: Total Diesel and Heavy Oil range petroleum in Soil. Calculated on a dry-weight basis.

		Diesel	Heavy Oil	Surrogate	Analytical	Prepared	Sampling
Field ID	LAB ID	(mg/Kg)	(mg/Kg)	Recovery (%)	Batch	Batch	Date
SB1-S1-20	L5014	ND	ND	86%	78FL1703011	D170301-1	2/28/2017
SB6-S1-20	L5020	ND	ND	93%	78FL1703011	D170301-1	2/28/2017
SB7-S1-12	L5021	ND	ND	92%	78FL1703011	D170301-1	2/28/2017
SB8-S1-20	L5022	ND	ND	81%	78FL1703011	D170301-1	2/28/2017
SB9-S1-20	L5023	ND	ND	90%	78FL1703011	D170301-1	2/28/2017
SB10-S1-11	L5024	ND	ND	95%	78FL1703011	D170301-1	2/28/2017
SB10-S2-18	L5025	ND	ND	85%	78FL1703011	D170301-1	2/28/2017
SB10-S3-28	L5026	ND	ND	91%	78FL1703011	D170301-1	2/28/2017

Reporting Limit: --

25

100

Surrogate Limit:

50%-150%

Surrogate is 1-ChloroOctadecane

ND = Not Detected at or below the Reporting Limit

Results relate only to samples

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Chemist Initials: Cy dian

Reviewed By:



PERCENT MOISTURE REPORT

REPORT NUMBER: 87248 **REPORT DATE:** 3/2/17

ASTM D2974-07a

Analytes: Percent Moisture in Sample

LAB ID	Moisture(%)	Date Analyzed	
L5014	14.0	3/1/17	
L5020	14.5	3/1/17	
L5021	8.7	3/1/17	
L5022	14.5	3/1/17	
L5023	15.7	3/1/17	
L5024	21.1	3/1/17	
L5025	24.0	3/1/17	
L5026	12.9	3/1/17	

Report Narrative

Method: NWTHP-Dx Report No. 87248

Client: Point Source Solutions Date: 3/1/2017

Sample Condition

13 Sample(s) were analyzed for NWTPH-Dx. Sample(s)were received in acceptable condition

Sample Temperature

Sample(s) arrived within acceptable temperature range

Sample Hold time

Sample(s) were analyzed within hold time

Initial Calibration

All criteria were within acceptable limits

Continuing Calibration Check (CCV)

All criteria were within method limits

Method Blank

Method Blank meets method limit

Laboratory Control Sample (LCS)

All criteria were within method limits

Duplicate Sample

All criteria were within method limits

Matrix Spike

All criteria were within method limits

Matrix Spike Duplicate

No Matrix Spike Duplicate was run on this batch

Non-Conformance

No non-conformances were associated with this request except noticed below

Quality Control for NWTPH-Dx

Batch Date: 3/1/2017

Units: Soil Blank (mg/Kg) Water Blank (mg/L) CCV & LCS (ug/mL)

Blank Number	PB	Diesel Result	Oil Result	Limits Diesel	Limits Oil	Blank Control	Surr. Recovery	Surr. Limits	Surr. Control
SBK03011	D170301-1	0	0	50	100	PASS	94%	50%-150%	PASS
Diesel LCS Number	РВ	Diesel in Extract	Expected Conc.	LCS Recovery (%)	LCS Control Limits	LCS Control	Surr. Recovery	Surr. Limits	Surr. Control
SLC03011	D170301-1	560.11	500.00	112%	±30%	PASS	83%	50%-150%	PASS
Oil LCS Number	PB	Oil in Extract	Expected Conc.	LCS Recovery (%)	LCS Control Limits	LCS Control	Surr. Recovery	Surr. Limits	Surr. Control
SLC03011	D170301-1	496.24	500.00	99%	±30%	PASS	83%	50%-150%	PASS
Diesel Dupl. Number	r PB	Sample in Extract	Duplicate In Extract	RPD (%)	Control Limits	Duplicate Control			
L5010	D170301-1	4412.436287	4341.788559	2%	±30%	PASS			
L5024	D170301-1	3.814355068	3.806022085	0%	±30%	PASS			
Oil Dupl. Number	PB	Sample in Extract	Duplicate in Extract	RPD (%)	Control Limits	Duplicate Control			
L5010	D170301-1	0	0	0%	±30%	PASS			
L5024	D170301-1	0	0	0%	±30%	PASS			
Diesel MS Number	PB	Sample in Extract	Diesel MS Result	MS Recovery (%)	MS Control Limits	MS Control			
L5014MS	D170301-1	0	654.0530637	113%	70%-130%	PASS			
Oil MS Number	PB	Sample in Extract	Oil MS Result	MS Recovery (%)	MS Control Limits	MS Control			
L5014MS	D170301-1	0	594.6443628	100%	70%-130%	PASS			



NW-TPHGx LABORATORY REPORT

Point Source Solutions

10445 SW Canyon Rd Suite 115

Portland, OR 97214

PROJECT NAME: SITE LOCATION:

Jiffy Lube

C.O.C. NUMBER:

87248B

2025 NE Broadway

REPORT DATE:

3/2/2017

PROJECT NUMBER:

OR161223-3A

Analytical Method: NW-TPHGx

Preparation Method: EPA 5035

Analytes: Gasoline in Soil. Calculated on a dry-weight basis.

		Gasoline	Surrogate	Analytical	Preperation	Sampling
Field ID	LAB ID	(mg/Kg)	Recov.(%)	Batch	Batch	Date
SB1-S1-20	L5014	ND	101%	58PI170301-1	G170301-1	2/28/2017
SB6-S1-20	L5020	ND	103%	58PI170301-1	G170301-1	2/28/2017
SB7-S1-12	L5021	ND	104%	58PI170301-1	G170301-1	2/28/2017
SB8-S1-20	L5022	ND	102%	58PI170301-1	G170301-1	2/28/2017
SB9-S1-20	L5023	ND	99%	58PI170301-1	G170301-1	2/28/2017
SB10-S1-11	L5024	19300	94%	58PI170301-1	G170301-1	2/28/2017
SB10-S2-18	L5025	4220	105%	58PI170301-1	G170301-1	2/28/2017
SB10-S3-28	L5026	8490	97%	58PI170301-1	G170301-1	2/28/2017

Reporting Limit: 20

Surrogate is p-Bromofluorobenzene

ND = Not Detected (Below Reporting or Detection Limit)

Results relate only to samples.

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Chemist Initials:

Cy chan

Reviewer Initials:



PERCENT MOISTURE REPORT

REPORT NUMBER: 87248 **REPORT DATE:** 3/2/2017

ASTM D2974-07a

Analytes: Percent Moisture in Sample

LAB ID	Moisture (%)	Date Analyzed
L5014	14	3/1/2017
L5020	15	3/1/2017
L5021	9	3/1/2017
L5022	14	3/1/2017
L5023	16	3/1/2017
L5024	21	3/1/2017
L5025	24	3/1/2017
L5026	13	3/1/2017

Report Narrative

Method: NWTHP-Gx Report No. 87248

Client: Point Source Solutions **Date:** 3/1/2017

Sample Condition

8 sample(s) were analyzed for NWTPH-Gx. Sample(s)were received in acceptable condition

Sample Temperature

Sample(s) arrived within acceptable temperature range

Sample Hold time

sample(s) were analyzed within hold time

Initial Calibration

All criteria were within acceptable limits

Continuing Calibration Check (CCV)

All criteria were within method limts

Method Blank

Method Blank meets method limt

Laboratory Control Sample (LCS)

All criteria were within method limts

Duplicate Sample

All criteria were within method limts

Matrix Spike

All MS criteria were within method limts No MSD was run this batch

Matrix Spike Duplicate RPD

No MSD was run this batch

Non-Conformance

No non-conformances were associated with this request except noticed below



Quality Control for Gasoline in Soil by NWTPH-Gx

Batch Date: 3/1/2017

Blank	Prep. Batch	Result(mg/Kg)	Accep. Range	Sur. % Recovery	% Ассер.
GBK03011	G170301-1	1.96	<20	99%	50%-150%
Spike	Prep. Batch	Result (mg/Kg)	Expected (mg/Kg)	spike % Recovery	% Accep.
GLC03011	G170301-1	95.93	100.3	96%	70%-130%
Duplicate	A. Batch	Result (mg/Kg)	Duplicate(mg/Kg)	RPD	% Ассер.
L5016	G170301-1	ND	ND	0%	±30%
L5018	G170301-1	ND	ND	0%	±30%
MS	A. Batch	Spike (mg/Kg)	Sample(mg/Kg)	Spike % Recovery	% Accep.
L5018MS	G170301-1	101	4	95%	70%-130%



LABORATORY REPORT

Point Source Solutions 10445 SW Canyon Rd Suite 115 Portland, OR 97214

PROJECT NAME: Jiffy L SITE LOCATION: 2025 N PROJECT NUMBER: OR16

Jiffy Lube 2025 NE Broadway OR161223-3A

ANALYST FIELD ID: SB10-S1-11

INSTRUMENT SolaTek
REPORT NUMBER: 87248B
REPORT DATE: 3/3/17

ACQ. ON 2Mar20175:55pm **PREP. BATCH** V170302 **L5024**

Preparation Method: EPA 5035A

Analytical Method: EPA 8260C Analyte: Volatile Organics in Soil

Analyte: Volatile Organics in Soil	Sample	Quant. Limit	Qualifier Dilution
Compound	(ug/Kg)	(ug/Kg)	Factor
benzene	ND	200	50
bromobenzene	ND	200	50
bromochloromethane	ND	200	50
bromodichloromethane	ND	200	50
bromoform	ND	200	50
n-butylbenzene	31500	200	1000
sec-butylbenzene	5530	200	250
tert-butylbenzene	ND	200	50
chlorobenzene	ND	200	50
chloroform	ND	200	50
2-chlorotoluene	ND	200	50
4-chlorotoluene	ND	200	50
dibromochloromethane	ND	200	50
1,2dibromo3-chloropropane	ND	200	50
1,2-dibromoethane	ND	200	50
dibromomethane	ND	200	50
1,2-dichlorobenzene	ND	200	50
1,3-dichlorobenzene	ND	200	50
1,4-dichlorobenzene	ND	200	50
1,1-dichloroethane	ND	200	50
1,2-dichloroethane	ND	200	50
1,1-dichloroethene	ND	200	50
cis-1,2-dichloroethene	ND	200	50
trans-1,2-dichloroethene	ND	200	50
1,2-dichloropropane	ND	200	50
1,3-dichloropropane	ND	200	50
1,1-dichloropropene	ND	200	50
cis-1,3-dichloropropene	ND	200	50
trans-1,3-dichloropropene	ND	200	50
ethylbenzene	65100	200	5000
hexachlorobutadiene	ND	200	500
isopropylbenzene	8610	200	250
p-Isopropyltoluene	4300	200	250
methyl-tert-butylether(MTBE)	ND	200	50
naphthalene	127000	200	5000
*	34600	200	1000
n-propyl-benzene		200	50
styrene	752 ND	200	50
1,1,1,2-tetrachloroethane			50
1,1,2,2-tetrachloroethane	ND	200	
tetrachloroethylene	ND	200	50
toluene	651	200	50
1,2,3-trichlorobenzene	ND	200	50
1,2,4-trichlorobenzene	ND	200	50
1,1,1-trichloroethane	ND	200	50
1,1,2-trichloroethane	ND	200	50
trichloroethene	ND	200	50
1,2,3-trichloropropane	ND	200	50
1,2,4-trimethlybenzene	371000	200	200000
1,3,5-trimethylbenzene	189000	200	5000
xylene(m&p)	333000	400	5000
o-xylene	137000	200	5000
total xylenes	470000	200	5000

Surrogate: Percent Recovery 1,2-dichloroethane-d4

toluene-d8

p-bromofluorobenzene

76 **Reviewer Initials:**



Analyst:



Report Narrative

Method:

Report No. 87248 3/2/2017 Client: Point Source Solutions Date:

Sample Condition

Sample was analyzed for 8260. Sample was received in acceptable condition

Sample Temperature

Sample(s) arrived within acceptable temperature range

Sample Hold time

Sample was analyzed within hold time

Initial Calibration

All criteria were within acceptable limits

Continuing Calibration Check (CCV)
All criteria were within method limts. Any exceptions are qualified in the body of the report

Method Blank

Method Blank meets method limt. Any exceptions are qualified in the body of the report

Laboratory Control Sample (LCS)

All criteria were within method limts, Any exceptions are qualified in the body of the report

Duplicate Sample

No Duplicate was run on this batch

Matrix Spike

All criteria were within method limts

Matrix Spike Duplicate

All criteria were within method limts

Non-Conformance

No non-conformances were associated with this request except noticed below



QUALITY CONTROL REPORT (EPA 8260C)

 Run Date:
 3/2/2017
 Prep batch:
 P3-2-17

 Report Date:
 3/3/2017
 Analytical batch:
 STRA170302

Analyte BLANK (ug/Kg) LCS (ug/Kg) Expected (ug/Kg) Recovery (ug/Kg) benzene <4 16 16 98 bromobenzene <4 16 16 97 bromochloromethane <4 16 16 102 bromodichloromethane <4 16 16 101 bromoform <4 16 16 101 n-butylbenzene <4 16 16 97 sec-butylbenzene <4 15 16 95 tert-butylbenzene <4 15 16 96 chlorobenzene <4 16 16 98 chloroform <4 16 16 99 2-chlorotoluene <4 15 16 96 4-chlorotoluene <4 15 16 96
benzene <4
bromobenzene <4
bromochloromethane <4
bromodichloromethane <4
bromoform <4
n-butylbenzene
sec-butylbenzene <4
tert-butylbenzene <4 15 16 96 chlorobenzene <4 16 16 98 chloroform <4 16 16 99 2-chlorotoluene <4 15 16 99
chlorobenzene <4
chloroform <4 16 16 99 2-chlorotoluene <4 15 16 96
2-chlorotoluene <4 15 16 96
A-chlorotoluene
dibromochloromethane <4 17 16 105
1,2dibromo3-chloropropane <4 17 16 103
1.2-dibromoethane <4 17 16 104
dibromomethane <4 17 16 104
1.2-dichlorobenzene <4 16 16 99
1,3-dichlorobenzene <4 16 16 98
1,4-dichlorobenzene <4 16 16 99
1,1-dichloroethane <4 16 16 98
1,2-dichloroethane <4 16 16 101
,
,
trans-1,2-dichloroethene <4 16 16 98
1,2-dichloropropane <4 16 16 100
1,3-dichloropropane <4 17 16 104
1,1-dichloropropene <4 16 16 98
cis-1,3-dichloropropene <4 17 16 104
trans-1,3-dichloropropene <4 17 16 106
ethylbenzene <4 15 16 96
hexachlorobutadiene <4 16 16 97
isopropylbenzene <4 15 16 96
p-Isopropyltoluene <4 15 16 95
methyl-tert-butylether(MTBE) <4 17 16 109
naphthalene <4 19 16 118
n-propyl-benzene <4 15 16 97
styrene <4 16 16 98
-,-,-,=
1,1,2,2-tetrachloroethane <4 17 16 105
tetrachloroethylene <4 16 99
toluene <4 16 16 100
1,2,3-trichlorobenzene <4 18 16 112
1,2,4-trichlorobenzene <4 18 16 111
1,1,1-trichloroethane <4 16 16 99
1,1,2-trichloroethane <4 16 16 103
trichloroethene <4 16 16 98
1,2,3-trichloropropane <4 17 16 107
1,2,4-trimethlybenzene <4 15 16 96
1,3,5-trimethylbenzene <4 15 16 96
xylene(m&p) <8 31 32 97
o-xylene
0-Aylone \+ 10 10 31

Control: 70%-130%



DUPLICATE / MATRIX SPIKE REPORT (EPA 8260C)

Run Date: Report Date:	3/2/2017 3/3/2017	Prep batch: Analytical bat	tch:	P3-2-17 STRA170302		MSD ID: MS ID	SBK34MSD SBK34MS
Analyte		Sample	MSD	Recovery	Sample	Spike	Recovery
		(ug/Kg)	(ug/Kg)	(%)	(ug/Kg)	(ug/Kg)	(%)
benzene		0	16	97	0	16	98
bromobenzene		0	15	93	0	16	97
bromochlorometl		0	15	93	0	16	102
bromodichlorome	ethane	0	16	98	0	16	101
bromoform		0	15 15	93	0	16	101
n-butylbenzene		0	15 15	94 94	0 0	16 15	97 95
sec-butylbenzene tert-butylbenzene		0	15	94 94	0	15	95 96
chlorobenzene	;	0	15	9 4 97	0	16	98
chloroform		0	15	97 95	0	16	99
2-chlorotoluene		0	15	94	0	15	96
4-chlorotoluene		0	15	94	0	15	96
dibromochlorome	ethane	0	16	99	ő	17	105
1,2dibromo3-chl		ő	16	97	Ŏ	17	103
1,2-dibromoethai		Ő	16	99	ŏ	17	104
dibromomethane		ő	16	98	ŏ	17	104
1.2-dichlorobenz		Ö	15	94	Ö	16	99
1,3-dichlorobenz		0	16	97	Ō	16	98
1,4-dichlorobenz		0	16	94	0	16	96
1,1-dichloroethar	ne	0	15	94	0	16	98
1,2-dichloroethar	ne	0	15	94	0	16	101
1,1-dichloroether	ne	0	15	96	0	16	98
cis-1,2-dichloroe	thene	0	15	96	0	16	100
trans-1,2-dichlore		0	15	95	0	16	98
1,2-dichloroprop		0	16	98	0	16	100
1,3-dichloroprop		0	16	99	0	17	104
1,1-dichloroprop		0	15	95	0	16	98
cis-1,3-dichlorop		0	16	100	0	17	104
trans-1,3-dichlore	opropene	0	16	100	0	17	106
ethylbenzene		0	15	96	0	15	96
hexachlorobutadi		0	15 15	93	0	16	97 05
isopropylbenzene		0	15 15	94	0 0	15 15	95 05
p-Isopropyltoluer methyl-tert-butyl		0	15 16	96 97	0	15 17	95 109
naphthalene	eulei(MIDE)	0	17	105	0	17	118
n-propyl-benzene		0	15	95	0	15	97
styrene		0	15	95	0	16	98
1.1.1.2-tetrachlor	oethane	ő	15	97	ő	16	98
1,1,2,2-tetrachlor		ő	15	96	ŏ	17	105
tetrachloroethyle		0	16	99	Ö	16	99
toluene		Ö	16	99	Ö	16	100
1,2,3-trichlorobe	nzene	0	17	104	0	18	112
1,2,4-trichlorobe		0	16	103	0	18	111
1,1,1-trichloroeth		0	15	94	0	16	99
1,1,2-trichloroeth	nane	0	16	99	0	16	103
trichloroethene		0	16	98	0	16	98
1,2,3-trichloropro	opane	0	15	96	0	17	107
1,2,4-trimethlybe		0	15	95	0	15	96
1,3,5-trimethylbe	enzene	0	15	94	0	15	96
xylene(m&p)		0	31	96	0	31	97
o-xylene		0	15	94	0	16	96
Control:				70%-130%			70%-130%



MATRIX SPIKE / MATRIX SPIKE DUPLICATE REPORT (EPA 8260C)

Run Date: Report Date:	3/2/2017 3/3/2017	Prep batch: Analytical batch:	P3-2-17 STRA170302		MS ID: MSD ID:	SBK34MS SBK34MSD
Analyte		MS	MSD	RPD		
		(ug/Kg)	(ug/Kg)	(%)		
benzene		16	16	1		
bromobenzene		16	15	4		
bromochlorome	ethane	16	15	9		
bromodichloror		16	16	3		
bromoform		16	15	9		
n-butylbenzene		16	15	3		
sec-butylbenzer	ne	15	15	2		
tert-butylbenzer		15	15	2		
chlorobenzene		16	15	1		
chloroform		16	15	4		
2-chlorotoluene)	15	15	2		
4-chlorotoluene		15	15	3		
dibromochloror		17	16	6		
1,2dibromo3-ch		17	16	6		
1,2-dibromoeth		17	16	5		
dibromomethan		17	16	6		
1,2-dichlorober		16	15	6		
1,3-dichlorober		16	16	Ö		
1,4-dichlorober		16	16	2		
1,1-dichloroeth		16	15	3		
1,2-dichloroeth		16	15	7		
1,1-dichloroeth		16	15	3		
cis-1,2-dichloro		16	15	4		
trans-1,2-dichlo		16	15	2		
1,2-dichloropro		16	16	2		
1,3-dichloropro		17	16	5		
1,1-dichloropro		16	15	3		
cis-1,3-dichloro		17	16	3		
trans-1,3-dichlo		17	16	6		
ethylbenzene	поргорене	15	15	0		
hexachlorobuta	diana	16	15	4		
isopropylbenze		15	15	2		
		15	15	0		
p-Isopropyltolu		15 17				
methyl-tert-buty	yletner(MTBE)	17	16	12 12		
naphthalene		_	17 15			
n-propyl-benzer		15	15	2		
1,1,1,2-tetrachle		16	15	3		
1,1,2,2-tetrachle		16	15	1		
tetrachloroethyl	ene	17	15	9		
toluene		16	16	0		
1,2,3-trichlorob		16	16	1		
1,2,4-trichlorob		18	17	8		
1,1,1-trichloroe		18	16	8		
1,1,2-trichloroe	thane	16	15	5		
trichloroethene	.1	16	16	4		
trichlorofluoror		16	16	1		
1,2,3-trichlorop		17	15	10		
1,2,4-trimethlyl		15	15	1		
1,3,5-trimethyll	penzene	15	15	2		
xylene(m&p)		31	31	1		
o-xylene		16	15	2		
Control:				30		

WyTtast

CHAIN OF CUSTODY

Report Number 87248 B

Environmental Sciences, Inc. 2415 SE 11th Ave. Portland Oregon 97214

Phone(503) 231-9320 FAX(503) 231-9344

Commence							9 <u>511<u>54</u>7</u>			1000			1 119	one(.	303) 231-9320 FAX(503) 231-934
Company Poly	+ Source	Solutions	Phon	e 5	03.780)-156	ና								C
Project #	1177 71	۸	FAX						4						Comments
Project Name	1223-31	1	Purch	ase Or	der#				4 .	1	204		F	ĺ	cc : Andy
Site J	iffy Lul) e			# C			10° Value of 10° 10° 10° 10° 10° 10° 10° 10° 10° 10°			8	K	PA		
2025	NE P	Broadway		rt Atten		Colle	cted By	200.00.00	ĭ	۸ ا	음	3 (81	SIM (PAH)	_	*
Samples: Tem	perature <u>3 °C</u>	On loe? (es)/ No	Turna	round	Time: X F	Regular	3-5 Business	Days	1 <u>F</u>	NW-TPH-GX	NW-TPH-HCID	80211	8270	8260B	į
LAB ID		Field ID		npling ate	Sampling Time	Matrix	Container	Volume	NW-TPH-Dx	L-WN	I-WN	EPA 8021B (BTEX)	EPA 8270	EPA 8	Analysis Requested
45014	551-51	-20	2-2	8-17	9:30	Soil	,	402	X						Analysis Nequested
15020	5B6 -5 5B7 - 8	1-20		1	12:26	1	1)	X						
L5021	587-8	-12			13:07		T T		X	-					
LS022	SB8-S1	- 20		~	13:48		ſ		X	X					15 of 16.
LSUZZ	589-51	-20			14:41		,		X	X		5.00 ss			PP PP
LS024	5810-51	- 1/			15:28				X	-X-				Χ	<u>C</u> ,
	BISTONAS	nahi-					2		- X	. λ					
L5025	5810-57	2-18			17:00	1	2		X	X					
LSUZG	SB10 -5	3 -28			17:01		2	- -	X	X					
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Jule	Kan	pss	3-1	15-1	Time			in)				Mi	4.	+1	Date Time 7.43 ~
Relinquished by		Affiliation	Date		Time		Received by				Affiliation	on (<u></u>	-	Date Time
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2415 SE 11th Ave

Portland, OR 97214 Ph: 503-231-9320 Fax: 503-231-9344

Sample Condition	Check List
Customer Name: Point Source	87248 coc#:
Method of Delivery: courier (client) other	54 - 508 - 17 - 100 - 17 - 100 - 17 - 100 - 17 - 100 - 17 - 17
Type of ice: Ice Blue None Cooler Tempera	ture: 3°C
Matrix : Soil Water Other	
	Yes No NA Comments
Relinquish signed on Chain of Custody.	Comments
Received by signed on Chain of Custody.	
Chain of Custody filled out.	
Were samples Arrived within Hold Time.	* (Sample) on 3/28/17
Rush Trun Around Time Requested. If yes, how many days	* Kan (2)
Temperatures measured and written in correct place on COC.	* 3. (
Correct containers used.	* 402
Sufficient Volume.	*
ID on COC and Sample labels match.	*
Duplicate jars and vials labeled with a, b, c, d etc.	* Atom LSON, Lary Lar flarg.
All tests logged in checked against the COC.	* *************************************
The COC scanned into the main office computer.	*
FOR WATER SAMPLES:	ens p
Trip Blank: Yes Waiver on file Submitted by:	
140	
B.	Yes No Comments
Was sufficient volume provided for analysis.	Yes No Comments
Was sufficient volume provided for QC samples (at least two).	*
HCL Preserved vials,	*
HCL LOT Number:	
Were duplicate jars and vials labeled with a, b, c, d etc. Headspace in VOA Vials (>6mm).	*
	*
Client Notification/Resolution:	
Comments: 3/1/17 = Simple	2/-1-11
	on 3/28/17, but within
- alleptable T	log
- APEX Las wi	11 mm PCD+RCRA-8
Reviewed:	Date: 2/1/17



3/13/17

Point Source Solutions 10445 SW Canyon Rd Suite 115 Portland, OR 97214

Re: OR161223-3A

Dear Point Source Solutions

Enclosed are the results of analysis for samples received by the laboratory on 3/10/2017 The results related only to the samples included in this report.

The project was assigned a report number of 87281

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

CY Chan

QA Officer

C.O.C. NUMBER:

REPORT DATE:

87281

3/13/2017



NW-TPHGx LABORATORY REPORT

Point Source Solutions 10445 SW Canyon Rd Suite 115

Portland, OR 97214

PROJECT NAME: Jiffy Lube SITE LOCATION: 2025 NE 25th Ave

PROJECT NUMBER: OR161223-3A

Analytical Method: NW-TPHGx Preparation Method: EPA 5035

Analytes: Gasoline in Soil. Calculated on a dry-weight basis.

		Gasoline	Surrogate	Analytical	Preperation	Sampling
Field ID	LAB ID	(mg/Kg)	Recov.(%)	Batch	Batch	Date
SB10b-S1-2.0	L5707	132	107%	58PI170313-1	G170313-1	3/10/2017
SB10b-S2-39	L5708	ND	98%	58PI170313-1	G170313-1	3/10/2017

Reporting Limit: -- 20

Surrogate is p-Bromofluorobenzene

ND = Not Detected (Below Reporting or Detection Limit)

Results relate only to samples.

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Chemist Initials: Reviewer Initials:



PERCENT MOISTURE REPORT

REPORT NUMBER: 87281 **REPORT DATE:** 3/13/2017

ASTM D2974-07a

Analytes: Percent Moisture in Sample

LAB ID	Moisture (%)	Date Analyzed	
L5707	14	3/13/2017	
L5708	9	3/13/2017	

Report Narrative

Method: NWTHP-Gx Report No. 87281

Client: Point Source Solutions **Date:** 3/13/2017

Sample Condition

2 sample(s) were analyzed for NWTPH-Gx. Sample(s)were received in acceptable condition

Sample Temperature

Sample(s) arrived within acceptable temperature range

Sample Hold time

sample(s) were analyzed within hold time

Initial Calibration

All criteria were within acceptable limits

Continuing Calibration Check (CCV)

All criteria were within method limts

Method Blank

Method Blank meets method limt

Laboratory Control Sample (LCS)

All criteria were within method limts

Duplicate Sample

All criteria were within method limts

Matrix Spike

All MS criteria were within method limts No MSD was run this batch

Matrix Spike Duplicate RPD

No MSD was run this batch

Non-Conformance

No non-conformances were associated with this request except noticed below



Quality Control for Gasoline in Soil by NWTPH-Gx

Batch Date: 3/13/2017

Blank	Prep. Batch	Result(mg/Kg)	Accep. Range	Sur. % Recovery	% Ассер.
GBK03011	G170313-1	2.22	<20	92%	50%-150%
Spike	Prep. Batch	Result□(mg/Kg)	Expected (mg/Kg)	spike % Recovery	% Ассер.
GLC03011	G170313-1	91.18	100.3	91%	70%-130%
Duplicate	A. Batch	Result (mg/Kg)	Duplicate(mg/Kg)	RPD	% Ассер.
L5708	G170313-1	ND	ND	0%	±30%
MS	A. Batch	Spike (mg/Kg)	Sample(mg/Kg)	Spike % Recovery	% Accep.
L5708MS	G170313-1	107	3	103%	70%-130%

WyEast

CHAIN OF CUSTODY

87251
Report Number

2415 SE 11th A	tal Sciences, Ave. Portland Ore				68	8 6			户			Pho	one(503) 231-9320	FAX(503) 2	31- 9 34
Company	P.S.		Phone So	73-78	0-15	09			tonk.		3		10000000	Comments		2
Project # OR	61223-31	1	FAX] _x	100		2000		i			
Project Name	Ffy Lubi	2	Purchase Or					\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	ATA.		EX)	PAH	k		20	
Site 2025	NE 25	n Ave	Report Atten	tion Gil	Collec	cted By AT	W	DX YO	×	우	8021B (BTEX)	EPA 8270 SIM (PAH)	В	Í		
Samples: Temp	perature 3 (On Ice? (Yes) No	Turnaround	Time: F	Regular _	3-5 Business	Days	NW-TPH-Dx	NW-TPH-GX	NW-TPH-HCID	8021	8270	8260B			
LAB ID		3/10/17 Teld ID	Sampling Date	Sampling Time	Matrix	Container	Volume	NN.	NN-	NW-	EPA	EPA	A	Analysis Reque	ested	•
45707	SBA-51-2		3/10/17	9:46	5	2	402	*	×							
L5708	SB10b-5	2-39		11:05				X	×							
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Relinquished by		Affiliation	Date	Time	**************************************	Received by				Affiliati		in de		Date .	Time	1



2415 SE 11th Ave Portland, OR 97214 Ph: 503-231-9320 Fax: 503-231-9344

Sample Condition Check List

Sample Condition	
Customer Name: Point Source	COC#: 87281
Method of Delivery: courier client other	
Type of ice: Ice (Blue None Cooler Tempera	sture:
Matrix: (Soil) Water Other	# P
	Yes No NA Comments
Relinquish signed on Chain of Custody.	*
Received by signed on Chain of Custody.	*
Chain of Custody filled out.	*
Were samples Arrived within Hold Time.	* Same du
Rush Trun Around Time Requested. If yes, how many days	* Resules
Temperatures measured and written in correct place on COC.	* 3.0
Correct containers used.	* 407
Sufficient Volume.	*
ID on COC and Sample labels match.	*
Duplicate jars and vials labeled with a, b, c, d etc.	*on 45707
All tests logged in checked against the COC.	*
The COC scanned into the main office computer.	*
FOR WATER SAMPLES: Trip Blank: Yes Waiver on file Submitted by No	·
Trip Blank: Yes Waiver on file Submitted by	
Trip Blank: Yes Waiver on file Submitted by No	Yes No Comments
Trip Blank: Yes Waiver on file Submitted by	Yes No Comments
Trip Blank: Yes Waiver on file Submitted by No Was sufficient volume provided for analysis. Was sufficient volume provided for QC samples (at least two). HCL Preserved vials.	Yes No Comments
Trip Blank: Yes Waiver on file Submitted by No Was sufficient volume provided for analysis. Was sufficient volume provided for QC samples (at least two). HCL Preserved vials. HCL LOT Number:	Yes No Comments * * *
Trip Blank: Yes Waiver on file Submitted by No Was sufficient volume provided for analysis. Was sufficient volume provided for QC samples (at least two). HCL Preserved vials. HCL LOT Number: Were duplicate jars and vials labeled with a, b, c, d etc.	Yes No Comments * * * *
Trip Blank: Yes Waiver on file Submitted by No Was sufficient volume provided for analysis. Was sufficient volume provided for QC samples (at least two). HCL Preserved vials. HCL LOT Number:	Yes No Comments * * *
Trip Blank: Yes Waiver on file Submitted by No Was sufficient volume provided for analysis. Was sufficient volume provided for QC samples (at least two). HCL Preserved vials. HCL LOT Number: Were duplicate jars and vials labeled with a, b, c, d etc.	Yes No Comments * * * *
Trip Blank: Yes Waiver on file Submitted by No Was sufficient volume provided for analysis. Was sufficient volume provided for QC samples (at least two). HCL Preserved vials. HCL LOT Number: Were duplicate jars and vials labeled with a, b, c, d etc. Headspace in VOA Vials (>6mm).	Yes No Comments * * * *
Trip Blank: Yes Waiver on file Submitted by No Was sufficient volume provided for analysis. Was sufficient volume provided for QC samples (at least two). HCL Preserved vials. HCL LOT Number: Were duplicate jars and vials labeled with a, b, c, d etc. Headspace in VOA Vials (>6mm).	Yes No Comments * * * *
Trip Blank: Yes Waiver on file Submitted by No Was sufficient volume provided for analysis. Was sufficient volume provided for QC samples (at least two). HCL Preserved vials. HCL LOT Number: Were duplicate jars and vials labeled with a, b, c, d etc. Headspace in VOA Vials (>6mm). Client Notification/Resolution:	Yes No Comments * * * *
Trip Blank: Yes Waiver on file Submitted by No Was sufficient volume provided for analysis. Was sufficient volume provided for QC samples (at least two). HCL Preserved vials. HCL LOT Number: Were duplicate jars and vials labeled with a, b, c, d etc. Headspace in VOA Vials (>6mm).	Yes No Comments * * * *
Trip Blank: Yes Waiver on file Submitted by No Was sufficient volume provided for analysis. Was sufficient volume provided for QC samples (at least two). HCL Preserved vials. HCL LOT Number: Were duplicate jars and vials labeled with a, b, c, d etc. Headspace in VOA Vials (>6mm). Client Notification/Resolution:	Yes No Comments * * * *
Trip Blank: Yes Waiver on file Submitted by No Was sufficient volume provided for analysis. Was sufficient volume provided for QC samples (at least two). HCL Preserved vials. HCL LOT Number: Were duplicate jars and vials labeled with a, b, c, d etc. Headspace in VOA Vials (>6mm). Client Notification/Resolution:	Yes No Comments * * * *
Trip Blank: Yes Waiver on file Submitted by No Was sufficient volume provided for analysis. Was sufficient volume provided for QC samples (at least two). HCL Preserved vials. HCL LOT Number: Were duplicate jars and vials labeled with a, b, c, d etc. Headspace in VOA Vials (>6mm). Client Notification/Resolution:	Yes No Comments * * * *



3/15/17

Point Source Solutions 10445 SW Canyon Rd Suite 115 Portland, OR 97214

Re: OR161223-3A

Dear Point Source Solutions

Enclosed are the results of analysis for samples received by the laboraory on 3/13/2017 The results related only to the samples included in this report.

The project was assigned a report number of 87285

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

CY Chan

QA Officer



NW-TPHGx LABORATORY REPORT

Point Source Solutions

10445 SW Canyon Rd Suite 115

Portland, OR 97214

PROJECT NAME:

Jiffy Lube

C.O.C. NUMBER:

87285

SITE LOCATION:

2025 NE Broadway

REPORT DATE:

3/15/2017

PROJECT NUMBER:

OR161223-3A

Analytical Method: NW-TPHGx

Preparation Method: EPA 5035

Analytes: Gasoline in Soil. Calculated on a dry-weight basis.

		Gasoline	Surrogate	Analytical	Preperation	Sampling
Field ID	LAB ID	(mg/Kg)	Recov.(%)	Batch	Batch	Date
SB11-S1-12	L5712	22600	102%	58PI170314-1	G170314-1	3/13/2017
SB11-S2-28	L5713	ND	90%	58PI170314-1	G170314-1	3/13/2017
SB12-S1-16	L5714	45600	95%	58PI170314-1	G170314-1	3/13/2017
SB13-S1-24	L5715	37	92%	58PI170314-1	G170314-1	3/13/2017
SB14-S1-13	L5716	21300	94%	58PI170314-1	G170314-1	3/13/2017
SB6b-S1-28	L5717	ND	96%	58PI170314-1	G170314-1	3/13/2017

Reporting Limit: -- 20

Surrogate is p-Bromofluorobenzene

ND = Not Detected (Below Reporting or Detection Limit)

Results relate only to samples.

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Chemist Initials:

Cy chan

Reviewer Initials:





PERCENT MOISTURE REPORT

REPORT NUMBER: 87285 **REPORT DATE:** 3/15/2017

ASTM D2974-07a

Analytes: Percent Moisture in Sample

LAB ID	Moisture (%)	Date Analyzed	
L5712	20	3/14/2017	
L5713	15	3/14/2017	
L5714	17	3/14/2017	
L5715	25	3/14/2017	
L5716	25	3/14/2017	
L5717	16	3/14/2017	

Report Narrative

Method: NWTHP-Gx Report No. 87285

Client: Point Source Solutions **Date:** 3/14/2017

Sample Condition

6 sample(s) were analyzed for NWTPH-Gx. Sample(s)were received in acceptable condition

Sample Temperature

Sample(s) arrived within acceptable temperature range

Sample Hold time

sample(s) were analyzed within hold time

Initial Calibration

All criteria were within acceptable limits

Continuing Calibration Check (CCV)

All criteria were within method limts

Method Blank

Method Blank meets method limt

Laboratory Control Sample (LCS)

All criteria were within method limts

Duplicate Sample

All criteria were within method limts

Matrix Spike

All MS criteria were within method limts No MSD was run this batch

Matrix Spike Duplicate RPD

No MSD was run this batch

Non-Conformance

No non-conformances were associated with this request except noticed below



Quality Control for Gasoline in Soil by NWTPH-Gx

Batch Date: 3/14/2017

Blank	Prep. Batch	Result(mg/Kg)	Accep. Range	Sur. % Recovery	% Ассер.
GBK03141	G170314-1	1.27	<20	86%	50%-150%
Spike	Prep. Batch	Result (mg/Kg)	Expected (mg/Kg)	spike % Recovery	% Ассер.
GLC03141	G170314-1	99.64	100.3	99%	70%-130%
Duplicate	A. Batch	Result (mg/Kg)	Duplicate(mg/Kg)	RPD	% Ассер.
L5717R	G170314-1	ND	ND	0%	±30%
MS	A. Batch	Spike (mg/Kg)	Sample(mg/Kg)	Spike % Recovery	% Accep.
L5717DUP	G170314-1	105	5	97%	70%-130%



LABORATORY REPORT

Point Source Solutions 10445 SW Canyon Rd Suite 115 Portland, OR 97214

PROJECT NAME: Jiffy Lube SITE LOCATION: 2025 NE Broadway PROJECT NUMBER: OR161223-3A

ANALYST

FIELD ID: SB12-S1-16

INSTRUMENT SolaTek
REPORT NUMBER: 87285
REPORT DATE: 3/17/17

ACQ. ON 16Mar20174:12pm

PREP. BATCH V170316 **LAB ID:** L5714

Preparation Method: EPA 5035A

Analytical Method: EPA 8260C Analyte: Volatile Organics in Soil

Compound (us/Ks)		Sample	Quant. Limit	Qualifier Dilution
bromobenzene ND 200 50 bromodichloromethane ND 200 50 bromodichloromethane ND 200 50 bromodichloromethane ND 200 50 bromodichloromethane S00 200 500 sec-butylbenzene ND 200 50 chlorobrene ND 200 50 chloroform ND 200 50 d-bromodiloromethane ND 200 50 1,2-dibromodiloromethane ND 200 50 1,2-dibromodiloromethane ND 200 50 1,2-dichloromethane ND 200 50 1,3-dichloromethane ND 200 50 1,3-dichloromethane ND 200		(ug/Kg)	(ug/Kg)	
bromodichoromethane ND 200 50 bromodrom ND 200 50 bromoform ND 200 50 n-butylbenzene \$250 200 500 sec-butylbenzene \$250 200 50 tert-butylbenzene ND 200 50 chloroform ND 200 50 chloroform ND 200 50 chloroform ND 200 50 4-chlorotoluene ND 200 50 4-chlorotoluene ND 200 50 4-chlorotoluene ND 200 50 12-dishomoeshare ND 200 50 12-dishomoeshare ND 200 50 12-dishomoeshare ND 200 50 12-dishoromethane ND 200 50 12-dishoromethane ND 200 50 12-dishoromethane ND 200 50				
bromodichloromethane ND 200 50 50 50 50 50 50 5				
bromoform ND 200 500 5000				
Descript Descript South South				
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chloroform ND 200 50 2-chlorotoluene ND 200 50 4-chlorotoluene ND 200 50 4-chlorotoluene ND 200 50 1,2-dibromos-chloropropane ND 200 50 1,2-dibromoethane ND 200 50 1,2-dichlorobenzene ND 200 50 1,2-dichlorobenzene ND 200 50 1,4-dichlorobenzene ND 200 50 1,4-dichlorobenzene ND 200 50 1,4-dichlorobenzene ND 200 50 1,4-dichlorobenzene ND 200 50 1,3-dichlorobenzene ND 200 50 1,2-dichlorobenzene ND 200 50 1,2-dichlorobenzene ND 200 50 trans-1,2-dichloropropene ND 200 50 trans-1,2-dichloropropene ND 200 50 1,3-dichloropropene N				
2-chlorotoluene ND 200 50 4-chlorotoluene ND 200 50 dibromochloromethane ND 200 50 1,2-dibromos-chloropropane ND 200 50 1,2-dibromos-chloropropane ND 200 50 dibromomethane ND 200 50 1,3-dichlorobenzene ND 200 50 1,3-dichlorobenzene ND 200 50 1,4-dichlorobenzene ND 200 50 1,1-dichloroethane ND 200 50 1,2-dichloroethane ND 200 50 1,1-dichloroethane ND 200 50 1,2-dichloropropane ND 200 50 1,2-dichloropropane ND				
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1,2,4-trimethlybenzene 7830000 200 200000 1,3,5-trimethylbenzene 1360000 200 100000 xylene(m&p) 5630000 400 100000 o-xylene 2550000 200 100000				
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o-xylene 2550000 200 100000	, , , <u>, , , , , , , , , , , , , , , , </u>			
· · · · · · · · · · · · · · · · · · ·				
total xylenes 8180000 200 100000				
	total xylenes	8180000	200	100000

Surrogate: Percent Recovery

Analyst: Cy Chan

2415 SE 11th Ave.,

Portland, OR 97214

1,2-dichloroethane-d4

toluene-d8

p-bromofluorobenzene

82 **Reviewer Initials:**





Report Narrative

Method:

Report No. 87285 Client: Point Source Solutions Date: 3/16/2017

Sample Condition

Sample was analyzed for 8260. Sample was received in acceptable condition

Sample Temperature

Sample(s) arrived within acceptable temperature range

Sample Hold time

Sample was analyzed within hold time

Initial Calibration

All criteria were within acceptable limits

Continuing Calibration Check (CCV)

All criteria were within method limts. Any exceptions are qualified in the body of the report

Method Blank

Method Blank meets method limt. Any exceptions are qualified in the body of the report

Laboratory Control Sample (LCS)

All criteria were within method limts, Any exceptions are qualified in the body of the report

Duplicate Sample

No Duplicate was run on this batch

Matrix Spike

All criteria were within method limts

Matrix Spike Duplicate

2 compounds of Matrix Spike Duplicate were outside method limts as flagged in the MSD QC report

No non-conformances were associated with this request except noticed below Sample jar was opened prior to 8260 analysis.



QUALITY CONTROL REPORT (EPA 8260C)

 Run Date:
 3/16/2017
 Prep batch:
 P3-16-17

 Report Date:
 3/17/2017
 Analytical batch:
 STRA170316

Analyte	BLANK	LCS	Expected	Recovery
	(ug/Kg)	(ug/Kg)	(ug/Kg)	%
benzene	<4	15	16	96
bromobenzene	<4	17	16	104
bromochloromethane	<4	17	16	105
bromodichloromethane	<4	16	16	98
bromoform	<4	18	16	113
n-butylbenzene	<4	15	16	92
sec-butylbenzene	<4	16	16	97
tert-butylbenzene	<4	16	16	98
chlorobenzene	<4	18	16	110
chloroform	<4	16	16	98
2-chlorotoluene	<4	15	16	96
4-chlorotoluene	<4	16	16	97
dibromochloromethane	<4	18	16	114
1,2dibromo3-chloropropane	<4	18	16	113
	<4 <4	20	16	124
1,2-dibromoethane				112
dibromomethane	<4	18	16	
1,2-dichlorobenzene	<4	16	16	98
1,3-dichlorobenzene	<4	15	16	95
1,4-dichlorobenzene	<4	16	16	98
1,1-dichloroethane	<4	17	16	106
1,2-dichloroethane	<4	16	16	102
1,1-dichloroethene	<4	16	16	102
cis-1,2-dichloroethene	<4	17	16	107
trans-1,2-dichloroethene	<4	17	16	106
1,2-dichloropropane	<4	18	16	111
1,3-dichloropropane	<4	17	16	109
1,1-dichloropropene	<4	16	16	97
cis-1,3-dichloropropene	<4	17	16	107
trans-1,3-dichloropropene	<4	17	16	107
ethylbenzene	<4	16	16	100
hexachlorobutadiene	<4	14	16	88
isopropylbenzene	<4	16	16	99
p-Isopropyltoluene	<4	15	16	97
	<4 <4	20	16	123
methyl-tert-butylether(MTBE)		20	16	123
naphthalene	<4			
n-propyl-benzene	<4	16	16	99
styrene	<4	17	16	104
1,1,1,2-tetrachloroethane	<4	17	16	105
1,1,2,2-tetrachloroethane	<4	18	16	112
tetrachloroethylene	<4	16	16	98
toluene	<4	16	16	101
1,2,3-trichlorobenzene	<4	18	16	114
1,2,4-trichlorobenzene	<4	18	16	114
1,1,1-trichloroethane	<4	15	16	95
1,1,2-trichloroethane	<4	18	16	112
trichloroethene	<4	17	16	108
1,2,3-trichloropropane	<4	17	16	106
1,2,4-trimethlybenzene	<4	16	16	98
	<4	16	16	99
1.3.5-trimethylbenzene				
1,3,5-trimethylbenzene				
1,3,5-trimethylbenzene xylene(m&p) o-xylene	<8 <4	33 17	32 16	103 103

Control: 70%-130%



DUPLICATE / MATRIX SPIKE REPORT (EPA 8260C)

Run Date: Report Date:	3/16/2017 3/17/2017	Prep batch: Analytical bat	ch:	P3-16-17 STRA170316		MSD ID: MS ID	SBK34MSD SBK34MS
Analyte		Sample	MSD	Recovery	Sample	Spike	Recovery
		(ug/Kg)	(ug/Kg)	(%)	(ug/Kg)	(ug/Kg)	(%)
benzene		0	14	89	0	15	96
bromobenzene		0	15	95	0	17	104
bromochlorometha		0	13	83	0	17	105
bromodichloromet	thane	0	13	82	0	16	98
bromoform		0	15 15	95 96	0	18 15	113 92
n-butylbenzene sec-butylbenzene		0	16	101	0 0	16	92 97
tert-butylbenzene		0	16	98	0	16	97 98
chlorobenzene		0	17	105	0	18	110
chloroform		0	13	81	0	16	98
2-chlorotoluene		0	15	94	0	15	96
4-chlorotoluene		0	15	93	0	16	97
dibromochloromet	thane	0	14	88	ő	18	114
1,2dibromo3-chlo		ő	14	86	Ŏ	18	113
1,2-dibromoethane		Ő	15	93	ŏ	20	124
dibromomethane	•	Ő	15	92	ŏ	18	112
1.2-dichlorobenze	ne	Ö	14	91	Ö	16	98
1,3-dichlorobenze		Ö	15	96	Ö	15	95
1,4-dichlorobenze		0	15	95	Ö	16	98
1,1-dichloroethane		0	14	90	Ö	17	106
1,2-dichloroethane		0	13	80	0	16	102
1,1-dichloroethene	e	0	15	96	0	16	102
cis-1,2-dichloroeth	nene	0	14	90	0	17	107
trans-1,2-dichloro	ethene	0	15	93	0	17	106
1,2-dichloropropa	ne	0	15	95	0	18	111
1,3-dichloropropa	ne	0	14	85	0	17	109
1,1-dichloroprope	ne	0	14	87	0	16	97
cis-1,3-dichloropre	opene	0	13	84	0	17	107
trans-1,3-dichloro	propene	0	13	80	0	17	107
ethylbenzene		0	16	98	0	16	100
hexachlorobutadie	ene	0	14	85	0	14	88
isopropylbenzene		0	16	97	0	16	99
p-Isopropyltoluen		0	16	100	0	15	97
methyl-tert-butyle	ther(MTBE)	0	14	86	0	20	123
naphthalene		0	17	106	0	21	129
n-propyl-benzene		0	16	98	0	16	99
styrene		0	15	93	0	17	104
1,1,1,2-tetrachloro		0	16	98	0	17	105
1,1,2,2-tetrachloro		0	17	103	0	18	112
tetrachloroethylen	e	0	15	92	0	16	98
toluene		0	15 15	93	0	16	101
1,2,3-trichloroben		0	15	93	0	18	114
1,2,4-trichloroben		0	12	78 94	0	18 15	114
1,1,1-trichloroetha		0	13 14	84 90	0 0	15 18	95 112
trichloroethene	ille	0	16	90 100	0	18 17	108
1,2,3-trichloroprop	nana	0	15	94	0	17	106
1,2,4-trimethlyben	pane Izana	0	16	9 4 97	0	17 16	98
1,3,5-trimethylben		0	16	98	0	16	99
xylene(m&p)	IZCIIC	0	32	100	0	33	103
o-xylene		0	15	95	0	17	103
Control:				70%-130%			70%-130%



MATRIX SPIKE / MATRIX SPIKE DUPLICATE REPORT (EPA 8260C)

Run Date: 3/16/2017 Report Date: 3/17/2017	Prep batch: Analytical batch:	P3-16-17 STRA170316		MS ID: MSD ID:	SBK34MS SBK34MSD
Analyte	MS	MSD	RPD		
	(ug/Kg)	(ug/Kg)	(%)		
benzene	15	14	8		
bromobenzene	17	15	9		
bromochloromethane	17	13	23		
bromodichloromethane	16	13	18		
bromoform	18	15	17		
n-butylbenzene	15	15	4		
sec-butylbenzene	16	16	4		
tert-butylbenzene	16	16	1		
chlorobenzene	18	17	5		
chloroform	16 15	13	18		
2-chlorotoluene 4-chlorotoluene	16	15 15	2 4		
dibromochloromethane	18	14	26		
1,2dibromo3-chloropropane	18	14	27		
1,2-dibromoethane	20	15	28		
dibromomethane	18	15	20		
1,2-dichlorobenzene	16	14	8		
1,3-dichlorobenzene	15	15	1		
1,4-dichlorobenzene	16	15	3		
1,1-dichloroethane	17	14	17		
1,2-dichloroethane	16	13	24		
1,1-dichloroethene	16	15	6		
cis-1,2-dichloroethene	17	14	17		
trans-1,2-dichloroethene	17	15	13		
1,2-dichloropropane	18	15	16		
1,3-dichloropropane	17	14	25		
1,1-dichloropropene	16	14	11		
cis-1,3-dichloropropene	17	13	23		
trans-1,3-dichloropropene	17	13	29		
ethylbenzene	16	16	2		
hexachlorobutadiene	14	14	4		
isopropylbenzene	16	16	2		
p-Isopropyltoluene	15	16	4		
methyl-tert-butylether(MTBE)	20	14	35*		
naphthalene	21	17	19		
n-propyl-benzene	16 17	16 15	1 11		
styrene 1,1,1,2-tetrachloroethane	17	15 16	7		
1,1,2-tetrachloroethane	18	17	8		
tetrachloroethylene	16	15	7		
toluene	16	15	9		
1,2,3-trichlorobenzene	18	15	20		
1,2,4-trichlorobenzene	18	12	38*		
1,1,1-trichloroethane	15	13	13		
1.1.2-trichloroethane	18	14	22		
trichloroethene	17	16	8		
1,2,3-trichloropropane	17	15	12		
1,2,4-trimethlybenzene	16	16	0		
1,3,5-trimethylbenzene	16	16	1		
xylene(m&p)	33	32	3		
o-xylene	17	15	7		
Control:			30		

^{* -} QC fails on this compound



Laboratory Report

Point Source Solutions

10445 SW Canyon Rd Suite 115

Portland, OR 97214

Report Number: 87285 Report Date: 4/3/17 Project Name:

Project Location: Jiffy Lube

Project Number: 2025 NE Broadway
Date Sampled: OR161223-3A

Date received: 3/13/17

EPA 7000

Analyte: Total Lead (Pb) quantitation by FLAA

Allalyte.	Total Lead (T b) quantitation by T LAA			
Field ID	Lab ID	Result	Detection Limit	_
		mg/Kg(ppm)	mg/Kg(ppm)	
SB12-S1-16	L5714	56	10	

Quality Control Report: Lead (Pb)

PB1704031	Measured Conc. (mg/L)	Expected Concentration (mg/L)	Recovery (%)	Lower Limit	Upper Limit	
ICV	5.1	5.0	102%	80%	120%	PASS
Prep Blank	0.1	0.0		0.5 mg/L		PASS
LCS	2.6	2.4	107%	70%	130%	PASS
QC Blank	0.0	0.0		0.5 mg/L		PASS
QC Check	5.1	5.0	102%	80%	120%	PASS
Calibration R	² 1.	(Lower Limit:	0.990)			PASS

WyEast

CHAIN OF CUSTODY

Report Number 87285

Environmental Sciences, Inc. 2415 SE 11th Ave. Portland Oregon 97214

Phone(503) 231-9320 FAX(503) 231-9344

Company Poin	t Source Solution	Phone (03) 47	2-26	75 780	J-1569		200			Ŷ		Comments
Project #	OR161223-3A		#1	34 SHOWN SHOWN SHOWN		*				5 1	Ŧ	ĺ	
Project Name	FFy Lube	Purchase Ord				200				ĘX)	(PA		
Site 202.0	5 NE Broadway	Report Attent	ion Gil	Collec	ted By AT	W	χ̈́	Ϋ́	NW-TPH-HCID	EPA 8021B (BTEX)	EPA 8270 SIM (PAH)	80	8
Samples: Temp	erature 4.5 On Ice? Yes/ No	Turnaround 1	îme: ⊠LR	egular 🔲	3-5 Business	Days	NW-TPH-Dx	NW-TPH-GX	TPH	802	827	₹8260B	
LAB ID	Field ID	Sampling Date	Sampling Time	Matrix	Container	Volume	NW	Ν̈́	NV	EPA	EP/	EPA	Analysis Requested
L5712	SB11-S1-12	3/13/17	9:05	5	a	402		×		(8) - 100 -			
L5713	SB11-52-28		10:13		١	402		く		87.00			
L5714	B12-51-16		11:05		, t	1_		$ \wedge $		e e			
L5715	SB13-5[-24		12:30		1			\times					12 of
LSTIB	5814-51-13		13:47)	AV.		×	32				
L5717	58106 - 9	g G	15:00		1			X					Pg
	5866-51-28		15:′∞	V	1	V	_	×					
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Relinguished by	Affiliation	3/13/1	7 16:	10		x/d	an		AITHE	190	Ter	nt.	3/13/17 4:15.
Relinquished by	Affiliation	Date	Time	900 <u>-</u>	Received by	<i>i</i>			Affilia	ition (Date Time



2415 SE 11th Ave Portland, OR 97214 Ph: 503-231-9320 Fax: 503-231-9344

Comple Condition Chack List

Sample Condition	Check List
Customer Name: PS.	coc#:_ 87285
Method of Delivery: courier tient other	
Type of ice: Ice Blue None Cooler Tempera	ture: 0. 5
Matrix: (Soil) Water Other	
	Yes No NA Comments
Relinquish signed on Chain of Custody.	*
Received by signed on Chain of Custody.	*
Chain of Custody filled out.	*
Were samples Arrived within Hold Time.	*
Rush Trun Around Time Requested. If yes, how many days	WA *
Temperatures measured and written in correct place on COC.	*
Correct containers used.	*
Sufficient Volume.	*
ID on COC and Sample labels match.	/ *
Duplicate jars and vials labeled with a, b, c, d etc.	WA *
All tests logged in checked against the COC.	*
The COC scanned into the main office computer.	/ *
FOR WATER SAMPLES: Trip Blank: Yes Waiver on file Submitted b No	y:
. 2	Yes No Comments
Was sufficient volume provided for analysis.	*
Was sufficient volume provided for QC samples (at least two).	*
HCL Preserved vials.	*
11CL LOT Number:	
Were duplicate jars and vials labeled with a, b, c, d etc.	*
Headspace in VOA Vials (>6mm).	
Client Notification/Resolution:	
	, F
Comments:	
70 ACC ACC	
Reviewed:	Date: 3 13 17

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

March 22, 2017

Andy Klopfenstein, Project Manager Point Source Solutions 10445 SW Canyon Rd., Ste. 115 Beaverton, OR 97005

Dear Mr Klopfenstein:

Included is the amended report from the testing of material submitted on March 14, 2017 from the 2025 NE Broadway St, F&BI 703242 project. Per your request, only the overrange compounds were reported in the dilutions of the samples.

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

Sincerely,

FRIEDMAN & BRUYA. INC.

Michael Erdahl Project Manager

Enclosures NAA0321R.DOC

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

March 21, 2017

Andy Klopfenstein, Project Manager Point Source Solutions 10445 SW Canyon Rd., Ste. 115 Beaverton, OR 97005

Dear Mr Klopfenstein:

Included are the results from the testing of material submitted on March 14, 2017 from the 2025 NE Broadway St, F&BI 703242 project. There are 9 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA. INC.

Michael Erdahl Project Manager

Enclosures NAA0321R.DOC

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 14, 2017 by Friedman & Bruya, Inc. from the Point Source Solutions 2025 NE Broadway St, F&BI 703242 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Point Source Solutions
703242 -01	SS1
703242 -02	SV1
703242 -03	SV2

The TO-15 calibration standard failed the acceptance criteria for acrylonitrile, pentane, cyclopentane, and vinyl acetate. The data were flagged accordingly.

A single point calibration at 1,000 ppbv was used for quantification of Gasoline Range Organics.

All other quality control requirements were acceptable.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID: SS1 Client: Point Source Solutions

Date Received: 03/14/17 Project: 2025 NE Broadway St, F&BI 703242

Date Collected: Lab ID: 02/10/17 703242-01 1/5 Date Analyzed: 03/17/17 Data File: 031718.D Matrix: Air Instrument: GCMS7 Units: ug/m3 Operator: MP

Surrogates: Recovery: Limit: Limit: 4-Bromofluorobenzene 96 70 130

	Conce	ntration		Concent	tration
Compounds:	ug/m3	ppbv	Compounds:	ug/m3	ppbv
CLI ING	4.0	0.7	4.5	00	0.0
Chlorodifluoromethane	<1.8	< 0.5	1-Butanol	90	30
Propene	5.7	3.3	Carbon tetrachloride	<3.1	< 0.5
Dichlorodifluoromethane	< 2.5	< 0.5	Benzene	4.0	1.3
Chloromethane	<1	< 0.5	Cyclohexane	<34	<10
F-114	<3.5	< 0.5	2-Pentanone	<18	<5
Isobutene	22	9.4	3-Pentanone	<18	<5
Acetaldehyde	360	200	Pentanal	<18	<5
Vinyl chloride	<1.3	< 0.5	1,2-Dichloropropane	<2.3	< 0.5
1,3-Butadiene	3.7	1.7	1,4-Dioxane	<1.8	< 0.5
Bromomethane	<1.9	< 0.5	Bromodichloromethane	< 3.4	< 0.5
Chloroethane	<1.3	< 0.5	Trichloroethene	< 2.7	< 0.5
Ethanol	<38	<20	cis-1,3-Dichloropropene	< 2.3	< 0.5
Acetonitrile	< 8.4	<5	4-Methyl-2-pentanone	<20	<5
Acrolein	<4.6	<2	trans-1,3-Dichloropropene	< 2.3	< 0.5
Acrylonitrile	<1.1 ca	<0.5 ca	Toluene	23	6.2
Pentane	<15 ca	<5 ca	1,1,2-Trichloroethane	< 2.7	< 0.5
Trichlorofluoromethane	< 2.8	< 0.5	3-Hexanone	<20	<5
Acetone	80	34	2-Hexanone	<20	<5
2-Propanol	80	33	Hexanal	<20	<5
Isoprene	<1.4	< 0.5	Tetrachloroethene	300	44
Iodomethane	< 2.9	< 0.5	Dibromochloromethane	<4.3	< 0.5
1,1-Dichloroethene	<2	< 0.5	1,2-Dibromoethane (EDB)	<3.8	< 0.5
Methacrolein	<14	<5	Chlorobenzene	< 2.3	< 0.5
trans-1,2-Dichloroethene	<2	< 0.5	Ethylbenzene	3.1	0.71
Cyclopentane	<1.4 ca	<0.5 ca	1,1,2,2-Tetrachloroethane	< 3.4	< 0.5
Methyl vinyl ketone	< 5.7	<2	m,p-Xylene	11	2.6
Butanal	<15	<5	o-Xylene	4.4	1.0
Methylene chloride	<430	<120	Styrene	<4.3	<1
CFC-113	<3.8	< 0.5	Bromoform	<10	<1
Carbon disulfide	<31	<10	Benzyl chloride	< 2.6	< 0.5
Methyl t-butyl ether	<1.8	< 0.5	1,3,5-Trimethylbenzene	<12	< 2.5
Vinyl acetate	<35 ca	<10 ca	1,2,4-Trimethylbenzene	<12	< 2.5
1,1-Dichloroethane	<2	< 0.5	1,3-Dichlorobenzene	<6	<1
cis-1,2-Dichloroethene	<2	< 0.5	1,4-Dichlorobenzene	<3	< 0.5
Hexane	<18	<5	1,2,3-Trimethylbenzene	<12	< 2.5
Chloroform	<2.4	< 0.5	1,2-Dichlorobenzene	<6	<1
2-Butanone (MEK)	<15	<5	1,2,4-Trichlorobenzene	<3.7	< 0.5
1,2-Dichloroethane (EDC)	<2	< 0.5	Naphthalene	<2.6	< 0.5
1,1,1-Trichloroethane	<2.7	< 0.5	Hexachlorobutadiene	< 5.3	< 0.5
Gasoline Range Organics	<2,100	< 500		10.0	-5.0

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID: SV1 Client: Point Source Solutions

Date Received: 03/14/17 Project: 2025 NE Broadway St, F&BI 703242

Date Collected: Lab ID: 02/10/17 703242-02 1/5 Date Analyzed: 03/17/17 Data File: 031715.D Matrix: Air Instrument: GCMS7 Units: ug/m3 Operator: MP

Surrogates: Recovery: Limit: Limit: 4-Bromofluorobenzene 98 70 130

	Conce	ntration		Concent	tration
Compounds:	ug/m3	ppbv	Compounds:	ug/m3	ppbv
	4.0	0.7	4.5.	0.0	4.0
Chlorodifluoromethane	<1.8	< 0.5	1-Butanol	<30	<10
Propene	9.8	5.7	Carbon tetrachloride	<3.1	< 0.5
Dichlorodifluoromethane	<2.5	< 0.5	Benzene	<1.6	< 0.5
Chloromethane	<1	< 0.5	Cyclohexane	<34	<10
F-114	< 3.5	< 0.5	2-Pentanone	<18	<5
Isobutene	9.5	4.1	3-Pentanone	<18	<5
Acetaldehyde	200	110	Pentanal	<18	<5
Vinyl chloride	<1.3	< 0.5	1,2-Dichloropropane	<2.3	< 0.5
1,3-Butadiene	1.7	0.75	1,4-Dioxane	<1.8	< 0.5
Bromomethane	<1.9	< 0.5	Bromodichloromethane	<3.4	< 0.5
Chloroethane	<1.3	< 0.5	Trichloroethene	< 2.7	< 0.5
Ethanol	<38	<20	cis-1,3-Dichloropropene	<2.3	< 0.5
Acetonitrile	<8.4	<5	4-Methyl-2-pentanone	<20	<5
Acrolein	<4.6	<2	trans-1,3-Dichloropropene	< 2.3	< 0.5
Acrylonitrile	<1.1 ca	<0.5 ca	Toluene	< 1.9	< 0.5
Pentane	<15 ca	<5 ca	1,1,2-Trichloroethane	< 2.7	< 0.5
Trichlorofluoromethane	< 2.8	< 0.5	3-Hexanone	<20	<5
Acetone	48	20	2-Hexanone	<20	<5
2-Propanol	<43	<17	Hexanal	<20	<5
Isoprene	<1.4	< 0.5	Tetrachloroethene	15	2.2
Iodomethane	< 2.9	< 0.5	Dibromochloromethane	<4.3	< 0.5
1,1-Dichloroethene	<2	< 0.5	1,2-Dibromoethane (EDB)	<3.8	< 0.5
Methacrolein	<14	<5	Chlorobenzene	< 2.3	< 0.5
trans-1,2-Dichloroethene	<2	< 0.5	Ethylbenzene	<2.2	< 0.5
Cyclopentane	<1.4 ca	<0.5 ca	1,1,2,2-Tetrachloroethane	< 3.4	< 0.5
Methyl vinyl ketone	< 5.7	<2	m,p-Xylene	4.5	1.0
Butanal	<15	<5	o-Xylene	2.4	0.55
Methylene chloride	<430	<120	Styrene	<4.3	<1
CFC-113	< 3.8	< 0.5	Bromoform	<10	<1
Carbon disulfide	<31	<10	Benzyl chloride	< 2.6	< 0.5
Methyl t-butyl ether	<1.8	< 0.5	1,3,5-Trimethylbenzene	<12	< 2.5
Vinyl acetate	<35 ca	<10 ca	1,2,4-Trimethylbenzene	<12	< 2.5
1,1-Dichloroethane	<2	< 0.5	1,3-Dichlorobenzene	<6	<1
cis-1,2-Dichloroethene	<2	< 0.5	1,4-Dichlorobenzene	<3	< 0.5
Hexane	<18	<5	1,2,3-Trimethylbenzene	<12	<2.5
Chloroform	<2.4	< 0.5	1,2-Dichlorobenzene	<6	<1
2-Butanone (MEK)	<15	<5	1,2,4-Trichlorobenzene	< 3.7	< 0.5
1,2-Dichloroethane (EDC)	<2	< 0.5	Naphthalene	< 2.6	< 0.5
1,1,1-Trichloroethane	<2.7	< 0.5	Hexachlorobutadiene	<5.3	<0.5
Gasoline Range Organics	<2,100	< 500	2 20.14011101 Obacadione	٧٥.٥	.0.0

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID: SV2 Client: Point Source Solutions

Date Received: 03/14/17 Project: 2025 NE Broadway St, F&BI 703242

Date Collected: Lab ID: 02/10/17 703242-03 1/5 Date Analyzed: 03/17/17 Data File: 031716.D Matrix: Air Instrument: GCMS7 Units: ug/m3 Operator: MP

Surrogates: Recovery: Limit: Limit: 4-Bromofluorobenzene 97 70 130

	Concer	ntration		Concent	tration
Compounds:	ug/m3	ppbv	Compounds:	ug/m3	ppbv
Chlorodifluoromethane	<1.8	< 0.5	1-Butanol	<30	<10
Propene	6.0	3.5	Carbon tetrachloride	< 3.1	< 0.5
Dichlorodifluoromethane	< 2.5	< 0.5	Benzene	< 1.6	< 0.5
Chloromethane	<1	< 0.5	Cyclohexane	<34	<10
F-114	< 3.5	< 0.5	2-Pentanone	<18	<5
Isobutene	5.0	2.2	3-Pentanone	<18	<5
Acetaldehyde	170	97	Pentanal	<18	<5
Vinyl chloride	<1.3	< 0.5	1,2-Dichloropropane	< 2.3	< 0.5
1,3-Butadiene	1.3	0.57	1,4-Dioxane	<1.8	< 0.5
Bromomethane	< 1.9	< 0.5	Bromodichloromethane	< 3.4	< 0.5
Chloroethane	<1.3	< 0.5	Trichloroethene	< 2.7	< 0.5
Ethanol	<38	<20	cis-1,3-Dichloropropene	< 2.3	< 0.5
Acetonitrile	< 8.4	<5	4-Methyl-2-pentanone	<20	<5
Acrolein	<4.6	<2	trans-1,3-Dichloropropene	< 2.3	< 0.5
Acrylonitrile	<1.1 ca	<0.5 ca	Toluene	2.2	0.59
Pentane	<15 ca	<5 ca	1,1,2-Trichloroethane	< 2.7	< 0.5
Trichlorofluoromethane	< 2.8	< 0.5	3-Hexanone	<20	<5
Acetone	34	14	2-Hexanone	<20	<5
2-Propanol	1,200 ve	490 ve	Hexanal	<20	<5
Isoprene	<1.4	< 0.5	Tetrachloroethene	15	2.2
Iodomethane	< 2.9	< 0.5	Dibromochloromethane	<4.3	< 0.5
1,1-Dichloroethene	<2	< 0.5	1,2-Dibromoethane (EDB)	< 3.8	< 0.5
Methacrolein	<14	<5	Chlorobenzene	< 2.3	< 0.5
trans-1,2-Dichloroethene	<2	< 0.5	Ethylbenzene	<2.2	< 0.5
Cyclopentane	<1.4 ca	<0.5 ca	1,1,2,2-Tetrachloroethane	< 3.4	< 0.5
Methyl vinyl ketone	< 5.7	<2	m,p-Xylene	<4.3	<1
Butanal	<15	<5	o-Xylene	< 2.2	< 0.5
Methylene chloride	<430	<120	Styrene	<4.3	<1
CFC-113	<3.8	< 0.5	Bromoform	<10	<1
Carbon disulfide	<31	<10	Benzyl chloride	< 2.6	< 0.5
Methyl t-butyl ether	<1.8	< 0.5	1,3,5-Trimethylbenzene	<12	< 2.5
Vinyl acetate	<35 ca	<10 ca	1,2,4-Trimethylbenzene	<12	< 2.5
1,1-Dichloroethane	<2	< 0.5	1,3-Dichlorobenzene	<6	<1
cis-1,2-Dichloroethene	<2	< 0.5	1,4-Dichlorobenzene	<3	< 0.5
Hexane	<18	<5	1,2,3-Trimethylbenzene	<12	< 2.5
Chloroform	< 2.4	< 0.5	1,2-Dichlorobenzene	<6	<1
2-Butanone (MEK)	<15	<5	1,2,4-Trichlorobenzene	< 3.7	< 0.5
1,2-Dichloroethane (EDC)	<2	< 0.5	Naphthalene	< 2.6	< 0.5
1,1,1-Trichloroethane	< 2.7	< 0.5	Hexachlorobutadiene	< 5.3	< 0.5
Gasoline Range Organics	<2,100	< 500			

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID: SV2 Client: Point Source Solutions

Date Received: 03/14/17 Project: 2025 NE Broadway St, F&BI 703242

Date Collected: Lab ID: 02/10/17 703242-03 1/25 Date Analyzed: Data File: 03/16/17 031610.D Matrix: Air Instrument: GCMS7 Units: ug/m3 Operator: MP

Surrogates: % Lower Upper Recovery: Limit: Limit: 4-Bromofluorobenzene 93 70 130

Concentration

Compounds: ug/m3 ppbv

2-Propanol 610 250

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID: Method Blank Client: Point Source Solutions

Date Received: Not Applicable Project: 2025 NE Broadway St, F&BI 703242

Lab ID: Date Collected: 03/16/17 07-536 mb Date Analyzed: 03/16/17 Data File: 031607.D Matrix: Air Instrument: GCMS7 Units: ug/m3 Operator: MP

Surrogates: Recovery: Limit: Limit: 4-Bromofluorobenzene 99 70 130

	Concer	ntration		Concent	tration
Compounds:	ug/m3	ppbv	Compounds:	ug/m3	ppbv
Chlorodifluoromethane	< 0.35	< 0.1	1-Butanol	<6.1	<2
Propene	< 0.69	< 0.4	Carbon tetrachloride	< 0.63	< 0.1
Dichlorodifluoromethane	< 0.49	< 0.1	Benzene	< 0.32	< 0.1
Chloromethane	< 0.21	< 0.1	Cyclohexane	< 6.9	<2
F-114	< 0.7	< 0.1	2-Pentanone	< 3.5	<1
Isobutene	< 0.92	< 0.4	3-Pentanone	< 3.5	<1
Acetaldehyde	<9	<5	Pentanal	< 3.5	<1
Vinyl chloride	< 0.26	< 0.1	1,2-Dichloropropane	< 0.46	< 0.1
1,3-Butadiene	< 0.22	< 0.1	1,4-Dioxane	< 0.36	< 0.1
Bromomethane	< 0.39	< 0.1	Bromodichloromethane	< 0.67	< 0.1
Chloroethane	< 0.26	< 0.1	Trichloroethene	< 0.54	< 0.1
Ethanol	< 7.5	<4	cis-1,3-Dichloropropene	< 0.45	< 0.1
Acetonitrile	<1.7	<1	4-Methyl-2-pentanone	<4.1	<1
Acrolein	< 0.92	< 0.4	trans-1,3-Dichloropropene	< 0.45	< 0.1
Acrylonitrile	< 0.22	< 0.1	Toluene	< 0.38	< 0.1
Pentane	<3 ca	<1 ca	1,1,2-Trichloroethane	< 0.55	< 0.1
Trichlorofluoromethane	< 0.56	< 0.1	3-Hexanone	<4.1	<1
Acetone	<4.8	<2	2-Hexanone	<4.1	<1
2-Propanol	< 8.6	< 3.5	Hexanal	<4.1	<1
Isoprene	< 0.28	< 0.1	Tetrachloroethene	< 0.68	< 0.1
Iodomethane	< 0.58	< 0.1	Dibromochloromethane	< 0.85	< 0.1
1,1-Dichloroethene	< 0.4	< 0.1	1,2-Dibromoethane (EDB)	< 0.77	< 0.1
Methacrolein	< 2.9	<1	Chlorobenzene	< 0.46	< 0.1
trans-1,2-Dichloroethene	< 0.4	< 0.1	Ethylbenzene	< 0.43	< 0.1
Cyclopentane	< 0.29	< 0.1	1,1,2,2-Tetrachloroethane	< 0.69	< 0.1
Methyl vinyl ketone	<1.1	< 0.4	m,p-Xylene	< 0.87	< 0.2
Butanal	< 2.9	<1	o-Xylene	< 0.43	< 0.1
Methylene chloride	<87	<25	Styrene	< 0.85	< 0.2
CFC-113	< 0.77	< 0.1	Bromoform	< 2.1	< 0.2
Carbon disulfide	< 6.2	<2	Benzyl chloride	< 0.52	< 0.1
Methyl t-butyl ether	< 0.36	< 0.1	1,3,5-Trimethylbenzene	< 2.5	< 0.5
Vinyl acetate	<7	<2	1,2,4-Trimethylbenzene	< 2.5	< 0.5
1,1-Dichloroethane	< 0.4	< 0.1	1,3-Dichlorobenzene	<1.2	< 0.2
cis-1,2-Dichloroethene	< 0.4	< 0.1	1,4-Dichlorobenzene	< 0.6	< 0.1
Hexane	< 3.5	<1	1,2,3-Trimethylbenzene	< 2.5	< 0.5
Chloroform	< 0.49	< 0.1	1,2-Dichlorobenzene	<1.2	< 0.2
2-Butanone (MEK)	< 2.9	<1	1,2,4-Trichlorobenzene	< 0.74	< 0.1
1,2-Dichloroethane (EDC)	< 0.4	< 0.1	Naphthalene	< 0.52	< 0.1
1,1,1-Trichloroethane	< 0.55	< 0.1	Hexachlorobutadiene	<1.1	< 0.1
Gasoline Range Organics	<410	<100			

ENVIRONMENTAL CHEMISTS

Date of Report: 03/21/17 Date Received: 03/14/17

Project: 2025 NE Broadway St

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

g salat g	r		Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Chlorodifluoromethane	ppbv	10	94	70-130
Propene	ppbv	10	78	70-130
Dichlorodifluoromethane	ppbv	10	93	70-130
Chloromethane	ppbv	10	94	70-130
F-114	ppbv	10	103	70-130
Isobutene	ppbv	10	93	70-130
Acetaldehyde	ppbv	10	94	70-130
Vinyl chloride	ppbv	10	100	70-130
1,3-Butadiene	ppbv	10	98	70-130
Bromomethane	ppbv	10	104	70-130
Chloroethane	ppbv	10	99	70-130
Ethanol	ppbv	10	101	70-130
Acetonitrile	ppbv	10	95	70-130
Acrolein	ppbv	10	95	70-130
Acrylonitrile	ppbv	10	71	70-130
Pentane	ppbv	10	69 vo	70-130
Trichlorofluoromethane	ppbv	10	103	70-130
Acetone	ppbv	10	97	70-130
2-Propanol	ppbv	10	99	70-130
Isoprene	ppbv	10	87	70-130
Iodomethane	ppbv	10	94	70-130
1,1-Dichloroethene	ppbv	10	91	70-130
Methacrolein	ppbv	10	84	70-130
trans-1,2-Dichloroethene	ppbv	10	92	70-130
Cyclopentane	ppbv	10	74	70-130
Methyl Vinyl Ketone	ppbv	10	100	70-130
Butanal	ppbv	10	91	70-130
Methylene chloride	ppbv	10	92	70-130
CFC-113	ppbv	10	95	70-130
Carbon disulfide	ppbv	10	91	70-130
Methyl t-butyl ether	ppbv	10	84	70-130
Vinyl acetate	ppbv	10	70	70-130
1,1-Dichloroethane	ppbv	10	88	70-130
cis-1,2-Dichloroethene	ppbv	10	88	70-130
Hexane	ppbv	10	84	70-130
Chloroform	ppbv	10	90	70-130
2-Butanone (MEK)	ppbv	10	90	70-130
1,2-Dichloroethane (EDC)	ppbv	10	86	70-130
1,1,1-Trichloroethane	ppbv	10	84	70-130
1-Butanol	ppbv	10	80	70-130
Carbon tetrachloride	ppbv	10	86	70-130

ENVIRONMENTAL CHEMISTS

Date of Report: 03/21/17 Date Received: 03/14/17

Project: 2025 NE Broadway St

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

J	1		Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	ppbv	10	88	70-130
Cyclohexane	ppbv	10	83	70-130
2-Pentanone	ppbv	10	93	70-130
3-Pentanone	ppbv	10	93	70-130
Pentanal	ppbv	10	85	70-130
1,2-Dichloropropane	ppbv	10	94	70-130
1,4-Dioxane	ppbv	10	103	70-130
Bromodichloromethane	ppbv	10	95	70-130
Trichloroethene	ppbv	10	95	70-130
cis-1,3-Dichloropropene	ppbv	10	87	70-130
4-Methyl-2-pentanone	ppbv	10	96	70-130
trans-1,3-Dichloropropene	ppbv	10	88	70-130
Toluene	ppbv	10	94	70-130
1,1,2-Trichloroethane	ppbv	10	102	70-130
3-Hexanone	ppbv	10	94	70-130
2-Hexanone	ppbv	10	94	70-130
Hexanal	ppbv	10	89	70-130
Tetrachloroethene	ppbv	10	98	70-130
Dibromochloromethane	ppbv	10	104	70-130
1,2-Dibromoethane (EDB)	ppbv	10	101	70-130
Chlorobenzene	ppbv	10	99	70-130
Ethylbenzene	ppbv	10	97	70-130
1,1,2,2,-Tetrachloroethane	ppbv	10	100	70-130
m,p-Xylene	ppbv	20	97	70-130
o-Xylene	ppbv	10	96	70-130
Styrene	ppbv	10	94	70-130
Bromoform	ppbv	10	101	70-130
Benzyl chloride	ppbv	10	83	70-130
1,3,5-Trimethylbenzene	ppbv	10	96	70-130
1,2,4-Trimethylbenzene	ppbv	10	98	70-130
1,3-Dichlorobenzene	ppbv	10	100	70-130
1,4-Dichlorobenzene	ppbv	10	98	70-130
1,2,3-Trimethylbenzene	ppbv	10	97	70-130
1,2-Dichlorobenzene	ppbv	10	100	70-130
1,2,4-Trichlorobenzene	ppbv	10	83	70-130
Naphthalene	ppbv	10	84	70-130
Hexachlorobutadiene	ppbv	10	89	70-130
Gasoline Range Organics	ppbv	10	97	70-130

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ${\it ca}$ The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.
- c The presence of the analyte may be due to carryover from previous sample injections.
- cf The sample was centrifuged prior to analysis.
- d The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.
- dv Insufficient sample volume was available to achieve normal reporting limits.
- f The sample was laboratory filtered prior to analysis.
- fb The analyte was detected in the method blank.
- fc The compound is a common laboratory and field contaminant.
- hr The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.
- hs Headspace was present in the container used for analysis.
- ht The analysis was performed outside the method or client-specified holding time requirement.
- ip Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.
- J The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.
- js The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc The presence of the analyte is likely due to laboratory contamination.
- L The reported concentration was generated from a library search.
- nm The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.
- ve The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
- vo The value reported fell outside the control limits established for this analyte.
- x The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

703242	1 (M-tegenson of		SAMPI				TODY	Y		ME		03/14/17 1
Report To	Tlord	tenst	ein	SAMP	LERS (s	sianatur	e)					-	Page # of TURNAROUND TIME
Report To And So Company Point So Address 0445 SW	urco	e soli	ution dister	PROJI 5 202	ECT NA	ME E Br	oadu	vay	/ SF	-	PO	#	Standard 5 30-/ RUSH 5 20-/ Rush charges authorized by:
City, State, ZIP Beaver					RKS	······································	·			IN	VOIC	E TC	SAMPLE DISPOSAL Dispose after 30 days
Phone 503-720 - Ema		1,	1						CONTRACTOR OF THE CONTRACTOR O	P	.5	•	☐ Archive Samples ☐ Other
1569	11 <u>/ 5</u> 4	whee s	STUDIO CO	- 5 7 7	······································				ANA	LYSI	S RE	QUES	
Sample Name	Lab	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	Ó	TO-15 BTEXN	TO-15 eVOCs	2 Prop / GX	Notes
SSI	01	3257	FB108	2-10-17	29	13:20	4	13:24	Х			Х	
5V1	0)	3260	FBIIO	33,	30	14:03	5	14:07	Х			Х	
S V 2	03	3255	FB107	\	30	15:12	5	15:16	Х			×	
,													

Friedman & Bruya, Inc. 3012 16th Avenue West

Seattle, WA 98119-2020 Ph. (206) 285-8282

Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
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APPENDIX III WELL LOGS

ORIGINAL

WATER WELL REPORT

State	Well	No.	W/1-35C	2
			A Section of the sect	

File Original and Duplicate with the STATE ENGINEER, SALEM, OREGON STATE OF OREGON State Permit No. 5-1144 @1372/2 (11) WELL TESTS: Drawdown is amount water level is lowered below static level Strasser D Co.

Was a pump test made? Yes | No If yes, by whom? (1) OWNER: Lloyd Corporation Name 720 NE 12th Ave Yield: 1100 gal./min. with 7 ft. drawdown after 8 hrs. Address Portland, Oregon . ** Bailer test 150 gal./min. with (2) LOCATION OF WELL: ft. drawdown after hrs. County Multnomah Owner's number, if anyg.p.m. Date Artesian flow Temperature of water 532 Was a chemical analysis made? Yes No W.M. T. 1N R. 1E NE ¼ NW ¼ Section 35 Bearing and distance from section or subdivision corner 235 ft. N., 90 ft. E of SW Corner, (12) WELL LOG: Diameter of well Block 112, Holladay's Addition Depth drilled 271 ft. Depth of completed well 271 Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation. MATERIAL Surface 14 Basement Y TYPE OF WORK (check): 14 48 Sandy silt Deepening

Reconditioning .√ Well 🛣 Abandon 🔲 Coarse sand and gravel, some 48 67 andonment, describe material and procedure in Item 11. (5) TYPE OF WELL: PROPOSED USE (check): 67 83 Dirty sand Driven 📋 nestic 🔲 Industrial 🗗 Municipal 🗍 83 117 Dirty sand and gravel Jetted ion 🗌 Test Well 🔲 Other 117 Boulders, gravel, and sand 134 Bored Loose gravel and sand 134 149 (6) CASING INSTALLED: Threaded | Welded | Gravel and sand, some large 149 176 16 "Diam. from 0 n. to 271 ft. Gage 3/8" wal gravel ..." Diam, from ft. to ft. Gage Gravel, some sand and clav 176 182 " Diam. from ft. to ft. Gage Loose gravel and sand, water 182 201 bearing (7) PERFORATIONS:
Type of perforator used Star Perforated? Yes 🗌 No Boulders 201 206 Sand, gravel, some clay 206 242 in. by 14 186 ft. to SIZE of perforations 3/8# boulders rows perforations from 242 ft. to Loose gravel and sand, water 242 251 254 8 rows perforations from bearing perforations from ft. to 271 Cemented gravel perforations from ft. to perforations from ft. to ') SCREENS: Well screen installed Yes No facturer's Name Model No. Slot size Set from ft. to Work started Dec. 16 19 58 Completed Feb. 11 em. Slot size Set from ft, to 19 59 (13) PUMP: **CONSTRUCTION:** well gravel packed? Yes No Size of gravel: Gravel placed from ft. to ft. Was a surface seal provided? 🗌 Yes 💾 No To what depth?...... Well Driller's Statement: Material used in seal— This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief. Did any strata contain unusable water? 🔲 Yes 🍒 No Type of water? Depth of strata R. J. Strasser Drilling Co. Method of sealing strata off NAME (Person, firm, or corporation) (Type or print) (10) WATER LEVELS: Address 8110 SE Sunset Lane, Portland 6, Oregon Static level 121 ft. below land surface Date Jan. 26, 59 Driller's well number 3098 lbs. per square inch Date Artesian pressure

[Signed] Kobert J. Manager partner

License No.

MAY 25 196

MAY 25 1961 WATER WELL REPORT

1087 State Well No. 5-155/

File Original and First Copy with the STATE ENGINEER, SALEM, OREGON

STATE ENGINEER STATE OF OREGON G

(1) OWNER:	ONEGON		, , .	VELL 1			own is amount of d below static le		l is
Name Jantzen, Inc.						2.4	If yes, by who		 .
Address 4.11 N. E. 19th	. Ave.		Yleld:	500	gal./min				
	 		**	600	***	33			<u>:5 "</u>
(2) LOCATION OF WELL:				650	**				<u>.5 "</u>
Advid des services	ımber, if any—	1	Bailer te	est	gal./min.		žt. drawdow	m after	hrs.
		. Е. w.м.	Artesian			g.p.	m. Date		
Bearing and distance from section or subdivisi			Temper	ature of w	vater 55	Was a cher	nical analysis m	ade? 🔲 Y	es No
& East 137' from the S. W. (Corner of	Timothy	(49) T	VELL I	r oc.	Dia	meter of well	12	inches.
allivan D.L.C.			Depth d				of completed v		
			show th	ickness of	aquifers a	nd the kin	r, size of materi d and nature of entry for each	the mater	ial in each
							entry for each	FROM	· ·
		·			pi#A9E				TO
TYPE OF WORK (check):					d and s			9	37
	nditioning 🔲	Abandon 🗆			ay and			37	60
bandonment, describe material and proced	iure in Item 11.				ay and	gravel		60	79
POPOGED TIGE (-hh)	(5) TYPE O	ETETT.			gravel			79	90_
PROPOSED USE (check):	l ` '				ay and	sand		90	117
nestic 🗌 Industrial 🗎 Municipal 🗍	Rotary Cable -	Driven □ Jetted □	Ceme	nted	gravel			117	158
ragation 🗆 Test Well 🗆 Other 🙀	Cable Dug	Bored 🗆	Wate	r bea	ring s	and and	d gravel	158	172
	<u> </u>		Pacl	ced sa	nd and	grave	L	172	182
		ded ₹							
12 "Diam. from SULVACE ft. to									
" Diam. from ft. to								1	
" Diam. from ft, to	ft. Ga	ge							1
(7) PERFORATIONS:	erforated? 🖫 Ye	e [] No							
• •	TIOIAGET: ME TE	a [] 110							<u> </u>
Type of perforator used Star	- 1	in							<u> </u>
	11								<u> </u>
600 perforations from163									
perforations from									
perforations from									· .
perforations from									
perforations from		IL							
SCREENS: Well screen	installed 🗆 Y	es +FINo							
facturer's Name	-								
and the second s									
B'sr. Slot size Set from									
Slot size Set from			Work s	tarted J	uly 5	19 6	0 Completed	Aug. 8	₁₉ 60
		_							
CONSTRUCTION:			(13)	PUMP:					
Was well gravel packed? ☐ Yes 🖪 No Siz	ze of gravel:		Manufa	cturer's 1	Name				
	ft		Type: .	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		H.P	
Was a surface seal provided? 🖺 Yes 🛚 No	To what depth?	52 #t.	ļ ——				· · · · · · · · · · · · · · · · · · ·		
Material used in seal— cement gro			Well I	riller's S	Statement	:			
Did any strata contain unusable water?	es X No						y jurisdiction	and this	report is
Type of water? Depth o	f strata		true to	the best	t of my kr	nowledge	and belief.		
Method of sealing strate off		·	NAME	F	≀. J. S	TRASSE	R DRILLIN	G CO.	***************************************
(10) WATER LEVELS:			1						
Static level 123 ft. below land	d surface Date	Aug. 1.19	boddre:	ss	81-1-0S.		nset-Lane	,Port	land-6-
	uare inch Date						24 ,		
and Antonio he assessed and assess her red			Dumer	's well n	iumoer		1-1	- 4 4	·····
Log Accepted by Tree.	0	,, ,	[Signe	d]	a obs	Well	Driller)	sse	<u>z)</u>
[Signed] Date	wy	16, 1960	Licens	e No	10		Date Augus	t 15	, 19.60

ADDITIONAL SHEETS IF NECESSARY)

ORIGINAL File Original and Duplicate with the STATE ENGINEER, SALEM, OREGON ORIGINAL ORIGINAL	AAIII T		5 N
(1) OWNER: STATE E. GINGER Name Tonkin Motor Go. FM, OREGON Address 334 S. E. Grand Ave. Portland, Oregon	Was a pump test made? Yes	el <u>?Drill</u>	
(2) LOCATION OF WELL: County Mult Owner's number, if any— SW 1/4 SW 1/4 Section 35 T. IN R. I E W.M. Bearing and distance from section or subdivision corner	Bailer test gal./min. with ft. drawdown Artesian flow g.p.m. Date Temperature of water 570 Was a chemical analysis ma		hrs.
295 Ft. N. and 360 ft. East of SW corner of SW ‡	(12) WELL LOG: Diameter of well Depth drilled 90 ft. Depth of completed w. Formation: Describe by color, character, size of materia show thickness of aguifers and the kind and nature of stratum penetrated, with at least one entry for each c	ell 90) ft.
	MATERIAL	FROM	TO
TYPE OF WORK (check):	Top soil	0	6
	Rock fill	8	19
New Well Deepening Reconditioning Abandon I If abandonment, describe material and procedure in Item 11.	Coarse sand and silt	19	37
ii abandoninten, describo interesta da a processio in 1992	· · · · · · · · · · · · · · · · · · ·	87	42
PROPOSED USE (check): (5) TYPE OF WELL:	Cemented gravel		
estic Industrial Municipal Rotary Driven	Sand and gravel (some water)	42	51
gation Test Well Other Dug Bored	Small gravel	51	70
Paregraph 1cm aries Ci Dug Doled	Sand and gravel (water hearing		81
(6) CASING INSTALLED: Threaded □ Weided ☑ 8 "Diam. from 0 ft. to 90 ft. Gage std. "Diam. from ft. to ft. Gage ft. Gag	Sand, gravel and clay	81	90
Type of perforator used Star SIZE of perforations 3/8 in. by 1¼ in. 210 perforations from 42 ft. to 49 ft. 30 perforations from 52 ft. to 58 ft. 270 perforations from 71 ft. to 80 ft. perforations from ft. to ft. ft. ft.			
perforations fromft. toft. SCREENS: Well screen installed □ Yes □ No			
Type Model No.			
Diam. Slot size Set from ft to ft. Slot size Set from ft. to tt.	Work started May 24 19 61 Completed J	ine 10	1961
CONSTRUCTION:	(13) PUMP:		
Was well gravel packed?Yes No Size of gravel:	Manufacturer's Name		
Gravel placed fromft. toft.	Type:	H.P	· · · · · · · · · · · · · · · · · · ·
Was a surface seal provided? ★Yes ☐ No To what depth?ft.			
Material used in seal-	Well Driller's Statement:		
Did any strata contain unusable water? ☐ Yes ► No Type of water? Depth of strata	This well was drilled under my jurisdiction true to the best of my knowledge and belief.	and this	report is
Method of sealing strata off	NAME R.J. Strasser Drilling Co. (Person, firm, er corporation)		
(10) WATER LEVELS: Static level 28 ft. below land surface Date 6/10/61	(Person, firm, or corporation) (T Address 8110 S. E. Sunset Lane, Po	ype or pri	
Artesian pressure lbs. per square inch Date	Driller's well number		
Log Accepted by:	[Signed] (Faul O Rydman	<u> </u>	ngs,
[Signed] Date, 19	License No10 DateJuly	<u> 17</u>	., 19 <u>6 l</u>

(USE ADDITIONAL SHEETS IF NECESSARY)

OBIGINAL JU CED 5 1956 WATER WEI	II. DRIII.	THE DEDONAL	Well No. 1/1-35 H//)
) File Original, and		1	
STATE ENGINEER, IL LINGINEER MULSTA	E OF ORE		Permit No. 6213
(1) OWNER: Name Jantzen Inc.) [(10) WELL TESTS:	. **
	/	Was a pump test made? The Yes No	
Address Jantzen Center-Portland 8.	regon	Yield: 400 gal./min. with 10	T 12
		" 750 " 20 " 950 " 26	J
(2) LOCATION OF WELL: App 4)20	ა		D.M.
County Multnomah Owner's number, if any-			bs. per square inch.
R. F. D. or Street No.			withft. drawdown
Bearing and distance from section or subdivision corner			nemical analysis made? 🗆 Yes 🔲 No
Well located under sidewalk o	<u>n</u>	Was electric log made of well?	
SEGlisan st. between 19th and 20th Ave.		(11) WELL LOG:	
NO 012 11 VO 8		าก	
(3) TYPE OF WORK (check):	ĺ	700	th of completed well ft.
New well Deepening Reconditioning	Abandon 🖂		······································
abandonment, describe material and procedure in Item 11.		Formation: Describe by color, charact show thickness of aquifers and the kir stratum penetrated, with at least one	nd and nature of the material in each entry for each change of formation
PROPOSED USE (check): (5) EQUI		sdwkto basement 13	feet
Domestic Industrial Municipal Rotary	모	13 " 40 " Brown sa	and and silt
Irrigation ☐ Test Well ☐ Other ☐ Dug Wel	. 50	40" 48 "Blue cla	ау
- Dug we		48 " 59 " Yellow	clay
CASING INSTALLED: If gravel p	packed		with clay binder
hreaded Welded Gage	-		cked sand
	rom to ft.		th clay binder
FROM It to VIL Diam. Wan	, , ,,		d gravel -boulders
n n n n	37 IF		earing sand and gravel
y	39 10	n 11	d gravel and boulders
1) 2) 2) 2)	" "	195" 206 " Sand an 206" 295 " Blue cl	
" " Size of gravel:		206 295 Bine cl 295" 302 " Sandsto	
Type and size of shoe or well ring Std. Size of gravel: Describe joint		302" 342 " Grey sh	
		342" 368 " Grey sh	ale with sand seams
7) PERFORATIONS: perforator		368" 380 " Sandsto	
7 /c		25 51	
SIZE of perforations $1\frac{1}{4}$ in., length, by $3/8$ FROM 180 to 172.5 tt. perf per foot 4	No. of rows	2) 2)	
FROM 159 to 172.5ft. perf per foot 4	No. of rows	1) 2)	
n n n n	28 17 21	29 31	
a 11 11 11 11 11 11	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	15 19	
13 21 21 21	"""	19 20	
SCREENS:		11 2)	
Give Manufacturer's Name, Model No. and Size		19 19	
		7)))	
(6) CONSTRUCTION:		33 19	
Was a surface sanitary seal provided. Yes □ No To what de	epth OUft.	" "	
Were any strata sealed against pollution? ☐ Yes ☐ No If yes, note depth of strata		Ground elevation at well site	
FROM ft. to ft.		Work started June 23 1956	Completed Aug. 8 1856
32 29 29		Well Driller's Statement: This well was drilled under a	my jurisdiation 1 4
METHOD OF SEALING backfilled with cut	ttings	true to the best of my knowledge	
(9) WATER LEVELS:	_	NAME R. J. Strasse	or Drilling Co.
Depth at which water was first found 156	ft.	(Person, firm, or corpo	ration) (Typed or printed) For tland 6, Oregon
Standing level before perforating 111	ft.	Address OLIO DE DUISEU	Tight 16
Standing level after perforating 115	ft.	Driller's well number 308	
Log Accepted by:	_	[Signed]	
[Signed] Dated	, 19	770	(Well Driller) Deted Aug. 18 10 56
Owner	25	License No	Hotel ****** 44 UD

12415	BIV 511			
ORIGINAL File Original and	24 1959 WATER WEI	LL REPORT MUL Tstate Well No.	- 35 C	(2)
Duplicate with the STATE ENGINEER, SALEM, OREGON STATE	ENGINEE TATE OF	OREGON G132Z State Permit No	144	
(1) OWNER: SALE	M, OREGON	(11) WELL TESTS: Drawdown is amount v	vater level	is
Name Sheraton Hotel	Corporation	Was a pump test made? Yes \(\subseteq \) No If yes, by whon		
Address 470 Atlantic A	venue	Yield: 1100 gal./min. with 7 ft. drawdow		8 hrs.
Boston, Massac		" " "		
		29 22 27		**
(2) LOCATION OF WELL:		Bailer test 150 gal./min. with no ft. drawdow	n after	hrs.
	umber, if any—	Artesian flow g.p.m. Date		
NE ¼ NW ¼ Section 35 T	<u> </u>	Temperature of water 531 Was a chemical analysis ma	ade? ₩ Ye	s 🗆 No
Bearing and distance from section or subdivise 253 ft. N., 90 ft. E of 3				
Block 112, Holladay's Add		(12) WELL LOG: Diameter of well	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	inches.
Diver 112, northaday s Aus	2101011	Depth drilled ft. Depth of completed w		<u>ft.</u> _
	**************************************	Formation: Describe by color, character, size of materic show thickness of aquifers and the kind and nature of stratum penetrated, with at least one entry for each c	il and struc the materic hange of f	cture, and il in each ormation.
		MATERIAL	FROM	TO
3) TYPE OF WORK (check):	•	Basement	Surfac	e 14
	nditioning	Sandy silt	14	48
If abandonment, describe material and proces	dure in Item 11.	Coarse sand and gravel, some	48	67
(4) PROPOSED USE (check):	(5) TYPE OF WELL:	clay Dirty sand	67	00
omestic 🖂 Industrial 🛣 Municipal 🖂	Rotary Driven		67	83
gation Test Well Other	Cable 🛣 Jetted 🗌 Dug 🖺 Bored 🗎	Dirty sand and gravel Boulders, gravel and sand	83	
	1 248 2 2000 1	Loose gravel and sand	134	<u>134</u> <u>149</u>
(6) CASING INSTALLED: The	hreaded □ Welded □ .	Gravel and sand, some large	149	<u> 176</u>
16" Diam. from0 ft. to	2.71 ft. Gage 3/8 wall	gravel	1-20	L-1-U-
	ft. Gage	Gravel, some sand and clay	176	182
" Diam. fromft. to	ft. Gage	Loose sand and gravel, water	182	201
(7) PERFORATIONS: P.	erforated? 🖼 Yes 📋 No	bearing		
Type of perforator used Star	<u> </u>	Boulders	201	206
SIZE of perforations 3/8 in. by	14 in.	Sand, gravel, houlders, some	206	242
8 rows perforations from186	ft. to200 ft.	clay		 -
8 rows perforations from 242	ft. to251 ft.	Loose sand and gravel, water	242	254
perforations from	ft. to ft.	hearing hearing		
perforations from		Cemented_gravel	254	271
perforations from	ft. to ft.			
SCREENS: Well screen	installed 🗌 Yes 🖼 No			
ufacturer's Name	···········			
	Model No.			
	ft. to ft.		1	
am. Slot size Set from	ft. to ft.	Work started Dec. 16 19 58 Completed Fe	b. 11	19 59
(4) CONSTRUCTION:		(13) PUMP:	•	
well gravel packed? Yes No Si	ze of gravel:	Manufacturer's Name		
Gravel placed fromft. to	ft.	1	H.P	······································
Was a surface seal provided? 🗌 Yes 🔼 No	To what depth? ft.			
Material used in seal—		Well Driller's Statement:		
Did any strata contain unusable water?	Yes No	This well was drilled under my jurisdiction true to the best of my knowledge and belief.	and this	report is
Type of water? Depth of Method of sealing strata off	74 DVG CLUC	was some of ing amoratouse district.		
and most of houself builting the		NAME R. J. Strasser Drilling (Person, firm, or corporation)	Co.,	+\
(10) WATER LEVELS:	_	1		
Static level 121 ft. below lan	nd surface Date Jan. 26, 19	ρs		······································
Artesian pressure lbs. per sq	uare inch Date	Driller's well number 3098		****************
Log Accepted by:		[Signed] Abert J. Strasser	Part	mer
[Signed]Date	19	(Well Drifler)	/ ::::::::::::::::::::::::::::::::::::	0 10 EQ

State Well No. /1N/1-35B(1)

WATER WELL REPORT STATE OF OREGON

File Original and First Copy with the STATE ENGINEER, SALEM, OREGON U.S.G.S. W.S.P.	WATER WE	-		
(1) OWNER:	÷	(11) WELL TESTS: Drawdown is amount w lowered below static lev	ater level	is _
Name - Lloyd Corporation	· · · · · · · · · · · · · · · · · · ·	Was a pump test made? Yes No If yes, by whom		
Address		Yield: 600 gal/min. with 18 ft. drawdown		hrs.
Portland, Oregon		2) 2)		77
(2) LOCATION OF WELL:	-	15 33 ts		41
30 31	ber, if any-	Bailer test gal./min. with ft. drawdown	after	hrs.
NW ¼ NE ¼ Section 35 T.	1 N R. 1 E W.M.	Artesian flow g.p.m. Date		<u> </u>
Bearing and distance from section or subdivision		Temperature of water Was a chemical analysis ma	de? ☐ Ye	B □ No
		(12) WELL LOG: Diameter of well 2:	10	inches.
		Depth drilled 501 ft. Depth of completed we	en 501	£t.
		Formation: Describe by color, character, size of materia show thickness of aquifers and the kind and nature of t stratum penetrated, with at least one entry for each ch	and struc he materia lange of f	ture, and il in each ormation.
		MATERIAL	FROM	TO
) TYPE OF WORK (check):		Sand. white. packed	0	77
	itioning 🗌 Abandon 🗍	crevel cemented	. 77	136
If abandonment, describe material and procedu	re in Item 11.	gravel. cobbles & boulders.	136	145
PROPOSED VICE (-11-)	(E) MATTER OF STREET I	fine sand, in part clayey; cobble	3	
, ,	(5) TYPE OF WELL: Rotary Drivén	in one 3-foot zone	145	175
omestic Industrial Municipal	Cable Jetted	clay, sandy in part	175	205
Irrigation 🗷 Test Well 🗌 Other	Dug Bored	sandrock, soft	205	_215_
(6) CASING INSTALLED: Three	eaded Welded	sand, fine, packed in lower part	215	_285
"Diam. from ft. to		sand	_285_	_290_
" Diam. from ft. to	• • • • • • • • • • • • • • • • • • • •	clay, blue and gravel	290	301
	ft. Gage	clay, blue	301	346
		sand, line	346	<u> 355</u>
(7) PERFORATIONS: Peri	forated? 🗆 Yes 🗎 No	sand and clay sand, fine at top, coarsens	355	_397_
Type of perforator used		toward bottom	397	445
SIZE of perforations in. by	in.	clay. sandy	445	470
perforations from perforations		sand	470	478
perforations from	ft toft	clay, sandy	478	487
perforations from	-	send	487	501
perforations from	•		 	
) SCREENS: Well screen in	stalled 🗆 Yes 🗆 No			
Manufacturer's Name				
Slot size Set from	lodel No.			
Slot size Set from		Wale dated		7, 37
am. Stot size Set from		Work started 19 . Completed		-1931
(9) CONSTRUCTION:		(13) PUMP:	_	
Was well gravel packed? ☐ Yes ☐ Ņo Ṣize	• • • •	Manufacturer's Name	***************************************	živo i siuo monie
Gravel placed from ft. to		Type: Turbine	H.P <u></u>	·
Was a surface seal provided? ☐ Yes ☐ No T Material used in seal—	o what depth? ft.	WE WANTED A COLUMN ASSESSMENT OF THE COLUMN AS		
Did any strata contain unusable water? Yes		Well Driller's Statement:	5 45-1	
Type of water? Depth of		This well was drilled under my jurisdiction : true to the best of my knowledge and belief.	ino this	report 18
Method of sealing strata off	- 1	NAME A. M. Jannsen Drilling Co.		-
(10) THAMED I DIVERS		(Person, firm, or corporation) (T	ype or prin	t)
(10) WATER LEVELS:	surface Date 1931	Address		1.
	are inch Date	•		
		Driller's well number		
Log Accepted by:		[Signed]	£	
[Signed] Date		(Well Driller)		
(Owner)		License No Date		., 19

ORIGINAL WATER WE	LL REPORT MULT State Well No. 1N/1 - 35 C (1)
Duplicate with the LLOYD COHPORATION, LTD. STATE ENGINEER, 720 N. E. 12th Ave. STATE OF	
(1) OWNER: Portland 14, Oregon, Total VI	(11) WELL TESTS. Drawdown is amount water level is lowered below static level
Name Sh eraton Hotel Corporation 185/	Was a pump test made? Thes I No If yes, by whom?
Address 470 Atlantic Avenue	Yield: 959 120gal./min. with 3 ft. drawdown after 8 hrs.
Boston, Massachusetts	21 21 22 25 21 21 25 25
(2) LOCATION OF WELL: County Multnomah Owner's number, if any—	Bailer test 150 gal./min. with no ft. drawdown after hrs.
NE 34 NW 34 Section 35 T. 1 N R. 1 E W.M.	Artesian flow g.p.m. Date
Bearing and distance from section or subdivision corner	Temperature of water $53\frac{1}{2}$ Was a chemical analysis made? Types D
253 ft. N. 110 ft. E. of S W corner,	(12) WELL LOG: Diameter of well inches.
Block 112, Holladay's Addition	Depth drilled ft. Depth of completed well ft.
	Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each
	stratum penetrated, with at least one entry for each change of formation.
	MATERIAL - FROM TO
TYPE OF WORK (check):	Top soil 0 4
ew Well Deepening Reconditioning Abandon	Sandy silt 4 49
abandonment, describe material and procedure in Item 11.	Coarse sand and grav 49 67
	Dirty sand 67 89
PROPOSED USE (check): (5) TYPE OF WELL:	Dirty sand and some gravel 89 116
estic Industrial Municipal Rotary Driven Cable Driven Cable Ca	Boulders, gravel, and sand 116 133
tgation Test Well Other Dug Bored .	Loose gravel and sand 133 144
(6) CASING INSTALLED: Threaded □ Welded	Gravel & sand, some houlders 144 177
16	Gravel, some sand and clay 177 181
"Diam. fromft. toft. Gage	Loose sand and gravel, water. 181 204
"Diam. from tt. to tt. Gage	Boulders 204 209 209 215
	Loose sand and gravel 209 215 Boulders, gravel, sand & clay 215 238
(7) PERFORATIONS: Perforated? IX Yes I No	Sand and gravel, water-bearing 238 250
Type of perforator used Star	### ### ### ### ### ### ### ### #######
SIZE of perforations 3/8 in. by 1½ in. 8	
8 rows perforations from 240 ft to 250 ft	
perforations from the to the state of the st	
perforations fromft. toft.	
perforations fromft. toft.	
SCREENS: Well screen installed 🗆 Yes 🛱 No	
nufacturer's Name	
be Model No	
Diam. Slot size Set from ft. to ft.	
A	Work started Oct.21 1957. Completed Dec.3 1957
CONSTRUCTION:	(13) PUMP:
s well gravel packed? Yes No Size of gravel:	Manufacturer's Name
Gravel placed from ft. to ft.	Туре:
Was a surface seal provided? 🗆 Yes 🖾 No To what depth? ft.	
Material used in seal—	Well Driller's Statement:
Did any strata contain unusable water? Yes No	This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Type of water? Depth of strata	D 7 04
Method of sealing strata off	NAME R.J.Strasser Drilling Co. (Person, firm, or corporation) (Type or print)
(10) WATER LEVELS:	Address 0110 C. T. Comment Town Developed One
Static level 121 ft. below land surface Date Dec. 3, 19	4 '
Artesian pressure Ibs. per square inch Date	Driller's well number 4
Log Accepted by:	[Signed] Afflower farther
[Signed], 19,	License No. 10 Date Dec. 9 , 19 57

NOTICE TO WATER WELL CORRECTOR FOR The original and first of this report are to be filed with the APR3 - 1972 STATE OF OREGON STATE OF OREGON
STATE ENGINEER, SALEM STEGON E31 ENGINEER Please type or print)
within 30 days from the SALEM. OREGON not write above this line)

State Permit No.

(1) OWNER:	(10) LOCATION OF WELL:	
Name Portland Public Schools/Benson High	County Multnomah Driller's well numb	er
Address P.O. Box 3107 Portland, Oregon 97208	35 T.1N R.	1 E w.m.
	Bearing and distance from section or subdivision	corner
(2) TYPE OF WORK (check): Cathodic Groundbed		
New Deepening Reconditioning Abandon		
If abandonment, describe material and procedure in Item 12.	(11) WATER LEVEL: Completed well	
(3) TYPE OF WELL: (4) PROPOSED USE (check):	Depth at which water was first found	
Potent C Detroit Cathodac Groundbed		<u>ft.</u>
Cable	Static level ft. below land surf	
Dug Bored I Irrigation Test Well Other	Artesian pressure lbs. per square in	ich. Date
CASING INSTALLED: Threaded Welded	(12) WELL LOG: Diameter of well below	
10 " Diam. from 0 ft. to 20 ft. Gage 188	7	
"Diam. from ft. to ft, Gage		
"Diam. from ft. to ft. Gage	Formation: Describe color, texture, grain size and and show thickness and nature of each stratum a	
	with at least one entry for each change of formation	. Report each change in
PERFORATIONS: Perforated? U. Yes I No.	position of Static Water Level and indicate principal	it water-vearing strata.
ype of perforator used		rom To SWL
size of periorations in. by in.	fill material	0 12
perforations fromtt. tott.		12 39
perforations fromft. toft.		39 42
perforations from ft. to ft.		42 46
(7) SCREENS: Well screen installed? Yes No		46 54 \
(7) SCREENS: Well screen installed? Yes No		54 73 \
Type Model No	semi-cemented small gravel	77 166
Diam. Slot size Set from ft. to ft.	Layers of sand & gravel &	73 166
Diam. Slot size Set from ft. to ft.		66 188
	cemented gravel & sand	50 100 A
(8) WELL TESTS: Drawdown is amount water level is lowered below static level		88 200
Was a pump test mede? ☐ Yes ☐ No If yes, by whom?	cement gravel & boulders#2	
Yield: gal./min. with ft. drawdown after hrs.		74 277
" "		77 299
, , , , , , , , , , , , , , , , , , , ,	sand & gravel 2	99 301
	Cathodic Groundbed Ratary drilled with mud	\longrightarrow
tesian flow g.p.m.		
perature of water Depth artesian flow encountered	Work started 3-22 1972 Completed	3-24 1972
(9) CONSTRUCTION:	Date well drilling machine moved off of well	3 - 24- 1972
Well seal—Material usedCement	Drilling Machine Operator's Certification:	
Well sealed from land surface to	This well was constructed under my di	rect supervision.
Diameter of well bore to bottom of seal	Materials used and information reported ab best knowledge and belief.	
Diameter of well bore below seal in.	[Signed] Da	to 3/29 10/2
Number of sacks of cement used in well sealsacks	(Drilling Machine Operator)	000
Number of sacks of bentonite used in well seal sacks	Drilling Machine Operator's License No	292
Brand name of bentonite	Water Well Contractor's Certification:	
Number of pounds of bentonite per 100 gallens	This well was drilled under my jurisdicti	on and this woment is
of water	true to the hest of my browledge and helief	_
Was a drive shoe used? Yes No Plugs Size: location ft.	Name Hansen Drilling Co., I	ne
Did any strata contain unusable water? Yes No	1 6711 N TO EQAL A	(Type or print)
Type of water? depth of strata		A STUCOUAGE - ME
Method of sealing strata off	[Signed] Goc & Hansin	
Was well gravel packed? Yes No Size of gravel:	(Water Well Contracto	
Gravel placed fromft. toft.	Contractor's License No. 400 Date Mar.	h 25, 1972
		

MULT 82884

STATE OF OREGON WATER SUPPLY WELL REPORT

STATE OF OREGON WATER SUPPLY WELL REPORT	M111+ 2000
(as required by ORS 537.765)	WULL I.D. # L 78309
	\$7.58U START CARD # 184556
Instructions for completing this report are on the last page of this form.	0 000
(1) LAND OWNER Well Number I-1	(9) LOCATION OF WELL (legal description)
Name Cavenaugh and Cavenaugh LLC Address 3435 NE 45th Ave Ste J	County Multonomeh Tax Lot 5200 Lot
City Portland State OR Zip 97213	Township 1 N Range 1 E WM
(2) TYPE OF WORK	Section 35 NE 1/4 NW 1/4
Deepening Alteration (repair/recondition) Abandonment Conversion	Lat or (degrees or decimal) Long or (degrees or decimal)
(3) DRILL METHOD	Long or (degrees or decimal)
Rotary Air Rotary Mud Cable Auger Cable Mud	Street Address of Well (or nearest address) 1111 East Burnside St
Other	Portland
(4) PROPOSED USE	(10) STATIC WATER LEVEL 78 ft. below land surface. Date 2/10/06
☐ Domestic ☐ Community ☐ Industrial ☐ Irrigation ☐ Thermal ☐ Injection ☐ Livestock ☐ Other	
	ft. below land surface. Date
(5) BORE HOLE CONSTRUCTION Special Construction: Yes No Depth of Completed Well 205 ft.	
Explosives used: Yes No Type Amount	(11) WATER BEARING ZONES Depth at which water was first found 96
BORE HOLE SEAL	From To Estimated Flow Rate SWL
Diameter From To Material From To Sacks or Pounds 12" 0 25 Bentonite 0 25 20 sks	96 205 60 gpm 78
8" 0 203	
How was seal placed: Method	(12) WELL LOC
Other Poured chips in annuius and hydrated	(12) WELL LOG Ground Elevation
Backfill placed fromft. toft. Material	Material From To SWL Gravel crushed gray 0 1
	Sandy Sift tan 1 22 Sifty Sand tan 22 46
(6) CASING/LINER Diameter From To Gauge Steel Plastic Welded Threaded	Sity sand with gravel tan 46 57
	Silty Sand with occ gravel brown 46 97 78
Casing: 8" 0 183 .250	Sandy Gravel troutdale gr/br 97 205
	RECEIVED RECEIVED
Liner:	
Drive Shoe used Inside Outside None	APR 2 0 2006 MAR 3 0 2006
Final location of shoc(s) 183	WATER RESOURCES DEPT WATER RESOURCES DEPT
(7) PERFORATIONS/SCREENS	WATER RESOURCES DEPT WATER RESOURCES DEPT SALEM, OREGON
Perforations Method	
Screens Type Allov Mchne Meterial Stainless	Date Started 2/6/06 Completed 2/10/06
From To Slot Number Diameter Tele/pipe Casing Liner Size size	(unbonded) Water Well Constructor Certification
	I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well
185 205 050 8 Tele	construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
180 185 .040 8 Tele	
	WWC Number Date
(8) WELL TESTS: Minimum testing time is I hour ☐ Pump ☐ Bailer ☑ Air ☐ Flowing Artesian	Signed
Yield gal/min Drawdown Drill stem at Time	(bonded) Water Well Constructor Certification
75 100 180 1 hour	I accept responsibility for the construction, deepening, alteration, or
	abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water
Temperature of water 54 F Depth Artesian Flow Found	supply well construction standards. This report is true to the best of my knowledge and belief.
Was a water analysis done? Ves By whom Client	
Did any strata contain water not suitable for intended use? Too little Saity Muddy Odor Colored Other	WWC Number 1824 Date 2/13/06
Depth of strata:	Signed Milling

ORIGINAL - WATER RESOURCES DEPREGEIVEDIRST COPY - CONSTRUCTOR

SECOND COPY - CUSTOMER

06/16/2004

MULT 83130

WELL I.D. & L 78306

STATE OF OREGON WATER SUPPLY WELL REPORT (se required by ORS \$37.765)

tropaction (4011) T	-1
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Instructions for completing this report are on the last page of this form.	START CARD T
(1) LAND OWNER Note Coverage and Coverage LLC	(9) LOCATION OF WELL (legal description)
Address SASENE 48th Ave Ste J	Tex Lot 5200 Lot
City Portland State OR Zip 97212	Township 1 N Range 1 E WM
(2) TYPE OF WORK New Well Despening Absention (repair/secondition) Absentseances Conversion	1
(3) DRILL METHOD Rotary Air Rotary Mind Cable Aveger Cable Mind Other Cable Cable Cable Mind Cable Cable	Street Address of Well (or nearest address) 1111 East Duringide St. Portland
(d) PROPOSED DIS. Demestic	(10) STATIC WATER LEVEL 17. pt. below land surface. Date 2/10/06 17. below land surface. Date
(5) BOKE HOLE CONSTRUCTION Special Construction: Yes N Days of Completed Well 280	Arresson presoure fb. per square inch Date
Explosives used: Yes V No Type Amount	(11) WATER BEARING ZONES Depth of which water was first found 86
BORE HOLE Diameter Press To Material Press To Socks or Possed 12" 0 22 Georgenite 6 22 16 also	Prior To Estimated Flow Rate SWL 96 S00 S00 S00 S00 S00 S00 S00 S00 S00 S0
How wer sent placed: Method	(12) WELL LOG Ground Elevation
Backfill placed from R. to R. Mentrial Graves placed from A. to A. Side of graves	Gravel created gray 6 1
	Sandy SR tan 1 22
(6) CASING/LINER Discourse Proces. To Grosse Steel Plantic Welded Thread	Sibr Sand ton 22 46
Casing 6" 8 278 250 [2]	Start with one street brown 44 S7 S7 S7 Sandy Grayest troughtule sarky 97 200
1 isser:	
Drive Shoe used Inside In Outside Nove: Final location of shee(s) 276	
- and recovery to streetly 1212	
(7) PERFORATIONS/SCREENS	
☐ Perfending Moded MHS ☐ Bernary Type Allow Methins Massiel Staining	
• • • • • • • • • • • • • • • • • • • •	District Albas Completed Base
From To Slot Number Diameter Telepipe Casing Lines	(unbonded) Water Well Constructor Cardification
	I certify that the work I performed on the construction, describes, aberesing, or
Perf 200 270 .25 100	abandonment of this well in in compliance with Oregon welet supply well
3em 274 200 .040 S Tolo D	construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
	WWC Mumber Dees
(8) WELL TESTS: Minimum testing time is 1 hour Pump Beiler Air Plowing Artesian	Signed
Yield galvain Drumdown Drift stem at Time	(houded) Water Well Constructor Cartification
96 196 250 1 hour	I accept responsibility for the construction, decpening, alteration, or
	abandonment work performed on this well during the construction dates reported
	above. All work performed during this time is in compliance with Osegon water supply well construction standards. This report is true to the best of my knowledge.
Temperature of water 54 F Depth Artesian Flow Found	- and polity. - substitute of the second se
Was a water analysis done? 2 Yes By where Client	
Did any strata contain water not suitable for intended use? Teo little	
Selty Meddy Odor Octored Other	Signot MINE
	
ORIGINAL - WATER RESOURCES DEPARTMENT	RST COPY - CONSTRUCTOR SECOND COPY - CUSTOMER 06/14/2004

RECEIVED

APR 1 0 2006

WATER RESOURCES DEPT SALEM, OREGON



Water Resources Department

North Mall Office Building 725 Summer Street NE, Suite A Salem, OR 97301-1266 503-986-0900 FAX 503-986-0904

February 7, 2006

GREGORY DRILLING INC CHAD GREGORY #10451 17609 NE 70TH ST REDMOND,WA 98052

FINAL ORDER

Dear Chad:

The Special Standard request you submitted for owner: Kevin Cavenaugh, Start Card number 184555 is hereby approved for the following: You may construct this well within 33 feet from a sanitary sewer line. However, the well must have a minimum surface seal depth of 22 feet bgs. If a deeper surface seal is required to meet the minimum standards based on site conditions then a deeper surface seal shall be placed. The well may also be placed in an underground vault. The vault shall be constructed to the ODWR recommended standards that were included with your Special Standard request. The vault must be watertight and it shall have a two inch drain to daylight (See OAR 690-210-0030 and 690-210-0250). All other construction standards must be adhered to. Your Special Standard request form is enclosed. This Special Standard only addresses the minimum well construction standards. DEQ regulates UIC systems and should be contacted regarding any UIC. I would also urge the landowner to contact the local Watermaster to address any water use or quantity issues.

The Well Construction Standards serve to protect ground water resources. By approving and issuing this special construction standard the Oregon Water Resources Department is not representing that a well constructed in accordance with this condition will maintain structural integrity or that it meets engineering standards. The well constructor/or landowner is responsible for ensuring that a well is constructed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240.

If you have any questions concerning this letter, please contact me at (503) 986-0851, or by e-mail at Kristopher.R.Byrd@wrd.state.or.us.

Sincerely,

Kristopher Byrd

Well Construction Program Coordinator

Enforcement Section

enclosure

cc:

Joel Jeffery, NW Region Well Inspector

File

This is a final order in other than contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60 day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080 you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the Director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.

Production Well (P-1) (Sanitary Sewer set back)

Oregon Water Resources Department

REQUEST FOR WRITTEN APPROVAL TO USE CONSTRUCTION METHODS NOT INCLUDED IN OREGON ADMINISTRATIVE RULES 690-200 THROUGH 690-240

Before the request can be considered, this form must be completed. Requests shall be submitted to the Well Construction Specialist, Water Resources Department, 725 Summer Street NE, Suite "A", Salem OR 97301-1271. Requests may also be considered by the appropriate Regional Manager.

Date	of request: 2/1/06 Oral approval date (if applicable):
Bond	led Well Constructor (name, license #, and mailing address): Chad Gergory (Gergory Drilling Inc)
Lice	ense # 1824 17609 NE 70th ST, Redmond, WA 98052
(1)	Location of Well: NE 1/4 SW 1/4 Tax lot 5200 Section 35,
	Township 1 N , Range 1E w , Multnomah County
	Address at well site: 1111 E Burnside St. Portland, Or 97214
(2)	Start Card Number(s)(for work to be done): 184555
(3)	Name and Address of Land Owner: Kevin Cavenaugh: 3435 NE 45th Ave., Suite J.
	Portland, OR 97213
(4)	Distance to the nearest septic tank, drainfield, closed sewage line (if water supply well) It is 33' to the nearest closed sewage lateral (see attached site map). This distance is measured from the well to the point where the sewage line emerges from beneath the building. There are no septic
(5)	tanks or drainfields known in the area The unusual site conditions which necessitate this request: Lot is entirely covered by building;
	production and injection wells need to separated a maximum distance to function as efficient geothermal wells. The only location available for this production is 33 feet from the sanitary sewer line (see site map The sanitary sewer line drains south off the property to a main line 52 feet from the property line.
(6)	The proposed construction methods that the bonded well constructor believes will be adequate for this well: (attach additional pages if needed)
	ODWR Setback Requirements (690-210-003) are 50' for closed sewage drainage system. The proposed well is 17' closer than recommended. To assure groundwater protection a 22' surface seal will be placed around the well to seal the casing within a 22 foot thick natural silt layer beneath the property (see Foster Gambee geotech boring log). The groundwater tables is separated from any sewage source by 90 feet of soil and Troutdale formation. Finish well is less value to sewage seepage because it is not a drinking well but is a low temperature production well; water pulled from this well will be reinjected at the west end of the property/see site map.

- (7) Diagram showing the pertinent features of the proposed well design and construction: (attach additional pages if needed)
 - 1. Site Map
 - 2. Well Construction Map
 - 3. GROTECH Soil Bonaus Log

PLEASE NOTE:

- (1) The Well Construction Standards serve to protect ground water resources. By approving and issuing this special construction standard the Oregon Water Resources Department is not representing that a well constructed in accordance with this condition will maintain structural integrity or that it meets engineering standards. The well constructor/or landowner is responsible for ensuring that a well is constructed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240.
- (2) If it should be determined at some future date that the well, due to its construction, is allowing ground water contamination, waste or loss of artesian pressure, the undersigned shall return to the site and rectify the problem.
- (3) If oral approval was granted, a written request must be submitted to the Department either within three (3) working days of the date of oral approval or prior to the completion of the associated well work. Failure to submit a written request as described above may void prior oral approval.

I have read and understand the above information. I further attest that the information provided is accurate to the best of my knowledge.

Bonded Constructor Signature:	
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revised 11/03/2003

MULT 86581 MULT 86581

STATE OF OREGON WATER SUPPLY WELL REPORT (ac required by OR\$ 537.765 & DAR 690-205-0210)

WELL LABEL # L	78309		
START CARD #	37217	-	

(1) LAND OWNER Owner Well I.D. I-1	(9) LOCATION OF WELL (legal description)					
First Name Kevin Last Name Cavenaugh	County Multnomah Twp 1 N Range 1 E WM					
Company Burnside Rocket LLC	Sac 35 NE 1/4 of the SW 1/4 Tax Lot 5200					
Address 3435 NE 45th Ave., Pod #J	Tax Map Number IN1E35CA Lot 5200					
City Portland State OR Zip 97213	Lat or 45.5229 DMS or DD					
(2) TYPE OF WORK New Well Despening Conversion	Long or -122.6543 DMS or DD					
X Alteration (repair/recondition) Abandonment	Street address of well					
(3) DRILL METHOD	Till Last Bulliside Street, Fortialid, OR 97252					
Rotary Air Rotary Mud Cable Auger Cable Mud	(10) STATIC WATER LEVEL					
Reverse Rotary Other	Date Swr(bii) + Swr(tt)					
(4) PROPOSED USE Domestic Irrigation Community	Existing Well / Predespening Completed Well					
Industrial/ Commercial Livestock Dewatering	Flowing Artesian? Dry Hole?					
X Thermal Other	WATER BEARING ZONES Depth water was first					
(5) BORE HOLE CONSTRUCTION Special Standard Attach copy	SWL Date From To found Est Flow SWL(psi) + SWL(m)					
Depth of Completed Wellft.						
BORE HOLE SEAL sacke/ Dia From To Material From To Amt jbs						
Die From 10 Wateres From 10 Auto 195						
	(11) WELL LOG Ground Slaustion					
How was seal placed: Method A B C D E	divalia cleastion					
Other	Material From To					
Backfill placed from tt. to tt. Material						
Filter pack from ft. to ft. Material Size .						
Explosives used: Yes Type Amount						
(6) CASING/LINER Casing Liner Dia + From To Gauge Sti Pisto Wid Third						
Casing Liner Dia + From To Gauge Sti Pieto Wid Thrd						
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Shoe Inside Outside Other Location of shoe(s)	JUN 17 2009 SALEM, OREGON					
Temp casing Yes Dia From To	3011 1 100.1					
(7) PERFORATIONS/SCREENS	WATER RESOURCES DEPT					
Perforations Method	SALEM, OREGON					
Screene Type Material	Ortzenij Grizgori					
Perf/ Casing Screen Scrn/slot Slot # of Tele/ Scree /Liner Dia From To width langt slots pipe	Date Started 9/20/06 Completed 9/20/06					
Scree /Liner Dia From To width lengt slots pipe	(unbonded) Water Wall Constructor Certification					
	I certify that the work I performed on the construction, deepening, alteration, or					
	abandonment of this well is in compliance with Oregon water supply well					
	construction standards. Materials used and information reported above are true to the best of my knowledge and belief.					
(8) WELL TESTS: Minimum testing time is 1 hour	License Number Date					
Pump Baller Air Howing Artesian	Password : (If filling electronically)					
Yield gal/min Drawdown Drill stern/Pump depth Duration (hr)	Signed					
Troug gastion: Drawdown Dimesority Group appear December 1987	(bonded) Water Well Constructor Certification					
	I accept responsibility for the construction, deepening, alteration, o					
Temperature *F Lab analysis Yes By	abandonment work performed on this well during the construction date reported above. All work performed during this time is in compliance with					
Temperature "F Lab analysisYes By	Oregon water supply well construction standards. This report is true to the best					
From To Description Amount Units	of my knowledge and belief. License Number 1224 Date 9/4/6/5					
	License Number 1224 Date 9/4/66 Password: (If filing electronically)					
	Signed					
	Contact info					

MULT 86581 MULT 86581

WATER SUPPLY WELL REPORTcontinuation page WELLI.D.#L 78309

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STATE OF OREGON WATER SUPPLY WELL REPORT (as required by ORS 537.765 & OAR 690-205-0210)

WELL LABEL # L	78308
START CARD #	37216

	5/210						
(1) LAND OWNER Owner Well LD. P-)	(9) LOCATION OF WELL (legal description)						
First Name Kevin Last Name Cavenaugh	County Multnomah Twp N Range E WM						
Company Burnside Rocket LLC	Sec 35 NE 1/4 of the SW 1/4 Tax Lot 5200						
Address 3435 NE 45th Ave., Pod #J City Portland State OR Zip 97213	Tax Map Number 1N1E35CA Lot 5200 Lat or 45.5229 DMS or DD						
[2] TYPE OF WORK New Well Despening Conversion	Long or .122.6543 DMS or DD						
X Atteration (repair/recondition) Abandonment	Street address of well Nearest address						
(3) DRILL METHOD	1111 East Burnside Street, Portland, OR 97232						
Rotary Air Rotary Mud Cable Auger Cable Mud Reverse Rotary Other	(10) STATIC WATER LEVEL Date SWL(pai) + SWL(ft)						
(4) PROPOSED USE X Domestic Irrigation Community	Existing Wall / Predeepening Completed Well						
industrial/ Commercial Livestock Dewatering	Flowing Artesian? Dry Hole?						
	WATER BEARING ZONES Depth water was first						
(5) BORE HOLE CONSTRUCTION Special Standard Attach copy) Depth of Completed Well ft.	SWL Date From To tolling Est Flow SWL(psi) + SWL(ft)						
BORE HOLE SEAL sacks/							
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	(11) WELL LOG Ground Elevation						
How was sea! placed: Method A B C D E	Material From To						
Other							
Backfill placed from ft. to ft. Material Size							
Explosives used: Yes Type Amount							
(6) CASING/LINER Casing Liner Dia + From To Gauge Sti Plate Wid Thro							
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Temp casing Yes Dia From To	SALEM OREGON SALEM CARRON						
(7) PERFORATIONS/SCREENS							
Perforations Method							
Screens Type Material Perf/ Casing Screen Scrn/slot Slot # 01 Tele/							
Peri/ Casing Screen Scrn/elot Slot # ol Tele/ Scree /Liner Dis From To width lengt slots pipe	Date Started 9/21/06 Completed 9/21/06						
	(unbonded) Water Well Constructor Certification						
	I certify that the work I performed on the construction, despening, alteration, or abandonment of this well is in compliance with Dregon water supply well						
	construction standards. Materials used and information reported above are true to the best of my knowledge and belief.						
(8) WELL TESTS: Minimum testing time is 1 hour	License Number Date						
Pump Bailer Air Flowing Arteslan	Password : (if filing electronically)						
Yield gal/min Drawdown Drill stem/Pump depth Duration (hr)	Signed						
	(bonded) Water Well Constructor Certification accept responsibility for the construction, despening, alteration, or						
	abandonment work performed on this well during the construction dates						
Temperature *F Lab analysisYes By Water quality concerne? Yes (describe below)	reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best						
From To Description Amount Units	Oregon water supply well construction standards. This report is true to the best of my knowledge and baller. License Number Pate 9/4/64						
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	Signed Contact Info						

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WATER SUPPLY WELL REPORT - continuation page

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APPENDIX IV GEOPHYSICAL SURVEY



GEOPHYSICAL SURVEY LETTER REPORT

Project: 170218

Survey Date: February 27, 2017

Gil Cobb Point Source Solutions [PSS]

Jiffy Lube-Former Gas Station 2025 NE Broadway Portland, Oregon

A magnetometer survey was conducted across the parking lot and adjacent sidewalks of the property located at the address shown above. The survey was conducted for Mr. Gil Cobb of PSS for the purpose of detecting underground storage tanks (USTs) and excavations from removed USTs across the survey area. A gas station building occupied the site in the past. No surface evidence of tanks, like fill ports or vent pipes, was seen. An additional scope was to clear several proposed boring locations of buried obstructions and piping.

A Geometrics G858 cesium-vapor magnetometer was used to collect magnetic data along survey lines measured to be 5 feet apart. A Schonstedt Magnetic Gradiometer, an Aqua-Tronics EMA6 Tracer, and a GSSI SIR2000 ground penetrating radar (GPR) system coupled to a 400-MHz radar antenna were used to investigate several magnetic anomalies and to clear proposed boring locations. GPR was used to detect disturbed-soil zones that could be UST excavations.

Figure 1 is a colored magnetic contour map of the data, contoured at 250 nT (nanoTesla). The map shows the earth's local magnetic field at the time of the survey. Magnetic anomalies higher in amplitude than the normal local magnetic background are shown in red, and are usually found over areas where ferrous objects are located below the sensor, carried at a height of about 3 feet. These objects may be surface objects such as manholes, catch basins, hydrants, or other surface features, or buried objects of interest, such as USTs, drums, pipes, and debris. Magnetic anomalies at or below the amplitude of the local magnetic field are shown in blue, and are caused by ferrous objects located above the sensor. Fences, poles and buildings typically produce magnetic lows.

Ferrous surface objects create magnetic interference that can hide the anomaly caused by buried objects of interest. The Jiffy-Lube building, a chain-link trash corral, a metal canopy, and several sign posts created interference.

Four anomalies or groups of anomalies are labeled in figure 1:

The cluster of small anomalies labeled A is interpreted to be caused by several pipes.

Anomaly B appears to be caused by metal in the canopy between the building and the west property line. No suspicious objects were detected with radar at this location.

Radar profiles across magnetic anomaly C indicated the cause is possibly a reinforced portion of the sidewalk.

Anomaly D in interpreted to be caused by a large grate immediately north of the site.

GPR traverses were made across the area east of the building (shown in yellow in figure 1), as this is the area most probable to have contained tanks related to the former station. A distinct disturbed-soil zone was detected in the southern middle of the survey area. It did not look like a typical tank excavation but it may possibly be one. It is outlined with a dashed brown line in figure 1.

Four proposed boring locations were cleared near the southwest corner of the building, where an above-ground tank was removed. Boring locations were cleared in and around the possible UST excavation.

Nikos Tzetos of Pacific Geophysics conducted the survey for Mr. Gil Cobb of PSS on February 27, 2017. This letter report was written by Nikos Tzetos and sent to Mr. Cobb on March 9, 2017.

Limitations

The conclusions presented in this report were based upon widely accepted geophysical principles, methods and equipment. This survey was conducted with limited knowledge of the site, the site history and the subsurface conditions. The goal of near-surface geophysics is to provide a rapid means of characterizing the subsurface using non-intrusive methods. Conclusions based upon these methods are generally reliable; however, due to the inherent ambiguity of the methods, no single interpretation of the data can be made. As an example, rocks and roots produce radar reflections that may appear the same as pipes and tanks.

Under reasonable conditions, geophysical surveys are good at detecting changes in the subsurface caused by man-made objects or changes in subsurface conditions, but they are poor at actually identifying those objects or subsurface conditions.

Objects of interest are not always detectable due to surface and subsurface conditions. The deeper an object is buried, the more difficult it is to detect, and the less accurately it can be located.

The only way to see an object is to physically expose it.

Nikos Tzetos Pacific Geophysics March 9, 2016

Appendix A. Geophysical Survey Methods

Magnetometer Surveys

Small disturbances in the Earth's local magnetic field are called "magnetic anomalies". These may be caused by naturally occurring features such as metallic mineral ore bodies, or from manmade features such as metal buildings, vehicles, fences, and underground storage tanks. The magnetometer only detects changes produced by *ferrous* objects. Aluminum and brass are non-ferrous metals and cannot be detected using a magnetometer.

A magnetometer is an electronic instrument designed to detect small changes in the Earth's local magnetic field. Over the years different technologies have been used in magnetometers. The Geometrics G-858 Portable Cesium Magnetometer used to collect magnetic data for Pacific Geophysics uses one of the most recent methods to detect magnetic anomalies. A detailed discussion describing the method this unit uses is available at Geometrics.com.

This magnetometer enables the operator to collect data rapidly and continuously rather than the older instruments that collected data at discreet points only. The G-858 is carried by hand across the site. The sensor is carried at waist level. Typically individual data points collected at normal walking speed are about 6" apart along survey lines usually 5 feet apart, depending on the dimensions of the target objects.

It is critical to know the exact location of each data point so that if an anomaly is detected it can be accurately plotted on a magnetic contour map. At most small sites, data are collected along straight, parallel survey lines set up on the site before the data collection stage begins. For very large, complex sites, the G-858 can be connected to a Global Positioning System (GPS) antenna which allows the operator to collect accurately-located data without establishing a survey grid. With GPS, data are collected and positioned wherever the operator walks. A limitation using GPS is that the GPS antenna must have line of sight with the GPS satellites. Data can be mislocated if the GPS antenna is under trees or near tall buildings.

Data are stored in the unit's memory for later downloading and processing. A magnetic contour map of the data is plotted in the field. Geographical features are plotted on the map. Magnetic anomalies appearing to be caused by objects of interest are then investigated on the site using several small hand-held metal detectors. If an object appears to be a possible object of interest, it may be investigated with GPR.

Magnetic contour maps may be printed in color in order to highlight anomalies caused by ferrous objects located under the magnetic sensor. Usually, ferrous objects situated below the sensor produce magnetic "highs" and anomalies located above the sensor produce magnetic "lows". Magnetic highs are of interest to the operator since most objects of interest are located underground.

Depending on the orientation, shape and mass of a metallic object, a high/low pair of magnetic anomalies may be present. In the northern hemisphere the magnetic low is located north of the object and the magnetic high toward the south. The object producing the anomaly is located part way between the high and the low anomalies.

Magnetometer surveys have limitations. Magnetometers only detect objects made of ferrous (iron-containing) metal. Large ferrous objects (buildings, cars, fences, etc.) within several feet of the magnetometer create interference that may hide the anomaly produced by a nearby object of interest.

Ground Penetrating Radar

A Geophysical Survey Systems, Inc. (GSSI) SIR-2000 GPR system coupled to a 270-, 400-, or 900-MHz GSSI antenna is used to obtain the radar data for our surveys.

GPR antennas both transmit and receive electromagnetic energy. EM energy is transmitted into the material the antenna passes over. A portion of that energy is reflected back to the antenna and amplified. Reflections are displayed in real-time in a continuous cross section. Reflections are produced where there is a sufficient electrical contrast between two materials. Changes in the electrical properties (namely the dielectric constant) that produce radar reflections include the moisture content, porosity, mineralogy, and texture of the material. Metallic objects of interest exhibit a strong electrical contrast with the surrounding material and thus produce relatively strong reflections. Non-metallic objects of interest (septic tanks, cesspools, dry wells, PVC and clay tile pipes) are not always good reflectors.

Radar data are ambiguous. It can be difficult to distinguish the reflection produced by an object of interest from the reflection caused by some natural feature. Rocks or tree roots have reflections that appear similar to reflections from pipes. In concrete investigations reflections produced by metal rebar look exactly like those from electrical conduit or post-tension cables. Objects with too small an electrical contrast may produce no reflections at all and may be missed. Target objects buried below objects with contrasting properties that also produce reflections may be missed (e.g. USTs below roots, concrete pieces, pipes or rocks). If an object of interest like a UST is buried below the depth of penetration of the radar signal, it will be missed.

In addition to interpreting ambiguous data, radar has several limitations that cannot be controlled by the operator. The radar signal is severely attenuated by electrically conductive material, including wet, clay-rich soil and reinforced concrete. The quality of the data is affected by the surface conditions over which the antenna is pulled. Ideally the antenna should rest firmly on a smooth surface. Rough terrain and tall grass reduce the quality of radar data.

It is the job of an experienced interpreter to examine the GPR profiles and deduce if reflections are from objects of interest. A GPR interpreter cannot see underground, but can only interpret reflections based on experience.

The only way to truly identify an object is to excavate.

Hand-held Metal detectors

Two small, non-recording metal detectors are used to locate suspect magnetic anomalies detected using the G-858 Magnetometer in order to determine the likely cause of the anomaly. First, the magnetic contour map and a Schonstedt Magnetic Gradiometer are used to locate the center of the magnetic anomalies.

Once the anomaly is located an Aqua-Tronics Tracer is used to determine if the object producing the anomaly is a possible object of interest. Most anomalies are at least in part produced by features observed on the ground surface.

Schonstedt Magnetic Gradiometer: This magnetometer has two magnetic sensors separated vertically by 10". The magnetic field surrounding a ferrous object is strongest near the object and decreases rapidly as the distance increases. If the magnitude measured by the sensor located in the tip of the Schonstedt is very high, and the magnetic field measured by the sensor located farther up the shaft of the

Schonstedt is low, there is a large vertical magnetic gradient and the instrument responds with a loud whistle indicating the object is near the surface. If there is a small difference in the magnitudes measured by the two sensors, the object is deeper. The instrument responds with a softer tone. A discussion of this instrument is available at Schonstedt.com.

Aqua-Tronics A-6 Tracer: The Aqua-Tronics A-6 Tracer uses a different method of detecting metallic objects. This instrument measures the electrical conductivity of a metal object. It is capable of detecting any electrically conductive metal, including non-ferrous aluminum and brass. The Tracer is capable of detecting three-dimensional objects as well as pipes.

The Tracer consists of a transmitter coil and a receiver coil. In the absence of any electrically conductive material in the vicinity of the Tracer, the electromagnetic field around each coil is balanced.

Basically the electromagnetic field produced by the transmitter induces an electric current into the area surrounding the instrument. Nearby conductive objects distort the EM field. The balance between the two coils is disturbed and the instrument produces an audible tone and meter indication.

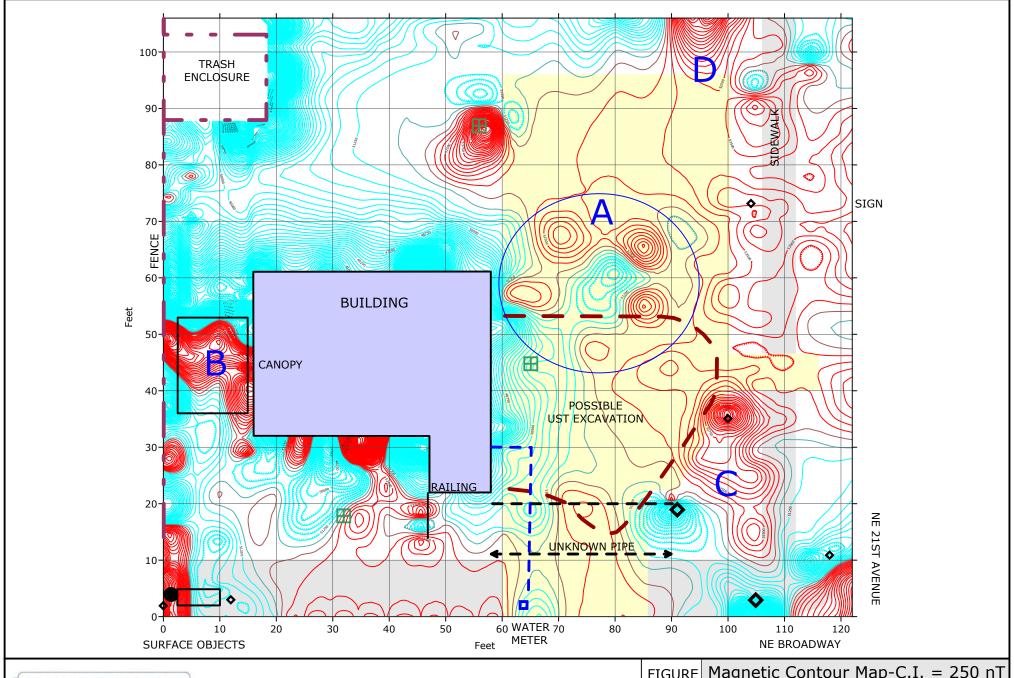






FIGURE	Magnetic Contour Map-C.I. = 250 nT								
1	Project: 170218	Jiffy Lube 2025 NE Broadway Portland, Oregon							

Drawn by: NT

Prepared for: Point Source Solutions

Survey Date: February 27, 2017