Fourth Quarter 2018 Groundwater Monitoring and Closure Report

JH Kelly
821 3rd Avenue, Longview, WA
VCP Project Number SW1529

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1.0 INTRODUCTION

1.1 Description of Property

The J.H. Kelly, Inc. (J.H. Kelly) subject site is located at 821 3rd Avenue in Longview, Washington. The site is located in a mixed use area and is surrounded by industrial, commercial, residential, and recreational properties (Figure 1). The Cowlitz River is located approximately 1,060 feet east of the site and Cowlitz County Diking District drainage Ditch Number Five is located along the western property boundary of the site. The site is made up of several large buildings and is mostly paved with asphalt. The property is used for fabrication of pipe and storage of finished and stock materials.

A fueling system for J.H. Kelly vehicles was located near the center of the site. The fueling system consisted of two underground storage tanks (USTs), one 10,000 gallon gasoline UST, and one 4,000 gallon diesel UST. The fuel dispensers were located on the western edge of the UST nest. The UST system was removed in 1989 and is discussed in more detail in the following sections. Figure 2 shows the current site layout and approximate location of the former UST system.

1.2 Site History

1.2.1 Pre-Tank Removal (July & September 1989)

On July 15, 1989, JH Kelly had a pressure test conducted on the USTs (one 10,000 gallon unleaded fuel tank, and one 4,000 gallon diesel tank) and both tanks passed the tightness test. A subsurface investigation was conducted by SRH Environmental Management on August 23, 1989. SRH advanced a test pit located north of the fuel dispenser island and excavated to a depth of 18 feet below ground surface (bgs). Two soil samples were collected from the test pit and were composited by the lab into one sample for analysis. The sample was analyzed for benzene toluene, ethylbenzene and total xylenes (BTEX) and for total petroleum hydrocarbons (TPH) by EPA Method 418.1. BTEX constituents were below laboratory detection limits and a total TPH of 58 mg/Kg was reported. Only benzene had a detection limit greater than the Washington State Department of Ecology (Ecology) cleanup level (CUL). The detection limit for benzene was 0.04 mg/Kg. Reportedly, the excavation location was chosen based on a soil gas survey that was conducted as part of a Level I Environmental Site Assessment. The soil gas survey was not provided for review.

1.2.2 UST Removal (November 1991)

The USTs were decommissioned in November of 1991 by Pacific Northern Environmental. Fuel dispensers, USTs, and ancillary equipment were removed. Field screening with a photo-ionization detector (PID) indicated petroleum contaminated soil (PCS) below the dispensers. PCS was also noted around each of the USTs during removal. A water sample was collected from the excavation. Analytical results indicated that diesel range petroleum hydrocarbons (DRPH) (24,000 µg/L), gasoline range petroleum hydrocarbons (GRPH) (130,000 µg/L), benzene (4,100 µg/L), toluene (18,000 µg/L),

ethylbenzene (5,300 µg/L), and xylenes (32,000 µg/L) were detected in the sample. The concentration of each of these constituents exceeds their respective MTCA Method A cleanup level. The groundwater sample was collected after approximately 800 gallons of water was pumped from the excavation and allowed to recharge.

Four soil samples (one sample from each end of the two USTs) were collected from the soil/groundwater interface and analyzed for TPH by EPA Method 3550/8015 Modified. One of the samples (JHK-SS3-12.5') had an oil range petroleum hydrocarbons (ORPH) concentration of 480 mg/Kg which exceeded the CUL at the time of 200 mg/Kg. Two of the four side wall samples were analyzed for BTEX. The sample collected from the east sidewall of the UST excavation (JHK-SS1-12.5') had a benzene concentration of 1.10 mg/Kg which exceeded the CUL. The remedial excavation was expanded on the east and west ends of the UST cavity where ORPH exceedance (west end of the UST) and benzene exceedance (east end of the USTs) was observed.

Confirmation soil sampling was performed at the conclusion of the expanded remedial excavation. Samples were collected from the east and west ends of the excavation at the same depth as the original samples that had elevated concentrations of contaminants. Analytical results indicated that confirmation sample (JHK-SS5-12.5') had an ORPH concentration of 140 mg/Kg. Confirmation sample (JHK-SS6-12.5) was below the laboratory detection limit for all BTEX constituents. It should be noted that the laboratory detection limit for the benzene analysis was 0.1 mg/Kg, which is greater than the current CUL of 0.03 mg/Kg. Historic soil sample results and sample locations are shown on Figures and Tables in Appendix A.

1.2.3 Groundwater Monitoring (December 1991 to 2006)

Prior to backfilling, a monitoring well (MW) was installed in the UST excavation the week of November 22, 1991. The monitoring well consists of a 30 inch diameter steel pipe to a depth of 10 feet bgs with a 24 inch slotted PVC casing inserted inside the steel casing from 9 to 12 feet bgs. There is no record of this well having a filter pack or bentonite seal. It should be noted that this well was used as a groundwater sample collection point although it does not comply with current Ecology specifications. The monitoring well location is shown on Figure 3.

The initial sampling results from December 1991 showed exceedances of GRPH (1,010 µg/L), ORPH (3,340 µg/L), and benzene (30 µg/L). Sampling in May 1992 had no detectible TPH but detected benzene (11.1 µg/L) above the MTCA Method A CUL. The June 1993 sampling detected DRPH (270,000 µg/L) at a concentration above the CUL. In addition, the lab reported that TPH designated as "Other" that was present at a concentration of 6,000 µg/L. The laboratory flagged the DRPH result as not matching the typical diesel fingerprint chromatogram. "Other" is not defined in the laboratory report. None of the BTEX constituents exceeded their respective CUL.

Groundwater sampling was suspended until April 1996. All TPH was below laboratory detection limits except for something designated as "Other". The "Other" result (279 µg/L) is flagged as eluting in the

diesel range, but not matching the typical diesel fingerprint chromatogram. All BTEX constituents were below their respective laboratory detection limits.

Groundwater sampling was suspended again until April 2006. The well and drainage ditch (Ditch Number Five) west of the site were analyzed for GRPH and BTEX only. All results were below the laboratory detection limits. Groundwater sampling was again suspended until 2016. The well and the drainage ditch were sampled in April 2006 and July 2006 for BTEX only. All samples were below laboratory detection limits. Groundwater results from the site monitoring well and drainage ditch are summarized on a Table 2A in Appendix A.

1.2.4 2017 Phase II ESA

A Phase II ESA was completed based on correspondence from Ecology dated October 31, 2016, in response to a request by the property owner for a determination of No Further Action (NFA) for the subject property. On September 26, 2017, Ecology Project Manager for the site, Aaron Fiedler, was contacted to discuss a proposed scope of work for the subject property that could result in a NFA determination being issued if no petroleum contamination is identified above MTCA Method A CULs.

On October 11, 2017, HydroCon conducted a subsurface investigation that included a total of five direct push borings (HC01 through HC05). The borings were advanced to a maximum depth of 15 feet bgs in an effort to evaluate current soil and groundwater conditions in the vicinity of the former UST excavation. The groundwater flow direction was estimated using water levels collected on October 11, 2017 from temporary borings in relation to a ground surface elevation survey conducted upon completion of drilling activities. The well lid of the existing monitoring well (MW) was used as the site datum. The datum was assigned an arbitrary elevation of 100 feet. Groundwater flow direction was calculated to the southwest toward Ditch Number Five.

Analytical results indicated that low concentrations of ORPH were detected in the soil samples collected at 10 feet bgs at HC01 and HC02. The location of these samples were located and along the eastern boundary of the former UST excavation. Boring locations are shown on Figure 3 and soil results are presented on Table 1.

Concentrations of DRPH were detected in the groundwater samples collected from HC01, HC02, and HC04 above the MTCA Method A CUL. MTBE was detected in all borings and was detected above the MTCA Method A CUL in HC04. Benzene was not detected above the method reporting limit (MRL) in the groundwater collected from any of the borings. Groundwater results are summarized on Table 2 and presented on Figure 4.

It should be noted that water samples collected from temporary borings are screening level quality only and should not be solely relied upon for site characterization purposes. The drilling and sampling method used (direct push) produces disturbed (turbid) samples and may not represent groundwater conditions. Groundwater samples collected from properly constructed and developed monitoring wells produces relatively non turbid samples. Concentrations of contaminants are often significantly lower in groundwater samples collected from properly constructed and developed monitoring wells than from

temporary borings. Because of this fact HydroCon recommended the installation of a monitoring well network to assess groundwater quality from properly installed and developed wells and perform quarterly groundwater monitoring to monitor natural attenuation of the remaining groundwater contamination.

1.2.5 Monitoring Well Installation

On December 12 and 13, 2017, HydroCon supervised the installation of monitoring wells MW01 through MW04. The monitoring wells were constructed using 2-inch diameter PVC casing and a 15-foot length of 0.010-inch slotted well screen placed from approximately 5 to 20 feet bgs.

Borings were advanced at the following locations:

- HC06/MW01 was located 30 feet north of the former UST excavation.
- HC07/MW02 was located along the western edge of a former UST excavation boundary.
- HC08/MW03 was located 65 feet west of the former UST excavation boundary.
- HC09/MW04 was located 35 feet south of the former UST excavation.

The monitoring well locations are illustrated on Figure 3 through Figure 5.

There were no elevated PID readings (i.e. above 2.0 ppm) detected or visible petroleum soil staining, hydrocarbon odor, or visible sheen observed in any of the soil samples collected. Soil samples were collected at the soil/groundwater interface and analyzed for TPH and related constituents. The results indicated that none of the samples had detections above the MTCA Method A CULs.

ORPH was detected in soil boring HC07, HC08 and HC09 at concentrations ranging from 190 mg/kg to 629 mg/kg. HydroCon requested that Apex Lab's forensic chemist (Mr. Kurt Johnson) review the chromatograms to determine if any of the detection of ORPH was related to the diesel fuel release. Mr. Johnson concluded that no weathered diesel was detected in the sample. Based on this information, HydroCon concludes that the ORPH is most likely related to the fill material placed at the site which consists of a mixture of soil, construction debris, wood, and asphalt.

Soil results are presented on Figure 3 and Table 1.

1.2.6 2017-2018 Groundwater Monitoring Summary

HydroCon initiated groundwater monitoring sampling from monitoring wells MW01 through MW04 on December 18, 2017. The wells were sampled on a quarterly basis through August 2018. The monitoring wells were all analyzed for DRPH, ORPH, GRPH, BTEX and MTBE. During the third quarter sampling event, Ecology requested additional analysis for total lead, EDB and EDC. Groundwater results from December 2017 through August 2018 are summarized below and on Table 3 and Figure 5. The November 2018 groundwater sampling results are presented in Section 4.4.

Groundwater results from the first sampling event in December 2017 detected DRPH (851 µg/L) above the MTCA Method A CUL of 500 µg/L at monitoring well MW01. Low concentrations of GRPH and MTBE were detected in MW02 and were below the MTCA Method A CULs. DRPH and ORPH detected in the remaining wells were below the MTCA Method A CULs. BTEX compounds were not detected above the MRL in any of the wells.

Additional well development efforts were conducted on monitoring MW01 on March 2, 2018, to reduce the suspended sediments in the well and to obtain a more representative groundwater sample. HydroCon personnel developed the well by surging and purging a total of 600 gallons of water from the well. The groundwater generated during the additional well development was discharged under permit to the City of Longview's sanitary system.

Groundwater results for the first three quarters of 2018 were below the MRL for ORPH, GRPH, BTEX, EDB and EDC. DRPH detections in the wells were below the MTCA Method A CUL. MTBE was only detected in monitoring well MW02. During the third quarter groundwater sampling event on August 9, 2018, the concentration of MTBE (22 ug/L) in MW02 slightly exceeded the MTCA Method A CUL (20 µg/L). On August 21, 2018, HydroCon returned to the site to resample well MW02 for MTBE analysis. Analytical results indicated that the sample was below the CUL with a concentration of 2.4 µg/L. This result is similar to past sampling events for this well.

The monitoring wells were sampled for total lead during the third quarter monitoring event. Lead was not detected above the MRL at wells MW01 and MW03. Lead detected at monitoring wells MW02 (0.745 µg/L) and monitoring well MW04 (3.54 µg/L) were below the MTCA Method A CUL of 15 µg/L.

1.3 Regional Geology and Hydrogeology

The geology of southwestern Cowlitz County is characterized by sedimentary and volcanic deposits laid down or extruded during the Tertiary and Quaternary periods (Livingston, 1966). The oldest formations (Cowlitz Formation and Goble Volcanics) include Eocene basaltic andesite and volcanoclastic deposits which were deposited 45 to 32 million years ago (Phillips, 1987). Lava flows of the Columbia River Basalt Group overlie the older formations. The next youngest rocks exposed in the area are the Upper Miocene to Lower Pleistocene sand, silt, gravel, and conglomerate of the Troutdale Formation. The valley fill material represents deposits of the ancestral Columbia River. The dissected upland that bound the Columbia River valley is composed of these older Formations. The youngest material exposed in the region is the outburst deposits of glacial Lake Missoula, landslide deposits, and recent alluvium.

Regional hydrogeology in the vicinity of the site is characterized by recharge to bedrock in the upland areas and discharge into the Columbia River. Groundwater flows from the regional bedrock through the thick alluvial sequence in the river valley before discharging into the rivers (Meyers, 1970). Precipitation also infiltrates the surface of the alluvium, recharging local flow systems in the river's floodplain.

1.4 Local Geology and Hydrogeology

Locally the geology consists of fill material down to approximately 9 to 10 feet bgs. The fill consisted of chunks of wood, asphalt, concrete, rebar, and bricks in a matrix of silt, sand, and gravel[1]. Below the fill material is native sands and silts. A layer of grass and reeds was observed at the top of the native soils indicating the area had once been ground surface. Groundwater in this area of Longview is controlled by a series of drainage ditches operated by the Cowlitz Diking District.

Groundwater flow direction calculated during the October 2017 Phase II ESA was to the southwest toward Ditch Number Five. Flow direction was estimated using water levels collected on October 11, 2017 from temporary borings in relation to a ground surface elevation survey conducted upon completion of drilling activities. The well lid of the existing monitoring well (MW) was used as the site datum. The datum was assigned an arbitrary elevation of 100 feet.

The monitoring well network (MW01 through MW04) was professionally surveyed by Hampstur Surveying. They surveyed the elevation of the top of the PVC casing of each monitoring well at the scribed reference mark, the top of each well monument lid, and key features at the site so that a scaled map can be produced for the site. The elevations are located in both the latitude and longitude plane relative to the Washington State plane [South Zone NAD83)] as well as the vertical dimension using the North American Vertical Datum of 1988 (NAVD88).

The DTW at monitoring wells MW01 through MW03 seasonally ranged from approximately 6 feet below the top of casing (btoc) to 9 feet btoc. The depth to water at well MW04 seasonally ranged from 4.42 to 8.57 feet btoc. The groundwater gradient in the vicinity of the former UST excavation is relatively flat and ranges from 0.0002 ft/ft to 0.003 ft/ft toward the southwest. The groundwater is mounded at MW04 and has a gradient that ranges from 0.013 ft/ft to 0.062 ft/ft and flows toward the north and west. HydroCon was not able to determine the source of the groundwater mounding at MW04.

2.0 CONCEPTUAL SITE MODEL

This section presents a conceptual understanding of the site and identifies potential or suspected sources of hazardous substances, types and concentrations of hazardous substances, potentially contaminated media, and actual and potential exposure pathways and receptors. A graphic display of the conceptual site model (CSM) is included on Figure 6.

2.1 Site Definition

Based on the findings from the investigations conducted by HydroCon and others between 1991 and the present, the site is defined as petroleum-contaminated soil, or groundwater detected in the immediate vicinity of the former UST excavation.

[1] SRH Environmental Management, *Report on Soil Sampling and Analysis* (September 1, 1989)

2.2 Chemicals and Media of Concern

Based on the findings of the investigations conducted near the former UST system, the primary COCs for the site in soil and groundwater are DRPH, GRPH, ORPH, BTEX, MTBE and lead.

2.3 Confirmed and Suspected Source Areas

The historical investigations confirmed concentrations of COCs present in soil and groundwater at the former UST excavation and fill material beneath the material handling yard as a result of a release of petroleum hydrocarbons from the former gasoline and diesel USTs and fuel-dispensing pump islands and the placement of construction debris as fill materials.

2.4 Distribution of Contaminants in Soil

Residual petroleum-contaminated soil from the UST release may be encountered at the soil groundwater interface in close proximity to the former UST excavation. The remaining PCS is below the MTCA Method A CUL. The distribution of the contaminated soil is shown on Figure 3. Low concentrations of ORPH associated with the fill material may be encountered under the material layout yard.

2.5 Distribution of Contaminants in Groundwater

The area of petroleum-contaminated groundwater that resulted from the release from the USTs is within close proximity to the former UST excavation and within the monitoring well network area. The distribution of residual groundwater contamination is shown on Figure 5.

2.6 Contaminant Fate and Transport

2.6.1 Transport Mechanisms Affecting Distribution of Petroleum Hydrocarbons

The environmental transport mechanisms of petroleum hydrocarbons are related to its separate phases in the subsurface. The four phases of petroleum contamination in the subsurface are vapor (in soil gas), residual (sorbed contamination on soil particles), aqueous phase (contaminants dissolved in groundwater), and light non-aqueous phase liquids (LNAPL). At steady state conditions, each phase is in equilibrium with the other phases in the subsurface, and the relative ratio of total subsurface contamination by petroleum hydrocarbons between the four phases is controlled by dissolution, volatilization, and sorption.

Petroleum hydrocarbons observed in soil and groundwater beneath the site have been transported from source areas and distributed throughout the site primarily by dispersive transport mechanisms within the saturated zone and by soil vapor transport. As with other chemicals, petroleum hydrocarbons tend to spread out as groundwater flows away from the source area. The extent of the hydrocarbon plume depends on the volume of the release, soil density, particle size, and seepage velocity.

2.6.2 Environmental Fate

The significant processes controlling the fate of petroleum hydrocarbons in the environment are dissolution, volatilization, sorption, and bioattenuation. Petroleum hydrocarbons are comprised of hundreds of organic compounds that exhibit a wide range of physical and chemical properties. These compounds range from low molecular weight, low-boiling point compounds with high vapor pressure (i.e. highly volatile) exhibiting moderate aqueous solubility to those that exhibit a high molecular weight, high-boiling point, low vapor pressure, and extremely low aqueous solubility. Gasoline represents the lower molecular weight compounds that exhibit a higher relative capacity for dissolution, volatilization, and bioattenuation. These compounds are therefore more mobile in the environment and less persistent over time. The moderate molecular weight compounds representative of diesel fuel exhibit a lower relative capacity for dissolution, volatilization, and bioattenuation compared to gasoline.

2.7 Exposure Assessment

The following is a summary of the potential migration pathways identified for the site and potential targets for COCs observed on the Property.

2.7.1 Soil-to-Groundwater Pathway

Analytical testing of groundwater samples indicates that contamination of groundwater via the soil leaching pathway appears to be complete.

2.7.2 Direct Contact Pathway

Direct contact with soil and groundwater exhibiting concentrations of petroleum hydrocarbons is limited to human receptors that come into close contact with the media via direct exposure, including dermal contact or ingestion of excavated soil or groundwater. The standard point of compliance for soil contamination beneath a site is approximately 15 feet bgs, which represents a reasonable estimate of the depth that could be accessed during normal site redevelopment activities (WAC §173-340-740[6][d]). Direct contact exposure to soil and groundwater unlikely with the exception of potential underground utility work.

2.7.3 Vapor Pathway

Volatile COCs (benzene) have not been identified in soil or groundwater under the asphalt outdoor storage area in the vicinity of the former UST system at concentrations exceeding Ecology's screening levels. Due to the lack of volatile contaminants in soil and groundwater, the vapor intrusion exposure pathway is considered not to be complete at the site.

2.7.4 Surface Water

Migration of contaminants via surface water infiltration and leaching to the subsurface is mitigated by the asphalt and concrete that covers the site. Therefore, this pathway is considered incomplete.

2.7.5 Groundwater/Drinking Water

Shallow groundwater in the vicinity of the site is not developed as a significant drinking water resource and is not likely to be developed in the future due to presence of the City of Longview water system. The City of Longview obtains its drinking water from a deep well field located over 2.5 miles west of the site (Mint Farm Industrial Park). HydroCon searched the Ecology Well Report Viewer database for domestic wells within the SW quarter section of Section 34. Two domestic wells were identified and are located approximately 2,000 feet northeast of the site and east of the Cowlitz River. One domestic well (Well tag ID BIT978) is located at 118 Olive Street in Kelso and was completed at a depth of 23 feet bgs. The other domestic well (Well Tag ID BKS501) is located at 1806 River Road in Kelso and is completed at a depth of 19 feet bgs. The well locations are shown on Figure 7. While adverse impacts to shallow groundwater in the immediate vicinity of the site have been confirmed, the potential for adverse impacts to the municipal water supply or private wells from contaminants migrating from the Property is very low. Copies of the domestic wells logs are included in Appendix B.

2.8 Cleanup Standards

2.8.1 Cleanup Levels

The proposed CULs for soil and groundwater beneath the site are generally the MTCA Method A CULs for Unrestricted Land Use for COCs that have a Method A CUL. The CULs for the media and COCs are presented in the tables below, including the source of the CUL.

Proposed CULs for Soil

Chemicals of Concern	**Cleanup Level** (milligrams per kilogram)	**Source**
DRPH	2,000	MTCA Method A, Unrestricted; WAC §173-340-740(2)(b)(i)
ORPH	2,000	
GRPH1	30	
Benzene	0.03	
Toluene	7	
Ethylbenzene	6	
Total xylenes	9	
Lead	250	

[1]For all gasoline mixtures with benzene included

Proposed CULs for Groundwater

Chemicals of Concern	Cleanup Level (micrograms per liter)	Source
ORPH	500	MTCA Method A, Table Value; WAC §173-340-720(3)(b)(i)
DRPH	500	
GRPH	800	
Benzene	5	
Toluene	1,000	
Ethylbenzene	700	
Total xylenes	1,000	
Lead	15	

[1]When benzene is present in groundwater

2.8.2 Points of Compliance

The point of compliance is the location where the enforcement limits that are set in accordance with WAC §173-200-050 will be measured and cannot be exceeded (WAC §173-200-060 and Ecology, 2005). Once the CULs have been attained at the defined points of compliance, the impacts present beneath the site will no longer be considered a risk to human health or the environment.

2.8.2.1 Points of Compliance for Soil

In accordance with Ecology 2005, the points of compliance for soil depend on the CULs proposed for cleanup and the exposure pathways. Since Method A CULs are proposed for the site and are considered protective of all potential soil exposure pathways, the standard point of compliance applies to cleanup actions at this site. The standard point of compliance is defined as "throughout the site from ground surface to 15 feet below the ground surface".

2.8.2.2 Points of Compliance for Groundwater

In accordance with WAC §173-340-720(8)(a)(b), the point of compliance for groundwater is defined as the uppermost level of the saturated zone extending vertically to the lowest depth that potentially could be impacted by the COCs throughout the site.

Existing monitoring wells (MW01 through MW04) will be used to evaluate whether compliance at the Property has been achieved.

3.0 TERRESTRIAL ECOLOGICAL EVALUATION

This section presents HydroCon's Simplified Terrestrial Ecological Evaluation (TEE) for the site and park west of the site. As required by Ecology, a TEE must be completed for each site. The purpose of the TEE is to protect land-based plants and animals from exposure to contaminated soil. Completion of a TEE will: determine if a release of hazardous substances may harm the plants and/or animals at a

site; characterize the existing or potential threats to the plants and/or animals that may be exposed to hazardous substances in the soil; and establish cleanup standard to protect not only human health, but the plants and/or animals, and ecologically important functions of the soil biota. Although the site does not appear to qualify for exclusion, it does qualify for a simplified evaluation.

To conduct the Simplified TEE, HydroCon prepared a 500 foot radius map (Figure 8) around the site to evaluate if continuous "undeveloped land" as defined by WAC 173-340-7491(1) (c) (iii) was in the vicinity of the site. The site property and properties located north, south and east of the site are zoned as light industrial (LI-A). The largest continuous undeveloped land is west of the site and is a city park (Seventh Avenue Park) that consists of an unnamed pond, open space and sports fields. The total acreage of the undeveloped land within 500 feet of the site is approximately 6.3 acres and is shown on Figure 8. Based on the acreage of the undeveloped property (greater than 4 acres), completing Simplified TEE by Table 749-1 was not a viable option for concluding the evaluation.

To complete the evaluation, HydroCon compared site soil data collected in 1991 and 2017 to the *Priority Contaminants of Ecological Concern for Sites that Qualify for the Simplified TEE Procedure* listed in Table 749-2. All site soil data was below the *unrestricted land use* soil CUL for GRPH, DRPH and lead. Based on this comparison no further evaluation is need in accordance with (WAC 173-340-7492(2) (c) (i)). Priority contaminant CUL for site COCs are presented on the bottom of Table 1. Completed Ecology TEE forms are included in Appendix C.

4.0 QUARTERLY GROUNDWATER MONITORING

On November 7, 2018, HydroCon collected groundwater samples from monitoring wells MW01 and MW02. Monitoring wells MW03 and MW04 were not sampled due to achieving four consecutive quarters of no detections above the MTCA Method A CULs. The reduced well sampling was approved by Ecology in an email dated August 16, 2018. A discussion of the sampling methodology, groundwater conditions, and laboratory analytical results is provided below.

4.1 Groundwater Conditions

Prior to sampling, the well caps of the monitoring wells were removed and the water level was allowed to equilibrate prior to measuring the DTW. The DTW in each well was measured using a clean electronic water level indicator. Water levels were measured at the scribed reference mark (north end of the top of the PVC casing) at each well. The static water levels in the monitoring wells varied between 6.93 feet and 8.54 feet below the top of the well casing (BTOC) during the November 7, 2018 sampling event. An apparent groundwater mound is present near MW04. The groundwater elevation calculated for MW04 was approximately 1 foot higher than monitoring wells MW01 through MW03. This is consistent with past sampling events.

A groundwater elevation contour map was generated from depth to water data collected on November 7, 2018. The groundwater flow direction south of the former UST excavation is towards the north and northwest. The groundwater gradient calculated in the southern portion of the site between MW04 and

MW03 is approximately 0.025 feet/foot. The groundwater flow between MW01 and MW03, which ignores the mounding observed at MW04, is towards the northeast at a calculated gradient of 0.0002 feet/foot. The groundwater gradient is flat between wells MW01 and MW02. The groundwater elevations and groundwater contours are shown on Figure 5. Depth to groundwater measurements and groundwater elevations are summarized on Table 3.

4.2 Groundwater Sampling

Monitoring well MW01 and MW02 were purged, prior to sampling, with a low flow peristaltic pump equipped with new length of LDPE tubing attached to a new length of silicon tubing. Groundwater quality parameters (pH, temperature, specific conductivity, dissolved oxygen, ORP, & turbidity) were measured and recorded on a Groundwater Sample Collection field form along with the depth to water measurements (Appendix D). Purging was completed when the field parameters had stabilized within the prescribed limits.

Upon stabilization of the groundwater quality parameters, the groundwater samples were collected and placed in laboratory-prepared sampling containers. The samples were placed in an iced cooler along with the chain-of-custody documentation and transported APEX Laboratory, in Tigard, Oregon for analysis.

Groundwater generated during purging was placed in a labeled 55-gallon drum. The drum is being temporarily stored at the northwest corner of the building south of the investigation area.

4.3 Laboratory Analysis

A total of two groundwater samples were collected for laboratory analysis. Samples from monitoring well MW01 and MW02 were analyzed for DPRH and ORPH by Northwest Method NWTPH-Dx. The sample collected from monitoring well MW02 was also analyzed for GPRH by Northwest Method NWTPH-Gx and BTEX and MTBE by EPA Method 8260C.

4.4 Analytical Results

The groundwater analytical results are reported in micrograms per liter (µg/L) (parts per billion) and are summarized below and on Table 3 and Figure 5. Copies of the laboratory reports and chain-of-custody documents are included in Appendix E.

Groundwater analytical results indicate that DRPH and ORPH were not detected above the MRL for the samples collected from monitoring wells MW01 and MW02. GRPH and BTEX were not detected above the MRL in MW02. MTBE was detected in the MW02 sample at a concentration of 1.42 µg/L, which is below the MTCA Method A CUL of 20 µg/L. The relatively low MTBE concentration in MW02 is consistent with the majority of the past results from this well

5.0 DISCUSSION

5.1 Soil Conditions

Based on the results of field screening and laboratory analysis, a relatively low concentration of ORPH was observed in the soil samples collected at 10 and 11 feet bgs at HC01, HC02, HC07, HC08 and HC09. ORPH was detected in soil boring HC07, HC08 and HC09 at concentrations ranging from 190 mg/kg to 629 mg/kg. HydroCon requested that Apex Lab's forensic chemist (Mr. Kurt Johnson) review the chromatograms to determine if any of the detection of ORPH was related to the diesel fuel release. Mr. Johnson concluded that no weathered diesel was detected in the sample. Based on this information, HydroCon concludes that the ORPH is most likely related to the fill material placed at the site which consists of a mixture of soil, construction debris, wood, and asphalt. This contamination does not appear to adversely impact groundwater at the site.

GRPH was detected below the MTCA Method A CUL in the soil sample collected from HC07. This boring is located near the western limit of the UST remedial excavation. BTEX, MTBE, EDB and EDC compounds were not detected above the MRL in any of the recent soil samples collected in 2017 (HC01 through HC09). Based on these results it's HydroCon's opinion that the site soils have been adequately characterized.

5.2 Groundwater Conditions

The concentration of ORPH and DRPH in the site monitoring wells have all been below their respective MTCA Method A CUL with the exception of MW01. During the initial groundwater monitoring event in December 2017 the sample collected from MW01 had DRPH at a concentration of 851 µg/L, which exceeds the MTCA Method A CUL. HydroCon performed well development on MW01 on March 2, 2018 to reduce the sediment in the well that was thought to be responsible for the elevated DRPH concentration. The well development proved successful as the DRPH concentration in MW01 remained below the MTCA Method A CUL for four consecutive quarters.

GRPH has only been detected once above the MRL in the site monitoring wells during the quarterly groundwater monitoring events. GRPH (117 µg/L) was detected in MW02 during the initial December 2017 groundwater sampling event. This concentration is below the MTCA Method A CUL of 800 µg/L. BTEX was not detected above the MRL in any of the groundwater samples collected from the monitoring wells.

MTBE was detected in every groundwater sample collected from the temporary borings drilled near the former remedial excavation ranging from 1.43 to 35.5 µg/L. Although the groundwater results from temporary borings are typically screening level quality it does indicate that there's a source of MTBE present near the former remedial excavation. HydroCon installed 4 monitoring wells (MW01 through MW04) so that groundwater samples could be obtained from properly constructed and developed monitoring wells. Quarterly groundwater monitoring results indicate that only one well (MW02) has had a detection of MTBE above the MRL. With the exception of the August 9, 2018 sample results, the concentration of MTBE in MW02 has remained in a narrow range of <1.0 to 3.34 µg/L, which is well

under the MTCA Method A CUL of 20 µg/L. The reason for the anomalous MTBE concentration on August 9, 2018 is unknown. The majority of the source of contamination was removed from the site 27 years ago. Groundwater conditions (flat gradient) aren't conducive to mobilizing a pulse of MTBE from what is likely a small area of residual contamination at the site. HydroCon returned to the site 12 days later and sampled the well again. Analytical results indicated that the sample had a significantly lower concentration of MTBE (2.4 µg/L). This concentration is within the range of the other samples collected from this well. It's HydroCon's opinion that the sample collected on August 21, 2018 is more representative of site conditions.

6.0 CONCLUSIONS

Based on the soil and groundwater results collected to date, HydroCon concludes that the release from the former UST system has been successfully characterized and remediated below applicable MTCA Method A CULs. If Ecology is in agreement with HydroCon's conclusions on the MTBE sampling at MW02, the site qualifies for consideration of a No Further Action Determination.

7.0 QUALIFICATIONS

HydroCon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. HydroCon makes no warranties, either expressed or implied, regarding the findings, conclusions or recommendations. Please note that HydroCon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report.

Findings and conclusions resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this monitoring. Subsurface conditions may vary from those encountered at specific sampling locations or during other surveys, tests, assessments, investigations, or exploratory services; the data, interpretations and findings are based solely upon data obtained at the time and within the scope of these services.

This report is intended for the sole use of JH Kelly. This report may not be used or relied upon by any other party without the written consent of HydroCon. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document or the findings, conclusions, or recommendations is at the risk of said user.

The conclusions presented in this report are, in part, based upon subsurface sampling performed at selected locations and depths. There may be conditions between borings or samples that differ significantly from those presented in this report and which cannot be predicted by this study.

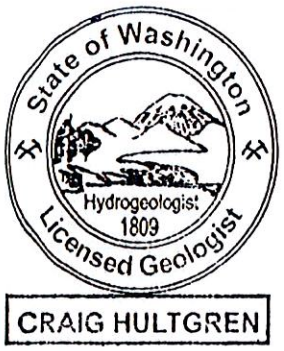
Signature:

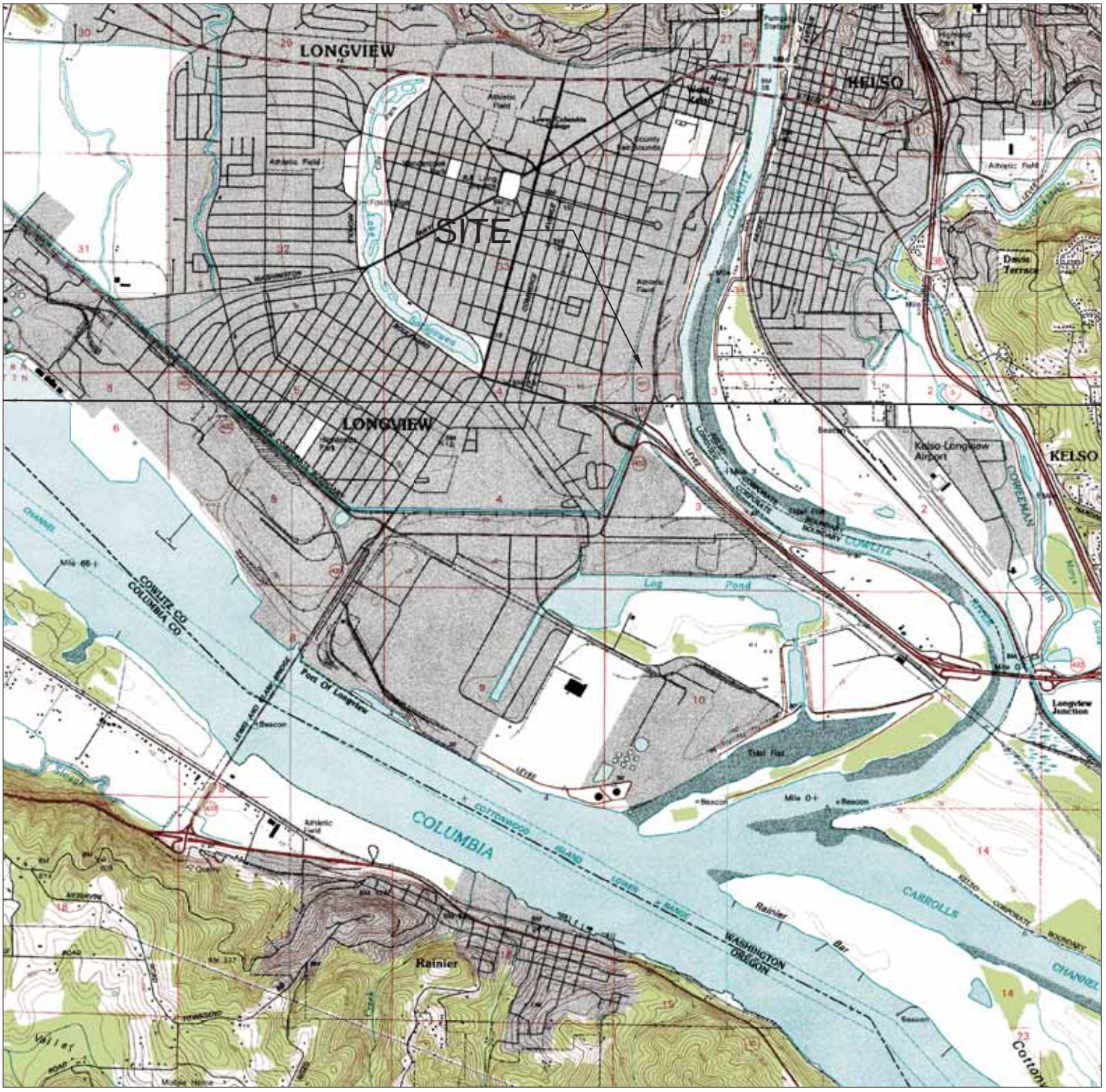
Report Prepared By:

Brian Pletcher
Project Manager

Report Reviewed By:

Craig Hultgren, LHG
Principal Geologist





NOTE(S):

1. USGS, RAINIER, OREGON AND KELSO, WASHINGTON QUADRANGLES 7.5 MINUTE SERIES (TOPOGRAPHIC)

N
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0 2000 4000
SCALE IN FEET
1" = 2000'

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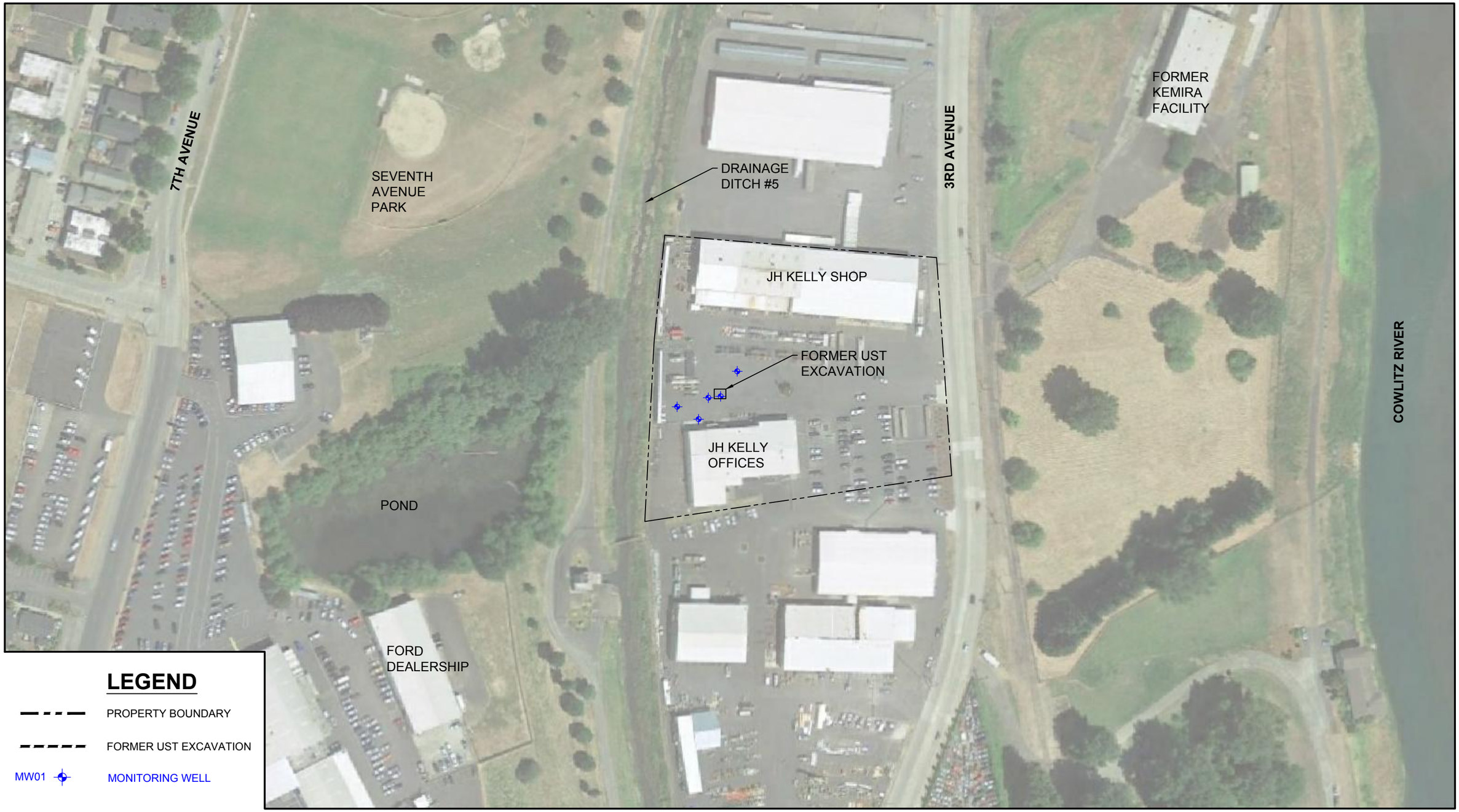
PRJ. MGR: DB
PROJECT NO: 2017-055

FIGURE 1
SITE LOCATION MAP

JH KELLY
821 THIRD AVENUE
LONGVIEW, WASHINGTON



LEGEND

- PROPERTY BOUNDARY
- FORMER UST EXCAVATION
- MW01 — MONITORING WELL

N
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S

0 150 300
SCALE IN FEET
1" = 150'

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PROJECT NO: 2017-055

FIGURE 2
SITE FEATURES AND VICINITY MAP

JH KELLY
821 THIRD AVENUE
LONGVIEW, WASHINGTON

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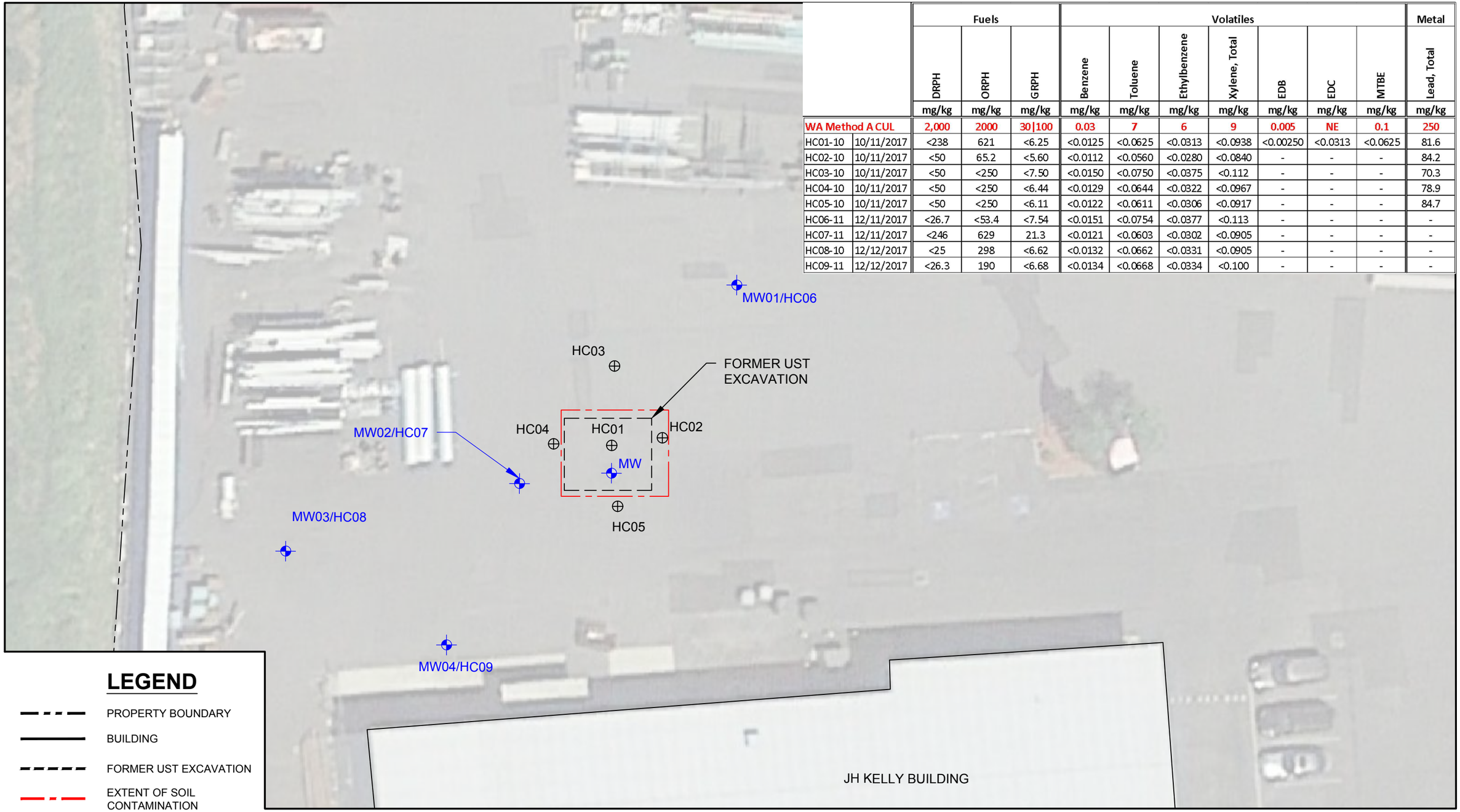
		Fuels			Volatiles							Metal
		DRPH	ORPH	GRPH	Benzene	Toluene	Ethylbenzene	Xylene, Total	EDB	EDC	MTBE	Lead, Total
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
WA Method A CUL		2,000	2000	30|100	0.03	7	6	9	0.005	NE	0.1	250
HC01-10	10/11/2017	<238	621	<6.25	<0.0125	<0.0625	<0.0313	<0.0938	<0.00250	<0.0313	<0.0625	81.6
HC02-10	10/11/2017	<50	65.2	<5.60	<0.0112	<0.0560	<0.0280	<0.0840	-	-	-	84.2
HC03-10	10/11/2017	<50	<250	<7.50	<0.0150	<0.0750	<0.0375	<0.112	-	-	-	70.3
HC04-10	10/11/2017	<50	<250	<6.44	<0.0129	<0.0644	<0.0322	<0.0967	-	-	-	78.9
HC05-10	10/11/2017	<50	<250	<6.11	<0.0122	<0.0611	<0.0306	<0.0917	-	-	-	84.7
HC06-11	12/11/2017	<26.7	<53.4	<7.54	<0.0151	<0.0754	<0.0377	<0.113	-	-	-	-
HC07-11	12/11/2017	<246	629	21.3	<0.0121	<0.0603	<0.0302	<0.0905	-	-	-	-
HC08-10	12/12/2017	<25	298	<6.62	<0.0132	<0.0662	<0.0331	<0.0905	-	-	-	-
HC09-11	12/12/2017	<26.3	190	<6.68	<0.0134	<0.0668	<0.0334	<0.100	-	-	-	-



LEGEND

- PROPERTY BOUNDARY
- BUILDING
- FORMER UST EXCAVATION
- EXTENT OF SOIL CONTAMINATION
- HC01 — HYDROCON BORING LOCATION
- MW01 — MONITORING WELL

N W E S

0 20 40

SCALE IN FEET
1" = 20'

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PROJECT NO: 2017-055

FIGURE 3
SUMMARY OF SOIL ANALYTICAL DATA

JH KELLY
821 THIRD AVENUE
LONGVIEW, WASHINGTON

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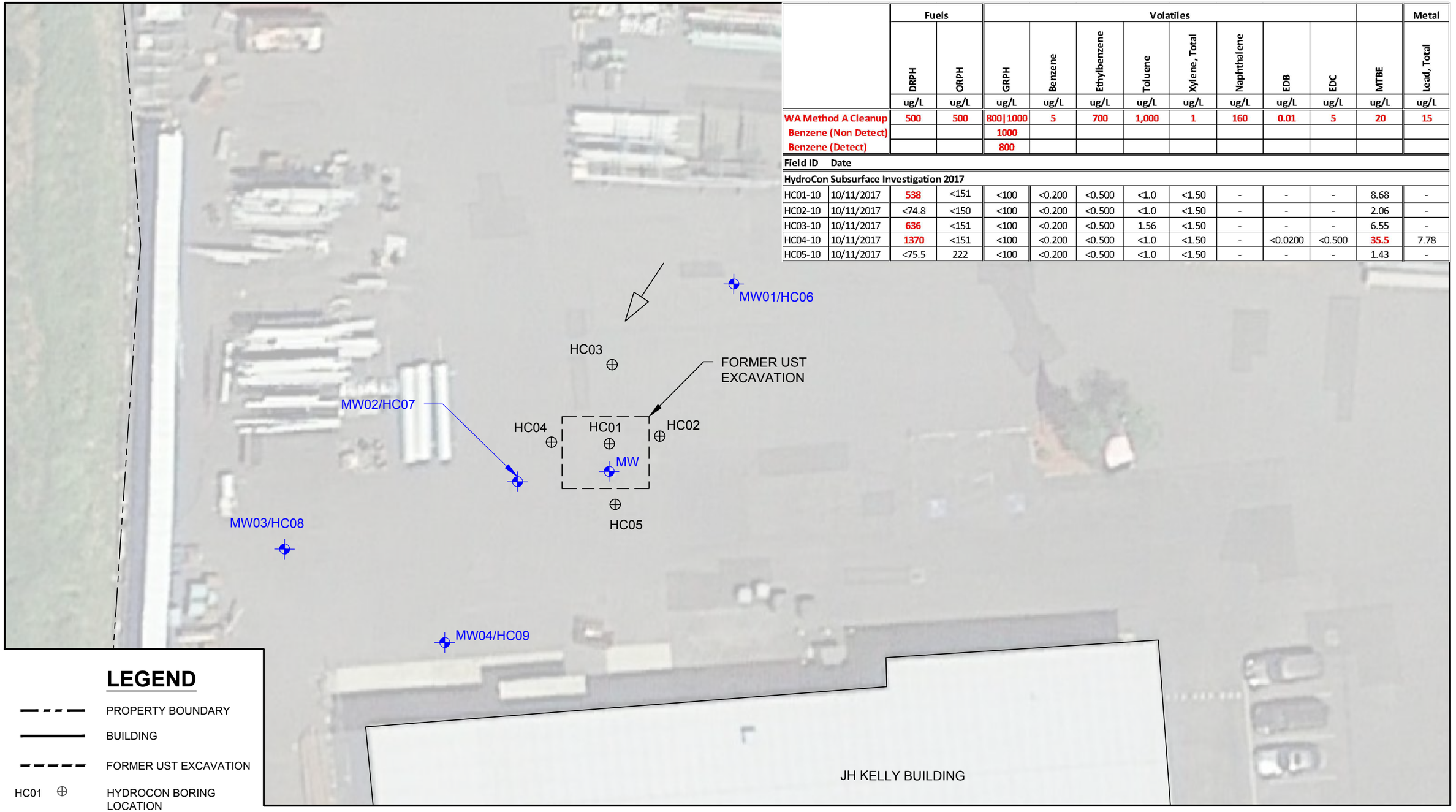
		Fuels		Volatiles									Metal
		DRPH	ORPH	GRPH	Benzene	Ethylbenzene	Toluene	Xylene, Total	Naphthalene	EDB	EDC	MTBE	Lead, Total
		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
WA Method A Cleanup		500	500	800|1000	5	700	1,000	1	160	0.01	5	20	15
Benzene (Non Detect)				1000									
Benzene (Detect)				800									
Field ID	Date												
HydroCon Subsurface Investigation 2017													
HC01-10	10/11/2017	538	<151	<100	<0.200	<0.500	<1.0	<1.50	-	-	-	8.68	-
HC02-10	10/11/2017	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	-	-	-	2.06	-
HC03-10	10/11/2017	636	<151	<100	<0.200	<0.500	1.56	<1.50	-	-	-	6.55	-
HC04-10	10/11/2017	1370	<151	<100	<0.200	<0.500	<1.0	<1.50	-	<0.0200	<0.500	35.5	7.78
HC05-10	10/11/2017	<75.5	222	<100	<0.200	<0.500	<1.0	<1.50	-	-	-	1.43	-



LEGEND

- PROPERTY BOUNDARY
- BUILDING
- FORMER UST EXCAVATION
- HC01 — HYDROCON BORING LOCATION
- MW01 — MONITORING WELL
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW (CALCULATED FROM TEMPORARY WELLS IN BORINGS HC01 THROUGH HC05)

N W E S

0 20 40

SCALE IN FEET
1" = 20'

HydroCon
314 W 15th St. Suite 300, Vancouver, WA 98660
Ph(360) 703-6079

DATE: 11-26-18
DWN: JH
CHK: BP
APPROVED: DB
PRJ. MGR: DB
PROJECT NO: 2017-055

FIGURE 4
SUMMARY OF GROUNDWATER ANALYTICAL DATA
OCTOBER 11, 2017
JH KELLY
821 THIRD AVENUE
LONGVIEW, WASHINGTON

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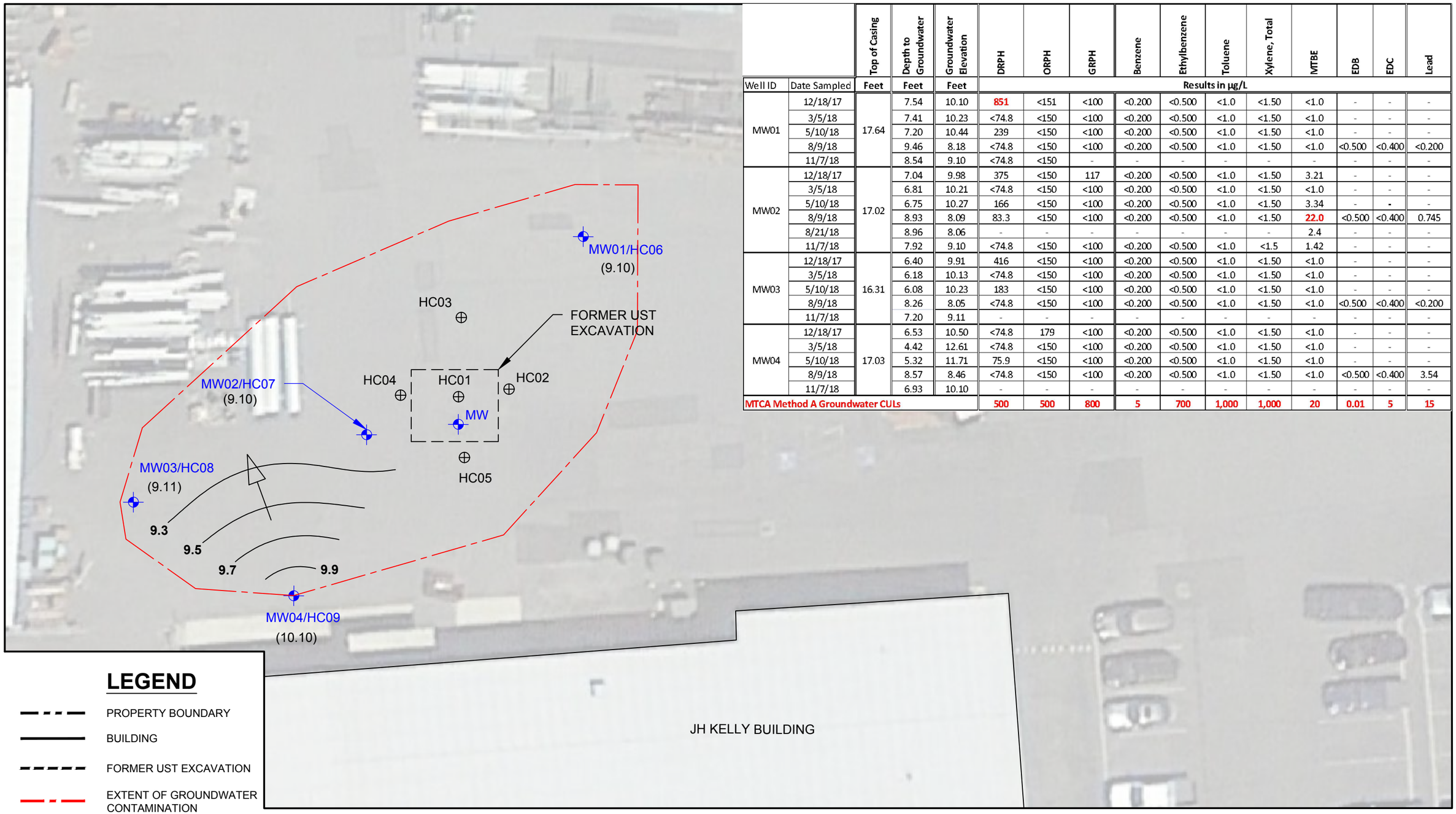

Well ID	Date Sampled	Top of Casing	Depth to Groundwater	Groundwater Elevation	DRPH	ORPH	GRPH	Benzene	Ethylbenzene	Toluene	Xylene, Total	MTBE	EDB	EDC	Lead
		Feet	Feet	Feet	Results in µg/L										
MW01	12/18/17	17.64	7.54	10.10	851	<151	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	3/5/18		7.41	10.23	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	5/10/18		7.20	10.44	239	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	8/9/18		9.46	8.18	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	<0.500	<0.400	<0.200
	11/7/18		8.54	9.10	<74.8	<150	-	-	-	-	-	-	-	-	-
MW02	12/18/17	17.02	7.04	9.98	375	<150	117	<0.200	<0.500	<1.0	<1.50	3.21	-	-	-
	3/5/18		6.81	10.21	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	5/10/18		6.75	10.27	166	<150	<100	<0.200	<0.500	<1.0	<1.50	3.34	-	-	-
	8/9/18		8.93	8.09	83.3	<150	<100	<0.200	<0.500	<1.0	<1.50	22.0	<0.500	<0.400	0.745
	8/21/18		8.96	8.06	-	-	-	-	-	-	-	2.4	-	-	-
	11/7/18		7.92	9.10	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.5	1.42	-	-	-
MW03	12/18/17	16.31	6.40	9.91	416	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	3/5/18		6.18	10.13	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	5/10/18		6.08	10.23	183	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	8/9/18		8.26	8.05	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	<0.500	<0.400	<0.200
	11/7/18		7.20	9.11	-	-	-	-	-	-	-	-	-	-	-
MW04	12/18/17	17.03	6.53	10.50	<74.8	179	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	3/5/18		4.42	12.61	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	5/10/18		5.32	11.71	75.9	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	8/9/18		8.57	8.46	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	<0.500	<0.400	3.54
	11/7/18		6.93	10.10	-	-	-	-	-	-	-	-	-	-	-
MTCA Method A Groundwater CULs					500	500	800	5	700	1,000	1,000	20	0.01	5	15

LEGEND

- PROPERTY BOUNDARY
- BUILDING
- FORMER UST EXCAVATION
- EXTENT OF GROUNDWATER CONTAMINATION
- HC01 — HYDROCON BORING LOCATION
- MW01 (XX.XX) — MONITORING WELL (GROUNDWATER ELEVATION)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

N W E S

0 20 40

SCALE IN FEET
1" = 20'

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Ph(360) 703-6079

DATE: 11-13-18
DWN: JH
CHK: BP
APPROVED: DB
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PROJECT NO: 2017-055

FIGURE 5
GROUNDWATER CONTOUR MAP AND ANALYTICAL RESULTS
4TH QUARTER 2018
JH KELLY
821 THIRD AVENUE
LONGVIEW, WASHINGTON

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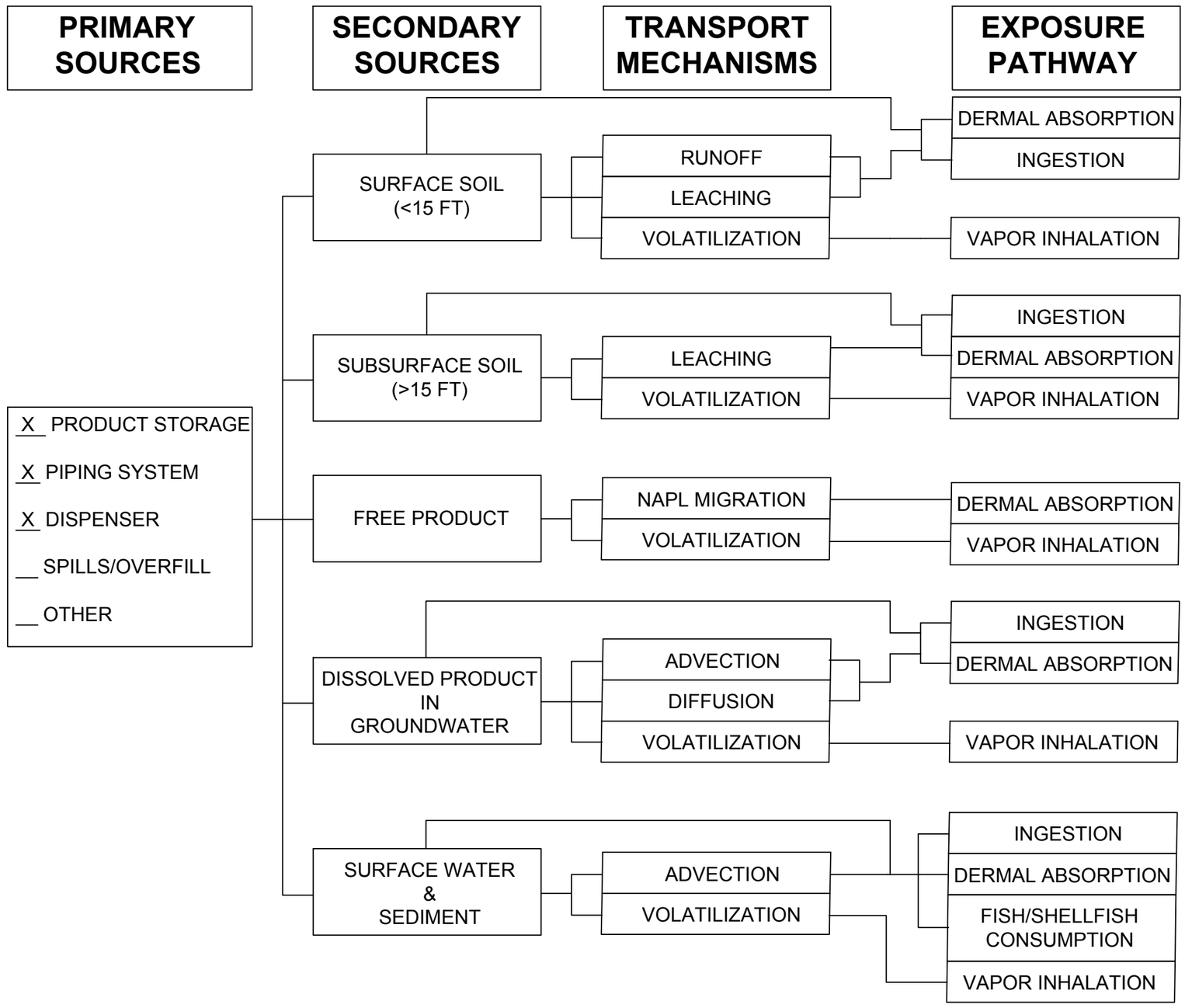

POTENTIAL RECEPTORS

N RESIDENTS/CHILDREN
N COMMERCIAL WORKERS
N INDUSTRIAL WORKERS
Y CONSTRUCTION WORKERS
Y SOIL BIOTA
N PLANTS
N ANIMALS

NA RESIDENTS/CHILDREN
NA COMMERCIAL WORKERS
NA INDUSTRIAL WORKERS
NA CONSTRUCTION WORKERS

NA RESIDENTS/CHILDREN
NA COMMERCIAL WORKERS
NA INDUSTRIAL WORKERS
NA CONSTRUCTION WORKERS
NA SOIL BIOTA
NA PLANTS
NA ANIMALS

N RESIDENTS/CHILDREN
N COMMERCIAL WORKERS
N INDUSTRIAL WORKERS
Y CONSTRUCTION WORKERS
Y SOIL BIOTA
N PLANTS
N ANIMALS

N RESIDENTS/CHILDREN
N RECREATIONAL USERS
N BENTHIC ORGANISMS
N FISH

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314 W 15th St. Suite 300, Vancouver, WA 98660
Ph(360) 703-6079

DATE: 11-26-18
DWN: JH
CHK: BP
APPROVED: DB
PRJ. MGR: DB
PROJECT NO: 2017-055

FIGURE 6
CONCEPTUAL SITE MODEL

JH KELLY
821 THIRD AVENUE
LONGVIEW, WASHINGTON

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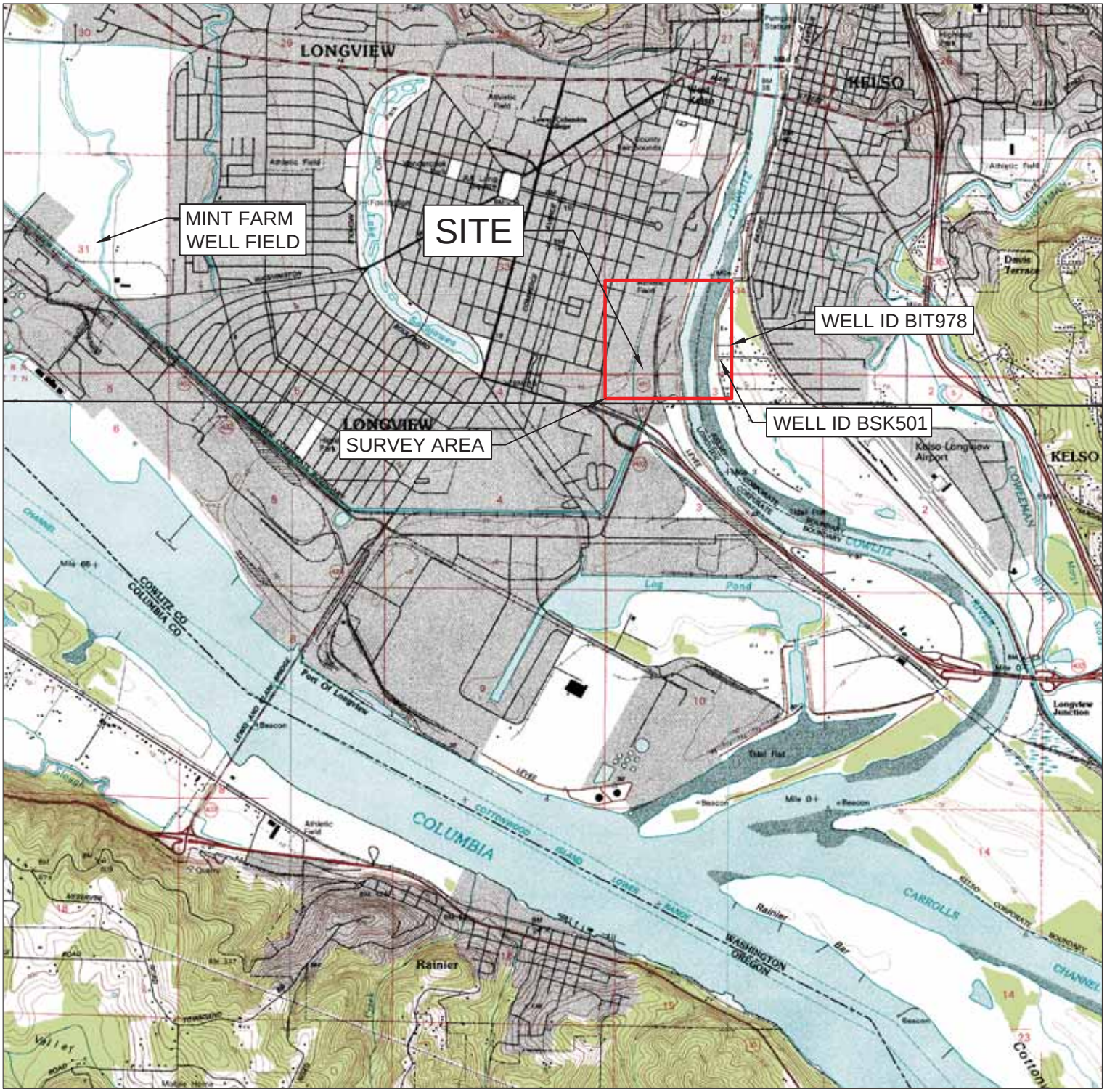

NOTE(S):

1. USGS, RAINIER, OREGON AND KELSO, WASHINGTON QUADRANGLES 7.5 MINUTE SERIES (TOPOGRAPHIC)

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SCALE IN FEET
1" = 2000'

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314 W 15th St Suite 300, Vancouver, WA
Ph: (360) 706-6079

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DWN: JH
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PROJECT NO: 2017-055

FIGURE 7
DRINKING WATER SUPPLY WELL SURVEY

JH KELLY
821 THIRD AVENUE
LONGVIEW, WASHINGTON

7TH AVENUE

SEVENTH AVENUE PARK

DRAINAGE DITCH #5

3RD AVENUE

FORMER KEMIRA FACILITY

COWLITZ RIVER

6.3 ACRES OF UNDEVELOPED LAND

JH KELLY SHOP

FORMER UST EXCAVATION

JH KELLY OFFICES

POND

FORD DEALERSHIP

LEGEND

- PROPERTY BOUNDARY
- FORMER UST EXCAVATION
- 500-FOOT RADIUS
- MW01 — MONITORING WELL

N

W E

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0 150 300

SCALE IN FEET
1" = 150'

Hydro Con
314 W 15th St. Suite 300, Vancouver, WA 98660
Ph(360) 703-6079

DATE: 10-23-18
DWN: JH
CHK: BP
APPROVED: DB
PRJ. MGR: DB
PROJECT NO: 2017-055

FIGURE 8
TERRESTRIAL ECOLOGICAL EVALUATION

JH KELLY
821 THIRD AVENUE
LONGVIEW, WASHINGTON

S:\2017 Projects\2017-055 JH Kelly Phase II ESA\CAD\2017-055.dwg

Table 1
JH Kelly Soil Analytical Results
821 3rd Aveneue, Longview, WA

			Fuels			Volatiles								Metal
			DRPH	ORPH	GRPH	Benzene	Toluene	Ethylbenzene	Xylene, Total	EDB	EDC	MTBE		Lead, Total
Sample ID	Depth in ft bgs	Date	Results in mg/kg											
HC01-10	10	10/11/2017	<238	621 S-05	<6.25	<0.0125	<0.0625	<0.0313	<0.0938	<0.00250	<0.0313	<0.0625		81.6
HC02-10	10	10/11/2017	<50	65.2	<5.60	<0.0112	<0.0560	<0.0280	<0.0840	-	-	-		84.2
HC03-10	10	10/11/2017	<50	<250	<7.50	<0.0150	<0.0750	<0.0375	<0.112	-	-	-		70.3
HC04-10	10	10/11/2017	<50	<250	<6.44	<0.0129	<0.0644	<0.0322	<0.0967	-	-	-		78.9
HC05-10	10	10/11/2017	<50	<250	<6.11	<0.0122	<0.0611	<0.0306	<0.0917	-	-	-		84.7
HC06-11	11	12/11/2017	<26.7	<53.4	<7.54	<0.0151	<0.0754	<0.0377	<0.113	-	-	-		-
HC07-11	11	12/11/2017	<246	629	21.3	<0.0121	<0.0603	<0.0302	<0.0905	-	-	-		-
HC08-10	10	12/12/2017	<25	298	<6.62	<0.0132	<0.0662	<0.0331	<0.0905	-	-	-		-
HC09-11	11	12/12/2017	<26.3	190 F-03	<6.68	<0.0134	<0.0668	<0.0334	<0.100	-	-	-		-
MTCA Method A Cleanup Levels			**2,000**	**2,000**	**30/100**	**0.03**	**7**	**6**	**9**	**0.005**	**NE**	**0.1**		**250**
Table 749-2 Ecological Cleanup Levels			**460**	-	**200**	-	-	-	-	-	-	-		**220**

Notes

Red denotes concentration exceeds MTCA Method A cleanup level.

MTCA Method A Cleanup Levels, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, revised November 2007.

GRPH analyzed by Method NWTPH-Gx.

DRPH and ORPH analyzed by Method NWTPH-Dx.

Volatiles analyzed by EPA 8260B, 8260C or 8021B.

Metals analyzed by EPA Method 6010B, 6010C or 200.8.

ec - Method reporting limit exceeds Clean Up Level shown.

s-05 Surrogate recovery is estimated do to sample dilution required for high analyite concentration and / or matrix interference.

F-03 The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representataive of the fuel pattern reported.

Table 2
JH Kelly Groundwater Analytical Results
821 3rd Aveneue, Longview, WA

		Fuels			Volatiles							Metal
		DRPH	ORPH	GRPH	Benzene	Ethylbenzene	Toluene	Xylene, Total	EDB	EDC	MTBE	Lead, Total
		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
WA Method A Cleanup		**500**	**500**	**800|1,000**	**5**	**700**	**1,000**	**1**	**0.01**	**5**	**20**	**15**
Benzene (Non Detect)				**1,000**								
Benzene (Detect)				**800**								
Sample ID	**Date**											
HydroCon Subsurface Investigation 2017												
HC01-10	10/11/2017	**538** F13	<151	<100	<0.200	<0.500	<1.0	<1.50	-	-	8.68	-
HC02-10	10/11/2017	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	-	-	2.06	-
HC03-10	10/11/2017	**636** F11	<151	<100	<0.200	<0.500	1.56	<1.50	-	-	6.55	-
HC04-10	10/11/2017	**1,370** F13	<151	<100	<0.200	<0.500	<1.0	<1.50	<0.0200	<0.500	**35.5**	7.78
HC05-10	10/11/2017	<75.5	222 F13	<100	<0.200	<0.500	<1.0	<1.50	-	-	1.43	-

Notes

Red denotes concentration exceeds MTCA Method A cleanup level.

MTCA Method A Cleanup Levels, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, revised November 2007.

GRPH analyzed by Method NWTPH-Gx.

DRPH and ORPH analyzed by Method NWTPH-Dx.

Volatiles analyzed by EPA 8260B, 8260C or 8021B.

Metals analyzed by EPA Method 6010B, 6010C or 200.8.

ec - Method reporting limit exceeds Clean Up Level shown.

F11 - The hydrocarbon pattern indicates possible weathered diesel, or a contribution from a related component.

F13 - The sample chromatographic pattern does not resemble the fuel standard used for quanititation.

s-05 Surrogate recovery is estimated do to sample dilution required for high analyite concentration and / or matrix interference.

- = not measured/not analyzed

< = not detected at a concentration exceeding the laboratory reporting limit

mg/kg = milligrams per kilogram

DRPH = Diesel Range Petroleum Hydrocarbons

EDB = 1,2-dibromoethane (ethylene dibromide)

EDC = 1,2-dichloroethylene (ethylene dichloride)

EPA = U.S. Environmental Protection Agency

GRPH = Gasoline Range Petroleum Hydrocarbons

MTBE = methyl tertiary-butyl ether

MTCA = Washington State Model Toxics Control Act

NWVPH = Northwest Volatile Petroleum Hydrocarbons

ORPH = Oil Range Petroleum Hydrocarbons

Table 3
JH Kelly Groundwater Analytical Results
821 3rd Aveneue, Longview, WA

		Measurements			Fuels			Volatiles							Metals
Well ID	Date Sampled	Top of Casing	Depth to Groundwater	Groundwater Elevation	DRPH	ORPH	GRPH	Benzene	Ethylbenzene	Toluene	Xylene, Total	MTBE	EDB	EDC	Lead
		Feet	Feet	Feet	Results in µg/L										
MW01	12/18/17	17.64	7.54	10.10	**851**	<151	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	3/5/18		7.41	10.23	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	5/10/18		7.20	10.44	239	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	8/9/18		9.46	8.18	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	<0.500	<0.400	<0.200
	11/7/18		8.54	9.10	<74.8	<150	-	-	-	-	-	-	-	-	-
MW02	12/18/17	17.02	7.04	9.98	375	<150	117	<0.200	<0.500	<1.0	<1.50	3.21	-	-	-
	3/5/18		6.81	10.21	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	5/10/18		6.75	10.27	166	<150	<100	<0.200	<0.500	<1.0	<1.50	3.34	-	-	-
	8/9/18		8.93	8.09	83.3	<150	<100	<0.200	<0.500	<1.0	<1.50	**22.0**	<0.500	<0.400	0.745
	8/21/18		8.96	8.06	-	-	-	-	-	-	-	2.4	-	-	-
	11/7/18		7.92	9.10	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	1.42	-	-	-
MW03	12/18/17	16.31	6.40	9.91	416	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	3/5/18		6.18	10.13	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	5/10/18		6.08	10.23	183	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	8/9/18		8.26	8.05	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	<0.500	<0.400	<0.200
	11/7/18		7.20	9.11	-	-	-	-	-	-	-	-	-	-	-
MW04	12/18/17	17.03	6.53	10.50	<74.8	179	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	3/5/18		4.42	12.61	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	5/10/18		5.32	11.71	75.9	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	8/9/18		8.57	8.46	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0	<0.500	<0.400	3.54
	11/7/18		6.93	10.10	-	-	-	-	-	-	-	-	-	-	-
MTCA Method A Groundwater CULs					**500**	**500**	**800**	**5**	**700**	**1,000**	**1,000**	**20**	**0.01**	**5**	**15**

Notes

Red denotes concentration exceeds MTCA Method A cleanup level.

MTCA Method A Cleanup Levels, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, revised November 2007.

GRPH analyzed by Method NWTPH-Gx.

DRPH and ORPH analyzed by Method NWTPH-Dx.

Volatiles analyzed by EPA 8260B, 8260C or 8021B.

Lead Analysis by EPA Method 6020

- = not measured/not analyzed

< = not detected at a concentration exceeding the laboratory reporting limit

µg/L = micrograms per liter

DRPH = Diesel Range Petroleum Hydrocarbons

ORPH = Oil Range Petroleum Hydrocarbons

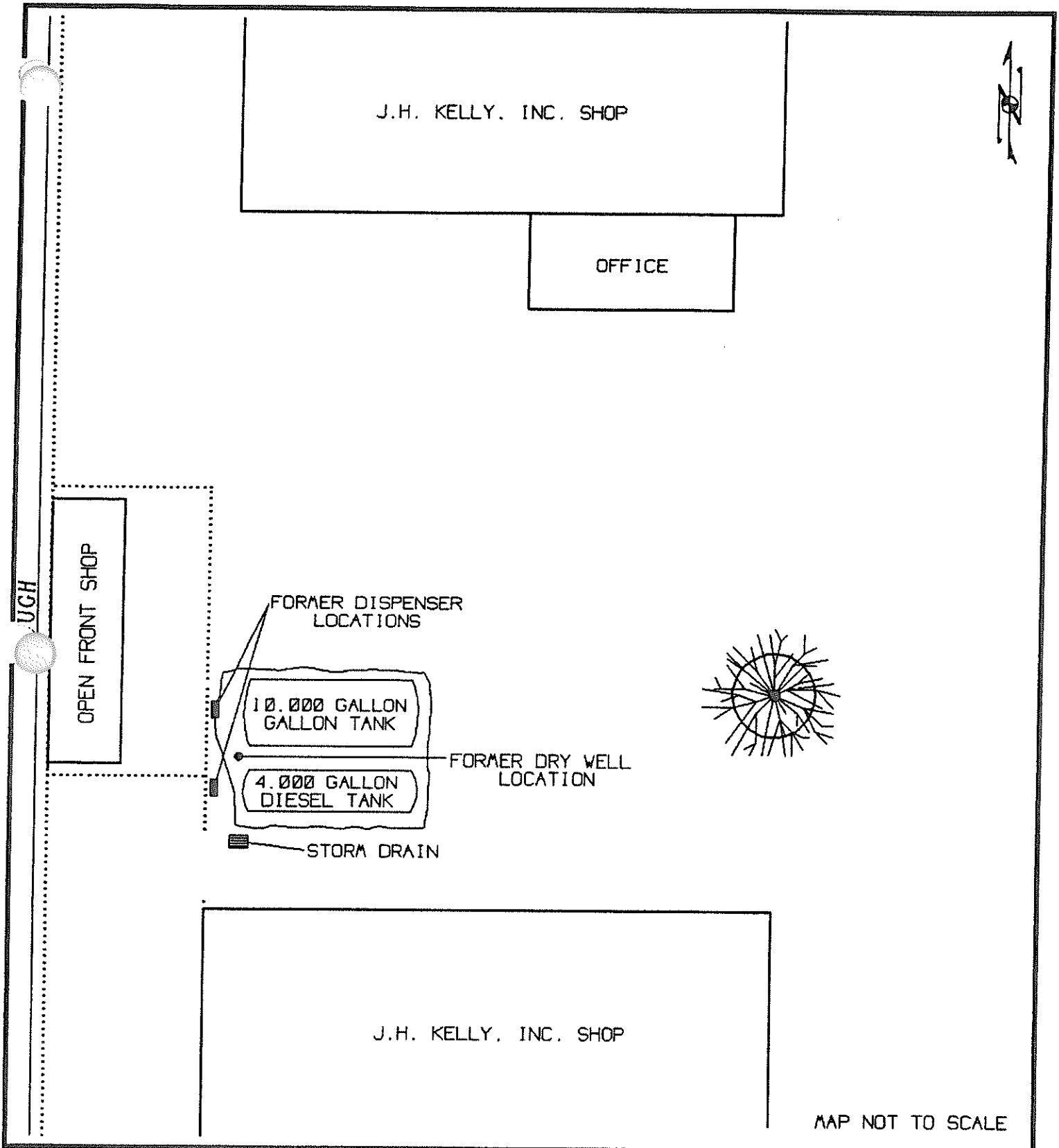
GRPH = Gasoline Range Petroleum Hydrocarbons

MTBE = methyl tertiary-butyl ether

EDB= 1,2-Dibromoethane

EDC= 1,2-Dichloroethane

APPENDIX A
HISTORIC DATA AND FIGURES

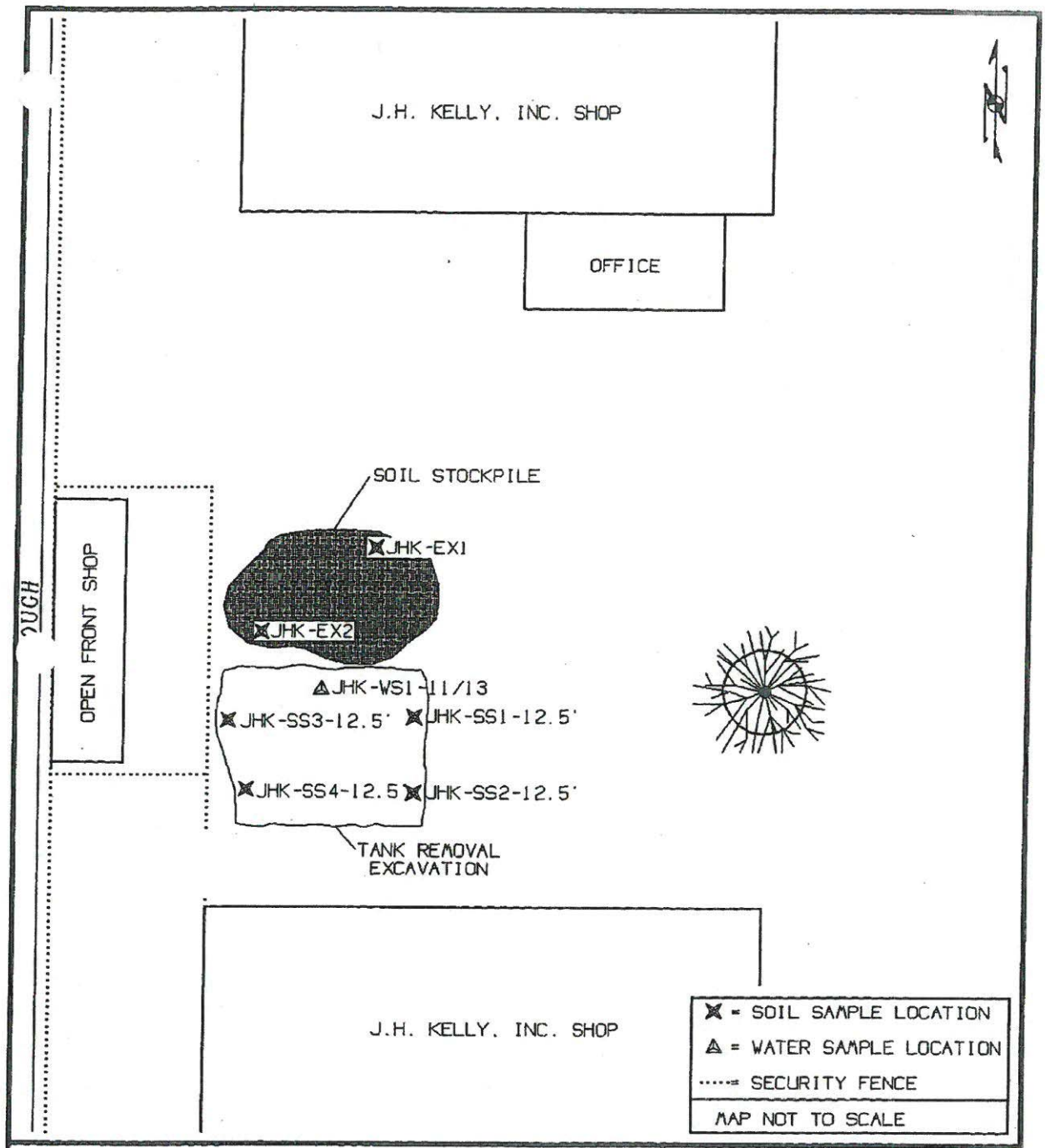


J.H. KELLY. INC.
21 THIRD AVENUE
LONGVIE WASHINGTON 98632

FIGURE 2

SITE FACILTY MAP

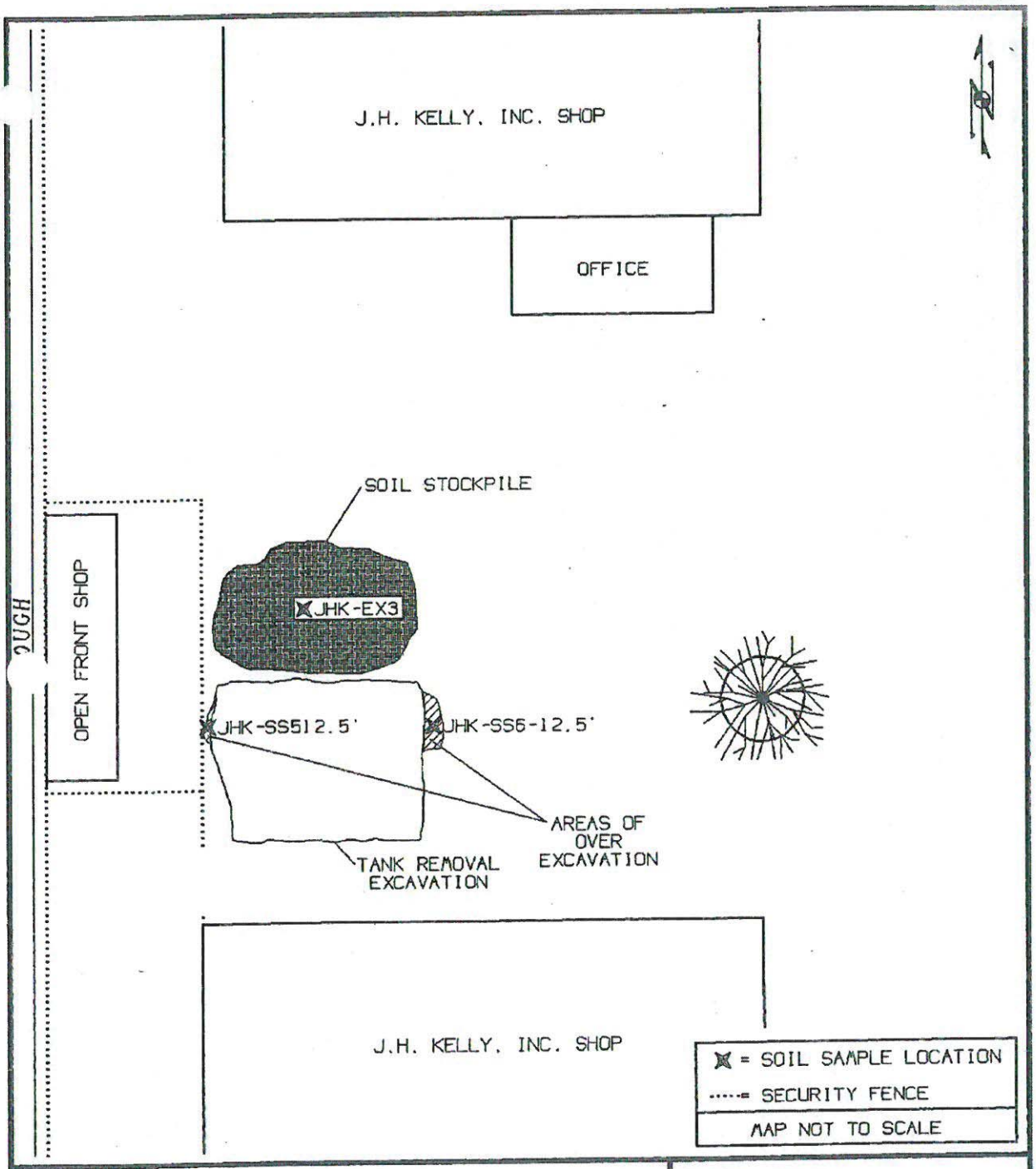
PACIFIC NORTHERN ENVIRONMENTAL



J.H. KELLY, INC.
21 THIRD AVENUE
LONGVIE WASHINGTON 98632

FIGURE 3
11/13/91
SAMPLE LOCATIONS

PACIFIC NORTHERN ENVIRONMENTAL



J.H. KELLY, INC.
21 THIRD AVENUE
LONGVIE WASHINGTON 98632

FIGURE 4

11/22/91
SAMPLE LOCATIONS

PACIFIC NORTHERN ENVIRONMENTAL

Tables

Table 1
Soil Analytical Results for
Excavation Confirmation Samples

	Units	Method A CUL [1991]	Method A CUL [Current]	Sample ID: JHK-SS1-12.5'	JHK-SS6-12.5' (SS1 Over Excavation)	JHK-SS2-12.5'	JHK-SS3-12.5'	JHK-SS5-12.5' (SS3 Over Excavation)	JHK-SS4-12.5'
TPH-D	mg/Kg	200	2,000	<10	--	<10	<10	<10	<10
TPH-G	mg/Kg	100	30	<10	--	<10	<10	<10	<10
TPH-O	mg/Kg	200	2,000	**70**	--	**130**	**480**	**70**	**140**
Benzene	mg/Kg	0.5	0.03	**1.10**	<0.05	--	**0.14**	--	--
Toluene	mg/Kg	40	7	<0.10	<0.05	--	<0.05	--	--
Ethylbenzene	mg/Kg	20	6	<0.10	<0.05	--	<0.05	--	--
Xylenes	mg/Kg	20	9	<0.10	<0.05	--	**0.07**	--	--

Orange — Indicates a result in exceedance of the 1991 MTCA Method A CUL, but below the current MTCA Method A CUL

Red — Indicates a result in exceedance of the current MTCA Method A CUL

Bold — Indicates a result above the laboratory detection limit

-- — Analyte Not Analyzed

Table 2 A

Groundwater Monitoring Analytical Results

	Units	Method A CUL [Current]	Monitoring Well (12/10/91)	Monitoring Well (05/14/92)	Monitoring Well (06/30/93)	Monitoring Well (04/04/96)	Monitoring Well (04/27/06)	Monitoring Well (04/12/16)	Monitoring Well (07/11/16)
TPH-G	µg/L	1,000/800	**1,010**	<50	<1,000	<50	<250	--	--
TPH-D	µg/L	500	<50	<50	**270,000 (b)**	<50	--	--	--
TPH-O	µg/L	500	**3,340**	<50	NR	NR	--	--	--
Other* (TPH)	µg/L	NR	**NR**	NR	**6,000**	**279 (b)**	--	--	--
Benzene	µg/L	5	**30**	**11.1**	**3.7**	<0.5	<0.50	<0.50	<0.50
Toluene	µg/L	1,000	**30**	<1	<1	<1	<1.0	<0.50	<0.50
Ethylbenzene	µg/L	700	**16**	**12**	**1**	<1	<1.0	<0.50	<0.50
Xylenes	µg/L	1,000	**200**	**37**	**1**	<1	<1.0	<0.50	<0.50

Red	Indicates a result in exceedance of the current MTCA Method A CUL
Bold	Indicates a result above the laboratory detection limit
(b)	Quantified as diesel. The Sample contained components that eluted in the diesel range, but the chromatogram did not match the typical diesel fingerprint
*	'Other' is not defined in the laboratory reports
NR	TPH in this range was not reported in the laboratory results
--	Analyte Not Analyzed

APPENDIX B
DOMESTIC WELL LOGS

WATER WELL REPORT

Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller

Construction/Decommission ("x" in circle)
[X] Construction
[ ] Decommission *ORIGINAL INSTALLATION*
Notice of Intent Number _____

PROPOSED USE: [X] Domestic [ ] Industrial [ ] Municipal [ ] DeWater [ ] Irrigation [ ] Test Well [ ] Other _____

TYPE OF WORK: Owner's number of well (if more than one) _____
[X] New well [ ] Reconditioned *Method:* [ ] Dug [ ] Bored [X] Driven [ ] Deepened [ ] Cable [ ] Rotary [ ] Jetted

DIMENSIONS: Diameter of well 1.25 inches, drilled 19'6" ft.
Depth of completed well 19'6" ft.

CONSTRUCTION DETAILS
Casing installed: [ ] Welded _____ " Diam. from _____ ft. to _____ ft.
[ ] Liner installed _____ " Diam. from _____ ft. to _____ ft.
[X] Threaded 1 1/4 " Diam. From +9" ft. to 16 ft.

Perforations: [ ] Yes [X] No
Type of perforator used _____
SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: [X] Yes [ ] No [ ] K-Pac Location _____
Manufacturer's Name ALLOY MACHINE WORKS
Type _____ Model No. S.S. 304
Diam. 1 1/4 Slot size 12 from 16 ft. to 19'6" ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: [ ] Yes [X] No Size of gravel/sand _____
Materials placed from _____ ft. to _____ ft.

Surface Seal: [X] Yes [ ] No To what depth? 8 ft.
Material used in seal BENTONITE
Did any strata contain unusable water? [ ] Yes [X] No
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

PUMP: Manufacturer's Name _____
Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level 9.4 ft. below top of well Date 06-23-2017
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? [X] Yes [ ] No If yes, by whom? AARON BUTORAC
Yield: 54 gal./min. with 19'6" ft. drawdown after 1 hrs.
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer Test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? [ ] Yes [X] No

CURRENT
Notice of Intent No. WE28076
Unique Ecology Well ID Tag No. BKS501
Water Right Permit No. _____
Property Owner Name MIKE BREWSTER
Well Street Address 1806 S RIVER ROAD
City KELSO County COWLITZ
Location SW 1/4-1/4 SE 1/4 Sec 34 Twn 8N R 2W EWM [ ] Ch or WWM [ ] On
(s, t, r Still REQUIRED)

Lat/Long Lat Deg _____ Lat Min/Sec _____
Long Deg _____ Long Min/Sec _____

Tax Parcel No. (Required) 23219

CONSTRUCTION OR DECOMMISSION PROCEDURE
Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
TOP SOIL	0	2
SILTY SAND BROWN	2	6
SILTY SAND BROWN-GRAY	6	9
SAND GREY	9	19'6"

RECEIVED
JUN 30 2017
WA State Department of Ecology (SWRO)

Start Date 06-26-2017 Completed Date 06-26-2017

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

[X] Driller [ ] Engineer [ ] Trainee Name (Print) GLENN WILKERSON
Driller/Engineer/Trainee Signature _____
Driller or trainee License No. 2268
IF TRAINEE: Driller's License No: _____
Driller's Signature: Glenn Wilkerson

Drilling Company Dale McGhee & Sons Well Drilling, Inc.
Address 4409 Pleasant Hill Road
City, State, Zip Kelso , WA , 98626
Contractor's Registration No. DALEMI*212MC Date 06-27-2017

ECY 050-1-20 (Rev 06/08) *If you need this document in an alternate format, please call the Water Resources Program at 360-407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.*

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

Construction/Decommission *("x" in circle)*

(X) Construction

( ) Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

CURRENT
Notice of Intent No. W358067
Unique Ecology Well ID Tag No. Bit 978
Water Right Permit No. _____
Property Owner Name Larry Lapp
Well Street Address 118 Olive St.
City Kelso County Cowlitz
Location S/E 1/4-1/4 S/W 1/4 Sec 34 Twn 8N R 2 EWM or WWM (circle one)
Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____
Long Deg _____ Long Min/Sec _____
Tax Parcel No. 23214

PROPOSED USE: (X) Domestic ( ) Industrial ( ) Municipal ( ) DeWater ( ) Irrigation ( ) Test Well ( ) Other _____

TYPE OF WORK: Owner's number of well (if more than one) _____
(X) New well ( ) Reconditioned *Method:* ( ) Dug ( ) Bored (X) Driven ( ) Deepened ( ) Cable ( ) Rotary ( ) Jetted

DIMENSIONS: Diameter of well 1¼ inches, drilled 23 ft.
Depth of completed well 23 ft.

CONSTRUCTION DETAILS
Casing Installed: ( ) Welded _____" Diam. from _____ ft. to _____ ft.
( ) Liner installed _____" Diam. from _____ ft. to _____ ft.
(X) Threaded 1¼" Diam. from +1 ft. to 23 ft.

Perforations: ( ) Yes (X) No
Type of perforator used _____
SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: (X) Yes ( ) No ( ) K-Pac Location _____
Manufacturer's Name Campbell
Type Well Point Model No. _____
Diam. 1¼ Slot size 60 Gauze from 20 ft. to 23 ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ( ) Yes (X) No ( ) Size of gravel/sand _____
Materials placed from _____ ft. to _____ ft.

Surface Seal: (X) Yes ( ) No To what depth? 8 ft.
Material used in seal Bentonite
Did any strata contain unusable water? ( ) Yes (X) No
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

PUMP: Manufacturer's Name Flint + Walling
Type: EK10S H.P. 1

WATER LEVELS: Land-surface elevation above mean sea level 10 ft.
Static level 16 ft. below top of well Date 3-21-16
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? ( ) Yes (X) No If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 3-21-16
Bailer test 10 gal./min. with 1 ft. drawdown after 2 hrs.
Airtest 4 gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water 51 Was a chemical analysis made? ( ) Yes (X) No

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Top Soil	0	2
Grey Sand "Fine"	2	4
Brown Clay	4	11
Sand Grey "Fine"	11	16
Grey Sand "Coarse"	16	23

RECEIVED
MAR 29 2016
WA State Department of Ecology (SWRO)

Start Date 3-21-16 Completed Date 3-21-16

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

(X) Driller ( ) Engineer ( ) Trainee Name (Print) Lonnie Bopp
Driller/Engineer/Trainee Signature _____
Driller or trainee License No. 1785

Drilling Company IRA Bopp Pump & Well Drilling
Address 2110 South Pacific Avenue
City, State, Zip Kelso, Washington 98626
Contractor's Registration No. IRABopWlo*14 Date 3-21-16

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05)

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

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

APPENDIX C
TERRESTRIAL ECOLOGICAL EVALUATION

Voluntary Cleanup Program

Washington State Department of Ecology
Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

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

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

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

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

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

Step 1: IDENTIFY HAZARDOUS WASTE SITE	
Please identify below the hazardous waste site for which you are documenting an evaluation.	
Facility/Site Name: JH Kelly	
Facility/Site Address: 821 3rd Avenue, Longview WA	
Facility/Site No: 74552527	VCP Project No.: SW1529

Step 2: IDENTIFY EVALUATOR			
Please identify below the person who conducted the evaluation and their contact information.			
Name: Brian Pletcher		Title: Project Manager	
Organization: HydroCon Environmental LLC			
Mailing address: 314 W 15th Street, Suite 300			
City: Vancouver	State: WA	Zip code: 98660	
Phone: 360.719.0682	Fax:	E-mail: bpletcher@hydroconllc.net	

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

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

☐ Yes *If you answered **"YES,"** then answer **Question 2**.*

☒ No or Unknown *If you answered **"NO" or "UKNOWN,"** then skip to **Step 3B** of this form.*

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

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

☐ All soil contamination is, or will be,* at least 15 feet below the surface.

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

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

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

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

☐ There is less than 0.25 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.

☐ For sites not containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site.

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

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

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

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

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

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No or Unknown *If you answered **"NO"** or **"UNKNOWN,"** then skip to **Step 3C** of this form.*

2. Did you conduct a simplified evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 3** below.*

☐ No *If you answered **"NO,"** then skip to **Step 3C** of this form.*

3. Was further evaluation necessary?

☒ Yes *If you answered **"YES,"** then answer **Question 4** below.*

☐ No *If you answered **"NO,"** then answer **Question 5** below.*

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

☒ Used the concentrations listed in Table 749-2 as cleanup levels. *If so, then skip to **Step 4** of this form.*

☐ Conducted a site-specific evaluation. *If so, then skip to **Step 3C** of this form.*

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

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

☐ Area of soil contamination at the Site is not more than 350 square feet.

☐ Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.

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

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

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

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations that exceed the values listed in Table 749-2, and institutional controls are used to manage remaining contamination.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays.

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

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

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

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No *If you answered **"NO,"** then identify the reason here and then skip to **Question 5** below:*

- ☐ No issues were identified during the problem formulation step.
- ☐ While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

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

☐ Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*

☐ Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use?
Check all that apply. See WAC 173-340-7493(3).

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

4. What was the result of those evaluations?

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

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

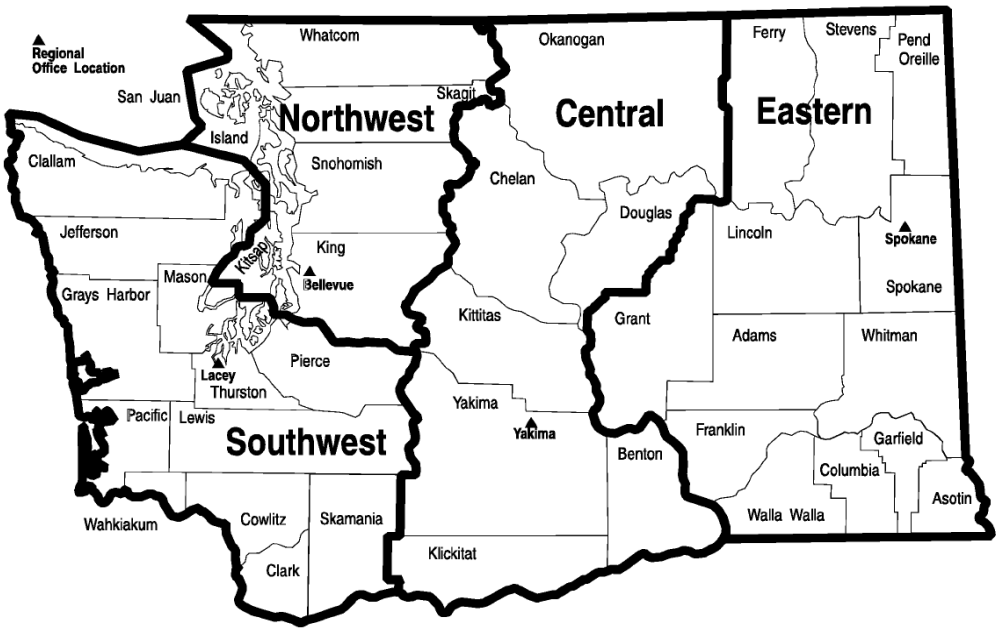
☐ Yes If so, please identify the Ecology staff who approved those steps:

☐ No

Step 4: SUBMITTAL

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

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



APPENDIX D
FIELD FORMS

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW01

Project Name:. JH Kelly
Hydrocon Project #: 2017-055
Date 11/7/18

Sample I.D. MW01-W Time: 1320
Field Duplicate I.D. - Time: -
Personnel: CD

WELL INFORMATION

Monument condition: ☒ Good ☐ Needs repair _____ ☒ Water in Monument
Well cap condition: ☒ Good ☐ Replaced ☐ Needs replacement ☐ Surface Water in Well
Headspace reading: ☒ Not measured _____ ppm ☐ Odor _____
Well diameter: ☒ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other _____
Comments _____

PURGING INFORMATION

Total well depth 19.71 ft Bottom: ☐ Hard ☐ Soft ☒ Not measured Screen Interval(s): 5-20'
Depth to product - ft
Depth to water 8.54 ft Intake Depth (BTOC) 12' Begin Purging Well: 1257
Casing volume 11.17 ft (H_2O) X 0.16 gal/ft = 1.79 gal. X 3 = 5.37 gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type ☒ Peristaltic ☐ Centrifugal ☐ Dedicated Bladder ☐ Non-Dedicated Bladder Other _____
Bailer type: _____ Water Disposal:: ☒ Drummed ☐ Remediation System ☐ Other _____

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1300	8.57		16.2	0.361	0.85	6.32	177.9	22.1
1303	8.56	0.120	16.3	0.356	0.47	6.41	71.6	13.5
1306	8.56		16.1	0.354	0.32	6.55	32.3	11.4
1309	8.56		15.8	0.354	0.28	6.58	19.0	9.19
1312	8.56		15.8	0.354	0.24	6.62	10.9	8.88
1315	8.56		15.7	0.351	0.23	6.58	7.7	6.78
		Sample @ 1320						

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity or Dissolved Oxygen are recorded within their perspective stabilization criteria. A minimum of six measurements should be recorded.
Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
1 L amber	1	HCl	(No) 0.45 0.10	Dx
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW02

Project Name: JH Kelly
Hydrocon Project #: 2017-055
Date: 11/7/18

Sample I.D.: MW02-W Time: 1220
Field Duplicate I.D.: - Time: --
Personnel: CD

WELL INFORMATION

Monument condition: ☒ Good ☐ Needs repair _____ ☒ Water in Monument
Well cap condition: ☒ Good ☐ Replaced ☐ Needs replacement ☐ Surface Water in Well
Headspace reading: ☒ Not measured _____ ppm ☐ Odor _____
Well diameter: ☒ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other _____
Comments _____

PURGING INFORMATION

Total well depth 19.63 ft Bottom: ☐ Hard ☐ Soft ☒ Not measured Screen Interval(s): 5-20'
Depth to product - ft
Depth to water 7.92 ft Intake Depth (BTOC) 12' Begin Purging Well: 1201
Casing volume 11.71 ft (H_2O) X 0.16 gal/ft = 1.87 gal. X 3 = 5.62 gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type ☒ Peristaltic ☐ Centrifugal ☐ Dedicated Bladder ☐ Non-Dedicated Bladder Other _____
Bailer type: _____ Water Disposal:: ☒ Drummed ☐ Remediation System ☐ Other _____

FIELD PARAMETERS

Odor and/or Sheen: Faint organic odor

Time	Water Level (BTOC)	Purge Rate (L/min)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1203	7.93		17.2	0.431	2.27	5.89	236.4	24.7
1206	7.94	0.135	17.1	0.411	0.42	6.97	41.9	17.5
1209	7.95		16.8	0.400	0.31	6.91	-0.5	12.7
1212	7.96		16.7	0.392	0.26	6.97	-15.5	10.1
1215	7.96		16.5	0.386	0.23	6.94	-18.5	9.13
1218	7.97		16.2	0.379	0.22	6.90	-22.1	9.61
			Sample @ 1220					

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity or Dissolved Oxygen are recorded within their perspective stabilization criteria. A minimum of six measurements should be recorded.
Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40 ml VOA	3	HCl	(No) 0.45 0.10	Gx, BTEX, MTBE
1 L amber	1	HCl	(No) 0.45 0.10	DX
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____

APPENDIX E
LABORATORY REPORT AND CHAIN-OF-CUSTODY DOCUMENTATION

Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Tuesday, November 13, 2018

Brian Pletcher
HydroCon LLC
314 W 15th Street Suite 300
Vancouver, WA 98660

RE: A8K0245 - JH Kelly - 2017-055

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A8K0245, which was received by the laboratory on 11/7/2018 at 2:50:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: ldomenighini@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of final reporting, unless prior arrangements have been made.

Cooler Receipt Info (See Cooler Receipt Form for Details)

Cooler #1 2.0 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.
All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

HydroCon LLC	Project: **JH Kelly**	
314 W 15th Street Suite 300	Project Number: **2017-055**	**Report ID:**
Vancouver, WA 98660	Project Manager: **Brian Pletcher**	**A8K0245 - 11 13 18 0915**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01-W	A8K0245-01	Water	11/07/18 13:20	11/07/18 14:50
MW02-W	A8K0245-02	Water	11/07/18 12:20	11/07/18 14:50

Apex Laboratories

Lisa Domenighini, Client Services Manager

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Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

HydroCon LLC	Project: **JH Kelly**	
314 W 15th Street Suite 300	Project Number: **2017-055**	**Report ID:**
Vancouver, WA 98660	Project Manager: **Brian Pletcher**	**A8K0245 - 11 13 18 0915**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW01-W (A8K0245-01)				**Matrix: Water**		**Batch: 8110699**		
Diesel	ND	---	74.8	ug/L	1	11/09/18	NWTPH-Dx	
Oil	ND	---	150	ug/L	1	11/09/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 84 %*	*Limits: 50-150 %*		*1*	*11/09/18*	*NWTPH-Dx*	
MW02-W (A8K0245-02)				**Matrix: Water**		**Batch: 8110699**		
Diesel	ND	---	74.8	ug/L	1	11/10/18	NWTPH-Dx	
Oil	ND	---	150	ug/L	1	11/10/18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 92 %*	*Limits: 50-150 %*		*1*	*11/10/18*	*NWTPH-Dx*	

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Apex Laboratories, LLC

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503-718-2323
EPA ID: OR01039

HydroCon LLC	Project: **JH Kelly**	
314 W 15th Street Suite 300	Project Number: **2017-055**	**Report ID:**
Vancouver, WA 98660	Project Manager: **Brian Pletcher**	**A8K0245 - 11 13 18 0915**

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW02-W (A8K0245-02)				**Matrix: Water**			**Batch: 8110496**	
Gasoline Range Organics	ND	---	100	ug/L	1	11/07/18	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		*Recovery:*	*105 %*	*Limits: 50-150 %*	*1*	*11/07/18*	*NWTPH-Gx (MS)*	
1,4-Difluorobenzene (Sur)			*104 %*	*50-150 %*	*1*	*11/07/18*	*NWTPH-Gx (MS)*	

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Apex Laboratories, LLC

12232 S.W. Garden Place
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EPA ID: OR01039

HydroCon LLC	Project: **JH Kelly**	
314 W 15th Street Suite 300	Project Number: **2017-055**	**Report ID:**
Vancouver, WA 98660	Project Manager: **Brian Pletcher**	**A8K0245 - 11 13 18 0915**

ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW02-W (A8K0245-02)				**Matrix: Water**			**Batch: 8110496**	
Benzene	ND	---	0.200	ug/L	1	11/07/18	EPA 8260C	
Ethylbenzene	ND	---	0.500	ug/L	1	11/07/18	EPA 8260C	
Methyl tert-butyl ether (MTBE)	**1.42**	---	1.00	ug/L	1	11/07/18	EPA 8260C	
Toluene	ND	---	1.00	ug/L	1	11/07/18	EPA 8260C	
Xylenes, total	ND	---	1.50	ug/L	1	11/07/18	EPA 8260C	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery: 105 %*		*Limits: 80-120 %*	*1*	*11/07/18*	*EPA 8260C*	
Toluene-d8 (Surr)			*99 %*	*80-120 %*	*1*	*11/07/18*	*EPA 8260C*	
4-Bromofluorobenzene (Surr)			*94 %*	*80-120 %*	*1*	*11/07/18*	*EPA 8260C*	

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Lisa Domenighini, Client Services Manager

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Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

HydroCon LLC	Project: **JH Kelly**	
314 W 15th Street Suite 300	Project Number: **2017-055**	**Report ID:**
Vancouver, WA 98660	Project Manager: **Brian Pletcher**	**A8K0245 - 11 13 18 0915**

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8110699 - EPA 3510C (Fuels/Acid Ext.)												**Water**
Blank (8110699-BLK1)			Prepared: 11/09/18 11:15		Analyzed: 11/09/18 21:02							
NWTPH-Dx												
Diesel	ND	---	72.7	ug/L	1	---	---	---	---	---	---	
Oil	ND	---	145	ug/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 96 %*		*Limits: 50-150 %*		*Dilution: 1x*					
LCS (8110699-BS1)			Prepared: 11/09/18 11:15		Analyzed: 11/09/18 21:23							
NWTPH-Dx												
Diesel	448	---	80.0	ug/L	1	500	---	90	52-120%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 97 %*		*Limits: 50-150 %*		*Dilution: 1x*					
LCS Dup (8110699-BSD1)			Prepared: 11/09/18 11:15		Analyzed: 11/09/18 21:45							**Q-19**
NWTPH-Dx												
Diesel	445	---	80.0	ug/L	1	500	---	89	52-120%	0.6	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 98 %*		*Limits: 50-150 %*		*Dilution: 1x*					

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Lisa Domenighini, Client Services Manager

Apex Laboratories, LLC

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

HydroCon LLC	Project: **JH Kelly**	
314 W 15th Street Suite 300	Project Number: **2017-055**	**Report ID:**
Vancouver, WA 98660	Project Manager: **Brian Pletcher**	**A8K0245 - 11 13 18 0915**

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8110496 - EPA 5030B									Water			
Blank (8110496-BLK1)		Prepared: 11/07/18 11:55 Analyzed: 11/07/18 13:19										
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	100	ug/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)		*Recovery: 104 %*		*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)		*103 %*		*50-150 %*			*"*					
LCS (8110496-BS2)		Prepared: 11/07/18 11:55 Analyzed: 11/07/18 12:51										
NWTPH-Gx (MS)												
Gasoline Range Organics	524	---	100	ug/L	1	500	---	105	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)		*Recovery: 107 %*		*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)		*104 %*		*50-150 %*			*"*					

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Lisa Domenighini, Client Services Manager

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Apex Laboratories, LLC

12232 S.W. Garden Place
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503-718-2323
EPA ID: OR01039

HydroCon LLC	Project: **JH Kelly**	
314 W 15th Street Suite 300	Project Number: **2017-055**	**Report ID:**
Vancouver, WA 98660	Project Manager: **Brian Pletcher**	**A8K0245 - 11 13 18 0915**

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8110496 - EPA 5030B												**Water**
Blank (8110496-BLK1)		Prepared: 11/07/18 11:55		Analyzed: 11/07/18 13:19								
EPA 8260C												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Xylenes, total	ND	---	1.50	ug/L	1	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)		*Recovery: 104 %*		*Limits: 80-120 %*				*Dilution: 1x*				
Toluene-d8 (Surr)		*100 %*		*80-120 %*				*"*				
4-Bromofluorobenzene (Surr)		*94 %*		*80-120 %*				*"*				
LCS (8110496-BS1)		Prepared: 11/07/18 11:55		Analyzed: 11/07/18 12:23								
EPA 8260C												
Benzene	21.7	---	0.200	ug/L	1	20.0	---	109	80-120%	---	---	
Ethylbenzene	20.2	---	0.500	ug/L	1	20.0	---	101	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	19.0	---	1.00	ug/L	1	20.0	---	95	80-120%	---	---	
Toluene	20.7	---	1.00	ug/L	1	20.0	---	104	80-120%	---	---	
Xylenes, total	60.0	---	1.50	ug/L	1	60.0	---	100	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		*Recovery: 104 %*		*Limits: 80-120 %*				*Dilution: 1x*				
Toluene-d8 (Surr)		*100 %*		*80-120 %*				*"*				
4-Bromofluorobenzene (Surr)		*95 %*		*80-120 %*				*"*				

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Lisa Domenighini, Client Services Manager

Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

HydroCon LLC	Project: **JH Kelly**	
314 W 15th Street Suite 300	Project Number: **2017-055**	**Report ID:**
Vancouver, WA 98660	Project Manager: **Brian Pletcher**	**A8K0245 - 11 13 18 0915**

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8110699							
A8K0245-01	Water	NWTPH-Dx	11/07/18 13:20	11/09/18 11:15	1070mL/2mL	1000mL/2mL	0.94
A8K0245-02	Water	NWTPH-Dx	11/07/18 12:20	11/09/18 11:15	1070mL/2mL	1000mL/2mL	0.94

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8110496							
A8K0245-02	Water	NWTPH-Gx (MS)	11/07/18 12:20	11/07/18 16:37	5mL/5mL	5mL/5mL	1.00

Selected Volatile Organic Compounds by EPA 8260C

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8110496							
A8K0245-02	Water	EPA 8260C	11/07/18 12:20	11/07/18 16:37	5mL/5mL	5mL/5mL	1.00

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

HydroCon LLC	Project: **JH Kelly**	
314 W 15th Street Suite 300	Project Number: **2017-055**	**Report ID:**
Vancouver, WA 98660	Project Manager: **Brian Pletcher**	**A8K0245 - 11 13 18 0915**

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

Q-19 Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

HydroCon LLC	Project: **JH Kelly**	
314 W 15th Street Suite 300	Project Number: **2017-055**	**Report ID:**
Vancouver, WA 98660	Project Manager: **Brian Pletcher**	**A8K0245 - 11 13 18 0915**

REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.

ND Analyte NOT DETECTED at or above the detection or reporting limit.

NR Result Not Reported

RPD Relative Percent Difference

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as " dry", " wet", or " " (blank) designation.

" dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

" wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) are not included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).
-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

HydroCon LLC	Project: **JH Kelly**	
314 W 15th Street Suite 300	Project Number: **2017-055**	**Report ID:**
Vancouver, WA 98660	Project Manager: **Brian Pletcher**	**A8K0245 - 11 13 18 0915**

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the blank results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

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LABORATORY ACCREDITATION INFORMATION

TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.
Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provded by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

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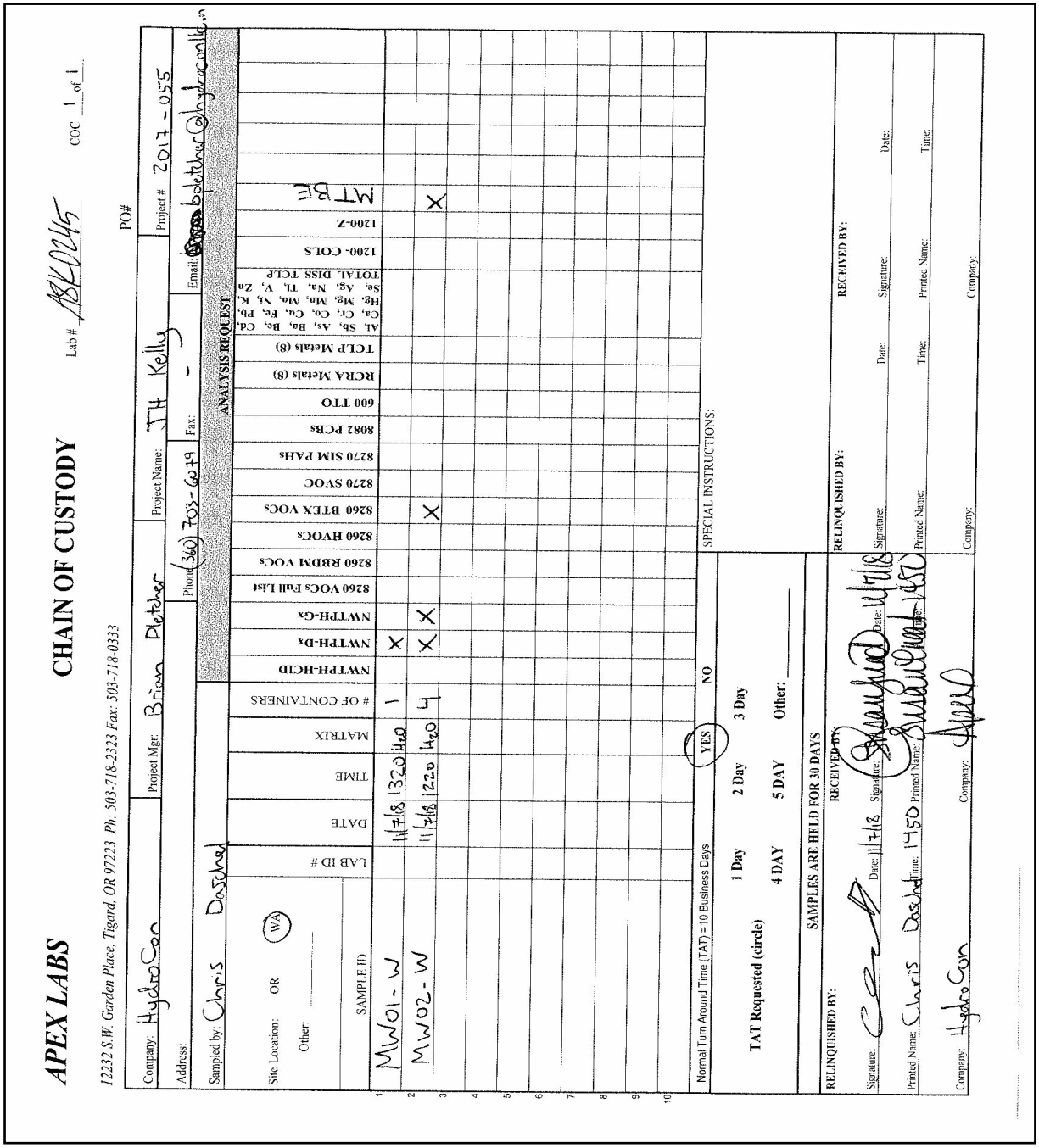

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APEX LABS COOLER RECEIPT FORM

Client: Hydrocon Element WO#: A8 K0245

Project/Project #: JH Kelly / 2017-055

Delivery Info:

Date/time received: 11/7/18 @ 1450 By: SC

Delivered by: Apex ___ Client X ESS ___ FedEx ___ UPS ___ Swift ___ Senvoy ___ SDS ___ Other ___

Cooler Inspection Date/time inspected: 11/7/18 @ 1450 By: SC

Chain of Custody included? Yes X No ___ Custody seals? Yes ___ No X

Signed/dated by client? Yes X No ___

Signed/dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	2.0						
Received on ice? (Y/N)	Y						
Temp. blanks? (Y/N)	Y						
Ice type: (Gel/Real/Other)	Gel						
Condition:	Good						

Cooler out of temp? (Y/N) Possible reason why: ___

If some coolers are in temp and some out, were green dots applied to out of temperature samples? Yes/No/NA

Out of temperature samples form initiated? Yes/No/NA

Samples Inspection: Date/time inspected: 11/7/18 @ 16:05 By: MD

All samples intact? Yes X No ___ Comments: ___

Bottle labels/COCs agree? Yes X No ___ Comments: ___

COC/container discrepancies form initiated? Yes ___ No ___ NA X

Containers/volumes received appropriate for analysis? Yes X No ___ Comments: ___

Do VOA vials have visible headspace? Yes ___ No X NA ___

Comments ___

Water samples: pH checked: Yes X No ___ NA ___ pH appropriate? Yes X No ___ NA ___

Comments: ___

Additional information: ___

Labeled by: LY Witness: NS Cooler Inspected by: SC See Project Contact Form: Y

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager