First Quarter 2018 Groundwater Monitoring Report

JH Kelly
821 3rd Avenue, Longview, WA

Prepared for:
Mr. Mark Fleischauer
JH Kelly Holdings, LLC
Seattle, Washington

April 5, 2018

Prepared by:

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1.0 INTRODUCTION

HydroCon, LLC (HydroCon) is pleased to present this summary of activities performed at the above referenced site shown on Figure 1. This report documents quarterly groundwater monitoring events conducted at the site in March 2018.

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

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. The test pit was located north of the fuel dispenser island and excavated to a depth of 18 feet below ground surface (bgs). Two soil samples were taken from the test pit and were composited by the lab into one sample for analysis. BTEX and TPH (EPA Method 418.1) were analyzed. BTEX constituents were below laboratory detection limits. 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. The soil gas survey was not provided for review.

UST Removal (November 1991)

The USTs were decommissioned in November of 1991 by Pacific Northern Environmental (PNE). 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 as they were removed. A water sample was taken from the excavation pit and

had MTCA Method A cleanup level (CUL) exceedances for 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).

Four soil samples (one sample from each end of the two USTs) were collected from the soil/groundwater interface and analyzed for total petroleum hydrocarbons (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 samples were analyzed for BTEX. One of the samples (JHK-SS5-12.5') had a benzene concentration of 1.10 mg/Kg which exceeded the CUL. A remedial excavation was performed in the areas where ORPH (west end of the UST) and benzene (east end of the USTs) had exceeded their respective CULs. Following remedial excavation activities confirmation samples were collected from the area with the ORPH exceedance (JHK-SS5-12.5'). The confirmation sample had DRPH concentration of 120 mg/Kg and a ORPH concentration of 120 mg/Kg. The confirmation sample taken from the area with the benzene exceedance 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. Therefore, it is unknown whether the remedial excavation was successful at reducing benzene concentrations below the MTCA Method A Cleanup Level.

Groundwater Monitoring (December 1991 to 2006)

Prior to backfilling the remedial excavation, a monitoring well (JHK-MW) was installed in the UST excavation during the week of November 22, 1991. The monitoring well was constructed using 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. The monitoring well location is shown on Figure 2. It should be noted that this well construction does not comply with current Ecology specifications.

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) above their respective CUL. Follow up sampling in May 1992 showed no detectible TPH in the well but showed an exceedance for benzene (11.1 µg/L) above the CUL. The next sampling event in June of 1993 detected an exceedance of DRPH (270,000 µg/L) and a quantity of TPH designated as "Other" that was 6,000 µg/L. The DRPH concentration is reported to be flagged as not matching the typical diesel fingerprint chromatogram. "Other" is not defined in the laboratory report. There is also no oil range results reported for TPH. It is not clear from the report if TPHO was not detected, or not analyzed. None of the BTEX constituents exceeded the CUL.

The sampling event in April 1996 indicated that TPH was below laboratory their respective 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 the laboratory detection limits.

The sampling event in April 2006 included samples collected from JHK-MW and the ditch behind the site. Analytical results indicated that both samples were below their respective laboratory detection limits.

The well was sampled twice in 2016 (April and July). Analytical results indicated that all samples were below their respective laboratory detection limits.

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 no further action determination (NFA). The scope of work for this Phase II ESA was approved by Ecology and would be sufficient to justify a NFA determination if all conditions were achieved.

On October 11, 2017, HydroCon conducted a subsurface investigation and included a total of five direct push borings (HC01 through HC05) advanced to a maximum depth of 15 feet bgs to evaluate soil and groundwater conditions in the vicinity of the former UST excavation. Analytical results indicated that only a low concentration of ORPH was detected in the soil samples collected at 10 feet bgs at HC01 and HC02. The location of these samples are centrally located and along the eastern boundary of the former UST excavation. It is assumed that the likely source of the ORPH in the HC01-10 and HC02-10 samples is from the imported fill material used at the site and not from the release of the former UST system. Boring locations are shown on Figure 2.

DRPH was detected above the MTCA Method A cleanup level in the groundwater samples collected from HC01, HC02, and HC04. In addition, MTBE was detected above the MTCA Method A cleanup level in HC04. Groundwater results are summarized on Table 1.

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. It's possible that the concentrations of contaminants will be significantly lower in groundwater samples collected from properly constructed and developed monitoring wells than from temporary borings.

Based on historic and current groundwater data, it is HydroCon's opinion that the remaining groundwater contamination has decreased significantly over time and will naturally attenuate to concentrations below the MTCA Method A cleanup level.

December 2017 Monitoring Well Installation

On December 12 and 13, 2017, HydroCon supervised the installation on monitoring wells MW01 through MW04. Soil samples were collected at the groundwater interface and analyzed for petroleum

hydrocarbons. The results indicated that none of the samples had detections above the MTCA Method A cleanup levels. 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. Well construction details are documented on the boring logs[1].

The monitoring wells were sampled on December 18, 2017 with the following results:

- MW01 - DRPH (851 µg/L) was detected in the sample.
- MW02 - DRPH (375 ug/L), GRPH (117 µg/L) and MTBE (3.21 µg/L) were detected in the sample.
- MW03 - DRPH (416 µg/L) was detected in the sample.
- MW04 - ORPH (179 µg/L) was detected in the sample.

The results indicated that the sample collected from MW01 had a detection of DRPH above the MTCA Method A cleanup level (500 µg/L). Groundwater sampling result are presented in Table 1.

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[2]. 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 flow direction calculated during the

[1]HydroCon, *Monitoring Well Installation and Sampling Report* (February 14, 2018)
[2] SRH Environmental Management, *Report on Soil Sampling and Analysis* (September 1, 1989)

October 2017 Phase II ESA was to the southwest towards 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 (JHK-MW) was used as the site datum. The datum was assigned an elevation of 100 feet.

2.0 QUARTERLY GROUNDWATER MONITORING

On March 5, 2018 HydroCon collected groundwater samples from monitoring wells MW01 through MW04. The locations of the monitoring wells are shown on Figure 2. A discussion of the sampling methodology, groundwater conditions, and laboratory analytical results is provided below.

2.1 Well Development

Additional well development efforts were conducted on monitoring MW01 on March 2, 2018, in an effort 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. A copy of the well development field form is included in Appendix A.

2.2 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 depth to water (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 4.42 feet and 7.41 feet below the top of the well casing (BTOC) during the March 5, 2018 sampling event. An apparent groundwater mound is present near MW04. The groundwater elevation calculated for MW04 is over 2 feet higher than monitoring wells MW01 through MW03.

A groundwater elevation contour map was generated from depth to water data collected on March 5, 2018. The groundwater flow direction south of the former UST excavation is towards the north and northwest. The groundwater gradient was calculated in the southern portion of the site is approximately 0.062 foot/foot. The groundwater elevations and groundwater contours are shown on Figure 3. Depth to groundwater measurements and groundwater elevations are summarized on Table 2.

2.3 Groundwater Sampling

Each monitoring well was 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, and specific conductivity) were measured and recorded on a Groundwater Sample Collection field form along with the DTW measurements (Appendix A). 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 cooled along with the chain-of-custody documentation and transported APEX Laboratory, in Portland Oregon for analysis.

Groundwater generated during this monitoring event 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.

2.4 Laboratory Analysis

A total of four groundwater samples were collected for laboratory analysis. Each sample was analyzed for the following set of parameters:

- GPRH by Northwest Method NWTPH-Gx.
- DPRH and ORPH by Northwest Method NWTPH-Dx.
- BTEX and MTBE by EPA Method 8260C.

2.5 Analytical Results

The groundwater analytical results are reported in micrograms per liter (µg/L) (parts per billion) and are summarized below and on Table 2. Copies of the laboratory reports and chain-of-custody documents are included in Appendix B.

Groundwater analytical results indicate that there was no detection of GRPH, DRPH, ORPH, BTEX and MTBE in the monitoring wells MW-1 through MW-4 at concentrations above their respective laboratory Method Reporting Limits (MRLs).

3.0 RECOMMENDATIONS

Based on the results of the soil and groundwater sampling, HydroCon makes the following recommendations:

- Continue performing quarterly groundwater monitoring until groundwater data indicates that all contaminants of concern at all site monitoring wells have remained below their respective MTCA Method A cleanup levels.
- Determine the source of the groundwater mounding near MW04.

4.0 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.

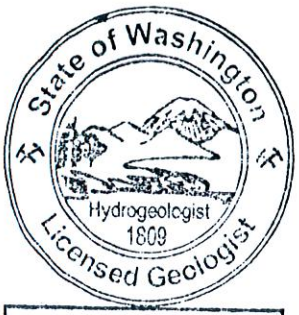
Signature:

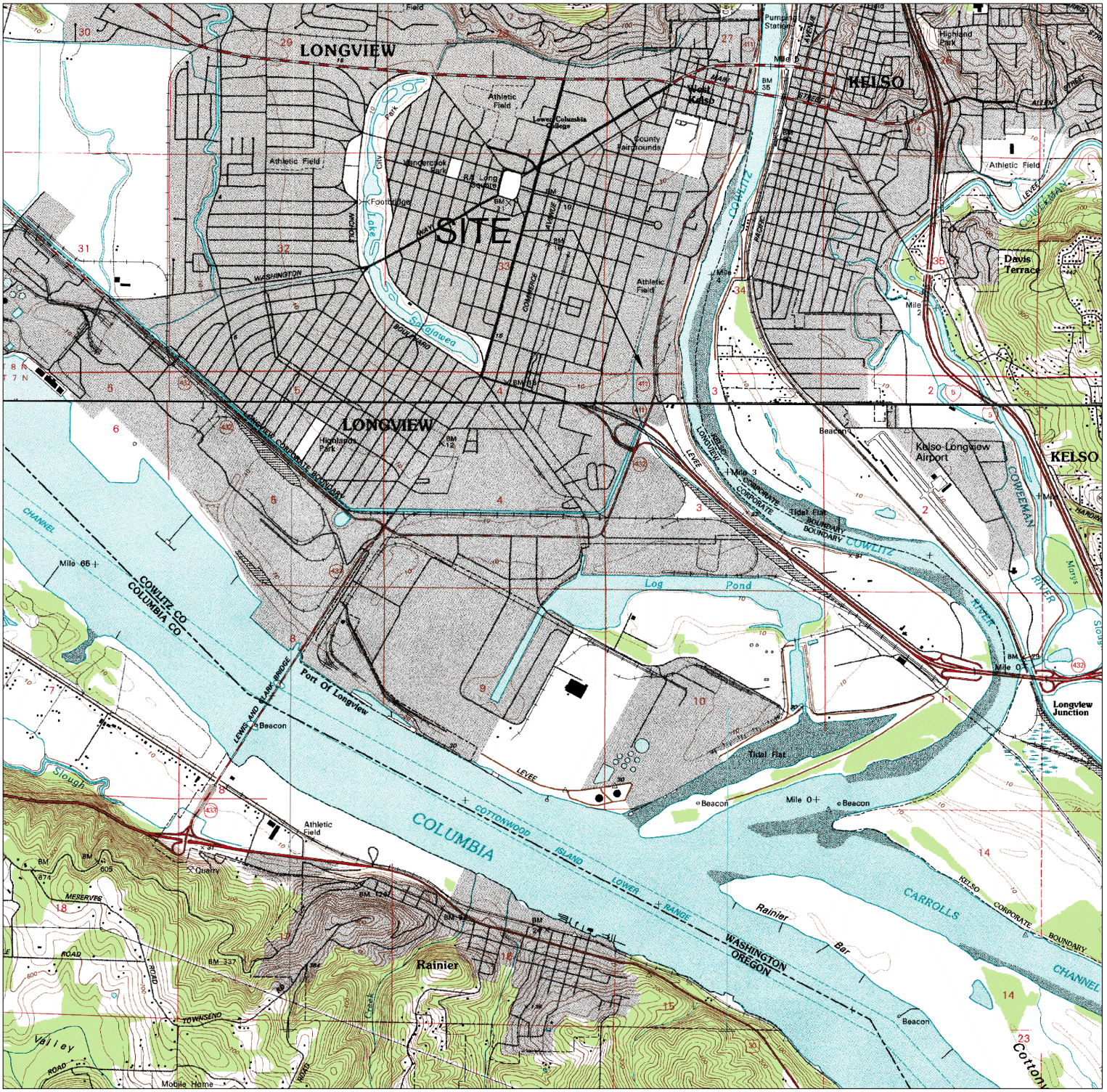
Report Prepared By:

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 W E S

0 2000 4000

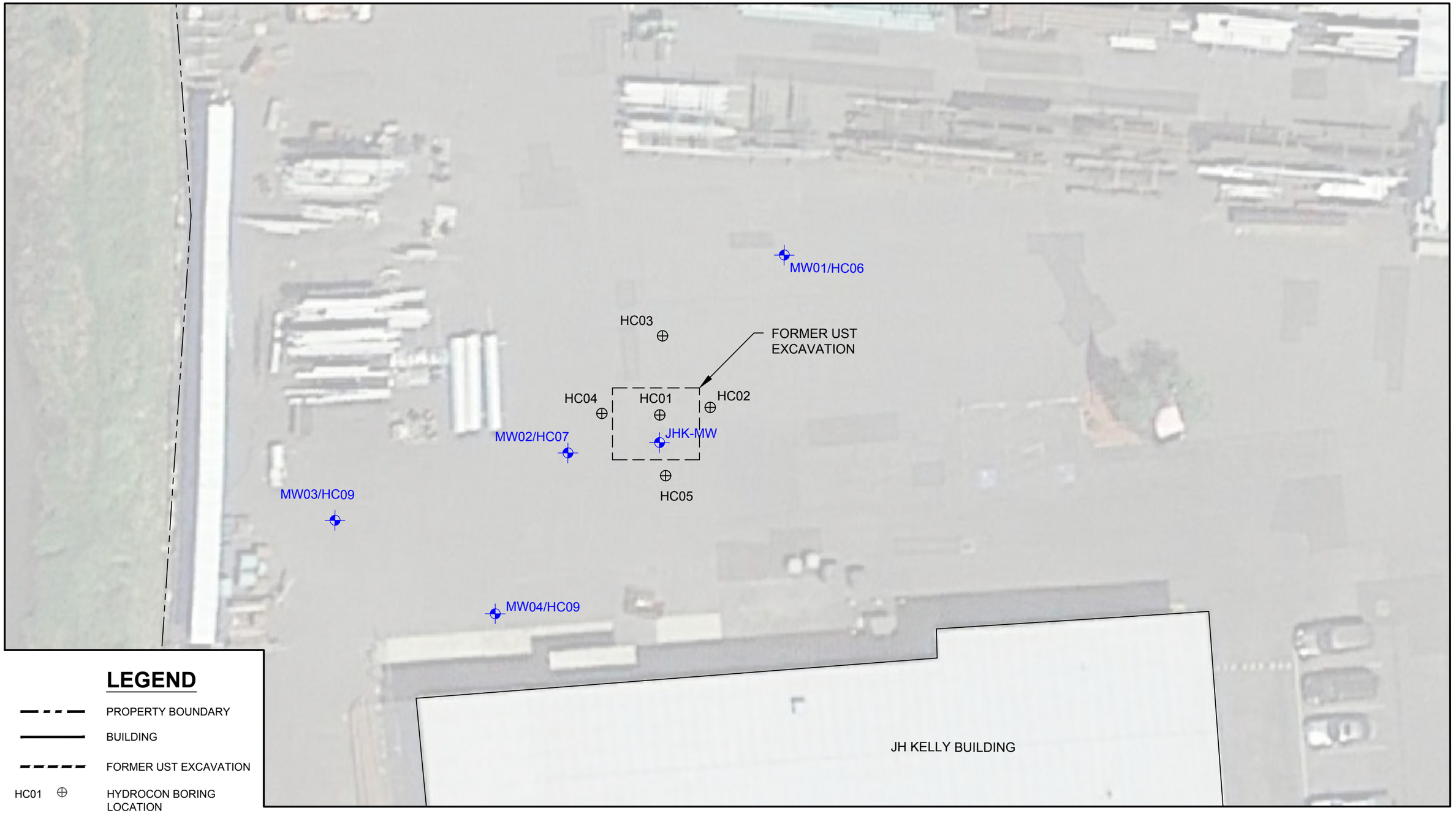
SCALE IN FEET
1" = 2000'

HydroCon
501 Allen St Suite B, Kelso WA Ph: (360) 706-6079

DATE: 03-15-18
DWN: JH
CHK: BP
APPROVED: BP
PRJ. MGR: DB
PROJECT NO: 2017-055

FIGURE 1
SITE LOCATION MAP

JH KELLY
821 THIRD AVENUE
LONGVIEW, WASHINGTON



LEGEND

- PROPERTY BOUNDARY
- BUILDING
- FORMER UST EXCAVATION
- HC01 — HYDROCON BORING LOCATION
- MW01 — MONITORING WELL

N W E S

0 20 40

SCALE IN FEET
1" = 20'

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DATE: 03-15-18
DWN: JH
CHK: BP
APPROVED: DB
PRJ. MGR: DB
PROJECT NO: 2017-055

FIGURE 2
SITE FEATURES

JH KELLY
821 THIRD AVENUE
LONGVIEW, WASHINGTON

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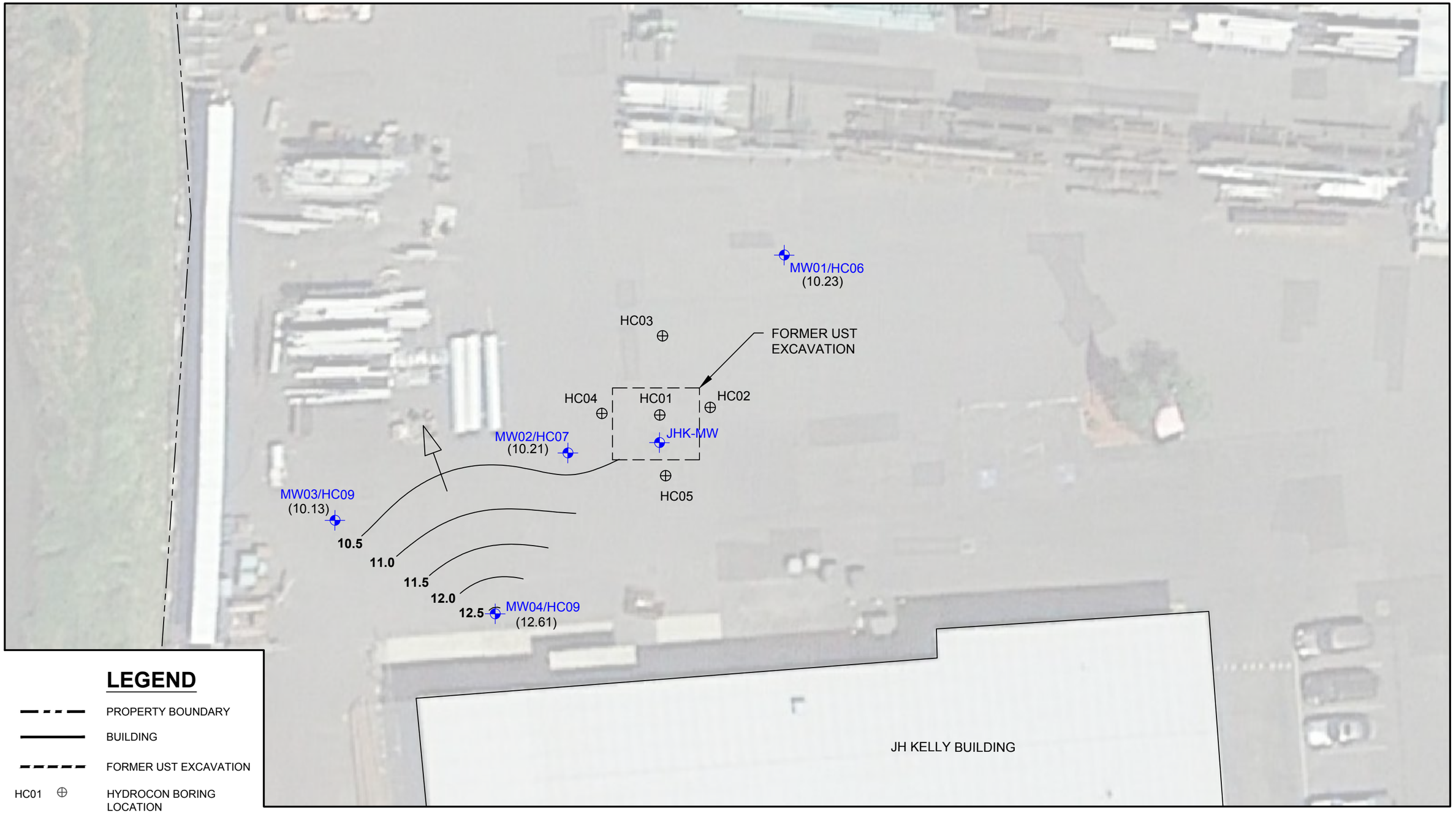

LEGEND

- PROPERTY BOUNDARY
- BUILDING
- FORMER UST EXCAVATION
- 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'

HydroCon
510 Allen St. Suite B Kelso, WA 98626, Ph(360) 703-6079

DATE: 03-15-18
DWN: JH
CHK: BP
APPROVED: DB
PRJ. MGR: DB
PROJECT NO: 2017-055

FIGURE 3
GROUNDWATER CONTOUR MAP AND ANALYTICAL RESULTS
1ST QUARTER 2018
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 Groundwater Analytical Results
821 3rd Aveneue, Longview, WA

	Fuels			Volatiles							Metal
	DRPH	ORPH	GRPH	Benzene	Ethylbenzene	Toluene	Xylene, Total	EDB	EDC	MTBE	Lead, Total
	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
WA Method A Cleanup	**500**	**500**	**800|1000**	**5**	**700**	**1,000**	**1**	**0.01**	**5**	**20**	**15**
Benzene (Non Detect)			**1000**								
Benzene (Detect)			**800**								
Field ID	**Date**										
HydroCon Subsurface Investigation 2017											
HC01	10/11/2017	**538** F13	<151	<100	<0.200	<0.500	<1.0	<1.50	-	-	8.68	-
HC02	10/11/2017	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	-	-	2.06	-
HC03	10/11/2017	**636** F11	<151	<100	<0.200	<0.500	1.56	<1.50	-	-	6.55	-
HC04	10/11/2017	**1370** F13	<151	<100	<0.200	<0.500	<1.0	<1.50	<0.0200	<0.500	**35.5**	7.78
HC05	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
µg/l = micrograms per liter
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 2
JH Kelly Groundwater Analytical Results
821 3rd Aveneue, Longview, WA

		Measurements			Fuels			Volatiles				
Well ID	Date	Top of Casing	Depth to Groundwater	Groundwater Elevation	DRPH	ORPH	GRPH	Benzene	Ethylbenzene	Toluene	Xylene, Total	MTBE
		Feet	Feet	Feet	Results in µg/L							
MW01	12/18/2017	17.64	7.54	10.10	**851**	<151	<100	<0.200	<0.500	<1.0	<1.50	<1.0
	3/5/2018		7.41	10.23	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0
MW02	12/18/2017	17.02	7.04	9.98	375	<150	117	<0.200	<0.500	<1.0	<1.50	3.21
	3/5/2018		6.81	10.21	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0
MW03	12/18/2017	16.31	6.40	9.91	416	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0
	3/5/2018		6.18	10.13	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0
MW04	12/18/2017	17.03	6.53	10.50	<74.8	179	<100	<0.200	<0.500	<1.0	<1.50	<1.0
	3/5/2018		4.42	12.61	<74.8	<150	<100	<0.200	<0.500	<1.0	<1.50	<1.0
MTCA Method A Groundwater Cleanup Levels					**500**	**500**	**800**	**5**	**700**	**1,000**	**1**	**20**

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.

- = 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

APPENDIX A
FIELD FORMS

HydroCon

WELL DEVELOPMENT

Well ID #: MW01 | Project name: JH Kelly
Date: 02 March 2018 | Project #: 2017-055
Time: 1000 | Engineer: Chris Daschel

WELL INFORMATION

Monument condition [X] Good [ ] Needs repair _____
Well cap condition [X] Good [ ] Locked [ ] Replaced [ ] Needs replacement
Headspace reading [X] Not measured _____ ppm
Elevation mark [ ] Yes [ ] Added [ ] Other _____
Well diameter [ ] 1.5-inch [X] 2-inch [ ] 4-inch [ ] Other _____
[X] Odor very light organic [ ] Comments _____

WELL MEASUREMENTS

Total well depth 19.71 ft [X] Clean bottom [ ] Muddy bottom [ ] Not measured
Depth to product - ft
Depth to water 6.91 ft
Casing volume 12.8 ft (H_2O) X 0.16 gpf = 2.05
Casing volumes 1"=0.04 gpf 1.5"=0.09 gpf 2"=0.16 gpf 4"=0.65 gpf 6"= 1.47 gpf

PURGING INFORMATION

Pump type [ ] Peristaltic [X] Submersible [ ] Centrifugal [ ] Other _____
Purge tubing [ ] New LDPE [X] New HDPE [ ] New Teflon [ ] Other _____
Bailer type [ ] Disposable [X] Stainless [ ] PVC [ ] Other _____
Bailer cord used [X] Monofillament [ ] Other _____
Purge start time 1015 Purge stop time _____ Purge Rate (GPM) _____
Total Volume Purged (gallons) _____

FIELD PARAMETERS

Meters used [ ] FlowThru Cell [ ] Hach [ ] Hanna [X] Other YSI

Gallons	pH	Temp.	Conductivity	Turbidity	Dissolved Oxygen	ORP
100	7.01	11.7	.268	-	33.5	102.8
200	6.89	11.5	.259	-	2.31	135.0
300	6.88	11.5	.258	-	2.60	160.1
400	6.94	11.6	.255	-	2.20	173.9
500	7.05	11.5	.204	-	3.02	294.7
600	6.86	11.5	.249	-	1.71	294.2

NOTES/COMMENTS

(1015 - 1206) 225 gallons purged ; well recharged from 11.4 to 6.81 by 1225
(1227 - 1359) 350 gallons purged ;
(1425 - 125 gallons purged

Engineer's Signature _____ Date 02 March 2018

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW01

Project Name: JH Kelly
Hydrocon Project #: 2017-055
Date: 05 March 2018

Sample I.D. MW01-W Time: 1230
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): 4.71 - 19.71
Depth to product N/A ft
Depth to water 7.41 ft Intake Depth (BTOC) 12' Begin Purging Well: 1205
Casing volume 12.3 ft (H_2O) X 0.16 gal/ft = 1.97 gal. X 3 = 5.91 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: NO sheen Very light 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)
1207	7.46		12.8	2.09	4.79	6.71	146.0	10.6
1210	7.46		12.8	2.25	1.93	6.74	68.5	8.15
1213	7.46	0.16	12.7	2.24	1.59	6.74	42.5	7.77
1216	7.46		12.7	2.22	1.07	6.76	33.6	6.43
1219	7.46		12.6	2.13	0.78	6.80	36.6	5.62
1222	7.46		12.6	2.04	0.66	6.79	40.3	5.80
1225	7.46		12.6	2.01	0.60	6.80	72.0	4.91
			Sample @ 1230					

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: 600 gallons purged from well 3/2/18

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40ml VoA	3	HCl	(No) 0.45 0.10	6x, 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: _____

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW02

Project Name: JH Kelly | Sample I.D. MW02-W | Time: 1150
Hydrocon Project #: 2017-055 | Field Duplicate I.D. - | Time: -
Date 05 March 2017 | 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): 4.63 - 19.63
Depth to product N/A ft
Depth to water 6.81 ft Intake Depth (BTOC) 12' Begin Purging Well: 1127
Casing volume 12.82 ft (H_2O) X 0.16 gal/ft = 2.05 gal. X 3 = 6.15 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: light organic petro 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)
1124	7.12		12.3	0.67	3.24	7.22	165.2	4.00
1132	7.13		12.6	0.68	0.72	7.16	118.9	4.45
1135	7.14	0.16	12.7	0.68	0.56	7.14	40.0	2.49
1138	7.13		12.7	0.68	0.55	7.15	151.5	↓
1141	7.13		12.8	0.68	0.59	7.13	98.9	
1144	7.13		12.9	0.68	0.55	7.11	34.0	
			Sample @ 1150					

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: _____

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW03

Project Name: SH Kelly
Hydrocon Project #: 2017-055
Date 05 March 2018

Sample I.D. MW03-W Time: 1035
Field Duplicate I.D. - Time: -
Personnel: Chris Dascher

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 19.62 ft Bottom: ☐ Hard ☐ Soft ☒ Not measured Screen Interval(s): 4.62 - 19.62
Depth to product N/A ft
Depth to water 6.18 ft Intake Depth (BTOC) 12' Begin Purging Well: 1016
Casing volume 13.44 ft (H_2O) X 0.16 gal/ft = 2.15 gal. X 3 = 6.45 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: light punchy organic odor NO Sheen

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)
1018	6.23		11.2	0.93	4.49	6.93	164.7	1.13
1021	6.23	0.145	11.6	0.94	0.78	7.40	108.5	0.55
1024	6.25		11.7	0.94	0.60	7.51	90.3	0.52
1027	6.24		11.7	0.95	0.56	7.54	86.1	
1030	6.24		11.7	0.95	0.55	7.56	85.2	
1033	6.24		11.9	0.94	0.48	7.57	85.0	
			Sample @ 1035					

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	8x, 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: _____

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW04

Project Name:. JH Kelly
Hydrocon Project #: 2017-055
Date 05 March 2018

Sample I.D. MW04-W Time: 1115
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 19.60 ft Bottom: ☐ Hard ☐ Soft ☒ Not measured Screen Interval(s): 4.60 - 19.60
Depth to product N/A ft
Depth to water 4.42 ft Intake Depth (BTOC) 12' Begin Purging Well: 1051
Casing volume 15.18 ft (H_2O) X 0.16 gal/ft = 2.43 gal. X 3 = 7.29 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: light odor, poss petrol

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)
1054	4.76		9.7	.435	3.63	7.99	169.0	1.32
1057	4.77		9.7	.416	0.92	7.85	151.0	0.77
1100	4.77	0.14	9.7	.412	0.58	7.78	145.8	0.99
1103	4.78		9.6	.409	0.48	7.67	149.1	↓
1106	4.78		9.7	.408	0.47	7.65	152.2	
1109	4.78		9.6	.405	0.44	7.62	151.7	
		Sample	@	1115				

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	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 B
LABORATORY REPORT AND CHAIN-OF-CUSTODY DOCUMENTATION

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Monday, March 12, 2018

Brian Pletcher
HydroCon LLC
510 Allen St. Suite B
Kelso, WA 98626

RE: JH Kelly / 2017-055

Enclosed are the results of analyses for work order A8C0189, which was received by the laboratory on 3/6/2018 at 11:00:00AM.

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

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.

Apex Laboratories

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
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503-718-0333 Fax

HydroCon LLC	Project: **JH Kelly**	
510 Allen St. Suite B	Project Number: 2017-055	**Reported:**
Kelso, WA 98626	Project Manager: Brian Pletcher	03/12/18 15:59

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01-W	A8C0189-01	Water	03/05/18 12:30	03/06/18 11:00
MW02-W	A8C0189-02	Water	03/05/18 11:50	03/06/18 11:00
MW03-W	A8C0189-03	Water	03/05/18 10:35	03/06/18 11:00
MW04-W	A8C0189-04	Water	03/05/18 11:15	03/06/18 11:00

Apex Laboratories

Lisa A Domenighini

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12232 S.W. Garden Place
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HydroCon LLC	Project: **JH Kelly**	
510 Allen St. Suite B	Project Number: 2017-055	**Reported:**
Kelso, WA 98626	Project Manager: Brian Pletcher	03/12/18 15:59

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW01-W (A8C0189-01)			**Matrix: Water**		**Batch: 8030541**			
Diesel	ND	---	74.8	ug/L	1	03/08/18 02:46	NWTPH-Dx	
Oil	ND	---	150	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 81 %*	*Limits: 50-150 %*	"	"	"	
MW02-W (A8C0189-02)			**Matrix: Water**		**Batch: 8030541**			
Diesel	ND	---	74.8	ug/L	1	03/08/18 03:07	NWTPH-Dx	
Oil	ND	---	150	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 82 %*	*Limits: 50-150 %*	"	"	"	
MW03-W (A8C0189-03)			**Matrix: Water**		**Batch: 8030541**			
Diesel	ND	---	74.8	ug/L	1	03/08/18 03:28	NWTPH-Dx	
Oil	ND	---	150	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 74 %*	*Limits: 50-150 %*	"	"	"	
MW04-W (A8C0189-04)			**Matrix: Water**		**Batch: 8030541**			
Diesel	ND	---	74.8	ug/L	1	03/08/18 03:49	NWTPH-Dx	
Oil	ND	---	150	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 78 %*	*Limits: 50-150 %*	"	"	"	

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Lisa Domenighini, Client Services Manager

Apex Labs

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HydroCon LLC	Project: **JH Kelly**	
510 Allen St. Suite B	Project Number: 2017-055	**Reported:**
Kelso, WA 98626	Project Manager: Brian Pletcher	03/12/18 15:59

ANALYTICAL SAMPLE RESULTS

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

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW01-W (A8C0189-01)			**Matrix: Water**		**Batch: 8030518**			
Gasoline Range Organics	ND	---	100	ug/L	1	03/07/18 12:55	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 106 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*107 %*	*Limits: 50-150 %*	"	"	"	
MW02-W (A8C0189-02)			**Matrix: Water**		**Batch: 8030518**			
Gasoline Range Organics	ND	---	100	ug/L	1	03/07/18 13:23	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 109 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*105 %*	*Limits: 50-150 %*	"	"	"	
MW03-W (A8C0189-03)			**Matrix: Water**		**Batch: 8030518**			
Gasoline Range Organics	ND	---	100	ug/L	1	03/07/18 13:52	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 112 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*108 %*	*Limits: 50-150 %*	"	"	"	
MW04-W (A8C0189-04)			**Matrix: Water**		**Batch: 8030518**			
Gasoline Range Organics	ND	---	100	ug/L	1	03/07/18 14:20	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 110 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*108 %*	*Limits: 50-150 %*	"	"	"	

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HydroCon LLC	Project: **JH Kelly**	
510 Allen St. Suite B	Project Number: 2017-055	**Reported:**
Kelso, WA 98626	Project Manager: Brian Pletcher	03/12/18 15:59

ANALYTICAL SAMPLE RESULTS

RBDM Compounds (BTEX+) by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW01-W (A8C0189-01)			**Matrix: Water**		**Batch: 8030518**			
Benzene	ND	---	0.200	ug/L	1	03/07/18 12:55	EPA 8260C	
Ethylbenzene	ND	---	0.500	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
Toluene	ND	---	1.00	"	"	"	"	
Xylenes, total	ND	---	1.50	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 103 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*103 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*100 %*	*Limits: 80-120 %*	"	"	"	
MW02-W (A8C0189-02)			**Matrix: Water**		**Batch: 8030518**			
Benzene	ND	---	0.200	ug/L	1	03/07/18 13:23	EPA 8260C	
Ethylbenzene	ND	---	0.500	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
Toluene	ND	---	1.00	"	"	"	"	
Xylenes, total	ND	---	1.50	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 102 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*101 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*99 %*	*Limits: 80-120 %*	"	"	"	
MW03-W (A8C0189-03)			**Matrix: Water**		**Batch: 8030518**			
Benzene	ND	---	0.200	ug/L	1	03/07/18 13:52	EPA 8260C	
Ethylbenzene	ND	---	0.500	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
Toluene	ND	---	1.00	"	"	"	"	
Xylenes, total	ND	---	1.50	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 103 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*102 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*97 %*	*Limits: 80-120 %*	"	"	"	
MW04-W (A8C0189-04)			**Matrix: Water**		**Batch: 8030518**			
Benzene	ND	---	0.200	ug/L	1	03/07/18 14:20	EPA 8260C	
Ethylbenzene	ND	---	0.500	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
Toluene	ND	---	1.00	"	"	"	"	
Xylenes, total	ND	---	1.50	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 104 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*102 %*	*Limits: 80-120 %*	"	"	"	

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Lisa Domenighini, Client Services Manager

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HydroCon LLC	Project: **JH Kelly**	
510 Allen St. Suite B	Project Number: 2017-055	**Reported:**
Kelso, WA 98626	Project Manager: Brian Pletcher	03/12/18 15:59

ANALYTICAL SAMPLE RESULTS

RBDM Compounds (BTEX+) by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW04-W (A8C0189-04)			**Matrix: Water**		**Batch: 8030518**			
Surrogate: 4-Bromofluorobenzene (Surr)			*Recovery: 101 %*	*Limits: 80-120 %*	1	"	EPA 8260C	

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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HydroCon LLC	Project: **JH Kelly**	
510 Allen St. Suite B	Project Number: 2017-055	**Reported:**
Kelso, WA 98626	Project Manager: Brian Pletcher	03/12/18 15:59

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8030541 - EPA 3510C (Fuels/Acid Ext.)									**Water**			
Blank (8030541-BLK1)					Prepared: 03/07/18 13:06 Analyzed: 03/07/18 23:36							
NWTPH-Dx												
Diesel	ND	---	72.7	ug/L	1	---	---	---	---	---	---	
Oil	ND	---	145	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 97 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS (8030541-BS1)					Prepared: 03/07/18 13:06 Analyzed: 03/07/18 23:57							
NWTPH-Dx												
Diesel	425	---	80.0	ug/L	1	500	---	85	52-120%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 99 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS Dup (8030541-BSD1)					Prepared: 03/07/18 13:06 Analyzed: 03/08/18 00:18							Q-19
NWTPH-Dx												
Diesel	408	---	80.0	ug/L	1	500	---	82	52-120%	4	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 101 %*	*Limits: 50-150 %*			*Dilution: 1x*					

Apex Laboratories

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HydroCon LLC	Project: **JH Kelly**	
510 Allen St. Suite B	Project Number: 2017-055	**Reported:**
Kelso, WA 98626	Project Manager: Brian Pletcher	03/12/18 15:59

QUALITY CONTROL (QC) SAMPLE RESULTS

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

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8030518 - EPA 5030B									**Water**			
Blank (8030518-BLK1)					Prepared: 03/07/18 09:01 Analyzed: 03/07/18 11:30							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	100	ug/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 109 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*106 %*		*50-150 %*				*"*			
LCS (8030518-BS2)					Prepared: 03/07/18 09:01 Analyzed: 03/07/18 09:57							
NWTPH-Gx (MS)												
Gasoline Range Organics	509	---	100	ug/L	1	500	---	102	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 108 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*110 %*		*50-150 %*				*"*			

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HydroCon LLC	Project: **JH Kelly**	
510 Allen St. Suite B	Project Number: 2017-055	**Reported:**
Kelso, WA 98626	Project Manager: Brian Pletcher	03/12/18 15:59

QUALITY CONTROL (QC) SAMPLE RESULTS

RBDM Compounds (BTEX+) by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8030518 - EPA 5030B									Water			
Blank (8030518-BLK1)					Prepared: 03/07/18 09:01 Analyzed: 03/07/18 11:30							
EPA 8260C												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	"	"	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	---	---	---	---	---	---	
Toluene	ND	---	1.00	"	"	---	---	---	---	---	---	
Xylenes, total	ND	---	1.50	"	"	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 103 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*103 %*		*80-120 %*				*"*			
4-Bromofluorobenzene (Surr)			*99 %*		*80-120 %*				*"*			
LCS (8030518-BS1)					Prepared: 03/07/18 09:01 Analyzed: 03/07/18 09:29							
EPA 8260C												
Benzene	21.4	---	0.200	ug/L	1	20.0	---	107	80-120%	---	---	
Ethylbenzene	20.8	---	0.500	"	"	"	---	104	"	---	---	
Methyl tert-butyl ether (MTBE)	21.7	---	1.00	"	"	"	---	109	"	---	---	
Toluene	20.4	---	1.00	"	"	"	---	102	"	---	---	
Xylenes, total	62.8	---	1.50	"	"	60.0	---	105	"	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 102 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*101 %*		*80-120 %*				*"*			
4-Bromofluorobenzene (Surr)			*99 %*		*80-120 %*				*"*			

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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: 8030541							
A8C0189-01	Water	NWTPH-Dx	03/05/18 12:30	03/07/18 13:06	1070mL/2mL	1000mL/2mL	0.94
A8C0189-02	Water	NWTPH-Dx	03/05/18 11:50	03/07/18 13:06	1070mL/2mL	1000mL/2mL	0.94
A8C0189-03	Water	NWTPH-Dx	03/05/18 10:35	03/07/18 13:06	1070mL/2mL	1000mL/2mL	0.94
A8C0189-04	Water	NWTPH-Dx	03/05/18 11:15	03/07/18 13:06	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: 8030518							
A8C0189-01	Water	NWTPH-Gx (MS)	03/05/18 12:30	03/07/18 10:57	5mL/5mL	5mL/5mL	1.00
A8C0189-02	Water	NWTPH-Gx (MS)	03/05/18 11:50	03/07/18 10:57	5mL/5mL	5mL/5mL	1.00
A8C0189-03	Water	NWTPH-Gx (MS)	03/05/18 10:35	03/07/18 10:57	5mL/5mL	5mL/5mL	1.00
A8C0189-04	Water	NWTPH-Gx (MS)	03/05/18 11:15	03/07/18 10:57	5mL/5mL	5mL/5mL	1.00

RBDM Compounds (BTEX+) by EPA 8260C

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8030518							
A8C0189-01	Water	EPA 8260C	03/05/18 12:30	03/07/18 10:57	5mL/5mL	5mL/5mL	1.00
A8C0189-02	Water	EPA 8260C	03/05/18 11:50	03/07/18 10:57	5mL/5mL	5mL/5mL	1.00
A8C0189-03	Water	EPA 8260C	03/05/18 10:35	03/07/18 10:57	5mL/5mL	5mL/5mL	1.00
A8C0189-04	Water	EPA 8260C	03/05/18 11:15	03/07/18 10:57	5mL/5mL	5mL/5mL	1.00

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Notes and Definitions

Qualifiers:

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

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they 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. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	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).

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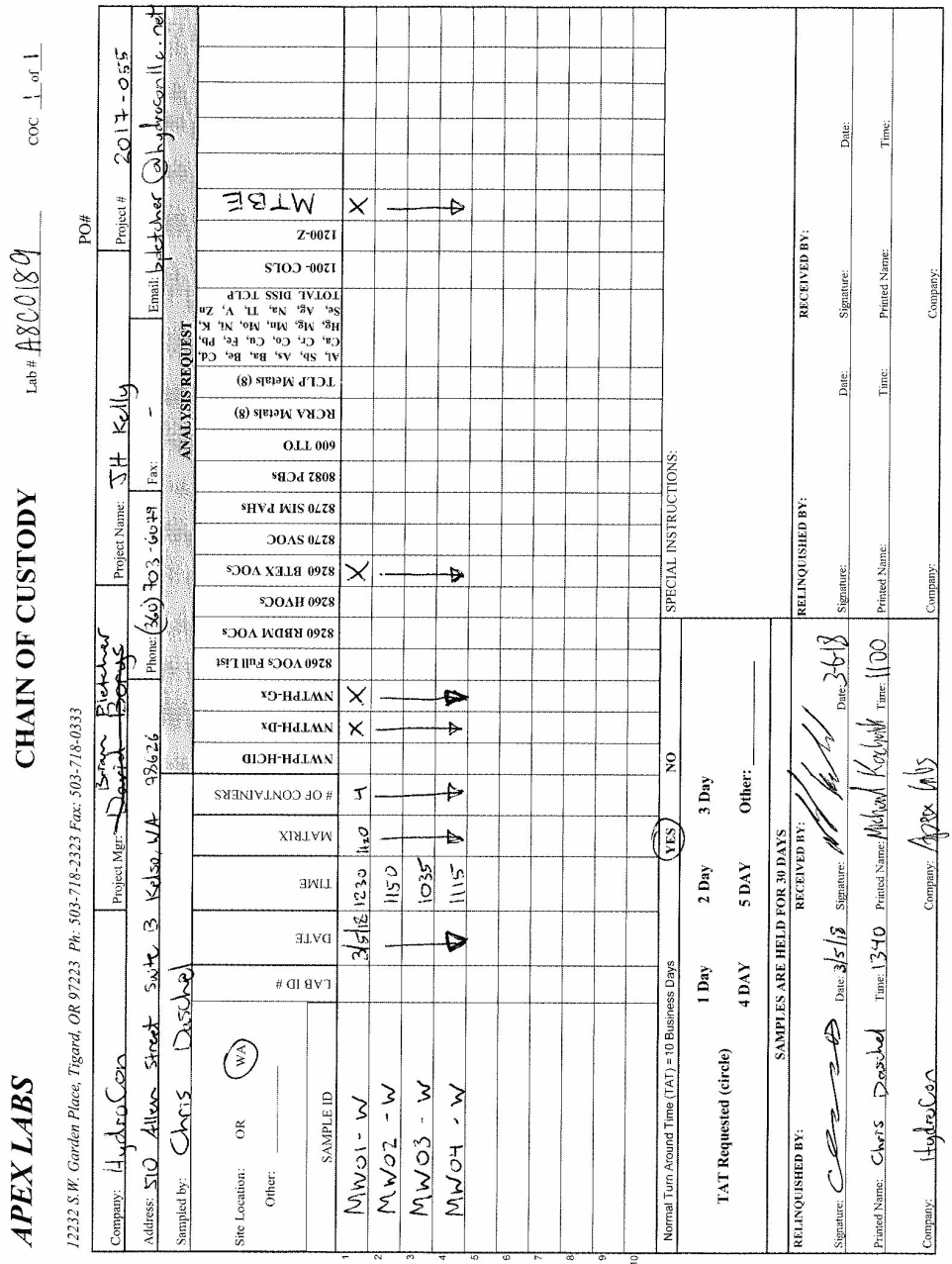

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APEX LABS COOLER RECEIPT FORM

Client: HydroCon Element WO#: A8 C0189

Project/Project #: JH Kelly / 2017-055

Delivery info:

Date/Time Received: 3-6-18 @ 1100 By: MK

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

Cooler Inspection Inspected by: MK : 3-6-18 @ 1200

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 (deg. C)	—						
Received on Ice? (Y/N)	Y						
Temp. Blanks? (Y/N)	Y						
Ice Type: (Gel/Real/Other)	4.2						
Condition:	Gel						
	good						

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

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

Samples Inspection: Inspected by: (8) : @

All Samples Intact? Yes ✓ No Comments:

Bottle Labels/COCs agree? Yes ✓ No Comments:

Containers/Volumes Received Appropriate for Analysis? Yes ✓ No Comments:

Do VOA Vials have Visible Headspace? Yes No ✓ NA

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes ✓ No NA

Comments: ~~MW-01~~ ~~MW-01~~ MW01-W pH <2

Additional Information:

Labeled by: (8) Witness: Cooler Inspected by: MK See Project Contact Form: Y

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