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February 28, 2019

Tracy Sillik
JH Kelly, LLC
821 3rd Ave
Longview, WA 98632-2105

Re: No Further Action at the following Site:

- **Site Name:** JH Kelly LLC
- **Site Address:** 821 3rd Ave, Longview, Cowlitz County, WA 98632
- **Cleanup Site ID No.:** 10377
- **Facility/Site No.:** 74552527
- **VCP Project No.:** SW1529

Dear Tracy Sillik:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the JH Kelly LLC facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA),[1] chapter 70.105D Revised Code of Washington (RCW).[2]

Issue Presented and Opinion

Ecology has determined that no further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, chapter 70.105D RCW, and its implementing regulations, Washington Administrative Code (WAC) chapter 173-340[3] (collectively "substantive requirements of MTCA"). The analysis is provided below.

[1] https://fortress.wa.gov/ecy/publications/SummaryPages/9406.html
[2] https://app.leg.wa.gov/rcw/default.aspx?cite=70.105D
[3] https://apps.leg.wa.gov/WAC/default.aspx?cite=173-340

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Gasoline range total petroleum hydrocarbons (TPH-G) into the Soil and Groundwater.
- Diesel and oil range total petroleum hydrocarbons (TPH-D, TPH-O, collectively TPH-D/O) into the Soil and Groundwater.
- Benzene, toluene, ethylbenzene, and xylene (BTEX) into the Soil and Groundwater.
- Methyl tert-butyl ether (MTBE) into the groundwater.

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology. A parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. HydroCon Environmental, LLC (HydroCon), *Fourth Quarter 2018 Groundwater Monitoring and Closure Report*, December 5, 2018.
2. HydroCon, *Third Quarter 2018 Groundwater Monitoring Report*, August 30, 2018.
3. HydroCon, *Groundwater Monitoring Report – 2nd Quarter 2018*, June 20, 2018.
4. HydroCon, *First Quarter 2018 Groundwater Monitoring Report*, April 5, 2018.
5. HydroCon, *Monitoring Well Installation and Sampling Report*, February 14, 2018.
6. HydroCon, *Subsurface Investigation Report*, November 27, 2017.
7. Ecology, "Further Action at the following Site," letter, addressed to Ms. Tracy Sillik, October 31, 2016.
8. Chris Leaf; ALS Environmental (ALS), "Analytical Report for Service Request No: K1607692," letter, addressed to Nicole McOmie; JH Kelly, August 01, 2016.

9. Jamie Morris-Pease; JH Kelly, "VCP Application," letter, addressed to Nicholas Acklam; Department of Ecology, April 29, 2016. [4]

10. Chris Leaf; ALS, "Analytical Report for Service Request No: K1603664," letter, addressed to Nicole McOmie; JH Kelly, April 22, 2016.

11. Ed Wallace; Columbia Analytical Services, Inc. (Columbia), "GX, BTEX," letter, addressed to JH Kelly, May 11, 2006.

12. LaVarne Landauer; Columbia, "J. H. Kelly Project," letter, addressed to Jeff Wilson; Cowlitz Clean Sweep, April 11, 1996.

13. Ted Coons; J.H. Kelly, Inc., letter, addressed to Patricia L. Martin; Department of Ecology, July 16, 1993.

14. Ted Coons; J.H. Kelly, Inc., letter, addressed to Patricia L. Martin; Department of Ecology, June 3, 1992.

15. Ted Coons; J.H. Kelly, Inc., letter, addressed to Patricia L. Martin; Department of Ecology, January 17, 1992.

16. Pacific Northern Environmental (PNE), *J.H. Kelly, Inc. Closure Report*, December 2, 1991.

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

18. Ronald L. Uher; AcuTest, letter, addressed to Mr. John Jabusch; Petroleum Services Unlimited, July 21, 1989.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. Information on obtaining those records can be found on Ecology's public records requests web page.[5] Some Site documents may be available on Ecology's Cleanup Site Search web page.[6]

[4] NOTE: The report as submitted to Ecology was incorrectly dated April 29, **1**016. The date is being corrected to keep the list of documents in correct chronological order.
[5] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests
[6] https://fortress.wa.gov/ecy/gsp/SiteSearchPage.aspx

Analysis of the Cleanup

Ecology has concluded that **no further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

In response to Ecology's October 2016 letter, HydroCon conducted a Site assessment and collected additional data needed for Site closure. HydroCon conducted a Phase II (PII) Environmental Site Assessment (ESA) in October 2017 that consisted of advancing five borings (HC01 through HC05) in the vicinity of the former underground storage tank (UST) nest to assess soil (HydroCon; Figure 5 and Table 1) and groundwater (HydroCon; Figure 5 and Table 2). Soil analytical results were below the MTCA Method A cleanup levels (CULs) for all of the sampling locations. Borehole groundwater grab samples did show exceedances of MTCA Method A TPH-D/O and MTBE CULs.

In December 2017, HydroCon installed four monitoring wells (MW-1 through MW-4) in the vicinity of the former UST nest (HydroCon; Figure 5). HydroCon collected additional soil samples (HC06 through HC09) from the monitoring well borings that showed similar results to the HC01 through HC05 borings. The initial groundwater sampling from the monitoring wells showed a MTCA Method A TPH-D/O CUL exceedance in MW01. All other results were below the MTCA Method A CUL or laboratory detection limit.

Three additional quarterly groundwater sampling events were conducted in March, May, and August of 2018. Results were below the MTCA Method A CULs or laboratory detection limits for all hazardous substances except for a CUL exceedance for MTBE from well MW02 during the August 2018 sampling event. HydroCon re-sampled well MW02 for MTBE approximately two weeks later and MTBE returned to a concentration below the CULs and more similar to other MTBE results seen from the monitoring wells.

A final groundwater sampling event was conducted in November 2018 that was limited to MW01 to demonstrate four quarters of TPH-D/O results below the MTCA Method A CUL, and MW02 to confirm that MTBE remains below the MTCA Method A CUL.

Based on the 2017 and 2018 sampling results, Ecology has determined your characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.** Referenced Figures and Tables are included in **Enclosure A**.

The exposure pathways for the Site as Ecology currently understands them are:

Soil-Direct Contact:

Incomplete. Remaining soil hazardous substances, consisting of TPH-G, TPH-D/O, and lead, are all below the MTCA Method A CUL or laboratory detection limits. BTEX, 1-2 Dibromoethane (EDB), 1-2 dichloroethane (EDC), and MTBE were below the laboratory detection limits (HydroCon; Table 1).

Soil-Leaching:

Incomplete. There are four quarters of groundwater samples from the four Site wells demonstrating that hazardous substances in groundwater are below the MTCA Method A CULs (HydroCon; Table 3).

Soil-Vapor:

Incomplete. Relevant volatile organic compounds (VOC) are not present in soil (HydroCon; Table 1) or groundwater (HydroCon; Table 3) at significant concentrations to consider the soil-vapor pathway complete.

Groundwater:

Incomplete. Groundwater concentrations have been demonstrated to be below the MTCA Method A CULs for four consecutive quarters of sampling (HydroCon; Table 3).

Ecological:

Incomplete. MTCA Table 749-2 (WAC 173-340-900)[7] concentrations are being used as CULs for the relevant hazardous substances (TPH-G, TPH-D, and lead), and there are no exceedances of these CULs present. All other hazardous substances for the Site are below the MTCA Method A CULs or laboratory detection limits.

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site meet the substantive requirements of MTCA. MTCA Method A CULs and MTCA Table 749-2 CULs are being used at the Site. Site CULs are listed in the table at the end of this section. Standard points of compliance listed below are being used for the Site. Ecology concurs that that these CULs and points of compliance are applicable for this Site.

[7] https://apps.leg.wa.gov/WAC/default.aspx?cite=173-340-900

Points of compliance being used for the Site:

- The point of compliance for protection of groundwater is established in the soils throughout the Site (WAC 173-340-740(6)(b)).
- For soil cleanup levels based on protection from vapors, the point of compliance shall be established in the soils throughout the site from the ground surface to the uppermost ground water saturated zone (WAC 173-340-740(6)(c)).
- For soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway, the point of compliance is established in the soils throughout the Site from the ground surface to 15 feet below ground surface (WAC 173-340-740(6)(d)).
- The point of compliance for the groundwater is established throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest depth that could potentially be affected by the Site (WAC 173-340-720(8)(b)).
- The point of compliance for indoor air is ambient and indoor air throughout the Site (WAC 173-340-750(6)).

Ecology Table 1 – Proposed Site CULs for Each Media

Constituent of Concern	CAS #	Method A Unrestricted Land Use Soil CUL (mg/Kg)	MTCA Table 749-2 Unrestricted Land Use Soil CUL (mg/Kg)	Method A Groundwater CUL (µg/L)
Gasoline & Diesel Related Hazardous Substances:				
TPH-G[8]	None	30	200	800
TPH-D/O	None	2,000	None	500
TPH-D	None	None	460	None
Benzene	71-43-2	0.03	None	5
Toluene	108-88-3	7	None	1,000
Ethylbenzene	100-41-4	6	None	700
Xylene	1330-20-7	9	None	1,000
Additives:				
EDB	106-93-4	0.005	None	0.01
EDC	107-06-2	10.99	None	5
MTBE	1634-04-4	0.1	None	20
Metals:				
Total Lead	7439-92-1	250	220	15

[8] The CUL for TPH-G in soil and groundwater for the Site is established as the lower value because benzene has been shown to be present in soil and groundwater at the Site.

3. Cleanup

Ecology has determined the cleanup action you selected for the Site meets the substantive requirements of MTCA, and the cleanup you performed meets the cleanup standards established for the Site. The cleanup action selected for the Site was removal of USTs and associated piping and fuel dispensers and excavation of contaminated soils to levels below the CULs applicable at the time of removal in 1991.

Groundwater was shown to exceed CULs at the time the USTs were removed. Given the length of time between source removal and confirmation that groundwater concentrations are below the CULs, it can be assumed that some natural attenuation and natural biological remediation has occurred.

The cleanup action selected meets the minimum requirements of WAC 173-340-360(2)[9] in that:

- It meets the threshold requirements in that it will:
  - Be protective of human health and the environment.
  - Complies with cleanup standards.
  - Complies with applicable state and federal laws (WAC 173-340-710).
- Uses permanent solutions to the maximum extent practicable.
- Provided for a reasonable restoration time frame.
- Groundwater cleanup is considered permanent.
- Site is not expected to be used as a school or child care center.
- Institutional controls are not necessary for this Site.
- Prevents present and future releases and migration of hazardous substances in the environment.
- Does not relay on dilution and dispersion.
- Does not use remediation levels.

[9] https://apps.leg.wa.gov/WAC/default.aspx?cite=173-340-360

Decommissioning of Site Monitoring Wells

Resource protection wells as defined in WAC 173-160-410(13) that are associated with this Site and are no longer being used for their intended purpose must be properly decommissioned in accordance with WAC 173-160-381. Specific standards apply to decommissioning resource protection wells under WAC 173-160-460.

Please work with a licensed well driller and report to Ecology the decommissioning of Site resource protection wells MW, MW-1, MW-2, MW-3, and MW-4. Ecology may revoke this no further action opinion determination if resource protection wells at the Site are not properly decommissioned.

Listing of the Site

Based on this opinion, Ecology will initiate the process of removing the Site from our lists of hazardous waste sites, including:

- Hazardous Sites List.
- Confirmed and Suspected Contaminated Sites List.
- Leaking Underground Storage Tank List.

That process includes public notice and opportunity to comment. Based on the comments received, Ecology will either remove the Site from the applicable lists or withdraw this opinion.

Limitations of the Opinion

1. **Opinion does not settle liability with the state.**

   Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

   - Resolve or alter a person's liability to the state.
   - Protect liable persons from contribution claims by third parties.

   To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Termination of Agreement

Thank you for cleaning up the Site under the Voluntary Cleanup Program (VCP). This opinion terminates the VCP Agreement governing this project (#SW1529).

For more information about the VCP and the cleanup process, please visit our web site.[10] If you have any questions about this opinion, please contact me by phone at (360) 407-6437 or e-mail at aaren.fiedler@ecy.wa.gov.

Sincerely,

Aaren Fiedler

Aaren Fiedler
Southwest Regional Office
Toxics Cleanup Program

AF: tm

Enclosure: A – Description, Diagrams, and Tables of the Site

By certified mail: 9489 0090 0027 6066 5563 65

cc: Mason Evans, Evans Major LLC
David Borys, HydroCon Environmental, LLC
Nicholas Acklam, Ecology (by email)
Ecology Site File

[10] http://www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm

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Enclosure A – Description and Diagrams of the Site

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Site Description

The Site known as JH Kelly LLC is located near the northwest corner of 3rd Avenue and Tennant Way in Longview, Cowlitz County Washington. The Site is made up of several large buildings and is mostly paved with asphalt. Very little of the Site is left uncovered. The Site is located in a mixed use area and is surrounded by industrial, commercial, residential, and recreational properties.

To the East, across 3rd Ave. from the Site, is an auto salvage yard and a chemical plant as well as the Cowlitz River and some residential properties. The Cowlitz River is approximately 1,060 feet from the site. The chemical plant has a large open green-space that consists of grass and trees. North of the site is multiple commercial properties running along 3rd Avenue. Directly adjacent to the Site on the East side is Ditch Number Five. East of the ditch is an auto dealership, a pond, and a park. South of the Site is Tennant Way and roadside green-space associated with the Tennant Way and 3rd Ave. intersection. The green-space consists mostly of grassy areas and trees with an elongated pond. A Site location map (Ecology Figure 1) is included in the Site Diagrams section of this **Enclosure**.

The subsurface geology consists of fill material down to approximately 8.5 feet below ground surface (bgs). The fill consisted of chunks of wood, asphalt, concrete, reinforcing bar, and bricks in a matrix of silt, sand, and gravel with small amounts of clay. There was a report of a slight odor of decaying organic material within the fill.

Below the fill material is native sands and silts. A layer of grass and roots was reported at the top of the native soils and would indicate that this had once been at the surface. The groundwater flow direction for the site has not been determined and is believed to be relatively flat. There is mounding of the groundwater near a JH Kelly Building that is not believed to be naturally occurring (HydroCon; Figure 5).

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Site History

Pre-Tank Removal (July & September 1989)

As a result of the changed UST regulations in September 1989, JH Kelly had a pressure test conducted on each UST (one 10,000 gallon unleaded fuel tank and one 4,000 gallon diesel tank) and a sub-surface excavation examination and sampling done next to the tank nest down to 18 feet bgs. Both tanks passed the leak test.

Two soil samples were collected from the test pit that 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 CUL. The detection limit for benzene was 0.04 mg/Kg. Reportedly, the excavation location was chosen based on a soil gas survey. That survey was not provided.

Tank Removal (November 1991)

The tanks were decommissioned in November of 1991 by PNE because it was decided to move fueling to a third party vendor. Fuel dispensers, tanks, and ancillary equipment were removed. Field screening with a photo-ionization detector indicated PCS in the soil below the dispensers. PCS was also noted around each of the UST as they were removed.

A water sample taken from the excavation had MTCA Method A CUL exceedances for TPH-D (24,000 µg/L), TPH-G (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 initial excavation samples were collected and analyzed for TPH. One of the samples (JHK-SS3-12.5') had a TPH-O concentration of 480 mg/Kg which exceeded the CUL at that time of 200 mg/Kg.

Two of the four excavation samples were also analyzed for BTEX. One of the samples (JHK-SS1-12.5') had a benzene concentration of 1.10 mg/Kg which exceeded the CUL. The area with the TPH-O exceedance and the area with the benzene exceedance were over excavated.

After over excavation, the sample collected from the area with the TPH-O exceedance (JHK-SS5-12.5') showed a TPH-D level of 120 mg/Kg and a TPH-O level of 120 mg/Kg. The sample collected from the area with the benzene exceedance was below laboratory detection limit for all BTEX constituents. The laboratory detection limit was 0.1 mg/Kg, which is greater than the CUL of 0.03 mg/Kg.

Groundwater Monitoring (December 1991 to present)

One monitoring well was installed on the property. Its location and construction details are unknown at this time. Sampling of the well has been sporadic since installation.

The initial sampling results from December 1991 showed exceedances of TPH-G (1,010 µg/L), TPH-O (3,340 µg/L), and benzene (30 µg/L). Follow-up sampling in May 1992 showed no detectible TPH, but still showed an exceedance for benzene (11.1 µg/L).

The next sampling event in June 1993 showed an exceedance of TPH-D (270,000 µg/L), and a quantity of TPH designated as "Other" that was 6,000 µg/L. The TPH-D concentration is 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 TPH-O was not detected, or not analyzed for. None of the BTEX constituents exceeded the 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 the laboratory detection limits.

Groundwater sampling was suspended again until April 2006. The well and water from the ditch west of the Site were analyzed for TPH-G and BTEX only. All results were below the laboratory detection limits.

Groundwater sampling was again suspended until 2016. The well and ditch were sampled in April and July for BTEX only. All samples were below laboratory detection limits.

In December 2017, HydroCon installed four monitoring wells (MW-1 through MW-4) in the vicinity of the former UST nest. HydroCon collected additional soil samples (HC06 through HC09) from the monitoring well borings that showed similar results to the HC01 through HC05 borings. The initial groundwater sampling from the monitoring wells showed a MTCA Method A TPH-D/O CUL exceedance in MW01. All other results were below the MTCA Method A CUL or laboratory detection limit.

Three additional quarterly groundwater sampling events were conducted in March, May, and August of 2018. Results were below the MTCA Method A CULs or laboratory detection limits for all hazardous substances except for a CUL exceedance for MTBE from well MW02 during the August 2018 sampling event. HydroCon re-sampled well MW02 for MTBE approximately two weeks later and MTBE returned to a concentration below the CULs and more similar to other MTBE results seen from the monitoring wells.

A final groundwater sampling event was conducted in November 2018 that was limited to MW01 to demonstrate four quarters of TPH-D/O results below the MTCA Method A CUL, and MW02 to confirm that MTBE remains below the MTCA Method A CUL.

Site Diagrams

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Ecology Figure 1; J H Kelly Site Location Map with Parcel Boundry

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

DEPARTMENT OF ECOLOGY
State of Washington

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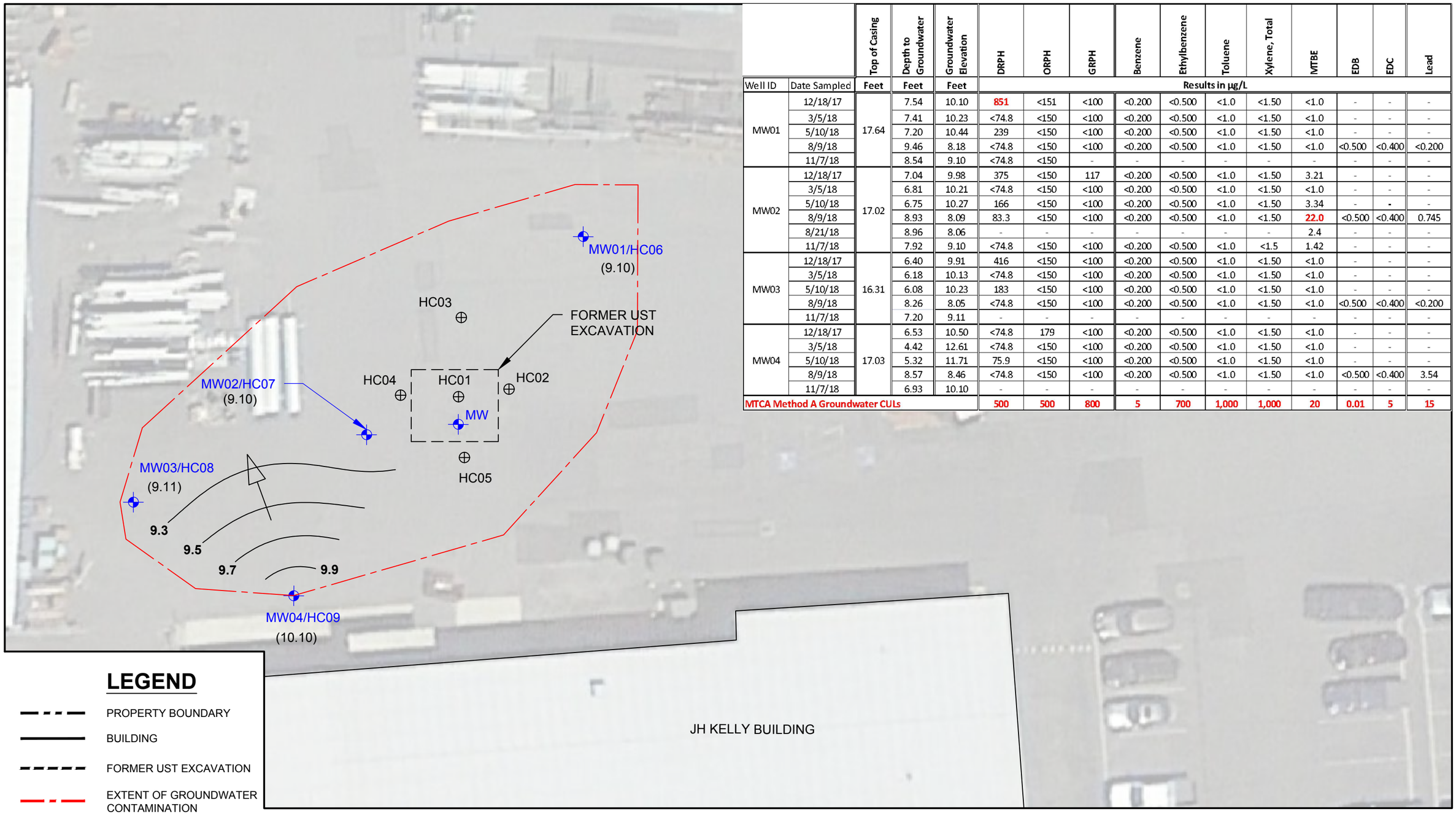

Well ID	Date Sampled	Top of Casing	Depth to Groundwater	Groundwater Elevation	DRPH	ORPH	GRPH	Benzene	Ethylbenzene	Toluene	Xylene, Total	MTBE	EDB	EDC	Lead
		Feet	Feet	Feet	Results in µg/L										
MW01	12/18/17	17.64	7.54	10.10	851	<151	<100	<0.200	<0.500	<1.0	<1.50	<1.0	-	-	-
	3/5/18		7.41	10.23	<74.8	<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'

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

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

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

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

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Site Tables

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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.

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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

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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

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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

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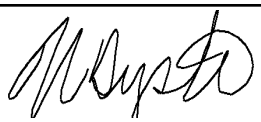

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