STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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July 15, 2016

Mr. Michael Noll
Terracon Consultants, Inc.
21905 64th Avenue West, Suite 100
Mountlake Terrace, WA 98043

Re: Further Action at the following Site:

- **Site Name:** Jim's BP
- **Site Address:** 13 E Main St, Battle Ground, Clark County, WA 98604
- **Cleanup Site No.:** 4980
- **Facility/Site No.:** 1051
- **VCP Project No.:** SW1423

Dear Mr. Noll:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Jim's BP facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

YES. Ecology has determined that 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, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

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 known or suspected releases:

- Total Petroleum Hydrocarbons in the gasoline (TPH-G), diesel (TPH-D), and heavy oil (TPH-O) ranges into the soil and groundwater;

- Benzene, toluene, ethylbenzene, and xylenes (BTEX), dibromoethane, 1-2 (EDB), dichloroethane, 1-2 (EDC), and methyl tertiary butyl ether (MTBE) into the soil and groundwater; and
- Total lead into the soil and groundwater.

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology.

Please note 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. Terracon Consultants, Inc., *Groundwater Monitoring Report: April 2016*, dated April 22, 2016
2. Terracon Consultants, Inc., *Groundwater Monitoring Report: February 2016*, dated March 9, 2016
3. Terracon Consultants, Inc., *Groundwater Monitoring Report: December 2015*, dated January 4, 2016
4. Terracon Consultants, Inc., *Remedial Treatment and Groundwater Monitoring Report: September 2015*, dated October 21, 2015
5. Terracon Consultants, Inc., *Work Plan for Soil and Groundwater Remedial Treatment*, dated July 28, 2015
6. Miller Nash Graham & Dunn, *Letter Re: Former Jim's BP Site*, dated January 29, 2015
7. Terracon Consultants, Inc., *Supplemental Limited Site Investigation Report*, dated January 14, 2015
8. Terracon Consultants, Inc., *UST Decommissioning Report*, dated July 9, 2014
9. Terracon Consultants, Inc., *Limited Site Investigation Report*, dated October 4, 2011
10. Washington State Department of Ecology, *Feasibility Study and Remedial Activities Conducted at Jim's BP*, dated June 30, 2000
11. State of Washington-Department of Ecology v. Jim Torres, *Consent Decree No. DE 91TC-S266*, dated November 1, 1991

Those documents are kept in the Central Files of the SWRO Regional Office of Ecology (SWRO) for review by appointment only. You can make an appointment by calling the SWRO resource contact at (360) 407-6365.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that **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.

Ecology has determined your characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described in **Enclosure A.**

Ecology's comments regarding the site characterization are provided below:

1. Ecology considers the current extent of petroleum impacted groundwater to be delineated. Groundwater concentrations of TPH-G and TPH-D measured in Site monitoring well MW-7 appear to be on a decreasing trend since the August 15, 2015 injection of Oxygen Release Compound Advanced® (ORC-A) and RegenOx® Part A. Nearly all exceedances of groundwater criteria have been observed at monitoring well MW-7 since its installation in November 2014. Typically, installation of a monitoring well would be suggested immediately downgradient of monitoring well MW-7 to identify the groundwater contaminant plume edge. However, the Main Street right-of-way (ROW) is immediately downgradient, and placement of a monitoring well within the ROW would be impractical. In addition, Ecology does not anticipate concentrations of TPH-G and TPH-D in groundwater to be detectable at the property north of the Main Street right-of-way due to the relatively minor groundwater impacts, distance away from the release, and because the shallow soil has a low hydraulic conductivity (8×10^{-5} to 7×10^{-4} cm/s; Washington State Department of Ecology, 2000) which decreases the potential for migration. Due to this, monitoring well MW-7 appears to represent the approximate location of the downgradient extent of petroleum impacts in groundwater. If concentrations of petroleum constituents begin to rise at MW-7, additional characterization may be required on the property to the North.
2. As noted in an email from Ecology on January 6, 2016 (see Enclosure B), Ecology will require four quarters of groundwater sampling data which indicates groundwater concentrations of hazardous substances, known or suspected of being in groundwater, are below MTCA Method A Groundwater cleanup levels (CULs). In other words, Ecology recommends monitoring wells MW-5 and MW-7 be sampled quarterly for TPH-G, TPH-D, TPH-O, and BTEX until it has been documented that concentrations have been at or below CULs for four consecutive quarters. After three quarters of clean groundwater have been attained at MW-5 and MW-7, please sample **all Site monitoring wells** for the potential final sampling event (fourth quarter of clean groundwater).
    a. In addition, other potential contaminants of concern (MTBE, EDB, and EDC) were sampled for one quarter and were not at detectable concentrations. Ecology recommends sampling these three parameters in groundwater on the potential final sampling event. Collecting samples from monitoring wells that have historically had the worst impacts (MW-5 and MW-7) will be sufficient for these parameters.

b. Ecology expects future groundwater samples to be analyzed using NWTPH-Gx and NWTPH-Dx. The *Groundwater Monitoring Report: April 2016* (Terracon, 2016) indicates the total petroleum hydrocarbon samples were analyzed by NWTPH-HCID rather than NWTPH-Gx and NWTPH-Dx. The NWTPH-HCID method is primarily qualitative and typically used to identify the composition of TPH present in a sample.

3. Ecology considers the petroleum impacted soils to be delineated. Concentrations of TPH-G and benzene in soil have exceeded MTCA Method A Soil CULs for unrestricted land use. These exceedances are in an area of ample soil boring density and the soil impacts in the area are relatively minor.
4. Concentrations of TPH-G and benzene have been measured at soil boring B-3 and MW-7. The concentrations of soil impacts at these locations are not significant and are in close proximity to the ORC-A and RegenOx® injection locations. Due to this, if impacted groundwater at this location degrades to concentrations below MTCA Method A Groundwater CULs, it is likely the soil impacts have degraded as well. As such, confirmation soil samples will not be required at this location if groundwater continues to degrade below MTCA Method A Groundwater CULs.
5. Ecology has received and reviewed the electronic data that was submitted to Ecology's Environmental Information Management (EIM) database in accordance with WAC 173-340-840(5) and Ecology Toxics Cleanup Program Policy 840 (Data Submittal Requirements). Please note, any additional data collected at the Site to address the comments in this letter must be submitted and reviewed by Ecology before a No Further Action determination can be issued.

2. Establishment of cleanup standards.

Ecology has determined the CULs and points of compliance you established for the Site meet the substantive requirements of MTCA.

You proposed using Method A CULs for unrestricted land use and Standard Points of Compliance. Ecology has determined the following points of compliance apply to the Site:

- Soil-Direct Contact: For soil cleanup levels based on human exposure via direct contact: "*...throughout the Site from ground surface to 15 feet below the ground surface*" (WAC 173-340-740(6)).
- Soil-Leaching: For soil cleanup levels based on the protection of groundwater: "*...soils throughout the Site*" *(WAC 173-340-740(6))*.
- Groundwater: For groundwater cleanup levels: "*...throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the site*" *(WAC 173-340-720(8))*.

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site does not meet the substantive requirements of MTCA. The cleanup selected has not yet met the minimum cleanup requirements in WAC 173-340-360(2).

4. Cleanup.

Ecology has determined the cleanup you performed does not meet any cleanup standards at the Site.

Cleanup actions conducted at the Site since entering the Voluntary Cleanup Program consisted of in-situ chemical oxidation by injecting Oxygen Release Compound Advanced® (ORC-A) and RegenOx® Part A into soil borings in the vicinity of known soil and groundwater contamination (Terracon, October 21, 2015).

TPH-G and TPH-D may still remain in groundwater. Ecology requires four quarters of hazardous substance concentrations in groundwater to be below relevant CULs in order to demonstrate that CULs have been met. This is required in order to account for seasonal variation in the flow of groundwater. If groundwater concentrations meet MTCA Method A Groundwater CULs for four consecutive quarters, it is expected the minor soil impacts at SB-3 and MW-7 have also degraded to concentrations below MTCA Method A Soil CULs for unrestricted land use.

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).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion, please contact me by phone at (360) 407-7529 or e-mail at matthew.morris@ecy.wa.gov.

Sincerely,

Matthew Morris
Cleanup Project Manager
SWRO Toxics Cleanup Program

MM: cm

Enclosures (5): A – Description and Diagrams of the Site
Figure 1 – 1990s Estimated Contamination Extent
Figure 2 – Geologic Cross Sections
Figure 3 – Cleanup Level Exceedance Summary and Site Features
B – January 6, 2016 – Email Correspondence

By certified mail: 91 7199 9991 7036 2795 9682

cc: Todd Cansler, CLMG Corporation
Douglas Steding, Miller Nash Graham & Dunn
Aaren Fiedler, Ecology
Matthew Alexander, Ecology
Nick Acklam, Ecology

Enclosure A

Description and Diagrams of the Site

Site Description

Site: The Site is an approximate 0.23 acre parcel of land located at 13 East Main Street in Battle Ground, WA. The property corresponds to tax parcel 91101110.

Area and Property Description: The major Site structures include a convenience store building, three closed USTs, and a sign for the current occupant. The Site is bounded by E Main Street to the north, a commercial building to the East, a commercial building and residential property to the South, and S Parkway Avenue to the West. The elevation of the property is approximately 290 feet above mean sea level.

Property History and Current Use: The property was developed as a gasoline station in the early 1980s.

A UST was replaced on the property in 1991, and in doing so, discovered a release had occurred. Much of the impacted soil was excavated and hauled to a separate location for treatment. In late 1991, Ecology entered into Consent Decree No. DE 91TC-S266, resulting in Ecology becoming the lead party for the cleanup process. Ecology proceeded with cleanup actions at the Site for much of the 1990s. The investigation indicated contamination had migrated off-site and was confined to the northeast corner of the gas station and the northwest corner of the adjacent property (15 East Main Street). After monitoring the contamination for several years, Ecology performed additional remedial action. The action included pumping out 300 gallons of groundwater from existing monitoring wells and injecting an oxygen-releasing compound into the soil to enhance biodegradation of the remaining soil contamination. Groundwater samples indicated contaminant concentrations had decreased, though, some locations remained above MTCA Method A Groundwater CULs. Despite this, Ecology suggested no further action (NFA) was needed at the Site in April 2000 and the site was delisted from the Hazardous Sites List shortly thereafter.

The station most recently operated as a Union 76-branded gasoline station/convenience store. In June 2014, the former gasoline station infrastructure (fueling island and dispenser canopy) was removed, and three USTs were closed in place. The closed USTs include: a single wall steel 6,000 gallon gasoline tank, a single wall steel 4,000 gallon diesel tank, and a double wall fiberglass reinforced plastic 8,000 gallon gasoline. The convenience store that remains on the property is currently occupied by a retail liquor store tenant.

Sources of Contamination: A UST was removed from the property in 1991, and in doing so, discovered a release had occurred. The suspected cause for this release was malfunctioning pipe fittings. A no further action letter was issued for the Site in April 2000 related to this contamination. The letter noted that impacts remain, but are not a concern for human-health or the environment.

The property owner who entered into a consent decree with Ecology in the 1990s filed for bankruptcy in the early 2000s. In 2009, LNV Corporation, a subsidiary of Beal Bank USA, acquired a loan secured by the property from the Federal Deposit Insurance Corporation (FDIC), as received for Silver State Bank. LNV assigned the loan to CXA, which foreclosed on the loan on September 23, 2011. As part of the foreclosure process, CXA had Terracon perform a remedial investigation for the Property. Terracon concluded the following from the investigation: TPH related constituents were present in concentrations similar to those observed by Ecology in 1999, a lack of BTEX compounds were present, and the TPH chromatograms indicated a weathered nature of the petroleum impacts. Because of this, Terracon suggests that the contamination is due to the UST release identified in 1991 rather than a new release associated with the USTs that were remaining on the Site after Ecology completed their cleanup.

Surface/Storm Water System: The Site is approximately a quarter of a mile west of Weaver Creek. Private utilities servicing the convenience store building include: a water line to the north, a sewer line to the southeast and a gas line to the west (Figure 1). A figure depicting the storm water conveyance system has not been submitted to Ecology at this time.

Ecological Settings: The site is located in an active business district in the City of Battle Ground. A terrestrial ecological evaluation was submitted to Ecology on June 10, 2016, which indicates the Site is excluded from further evaluation based on the "undeveloped land" exclusion (WAC 173-340-7491(1)(c)).

Geology: The Site is underlain by pebbly, silty, sandy clay. The compaction of the material appears to increase with depth. Figure 2 displays conceptual geologic cross sections depicted in Ecology's *Feasibility Studies and Remedial Activities Conducted at Jim's BP* report. The cross sections were constructed from well logs associated with the Site monitoring wells.

Groundwater: The depth to groundwater at Site monitoring wells varied from 4.80 to 21.03 feet below the top-of-casing during the 2nd quarter 2016 groundwater monitoring event. This shallow groundwater appears to be perched on and within a low conductivity clay deposit.

Water Supply: The City of Battle Ground draws water for a public drinking system from five municipal wells screened at depths of approximately 110 feet below ground surface or greater. These wells are located within one mile from the Site. Domestic wells in the area have typical completion depths of at least 40 feet below ground surface.

Contamination Extent: In 1991, soil and groundwater contamination was discovered during tank decommissioning and tank upgrade activities. Results of remedial investigation activities indicated petroleum contamination had migrated off the property and had impacted the adjacent property to the East. Figure 1 displays the approximate area of contamination after Ecology's initial investigations. Ecology implemented oxygen-releasing compound (ORC) injections in 1999 to remediate the soil and groundwater at this location. Groundwater samples collected approximately 8 months later indicated concentrations of benzene, ethylbenzene, xylenes, and TPH-G decreased significantly, but were still above MTCA Method A Groundwater CULs. Ecology determined the remaining groundwater impacts did not pose a threat to human health or the environment and recommended that no further remedial actions were necessary.

In 2010, an additional investigation was conducted due to a property transaction via foreclosure. The investigation indicated concentrations of TPH-G in the soil and groundwater were still present above MTCA Method A CULs at one location (soil boring B-3).

In April 2014, the USTs were closed in place as the property was no longer being utilized as a gasoline station. Several samples were collected along the perimeter of the UST complex that indicated no contamination was present at concentrations greater than MTCA Method A Soil CULs for unrestricted land use. However, just north of the USTs, concentrations of TPH-G and benzene in soil were found greater than MTCA Method A Soil CULs for unrestricted land use (soil boring MW-7). An additional ORC injection was conducted on August 13, 2015 in order to treat soil and groundwater impacts in the area of soil boring B-3 and monitoring well MW-7.

Due to the relatively low concentrations of TPH-G in the soil identified at soil boring B-3 and MW-7, it is likely the concentrations have decreased below MTCA Method A Soil CULs for unrestricted land use after the additional ORC injections in 2015. The most recent groundwater monitoring event (April 2016) indicates concentrations in groundwater are below MTCA Method A Groundwater CULs at all monitoring wells. Prior to the April 2016 monitoring event, concentrations of TPH-G and TPH-D were frequently above MTCA Method A Groundwater CULs at monitoring well MW-7. Figure 3 depicts the locations of completed soil borings and current Site monitoring wells.

Site Diagrams

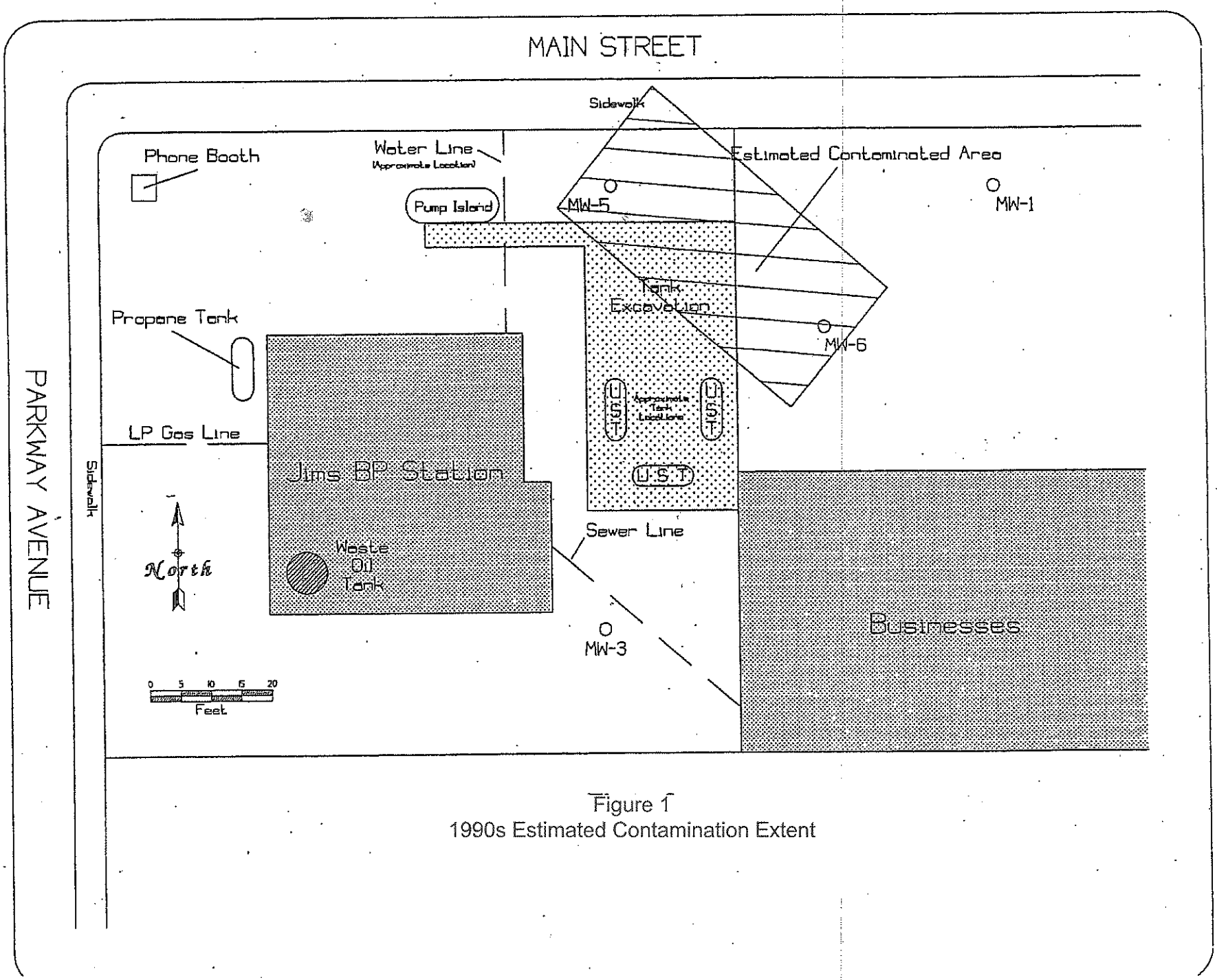


Figure 1
1990s Estimated Contamination Extent

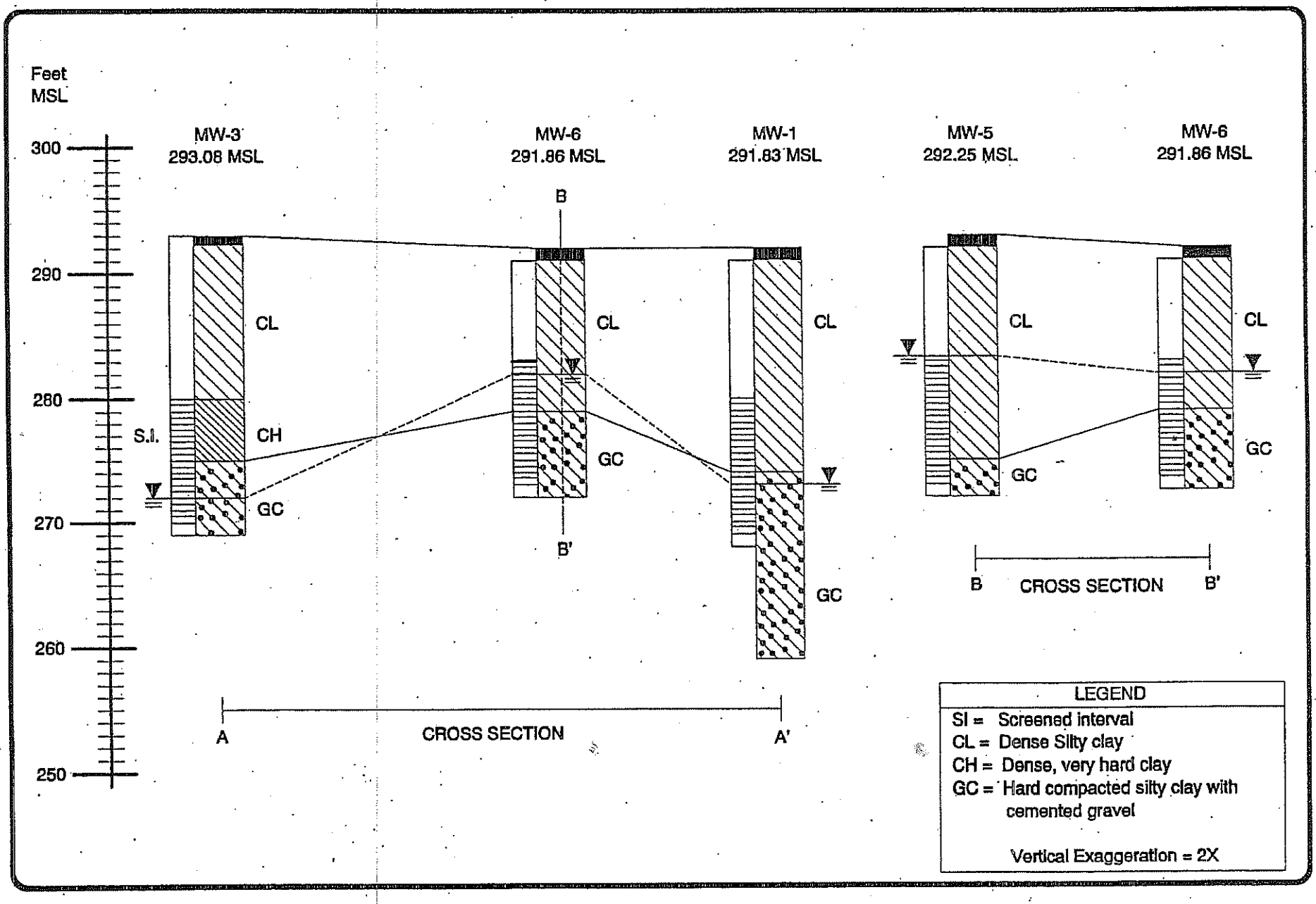
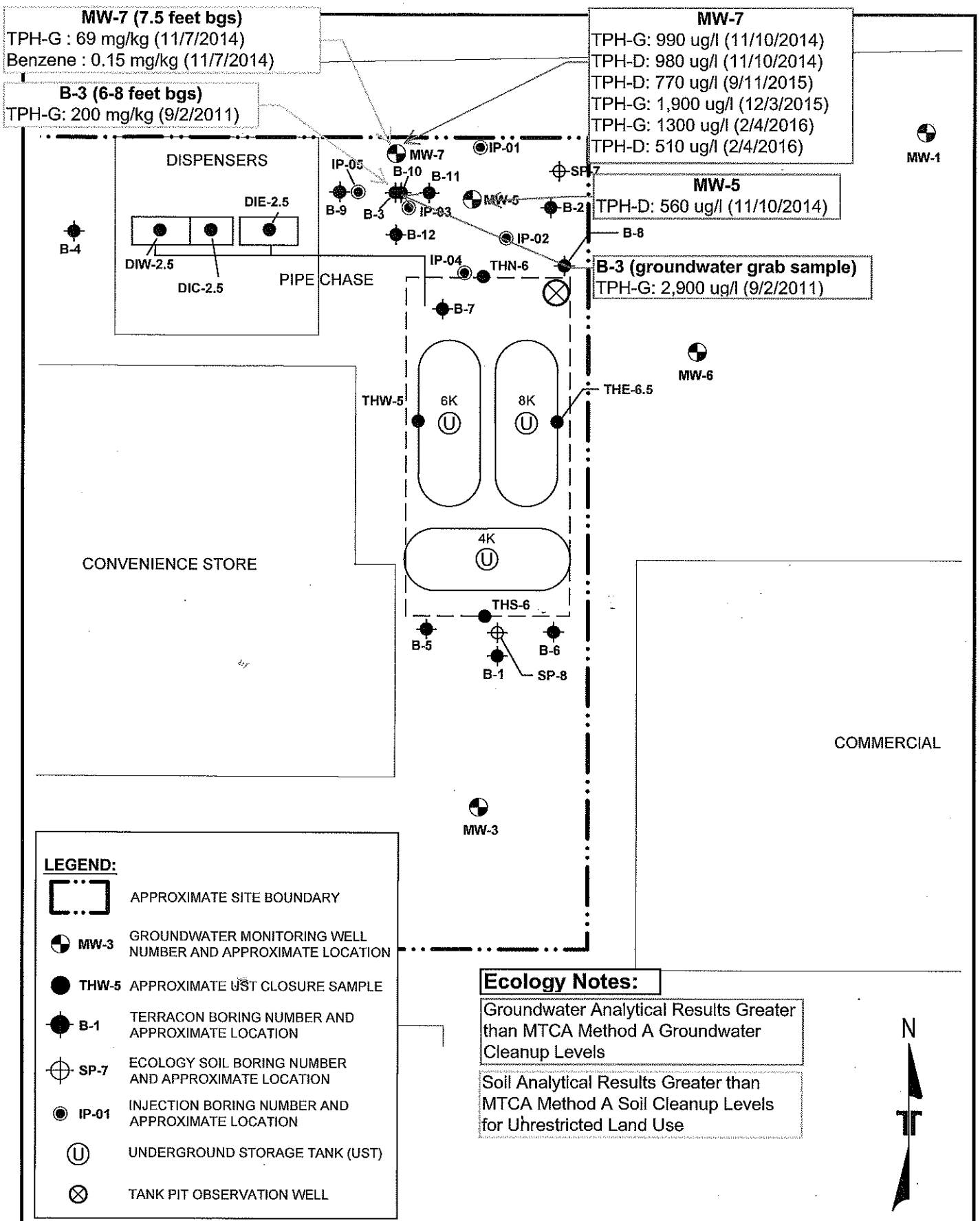


Figure 2 - Geologic Cross Sections



Project Mngr: MDN	Project No. 81157108	Terracon Consulting Engineers and Scientists	SITE DIAGRAM
Drawn By: AWS	Scale: NOT TO SCALE	21905 64th Avenue W., Ste 100 Mountlake Terrace, WA 98043	Union 76 Mini Mar
Checked By: MDN	File No. FIGURE 2	PH. (425) 771-3304 FAX. (425) 771-3549	13 East Main Stree
Approved By: MYW	Date: OCTOBER 2015		Battle Ground, Clark County, V

Figure 3 - Cleanup Level Exceedance Summary and Site Features

Enclosure B

January 6, 2016 Email Correspondence

From: Noll, Michael D
To: Morris, Matthew (ECY); Todd Cansler
Cc: Douglas.Steding@millernash.com; Teel, Steve (ECY)
Subject: RE: Jim"s BP, Battle Ground, WA - VCP No. SW1423
Date: Wednesday, January 06, 2016 10:18:09 AM

Matt – Thank you for providing the conference call summary. At this time, a VCP Opinion will not be requested. We will review the results of the planned February 2016 sampling event and submit a VCP Opinion request with the report, as appropriate. There are a couple of corrections to your summary below. The detected TPH-G concentration (attributed by the analytical laboratory to the presence of a highly weathered gasoline product) in the groundwater sample collected from monitoring well MW-7 increased in December 2015. TPH-D actually decreased to below the MTCA Method A cleanup level at both MW-5 and MW-7. Terracon attributes the increase in TPH-G at MW-7 to be from a combination of a rising groundwater table (depth to water rose 2 feet between September and December) and the effects of the RegenOx Part A treatment applied in August 2015 in combination with ORC-A. RegenOx Part A can have the effect of causing hydrocarbons adhering to soil particles to mobilize into dissolved phase in groundwater.

Looking back through historical sample results, EDB, EDC, and MTBE have not been tested at the site by Ecology or Terracon. These will be added for the February 2016 groundwater sampling event. PAHs (including naphthalene) were analyzed in both soil and groundwater at Terracon boring B-3 in May 2011, and all results were well below MTCA Method A or MTCA Method B cleanup levels. Given Ecology's concerns with the TPH-G detection in groundwater at MW-7, and the lack of TPH-D impacts, analyzing the February 2016 groundwater samples for PAHs does not appear to be warranted.

Michael D. Noll, LG, LHG
Senior Project Manager I Environmental Services
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mdnoll@terracon.com I terracon.com

From: Morris, Matthew (ECY) [mailto:MAMO461@ECY.WA.GOV]
Sent: Wednesday, January 6, 2016 9:12 AM
To: Noll, Michael D <Mike.Noll@terracon.com>; Todd Cansler <tcansler@clmgcorp.com>
Cc: Douglas.Steding@millernash.com; Teel, Steve (ECY) <STEE461@ECY.WA.GOV>
Subject: RE: Jim's BP, Battle Ground, WA - VCP No. SW1423

Hi Michael,

Thank you for setting up the conference call yesterday. I wanted to summarize our discussion we had yesterday in an email to serve as Ecology's response to the Voluntary Cleanup Program (VCP) opinion request. If you would prefer Ecology still issues a formal opinion letter, please let me know. Otherwise, once the next quarter of groundwater sampling data is available, please submit a new VCP opinion request along with the analytical data.

My interpretation of our discussion is summarized below:

- A request for an opinion on Site cleanup was submitted to Ecology after in-situ chemical oxidation was completed at the Site. Previous correspondence indicated that the property owner was seeking a "No Further Action (NFA) Likely" letter from Ecology to aid in a property transaction. However, Ecology only issues NFA Likely letters for Sites where a cleanup action is proposed. At the Jim's BP Site, the cleanup action has already occurred and would therefore not result in an NFA Likely letter.
- Concerns were voiced indicating the lender may not think an NFA Likely letter is sufficient for the property transaction, regardless. Due to the remaining contamination at the Site, Ecology would require institutional controls (i.e., an environmental covenant) to issue an NFA letter at this time. However, due to the potential groundwater flow to the north and the increased concentrations of TPH-D in monitoring well MW-7, site characterization does not appear sufficient to approve the use of an environmental covenant at this time.
- Ecology may issue an NFA letter without the use of institutional controls if the site is adequately characterized and it has been demonstrated that contaminated media does not remain in concentrations above the MTCA Method A cleanup levels. Due to the increased concentrations of TPH-D at MW-7, the groundwater contamination does not appear to be delineated to the north. Michael mentioned that this may be an artifact of the in-situ chemical oxidation. Ecology recommends completing an additional quarter of groundwater sampling to monitor the groundwater impacts. If site characterization appears to be sufficient, an NFA letter may be obtainable through an environmental covenant or through achieving 4 consecutive quarters of groundwater sampling results that are below the MTCA Method A groundwater cleanup levels.

In addition, Steve and I spoke after the call regarding the analytical data for the Site. Please refer to *MTCA Table 830-1 Required Testing for Petroleum Releases* for gasoline and diesel range organics to determine which parameters to sample for. The table indicates the following hazardous substances should be sampled: Benzene, toluene, ethyl benzene, xylenes (BTEX), dibromoethane, 1-2 (EDB), dichloroethane, 1-2 (EDC), methyl tertiary-butyl ether (MTBE), total lead, carcinogenic PAHs, naphthalenes, and total petroleum hydrocarbons (TPH-G/D/O).

If you have any questions or would like to discuss in greater detail, please don't hesitate to contact me.

Thank you,
Matt

Matthew Morris
Cleanup Project Manager
Ecology's Toxics Cleanup Program
Southwest Regional Office
Phone: (360) 407-7529
Matthew.Morris@ecy.wa.gov

From: Noll, Michael D [mailto:Mike.Noll@terracon.com]
Sent: Tuesday, January 05, 2016 8:53 AM
To: Morris, Matthew (ECY); Todd Cansler
Cc: Douglas.Steding@millernash.com; Teel, Steve (ECY)
Subject: RE: Jim's BP, Battle Ground, WA - VCP No. SW1423