STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Central Region Office
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January 27, 2023

Sent via email and hard copy

Jim Cach
Coleman Oil Company
529 E. Kennewick Avenue
Kennewick, WA 99336

RE: Status of work under Agreed Order DE 15389 and review of Draft Focused Feasibility Study – V3

- **Site name:** Coleman Oil Biodiesel Spill
- **Site address:** 3 E. Chehalis, Wenatchee
- **Facility/Site ID:** 83844381
- **Cleanup Site ID:** 13215
- **Agreed Order No.:** DE 15389

Dear Jim Cach:

The Department of Ecology (Ecology) has reviewed the report titled *"Draft Focused Feasibility Study - V3,"* prepared by HydroCon, and dated December 5, 2022. Comments on the draft FFS as well as a site status update are provided below.

Site Status Update

Agreed Order DE 15389, issued in October 2017, required the Potentially Liable Persons (PLPs) complete a Remedial Investigation (RI), a Feasibility Study (FS), and Draft Cleanup Action Plan (DCAP).

Ecology issued a letter of approval for completion of the RI in July 2019.

Coincident with the RI, the PLPs conducted an interim action to recover separate phase product to prevent it from entering the surface water of the Columbia River. This interim action began in 2017 and incorporated the use of oil/water separators and settling tanks together with treatment of contaminated groundwater using granular activated carbon (GAC) as part of the remediation system. The treated effluent was then routed as permitted discharge to the City of Wenatchee's sanitary sewer system.

In 2018, the remedial system was upgraded, and the coverage area expanded by adding more recovery wells (*"Additional Interim Action Addendum #2 Report*,*"* dated December 11, 2018). Ecology provided prior tacit approval of the use of oxygen-containing amendments to the groundwater remediation system in a letter dated November 18, 2019. The remediation system was further modified in 2020 by adding treatment by hydrogen peroxide in addition to the use of GAC. This "pump and treat" system was modified to incorporate subsurface recirculation of treated water and formed what can be defined as a closed loop system (*"Installation of Groundwater Recirculation System Work Plan*,*"* dated May 22, 2020). This work plan also describes the prior management of the extracted and contaminated groundwater. All injection points are registered under an underground injection control (UIC) permit from Ecology (Site No. 34675). This configuration of the remediation system is expected to run until all contaminants of concern are reduced below their respective MTCA Method A groundwater cleanup levels. The 2019 Operations and Maintenance (O&M) report was submitted to Ecology on April 6, 2020. An addendum to the final draft 2019 O&M report was submitted as a technical memorandum to Ecology on August 10, 2020.

The groundwater monitoring frequency currently occurs on a semi-annual basis at select wells preapproved by Ecology. Before sampling, the system is shut off for several days to allow water levels to equilibrate. Each monitoring report contains graphs that show groundwater contaminant trends. Once the groundwater cleanup levels are met, sampling will revert to a quarterly basis until the concentrations of all contaminants of concern remain below their respective Method A cleanup levels for four consecutive quarters at the select wells being monitored for compliance. As established by Ecology, during one of the monitoring events in this interval, sampling will be performed at all site monitoring wells within the historical contaminant footprint to verify that the "clean wells" have remained below the cleanup level, i.e., the contaminant plume has not expanded or shifted.

Comments on the Draft Focused Feasibility Study

1. In **Section 5.1.4**, provide the correct Method A soil CUL for benzene (0.03 mg/kg).

2. Correct the Method A soil CUL for benzene in all the pages of **Table 1**. Also, correct the highlighted values for those samples in the table that exceed the soil CUL for benzene.

3. In the tables titled, **Proposed CULs for Soil** and **Proposed CULs for Groundwater**, in **Section 6.2**, Ecology stipulates that compliance for soil and groundwater media will be based on a summation of diesel range organics and oil range organics, consistent with Ecology's Implementation Memorandum No. 4 (ECY Publ. No. 04-09-086) and its *Guidance on Remediation of Petroleum Contaminated Sites* (ECY Publication No. 10-09-057). Add this information to the table. For instance, add a header for Total TPH (DRPH + ORPH) and show the CUL as 500 ug/L.

4. Add a column for the Total TPH (DRPH + ORPH) to **Tables 1** & **2**, consistent with the information in Comment #3 above. Show the compliance levels as 2,000 mg/kg for soil and 500 ug/L for groundwater, respectively.

5. On **Table 2**, change naphthalene to naphthalenes, consistent with the Table 720-1 of MTCA.

6. **Table 3** should show the concentration for total naphthalene (the sum of 1-methyl naphthalene, 2-methyl naphthalene, and naphthalene). This is based on reference to the footnotes to Table 720-1 in MTCA. Add a column that lists total naphthalenes along with the Method A groundwater CUL for naphthalene.

7. **Section 4.3** of the FS states that, in 2018, naphthalene was analyzed in three samples and there were no exceedances of the CUL. These three samples just refer to low level detections of naphthalene at MW14 in April 2018 and at MW17 in April 2018 and again August 2018. The original statement is incomplete since reference to **Table 2** shows an exceedance of the groundwater CUL for naphthalene at MW13 in August 2018.

8. Total naphthalene is not discussed in any part of **Section 5.3** regarding groundwater. Add a short section that discusses naphthalenes consistent with the findings in groundwater as shown in **Tables 2** and **3**.

9. According to the footnotes to Table 830-1 in MTCA, testing for naphthalenes in soil is not required when using Method A CULs, since it is accounted for in the TPH CUL, except when the inhalation exposure pathway is evaluated or if naphthalenes are found in groundwater. Since **Table 2** shows that naphthalenes were found in groundwater at MW13, MW14 and MW17, account for naphthalene analysis in soil, as applicable. Note that the naphthalene concentration at MW13 exceeded the Method A groundwater CUL.

10. In the **Executive Summary** and in **Section 8.1**, restoration time frame is described in qualitative terms as lengthy. In the report, this criterion is described in reference to degradation of diesel and not in specific reference to the remedy alternatives. Typically, when using qualitative terms, there is a relative comparison of restoration time frames for the various alternatives. Discussion of restoration time frame is important since the acceptance of groundwater conditional points of compliance is predicated on whether it is not practicable to meet the applicable cleanup levels throughout the site within a reasonable restoration time frame [WAC 173-340-720(8)(c)].

11. In **Section 6.5.2**, it states, "*Existing wells have been located as close to* [sic] *the river as is technically possible so some or all of these wells to the east of Worthen Street can be groundwater points of compliance*." Note that WAC 173-340-720(8)(d) states that a conditional point of compliance (CPOC) shall not exceed the property boundary except in one of three situations described in that section.

The applicable situation is one where the property is near but not abutting surface water. For a groundwater conditional point of compliance in this case to be approved, the conditions specified in (d)(i) of this section must be met and the affected property owners between the source of contamination and the surface water body must agree in writing to the use of the conditional point of compliance.

12. The adjacent properties to the east and northeast include City of Wenatchee right-of-way and properties owned by Chelan County PUD. For our records, please provide written evidence that the adjacent property owners agreed to this specified condition.

13. Per MTCA, groundwater is considered potable by default. Likewise, in **Section 6.4.5**, groundwater is potable unless it can be demonstrated to be non-potable based on the criteria given in WAC 173-340-720(2). This applies regardless of whether any water supply wells exist nearby. The most likely applicable criterion for groundwater at this site is a volume exemption as described in WAC 173-340-720(2)(a)(i). A volume exemption is typically based on an empirical demonstration. In any case, this appears to be a moot point since the FS expresses adherence to Method A groundwater CULs which is based on drinking water beneficial uses.

14. MTCA does allow a qualitative comparison of alternatives [WAC 173-340-360(3)(e)(ii)(C)]. However, the cost criterion can be difficult to evaluate if it is not quantitative. In this case, reasonableness of cost is subjective. For instance, three of the alternatives (the no action alternative, the groundwater pump and treat alternative, and the monitored natural attenuation alternative) have the same numerical rating for reasonableness of cost yet there is no quantitative data to justify assigning the same rating.

    Often the no action alternative is provided as a “book end” for cost comparison purposes. However, the no action alternative is rejected since it does not provide for compliance monitoring and thus does not meet the minimum requirements under WAC 173-340-360. Typically, the most permanent remedy to the maximum extent practicable is selected as the basis for comparing the other alternatives, including cost. For this site, this baseline alternative is the excavation and off-site disposal option.

    Of the remaining remedies in this example, the MNA alternative should be less costly than the groundwater P & T alternative since the cost for the latter should include installation, operations, and maintenance costs. Both, however, may involve similar monitoring costs.

15. Have any Applicable or Relevant and Appropriate Requirements (ARARs) been identified in the FS? If so, please list these ARARs to the FS as table. For example, for surface water compliance at the CPOCs, applicable regulations may include federal regulations such as CWA §304 and 40 CFR 131.45 as well as the Washington State Water Quality Standard (WAC 173-201A).

These standards may potentially apply in the case where either separate phase product or dissolved phase product enters the surface waters.

16. **Table 6** provides a comparison of the remedial alternatives by each criterion in WAC 173-340-360(3)(f) including cost. Cost is discussed in **Section 7.2.6**, but a disproportionate cost analysis was not conducted. The cost information provided in the FS is at best semi-quantitative.

    Consequently, I have attached a tabular and graphic representation of the Disproportionate Cost Analysis (DCA) with some adjustments to the ratings. The graph allows one to compare the total weighted benefits and cost (not reasonableness of cost) more easily among all the alternatives.

17. I note that sample preparation Method 3630C or rather, silica gel cleanup, is discussed throughout the FS. Ecology is working to finalize a guidance document that describes how to use silica gel cleanup (SGC) properly to close sites out.

18. **Figure 3** shows soil contaminated at high concentrations by gasoline range- and diesel-range organics at SL01 through SL04 near the river's edge at a location that may be inundated when the river water level rises. Is this area amenable to remedial action to remove the contaminated soil? Please provide your basis to make that determination for Ecology to review.

19. The RI report stated that the site is defined yet Figure 21 in that report and Figures 6 through 7A of the FS show that the west boundary of the site is depicted as inferred. Please add appropriate language to the FS to state that the west boundary abuts two adjacent cleanup sites: Chelan PUD Worthen Substation (FSID #44830, CSID #14795) and BNSF Wenatchee Railroad (FSID #28673212, CSID #5820). These two sites are listed in Ecology databases as 'awaiting cleanup' and 'cleanup started', respectively. **Section 6.1.2**, in a portion titled **Potential Offsite Sources**, does briefly discuss additional sources but should be modified to include this additional information.

20. The **Table of Contents** shows Figures 6A and 6B, yet the actual figures are labeled as Figure 6 and Figure 6A. The text also refers to Figure 6 and Figure 6A. Please correct these items for consistency. This discrepancy also applies to the TOC in reference to Figures 7 and 7a. Likewise, please correct.

21. In contrast to what is depicted in RI, **Figures 6** and **6A** in the FS show that a portion of the northeast part of the groundwater plume is undefined (labeled with question marks). Yet, these visual interpretations do not correspond to the groundwater data provided in **Table 2**, for instance, at MW31.

MW31 was installed on August 15, 2018, as described in the report titled *Additional Interim Action Addendum #2 Report*. The groundwater sampling at that well began on August 28, 2018 and extends through November 2020 which coincides with the continued treatment of groundwater. Thus, there is no baseline monitoring data which may explain the observed groundwater concentrations in contrast to some of the soil data at that location. According to **Figure 4** and consistent with **Table 1** of the FS, GRPH was found at concentrations that exceeded Method A soil CULs at MW31 while **Figure 3** and **Table 1** of the FS do not show DRPH exceeding soil CULs at the same location. In any case, the expectation is that the DRPH soil data supports an interpretation of the plume map that defines the east boundary.

22. The **Remedial Alternatives Evaluation** section in the **Executive Summary** states that Alternative 8 which was initially listed as Soil Vapor Extraction was replaced with Institutional Controls – Environmental Covenant. However, Alternative 8 does not show up in Table 6. In any case, Institutional Controls are more appropriate as a remedy component rather than a standalone remedy.

23. A combined remedy is mentioned in the last paragraph of the **Remedial Alternatives Evaluation** section. This combined remedy involves groundwater pump and treat, remedial excavation with offsite disposal and monitored natural attenuation. Note that the use of institutional controls can be an alternate component instead of remedial excavation/offsite disposal at areas where soil contamination exists at depths less than 15 feet.

    The FS does mention specific areas where localized remedial excavation can occur. For instance, localized excavation near MW14 is recommended to remove source mass containing GRPH and associated constituents. Thus, the preferred alternative is a combined remedy with pump and treat as the primary remedial action followed by monitored natural attenuation and limited excavation/disposal and/or institutional controls.

Ecology appreciates your work on this project. We look forward to receiving the revised Feasibility Study. Please contact me if you have any questions at (509) 731-9613 or John.Mefford@ecy.wa.gov.

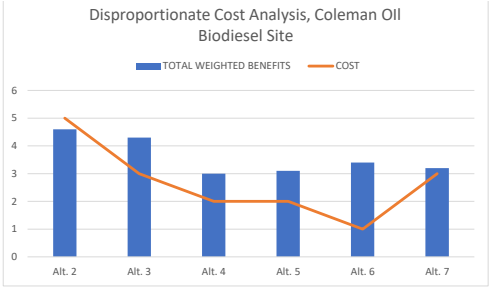
Sincerely,

John Mefford, LHG
Cleanup Project Manager/Hydrogeologist
Toxics Cleanup Program
Central Region Office

Enclosure: Disproportionate Cost Analysis, Coleman Oil Biodiesel Spill Site

BENEFITS	Weighting Factor	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Protectiveness	30%	5	4	3	3	2	3
Permanence	20%	5	4	3	3	4	4
Long-Term Effectiveness	20%	5	5	3	3	4	3
Short-Term Risk	10%	4	5	3	4	4	4
Implementability	10%	4	5	3	3	5	2
Consideridation of Public Concerns	10%	3	3	3	3	3	3
TOTAL WEIGHTED BENEFITS	100%	4.6	4.3	3	3.1	3.4	3.2
COST		5	3	2	2	1	3

Note that Consideration of Public Concerns was added but that the numbers are constant across all alternatives.



Alt. 1	No Action	Rejected since this alternative does not meet minimum requirements under WAC 173-340-360 (does not provide for compliance monitoring).
Alt. 2	Excavation and Off-site Disposal	Ecology considers this to be the baseline alternative since it is the most permanent remedy to the maximum extent practicable. Thus, it will be used as the basis for comparing all of the other alternatives.
Alt. 3	Groundwater Pump & Treat	
Alt. 4	Biodegradable Solvent	
Alt. 5	In Situ Chemical Oxidation	
Alt. 6	Monitored Natural Attenuation	This is very similar to the no action remedy except performance compliance monitoring will be performed since it is a standard feature of how monitoring natural attenuation should be conducted..
Alt. 7	Barrier Wall (Containment)	This is an institutional control to prevent impact to surface water. This alternative does not involve any active remediation which will likely lead to a long restoration time frame for site cleanup. Since this alternative deals primarily with addessing the groundwater to surface water pathway, it should not be considered as a standalone remedy.

Note that the scores should be ranked so that 1 = least benefit for a particular category and 5 = most benefit for that category. For short-term risk, the ranking should be reversed so that 1 = most risk and 5 = least risk. Under this categorization, the highest cumulative score should be the alternative with the greatest benefit.

Also, these given alternatives consist of a single component while many remedies are multi-component to form a combined remedy. An example of a combined remedy is limited dig and haul, chemical treatment or institutional controls in areas inaccessible to excavation, and monitored natural atttenuation when sufficient source mass control has been achieved and criteria for a transition from active to passive remediation is