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November 1, 2024

James Kiernan
Project Manager
Chevron Environmental Management Co.
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Re: Unocal Bulk Plant #0601 draft Remedial Investigation and Feasibility Study Report

- **Site Name:** Unocal Bulk Plant #0601
- **Site Address:** 738 Marine Drive, Port Angeles, WA 98362
- **Facility/Site ID:** 1006
- **Cleanup Site ID:** 4976

Dear James Kiernan,

This work is being done under Agreed Order No. DE 4086 between Washington State Department of Ecology (Ecology) and Chevron U.S.A. Inc. (Chevron), and in compliance with the Model Toxics Control Act, Chapter 70A.305 RCW.

The following are Ecology's comments to the updated draft Remedial Investigation (RI) and Feasibility Study (FS) Report submitted to Ecology on March 3rd, 2023 regarding the cleanup site known as Unocal Bulk Plant #0601 (Site). The purpose of a remedial investigation is to collect data necessary to adequately characterize the site for the purpose of developing and evaluating cleanup action alternatives. The purpose of the feasibility study is to develop and evaluate cleanup action alternatives to enable a cleanup action to be selected for the Site.

General Comments

References:

This report lacks sufficient references. Ecology's comments on the RI/FS report submitted in 2016 requested the addition of references and citations to support and verify statements and to direct the reader to documents mentioned. Ecology again made this comment regarding the 2019 RI/FS report prepared by Leidos. The RI/FS submitted in 2023 has not sufficiently addressed this ongoing issue.

There are extensive details, engineering ground plans, historic photos, documented releases, and reported results described in the 2019 Leidos report that are not backed up by sufficient references and that problem remains with this 2023 report so long as the 2019 report remains a reference for these sections. Given the incomplete nature of the 2019 Leidos report, which was returned to Chevron without being formally reviewed by Ecology, it should not be used as a reference for the 2023 RI/FS report or any future reports regarding this Site.

Data Gaps:

It appears there are substantial data gaps remaining, including delineation of the northern end of the plume and the characterization of the groundwater as potable. These data gaps would present a significant deficiency with the selection of a remedy and should be considered required information to fully characterize this site. It is therefore Ecology's assessment that this remedial investigation is incomplete, and that Chevron should withdraw their RI/FS report and instead submit an RIWP amendment to complete their field work.

Specific Comments

Section 1 Introduction:

"This Draft RI/FS Report was prepared as required by Agreed Order (AO) No. DE 4086 with the Washington State Department of Ecology (Ecology), executed on April 30, 2007, to continue investigation of impacts onsite (Ecology 2007), begin a formal cleanup process under the Model Toxics Control Act (MTCA), and as recently requested by Ecology (discussed further below)."

This sentence should acknowledge the requirements for a remedial investigation and feasibility study in WAC 173-340-350 and the general report submittal requirements of WAC 173-340-840. Ecology left this comment on both the 2016 and 2019 RI reports.

Section 2.1 Site Description:

"...and a former log storage and processing yard to the northeast (now part of the Port) across Boat Haven Drive."

This area is not part of "the Port" and should be clarified to read "now part of the materials storage/parking area owned by the Port (of Port Angeles)."

"The Marine Trades Area (MTA) case..."

This should be clarified to refer to the Marine Trades Area cleanup project as a "Site," rather than as a "case."

Section 2.3.2 Site Hydrogeology:

"In general, groundwater flow beneath the site appears to be to the north-northwest, toward the Port Angeles Harbor at a gradient of 0.004 to 0.03 foot per foot."

This gradient does not match Figure 2-8. Ecology would also like to see some discussion of how this gradient was calculated.

"During the November 2007 groundwater monitoring event, a series of down-hole dataloggers were placed in monitoring wells MW-6, MW-12, MW-18, and MW-19 to evaluate the tidal influence on site-wide groundwater elevations."

Figure 2-9 shows the data being collected in June, rather than November. Ecology would also like to see more discussion of how the tidal study was performed; our understanding is that it was conducted over a relatively short time frame, and perhaps additional work is needed to assess the correct level of tidal influence.

Section 2.4 Historical Site Investigations and Remediation:

"Several environmental investigations were performed at the site between 1984 and 1993. The results of the investigations were reported by GeoEngineers in various documents and are presented in historical reports (Appendix A), and boring logs (Appendix B). Groundwater monitoring has been performed at the site since 1991 and data are presented in Tables 2-1 through 2-3."

This section is lacking sufficient references. Appendix A appears to contain reports from 1984, 1988 and 1992, as well as the Agreed Order from 1991. It is unclear what documentation exists to confirm the activities described in this section as late as 1996.

“In September 1992, approximately 4,000 cubic yards of soil were removed during demolition activities; however, no details are known. Well HB-1 was destroyed during demolition.”

Ecology would like to know from where this information was obtained; none of the reports available in Appendix A contain this information.

“In November and December 1996, in lieu of repairing the system, a large-scale remedial excavation was performed in the most impacted area and to remove LNAPL.”

Ecology could not locate any analytical data or site plans related to these investigations in Appendix A. Please provide the original report from this investigation, including some figures and maps and, if available, an estimation for the contaminated soil remaining after this excavation.

Section 2.5 Subsequent Investigations:

“Ecology reportedly approved the first phase of field investigations; however, we have no copies of any associated letters. RI activities, including a soil, groundwater, and vapor intrusion investigation, began in June 2007 (Leidos 2019).”

Ecology has been unable to locate any proof of their approval of a June 2007 RIWP. Please provide documentation of this RIWP and the field investigations that does not refer to the 2019 Leidos report.

“Four additional monitoring wells (MW-22 through MW-25) were installed and developed to further define the extent of petroleum impacts at the site.”

Provide a timeframe for when MW-1 through MW-21 were installed.

Section 3.1 Soil Quality:

Ecology would expect this section to include a list of contaminants and additives that have been tested for in the soil at this site, including all the contaminants required by WAC 173-340-900 (Table 830-1), such as EDC, EDB, and MTBE. If there is data or analysis showing that these contaminants have been tested for and eliminated from potential concern, it should be noted as such here and include a reference to whichever appendix with which the lab reports are included. The introductory paragraph to section 3 broadly states that the list of COCs in soil and GW has been narrowed, but nowhere in the section is there a discussion of how (such as by using screening levels or historical testing) or from what (such as a complete list of analytes from which to start).

"...and additional borings were subsequently advanced to collect soil samples using direct-push technology."

It is Ecology's understanding that an air-knife was still used to a certain depth. Confirm whether or not direct-push borings were completed in all locations where an air-knife was used.

"These downgradient soil impacts are limited to smear zone and capillary fringe soils."

The data does not support this statement. Table 3.1 shows off-property soils impacted at depth comparable to soils on property, and the contamination in SBP-5 is as deep as 20 feet.

"COCs in soil are typically encountered at depths between 4 to 5 feet bgs and extend vertically to a maximum depth of approximately 15 feet bgs in the area of the former LNAPL recovery system. For the remainder of the onsite property (outside of the recovery system area), impacted soils are encountered to a depth of approximately 10 feet bgs..."

Ecology would expect to see some mention of the interim soil removal performed in the area of the LNAPL recovery system.

Section 3.2 Soil Vapor Quality:

Ecology is concerned about the potential for vapor intrusion based on the results presented in Table 3-5 and is not sure if the conclusion reached in this section is sound. Benzene, naphthalene, and xylene are all well above CULs and close to screening levels. Provide some explanation for how background levels could justify these results. It is worth noting here that the former consultant promised a Vapor Intrusion report in 2018 that was never submitted to Ecology.

Section 3.3 Groundwater Quality:

"Groundwater quality has been assessed at the site since the 1980s. Groundwater monitoring and sampling results are presented in Tables 2-1, 2-2, and 2-3 and Appendix C."

Include some detail about the frequency of this sampling

"Remaining COCs in groundwater include TPH-g, TPH-d, and benzene."

This section should include a robust discussion of how Chevron arrived at this conclusion, including a discussion of initial contaminant testing (including any petroleum constituents from Table 830-1 that were detected in soil) and preliminary screening levels.

Given the number of years over which groundwater data has been collected, I would expect to see some analyses and figures depicting how the groundwater impacts have changed. I would also expect to see some gradient maps showing current (and possibly former) areas of higher concentration rather than just the extent. It is important to understand how the groundwater plume is changing over time to design an effective remedy. This comment was made on the 2019 RI/FS and still pertains to this RI/FS.

"...recent groundwater analytical results indicate that benzene concentrations are less than the MTCA Method A CUL across the site."

This does not appear to be the case, as MW-32 has exceedances in testing from 11/2020 to 8/2022.

Section 3.4 Groundwater to Surface Water Cleanup Levels:

"CULs for marine surface water have not been established for TPH-g, TPH-d, or TPH-ho..."

Ecology has established CULs from a 2021 Implementation Memo (#23).

Section 4.2 Remaining Impacts:

"Extensive investigation and remediation have been conducted at the site..."

Though this site has been extensively investigated to this point, Ecology would contest the characterization of the remediation activities at this site as "extensive" and believes this should be replaced with "several interim actions have been performed."

"...applicable MTCA Method A CULs has been mostly delineated; however, some additional investigation is warranted to complete delineation in certain areas (Figures 2-10 and 3-1)."

Figure 2-10 appears to show soil boring locations with no polygon to designate "extent"; Figure 2-11 appears to show extent.

Section 4.4 Contaminants of Concern:

"Petroleum hydrocarbons (TPH-g, TPH-d, TPH-ho, and BTEX) are the primary COCs in soil at the site, with TPH-g, TPH-d, and TPH-ho as the primary COCs in groundwater."

Earlier in the report, it was stated that TPH-ho was not a concern and that benzene was. This needs to be consistent throughout this document.

Section 4.5.4 Human Receptors:

“...as well as potential commercial workers or the general public depending on future site use.”

This does not match Figure 4-1, which does not include the general public as a potential risk or regulatory concern.

Section 6.3.1 Endpoints for Cleanup Levels:

“Based on the information presented above, groundwater beneath the site is non-potable under WAC 173-340-720(2).”

This section lays out several requirements that need to be demonstrated in order to classify the water as non-potable but only explains why one of those requirements is met. Ecology agrees that more data is needed to show the water is non-potable. Chevron should either write an RI that accepts the water is potable or execute a work plan to gather the information needed to make the case that it is not before submitting an RI or coming to such a conclusion.

Section 6.3.3 Groundwater Point of Compliance:

“The POCs for groundwater are the point or points where hazardous substances are released to surface water [WAC 173-340-730(6)]. At the site, hazardous substances may be released to surface water from groundwater; therefore, the POCs for groundwater are developed to confirm protection of surface water...”

WAC 173-340-730(6)(b) defers to WAC 173-340-720 (8)(d) when groundwater flow is the source for potential contamination of surface water. WAC 173-340-720(8)(d) contains a list of requirements to be met to establish this POC. The conditional POC should be as close as practical to the source of contamination.

Section 6.4 Soil Cleanup Standards:

“The final soil CULs and POCs are summarized in Section 6.5.”

These POCs are not included on the table in Section 6.5, though it is stated in Section 6.4.2 that they will be 15 feet throughout the site.

Section 8 Evaluation of Remedial Alternatives:

Ecology requests some estimation of the contaminated soil remaining be included with each remedy containing excavation.

Section 10 Conclusions and Recommendations:

“Upon concurrence with the recommended alternative, details of the proposed remediation will be presented in an EDR.”

Agreed Order No. DE 4086 does not include the submittal of an Engineering Design Report (EDR). Remove mention of the EDR here and throughout this report. The next steps after an RI/FS report include preparation of a preliminary cleanup action plan (dCAP). A new order must be established after to implement the chosen cleanup action plan (CAP).

Section 11 Schedule:

Include a timeline with submittal dates as part of this schedule.

“Following approval of this Draft RI/FS Report by Ecology as ready for public review, a work plan will be submitted to address remaining data gaps.”

Include mention of a review and comment cycle for the data gaps work plan, implementation of the work plan, and how the results of the work plan will be submitted or incorporated with a future RI/FS or other type of report.

“...the work plan and DCAP will be provided to the Lower Elwha Klallam Tribe lead archaeologist for comment, and cultural resource monitoring...”

It should be clarified that the work plan will be supplied to LEKT, not just the lead archaeologist.

Figure 2-3:

This figure shows the property boundary. The "Site" boundary should be defined as the extent of contamination.

Figure 2-11

The yellow dots on this figure should be bold, since showing the exceedances is the purpose of the figure.

Figure 3-1

MW-32 is high over several testing events with benzene but is shown outside of the boundary of contamination.

There is also a legend item for exceedances that is not implemented, though it should be, to clearly show which wells remain contaminated.

Figure 4-1

This CSM is missing the groundwater to surface water connection.

Please incorporate these comments into a future draft of the RI/FS report to be submitted to Ecology within 30 calendar days of the receipt of these comments; that date is October 25, 2024. If you have any questions, you may contact me at 564-669-4866 or thomas.praisewater@ecy.wa.gov.

Sincerely,



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Ecology Site File