

TECHNICAL REVIEW COMMENTS
Quarterly Progress Reports No. 22-4 and No. 23-1
RCRA Post-Closure Permit No. AKD 04867 9682
Tesoro Alaska Company, LLC.
Kanai, Alaska
April 3, 2023

The US Environmental Protection Agency Region 10 (EPA) received electronically the *Quarterly Progress Report No. 22-4 (August, September, and October 2022) and Quarterly Progress Report No. 23-1 (November, December 2022, and January 2023), RCRA Post-Closure Permit No. AKD 04867 9682, Tesoro Alaska Company, LLC. Kanai, Alaska* (the QPRs 22-4 and 23-1). The QPRs 22-4 and 23-1 were prepared by Trihydro Corporation for Tesoro Alaska Company, LLC (Tesoro) and dated November 29, 2022 and February 28, 2023, respectively. [Please note that subject line for the cover letter for QPR 23-1 has a typo in the subject line, which refers to “QPR 22-1.” Please note for your records.]

EPA’s comments on the two QPRs are combined and presented below. General comments are followed by specific comments.

GENERAL COMMENTS

1. The QPR 22-4 presents the fall quarter 2022 groundwater monitoring data, which includes a more comprehensive monitoring of site hydraulic conditions and groundwater quality required by Table 4 of Tesoro Post-closure Permit. More comprehensive data analyses, including groundwater elevation contour maps and temporal distribution graphs for the indicator contaminants of concern (COCs), are also presented. EPA generally agrees with the data evaluations in the QPR 22-4 for the Surface Impoundment (SI) Area, the Phillips Marathon (PM) Area, the Phillips Remedial Measure (PRM) Area, the Beach Seep Area, and the Upper Confined Aquifer (UCA). However, EPA is concerned that an increasing trend of benzene concentrations is continuously observed in the north of the Injection

Trench #5 (wells E-072RR and E-097) area. EPA agrees that benzene contamination observed in this area will likely be captured by downgradient extraction wells and/or the PRM Air-sparging System. A closer groundwater monitoring in this area, including quarterly monitoring of wells E-072RR, E-097, E-179, and E-162, must be conducted. A new monitoring well to the south of well E-072RR must be proposed if the spring 2023 monitoring data shows continuous elevated benzene concentration in well E-072RR.

2. The QPR 23-1 presents the implementation data for the SI Area Supplemental Pilot Study Remedial Action (a permeable reactive barrier [PRB] wall with PlumeStop™ combined with S-Micor Zero Valent Iron [S-MZVI]). It appears that the Pilot Study Remedial Action with PRB shows its initial effect at direct downgradient location of SMW-31; TCE concentrations at well SMW-31 decreased from previously detection of 24.8 µg/L on August 30, 2022 (the QPR 22-4, Table 2A and Figure 3A) to non-detect (ND) on December 8, 2022 (the QPR 23-1, Appendix C, Table 3).
3. Appendix C of the QPR 23-1 must include soil and groundwater data collected from the two temporary wells (TW-1 and TW-2) to evaluate the PRB reagents (PlumeStop™ and S-MZVI) subsurface distribution during the PRB wall injection/installation. Also, groundwater remediation effectiveness monitoring must be clarified (see specific comment #10 below).

SPECIFIC COMMENTS

1. QPR 22-4, Page 2-2, Section 2.3, third paragraph:

The second sentence that “[T]he composition of mass flux as daughter product (cis-1,2-DCE) versus TCE at SMW-31 was slightly higher than at SMW-31” is confusing because

of a typographic error. Based on the discussions of this section and Figure 3A, the first well in the sentence should be SMW-36 instead. This error must be corrected.

2. QPR 22-4, Page 2-3, Section 2.5:

A bullet must be added to discuss well SMW-36 data. TCE concentration detected in this downgradient well has been a concern for EPA. We agree that “the measured mass flux at SMW-36 is considerably lower than that at SMW-31, suggesting that current mass flux out of the SI area is relatively small.” However, EPA hopes that the TCE mass flux leaving the SI Area will be eliminated after the installed PRB wall takes its effect in the near future.

3. QPR 22-4, Page 3-2, Section 3.2, first paragraph:

Hydraulic connections between the Swamp and the A-aquifer have been established based on historical groundwater and the swamp water level gauging data. In general, the Swamp water levels are lower than the A-aquifer water levels in upgradient wells but higher than the groundwater levels in the downgradient direction. However, this may not be the case at wet or dry seasons. The Swamp water level can be a few feet higher than the surrounding wells and a larger than normal surface area caused by accumulation of surface water runoff after an intense or significant rainfall event. Groundwater level responses to rainfall events are usually more delayed than water levels in the Swamp. It is not a surprise for the Swamp water level to be higher than the adjacent groundwater elevations in the surrounding monitoring wells during the QPR 22-4 monitoring period. EPA recommends the last sentence of the paragraph is revised as follows:

For Q22-4, the Swamp water level was 77.91 feet relative to mean low water level (ft mlwl), which is higher than several groundwater elevations immediately adjacent to the Swamp (Figure 2A), suggesting the Swamp was temporarily recharging the shallow A-Aquifer after significant rainfall event with surface water runoff accumulation.

4. QPR 22-4, Page 3-3, Section 3.3, Benzene Concentration vs. Groundwater Elevation Graph:

The figure title cites incorrectly one well ID: E-071RR. Well E-071RR does not exist; the correct well ID should be E-072RR.

5. QPR 22-4, Page 3-3, Section 3.3, first paragraph after the figure:

EPA agrees that the benzene concentrations should continue to be closely monitored in this area, particularly at E-072RR where benzene concentrations are continuously elevated over 2,000 µg/L during the last two quarters of 2022. In addition, well E-179 must also be sampled quarterly and data from this well must be included for the graph presentation and data evaluation in the future quarterly reports.

6. QPR 22-4, Page 3-3, Section 3.3, last paragraph:

A typographic error in the first sentence, “Q22-2” should be corrected as “Q22-4”.

7. QPR 22-4, Page 3-4, Section 3.4.1, first paragraph:

The last sentence is technically incorrect. The sentence must be revised as follows (also see specific comment #3 above):

Hydraulic data from the Swamp and adjacent groundwater monitoring wells suggest that the Swamp was not receiving contaminated groundwater from the east or northeast and the Swamp was discharging water to the A-aquifer during the Q22-4 monitoring period.

8. QPR 23-1, Appendix C, Page 2-1, Section 2.1:

Acronym “JSAs” in the last sentence of the paragraph is not defined. It must be defined in the text or the List of Abbreviations and Acronyms.

9. QPR 23-1, Appendix C, Page 2-2, Section 2.3, second paragraph:

The text states that the PRB wall installation injection process was monitored utilizing two temporary one-inch monitoring wells and existing wells SMW-21A and SMW-35. Soil core and groundwater sampling data from the two temporary wells TW-1 and TW-2 are not discussed in the text or presented in the tables of Appendix C. Data from the two temporary wells must be presented in Appendix C.

10. QPR 23-1, Appendix C, Page 3-1, Section 3.2:

The text discussing remediation effectiveness monitoring in this section is confusing. For example, the text states “[M]onitoring wells SMW-09, SMW-29, SMW-31 and SMW-35 are currently sampled during spring and fall quarters.” Based on the Supplemental Groundwater Pilot Study Remedial Action Plan, these wells should also be sampled quarterly with summer/winter quarters. The text must be revised to state all groundwater monitoring will follow the EPA approved Remediation Effectiveness Monitoring Plan, specified in Table 1 of Appendix C.