Oregon
Tina Kotek, Governor

Department of Environmental Quality
Northwest Region
700 NE Multnomah Street, Suite 600
Portland, OR 97232
(503) 229-5263
FAX (503) 229-6945
TTY 711

April 3, 2023

Todd Slater
Legacy Site Services LLC
Retia USA, LLC/Legacy Site Services LLC
665 Stockton Drive, Suite 100
Exton, PA 19341

via electronic delivery (email)

Subject: Arkema Quarter 4, 2022 Groundwater Monitoring Report
Arkema Facility, ECSI No. 398

Dear Mr. Slater:

The Oregon Department of Environmental Quality received the *Arkema Quarter 4, 2022 Groundwater Monitoring Report* dated February 2023. Environmental Resources Management (ERM) prepared the report for Legacy Site Services LLC (Legacy). DEQ has the following comments.

General Comments

1) Several data quality issues were noted in the 4Q2022 Groundwater Monitoring Report. Most of these appear to be laboratory errors. However, detected concentrations of certain VOCs in rinsate blanks could indicate field quality control issues.

2) There appear to be some significant increases in chloride concentrations on both sides of the groundwater barrier wall (GWBW) in the shallow, intermediate, and deep zones at groundwater control cluster 6 (GCC6) and proximal wells. These increasing chloride concentrations coupled with significant mounding of groundwater behind the GWBW in these hydrogeologic zones could suggest that chloride is being pushed around the GWBW. DEQ notes that magnitude of chloride concentration increases outside of the GWBW are generally lower compared to inside the GWBW, and chloride concentrations in PA-16i are comparable to November 2019. Hopefully, operation of the groundwater extraction enhancement (GEE) system will result on inward hydraulic gradients across the GWBW, and trends in chloride concentrations at the GCC6 and proximal wells reverse. These observations should be discussed in the forthcoming system effectiveness evaluation (SEE).

3) Chlorobenzene concentrations in PA-30d (behind the GWBW) increased significantly (by an order of magnitude) compared to previous monitoring events, but there does not appear to be a corresponding chlorobenzene increase in PA-19d (outside of GWBW). This observation should be discussed in the forthcoming SEE.

Specific Comments

1) **Section 1.2, Background.** In this section the following is stated "The GW SCM and GWET system, including the newly constructed GEE system." DEQ notes that the GEE is an enhancement to the GWET system not a system of its own.

2) **Section 1.2.2., Groundwater Source Control Measures.** Recovery wells (RWs) that were part of the GWET system are not identified as a primary component of the GW CSM. DEQ requests

that the section be revised to clarify that select RWs are still functioning as components of the GWET system.

3) **Section 1.2.2., Groundwater Source Control Measures.** In this section it is mentioned that "Hydraulic gradients across the GWBW are evaluated through data collected from a network of 36 piezometers used to monitor the groundwater elevation in the Shallow, Intermediate, and Deep Zones. These hydraulic gradients are used to evaluate hydraulic capture performance in the vicinity of the GWBW." This statement seems to conflict with the Monthly Performance Monitoring Report statement that "One new monitoring well was installed in each of the seven extraction trenches for manual water level measurement. These data were used to prepare horizontal and vertical potentiometric surface maps representing potentiometric differences between the alluvial sequences, and to generate spatial and temporal hydrographs to evaluate hydraulic capture." DEQ requests that the text be revised in one of these documents to clarify the monitoring points and data used to evaluate the GW SCM.

4) **Section 2.4, Groundwater Level Measurements.** Lab and rinsate blanks seem to have been compromised by select VOCs. DEQ requests some explanation of why these issues occurred and actions that may be implemented to limit the likelihood of their recurrence in the future.

5) **Figure 1, Site Layout.** The extraction trenches are a feature in the legend but are not visible on the figure. DEQ requests that they be added.

6) **Figure 1, Site Layout.** Monitoring well MWA-81i is mis-labeled on the figure.

7) **Appendix D, Prior Groundwater Monitoring Program Data Tables and Graphs.** Several plots appear to be composed completely of non-detect results. DEQ requests that the utility of these plots be considered before inclusion in a report.

Pease contact me at 503-860-3943 or by email at Katie.Daugherty@deq.oregon.gov if you have any questions.

Sincerely,

Katie DAUGHERTY

Katie Daugherty, R.G.
Project Manager
NWR Cleanup Program

cc: Administrative File
ecc Brendan Robinson, ERM
Josh Hancock, ERM
Sarah Seekins, ERM