IEc

MEMORANDUM | November 10, 2023

TO	Rob Hood and David Lacey, Oregon Department of Environmental Quality (DEQ)
FROM	Peter Shanahan, HydroAnalysis LLC (HALLC); Jennifer Hart and Gail Fricano, Industrial Economics, Inc. (IEc)
SUBJECT	Five Tribe review of "J.R. Simplot Company Rivergate Terminal: Ammonia Groundwater Sampling Work Plan," dated November 1, 2023

This memorandum, submitted on behalf of the Five Tribes,[1] reviews the *J.R. Simplot Company Rivergate Terminal: Ammonia Groundwater Sampling Work Plan* prepared by Maul Foster & Alongi, Inc. (MFA) on behalf of the J.R. Simplot Company (Simplot) (MFA 2023a). Additionally, we reviewed several other site documents that informed the following comments, including Simplot's Source Control Evaluation (SCE) Work Plan (MFA 2021), SCE Report (MFA 2023b), Evaluation of Ammonia Concentrations in the RM2E Project Area Memorandum (MFA 2023c), DEQ's review of that analysis (DEQ 2023), Simplot's response to DEQ's comments (MFA 2023d), and Simplot's letter summarizing a site visit by DEQ and EPA (MFA 2023e).

Comments on Sampling Work Plan

1. MFA's current work plan (2023a) for sampling ammonia in site groundwater appears to be straightforward. The cross-referenced SCE Work Plan (MFA 2021) calls for field sampling procedures that are consistent with standard practice:

   "Prior to groundwater sample collection, the water level will be measured, and the well will be purged using a peristaltic pump, bladder pump, or low-flow electric pump, with new disposable tubing generally at a flow rate of 0.1 to 0.5 liters per minute. Some wells may require a lower flow rate while purging to avoid drawdown. Purging will continue until water quality parameters (i.e., pH, conductivity, DO [dissolved oxygen], ORP [oxidation-reduction potential], turbidity, and temperature) have stabilized. During purging, the flow rates, water levels, and water quality parameters will be recorded on a FSDS [field sampling data sheet]…"

   However, these specific procedures are not reiterated by MFA in the groundwater work plan (2023a), and we recommend that DEQ ensure these procedures will be followed in the forthcoming sampling program.

[1] The five tribes are the Confederated Tribes of the Grand Ronde Community of Oregon, the Nez Perce Tribe, the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Umatilla Indian Reservation, and the Confederated Tribes of the Warm Springs Reservation of Oregon.

2. Ammonia is reactive in the environment in response to the redox state. We therefore recommend that nitrate, nitrite, and organic nitrogen also be analyzed to provide a more complete picture of the potential flux of nitrogen compounds from the Simplot site. Further, we recommend that the field-measured parameters (particularly DO and ORP) be reported so that redox conditions can be evaluated.

Other General Comments

The following comments on MFA (2023c) are provided as they relate to source control for ammonia in the Simplot site more broadly.

3. The argument put forth by MFA (2023c) is that ammonia concentrations are high in sediments at many locations along the River, and the concentrations at the Simplot facility are "not unique." However, this argument is contradicted by the data presented. Figure 2a shows many red and orange data points, signifying high concentrations, at the Simplot site. This in part reflects a large number of samples in a small area, but the site stands out for the fact that essentially all offshore data points are high. At all but one other location along the River (Figures 2a-2e), high concentrations are scattered among lower concentrations. The only other location at which high concentrations are clustered in a small area is adjacent to the Willbridge petroleum terminal (Figure 2c), although concentrations at Willbridge appear to be lower than those at Simplot. Careful review of Figures 2a through 2e thus reveals that, in fact, the concentrations of ammonia at the Simplot facility are unique in that they are the most concentrated cluster of ammonia pollution measured in the sediment of Portland Harbor.
4. MFA (2023c) notes that cleanup criteria for ammonia are not currently defined in the Portland Harbor Superfund Site Record of Decision (ROD). However, ammonia is included in ROD Table 16 as a contaminant "posing potentially unacceptable risk" (EPA 2017). Ammonia has the potential to harm aquatic life in the Willamette River. Un-ionized ammonia is toxic to fish and regulated in surface water for that reason (EPA 2013). Further, nitrogen in all forms is a concern for eutrophication in estuaries and coastal waters (EPA 2023). While these surface water criteria do not apply to sediment per se, elevated concentrations in sediment are an indicator that ammonia from Simplot may be entering, and potentially harming, the River.
5. MFA (2023c) proposes no further action for evaluation of ammonia in Simplot's site sediment or groundwater, further asserting that while there are sources of ammonia in the upland, there are no significant pathways to the River. We are encouraged that the J.R. Simplot Company has agreed to undertake additional investigation of the groundwater pathway, and we request that the results of this evaluation be shared among the Portland Harbor Superfund Site Technical Coordinating Team (TCT).

References

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