



31 July 2023
Via Electronic Mail

Erin K. McDonnell, P.E.
Oregon Department of Environmental Quality
Northwest Region Cleanup Program
700 NE Multnomah St, Suite 600
Portland, OR 97232

Reference: 0680180.003

Subject: Response to Comments, Transitional Zone Water Sampling Plan,
Premier Edible Oils Site, 10400 North Burgard Way, Portland, Oregon

Dear Erin McDonnell,

On behalf of Burgard, a Series of MMGL LLC (MMGL), Environmental Resources Management, Inc. (ERM) has prepared this letter to respond to comments in your 6 July 2023 letter on the *Transition Zone Water Sampling Plan* (TZW SAP) dated 4 May 2023 for the Premier Edible Oils site. This letter provides MMGL's response to comments from Oregon Department of Environmental Quality (DEQ), the United States Environmental Protection Agency (USEPA), and the Five Tribes. Comments are proved below verbatim in bold italic, followed by MMGL's responses.

DEQ Comment 1: RAO Compliance. It's DEQ's understanding the proposed sampling event is intended to be a "check-in" whether conditions in TZW have approved since 2014-15 as result of construction of the groundwater barrier wall and accompanying air sparge system and is not intended to demonstrate compliance with the source control measure RAOs. DEQ anticipates a more rigorous process and methods to demonstrate compliance with SCM RAOs in the future.

DEQ looks forward to discussions what this would entail at the appropriate stage of the project. DEQ has preliminary suggestions to consider in the future, including additional methods and analysis to further support porewater data collection is representative of groundwater discharge from the site and preferred porewater sampling methodology to meet DQOs. This could be accomplished using a combination of data already collected, such as comparison of upland transducer data to river levels, and incorporating other tools.

MMGL Response: DEQ's understanding of the purpose of the proposed TZW sampling is correct. Following DEQ's review of the TZW sampling results in the 2023 Annual Monitoring Report (due in First Quarter 2024), MMGL would like to discuss the process and methods to demonstrate compliance with source control measure remedial action objectives, including DEQ's suggestions, in a meeting with DEQ.

DEQ Comment 2: TZW Study Planned for 2023. Provide additional specifics around the sampling criteria and collection of water quality parameters to increase confidence that the upcoming event is representative of TZW containing groundwater discharge. Specifically, Section 3.4 describing sampling collection methods need further explanation or the study

augmented with additional methods to improve usability of sampling results. For example, $\pm 10\%$ for specific conductance and dissolved oxygen, ± 50 mV for ORP, or ± 0.1 for pH does not appear sufficient to ensure the sample contains groundwater discharging from the site. DEQ recommends fine-tuning these criteria and consider integrating additional indicators representative of porewater.

MMGL Response: MMGL understands DEQ's concerns about the water samples not being representative of TZW containing groundwater. The relevant sections have been revised to provide additional specifics around the sampling procedures and field parameter criteria. The primary cause for collecting water samples not representative of TZW is vertical flow of surface water into the transition zone around the piezometer screen due to excessive drawdown. The sampling procedures will minimize this potential by:

- Minimizing the drawdown in the piezometer during purging and sampling.
- Installing a 50-centimeter (cm)-diameter rubber seal around the outside of the piezometer on top of the sediment to impede vertical flow of surface water.

The following sentence is added to Section 3.3 (Riverbed Coring Procedure):

A 50-cm-diameter rubber seal will be placed around the outside of the piezometer that will rest on top of the sediment.

Section 3.4 (TZW Sample Collection Procedure) is revised as follows:

Following installation of the piezometer, TZW samples will be collected using the low-flow method as described in USEPA's guidance (USEPA 2022). The following procedures will be used:

1. Place disposable polyethylene tubing into the piezometer through the seal plate to a depth of 1 foot below the mudline. Measure the initial depth to water within the piezometer with an electronic water level indicator from the top of the piezometer.
2. Connect the tubing to a variable-speed peristaltic pump. Turn on the pump. The pump will discharge to the river.
3. Measure the discharge rate from the pump with a beaker. Start the pump at a flow rate less than 100 milliliters per minute (mL/min) and slowly increase to a steady flow rate no higher than 200 mL/min.
4. Monitor the depth to water within the piezometer with an electronic water level indicator. Adjust the flow rate to limit the drawdown (i.e., deviation from the initial depth to water) to less than 0.3 foot, if practicable.
5. Continuously monitor field parameters (temperature, pH, specific conductance, temperature, dissolved oxygen [DO], and oxidation reduction potential [ORP]) in the purge water and in the river water. Field parameters in the purge water will be measured using a flow-through cell or in a container. Field parameters in the river water will be measured using a multi-parameter probe that is hung from the side of the boat. DO will be measured using an optical DO probe.
6. After purging one tubing volume, compare the field parameters in the pump discharge with those of the river water. If the drawdown is less than 0.3 foot and the differences in field parameters are outside the following ranges, it will be taken as indication that the purge water is representative of TZW.

- DO (± 10 percent)
 - pH (± 0.1 standard unit)
 - Specific Conductance (± 10 percent)
 - ORP (± 50 millivolts [mV])
7. Continue purging until field parameters in purge water have stabilized. Field parameters are considered stabilized when three consecutive measurements are within the following ranges:
- Temperature (± 1 degree Celsius)
 - pH (± 0.1 standard units)
 - Specific conductance (± 3 percent)
 - ORP (± 10 mV or ± 10 percent if between -100 mV and +100 mV)

Although turbidity of the purge water will be measured using a turbidity meter, turbidity measurements do not need to be stabilized prior to sampling collection.

8. Following purging, TZW samples for the analyses below, with the exception of total metals, will be collected through a porous glass fiber media capsule filter to minimize the amount of sediment that enters the sample containers. TZW samples collected from each piezometer will be labeled with a unique identification and stored in an ice-chilled cooler before being shipped to the analytical laboratory for the following site constituents of concern (Tables 2 and 3):
- Benzene, toluene, ethylbenzene, and xylenes (USEPA 8260C LL)
 - Polycyclic aromatic hydrocarbons (SM 8270D)
 - Gasoline-range organics by Method NWTPH-Gx
 - Diesel-range organics by Method NWTPH-Dx (with and without silica gel cleanup)
 - C₁₀-C₁₂ aliphatics by Method NWTPH-VPH
 - Total and dissolved arsenic and manganese (USEPA 6010C)
9. After sample collection, continue purging and compare the field parameters in the pump discharge with those of the river water to confirm that the samples are representative of TZW.
- If purge water field parameters do not stabilize or evaluation of the field parameters indicates that the samples are not representative of TZW, a new TZW sampling location will be installed at an offset from the original location.

USEPA Comment 1: Sections 2 and 3 states that the 2023 TZW sampling will be performed under low river stage conditions when the hydraulic gradient toward the river is the highest each year, concurrent with groundwater sampling in August 2023. The EPA understands that the TZW sampling results will be presented in the 2023 Annual Groundwater Monitoring Report (report). A comprehensive record of existing monitoring well and river elevations are needed to document favorable hydraulic conditions are present throughout the TZW investigation. The report should include a summary of the water level data from

nearby monitoring wells and river stage measured and recorded prior and during the TZW investigation.

MMGL Response: Water level and pressure transducer data of nearby wells, along with hydrographs of water levels and river stages throughout 2023, will be included and presented in the 2023 Annual Groundwater Monitoring Report. Historical water level data of nearby wells dating back to 2017 will also be presented in the 2023 Annual Groundwater Monitoring Report as an appendix. River stage data will be collected from the U.S. Geological Survey stream gauge in Willamette River at Portland, Oregon (14211720), which is the gauge currently being used for preparation of potentiometric surface maps and hydrographs for the site.

USEPA Comment 2: Clarify in Section 3.4 TZW Sample Collection Procedure the purpose and intent of how the dissolved oxygen field parameter will be utilized. It is not mentioned in the initial list but then mentioned as a field parameter that will be used for comparison between surface water and TZW parameters.

MMGL Response: Dissolved oxygen will only be used as a parameter to assess if the water sample is representative of TZW (see response to DEQ Comment 2).

Five Tribes Comment 1: The goal of the current sampling program is to collect transition zone water (TZW) samples to compare with samples collected previously. Our comparison of the proposed sampling methods to those used by ERM (2017) and Treadwell & Rollo (2014) finds them to be largely consistent. Thus, it appears that the results of this study should be comparable with those from prior studies.

MMGL Response: Comment noted.

Five Tribes Comment 2: We recommend the report include definitions of the transition zone and TZW.

MMGL Response: Per communication with DEQ, a revised TZW SAP is not required in lieu of this comment letter. Definitions of the transition zone and TZW, as provided below, will be included in the 2023 Annual Groundwater Monitoring Report where the TZW sampling results will be presented.

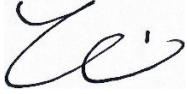
- Transition zone: a region beneath the bottom of a surface water body where conditions change from a groundwater-dominated to surface water-dominated system within the subsurface.
- TZW: transition zone water; porewater within the transition zone.

Five Tribes Comment 3: On page 1, the report states “Therefore, TZW sampling results during low river stage will provide an upper bound for dissolved phase concentrations in the TZW.” There are limited data to support the contention that samples collected during low river stage will necessarily have higher concentrations than those collected during high river stage. Thus, we recommend the report be revised to say that sampling “during low river stage is expected to provide an upper bound for dissolved phase concentrations in the TZW.”

MMGL Response: Per communication with DEQ, a revised TZW SAP is not required in lieu of this comment letter. MMGL will incorporate this comment during reporting of the TZW sampling results.

Please let me know if DEQ would like further discussions on any of the responses. MMGL will implement the TZW sampling activities upon DEQ's concurrence of the responses in this letter.

Sincerely,

A handwritten signature in black ink, appearing to be 'Miao Zhang', written over a light gray rectangular background.

Miao Zhang
Partner