PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

Edward Campbell, Acting Director

1120 SW Fifth Avenue, Room 405
Portland, Oregon 97204-1926
Information: 503-823-7770
Portland.gov/water

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Dan Hafley, RG
Oregon Department of Environmental Quality
Project Manager, Northwest Region Cleanup Program

RE: DEQ Review of PDX Fuel Facility Contaminated Media Management Plan (CMMP) and PDX Fuel Facility Improvements Memorandum, Received 7/16/2024 and 7/30/2024, respectively.

Dan,

Thank you for the opportunity to review the following memos from Burns & McDonnell (BMD): Contaminated Media Management Plan, June 2024 (CMMP); and PDX Fuel Facility Improvements Memorandum (CFSP Memo), July 26, 2024. After careful review of the CMMP and the CFSP Memo, our concerns remain the same as was communicated in our email of 7/16/2024, namely, the risk of the introduction of per- and poly-fluorinated substances (PFAS) to the Columbia River Sand Aquifer (CRSA) is not adequately addressed by the CMMP and CFSP Memo. The Portland Water Bureau (PWB) has water rights to the CRSA and future plans to develop the CRSA as a drinking water resource. Groundwater sampling in the CRSA has not shown the presence of PFAS in the CRSA in the vicinity of Portland International Airport (PDX).

With the CFSP Memo, BMD included 2 papers presenting studies of the risk and/or use of displacement piles within contaminated sites, one from 2000 and another from 2003. These papers present 3 relevant scenarios for the transport of contaminants to the target aquifer: direct transfer from soils being pushed down with the nose of the pile; preferential flow paths created along the pile; and flow through the pile itself. BMD suggests 3 conclusions based on the 2000 study:

- Direct transfer from soils being pushed down isn't a risk because of the conical tip and low concentrations downgradient.
    - Given the sheer number of piles proposed by BMD (50 times greater than the study cited), PWB believes that a groundwater monitoring program is necessary to understand potential impacts of the project.
- Steel tubular piles were shown to not result in preferential pathways in sand and clay
    - Provided the differences in geologic and hydrogeologic materials between those examined in the artificial bench study and those presented in Overbank Deposits (OD) and Columbia River Sand Aquifer (CRSA), this conclusion requires a groundwater monitoring program to demonstrate these results.
- No internal flow of contaminants in the steel and concrete piles
    - PWB doesn't consider this a pathway of concern for this project.

The second paper (2003) suggests the same 3 transport mechanisms, however BMD only focuses on 2 mechanisms:

- Internal flow of contaminants within pile.
    - PWB doesn't consider this a pathway of concern for this project.

- Spoils transported to the surface.
    - Given the methodology presented by BMD, PWB doesn't consider this to be a risk for this project.

Further, the second paper recommends QA/QC measures, including a groundwater monitoring program, to verify performance of displacement type piles in contaminated soils for both the direct transfer of contaminants via the conical tip of the pile and through preferential pathways created near the pile. BMD doesn't include these recommendations in their conclusions. PWB feels that groundwater monitoring program including samples taken prior to installation, as well as for a minimum of 4 quarters following installation, is necessary. Sampling should include upgradient, cross-gradient, and down-gradient samples, as well as samples from within the footprint of the project.

Several mitigation methods are also suggested in scenarios where the overlying materials have contamination issues. PWB suggests further consideration of mitigation, as well as QA/QC approaches like groundwater monitoring program, be discussed and considered prior to installation of these piles.

Again, thank you for the opportunity to review this memo and provide comments! Please feel to reach out with any further questions!

Jack Dahl, RG

Hydrogeologist, Portland Water Bureau