



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1 – NEW ENGLAND
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BOSTON, MASSACHUSETTS 02109-3912

Via Electronic Mail

March 22, 2021

Mr. Peter Britz, Environmental Planner
City of Portsmouth Planning Department
1 Junkins Avenue
Portsmouth, NH 03801

RE: Coakley Landfill Superfund Site
March 16, 2021, *DRAFT Downhole Geophysics and Packer Sampling Interval
Recommendations: MW-25*

Dear Mr. Britz:

The United States Environmental Protection Agency (EPA), is in receipt of a memorandum dated March 16, 2021 and titled *DRAFT Downhole Geophysics and Packer Sampling Interval Recommendations: MW-25* (the “Memo”) prepared by Haley Ward, on behalf of the Coakley Landfill Group (CLG). The Memo details the data collected from the geophysical surveying of bedrock borehole MW-25, which was installed in January 2021. The Memo also recommends fracture zones within the bedrock borehole for isolated packer interval sampling of groundwater.

Based on review of the Memo, and following consultation with the New Hampshire Department of Environmental Services (NHDES), EPA provides the following comments:

1. The Memo should include individual hydrographs for each well that was logged during the drilling of MW-25 that clearly shows the hydraulic response in the logged well. Each hydrograph should be scaled to illustrate water level variations during the drilling of MW-25 on January 18 to January 22. This is critical for assessing the relative response at MW-6 versus MW-5S and MW-5D, and for establishing this relativity for the pumping test.
2. EPA notes that the hydraulic response described and depicted in the limited hydrographs provided, is consistent with EPA’s interpretation of the current conceptual site model (CSM). More significant hydraulic responses were observed along the axis of the interpreted bedrock trough feature that is roughly parallel to regional NNE strike (FPC-3B and FPC-8B), and less significant responses are noted in the wells that are located along the secondary fracture set to the WSW (MW-6, MW-5S and MW-D). No response was noted in FPC-2B which is not located along either axis.

3. On page 3, the Memo states that “the readings were corrected for barometric pressure using a barometric logger deployed at MW-6...”. However, the observations noted for MW-2 include a description of how the water level in MW-2 responded to changes in barometer pressure, referencing Plot 1 in Attachment 2. As mentioned previously, the scale of the hydrographs provided in Attachment 2 does not allow for the confirmation of this conclusion, but the description implies that a barometric response is evident on Plot 1. If the data had been properly corrected for barometric pressure variations, the hydraulic response related to barometric pressure would not show up on the hydrograph. The methodology for barometric pressure corrections should be detailed in the Memo, including hydrographs plotting the corrected and uncorrected data.
4. Given its proximity to the landfill and MW-6, the packer interval samples collected from MW-25 shall also be analyzed for VOCs, in addition to PFAS, 1,4-dioxane, arsenic, manganese, and general landfill parameters.
5. Due to the importance of MW-25 with respect to its proximity to MW-6 (the pumping well), its location relative to the bedrock trough, and the importance of characterizing the extent of contamination in bedrock at this location, the following modifications to the interval packer sampling recommendations provided in Table 1 of the Memo shall be incorporated:
 - Zone 1 – Place single packer at 57 feet below ground surface (bgs) instead of 60 feet bgs to shorten and reduce the volume of the zone as much as possible, while still capturing likely producing fractures.
 - Z2 – concur as recommended.
 - Add zone at 110 feet bgs to 116 feet bgs to capture intersecting fractures.
 - Add zone at 120 feet bgs to 134 feet bgs to capture multiple sheeting fractures.
 - Add zone at 147 feet bgs to 153 feet bgs to capture fracture/ possible contact at 150 feet bgs.
 - Z3 – concur as recommended.
 - Z4 – modify to 169 feet bgs to 183 feet bgs to provide more clearance below the low-angle fracture at 182.5 feet.
 - Z5 – concur as recommended.
 - Z6 – concur as recommended.
 - Add zone at 229 feet bgs to 235 feet bgs to capture low angle fracture at 233.5 feet bgs.
 - Add zone at 252 feet bgs to 258 feet bgs to capture possible sheeting fractures at 253.5 feet bgs and 254.7 feet bgs.
 - Z7 – modify to 274 feet bgs to bottom of borehole to shorten the interval and isolate zone of measurable flow.

If you have any questions or comments regarding this letter, you can contact me at (617) 918-1882 or Hull.Richard@epa.gov.

Sincerely,

Richard W. Hull

Richard W. Hull, Remedial Project Manager
New Hampshire and Rhode Island Superfund Program

cc: Andrew Hoffman, NHDES
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