



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1 – NEW ENGLAND
5 POST OFFICE SQUARE – SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

Via Electronic Mail

August 17, 2018

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

RE: Coakley Landfill Superfund Site
August 14, 2018, *Results of Storm Water Sampling at the Coakley Landfill – North Hampton, New Hampshire*

Dear Mr. Britz:

The United States Environmental Protection Agency (USEPA) is in receipt of the *Results of Storm Water Sampling at the Coakley Landfill – North Hampton, New Hampshire* (the “Storm Water Results Report”) prepared by CES, Inc., on behalf of the Coakley Landfill Group (CLG), and submitted on August 14, 2018. After consulting with the New Hampshire Department of Environmental Services (NHDES), USEPA provides the following comments and recommendations to be addressed while conducting further investigations:

1. Figure 2 of the Storm Water Results Report, identifies a “seepage area” that is not previously defined in the text of the report or shown in Figure 1. Future reference to this feature should be fully defined. In addition, Figure 2 includes an “outlet pipe,” “overflow structure,” well AE-3A, and what appears to be another well structure RP-01 that either do not coincide with the orientation of the cross-section shown on Figure 1, are not shown in Figure 1 or were not previously defined. Care should be taken to correctly orient the cross-section and consistently name and define the features and structures identified in figures and included in the text of any future reporting.
2. Consider adding a second cross-section to Figure 1 perpendicular to A-A1 in future depictions to capture additional features such as subsurface underdrain piping, retention ponds and perimeter ditch.

3. Stormwater sample locations should be numbered to allow for ease of identification and for potential inclusion in the long-term monitoring program.
4. Further investigation and reporting should include a more detailed description and figures of the landfill cap design and construction, the design of the surface and sub-surface drainage system, and the final as-built conditions. Future reports should provide reference to specific as-built reports and drawings of cap construction, vegetative cover, underdrain system, retention ponds, and discharge piping and structures.
5. Upon receipt of this letter, CLG shall provide USEPA and NHDES with a copy of the as-built survey drawing used as the reference plan for Figure 1 of the Storm Water Results Report.
6. The first paragraph of the *Investigation* section of the Storm Water Results Report describes the heaviest iron staining as being observed “10-20 feet downslope and slightly lower in elevation than the bottom of the outfall pipe.” If this area of heaviest iron staining is also the location of the seep and where L-1 samples are collected, it should be more clearly identified as such.
7. It is not clear how the groundwater potentiometric surface below the embankment of the northwest stormwater pond depicted in Figure 2 was determined. The line showing groundwater just beneath the embankment is not dashed to represent an inferred interpretation, and although monitoring well AE-3A is in the vicinity, the groundwater surface at that location is shown to be significantly lower than what is represented below the embankment.
8. It would be useful to locate the bedrock surface in the areas below the stormwater ponds and the underdrain discharge locations in future depictions.
9. USEPA does not concur with the conclusion that “elevations of shallow groundwater and the bottom of the retention pond do not indicate a direct hydraulic connection between shallow groundwater and the northwest retention pond.” This conclusion should be evaluated further, including a review of seasonal water levels at and below the retention ponds, as well as an assessment of the potential for seepage directly into the retention ponds from groundwater.
10. The detection of 1,4 dioxane in the L-1 seep would seem to indicate a direct connection to leachate, or groundwater impacted by leachate. Additionally, there is not enough data to conclude that leachate from groundwater in contact with landfill waste is not a source of the seep at the embankment adjacent to the northwest pond outfall discharge pipe.
11. The last paragraph in the investigation section states “The higher PFAS concentration in the underdrain sample is likely due to a longer residence (contact) time for water infiltrating and traveling through cover materials and conveyance piping, as compared to the perimeter ditch sample which reflects the more short-term runoff from the rain event.” This conclusion is premature. More data from all stormwater discharge locations

is necessary to make a more informed assessment of the relationship between the concentration of PFAS and contact time with cover materials.

12. USEPA does not concur with the conclusion that “the absence of 1,4-dioxane suggests that the stormwater samples are not interacting with shallow groundwater, landfill waste, or leachate.” More data from all stormwater discharge locations is needed to demonstrate that there is no infiltration of groundwater into the stormwater collection and discharge systems.
13. The conclusion that because all three stormwater samples reported concentrations of PFOA and PFOS higher than the L-1 seep, “... stormwater is coming into contact with PFAS-containing materials...” may be premature based on limited data. More data from all stormwater discharge locations is needed to definitively conclude that there may not be other sources besides the cap and liner material contributing PFAS to stormwater runoff, or that there may still be groundwater that is infiltrating the stormwater collection and discharge systems.
14. USEPA provides the following recommendations for further investigating stormwater:
 - a. Analyze all samples for expanded list of PFAS to allow for a broader spectrum of analytes and direct comparison with past and future results in various media. The NHDES sampling of surface water in December 2016, utilized Vista Analytical Laboratory (Vista) and included 23 PFAS (11 were detected in surface water). The CLG should determine the list of PFAS that can be analyzed and reported by its current contract laboratory service (Vista) using modified EPA Method 537. Vista currently reports 26 PFAS analytes to NHDES.
 - b. Collect samples from seep L-1 and SW-5 concurrent with the collection of additional stormwater samples and analyze for expanded list of PFAS and 1,4 dioxane.
 - c. Conduct review of as-built drawings and conduct a site inspection to identify and confirm all discrete stormwater discharge locations.
 - d. Investigate potential for groundwater to infiltrate the stormwater collection and discharge systems.
 - e. Investigate suppliers and sources of materials used to construct the landfill cap, including any soil, seed, sand and compost materials used to construct the cap, and any other materials used to construct the cap.
 - f. Investigate the suppliers and materials used for the geosynthetic cap liner and piping, or any other materials used to construct the cap liner and stormwater management and discharge structures to determine if PFAS may be contained in any of these materials.

Within 15 days of receipt of this letter, CLG shall submit a work plan for conducting further investigations of the extent of PFAS contamination in stormwater collected and discharged from the landfill cap and liner.

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

Sincerely,

A handwritten signature in black ink that reads "RW Hull". The letters are cursive and fluid.

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

cc: Andrew Hoffman, NHDES
William Brandon, USEPA
Jim Murphy, USEPA
RuthAnn Sherman, USEPA
Michael Deyling, CES, Inc.