HOUSATONIC REST OF RIVER MUNICIPAL COMMITTEE

February 13, 2023

Dean Tagliaferro, EPA Project Manager
GE-Pittsfield/Housatonic River Site
Boston, MA
Submitted via email to R1Housatonic@epa.gov

Re: Comments on the *Upland Disposal Facility (UDF) Conceptual Design and UDF Pre-Design Investigation (PDI) Interim Data Summary*

Dear Mr. Tagliaferro:

The Housatonic Rest of River Municipal Committee (the Committee) respectfully submits the following comments on the *Upland Disposal Facility (UDF) Conceptual Design and UDF Pre-Design Investigation (PDI) Interim Data Summary*. GE prepared both documents in accordance with EPA's February 25, 2022 conditional approval letter for GE's Pre-Design Investigation Work Plan for the Upland Disposal Facility. The *UDF Conceptual Design Plan* was prepared to present the proposed conceptual design elements for the UDF and UDF support areas associated with the Rest of River (ROR) Remedial Action.

The *UDF Conceptual Design Plan* emphasizes that this document is conceptual and will be finalized after activities involved with ongoing Pre-Design Investigations (PDIs) and support area decisions are completed. This proposed schedule appears to proceed from a very draft (conceptual) design to a final design, with no interim deliverables, reviews and adjustments. This is unacceptable and GE must be required to submit interim design plans, for both EPA and public review, before advancing to final design. Both the interim and final design should allow for robust public comment, including a minimum 60 day comment period. There are questions of particular importance to the community (such as protectiveness of UDF activities to human health, aesthetics, transportation routes, times of operation etc.) that could benefit the final design.

The Committee's comments on the *Upland Disposal Facility (UDF) Conceptual Design and UDF Pre-Design Investigation (PDI) Interim Data Summary* are enclosed as Attachment A. In addition, the Committee has contracted to conduct an independent review, which is enclosed as Attachment C.

Sincerely,
The Housatonic Rest of River Municipal Committee

Enclosure: Attachment A - Housatonic Rest of River Municipal Committee Comments on the *Upland Disposal Facility (UDF) Conceptual Design and UDF Pre-Design Investigation (PDI) Interim Data Summary*

Enclosure: Attachment B - Technical Assistance Services for Communities Comments, January 20, 2023

Enclosure: Attachment C – TRC Technical Review of UDF Conceptual Design and Site Investigation Report, February 10, 2023

ATTACHMENT A

HOUSATONIC REST OF RIVER MUNICIPAL COMMITTEE

Comments on the Upland Disposal Facility (UDF) Conceptual Design and
UDF Pre-Design Investigation (PDI) Interim Data Summary
GE/Housatonic River - Rest of River

The *UDF Conceptual Design Plan* provides a conceptual design of the UDF consolidation area using the performance standards criteria combined with site characteristics gathered from various studies completed throughout the GE Parcel. Elements of site characteristics (such as groundwater flow and levels) are critical to the UDF design. These characteristics are described in the *Interim UDF PDI Data Summary Report*.

The *UDF Conceptual Design Plan* emphasizes that this document is conceptual and will be finalized after activities involved with ongoing Pre-Design Investigations (PDIs) and support area decisions are completed. This proposed schedule appears to proceed from a very draft (conceptual) design to a final design, with no interim deliverables, reviews and adjustments. This is unacceptable and GE must be required to submit interim design plans, for both EPA and public review, before advancing to final design.

In addition to providing an Interim UDF Design Plan, an independent and impartial contractor with appropriate expertise should be engaged to provide a comprehensive presentation to the public at the 75% design phase (or thereabouts). This would allow an interactive review of the proposed design during a public meeting where the design is presented for discussion prior to being finalized. The proposed design should be made available for public review prior to the presentation. The presentation will allow the public to provide comments and concerns for EPA's consideration and GE's incorporation. There are questions of particular importance to the community (such as protectiveness of UDF activities to human health, aesthetics, transportation routes, times of operation etc.) that could benefit the final design. Following public input, GE should produce a final design document that includes a responsiveness summary summarizing public questions/concerns provided during the meeting, and how GE addressed those questions/concerns in the document.

The Housatonic Rest of River Municipal Committee (the Committee) has several comments with regard to additional data collection opportunities for groundwater, surface water and sediment, and air monitoring. The safety of the UDF is of utmost concern to the Committee and the community must have the ability to be actively engaged in review of these documents at the early stages of the UDF design process through final design. The Committee has contracted with TRC to conduct an independent review of the geotechnical investigation, UDF conceptual design, UDF operational and support areas and groundwater depth and elevation monitoring. This independent review can be found as Attachment C. In addition, the Committee offers the following comments, which include specific recommendations to amend the UDF Conceptual Design Plan and for inclusion in an "Interim UDF Design Plan":

1. The GE Final Revised Permit states that seasonally high groundwater elevation will be projected using site-specific groundwater elevation data collected at the UDF, modified by an appropriate technical method that considers historical groundwater level fluctuations at similarly-sited off-site long-term monitoring wells in Massachusetts. The estimation will be performed pursuant to a methodology reviewed and approved by EPA. The UDF Conceptual Design Plan, indicates that GE has not presented the data interpretation methods to be used for estimating groundwater elevation projections to EPA.

   The UDF Conceptual Design Plan should be amended to include the groundwater elevation projection data interpretation method as approved by EPA.

2. The UDF Conceptual Design Plan does not describe how materials will be managed and stored. Excavated topsoil removed during construction would typically be stored as berm material for later soil replenishment, capping and reclamation. The document does not mention whether topsoil will be sorted and held for later use. Similarly, there is likely a need to conduct tree and brush removal. These materials could also be retained for later soil amendment. The plan also mentions concrete debris material within and next to the consolidation area limits, but does not describe reuse or disposal of these materials.

   The UDF Conceptual Design Plan should be amended to clarify where materials will be managed for later use or disposal, such as topsoil, vegetation materials and concrete debris and that all materials will be properly characterized before being reused or disposed of.

3. The UDF Conceptual Design Plan does not define placement of the UDF support areas, which is a significant data gap in understanding whether the groundwater monitoring program is sufficient. The UDF support area may include sediment dewatering and material handling areas that can yield liquid wastes of potential concern. The UDF area would likely include hydraulic transport features associated with the wet sediments removed from the river. The groundwater monitoring program could capture groundwater above, within and below these support areas so that any spilled contaminated material is contained.

   The UDF Conceptual Design Plan should be amended and the groundwater monitoring program should be revised to capture possible spills from the UDF support areas.

4. The UDF Conceptual Design Plan does not describe features to help address spills or emergency releases of polychlorinated biphenyl (PCB)-contaminated materials. The UDF Conceptual Design Plan should be amended to include appropriate best management practices to control incidental releases of contaminated material.

5. There appears to be enough information for GE to develop a conceptual site model (CSM) of UDF groundwater that depicts groundwater levels in relation to UDF site features along a series of cross sections. This CSM could be updated to present groundwater conditions at various seasonal conditions. Such a model could also help to understand how groundwater is

affected by managed materials from the adjacent gravel mine and pond features that might be acting as groundwater sinks.

The UDF Conceptual Design Plan should be amended to include a groundwater conceptual model of the UDF to help understand variables that could affect groundwater movement (mined materials, pond features etc.).

6. The UDF Conceptual Design Plan does not include several surface water and groundwater-fed features identified within the Interim UDF PDI Data Summary that could influence UDF facility features (See Attachment B - Technical Assistance Services for Communities Comments, January 20, 2023, p 6). GE should map the surface water hydrologic features associated with the baseline topographic setting to effectively understand future water management needs.

   The UDF Conceptual Design Plan should be amended to include a map of surface water features in addition to detailed topographic maps.

7. The UDF Conceptual Design Plan references priority habitat of rare species located 0.15 mile north of the GE Parcel, but does not identify the rare species. If this species is migratory, UDF construction and operation activities could occur within the species' life cycle required area. The UDF Conceptual Design Plan should be amended to identify the rare species.

8. EPA's 2022 Conditional Letter of Approval for the Pre-Design Investigation Work Plan for the UDF requested GE to "include the various debris and tailings piles within the UDF operational area…and shall visually characterize those materials to determine their appropriate disposition" (pdf page 3). There are considerable volumes of concrete debris shown on Figure 2 of the UDF Conceptual Design document. While concrete debris itself does not pose an environmental concern, these piles suggest that waste materials have been dumped erratically in the area. All materials onsite intended for reuse or disposal must be properly characterized.

9. According to the UDF Conceptual Design Plan, parts of the quarry ponds on the GE Parcel will be filled. There seems to be enough information to quantify the fill that will be placed in the northernmost quarry pond. GE should identify the type of fill and notify the Massachusetts Department of Environmental Protection (MassDEP) related to quarry fill to be consistent with MassDEP permitting requirements.

10. The prevailing groundwater flow direction is trending toward the west side of the GE Parcel. The existing monitoring wells that capture 'above' or upgradient areas are limited in number (See Attachment B - Technical Assistance Services for Communities Comments, January 20, 2023, p 8). GE should be required to conduct additional upgradient and background groundwater monitoring to thoroughly characterize both groundwater flow and quality

above, within and below the proposed UDF area. The plan for additional monitoring should take into consideration the detection of PFAS in groundwater.

EPA should work with GE to contact private landowners east of the UDF to determine if the properties rely on groundwater wells that could be incorporated into the UDF groundwater monitoring system. GE should work with the Town of Lee to obtain samples of potable water from their aquifer.

11. Based on the limited geotechnical data provided it cannot be confirmed that a demonstration has been made that the design will provide long-term stability and protectiveness of the environment and human health.

    If additional geotechnical data is available, the UDF Conceptual Design Plan should be amended and detailed geotechnical analyses (slope stability, settlement, etc.) should be provided. If such data is not yet available, this data should be made available within The Interim UDF Design Plan.

12. The Settlement Agreement and revised RCRA permit require GE and their consultants to develop an estimate of the seasonally high groundwater elevation using the measured groundwater elevations in each well, modified by a technical method to be approved by EPA. The Performance Standards for the UDF require that the waste consolidation area have a maximum footprint of 20 acres and a maximum elevation of 1,099 feet above mean sea level (AMSL). However, if the seasonally high groundwater elevation is determined to be higher than 950 feet AMSL, the maximum elevation of the waste consolidation area may be increased by the number of feet between the seasonally high groundwater elevation and 950 feet AMSL.

    The Interim UDF PDI Summary notes that since the groundwater monitoring program is ongoing the assessment of seasonally high groundwater will be included in a future submittal. Relative to the Performance Standards for the UDF noted above, the results to date of the groundwater monitoring program have identified groundwater elevations exceeding the 950 feet AMSL performance standard within the proposed waste consolidation area.

    The UDF Conceptual Design Plan should be amended to document that the required separation distance has been reduced; otherwise, the UDF will need to be redesigned to maintain 15-foot separation and appropriately documented within the Interim UDF Design Plan.

13. According to the UDF Conceptual Design Plan, GE will prepare and record a Grant of Environmental Restriction and Easement (ERE) in accordance with the Consent Decree to, among other things, restrict the future use of and access to the UDF area. The Final Cover/Closure Plan for the UDF will describe GE's plans for preparing and recording this ERE. However, in the 2022 Conditional Letter of Approval for the Pre-design Investigation Work

Plan for the UDF, EPA asked GE to identify any constraints associated with the easement in the Conceptual Plan. The ERE will impose land use restrictions that may affect the Eversource utility easement and adjacent landowners. (See Attachment B - Technical Assistance Services for Communities Comments, January 20, 2023, p 4-5)

GE should immediately begin conversations to coordinate with several entities as plans for the UDF progress, including: Eversource Energy (owner of the utility line easement); private property owners to the east; and the gravel quarry to the west (Northeast Paving, a division of Eurovia Atlantic Coast, LLC). This coordination cannot be postponed until the Final Cover/Closure Plan for the UDF is developed.

The Interim UDF Design Plan should document how GE is coordinating with relevant entities to comply with the terms of the 2022 Conditional Letter of Approval for the Pre-design Investigation Work Plan for the UDF.

14. The UDF Conceptual Design Plan indicates that 'mitigation' of impacts, such as mitigation for the loss of regulated resource areas (i.e., dredge and fill activities affecting waters of the United States), will be addressed during additional PDI activities and the mitigation measures will be described in the Final Design Plan. There appears to be a considerable amount of information from which a preliminary mitigation approach can be developed at this time.

    The Interim UDF Design Plan should include mitigation plans to address impacts to waters of the United States and other habitat areas.

15. The UDF Conceptual Design Plan does not mention if potential impacts attributable to climate change or geologic hazards were addressed as part of the design decisions. Groundwater elevations are one of the most important site characterizations that will define the UDF design. Modeled elevated groundwater levels that predict possible groundwater changes attributable to future climate change concerns should be evaluated. Similarly, catastrophic geologic hazards can adversely affect the UDF.

    The Interim UDF Design Plan should take into consideration natural hazards such as those attributable to geologic hazards and climate change.

16. The UDF Conceptual Design Plan includes as Appendix C "Baseline Ecological Characterization and Habitat Assessment Report". UDF sediment management practices may attract nuisance wildlife. Once wastes are transported into the UDF, water from the sediments might separate and create a surface layer in the disposal area. This ponded water could be an attractive habitat to migratory species. The proposed UDF is near several natural settings that attract wildlife activity (Woods Pond, the NRC parcel and the Housatonic River). It is important to understand the species living in and migrating through the area, to plan for the management and control of possible future exposures.

The Interim UDF Design Plan should include a revised Baseline Ecological Characterization and Habitat Assessment Report that describes impacts on natural resources and possible mitigation strategies for these impacts.

17. According to the UDF Conceptual Design Plan the man-made gravel-pit ponded areas provide aquatic conditions but they do not constitute federally regulated waters of the U.S. and are not regulated wetlands under the Massachusetts Wetlands Protection Act (MWPA). However, the southeastern pond has been inactive for at least five years, and therefore would be considered a Pond under MWPA regulations. Aerial photographs within the Interim PDI Data Summary indicate that the northern-most western pond may be historical and may not have been used by the gravel quarry as its aerial footprint has not changed substantially for over 20 years. (See Attachment B - Technical Assistance Services for Communities Comments, January 20, 2023, pp 12-13)

    GE should verify which ponds are actively used and which ponds are inactive and the UDF Conceptual Design Plan should be amended accordingly.

    The Interim UDF Design Plan should include all inactive ponds during the proposed baseline habitat surveys as they may have achieved wetland characteristics identified by MassDEP and all future pond-filling efforts should consider guidance set forth by MassDEP for gravel pit fill operations.

18. The UDF Conceptual Design Plan does not mention an intermittent drainage that discharges water into a wetland in the east-central area of the property, as described within Baseline Ecological Characterization and Habitat Assessment Report (Interim UDF PDI Data Summary Report Appendix C). This feature can convey stormwater and present a potential water management issue to be addressed in the design of the UDF. This drainage feature should be included within the UDF Conceptual Design Plan and best management feature components should be presented to address flows.

    The Interim UDF Design Plan should incorporate management features to address surface water flows associated with the intermittent drainage identified in the Baseline Ecological Characterization and Habitat Assessment Report.

19. The PDI studies have been appropriately focused on groundwater. However, there are opportunities to gather both surface water and sediment for baseline characteristics. The constructed ponds to the west of the UDF consolidation area present a unique opportunity to capture surface water and sediment quality that may be affected by the UDF in the future. (See Attachment B - Technical Assistance Services for Communities Comments, January 20, 2023, pp 9-10)

The Interim UDF Design Plan should consider surface water and sediment samples co-located with surface water levels could be collected from the ponds located along the western edge of the UDF property.

20. The Interim PDI Data Summary report states that groundwater elevation data indicate a generally east-southeast to west-northwest groundwater elevation gradient and flow direction. Based on the available data, additional monitoring is necessary to fully understand varying groundwater levels. (See Attachment B - Technical Assistance Services for Communities Comments, January 20, 2023, p 7)

    GE should be required to conduct additional monitoring of surface water depths in the two western ponds and additional piezometers west of MW-2022-5 and east of PZ-2022-1 to improve understanding of groundwater flow pathways.

21. The Interim PDI Data Summary report provides PCB results in split samples of soil collected by EPA. Conclusions in the document state that 'EPA's split samples are generally similar to the results from GE's samples. The data does not support this conclusion. (See Attachment B - Technical Assistance Services for Communities Comments, January 20, 2023, pp 10-11)

    Since the Site is defined by PCB contamination, PCBs represent the most important analysis group to monitor for the UDF (Aroclor 1016 through 1268). The EPA analytical method yields lower detection limits and thereby allows for more refined soils analysis. It would be beneficial for future split sample analysis to target similar chemical groups and analytes. A thorough review of relative percent difference (RPD) between the analysis results may be needed. Future soil sampling analysis should rely on the EPA Aroclor analysis method to obtain lower detection limits and a better assessment of current conditions, and future split sampling should sample for more comparable chemicals.

22. According to the Interim PDI Data Summary, the weather station will remain in place and monitoring will be conducted until the start of UDF construction. The weather station should remain in place and monitoring should be conducted during construction, material processing/management, and during UDF operation to address community concerns regarding UDF airborne releases of PCB-contaminated materials.

23. According to the Interim PDI Data Summary, PFAS were detected in eight of the 11 groundwater wells sampled. Twenty-one different perfluoroalkyl chemicals were analyzed for in each sample. PFAS chemicals are being detected throughout the environment. There is public concern regarding their environmental persistence, mobility and toxicity. Given the occurrence of these chemicals in baseline groundwater sampling results, it is important to continue analyzing groundwater for PFAS and document whether the UDF is a source of PFAS in the future. (See Attachment B - Technical Assistance Services for Communities Comments, January 20, 2023, pp 13-14) It would be useful to have an analysis of soils (surface and subsurface) to understand the nature and extent of PFAS more fully. PFAS was not analyzed

as part of the soils monitoring efforts to date. PFAS should be added as an analytical group for the soil analysis.

EPA should work with GE and MADEP to continue analysis of groundwater for PFAS and work proactively and transparently to identify possible PFAS sources.

24. The Interim PDI Data Summary identifies groundwater water levels associated with well PZ-2022-8 as having 'dry' conditions in the last two monitoring efforts (October and November 2022). The well log indicates that the screen was installed within the anticipated saturated subsurface layer. It is unclear why this well did not have detectable water levels. (See Attachment B - Technical Assistance Services for Communities Comments, January 20, 2023, p 8)

    GE should be required to install a piezometer upgradient of PZ-2022-8 to understand groundwater flows in this area.

25. The Interim UDF PDI Data Summary provided existing groundwater levels; however, it should be amended to include groundwater level contour maps developed using both historical and existing groundwater levels.

26. The Interim UDF PDI Data Summary does not provide all of the historical studies that contributed to the conclusions drawn in this document. There are at least three historical studies that are referenced and are not included in the Interim PDI Data Summary. (See Attachment B - Technical Assistance Services for Communities Comments, January 20, 2023, p 9)

    The Interim UDF PDI Data Summary should be amended to include all of the historical studies used to characterize groundwater conditions. The amended Interim UDF PDI Data Summary should include a summary of all historical information describing groundwater quality in adjacent areas such as the Lee Landfill.

27. The Interim UDF PDI Data Summary appears to have relied on two monitoring wells (MW-84-1 and MW-84-2). Schweitzer-Mauduit and Lee Municipal Landfill monitoring wells provide additional data that should be considered. In addition, these monitoring wells could provide additional insight into typical groundwater flow pathways near the Housatonic River. (See Attachment B - Technical Assistance Services for Communities Comments, January 20, 2023, p 9)

    The Interim UDF PDI Data Summary should be amended to include additional monitoring wells that can lend to the evaluation of typical groundwater flow pathways in the area.

Technical Assistance Services *for* Communities
GE-Pittsfield/Housatonic River Site
Comments on UDF Conceptual Design and UDF PDI Interim Data Summary
January 20, 2023

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Technical Direction: R1 2.7.14 GE Pittsfield

Technical Assistance Services for Communities (TASC)
Comments on GE-Pittsfield/Housatonic River Site –
UDF Conceptual Design Plan and UDF PDI Interim Data Summary,
December 2022

Introduction

This document provides TASC comments on the GE-Pittsfield/Housatonic River Site – Upland Disposal Facility (UDF) Conceptual Design and UDF Pre-Design Investigation (PDI) Interim Data Summary. This document is for the Berkshire Regional Planning Commission (BRPC) and municipalities to use as they develop comments to share with the U.S. Environmental Protection Agency (EPA). TASC does not make comments directly to EPA on behalf of communities. This document is funded by EPA's TASC program. The contents do not necessarily reflect the policies, actions or positions of EPA.

In accordance with EPA's February 25, 2022 conditional approval letter for GE's Pre-Design Investigation Work Plan for the Upland Disposal Facility, GE prepared the Interim PDI Investigation Summary Report and UDF Conceptual Design Plan. The UDF Conceptual Design Plan was prepared to present the proposed conceptual design elements for the UDF and UDF support areas associated with the Rest of River (ROR) Remedial Action. The UDF will be constructed on a 75-acre property that was formerly part of an active sand and gravel quarry. GE acquired the property from The Lane Construction Corporation in April 2021. The GE Parcel will contain a UDF support area, which is currently undefined and may include facilities such as sediment dewatering, water treatment, and/or loading areas. GE began the PDI of the UDF area and conducted numerous PDI activities in 2022. PDI activities conducted through November 2022 are described in GE's Interim PDI Data Summary Report for the Upland Disposal Facility Area. Additional PDI activities are ongoing and are planned to be completed in late 2023. Results from the PDI are used to develop the design for construction, operation, monitoring and maintenance of the UDF and associated facilities. A Final Design Plan for the UDF will be submitted at a later date.

Summary

The UDF Conceptual Design Plan has 10 sections:

- Introduction
- Design Summary
- Perimeter Berm and Baseliner System
- Final Cover System
- UDF Operational and Support Areas
- Measures to Address Habitat Impacts
- UDF Closure
- UDF Post-Closure Activities
- Schedule
- References

The Interim PDI Data Summary Report for UDF Area has five sections and 12 appendices:

- Introduction
- Site Background and Historical Site Data Summary
- Pre-Design Investigation and Data Summary and Evaluation
- Schedule
- References
- Appendix A: 2010 Topographic Survey
- Appendix B: Soil Map – Berkshire County, Massachusetts
- Appendix C: Baseline Ecological Characterization and Habitat Assessment Report for Upland Disposal Facility Area
- Appendix D: 2022 Topographic Survey
- Appendix E: Geotechnical Data
- Appendix F: Arcadis Field Guide for USCS Soil Classification
- Appendix G: Soil Environmental Quality Data Validation Reports
- Appendix H: Piezometer and Monitoring Well Data
- Appendix I: Groundwater Environmental Quality Data Validation Reports
- Appendix J: Slug Tests Reports
- Appendix K: Phase 1A Cultural Resources Assessment Report for Upland Disposal Facility Area
- Appendix L: Phase 1B Intensive Archaeological Survey Report for Upland Disposal Facility Area

These are two separate documents, but GE submitted them to EPA under the same cover letter and they are companion documents.

TASC Comments

TASC compared the documents to the Statement of Work (SOW) and Revised Final Permit requirements. TASC also reviewed the February 2022 Conditional Approval of General Electric's November 24, 2021 Rest of River, Pre-Design Work Plan for Upland Disposal Facility (2022 Conditional Approval letter) and TASC comments provided on the November 2021 Upland Disposal Facility Pre-Design Work Plan (UDF PDI Work Plan) and July 2022 UDF Phase 1A Cultural Resources Assessment (CRA) document. Specific requirements for this interim document are limited in the guidance documents.

UDF Conceptual Design Plan: The UDF Conceptual Design Plan provides a conceptual design of the UDF consolidation area using the performance standards criteria combined with site characteristics gathered from various studies completed throughout the GE Parcel. Elements of site characteristics (such as groundwater flow and levels) are critical to the UDF design. Most comments generated by TASC focus on these studies. These characteristics are thoroughly described in the Interim UDF PDI Data Summary Report.

Interim UDF PDI Data Summary: This document is an interim status of data being used to design the UDF features. This interim status is an opportunity to address data gaps to ensure enough information is gathered to prepare a final design. TASC had several comments on additional data collection opportunities for groundwater, surface water and sediment, and air monitoring. Because the UDF is of particular community interest and the UDF design process is in its infancy, it seems appropriate for the community to be actively engaged in review of these documents. TASC suggests that the community request GE to hold a public outreach effort to discuss the rationale behind the conceptual design.

1. The UDF Conceptual Design Plan emphasizes that this document is conceptual and will be finalized after activities involved with ongoing PDIs and support area decisions are completed. This proposed schedule appears to proceed from a very draft (conceptual) design to a final design, with no interim deliverables, reviews and adjustments. To allow appropriate opportunity for community involvement, GE could provide a comprehensive presentation to the public. This would allow an interactive review of the proposed final (or close to final) design during a public meeting where GE presents the final design for discussion. The community may want to consider asking that the proposed final design be provided before the presentation. The presentation will allow the public to provide their initial comments and concerns for GE consideration and incorporation. There are questions of particular importance to the community (such as protectiveness of UDF activities to human health, aesthetics, transportation routes, times of operation etc.) that could benefit the design. GE could then produce a final design document that includes a responsiveness summary summarizing public questions/concerns provided during the meeting, and how GE addressed those questions/concerns in the document.

   Given important concerns that the public has regarding design of the UDF, the community may want to ask EPA if GE could present a public meeting describing the UDF final design. Through this meeting, GE could understand community questions/concerns so they can be addressed in the final document.

2. In the 2022 Conditional Letter of Approval for the Pre-design Investigation Work Plan for the UDF, EPA asked GE to identify any constraints associated with the easement in the Conceptual Plan. When GE prepares and records a Grant of Environmental Restriction and Easement (ERE) to "prohibit excavation of the closed UDF…or utilization of groundwater underneath the UDF area (including a 500-foot zone around the waste consolidation area) and restrict future use of and access to the UDF area" (Section 7.3, pdf page 31), the ERE will impose land use restrictions that may affect the utility easement and adjacent landowners. Therefore, GE will likely need to coordinate with several entities as plans for the UDF progress, including:

    - Eversource Energy (owner of the utility line easement).
    - Private property owners on the east side, immediately adjacent to the Parcel.
    - The gravel quarry to the west (Northeast Paving, a division of Eurovia Atlantic Coast, LLC).

    Some potential ERE effects associated with each of these entities include:

    The GE Parcel has an overhead Eversource Energy electric utility line easement with overhead electric utility lines on the western and southern sides of the GE Parcel. It is likely that Eversource will need continued access to maintain their utility corridor throughout UDF construction and operation.

    Proximity of the GE Parcel to private parcels to the east (LB Corp. as shown on Figure 3, pdf page 52; and the private residence at 530 Woodland Road, Lee MA: Location ID: M_57116_900688) raises several questions:

    - Has GE coordinated with the landowners to make them aware of possible impacts to their property from UDF construction and operation?
    - Has GE considered cooperating with the landowners to determine if sampling of their groundwater wells (if they exist) could be incorporated into the UDF monitoring?
    - Has GE considered a method to proactively communicate with these landowners to convey any emergency response needs in the instance of spills, accidents etc.?

    The gravel quarry to the west of the GE Parcel (Northeast Paving, a division of Eurovia Atlantic Coast, LLC) includes several open pits and ponds. The ponds may be part of the materials washing and water management strategies of the mine. If the quarry is active and will continue to manage mined materials (removal and storage) and water storage in the future, it is unclear if these practices will conflict with the UDF or affect the groundwater flow pathway. When GE records the ERE to prohibit use of groundwater under the UDF including a 500-foot zone around the waste consolidation area, it is not clear how the inability to use groundwater (which recharges the quarry ponds) will affect the quarry function. Finally, a location stake marked 'conservation area' has been noted and mapped as part of the GE Parcel topographic maps (refer to Figure 2 Existing Conditions, pdf page 50).

This location may be linked to the gravel operation. TASC suggests that the purpose of this stake and its land use implication be determined.

The community may want to ask EPA if due diligence with the utility easement owner (Eversource), gravel quarry and adjacent landowners has been performed to ensure compatibility of the UDF with these adjacent property uses.

3. The UDF Conceptual Design document indicates that 'mitigation' of impacts, such as mitigation for the loss of regulated resource areas (such as dredge and fill activities affecting waters of the United States), will have data collection during additional PDI activities; the mitigation measures will be described in the Final Design Plan (pdf page 30). There seems to be a considerable amount of information from which a preliminary mitigation approach can be developed. There are potential opportunities for management and routing of stormwater run-on and run-off to be beneficial for the development of mitigation wetlands and other habitats (i.e., providing water to the vernal pool). There are certain GE Parcel features (such as the intermittent drainage discussed in Comment 7 below) that may need controls to minimize UDF disturbance from episodic flows. The management features for this drainage may also benefit mitigation projects.

   The community may want to ask EPA if there is enough information for GE to include mitigation plans to address impacts to waters of the United States and other habitat areas.

4. The UDF Conceptual Design Plan does not describe how materials will be managed and stored. Excavated topsoil removed during construction would typically be stored as berm material for later soil replenishment, capping and reclamation. The document does not mention whether topsoil will be sorted and held for later use. Similarly, there is likely a need to conduct tree and brush removal. These materials could also be retained for later soil amendment. The plan also mentions concrete debris material within and next to the consolidation area limits, but does not describe how or if these materials will be disposed of.

   The community may want to ask EPA if the Design Plan should be amended to discuss areas where materials will be managed for later use or disposal, such as topsoil, vegetation materials and concrete debris.

5. The UDF Conceptual Design Plan does not describe features to help address spills or emergency releases of polychlorinated biphenyl (PCB)-contaminated materials. UDF design could include appropriate best management practices to control incidental releases of contaminated material.

   The community may want to ask EPA if the Design Plan should be amended to include features to address spills of contaminated material.

6. GE has indicated that parts of the quarry ponds on the GE Parcel will be filled. There seems to be enough information to quantify the fill that will be placed in the northernmost quarry pond. GE could identify the type of fill and notify the Massachusetts Department of Environmental Protection (MassDEP) related to quarry fill permitting, as needed (refer to information provided in Comment 25 below).

The community may want to ask EPA if GE should evaluate and quantify fill needed for the quarry pond and determine if MassDEP permit conditions apply.

6. The Baseline Ecological Characterization and Habitat Assessment Report (Appendix C of the Interim UDF PDI Data Summary Report) describes an intermittent drainage that discharges water into a wetland in the east-central area of the property (outside of the consolidation area, just north of the 'North Storm Water Basin' [North Storm Water Basin shown in Figure 4 of the UDF Conceptual Design; pdf page 52; intermittent drainage shown in Figure 5 of Appendix C of the Interim UDF PDI Data Summary Report, pdf page 221]). The drainage traverses the east-central wetland from east to west and conveys flow into another shrub wetland under the transmission line. All stream flow was observed to infiltrate into the ground at this western edge (Interim UDF PDI Data Summary Report, Appendix C, pdf page 188). This feature can convey stormwater and present a potential water management issue to be addressed in UDF design. The document does not mention this drainage feature or present best management feature components to address flows.

   The community may want to ask EPA if the preliminary design should incorporate management features to address surface water flows associated with the intermittent drainage identified in the Baseline Ecological Characterization and Habitat Assessment Report.

7. The Interim UDF PDI Data Summary document identifies several surface water and groundwater-fed features that could influence UDF facility features:

   - There is an intermittent drainage in the northern area that connects two wetlands and absorbs into the groundwater on the west side of the GE Parcel.
   - As stated in the UDF PDI Data Summary document 'the parcel contains several man-made or modified permanently flooded areas, which are associated with the prior quarry operations' (pdf page 14; these features are assumed by TASC to be the quarry ponds on the west side of the GE Parcel, but are otherwise not described in the document).
   - The area impacted by previous gravel mining operations provides a setting comprised of unconsolidated, potentially porous media that can act as a conduit for surface water and groundwater flows.

   The UDF PDI Data Summary document recognizes these issues and states "In the UDF area, grades indicate that drainage generally pitches internally towards the localized low points. There are limited areas of the GE Parcel that drain off site to the east along Woodland Road and to the former Lane property to the west" (pdf page 21). It seems important to map the surface water hydrologic features associated with the baseline topographic setting to effectively understand future water management needs. The report provides detailed topographic maps but does not provide a surface water feature map.

   The community may want to ask EPA if the Design Plan should be amended to include a map of surface water features.

8. The undefined placement of the UDF support areas seems to be a significant data gap in understanding whether the groundwater monitoring program is sufficient. The UDF support area may include sediment dewatering and material handling areas that can yield liquid wastes of potential concern. The UDF area would likely include hydraulic transport features associated with the wet sediments removed from the river. The groundwater monitoring program could capture groundwater above, within and below these support areas so that any spilled contaminated material is contained.

   The community may want to ask EPA if the groundwater monitoring program can be amended to capture possible spills from the UDF support areas.

9. There seems to be enough information for GE to develop a conceptual site model (CSM) of UDF groundwater that depicts groundwater levels in relation to UDF site features along a series of cross sections. This CSM could be updated to present groundwater conditions at various seasonal conditions. It could also help understand how groundwater is affected by managed materials from the adjacent gravel mine and pond features that might be acting as groundwater sinks.

   The community may want to ask EPA if there is enough information for a groundwater conceptual model of the UDF to help understand variables that could affect groundwater movement (mined materials, pond features etc.).

10. The Interim PDI Data Summary report states that groundwater elevation data indicate a generally east-southeast to west-northwest groundwater elevation gradient and flow direction (pdf page 28). TASC reviewed the reported groundwater levels for the monitoring wells and piezometers (provided in Table 6 of the Interim PDI Data Summary report, pdf page 128). The groundwater levels demonstrate movement toward the west with some varying flow pathways along the western edge of the GE Parcel. These varying levels may be occurring in response to heterogenous subsurface materials that have been affected by the gravel mining operation. For instance, there is a notable groundwater high point around MW-2022-5, and low points around B-1, MW-2022-3 and MW-2022-6 (refer to Figure 6, pdf page 154, for well and boring locations). Based on data, there are areas where additional monitoring may help fully understand these varying groundwater levels. For example:

    - Additional surface water depth measurements from the southwestern and northwestern ponds (bisected by the GE Parcel boundary) next to MW-2022-3 and MW-2022-2 may be beneficial. Pond water levels are affected by storm events and evaporation, but MP-1 levels are comparable to MW-2022-3 well levels. It appears the surface water MP-1 water level locations are a relatively good mirror to the adjacent groundwater.
    - There are spatial gaps in areas west of MW-2022-5 (the high point) and east of PZ-2022-1 that could benefit from additional piezometer wells.

   The community may want to ask EPA if additional monitoring of surface water depths in the two western ponds and additional piezometers west of MW-2022-5 and east of PZ-2022-1 could be added to improve understanding of groundwater flow pathways.

11. Review of groundwater water levels identified well PZ-2022-8 (Interim PDI Data Summary pdf page 128) as having 'dry' conditions in the last two monitoring efforts (October and November 2022). Review of the well log (pdf page 127) indicates that the screen was installed within the anticipated saturated subsurface layer. Assuming a similar water level rate of decrease in other monitoring wells, it is unclear why this well did not have detectable water levels. It may be important to install another piezometer upgradient and east of this well to capture a deeper saturated level.

    The community may want to ask EPA if another piezometer upgradient of PZ-2022-8 would be useful to understand groundwater flows in this area.

12. Per requirements in the February 22, 2022 EPA "Conditional Approval Letter" for the PDI Work Plan for the UDF, "GE shall specify the date ranges over which the given ranges of water table elevations were collected." These data are provided in Table 6 (pdf page 128), but it might be appropriate to begin developing groundwater flow maps by season or sampling event.

    The community may want to ask EPA if groundwater level contour maps could be developed using the historical and existing groundwater levels provided in the Interim UDF PDI Data Summary document.

13. The prevailing groundwater flow direction is trending toward the west side of the GE Parcel. The existing monitoring wells that capture 'above' or upgradient areas are limited in number (refer to Figure 6, pdf page 154). Given the detection of PFAS in groundwater (further discussed in Comment 26) and the need to thoroughly characterize both groundwater flow and quality above, within and below the proposed UDF area, it seems appropriate to consider additional upgradient and background groundwater monitoring sampling to address public concerns. Recommendations for further upgradient/background monitoring could include:

    - Review of the GE Parcel identifies two private landowners on the east side of the Parcel (as described in Comment 2). These properties may rely on groundwater wells as their water source. It may be appropriate to coordinate with the landowners to use these wells as part of UDF monitoring.
    - There is a potable supply aquifer (Stockbridge marble aquifer) in the Lee area that has gathered community concern regarding the UDF placement (Culp, L. 2022). It may be proactive for GE to consider monitoring this aquifer using town of Lee infrastructure to address future public concerns.

    The community may want to ask EPA if GE should consider contacting private landowners east of the UDF to determine if the properties rely on groundwater wells that could be incorporated into the UDF groundwater monitoring system; GE might also consider working with the town of Lee to obtain samples of potable water from their aquifer.

14. The GE Final Revised Permit (Section 5(2)(d), pdf page 60) states that seasonally high groundwater elevation will be projected using site-specific groundwater elevation data

collected at the UDF, modified by an appropriate technical method that considers historical groundwater level fluctuations at similarly-sited off-site long-term monitoring wells in Massachusetts. The estimation will be performed pursuant to a methodology reviewed and approved by EPA. This statement is provided again in the UDF Conceptual Design document (pdf page 12), indicating that GE has not presented the data interpretation methods to be used for estimating groundwater elevation projections.

The community may want to ask if EPA will be provided with the groundwater elevation projection data interpretation method as part of the document deliverable.

15. The Interim UDF PDI Data Summary document does not provide all historical studies used to characterize groundwater conditions. The Interim UDF PDI Data Summary Plan provides a copy of one historical groundwater study (Appendix H, pdf page 2254, 'Re. Addendum to Hydrogeological Study at Sanitary Landfill') that appears to be an addendum; the original report is not provided. The Interim UDF PDI Data Summary Plan mentions an 'uncovered MassDEP' file named "Evaluation Opinion Transmittal Report" (pdf page 16) that contains a summary of groundwater elevation data collected from monitoring wells around the nearby Schweitzer-Mauduit and Lee Municipal Landfills. In addition, Section 2.2.6 (pdf page 16) mentions 'more recent groundwater quality data for the Lee Municipal Landfill have been collected as part of annual post-closure monitoring activities performed by the town of Lee' (Tighe & Bond, 2021). This indicates that there are three historical studies (in addition to the one provided in Appendix H) that led to the conclusions drawn in this document. These studies are not included in the Interim PDI Data Summary document.

    The community may want to ask EPA if the Data Summary document should include a summary of all historical information describing groundwater quality in adjacent areas such as the Lee Landfill.

16. The Data Summary document provides some Schweitzer-Mauduit and Lee Municipal Landfill monitoring wells in Appendix H (pdf page 2,254). This appendix provides data summaries for additional wells (MW-84-3, CW-1S, CW-1M, CW-1D, MW 94-7S, MW 94-7D, CW 88-1S, CW 88-1M, and CW 88-1D) beyond the two relied on in the Data Summary document (MW-84-1 and MW-84-2) (refer to data provided in Tables 3.1, 4-1 and 4-2 pdf pages 2,255 through 2,258). Data gathered from these wells could provide additional insight into typical groundwater flow pathways near the Housatonic River. The landfill area may not be as disturbed compared to the gravel quarry, which encompasses areas of mined, unconsolidated materials. Therefore, the landfill groundwater flow pathways may provide a better understanding of typical or background-type flow pathways, and could provide important flow dynamic information.

    The community may want to ask EPA if there are additional monitoring wells associated with the landfill that can lend to the evaluation of typical groundwater flow pathways in the area.

17. The PDI studies have been appropriately focused on groundwater. However, there are opportunities to gather both surface water and sediment for baseline characteristics. The constructed ponds to the west of the UDF consolidation area present a unique opportunity to

capture surface water and sediment quality that may be affected by the UDF in the future. It appears that there is a linkage between site groundwater and pond surface water. It seems appropriate to establish surface water and sediment (solids and pore water) sampling locations for baseline and UDF monitoring. As stated in Comment 10, the pond water levels (MP-1) mirror adjacent groundwater levels indicating a potential value to the pond water level measures. Therefore, additional pond water levels taken from the more western ponds would be beneficial. Co-located surface water and sediment samples analyzed for chemical content would add valuable information to characterization of background conditions.

The community may want to ask the EPA if surface water and sediment samples co-located with surface water levels could be collected from the ponds located along the western edge of the UDF property.

18. Groundwater samples contained PFAS, which are chemicals of potential concern to human health and the environment. These substances have been used extensively in surface coating and protectant formulations and fire-fighting foam due to their unique surfactant properties. PFAS are ubiquitous in the environment. Considerable efforts are ongoing to understand the nature, extent and toxicology of these chemicals. It would be useful to have an analysis of soils (surface and subsurface) to understand the nature and extent of PFAS more fully. PFAS was not analyzed as part of the soils monitoring efforts to-date.

    The community may want to ask EPA if PFAS could be added as an analytical group for the soil analysis.

19. EPA's 2022 Conditional Letter of Approval for the Pre-Design Investigation Work Plan for the UDF requested GE to "include the various debris and tailings piles within the UDF operational area..and shall visually characterize those materials to determine their appropriate disposition" (pdf page 3). There are considerable volumes of concrete debris shown on Figure 2 (pdf page 50) of the UDF Conceptual Design document. While concrete debris itself does not pose an environmental concern, these piles suggest that waste materials have been dumped erratically in the area; GE might consider further evaluating these piles to ensure that no other waste materials are present.

    The community may want to ask EPA if GE could further evaluate the concrete debris piles to ensure there are no other waste materials in the piles.

20. Table 4B of the Interim PDI Data Summary report (pdf pages 115-126) provides PCB results in split samples of soil collected by EPA. Conclusions in the document state that 'EPA's split samples are generally similar to the results from GE's samples' (pdf page 25). However, results in Table 4B raise several questions:
    - Detection limits reported for EPA's split sample analysis are an order of magnitude lower than GE's (EPA detection limits range from 0.035-0.051 mg/kg, while Arcadis detection limits range from 0.21-0.33 mg/kg).
    - Inorganic results for the split samples are variable (e.g., zinc for B-2022-2; Arcadis result of 22.8 mg/kg varies substantially from its duplicate result of 31.4 mg/kg, and varies

substantially from EPA's result of 30 mg/kg. MW-2022-2 has an Arcadis result of 67 mg/kg, a duplicate result of 76.1 mg/kg, and an EPA split result of 110 mg/kg).

- The list of chemical groups and analytes are not consistent between Arcadis and EPA.

Since the Site is defined by PCB contamination, PCBs represent the most important analysis group to monitor for the UDF (Aroclor 1016 through 1268). The EPA analytical method yields lower detection limits and thereby allows for more refined soils analysis. It would be beneficial for future split sample analysis to target similar chemical groups and analytes. A thorough review of relative percent difference (RPD) between the analysis results may be needed.

The community may want to ask EPA if future soil sampling analysis could rely on the EPA Aroclor analysis method to obtain lower detection limits and a better assessment of current conditions, and if future split sampling should sample for more comparable chemicals.

21. The Interim PDI Data Summary document presents the location of the weather station (Figure 8, pdf page 156). This document says that monitoring will be conducted and the weather station will remain in place until the start of UDF construction. It seems important to continue monitoring during construction, and during material processing/management during UDF operation to address community concerns regarding UDF airborne releases of PCB-contaminated materials.

    The community may want to ask EPA if the air monitoring efforts could continue during UDF construction and operation.

22. TASC recently reviewed the Sustainability and Climate Adaptation Plan (GE, 2022). Per the Revised Final Permit requirements, forthcoming ROR remedial actions will include an evaluation of possible climate change impacts to a proposed remedy. In addition, TASC previously commented on the UDF PDI about the evaluation of possible impacts of geologic hazards to the UDF design (based on the Washington State Department of Transportation's Geotechnical Design). The design document does not mention if potential impacts attributable to climate change or geologic hazards were addressed as part of the design decisions. Groundwater elevations are one of the most important site characterization that will define the UDF design. Modeled elevated groundwater levels that predict possible groundwater changes attributable to future climate change concerns should be evaluated. Similarly, catastrophic geologic hazards can adversely affect the UDF.

    The community may want to ask EPA if natural hazards such as those attributable to geologic hazards and climate change were considered in the UDF design.

23. The document states that there is a priority habitat of rare species located 0.15 mile north of the GE Parcel (pdf page 14), but the rare species is not identified. If this species is migratory, UDF construction and operation activities could occur within the species' life cycle required area.

    The community may want to ask EPA if GE could amend this document to identify the rare species.

24. Appendix C provides the Baseline Ecological Characterization and Habitat Assessment Report for the UDF. It provides thorough descriptions of natural setting features throughout the GE Parcel. It does not provide conclusions regarding impacts to the inventoried resources. There seems to be enough information in the Conceptual Design Plan to describe the nature of impacts attributable to conceptual design construction. TASC would like to raise the possibility that UDF sediment management practices may attract nuisance wildlife. Once wastes are transported into the UDF, water from the sediments might separate and create a surface layer in the disposal area. This ponded water could be an attractive habitat to migratory species. The proposed UDF is near several natural settings that attract wildlife activity (Woods Pond, the NRC parcel and the Housatonic River). It is important to understand the species living in and migrating through the area, to plan for the management and control of possible future exposures.

    The community may want to ask EPA if the Baseline Ecological Characterization and Habitat Assessment Report can be revised to describe impacts on natural resources and possible mitigation strategies for these impacts.

25. The documents state that the man-made gravel-pit ponded areas provide aquatic conditions. Two of these ponds (the western ponds) are partly on the GE Parcel, and one pond (the southeastern-most pond) is entirely on the GE Parcel. The document states that 'based on current regulatory criteria, the three ponds do not constitute federally regulated waters of the U.S., since they were created in upland settings for the purpose of treating water as part of the gravel pit wash-water system, and since the two westerly ponds remain in active use as part of the gravel pit operation, they are also not regulated wetlands under the Massachusetts Wetlands Protection Act (MWPA) regulations which exclude from the definition of Pond any "individual gravel pits.. excavated from upland areas unless inactive for five or more consecutive years" (310 CMR 10.04: definition of Pond) (Appendix C, pdf page 188-189). The southeastern pond has been inactive for at least five years, and therefore would be considered a Pond under MWPA regulations. Aerial photographs in the Data Summary document indicate that the northern-most western pond may be historical (Figure 14 of Phase 1B Cultural Resources Assessment, Appendix L of the Interim PDI Data Summary Report, pdf page 2740) and may not have been used by the gravel quarry because its aerial footprint has not changed substantially for over 20 years. Per the Ecological Characterization and Habitat Assessment (Appendix C) of the UDF PDI Data Summary document, this pond was eliminated from field surveys 'because it retains an active use by the gravel quarry' (pdf page 189. Furthermore, this feature may be filled to accommodate support area features. There are several considerations for this pond:

    - The status of the pond should be clearly defined by the gravel quarry; is the pond necessary for facility operations and will the quarry continue managing the pond?
    - The wetland status of this pond should be thoroughly evaluated given the historical footprint shown in aerial photographs.
    - If GE backfills the pond to enhance UDF area use, then GE should consider MassDEP guidance for reclamation and filling of gravel quarry ponds (refer to references). MassDEP approves the operation or projects using large volumes of soil to reclaim

quarries, sand pits and gravel pits, and similar fill projects. The Massachusetts legislature has mandated that MassDEP establish regulations, guidelines, standards or procedures for determining the suitability of soil used as fill material for the reclamation of quarries, sand pits and gravel pits. The policy is applicable to quarries, sand pits and gravel pits that will accept 100,000 cubic yards or more. MassDEP approves Reclamation Soil projects pursuant to Section 277 of Chapter 165 of the Acts of 20141, M.G.L. c. 21E, § 6 and 310 CMR 40.0000, and M.G.L. c. 111, § 150A3 and 310 CMR 16.00 and 19.000 (MassDEP, 2015).

The community may want to ask EPA if the northern-most west pond should also be considered during the proposed baseline habitat surveys because this pond may have achieved wetland characteristics identified by MassDEP. In addition, the community may want to ask EPA if the future pond-filling efforts should consider guidance set forth by MassDEP for gravel pit fill operations.

26. PFAS were detected in eight of the 11 groundwater wells sampled (refer to results provided in Table 7A of the Interim PDI Data Summary Report, pdf pages 129 and 136). Twenty-one different perfluoroalkyl chemicals were analyzed for in each sample. A summary of the number of detected PFAS chemicals, and number of estimated PFAS detected chemicals are summarized in the below table.

Monitoring well sample	Number of detected PFAS chemicals	Number of estimated[a] PFAS detected chemicals
MW-2022-1D	3	4
MW-2022-1S	5	4
MW-2022-2	None detected	None estimated
MW-2022-3	None detected	None estimated
MW-2022-4D	None detected	2
MW-2022-4S	2	4
MW-2022-5	2	5
MW-2022-6	1	3
MW-2022-7	None detected	None estimated
MW-2022-8	None detected	1
MW-2022-9	6	3

[a] The compound was positively identified; however, the associated numerical value is an estimated concentration only (pdf page 2,338).

PFAS chemicals are being detected throughout the environment. There is public concern regarding their environmental persistence, mobility and toxicity. Given the occurrence of these chemicals in baseline groundwater sampling results, it seems important to continue analyzing groundwater for PFAS and document whether the UDF is a source of PFAS in the future. It may be important to the community to be able to identify possible sources of PFAS in the area. Review of the Phase 1B Cultural Resources Assessment identified possible industrial features, such as a paper mill and a furnace, near the GE Parcel (Figures 8, 9 and 11; pdf pages 2,735, 2,736 and 2,738). The Phase 1B Cultural Resources Assessment

document identifies research efforts (Section 4.1, pdf pages 2,721-2,723) that may document historical industrial activities in the area. Some of these references include:

- Mulholland et al. 1977
- Jones 1992
- Jones and Berkland, 1992
- McDermott and Macomber, 1991
- Macomber 1992
- Macomber et al., 1992
- Donta, Blake and Barker, 2011

The community may want to ask EPA if continued analysis of groundwater for PFAS could occur, and if cultural resources could be shared with the public to help identify possible PFAS sources.

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Technical Assistance Services for Communities (TASC) Program. TASC Comments on GE-Pittsfield/Housatonic River Site Pre-Design Investigation Work Plan for Upland Disposal Facility, November 2021.

State of Washington, Department of Transportation: Geotechnical Design Manual. https://wsdot.wa.gov/engineering-standards/all-manuals-and-standards/manuals/geotechnical-design-manual (Chapter 6.: Seismic Design Guidelines. Guidelines: https://www.wsdot.wa.gov/publications/manuals/fulltext/M46-03/Chapter6.pdf).

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MEMORANDUM

TO:	Wes Kelman, Seeger Weiss LLP Melissa Provencher, BRPC Jeff Hershberger	DATE:	February 10, 2023
FROM:	Amanda Wade Shawn McGee	TRC PROJECT NO.:	016168.0000
SUBJECT:	Technical Review of UDF Conceptual Design and Site Investigation Report		
COPY TO:	Project File		

TRC Environmental Corporation (TRC) provides this technical memorandum to Seeger Weiss LLP (Seeger Weiss) in support of the Housatonic Rest of River Municipal Committee (the Committee) and the Berkshire Regional Planning Commission (BRPC) related to the ongoing activities associated with the GE-Pittsfield/Housatonic River Superfund Site (the Site). This memorandum conveys the findings of TRC's review of the following two documents.

1. Interim Pre-Design Investigation Data Summary Report for Upland Disposal Facility Area (Arcadis, December 2022).
2. Upland Disposal Facility Conceptual Design Plan (Arcadis, December 2022).

These documents are related to the ongoing Rest of River remedial action. As requested by BRPC, TRC's review focused on the following objective.

- Whether these two documents provide the level of detail needed to ensure that the UDF is being designed to provide long-term, maximum protectiveness of the environment and human health.

The following memorandum is subdivided into comments on the following three topics.

1. Geotechnical investigation findings related to the design of the UDF
2. Conceptual UDF design
3. Other remedy components including depth to groundwater on the UDF site and the UDF operational and support components

BACKGROUND

In support of these evaluations, following are the documents that have been previously completed by General Electric and the pending documents as detailed in the Final Revised Rest of River Statement of Work (Anchor QEA, September 2021).

- **Revised RCRA Permit (December 2020)**
- Documents related to UDF Design
  - **Final Revised Rest of River Statement of Work (September 2021)**
  - **PDI Work Plan (November 2021)**
  - PDI Summary Report
    - *Interim PDI Summary Report*
    - *Final UDF PDI Summary Report (additional submittal)*
  - Remedial Design
    - Transportation and Disposal Plan
      - Onsite Plan
      - Offsite Plan

- Updated Project Operations Plan
  - Includes Air Monitoring Plan
- Quality of Life Compliance Plan
- Adaptive Management Plan
- UDF Design Plans
  - *Conceptual Design Plan*
  - Final Design Plan
  - Operation, Monitoring, and Maintenance Plan
  - Supplemental Information Package (following contractor selection)
  - Final Cover/Closure Plan
  - UDF Post-Closure Monitoring and Maintenance Plan

Documents above shown in **BOLD** have been issued final. The two documents that are the primary focus of this review are shown in *RED italics*. This listing was compiled to better understand the sequencing of documents and what documents are required to be submitted as part of the UDF design, construction, maintenance and monitoring following the two draft documents currently being reviewed.

GEOTECHNICAL INVESTIGATION

The objective of the geotechnical review was to determine if the geotechnical data provided (boring logs, laboratory testing results, and geotechnical analyses of the waste area) provide adequate information to demonstrate long-term stability and protectiveness of the environment and human health.

In summary, based on the limited geotechnical data provided in these documents as part of the pre-design phase of the project, TRC was not able to confirm that a demonstration has been adequately completed to demonstrate long-term stability of the UDF. TRC's initial observations are as follows:

1. A total of 22 borings were completed and are positioned within and outside of the anticipated UDF area limits - 16 of the 22 borings were utilized for soil quality testing purposes and 6 of the 22 borings were utilized for the installation of temporary piezometers within and outside of the UDF footprint. The number and locations of borings appear to be appropriate for the proposed design, however, a final determination if the exploration completed is appropriate cannot be completed until TRC has the opportunity to review the remaining data and analysis to be provided.

2. Limited geotechnical data was provided, including boring logs, laboratory testing results of index properties (e.g., grain size, moisture content, Atterberg limits, organic content, and specific gravity). However, there were no shear strength or consolidation testing reports provided in the documents that will be necessary to conduct global stability and settlement analyses.

3. The PDI Work Plan stated that undisturbed soil samples would be collected if cohesive soil was encountered. However, the IPID report indicated that cohesive soils were not encountered during the geotechnical investigations; therefore, soil samples were not collected for evaluation involving shear strength testing (e.g., triaxial shear test). The IPID Report also indicates that further evaluation of the data collected from the soil geotechnical investigation program and interpretations of those data are "ongoing and will be presented in the Final UDF PDI Summary Report". Therefore, TRC was not able to determine how the data that could and was collected will be used in the stability and settlement calculations.

4. The IPID Report stated that cross-sections through the UDF at the proposed excavation subgrade and final closure conditions were evaluated for global stability. SLOPE/W was used as an analysis tool for global stability evaluation and Spencer method was chosen to be the analysis

method. According to the previously mentioned document, design slopes were analyzed for both static and pseudo-static (seismic) conditions. SLOPE/W is an industry accepted software for two-dimensional slope stability analysis. However, due to the lack of the model description, input data, and output report, TRC was not able to determine if the long-term stability will be achieved with the proposed design.

In conclusion, based on the limited geotechnical data provided in the above referenced documents, TRC is not able to confirm that a demonstration has been made that the design will provide long-term stability and protectiveness of the environment and human health. We do recognize that the reports are part of a pre-design investigation and that detailed geotechnical analyses (slope stability, settlement, etc.) are forthcoming and will be provided as the design progresses. TRC can perform a detailed review of the additional data and analyses once made available.

UDF CONCEPTUAL DESIGN

TRC's review of the conceptual design focused on the engineered and operational components of the UDF. These included discussion of the liner and cover system components, leachate collection system discussion and sizing, stormwater management, and discussions of proposed landfilling procedures.

The proposed landfill liner build-up includes both a primary and secondary liner system comprised of both geosynthetic and soil components. Leachate is proposed to be collected from above both liner systems utilizing sumps and pumps and taken via forcemain to an onsite treatment facility before being discharged to the river. The cover system proposed for the landfill is also comprised of both soil and geosynthetic materials.

Based on this review, TRC has the following comments and recommendations:

- The proposed liner and cover system components meet the minimum regulatory requirements for landfill construction.

- A Construction Quality Assurance Plan and Technical Specifications should be prepared at the time of the final design. In addition to material specifications, these documents should outline the construction testing and oversight requirements to ensure that construction of the landfill is completed in accordance with the approved plans.

- A well-graded aggregate is proposed to be placed within the landfill as a protective layer above the leachate collection system. No additional specifications were provided for the aggregate material. Since this material sits directly above the leachate collection system, a minimum specific hydraulic conductivity equal to or greater than the proposed granular drainage layer should be specified to minimize conditions that would prohibit the internal flow of leachate.

- Calculations should be prepared to show that the thickness and composition of the proposed aggregate fill material is adequate to protect the composite liner from damage due to equipment and operations as well as freezing conditions.

- Sizing of the leachate collection system has not yet been completed. Additionally, there was no discussion of the parameters to be used to determine the minimum required leachate collection pipe size, perforation pattern, and pump rates.

- A granular drainage layer is not proposed on the internal slopes of the landfill containment berms. The absence of this layer, considered redundant by the design engineer, makes it critical that the specified

transmissivity of the geocomposite be adequate to handle the expected flows. We recommend that the Project Technical Specifications and Construction Quality Assurance Plan require that the material be tested in both the machine and transverse directions to allow for flexibility of panel placement during construction.

- While a secondary leachate collection system/leak detection system is proposed for the landfill, there is no discussion of the monitoring requirements for the flows within that system or the proposed corrective actions to be taken should observed flows exceed a proposed Action Leakage Rate. A Leak Detection Response Action Plan should be prepared and submitted with the final design that outlines monitoring, testing, and remedial measures to be taken based on observed flows above the secondary liner system.

- There is no discussion of the proposed leachate treatment requirements for the onsite leachate treatment facility or potential back-up capacity should the system require maintenance, experience a power loss, or exceed the design flow capacity.

- Stormwater Management System sizing has not yet been completed and no stormwater Best Management Practices (BMPs) were included within the conceptual plan.

- There is no discussion of the proposed fill plan for the landfill. We recommend that a Cell Development Plan be developed that shows the direction and timing of fill placement, internal access road construction, leachate flow directions, proposed timing for intermediate cover or phased final cover placement, and the potential installation of internal drainage layers to ensure the drainage of liquids from soil materials into the leachate collection system to ensure a stable waste mass.

- We recommend that the geocomposite material not exit the landfill into the anchor trench and that the primary and secondary geomembrane be fused together within the anchor trench to minimize the risk for leachate release from, and/or groundwater intrusion into, the leak detection system.

- We recommend that the geomembranes from the liner and cover system be fused together in the anchor trench to minimize the potential for release of liquids or gases to the subsurface after closure.

- No details were provided for the drainage layer outlets for the final cover system. The liquids within the drainage layer must exit the system to limit the potential for buildup of liquids within the cover drainage layer that can cause instability and ultimate failure of the cover soils above the geomembrane.

- There is no discussion of potential reuse options for the waste area upon completion of final cover system. Post-closure use options should be proposed as required in the Settlement Agreement.

Additional review of the proposed UDF design to develop final recommendations relative to whether the design provides adequate information to demonstrate long-term stability and protectiveness of the environment and human health can be completed once the additional information is provided.

OTHER REMEDY COMPONENTS

UDF Operational and Support Areas

No significant information was provided within the Conceptual Design submittal related to the following components of the remedy.

- Method(s) for conveyance of dredged or excavated material to the UDF and management methods once on the UDF property
- Management of Contact and Non-contact waters
- Groundwater Monitoring
- Air Monitoring
- Surface water management and monitoring

It is assumed that information on these aspects of the remedy will be provided in one or more of the following documents.

- Final Design Plan
- On-site Transportation and Disposal Plan
- UDF Operation, Maintenance, and Monitoring Plan
- Updated Project Operations Plan (air monitoring)

As such, TRC could not comment on these aspects of the remedy based on the limited information provided in the two draft documents. It will be important that the Committee be able to review and comment on any additional information provided relative to these remedy components when it becomes available. TRC feels that it is important for these aspects of the proposed remedy to be conveyed during the conceptual design stage or soon thereafter to allow for review and comment by interested parties prior to the issuance of the Final Design Plan.

Groundwater Depth and Elevation Monitoring

Six piezometers and eleven monitoring wells were installed as part of the PDI. GE and their consultants also utilized two monitoring wells related to the Lee Landfill and two surface water monitoring points located on an artificial pond on the UDF property and the Housatonic River. This monitoring is ongoing and expected to be completed by June 2023. The results of the monitoring to date were included in the Interim PDI Report.

The Settlement Agreement and revised RCRA permit require GE and their consultants to develop an estimate of the seasonally high groundwater elevation using the measured groundwater elevations in each well, modified by a technical method to be approved by EPA. The Performance Standards for the UDF require that the waste consolidation area have a maximum footprint of 20 acres and a maximum elevation of 1,099 feet above mean sea level (AMSL). However, if the seasonally high groundwater elevation is determined to be higher than 950 feet AMSL, the maximum elevation of the waste consolidation area may be increased by the number of feet between the seasonally high groundwater elevation and 950 feet AMSL.

The Interim PDI Summary Report notes that since the groundwater monitoring program is ongoing, and that the assessment of seasonally high groundwater will be included in a future submittal. Relative to the Performance Standards for the UDF noted above, the results to date of the groundwater monitoring program have identified groundwater elevations exceeding the 950 feet AMSL performance standard within the proposed waste consolidation area.

Following are some general comments on the groundwater monitoring program and the presentation of the final data. It is assumed that the final groundwater monitoring data and the assessment of seasonally high groundwater will be presented in the final PDI Report.

- Would be helpful to see cross-sections of the UDF relative to the proposed monitoring well network to verify that well depths and screen intervals are appropriate given the flow conditions established through the ongoing groundwater elevation monitoring program
- Groundwater flow maps should be included in the Final PDI Report based on collected groundwater elevation monitoring data under low groundwater, average groundwater, and high groundwater elevation conditions to allow for an assessment of groundwater flow conditions
- Hydrographs for well pairs (e.g, MW 2022-1S and MW 2022-1D) should be included on the same graphs in the Final PDI Report for ease of interpretation

Some general conclusions based on the groundwater elevation data collected to date.

- The groundwater monitoring program as designed and implemented by GE and their consultants should be adequate to support an evaluation of seasonally high groundwater, as well as design of the UDF.
- As noted previously, actual measured groundwater elevations within the anticipated waste consolidation area exceed the 950 feet AMSL threshold.
    - Redesign of the UDF to maintain 15-foot separation will be necessary unless the required separation distance is reduced
- Vertical hydraulic gradients measured in well pairs upgradient and downgradient of the anticipated waste consolidation area were upward (stronger upward downgradient of UDF)
    - This is a good condition for the monitoring of the landfill area
    - Any releases from the landfill should migrate laterally and/or upward from the landfill and are more likely to be detectable in the proposed monitoring network.

As noted previously relative to the reviews of the geotechnical information and the conceptual UDF design, additional review can be completed relative to the additional remedy components and the separation to groundwater once the additional groundwater elevation data is collected and presented and once some design information is provided for these other remedy components.