

Geotechnical
Environmental
Water Resources
Ecological

February 10, 2015
Project #1320460

Mr. Gary Lipson
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Region 1
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Boston, MA 02109-3912

**RE: Removal Action Work Plan - Response to NHDES Comments
Claremont Former MGP Site
Claremont, New Hampshire**

Dear Mr. Lipson:

GEI Consultants, Inc. (GEI) prepared a Removal Action Work Plan (RAWP) in September 2014, for the former manufactured gas plant (MPG) site ("Site") located in Claremont, NH, on behalf of UGI-Amerigas Propane, L.P. (UGI-AP) for submittal to the United States Environmental Protection Agency (EPA). This letter was written in response to comments provided by the New Hampshire Department of Environmental Service (NHDES) received on October 28, 2014, as well as comments received from NHDES via e-mail, following the February 4, 2015 meeting with EPA, NHDES and the City of Claremont. The comments are provided verbatim below.

Comments:

- I. *NHDES has a few comments to clarify our understanding of the soil/material to be addressed by the removal action.*
 - a. *In several sections of the report the soil to be removed or treated as part of the removal action is described in several ways – "overburden soil containing coal tar NAPL", "soil visibly impacted with free phase or residual coal tar NAPL", "visibly impacted material", "soil visibly impacted with MGP-related coal tar NAPL". NHDES did not see anywhere in the report where the description of soil to removed or treated is correlated with the soil boring logs conducted for the PDI/Pre-Characterization Investigation (Appendix C). NHDES wants to make sure there is a clear understanding what soil that will be addressed by the removal action.*
 - b. *As mentioned in an earlier comment the cross-sections show NAPL contamination in the unit referred to as "weathered bedrock". DES defers to on-site geologist for their description of the material encountered. According to the PDI boring logs and cross-sections there is a significant amount of NAPL contamination present in this unit. DES wants to clarify that regardless of how this unit is described, where there is NAPL contamination that meets the criteria in report (containing coal tar NAPL) the soil/weathered bedrock will be removed*

or treated, and that the methods for removal or in-situ stabilization will be effective.

GEI has included criteria for soil to be removed or treated in Figure 6. The areas and depths in which:

- overburden soil contains coal tar NAPL; and/or
- soil is visibly impacted with free phase or residual coal tar NAPL; and/or
- visibly impacted material has been observed; and/or
- soil is visibly impacted with MGP-related coal tar NAPL.

Overburden soil is also meant to include weathered bedrock or saprolite, which can be excavated with a track-mounted excavator to refusal at the bedrock surface. Geologic units described as weathered bedrock on GEI's soil boring logs and cross sections are intended for removal. The fill, soils, and weathered bedrock are collectively considered overburden materials.

Criteria that does not meet the definition of impacted soil to be removed or treated is:

- stained soil that is not coated, or saturated or otherwise impacted by free phase or residual coal tar NAPL.

The areas proposed for excavation have been outlined with polygons and proposed average excavation depths/depth to bedrock. The contractor who will perform the Removal Action will be provided with bid specifications outlining the excavation area, and will be instructed to excavate to bedrock surface. The areas and depths were proposed based on the impacts identified in the soil borings during the pre-design investigation (PDI). Borings with impacts are shown in red on Figure 6. Observed impacts are described in soil boring logs which are included in Appendix C. Weathered bedrock (unconsolidated rock/saprolite) containing coal tar NAPL will be treated the same as soil containing coal tar NAPL. Additionally, if soils are encountered during the Removal Action, which meet the criteria for removal, but were not identified previously during the PDI, these soils will be removed under direction of the on-site representative.

2. *Please clarify that the below ground structures associated with Holders 1 and 2 will be removed. And if there is impacted soil present beneath the structures that meets the criteria for treatment or removal, the soil will be addressed as part of the removal action.*
 - a. *Drawing C5, Demolition and Protection Plan. Will the below ground structures associated with Holder No. 2 be removed? If not, please explain.*

Below ground structures associated with Holders 1 and 2 will be removed as part of the Removal Action. Investigation of these areas could not be accomplished during the PDI, therefore, as stated in Section 5.6 of the RAWP, "It is anticipated that these limits will be modified and refined upon completion of the design investigation activities" which will occur following the demolition/removal of the onsite structures, including Holders 1 and 2. Following demolition soil below these structures will be evaluated using the same criteria as described in the RAWP and clarified in the response to question 1.

3. *Page 11, 4. Nature and Extent of Contamination. NHDES suggests adding a bullet that summarizes the results from the PDI/Pre-Characterization soil boring logs that meet the*

criteria for removal or treatment. This section contains a discussion of impacts in specific wells and borings from previous work. A comparable summary of the

information from the soil borings performed for the recent PDI-Pre-Characterization would clarify the extent of soils/material to be removed or treated under the removal action.

An addition to the text on page 11, following the first bullet point

- Coal tar NAPL was present in the following borings completed during the PDI: CLMT-SB-5, CLMT-SB-7, through CLMT-SB-12, CLMT-SB-14, through CLMT-SB-19, CLMT-SB-25, and CLMT-SB-27. Additionally, CLMT-SED-1 was impacted with coal tar NAPL.
- Borings CLMT-SB-5, CLMT-SB-8, CLMT-SB-9, CLMT-SB-10, CLMT-SB-11, CLMT-SB-12, CLMT-SB-15, CLMT-SB-17, CLMT-SB-19, CLMT-SB-25 are impacted to the depth of refusal. The remaining borings, CLMT-SB-7, CLMT-SB-14, CLMT-SB-16, CLMT-SB-18, and CLMT-SB-27 are impacted to depths ranging from approximately 0.75 feet to 3 feet above refusal.

Page 11, 3rd bullet. There is a reference to previous soil borings in the tail race. Should those be labelled GP-9, GP-10 and GP-11 to be consistent with information in Appendix B?

The borings referenced on Page 11, in the 3rd bullet should be labeled GP-9, GP-10 and GP-11.

5. *Page 12. 1st and 3rd bullets appear to be duplicates.*

The second and third bullet statements on page 12 should be stricken from the text.

6. *Page 23-24. I would suggest that EPA's consultant review and approve the procedures for developing a suitable mix and appropriate QA/QC. And related to a comment above DES requests clarification that ISS mix can be applied to "weathered bedrock" unit (near SB-15).*

a. Drawing C-8, Excavation and ISS. The cross-section does not show a "weathered bedrock" unit. Given that there is a substantial amount of coal tar NAPL contamination in this area where ISS is proposed, NHDES request clarification that this area, which contains NAPL contamination and is up to 19 feet in depth (SB-15), will be treated.

b. Specifications, Page 02 51 00-1, In-Situ Solidification, 1.3.A.6 Refusal. NHDES would like clarification that refusal will be consistent with the depths shown on Figure 6 and contractor will have the right equipment to get to the proposed depths up to 19 feet. Some parts of the report refer to the deeper unit as weathered bedrock, yet Geoprobe boring SB-15 was advanced to 19 feet. NHDES would expect the method for the ISS would be able to advance and treat to comparable depths. Is the intent to mix columns of the contaminated soil using an auger? There are several areas where there is mention of the "column". Is there a design of the spacing of the treatment columns or will the contractor provide that information at a later date?

The selected remediation contractor will be responsible for developing an ISS mix that that will result in a permeability of less than 10^{-6} cm/s for the treated material. As stated in the RAWP, the

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intent of the ISS is to address NAPL in soils within portions of the former tail race area, including anomalously deep weathered bedrock (saprolite) in the area of SB-15, by creating a low permeability material ($<10^{-6}$ cm/s) that will isolate these impacts from the groundwater

to surface water migratory pathway. The design of a suitable mix, spacing and treatment of the cells will be provided at a later date, by the selected contractor in consultation with GEI. The design will be submitted to GEI and EPA as a contract submittal for review and approval.

7. *Page 17, 5.4.2.3 Shoreland Protection Water Quality Protection Act. NHDES suggests replacing the text with the following:*
“This project falls completely within the area of Urban Exemption granted to the City of Claremont in accordance with RSA 483-B:12. Therefore no permit is required from the Shoreland Program”

The text in Section 5.4.2.3 of the RAWP shall be considered replaced with the following statement: “This project falls completely within the area of Urban Exemption granted to the City of Claremont in accordance with RSA 483-B:12. Therefore no permit is required from the Shoreland Program.”

8. *Page 25. NHDES assumes the air monitoring plan (AMP) will be similar in scope and detail to what was employed at the Lower Liberty Hill Road Site in Gilford, New Hampshire.*

The Air Monitoring Plan (AMP) will be similar in scope and detail to what was employed at the Lower Liberty Hill Road Site in Gilford, New Hampshire. The AMP included four perimeter air monitoring stations with:

- Station enclosure with sample manifold system
- Power Source (wire fee or solar panel with battery backup)
- A meteorological station
- A DustTrakTM aerosol monitor – Particulate monitoring
- A PhotoVac 2020 Photoionization Detector (PID) – TVOC monitoring
- A data logger plus communications device

The objectives of the AMP were to:

- Provide an early warning system to alert UGI/Amerigas in the event that concentrations of TVOCs, particulates (i.e. dust), or odors in ambient air are approaching alert levels or action levels due to site activities.
- Provide details for a site contingency plan that is designed to reduce the off-site migration of TVOCs, particulates, or odors in ambient air are approaching alert levels or action levels due to site activities.
- Determine whether mitigation control measures to abate the emissions are effective in reducing ambient air concentrations back below the alert level or action level.
- Develop a permanent record that includes a database of air monitoring results and meteorological conditions, equipment maintenance, calibration records, and other pertinent information.

The AMP for the Claremont MGP Removal Action will be modified, as necessary, to meet the project needs and objectives. A draft AMP can be provided for EPA and NHDES review prior to

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finalizing the plan and implementation during the Removal Action.

9. *Appendix D Waste Characterization Soil Data. Would it be possible to compile the analytical data into a summary table?*

A summary table was compiled and is included as an attachment to this letter for your reference.

10. *Page 26, 5.12 Contingencies and Decision Points. The third sentence is "There are several contingencies that may be implemented based on the results of the site characterization and final removal action scope." Please clarify what is intended.*

Contingencies may be implemented based on the observed field extent of NAPL:

- If NAPL is identified as extending into an area adjacent to an area proposed for excavation or ISS, the soil with observed NAPL will be evaluated and either removed or treated by ISS, whichever is determined to be appropriate, based on elevation and location within the former tail race. If NAPL is observed in soil outside of the former tail race it will be excavated.
- If an area of soil within the limits of excavation does not contain NAPL, then a decision may be made to leave it in place or evaluate it for potential reuse on other portions Site. Soils may be stockpiled for reuse and sampled to determine if they are appropriate for placement of surface soils (i.e. meet NHDES criteria).
- If depth to bedrock is deeper than anticipated, the ISS or excavation area will be expanded based on the observed depth to bedrock.

11. *Page 30, last paragraph. There is a discussion of evaluating the potential for DNAPL in the bedrock. Temporary test holes will be installed. The first method to determine if DNAPL is present in bedrock will be to gauge the wells for the presence of DNAPL. If DNAPL is not observed groundwater samples will be collected and analyzed. Please clarify how the contaminant concentrations will be evaluated for the "presence of DNAPL". Will it be 1% of effective aqueous solubility? Is it possible that there may be high contaminant concentrations if the deeper soils containing DNAPL impacts are stabilized in-situ or, given groundwater seepage velocities and other contaminant transport factors, there has been insufficient time after the removal to evaluate changes in contaminant concentrations? NHDES recommends that results from the bedrock temporary test holes be discussed with EPA and NHDES prior to decision to grout them closed. NHDES agrees that if there is no indication of DNAPL migration in the bedrock these temporary wells should be grouted. NHDES appreciates that bedrock wells were added to the groundwater monitoring task.*

The presence of Dense Non-Aqueous Phase Liquid (DNAPL) is defined as a measureable thickness. Measureable thickness is defined as greater than or equal to 0.01 foot. If DNAPL is not present, analytical samples will be collected. Concentrations indicative of the presence of DNAPL in analytical samples are defined as concentrations of MGP-related constituents exceeding NHDES Env-Or 603.03 Ambient Groundwater Quality Standards (AGQS) Table 600-1. In-situ stabilization of deeper soils containing DNAPL is intended to prevent groundwater seepage/contaminant transportation of MGP-related impacts in groundwater. If there are no indications that the DNAPL has migrated into the underlying bedrock aquifer through observation and laboratory data, a decision will be made to grout the temporary test hole closed. The data and

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observations from the bedrock temporary test holes will be discussed with the EPA and NHDES prior to making a decision to close the holes.

12. *Specifications*

- a. Item 11 In-Situ Solidification, 1. d., Page 01 20 00-5. One work item is performing QA/QC testing. Has or will a QA/QC plan be developed and forwarded to EPA and NHDES?*
- b. Item 21 Placement of Approved Off-Site Back Fill Material – Sand Fill, page 01 20 00-8. There is no mention of the placement of a marker barrier to differentiate between the clean sand fill and on site soil that contains contaminant concentrations or the ISS treated soils that remain on-site. It would be helpful to have a schematic/detail/section.*

a. An ISS QA/QC testing plan will be a required submittal by the contractor for GEI approval. This plan will be provided to the EPA and NHDES for review.

b. Institutional controls, such as a deed restriction, will be emplaced to ensure the preservation of the removal action. As-built drawings will serve as a record of the removal design, recording the depth and extent of soil that is reused on the site, clean fill, and of areas that have been treated with ISS. A visual marker barrier (geotextile fabric) may be used in selected areas of the Site as necessary, to augment institutional controls.

13. *Drawing C7, Excavation and ISS Plan.*

- a. How does this figure relate to Figure 6 of the Removal Action Work Plan that shows varying depths of soil removal?*
- b. There is an area shown as Potential Area of ISS. Please describe how the decision will be made relative to soil removal versus ISS treatment.*

a. Drawing C7 note 1 calls to “EXCAVATE TO THE TOP OF COMPETENT BEDROCK IN THE AREA NOTED”, which is outlined in black. The depths in Figure 6 of the RAWP were approximations based on the average depth to bedrock over the given area of the polygon, to be used as a basis for volume calculations. Hashed and colored areas account for areas of ISS. Drawing C7 has been revised to show the areas in Figure 6 of the RAWP.

b. The area selected to be treated via ISS consists of the former tail race up to where it meets the Sugar River, starting at a depth of 4 feet and continuing to the bedrock surface. The primary objective of ISS in this area is preventing future migration of contamination, in the form of coal tar Non-Aqueous Phase Liquid (NAPL) from the Site into the Sugar River. While ISS is proposed for this area and will likely be implemented as shown on the plan, the areal extent may vary based on, (1) irregularities in the depth to bedrock surface and (2) extent of observed coal tar NAPL which meets the criteria for removal/treatment.

14. *Drawing C13, Site Restoration Details 1, 5 Detail – Manhole. NHDES assumes that the City of Claremont Public Works Department has or will be provided this information for their review and approval.*

The City of Claremont Public Works Department has been provided the information in Drawing C13 for their review.

15. *Minor comments*

a. *Page 7, 2nd paragraph 2. In the discussion of results from the Preliminary Remedial Investigation (PRA) completed in December 2001 there is a reference to a figure with sampling locations being included in Appendix A. Is that intended to be Figure 3 in Appendix B?*

b. *Page 8, 2nd paragraph. Discussion of the results from the SERAS focused sediment sampling event and indicated that the Figure is include in Appendix A. I think it should be Appendix B.*

c. *Page 8, 3rd paragraph. Discussion of Test Pit Excavation and Treatability Sample Collection Memorandum results and indicated there is a map in Appendix B. I did not see this figure.*

On Page 7 in the second paragraph and on page 8 in the second paragraph, the references to the figure with sampling locations is included in Appendix B, not Appendix A.

The Test Pit Excavation and Treatability Sample Collection map referenced on page 8 in the third paragraph is included as an attachment to this letter.

Other Issues

An e-mail from the EPA dated December 4, 2014 had the following comment regarding the potential historic significance of Holder No. 1.

“The historian that we had hired to assist in dealing with the requirements of the Historical Preservation Act contacted me the other day. It turns out that the dilapidated brick gas holder and the mechanism used to keep in the gas (the sliding center column) is extremely rare nowadays and maybe one of a kind left in somewhat intact shape. (that may be overstating it, but that is what was told to me). Therefore, when it comes time for demolition of that structure, I would like to attempt to have that center column (and the attachments to it) removed as carefully as possible. The goal (of the historian anyway) would be to have that center column become part of the centerpiece for whatever kind of remembrance we will eventually be leaving in place...”

As stated previously, GEI and UGI-AP had a meeting in Claremont on February 4th, 2015. Those in attendance included the City of Claremont, GEI, EPA and NHDES. A plan was developed to deal with the historic feature preservation with input from the involved parties.

Additional Comments:

An e-mail from the NHDES dated February 6, 2015 had a follow up question regarding ISS and groundwater flow at the site:

“In regards to the discussion in Section 5.7 of the September 2014 Work Plan and the proposed approach to use ISS in the anticipated deeper bedrock areas of the site, to the north and northwest of the remaining site structures (downstream end of the former tailrace), we understand that the ISS mixture will create a relatively impermeable material, to in effect “tie-up” any residual NAPL present and preclude its mobility and/or any associated on-going impacts to groundwater or surface water. Does this

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create an issue for potential mounding of overburden groundwater in site areas upgradient from the ISS area? We are familiar with only one other former MGP site in NH where ISS had been used in a very similar application (circa 1998), and in that instance a perimeter groundwater drain was installed to convey overburden groundwater around the ISS area”.

The objective of the RA in the area where the former tail race meets the Sugar River is to restore the upper portion of the overburden aquifer above the elevation where the bedrock surface meets the Sugar River, while solidifying the unconsolidated materials below that elevation. This corresponds to depths ranging from approximately 4 feet to 8 feet. The removal design currently shows an excavation depth of 4 feet in the area of the proposed ISS. This is to accommodate the anticipated volume increase and provide a conservative estimate for ISS volume from a costing standpoint. The bid plans and specifications will be revised as necessary to clarify this for the bidding contractors

Following the RA, GEI does not anticipate the overburden aquifer flow regime to be altered to the point where significant mounding would occur within the Site for the following reasons:

- The clean fill used to backfill in the excavated overburden aquifer will have similar hydrogeologic properties to soils removed from the Site.
- Precipitation will be able to infiltrate into the overburden aquifer or run off as sheet flow into the Sugar River.
- Groundwater entering the Site from the upgradient bedrock aquifer is anticipated to be minimal and will be able to flow through the clean fill overlying the ISS in the tail race..
- The portion of the Site where the former tail race enters the Sugar River will be restored as a wetland and continue to serve as a groundwater discharge area for the overburden aquifer at the Site.

Therefore, installation of a perimeter groundwater drain to convey the overburden groundwater around the ISS area will likely not be necessary. If during the removal action hydrogeologic conditions observed during dewatering of excavations to bedrock indicate conditions other than those anticipated, the need for a perimeter drain will be reevaluated prior to site restoration.

Sincerely,

GEI CONSULTANTS, INC.



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Enclosures

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