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July 22, 2021
File No. 03.0033554.01

Via E-Mail

Mr. Joseph Martella
Rhode Island Department of Environmental Management (RIDEM)
Office of Land Revitalization and Sustainable Materials Management
235 Promenade Street
Providence, Rhode Island 02908

Re: Replacement Monitoring Wells Installation Work Plan
642 Allens Avenue
Providence, Rhode Island
RIDEM Case No. 98-004 / Site Remediation File No. SR-28-1152

Dear Mr. Martella:

On behalf of the Narragansett Electric Company d/b/a National Grid (National Grid), GZA GeoEnvironmental, Inc. (GZA) is pleased to present to the Rhode Island Department of Environmental Management (RIDEM) this *Replacement Monitoring Wells Installation Work Plan* for the Former 642 Allens Avenue Manufactured Gas Plant (MGP) located at 642 Allens Avenue in Providence, Rhode Island (the Site). This workplan focuses on the area of the Former Holder 18/21 Short Term Response Action Plan and future phases of monitoring well reinstallation will be performed as access allows and will be described in future work plan(s).

BACKGROUND

The Site consists of approximately 41 acres of land located within an industrial waterfront area, with frontage on Allens Avenue to the west, and bounded to the north, northwest and east by the Providence River. The Site was the location of a former MGP and is currently occupied by an active natural gas regulating station, liquefied natural gas (LNG) storage and distribution facility, natural gas operations facility and a cement storage and distribution facility.

As presented in the May 26, 2016 *Proposed Upcoming Groundwater Monitoring Activities Letter* monitoring well closure activities were conducted between June 27, 2016 and July 9, 2016. As part of this work, National Grid decommissioned seven (7) monitoring wells within the former Holder 18/21 area: RCA-11, VHB-8R, VHB-10, VHB-18, GZ-320D, GZ-401, and GZ-403. The wells were decommissioned by Geologic Earth Exploration, Inc. of Norfolk, Massachusetts. Consistent with Rhode Island Water Quality Regulations (<https://rules.sos.ri.gov/regulations/part/250-150-05-3>), the monitoring wells were decommissioned via splitting or removing the PVC well casing and then filling the remaining borehole with grout.

This Work Plan describes the installation of replacement monitoring wells GZ-500S, GZ-500D, GZ-501S, GZ-502S, and GZ-503S. These locations were selected based on current access in



consideration of the status of on-going facility upgrade projects. Previous Site investigations and response actions¹, as well as spatial representation were also considered in selecting these locations.

PROPOSED SCOPE OF WORK

Five replacement monitoring wells will be installed (GZ-500S, GZ-500D, GZ-501S, GZ-502S, and GZ-503S) as shown on the attached **Figure 1, Replacement Monitoring Well Location Plan**. **Table 1, Proposed Replacement Monitoring Wells**, presents the proposed method of installation, anticipated depth and screen interval as well the general location for each well. Please note that based on field conditions and the results of utility clearance, the monitoring well locations shown on **Figure 1** may require modification. As these are replacement monitoring wells, no analytical testing for soil is proposed.

Prior to performing these well installations, GZA will conduct Site reconnaissance to coordinate DigSafe® clearance and to visually evaluate access restrictions. GZA will also subcontract ground penetrating radar (GPR) services in the areas of planned well locations and coordinate with National Grid to evaluate the locations with the layout of known utilities and other possible historical features.

As shown on **Figure 1**, five replacement monitoring wells (GZ-500S through GZ-503S) are planned to replace select monitoring wells and to supplement existing monitoring well coverage at the Site.

As presented in **Table 1**, all borings will be advanced to a depth of 15 feet bgs with the exception of GZ-500D which will be advanced to 30 feet bgs. Borings will be performed via geoprobe drilling techniques with dedicated continuous sampling sleeves. Soil samples in sleeves will be collected in two foot increments during the advancement of the borings. A GZA field engineer will be on the Site to record boring activities, collect samples for field screening and characterization, and complete boring logs at each location. The recovered soil from each sample interval will be logged using modified Burmeister classification system, field-screened for presence of total volatile organic compounds (TVOCs) with a Photoionization Detector (PID) and evaluated for the presence of staining and odors. GZA will also perform photo-documentation of each soil sampling interval.

The wells will be constructed of 2-inch diameter Schedule 40 PVC in accordance with standards specified in Rhode Island Water Quality Regulations (<https://rules.sos.ri.gov/regulations/part/250-150-05-3>) to a total depth of approximately 15 feet bgs (shallow wells – GZ-500S, GZ-501S, GZ-502S and GZ-503S) or 30 feet bgs (deep well – GZ-500D). For each shallow well, the screen will be set to span the natural water table encountered during drilling (typically within the fill unit or underlying sand unit – currently assumed to be approximately 10 to 12 feet bgs). For the deep well, the screen will be set with midpoint at least 10 feet below the natural water table encountered during drilling. A sand filter pack will be installed in the annular space around the well screen and extended approximately 1 foot above the well screen. An approximate 1-foot (minimum) bentonite seal will be placed above the filter pack and the remaining borehole above the bentonite will be backfilled with clean filter sand. A concrete surficial seal with a protective standpipe will be installed to protect the wells.

¹ For details regarding the previous Site investigations and response actions completed at the Site, hydrogeologic setting and observed impacts, please refer to the February 1995 *Summary Report Phase 1A Field Investigations* prepared by Resource Controls Associates (RCA), April 2003 *Site Investigation Report (SIR)* prepared by VHB, the January 2009 *Oxide Box Waste Summary Memo* prepared by VHB, the April 27, 2016 *Short Term Response Action Plan – Holder 18/21 Capping Project* prepared by GZA, the May 10, 2016 *Short Term Response Action Plan Addendum – Holder 18/21 Capping Project* prepared by GZA.



We note that GZ-503S is located in an area that has a low linear density polyethylene (LLDPE) liner. The drilling subcontractor will dig down to the liner, cut the liner, install the well and then install a welded boot to seal the liner to the monitoring well standpipe.

The newly installed wells will be developed to remove sediment build-up. This process will be performed by surging a bailer repeatedly the length of the well screen followed by the removal of at least ten (10) standing water column volumes. Groundwater will be removed via a combination of bailing and pumping techniques. During development, GZA will monitor the turbidity of the extracted water to evaluate the effectiveness of the development activities. Well development will continue until the water quality is reasonably non-turbid or until the minimum purge volume is achieved.

The down-hole drilling tools and samplers will be decontaminated between each sample interval with a minimum of potable water and Alconox® detergent.

Soil cuttings, wash water (i.e., decontamination water) and well development water generated during drilling will be field-screened for total volatile VOCs with a PID and then placed in 55-gallon drums for subsequent characterization and off-site disposal at an appropriate facility.

GZA will prepare a Site-specific HASP for this exploration work that addresses the applicable requirements of 29 CFR 1910.120 and 1926.65 to cover field activities performed as part of this investigation program. These procedures will be followed to be protective of worker safety as well as safety to nearby receptors. Prior to well installation operations, an exclusion zone will be set-up around the drilling rig operation to limit access to the work area. This exclusion zone will be maintained and modified as needed during the work activities. Spoils from the drilling activities will be immediately containerized within labeled and sealed 55-gallon drums for disposal off-site at a licensed facility.

We anticipate that the work described herein will be performed during Summer 2021 and that the newly installed monitoring wells will be sampled as part of the Fall 2021 annual groundwater sampling round at the Site.



Should you have any questions or comments regarding the information presented herein, please do not hesitate to contact the undersigned or Amy Willoughby from National Grid at 401-258-5410

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

A handwritten signature in blue ink that reads 'Sophia Narkiewicz'.

Sophia Narkiewicz, P.E.
Project Manager

A handwritten signature in blue ink that reads 'Margaret S. Kilpatrick'.

Margaret S. Kilpatrick, P.E.
Associate Principal

A handwritten signature in blue ink that reads 'James J. Clark'.

James J. Clark, P.E.
Consultant/Reviewer

Attachments: Figure 1 - Proposed Replacement Monitoring Well Location Plan
Table 1 - Proposed Replacement Monitoring Wells

Cc: Amy Willoughby – National Grid

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FIGURE 1

PROPOSED REPLACEMENT MONITORING WELL LOCATION PLAN



TABLE 1

PROPOSED REPLACEMENT MONITORING WELLS

Table 1 Proposed Replacement Monitoring Wells642 Allens Avenue
Providence, Rhode Island

Job No. 03.0033554.01

7/21/2021

Proposed Exploration Number	Type of Exploration	Method of Installation	Expected Depth of Exploration	Expected Depth of Screening	General Location / Purpose
GZ-500S	Replacement Shallow Monitoring Well	Geoprobe	15 feet bgs	5-15 feet bgs	Replacement monitoring well for VHB-1
GZ-500D	Replacement Deep Monitoring Well	Geoprobe	30 feet bgs	20-30 feet bgs	Replacement monitoring well for GZ-320D
GZ-501S	Replacement Shallow Monitoring Well	Geoprobe	15 feet bgs	5-15 feet bgs	Additional monitoring well coverage in the middle of the Site
GZ-502S	Replacement Shallow Monitoring Well	Geoprobe	15 feet bgs	5-15 feet bgs	Additional monitoring well coverage in the middle of the Site
GZ-503S	Replacement Shallow Monitoring Well	Geoprobe	15 feet bgs	5-15 feet bgs	Replacement monitoring well for VHB-18