

December 4, 2009
File No. 05.0043654.00-C

Mr. Joseph Martella
Rhode Island Department of Environmental Management
Office of Waste Management
235 Promenade Street
Providence, Rhode Island 02908



Re: *Short-Term Response Action Plan*
Former Tidewater Facility
Pawtucket, Rhode Island
RIDEM Case No. 95-022

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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 *Short-Term Response Action Plan (STRAP)* for the former Tidewater Facility located in Pawtucket, Rhode Island (herein referred to as the "Site"). A Site Locus is presented as Figure 1.

This STRAP is subject to the Limitations included as Appendix A.

PROJECT OBJECTIVE

This STRAP has been prepared to address one specific area of concern at the Site; a sheen outbreak area recently observed along a limited portion of the Seekonk River adjacent to the Former Gas Plant Area of the Site. Photographs of this area of concern are attached in Appendix B. The observation of this sheen warrants response actions prior to completion of the *Site Investigation Report* and preparation of a *Remedial Action Work Plan* for the remainder of the property, in accordance with Section 6 of RIDEM's *Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases* (Remediation Regulations) dated February 2004.

BACKGROUND

This Site was the location of the former Tidewater Manufactured Gas Plant (MGP) and the former Pawtucket No. 1 Power Station. The majority of the Site is currently vacant with the exception of an active natural gas regulating station, and active switching and electrical substations, both owned and operated by National Grid. Narragansett Electric d/b/a National Grid acquired the electrical side of the Site in May 2000. More recently, in August 2006, National Grid acquired the majority of the assets of New England Gas Company which included the former gas side of the Site. The Site consists of approximately 28 acres located on the western bank of the Seekonk River in Pawtucket, Rhode Island. It consists of the following four principal areas, based on historical use and operation:

- The Former Gas Plant Area – Plat 65B, Lot 662 (6 acres) The sheen breakout area is located on this parcel and all work proposed in this STRAP will be performed on this parcel;
- The Former Power Plant Area – Plat 65B, Lot 645 (9.5 acres);

- The South Fill Area – Plat 65B, Lots 649 (1.0 acre), 647 (1.5 acres), 648 (2.5 acres) and Plat 67B, Lot 11 (1.1 acres); and
- The North Fill Area – Plat 54B, Lot 826 (6 acres).



A multi-colored sheen has been periodically observed since it was first observed in late October 2009 on the water surface of the Seekonk River adjacent to the Former Gas Plant Area, apparently emanating from an approximate 30-ft length of river bank, as shown on Figure 2. This sheen appears prior to low tide and dissipates after low tide and likely originates from existing on-Site manufactured gas plant residuals. The presence of the sheen constitutes a release as defined per Section 3.54 of RIDEM's Remediation Regulations.

Upon discovery of the sheen, National Grid provided verbal and written notification to RIDEM. In addition, National Grid provided verbal notification to the National Response Center, Local Emergency Response Commission/Pawtucket Fire Department and State Emergency Response Commission. The United States Coast Guard was notified by the National Response Center, who in turn contacted National Grid. Oil containment booms were installed in the Seekonk River, along the shoreline where the sheen was observed approximately 50-feet north of the sheen area to approximately 50-feet south of the sheen area during the week of October 18, 2009. In addition to the oil containment booms, oil snares were placed on the inside of the booms to absorb additional sheens that may not be collected by the booms.

The location of the installed boom system relative to the shoreline and observed sheen area is shown on Figure 2. GZA is currently performing weekly Site visits at various tidal stages to further observe and document the sheen and perform any required maintenance of the boom system. During these weekly visits, the sheen area has been observed to be limited to the approximate 30 foot length shown on Figure 2.

In an effort to install a more effective and permanent remedy, National Grid is seeking to install a temporary cap over the shoreline in the affected area. The purpose for the temporary cap is to limit the migration of sheen materials into the Seekonk River and limit potential exposure of the aquatic environment to sheen materials. The cap is intended to be temporary and will remain in place until the final Site remedy is selected and implemented. National Grid is currently completing a *Site Investigation Report* (SIR) for the Site. As part of the SIR, soil explorations will be conducted in the area adjacent to the observed sheen and appropriate long-term remedial steps will be recommended at the completion of the investigation.

PROPOSED RESPONSE ACTIONS

The following sections present a description of the proposed temporary capping remedy designed to address the sheen observations. As described previously, a more permanent remedy will likely be included as part of SIR currently being performed for this Site.

Temporary Cap Location and Cross Section

The temporary cap will be installed in the area of the sheen and will extend approximately 10 feet beyond the mapped sheen location to both the north and south. The cap will extend from the top of the bank seaward, to the elevation on the bank where the waterline contacts the bank near the



time of low tide. The cap will be approximately 50 feet long (measured parallel to the shoreline) and will extend from the top of the riverbank bank slope to approximately 1 foot below the water surface at low tide. As such, the total width of the cap will vary from approximately 10 to 25 feet based on field conditions. The proposed location of the temporary cap is presented on Figure 2.

The temporary cap will consist of the following, from top layer to bottom layer:

- An armor layer, constructed from armor mats or equivalent materials, to retain underlying cap materials in place. The armor layer will be stabilized as described below.
- Under the armor layer, reactive core mats (RCM), constructed from two geotextile layers enclosing an approximately ½-inch thick layer of organoclay to provide capacity to absorb the sheen before it forms on sediment or surface water.
- Under the RCM a thin layer of sand (approximately 12 inches thick) will be placed to form a smooth surface for the RCM to be placed upon. The bank is rocky and has an irregular surface. Without the sand layer, voids would likely remain under the RCM that may act as migration pathways for sheen materials. The expectation is that sand will fill the irregular surface and can be graded to provide a smooth surface for RCM placement. Bulk organoclay will be mixed with the sand, particularly in the sheen area immediate vicinity, to provide additional capacity to absorb sheen materials.

Prior to placing the sand/organoclay layer, the bank will be graded to remove materials greater than approximately 6 inches in diameter.

The temporary cap concept is based on the sand and organoclay layer acting as a first barrier against sheen materials due to the sorptive capacity of the layer and the reasonable expectation that the sand and organoclay will occupy voids in the bank. The RCM adds another barrier to migration of sheen materials, and the armor layer keeps the underlying cap materials in place.

A cross-section schematic for the temporary cap is attached as Figure 3.

Site preparation includes limited clearing of vegetation along a path to the top of the bank to accommodate construction equipment working at the top of the bank. The equipment will require a working area to accommodate reaching the entire proposed capping area. The path to the top of the bank will be flagged in the field and will be selected to minimize cutting trees.

Environmental Protection Measures

The following measures will be employed during construction to limit potential environmental impacts:

- Maintain the existing containment boom in place during construction.
- The contractor will have available additional spill management equipment and materials including but not limited to extra booms, absorbent pads, and a small boat to deploy the equipment and materials if needed.



- Debris generated during the temporary cap installation will be separated into ordinary rubbish (e.g., clean packaging material) and materials requiring management as potentially hazardous materials (e.g., used absorbent boom). Materials will be disposed of off-Site in accordance with characterization of the materials as ordinary rubbish or as potentially hazardous materials.
- Work will be performed near the time of low tide to cover as much of the bank as possible without placing granular materials (i.e., sand and/or organoclay) on the submerged part of the bank through the water column.
- Hay bales will be placed along the river on the north and south sides of the work area for approximately 30 feet on each side to limit sediment entering the river.

Construction Sequencing

The following construction sequence will be used to install the temporary cap in a manner that minimizes potential disturbance to the river bank:

- Large stones that protrude more than 6 inches above the bank will be removed (from the waterline to top of bank). Stones removed from the bank will be placed at the top of the bank.
- A sand layer will be placed over the bank (from waterline landward to top of bank) to a maximum thickness of approximately 12 inches. In the area of the seep, mix organoclay in the sand, to a 1:1 (by volume) ratio. The resultant sand and sand/organoclay mixture forms a surface that will accommodate placing RCM with armor mats over it and also provides sorbtive capacity for seeping material.
- A RCM layer will be placed over the sand and organoclay layer. The RCM will be cut in the field with a heavy-duty utility knife and placed to overlap a minimum of 1 foot with adjoining RCM sections. The RCM will extend a minimum of 12 inches beyond the sand and organoclay layer.
- The armor layer will be placed over the RCM. The layer will extend a minimum of 12 inches beyond the edge of the RCM in all directions. At the waterline, the armor layer will extend into the water up to 24 inches. Under the submerged edge of the armor layer, a sorbent boom will be attached with cable. The sorbent boom adds another line of defense against seeping materials should the petroleum materials migrate through the sand and organoclay layer and under the RCM to the waterline.

The armor layer will be secured to the top of the bank as required to prevent sliding of the armor mats on the bank.

All necessary permits will be obtained prior to the start of work. Based on the proposed work area (the bank of the Seekonk River), an application has been submitted to the Rhode Island Coastal Resource Management Council (CRMC) for review and approval. We anticipate that the work described in this application will be completed the week of December 14, 2009, assuming approval is granted by both RIDEM and the Coastal Resources Management Council.

Once the area of concern has been addressed at the Site, a *Short Term Response Action Report* will be prepared in accordance with Rule 6.09 of the RIDEM Remediation Regulations. The report will summarize field activities associated with installation of the temporary cap.

We trust the information presented in this letter report meets your current needs. If you have any questions or need additional information, please feel free to contact either of the undersigned or Michele Leone from National Grid at 781-907-3651.

Very truly yours,

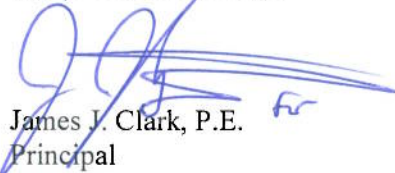
GZA GEOENVIRONMENTAL, INC.



Margaret S. Kilpatrick, P.E.
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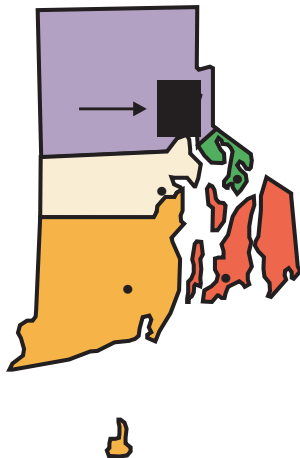
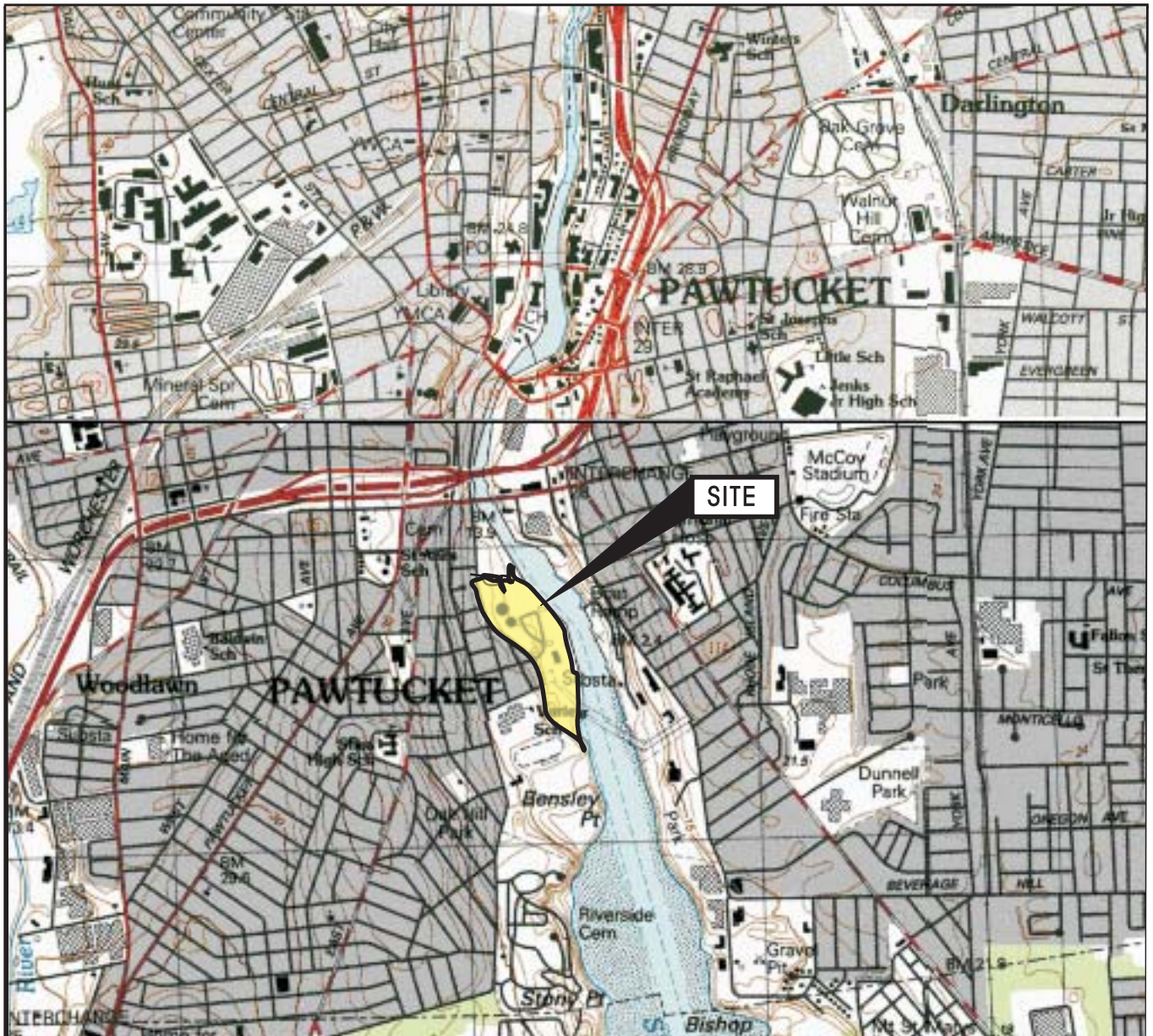


James J. Clark, P.E.
Principal

MSK/JJC:tja

Attachments: Figures 1 through 3
Appendix A – Limitations
Appendix B – Photographs

cc. Michele Leone, National Grid



FROM USGS PROVIDENCE, RI QUADRANGLE MAP
 (DIGITAL TOPOGRAPHIC MAPS PROVIDED BY MAPTECH, INC.)
 (CONTOUR ELEVATIONS ARE IN METERS ABOVE NGVD, AT 3 METER INTERVALS)

APPROXIMATE SCALE IN FEET



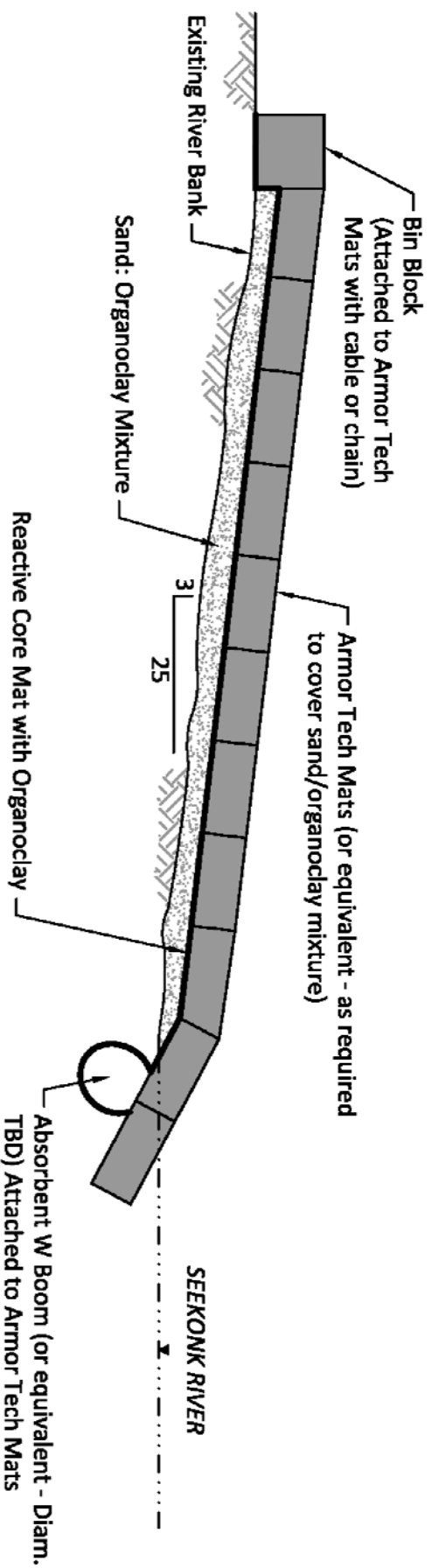
TIDEWATER FACILITY

PAWTUCKET
 RHODE ISLAND

LOCUS PLAN

JANUARY 2007

FIGURE NO. 1



- GENERAL CONSTRUCTION NOTES:**
1. Cap to be installed in area of shoreline shown on Figure 1.
 2. Surface of shoreline area to be capped shall be graded prior to cap installation. Rocks greater than or equal to 6-inch diameter shall be removed before installation.



TIDEWATER CONCEPTUAL CAP CROSS-SECTION

GRAPHIC SCALE IN FEET (1"=5'±)

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. IT IS NOT TO BE REPRODUCED, COPIED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY REUSE OR ALTERATION OF THIS DRAWING WITHOUT THE PRIOR WRITTEN CONSENT OF GZA WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

FORMER TIDEWATER FACILITY		PAWTUCKET, RHODE ISLAND	
ANCHOR O&E		ANCHOR O&E TEMPORARY CAP CONCEPTUAL CROSS-SECTION	
PREPARED BY:	REVIEWED BY:	CHECKED BY:	FIGURE
GZA GeoEnvironmental, Inc. 550 BROOKWAY PROVIDENCE, RHODE ISLAND 02909 (401) 421-1140	MSK	JPH	3
DESIGNED BY:	PROJECT NO.:	SCALE:	REVISION NO.:
RAC	43654.00	AS NOTED	
DATE:	SHEET NO.:	OF:	
NOVEMBER 23, 2009	3	3	

GEOHYDROLOGICAL LIMITATIONS

1. The conclusions and recommendations submitted in this report are based in part upon the data obtained from a limited number of soil samples from widely spaced subsurface explorations. The nature and extent of variations between these explorations may not become evident until further investigation. If variations or other latent conditions then appear evident, it will be necessary to reevaluate the recommendations of this report.
2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more gradual. For specific information, refer to the boring logs.
3. Water level readings have been made in the test pits, borings and/or observation wells at times and under conditions stated on the exploration logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall and other factors different from those prevailing at the time measurements were made.
4. The conclusions and recommendations contained in this report are based in part upon various types of chemical data and are contingent upon their validity. These data have been reviewed and interpretations made in the report. As indicated within the report, some of these data are preliminary "screening" level data, and should be confirmed with quantitative analyses if more specific information is necessary. Moreover, it should be noted that variations in the types and concentrations of contaminants and variations in their flow paths may occur due to seasonal water table fluctuations, past disposal practices, the passage of time, and other factors. Should additional chemical data become available in the future, these data should be reviewed by GZA, and the conclusions and recommendations presented therein modified accordingly.
5. Chemical analyses have been performed for specific parameters during the course of this study, as detailed in the text. It must be noted that additional constituents not searched for during the current study may be present in soil and groundwater at the site.

FORMER TIDEWATER MANUFACTURED GAS PLANT PAWTUCKET, RHODE ISLAND

Photo 1: Area of River Bank Where Sheen Appears



Photo 2: Containment Boom and Oil Snares Installed at Sheen Area



FORMER TIDEWATER MANUFACTURED GAS PLANT PAWTUCKET, RHODE ISLAND

Photo 3: Area Adjacent to Sheen



Photo 4: Containment Boom



Photo 5: Containment Boom

**FORMER TIDEWATER MANUFACTURED GAS PLANT
PAWTUCKET, RHODE ISLAND**

