



Shaw Environmental, Inc.

3 Riverside Drive
Andover, MA 01810-1141
978.691.2100
Fax: 978.691.2101

November 21, 2005
PN: 101960

Mr. Joseph Martella, II
Rhode Island Department of Environmental Management
Office of Waste Management
235 Promenade Street
Providence, RI 02908-5767

Re: Remedial Action Work Plan Addendum
Additional Investigation Activities
Former Gorham Manufacturing Facility
333 Adelaide Avenue, Providence, RI
Case No. 97-030

Dear Mr. Martella:

On behalf of Textron Inc. (Textron), Shaw Environmental, Inc. (Shaw) has prepared this addendum to the Remedial Action Work Plan (RAWP) for additional investigation activities to be performed as part of the remediation of chlorinated solvent contaminated groundwater at the former Gorham Manufacturing Facility located at 333 Adelaide Avenue, Providence, Rhode Island (Site). Work at the Site is currently being performed under a revised RAWP submitted to the Rhode Island Department of Environmental Protection (RIDEM) dated June 11, 2004 and approved by RIDEM in a letter dated July 27, 2004.

The purpose of this letter is to provide RIDEM with details of the proposed additional investigation activities and to seek approval for these activities from both the Office of Waste Management and the Office of Water Resources/Underground Injection Control Program.

INTRODUCTION

Shaw has performed two rounds of in situ chemical oxidation (ISCO) injections at the site. The treatment goal for the site is 7,700 µg/L for tetrachloroethene (PCE), as per the RAWP dated November 28, 2001 and approved by RIDEM in a letter dated March 15, 2002. For the first ISCO injection, performed in the spring of 2002, approximately 27,000 pounds of sodium permanganate was applied to the treatment zone at the former Gorham Manufacturing Facility. (Drawing 1). Shaw conducted preliminary soil matrix oxidation

demand studies associated with the permanganate injections in October 2001. Monitoring well installations associated with the permanganate injection program were completed in February 2002. The permanganate additions were conducted during March and April 2002.

Shaw designed the second injection based upon additional laboratory SOD tests performed in our Knoxville, TN research laboratory. The proposed area for the follow-on injection was in the southeast portion of the 2002 treatment area, and covered approximately 13,000 ft² encompassing wells MW-202S&D, MW-101S&D, MW-205, MW-209D, and MW-112 (Figure 1). The permanganate treatment was conducted from below the water table starting at a depth of 25 to 50 feet below grade (depending on location) through 20 foot screened intervals (i.e., to a total depth of 45 to 70 feet below grade at 9 locations). Based on the contaminant mass and estimated matrix demand, approximately 24,400 pounds of oxidant as sodium permanganate was applied to the treatment zone in September and October of 2004.

Since the completion of the third quarterly sampling event following the second injection (conducted in August 2005) rebound in groundwater concentrations has occurred within the treatment area. As presented in the August 2005 status report, the post-injection groundwater concentration results indicate that significant rebound has occurred in wells MW-101S, MW-101D, MW-202S and MW-202D. Therefore, a modification of the remedial approach may be necessary. Specific options that may be considered will include additional situ chemical oxidation (ISCO), bioremediation, and dense non-aqueous phase liquid (DNAPL) mass removal (if present).

Shaw proposes to perform a limited site investigation to obtain additional data on subsurface conditions. This investigation will focus on the area between and near the MW-101 and MW-202 monitoring well clusters, where rebound behavior has been most evident.

These activities will be conducted to develop additional data on source area conditions and to assess further remedial actions required to achieve the remediation of the PCE source area. This information will be used in conjunction with the previous site investigation efforts conducted by Shaw and others.

ADDITIONAL INVESTIGATION ACTIVITIES

Soil Borings/Well Installations- Shaw will install up to six (6) soil borings within the PCE source area (around well clusters MW-101S&D and MW-202S&D) (Figure 1) using a Geoprobe type drill rig. The purpose of these borings will be to define the extent, both vertically and horizontally of elevated PCE concentrations and residual source VOCs in

unsaturated and saturated soils in the apparent source area. The soil borings will extend down and into the confining silt layer. It is estimated that the borings will be advanced 60 to 70 feet below ground surface (bgs). During boring installation, soil samples will be collected continuously from approximately 5 feet below ground surface (bgs) to the bottom of the boring. The purpose of the soil sampling is to perform visual soil classification, identify current contaminant concentrations, and to confirm the presence of the confining silt layer. Approximately three (3) soil samples will be collected from each boring location for VOC analysis. Screening level field analysis using diazo dye (Sudan IV) will also be used to test for residual product. The dye test will be conducted by shaking a small quantity of dye with the soil in a sealed jar. The dye will partition into the residual product and not into water. Samples selected for VOC analysis will be based on PID, visual, olfactory observations, and/or dye testing. Selected samples will also be analyzed at Shaw's Knoxville research laboratory for SOD.

Up to all six (6) of the soil borings will be completed as monitoring wells, depending on the results of the field observations. These wells may also be used as future injection wells. The wells will be installed as nominal 1-inch diameter wells with 10-foot screens and a 2-foot sump. The wells will be installed such that the bottom of the screened interval is at the top of the confining silt layer. The wells will be developed prior to sampling.

Groundwater Sampling- Shaw will collect and analyze one round of groundwater samples from the newly installed wells for VOCs (EPA Method 8260B), chemical oxygen demand (COD) (EPA Method 410.2) and chloride (EPA Method 300.0). During the groundwater sampling, field parameter measurements will also be collected for oxidation/reduction potential (ORP), dissolved oxygen (DO), pH, temperature, and specific conductance (SC). Wells will also be gauged for the presence of free product DNAPL using an interface probe.

REPORTING

The sampling results and information collected will be used to evaluate the current site conditions and to evaluate future remediation efforts. It is anticipated that future remedial efforts will be based upon the data collected. The field work, sampling results, and information collected from these activities will be incorporated into a status report and submitted to RIDEM.

SCHEDULE

We anticipate conducting the soil borings and well installations and the additional design data collection activities starting as early as the week of November 28, 2005. Soil borings

Mr. Joseph Martella
November 21, 2005
Page 4 of 4

PN: 101960

and well installation activities are expected to require approximately six days. Sampling of the wells will occur one to two weeks after the installation of the wells. Soil and groundwater analysis will be performed at the standard 10-day turn around time. The report will be completed approximately two weeks after receipt of all the analytical data.

Shaw requests your review and approval of the proposed addendum to the RAWP.

If you have any questions, please contact Ed Van Doren at (978) 691-2130.

Sincerely,

SHAW ENVIRONMENTAL, INC.



Edward P. Van Doren, PE, LSP
Client Program Manager

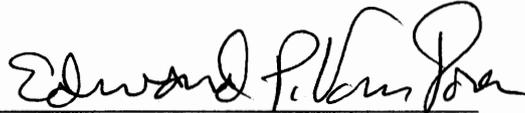
Attachments

cc: Craig Roy, RIDEM OWR
Greg Simpson, Textron
Thomas Dellar, City of Providence
Karriem Van Leesten, City of Providence

CERTIFICATIONS

The following certifications are provided pursuant to Rule 9.19 of the Remediation Regulations:

I, Edward P. Van Doren, as an authorized representative of Shaw Environmental, Inc. and the person responsible for the preparation of this Remedial Action Work Plan Addendum dated November 21, 2005, certify that the information contained in this report is complete and accurate to the best of my knowledge.



Edward P. Van Doren, PE, LSP
Client Program Manager

11-21-05

Date:

We, Textron, Inc., as the party responsible for submittal of this Remedial Action Work Plan Addendum, certify that this report is a complete and accurate representation of the contaminated site and the release, and contains all known facts surrounding the release, to the best of our knowledge.

Certification on behalf of Textron, Inc.



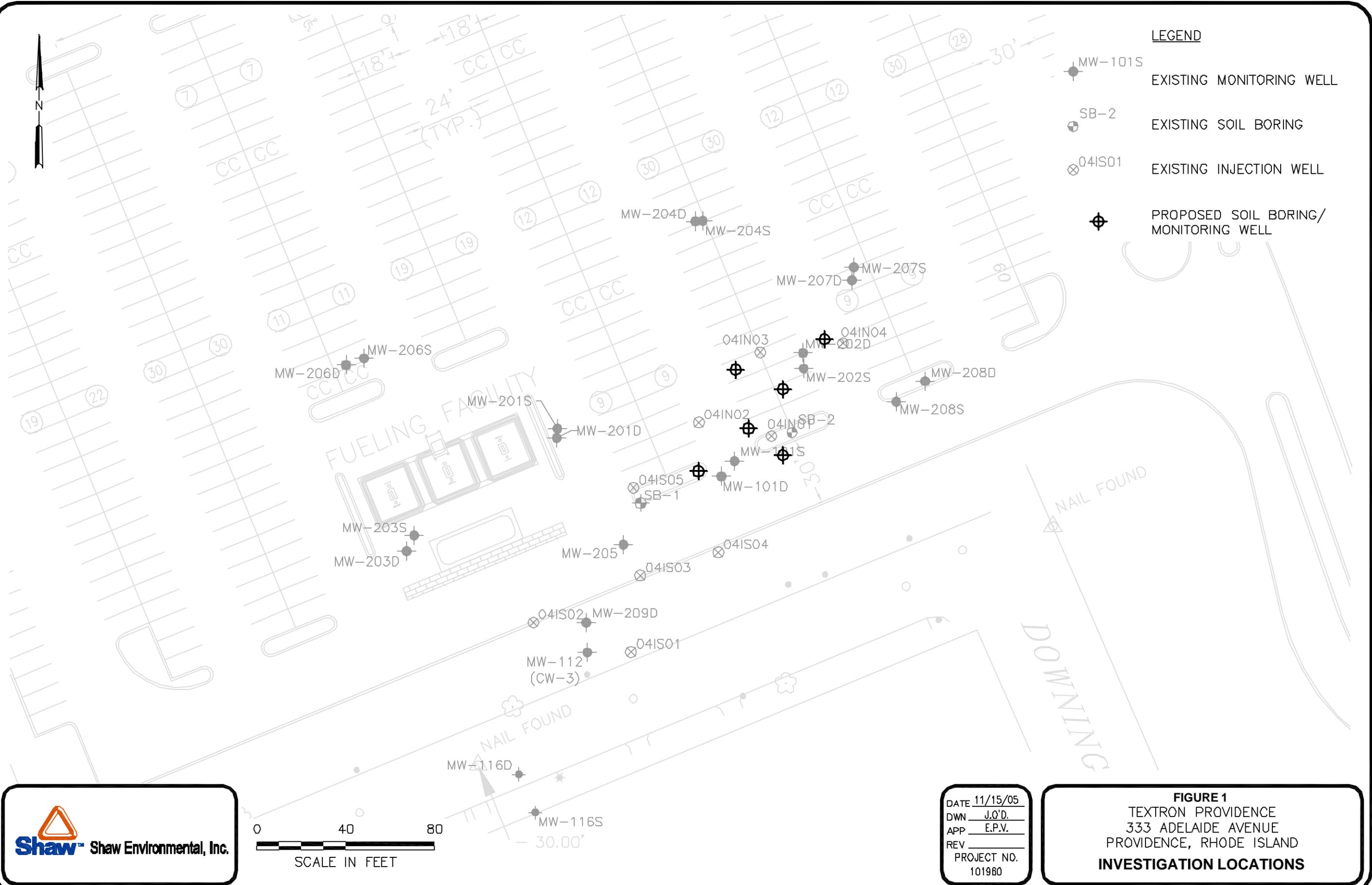
Gregory L. Simpson
Project Manager, Site Remediation

11/17/05

Date:

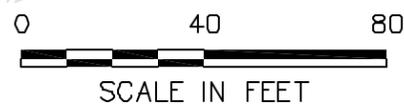
1" 1/2" 0" 1"

File: N:\dwg\conform\antgr-07.dwg Layout: investigation User: James.O'Donnell Nov 16, 2005 - 5:11pm



LEGEND

- MW-101S
EXISTING MONITORING WELL
- SB-2
EXISTING SOIL BORING
- 04IS01
EXISTING INJECTION WELL
- PROPOSED SOIL BORING/
MONITORING WELL



DATE	11/15/05
DWN	J.O'D.
APP	E.P.V.
REV	
PROJECT NO.	101960

FIGURE 1
 TEXTRON PROVIDENCE
 333 ADELAIDE AVENUE
 PROVIDENCE, RHODE ISLAND
INVESTIGATION LOCATIONS