



Shaw Environmental, Inc.

---

Shaw Environmental, Inc.

11 Northeastern Boulevard  
Salem, NH 03079-1953  
603.870.4500  
Fax: 603.870.4501

March 25, 2010  
Project 130274

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

**Re: Status Report: February 2010 Activities  
Former Gorham Manufacturing Facility  
333 Adelaide Avenue, Providence, RI  
Site Remediation Case No. 97-030**

Dear Mr. Martella:

Shaw Environmental, Inc. (Shaw) has prepared this status report on behalf of Textron, Inc. (Textron). This status report is associated with the remediation of tetrachloroethene (PCE) contaminated groundwater at the former Gorham Manufacturing Facility at 333 Adelaide Avenue, Providence, Rhode Island (Figure 1).

PCE is the primary contaminant of concern for groundwater in this area. As discussed in the Remedial Action Work Plan (RAWP) and subsequent revisions, the PCE source area in the vicinity of the former building W is the area of concern with a site-specific remedial goal of 7,700 micrograms per liter (ug/L). This area was treated using in-situ applications of sodium permanganate. Figure 2 shows the most recent treatment area.

This status report describes groundwater monitoring activities conducted in accordance with the proposed groundwater monitoring program submitted to the Rhode Island Department of Environmental Management (RIDEM) in February 2007 (Shaw – Groundwater Monitoring Program letter, dated February 1, 2007).

## **FIELD ACTIVITIES**

The following field activities were conducted on February 11, 2010.

### Monitoring Activities

Field parameters were measured in treatment area wells and compliance wells on February 11, 2010. Field measurements included oxidation/reduction potential (ORP), dissolved oxygen (DO), pH, temperature, and specific conductance (SC). Groundwater elevation and light non-aqueous phase liquid (LNAPL) thickness measurements were also collected. During the synchronous gauging, light non-aqueous phase liquid (LNAPL) was detected in MW-221S at a thickness of 0.59 feet. Field parameter and gauging results are presented in Tables 1 and 2.

### Groundwater Sampling

Groundwater samples were collected for analysis for volatile organic compounds (VOCs) (EPA Method 8260B) on February 11, 2010 from 21 monitoring wells within and around the treatment area, including compliance wells. (Monitoring well MW-201D was not sampled as it was under a snow bank and therefore not accessible.) One duplicate sample was collected from MW-101S (MW-101S DUP) for VOC analysis. One sample was collected for total petroleum hydrocarbon (TPH) analysis (modified EPA Method 8015 B) from monitoring well CW-6. One duplicate sample was collected from CW-6 (CW-6 DUP) for TPH analysis. Samples were collected for lead analysis (EPA Method 6010B) from monitoring wells MW-109D and GZA-3. One duplicate sample was collected from GZA-3 (GZA-3 DUP) for lead analysis. Groundwater samples were delivered to AMRO Environmental Laboratories Corporation in Merrimack, New Hampshire for analysis.

## **SUMMARY OF ANALYTICAL DATA**

A summary of the analytical data associated with the groundwater sampling conducted in February 2010 is contained in Table 3. Copies of the laboratory analytical reports are attached to this report. The PCE concentration found in well MW-207S was above the treatment goal of 7,700 ug/L.

A summary of the compliance well results is contained in Table 4. The results for the compliance wells indicate that exceedances occurred for the Adelaide Avenue wells MW-112, MW-209D, and MW-218D (PCE) and MW-218S (vinyl chloride).

## **FUTURE ACTIVITIES**

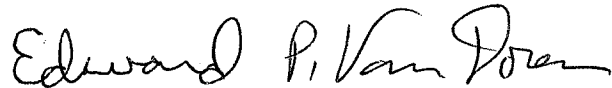
The next sampling event is scheduled for August 2010.

Mr. Joseph T. Martella, II  
March 25, 2010  
Page 3 of 4

If you have any questions regarding this report, please contact Ed Van Doren at (603) 870-4530.

Sincerely,

**SHAW ENVIRONMENTAL, INC.**



Edward P. Van Doren  
Project Manager

**Attachments:**

**Figures**

Figure 1 – Site Plan

Figure 2 – Injection Well Locations

**Tables**

Table 1 – Summary Field Parameters

Table 2 – Groundwater Elevations

Table 3 – VOCs in Groundwater

Table 4 – Compliance Wells Analytical Results

**Laboratory Analytical Reports**

cc: Craig Roy, RIDEM OWR  
Greg Simpson, Textron  
Jamieson Schiff, Textron  
Dave Heislein, MACTEC  
Thomas Dellar, City of Providence  
Jeff Morgan, Stop & Shop  
Ronald Ruth, Sherin and Lodgen

Mr. Joseph T. Martella, II

March 25, 2010

Page 4 of 4

## 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 Status Report dated March 25, 2010, certify that the information contained in this report is complete and accurate to the best of my knowledge.



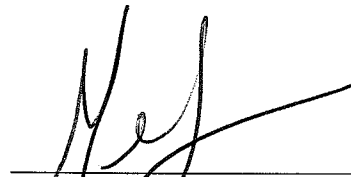
Edward P. Van Doren  
Project Manager

3/31/2010

Date:

We, Textron, Inc., as the party responsible for submittal of this Status Report, 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.

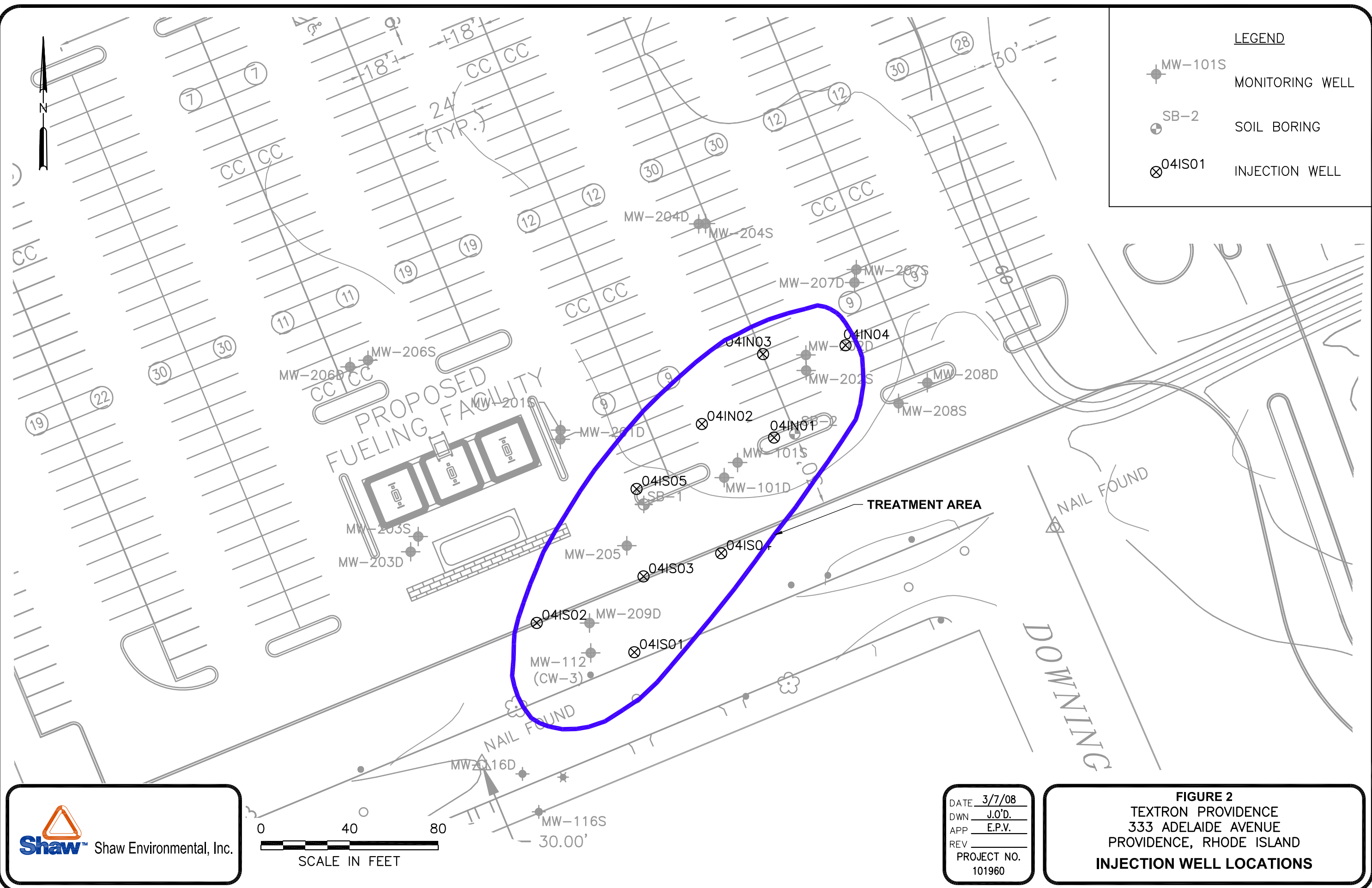
  
Gregory L. Simpson  
Project Manager

3/29/10

Date:



1" 1/2" 0" 1"  
File: N:\dwg\Gorham\smgtf-01.dwg Layout: Inj well User: James.O'Donnell Mar 07, 2008 - 10:08am



## Former Gorham Manufacturing Facility Providence, Rhode Island

Notes:
C° = degrees Celsius
mS/cm = millisiemens per centimeter
mg/L = milligrams per liter
mV = milli volts

**Table 2**  
**Groundwater Elevations**  
**February 2010**

**Former Gorham Manufacturing Facility**  
**Providence, Rhode Island**

Well ID	Date	Reference Elevation (Feet)	Depth to Water (Feet)	LNAPL Thickness (Feet)	Groundwater Elevation (Feet)
CW-01	2/11/2010	99.52	25.19	0	74.33
CW-02	2/11/2010	98.86	24.48	0	74.38
CW-06	2/11/2010	99.52	24.72	0	74.80
GZA-3	2/11/2010	NA	17.53	0	NA
MW-101D	2/11/2010	98.91	24.39	0	74.52
MW-101S	2/11/2010	98.90	24.25	0	74.65
MW-109D	2/11/2010	NA	18.79	0	NA
MW-112	2/11/2010	100.63	25.91	0	74.72
MW-116D	2/11/2010	98.92	24.09	0	74.83
MW-116S	2/11/2010	99.40	24.60	0	74.80
MW-201D	2/11/2010	98.80	NM	NA	NA
MW-202D	2/11/2010	98.17	23.74	0	74.43
MW-202S	2/11/2010	98.06	23.60	0	74.46
MW-207D	2/11/2010	98.18	23.70	0	74.48
MW-207S	2/11/2010	98.28	23.80	0	74.48
MW-209D	2/11/2010	99.90	25.40	0	74.50
MW-216D	2/11/2010	98.69	24.92	0	73.77
MW-216S	2/11/2010	99.58	24.88	0	74.70
MW-217D	2/11/2010	98.65	24.77	0	73.88
MW-217S	2/11/2010	98.71	24.39	0	74.32
MW-218D	2/11/2010	99.67	25.00	0	74.67
MW-218S	2/11/2010	99.61	25.02	0	74.59
MW-220S	2/11/2010	99.41	24.85	0	74.56
MW-221S	2/11/2010	98.92	25.60	0.59	73.87
Notes: NM = Not Measured, under snow bank. Groundwater elevations are based on an arbitrary reference datum established for the site.					

**Table 3**  
**Groundwater Analytical Results**  
**February 2010**  
Former Gorham Manufacturing Facility  
Providence, Rhode Island

CONSTITUENT	CW-01 2/11/2010 Primary	CW-02 2/11/2010 Primary	CW-06 2/11/2010 Primary	CW-06 2/11/2010 Duplicate 1	GZA-3 2/11/2010 Primary	GZA-3 2/11/2010 Duplicate 1	MW-101D 2/11/2010 Primary	MW-101S 2/11/2010 Primary	MW-101S 2/11/2010 Duplicate 1	MW-109D 2/11/2010 Primary	MW-112 2/11/2010 Primary	MW-116D 2/11/2010 Primary	MW-116S 2/11/2010 Primary
<b>VOC (ug/L)</b>													
1,1-Dichloroethane	29	<2	---	---	<2	---	<20	<2	<2	<2	<20	<2	<2
1,1-Dichloroethene	280	<1	---	---	1.8	---	<10	<1	<1	<1	<10	<1	<1
1,2,4-Trimethylbenzene	<20	<2	---	---	<2	---	<20	<2	<2	<2	<20	<2	<2
1,3,5-Trimethylbenzene	<20	<2	---	---	<2	---	<20	<2	<2	<2	<20	<2	<2
2-Butanone	<100	<10	---	---	<10	---	<100	<10	<10	<10	<100	<10	<10
Acetone	<100	<10	---	---	<10	---	<100	<10	11	<10	<100	<10	<10
cis-1,2-Dichloroethene	1000	<2	---	---	57	---	<20	16	14	<2	<20	<2	<2
Ethylbenzene	<20	<2	---	---	<2	---	<20	<2	<2	<2	<20	<2	<2
m/p-xylene	<20	<2	---	---	<2	---	<20	<2	<2	<2	<20	<2	<2
Methyltert-butylether	<20	<2	---	---	<2	---	<20	<2	<2	<2	<20	<2	<2
Naphthalene	<50	<5	---	---	<5	---	<50	<5	<5	<5	<50	<5	<5
o-Xylene	<20	<2	---	---	<2	---	<20	<2	<2	<2	<20	<2	<2
Tetrachloroethene	<20	<2	---	---	3.7	---	890	21	20	<2	540	<2	<2
Toluene	<20	<2	---	---	<2	---	<20	<2	<2	<2	<20	<2	<2
trans-1,2-Dichloroethene	26	<2	---	---	<2	---	<20	<2	<2	<2	<20	<2	<2
Trichloroethene	4800D	<2	---	---	29	---	<20	<2	<2	<2	<20	<2	<2
Vinyl chloride	<20	<2	---	---	9.5	---	<20	2	<2	<2	<20	<2	<2
Xylene (total)	<20	<2	---	---	<2	---	<20	<2	<2	<2	<20	<2	<2
<b>TPH (mg/L)</b>													
Unidentified TPH	---	---	5.5	5.7	---	---	---	---	---	---	---	---	---
<b>Dissolved Metals (ug/L)</b>													
Lead	---	---	---	---	<13	<13	---	---	---	<13	---	---	---

**Notes:**

< = Less than the laboratory reporting limit  
ug/L = Micro grams per liter, parts per billion  
mg/L = Milligrams per liter, parts per million  
TPH = Total Petroleum Hydrocarbons  
--- = Not analyzed for.  
D = Result reported from a diluted sample

**Table 3**  
**Groundwater Analytical Results**  
**February 2010**  
Former Gorham Manufacturing Facility  
Providence, Rhode Island

CONSTITUENT	MW-202D 2/11/2010 Primary	MW-202S 2/11/2010 Primary	MW-207D 2/11/2010 Primary	MW-207S 2/11/2010 Primary	MW-209D 2/11/2010 Primary	MW-216D 2/11/2010 Primary	MW-216S 2/11/2010 Primary	MW-217D 2/11/2010 Primary	MW-217S 2/11/2010 Primary	MW-218D 2/11/2010 Primary	MW-218S 2/11/2010 Primary
<b>VOC (ug/L)</b>											
1,1-Dichloroethane	<20	<20	<2	<20	<2	<2	2	<2	<2	<20	<2
1,1-Dichloroethene	<10	<10	<1	<10	4.1	<1	<1	<1	<1	<10	<1
1,2,4-Trimethylbenzene	<20	<20	<2	<20	<2	<2	12	<2	<2	<20	<2
1,3,5-Trimethylbenzene	<20	<20	<2	<20	<2	<2	9.1	<2	<2	<20	<2
2-Butanone	<100	<100	<10	<100	<10	<10	<10	<10	<10	<100	24
Acetone	<100	<100	<10	<100	<10	<10	10	<10	<10	<100	99
cis-1,2-Dichloroethene	60	62	<2	28	11	<2	66	8.6	21	<20	3.4
Ethylbenzene	<20	<20	<2	<20	<2	<2	2.6	<2	<2	<20	<2
m/p-xylene	<20	<20	<2	<20	<2	<2	6.6	<2	<2	<20	<2
Methyltert-butylether	<20	<20	<2	<20	5	5.1	<2	2.4	<2	<20	<2
Naphthalene	<50	<50	<5	<50	<5	<5	21	<5	<5	<50	<5
o-Xylene	<20	<20	<2	<20	<2	<2	9	<2	<2	<20	<2
Tetrachloroethene	580	270	140	26000	810D	<2	<2	<2	17	590	<2
Toluene	<20	<20	<2	<20	<2	<2	2.4	<2	<2	<20	<2
trans-1,2-Dichloroethene	<20	<20	<2	<20	<2	<2	<2	<2	<2	<20	<2
Trichloroethene	<20	<20	2.2	93	360D	2.2	<2	12	<2	38	<2
Vinyl chloride	<20	<20	<2	<20	<2	<2	<2	<2	<2	<20	3.1
Xylene (total)	<20	<20	<2	<20	<2	<2	16	<2	<2	<20	<2
<b>TPH (mg/L)</b>											
Unidentified TPH	---	---	---	---	---	---	---	---	---	---	---
<b>Dissolved Metals (ug/L)</b>											
Lead	---	---	---	---	---	---	---	---	---	---	---

**Notes:**

< = Less than the laboratory reporting limit  
ug/L = Micro grams per liter, parts per billion  
mg/L = Milligrams per liter, parts per million  
TPH = Total Petroleum Hydrocarbons  
--- = Not analyzed for.  
D = Result reported from a diluted sample

**Table 4**  
**Compliance Wells Analytical Results**  
**February 2010**  
**Former Gorham**  
**Manufacturing Facility**  
**Providence, Rhode Island**

<b>Mashapaug Pond Compliance Wells</b>				
<b>Sample ID</b>	<b>GZA-3</b>	<b>GZA-3</b>	<b>MW-109D</b>	<b>Compliance</b>
<b>Date Collected</b>	<b>2/11/2010</b>	<b>2/11/2010</b>	<b>2/11/2010</b>	<b>Standard<sup>1</sup></b>
<b>CONSTITUENT</b>		<b>Duplicate</b>		
<b>Metals (mg/L)</b>				
Lead	<0.013	<0.013	<0.013	0.03
<b>VOCs (ug/L)</b>				
1,1-Dichloroethane	<2	NA	<2	50,000
1,1-Dichloroethene	1.8	NA	<1	50,000
cis-1,2-Dichloroethene	57	NA	<2	50,000
Tetrachloroethene	3.7	NA	<2	5,000
Trichloroethene	29	NA	<2	20,000
Vinyl chloride	9.5	NA	<2	1,200

<b>TPH Remediation Area Well</b>			
<b>Sample ID</b>	<b>CW-6</b>	<b>CW-6</b>	<b>Compliance</b>
<b>Date Collected</b>	<b>2/11/2010</b>	<b>2/11/2010</b>	<b>Standard<sup>1</sup></b>
<b>CONSTITUENT</b>		<b>Duplicate</b>	
TPH (mg/L)	5.5	5.7	20

<b>Sewer Interceptor Area Wells</b>			
<b>Sample ID</b>	<b>CW-1</b>	<b>CW-2</b>	<b>Compliance</b>
<b>Date Collected</b>	<b>2/11/2010</b>	<b>2/11/2010</b>	<b>Standard<sup>2</sup></b>
<b>CONSTITUENT</b>			
<b>VOCs (ug/L)</b>			
1,1-Dichloroethane	29	<2	120,000
1,1-Dichloroethene	280	<1	23,000
cis-1,2-Dichloroethene	1000	<2	69,000
trans-1,2-Dichloroethene	26	<2	79,000
Tetrachloroethene	<20	<2	NS
Trichloroethene	4800D	<2	87,000

<b>Adelaide Avenue Wells</b>					
<b>Sample ID</b>	<b>MW-112</b>	<b>MW-209D</b>	<b>MW-218D</b>	<b>MW-218S</b>	<b>Compliance</b>
<b>Date Collected</b>	<b>2/11/2010</b>	<b>2/11/2010</b>	<b>2/11/2010</b>	<b>2/11/2010</b>	<b>Standard<sup>3</sup></b>
<b>CONSTITUENT</b>					
<b>VOCs (ug/L)</b>					
cis-1,2-Dichloroethene	<20	11	<20	3.4	2,400
1,1-Dichloroethene	<10	4.1	<10	<1	7
Benzene	<10	<1	<10	<1	140
Chloroform	<20	<2	<20	<2	1,900
Methyl tert-butyl ether	<20	5	<20	<2	5,000
Tetrachloroethene	540	810D	590	<2	150
Trichloroethene	<20	360D	38	<2	540
Vinyl chloride	<20	<2	<20	3.1	2

**Notes:**

1. These Site specific compliance standards were taken from the approved RAWP dated April 1, 2001 and/or the RIDEM Remediation Regulations.
2. These compliance standards taken from Table 5 - Upper Concentration Limits for GB Groundwater, RIDEM Remediation Regulations.
3. These compliance standards taken from Table 4 -GB Groundwater Objectives of the RIDEM Remediation Regulations or in the case of vinyl chloride the compliance standard was taken from Table 3 of the Remediation Regulations and for chloroform the compliance standard was calculated from the algorithm in Appendix F of the Remediation Regulations (calculations attached as Appendix C of Status Report dated September 18, 2007).

mg/L - milligrams per liter

ug/L - micrograms per liter

< - compound was not detected below the laboratory reporting limit, concentration shown is the reporting limit.

VOCs - volatile organic compounds

TPH - total petroleum hydrocarbons

NA - Indicates that the analysis was not performed.

NS - Indicates that no applicable standard exists. Compound does not have a lower explosive limit (LEL).