

Complex Remediation Process Has Simple But Important Goals

Textron's cleanup has simple but important goals – to prevent exposure of harmful chemicals in groundwater, soil, or sediments to humans, animals, and even plants. While these goals are straightforward, the steps needed to accomplish them require careful thought and implementation.

Groundwater

Affected groundwater is located 30-50 feet beneath the surface of portions of the site with no pathway to drinking water supplies or to ground level. Chemicals in the groundwater – called volatile organic compounds, or VOCs – at high enough concentrations, can volatilize (become gaseous) and potentially move up through the soil. If a structure is located above groundwater with high enough levels of VOCs, the potential exists for the gaseous VOCs to enter the structure and be present in indoor air. Textron wants to therefore reduce the concentrations of those groundwater chemicals to ensure that they cannot pose a risk.

Initially, Textron used chemical oxidation treatments on the groundwater – a process similar to that used to control algae in ponds. Treatments in 2002 and again in 2004 reduced the size of the affected area of groundwater by about 40 percent, as measured near the end of 2005. Textron recognizes that additional effort is necessary to clean up the remaining groundwater chemicals and is evaluating which methodologies would work best to address them. A biological treatment was pilot tested at the site but didn't prove as effective as it was hoped to be (see "Site Cleanup" story, page two).

Throughout the groundwater remediation process, Textron has submitted progress reports to RIDEM and to the City. These reports include findings from a network of dozens of groundwater monitoring wells that Textron has installed at critical locations throughout the site.

Surface Water

Surface water can also provide a route of exposure that must be considered. The U.S. Environmental Protection Agency (EPA) performed Mashapaug Pond surface water sampling in 2001, and that study identified impacts typical of urban bodies of water that were not associated with the Gorham site. The EPA sampling identified elevated levels of bacteria and algae in surface water, and samples of fish caught in the Pond contained chemicals at levels above EPA Fish Consumption Limits. As a result of the 2001 sampling data, RIDEM and the Rhode Island Department of Health jointly issued a health advisory regarding the pond in August 2002, and "No Fishing, No Swimming" signs were posted along the Cove at the Gorham site and at other places around the entire Pond. Sampling of surface water within Mashapaug Cove conducted by Textron in 2006 found extremely low levels of chemicals, well below levels that would cause concern.

Sediment

Textron is also looking at whether sediments within the Cove might cause exposure issues. Sampling performed by Textron in 2006 indicated that sediments within the Cove contain VOCs and metals. Textron has been working with RIDEM to determine exactly what type of additional sediment sampling and what subsequent cleanup steps are necessary.

Soil

Soils on portions of the site also needed to be addressed to prevent exposure. In conjunction with the planned construction of the Stop & Shop building, Textron in February 2002 remediated some 18,600 tons of soil that had been affected by leaky fuel oil tanks that had been removed earlier. As part of this effort, Textron also removed from the site many pieces of scrap and other metal debris. Textron's work during this period allowed the redevelopment to go forward and the retail space to be built for the Stop & Shop store and other outlets.

Last summer, Textron removed about 1200 cubic yards of slag materials and miscellaneous scrap metals located near the Cove, disposing of the materials off-site at a licensed recycling facility. The slag had been generated decades earlier as a by-product of Gorham metal-melting operations.

Textron has also proposed that an upland area near the Cove that contains metals and low levels of polycyclic aromatic hydrocarbons (PAHs) would be capped to prevent any exposure pathways to the surface. The US EPA considers this "capping" procedure a proven, or in its words, a "most appropriate" remedy for such sites. RIDEM recently estimated that 195 sites in Rhode Island have had appropriately designed caps installed as a cleanup remedy.

Textron will continue to clean up soil, sediment, and groundwater at the site. The cleanup process that Textron has set in motion and has committed to will, in the end, achieve the protective environmental goals that are consistent with intended site uses. ▀

GORHAM MANUFACTURING COMPANY SITE

TEXTRON

UPDATE

JUNE 2007

A Newsletter to Inform the Public About Textron's Activities

TEXTRON GORHAM SITE CLEANUP CONTINUES

While Textron has in the recent past undertaken several initiatives in cleaning up the Gorham site, the company is planning a series of significant "next steps" to further address site cleanup activities.

Textron is committed to a comprehensive cleanup of the site area and wants to ensure that the cleanup will support intended uses of the land. Textron recently announced its willingness to go beyond the company's original 1994 agreement to clean the site to an industrial/commercial standard. Site Remediation Project Manager Gregory L. Simpson said that Textron has been working closely with Rhode Island Department of Environmental Management (RIDEM) officials in the development of a plan to clean up to a standard safe enough for recreational use the entire area of the site designated years earlier by the City as the "Park Parcel." That standard is high enough to allow for the creation of a park in the future. The City would be responsible for designing and maintaining any such park in the area, Simpson noted.

As planned, Textron cleanup activities in the Park Parcel would occur in three phases with the first phase scheduled to address portions of the parcel this summer in the vicinity of the high school and the proposed YMCA. The remaining area of the Park Parcel behind the former Stop & Shop building are scheduled to be addressed in 2008 as Phase 2, and cleanup activities for Mashapaug Cove, Phase 3, would also be addressed in 2008, according to the schedule (See figure, page two).

Textron will present the details of this proposed Park Parcel cleanup plan at its upcoming Community Information Session to be held on Wednesday evening,

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You're invited!
Community Information Session
WEDNESDAY, JUNE 20, 6-8 PM
FEINSTEIN HIGH SCHOOL
 544 Elmwood Ave., Providence

- ▶ Learn about the progress that Textron is making in cleaning up the former Gorham Manufacturing Company site;
- ▶ View a series of displays on the site investigation and cleanup, staffed by Textron personnel or other project team members who will be available to answer your questions; and
- ▶ Hear and discuss Textron's plans for future cleanup activities, including cleanup plans for the site's Park Parcel.

Textron Welcomes Your Comments, Questions

This document has been prepared by Textron to inform the community about what the company has done, what we are doing today, and what we are planning to do to achieve our commitment to clean up the former Gorham Manufacturing Company property consistent with its intended uses. We also want our neighbors to know that we are committed to being responsive to community concerns about the site cleanup.

We recognize the need to keep the community informed, and we will continue to update the public about what we are doing. We also hope to encourage two-way communication, so if you have questions or comments about Textron's role in the Gorham site cleanup, we encourage you to contact:

Gregory L. Simpson
 Textron's Site Remediation Project Manager
 Textron, Inc.
 40 Westminster St.
 Providence, RI 02903
 telephone 401-457-2635, or
 email at gsimpson@textron.com.

Should you desire additional information on the Gorham site cleanup or redevelopment activities, you may contact:

Joseph T. Martella II
 Senior Engineer, Rhode Island Department of Environmental Management (RIDEM)
 235 Promenade St.
 Providence, RI 02908
 telephone, 401-222-2797, ext. 7109, or
 email at joseph.martella@dem.ri.gov.

The RIDEM Website for the Gorham site cleanup may be found at:
<http://www.dem.ri.gov/programs/benviron/waste/gorham.htm>.

THE GORHAM PROPERTY FROM THE 19TH TO THE 21ST CENTURY



A Gorham advertisement from 1890.

The reasons for today's cleanup of the 37-acre former Gorham Manufacturing Company site originated in 1890 when the then-60-year-old silver products company relocated from downtown Providence to South Providence, next to the Mashapaug Pond and Cove. Benjamin Harrison was President of the United States, and visitors to his White House were often served with an elegant Gorham silver tea and flatware service purchased 30 years earlier for the Presidential mansion by Mary Todd Lincoln.

It was a time long before American society understood or cared about environmental issues. Manufacturers of the era, and manufacturers for several decades to follow, often – but unintentionally – left a legacy of environmental problems that would not be discovered until well into the future.

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Site Cleanup CONTINUED FROM PAGE ONE

June 20, at 6-8 PM, at the Feinstein High School on 544 Elmwood Ave., near the former Gorham site.

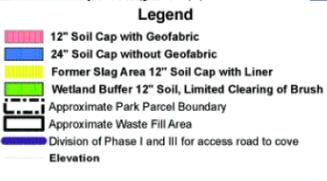
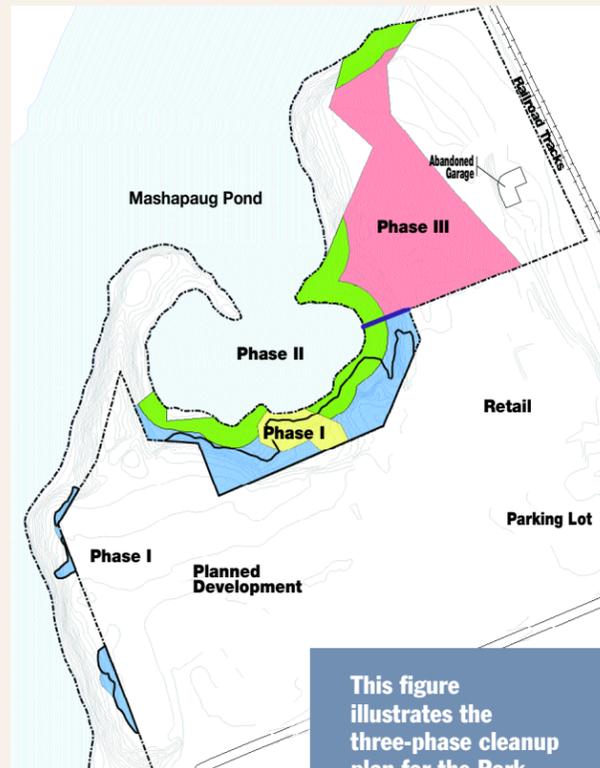
"In addition to the Park Parcel remediation, Simpson said, "We also realize we need to further clean up the groundwater, and we are aggressively doing so." Textron has already reduced the affected area of groundwater by about 40 percent with chemical oxidation treatments, similar to the treatment used to reduce algae in ponds (see "Remediation Process" story, page four). "While that process gave us some good results and significantly reduced the area of groundwater that was impacted, we still need to reduce the levels of volatile organics that exist in the remaining affected groundwater," Simpson said.

A recent pilot test at the site of a biological groundwater treatment technology did not live up to expectations, Simpson said, and the company has asked four nationally respected engineering companies to make recommendations on what technology or combination of technologies would work best to finish the job. Based on those companies' responses, Textron hopes to submit a plan to RIDEM this summer for proceeding with groundwater remediation.

Meanwhile, in a proposal approved by the state at the beginning of February 2007, Textron agreed to install several more monitoring wells on both developed and undeveloped areas of the site to track any possible groundwater discharges into the Cove and to measure the levels of groundwater chemicals beneath buildings. Certain chemical compounds in groundwater at high enough levels can vaporize and cause gases to rise through the soil to the surface, possibly causing indoor air quality problems.

Low levels of those groundwater chemicals were found in two new Textron-installed monitoring wells in the parking lot in front of the former Stop & Shop building, and Textron has sent a follow-up work plan to RIDEM to drill through the floor of that building to collect and analyze soil gas samples. "This will enable us to determine if there are any soil gas levels that could cause a potential indoor air quality concern," said Simpson.

"Textron has a busy cleanup calendar at the Gorham site," Simpson noted in summary. "We've made progress, but we still have more work to do to clean up the site to support its redevelopment." ▸

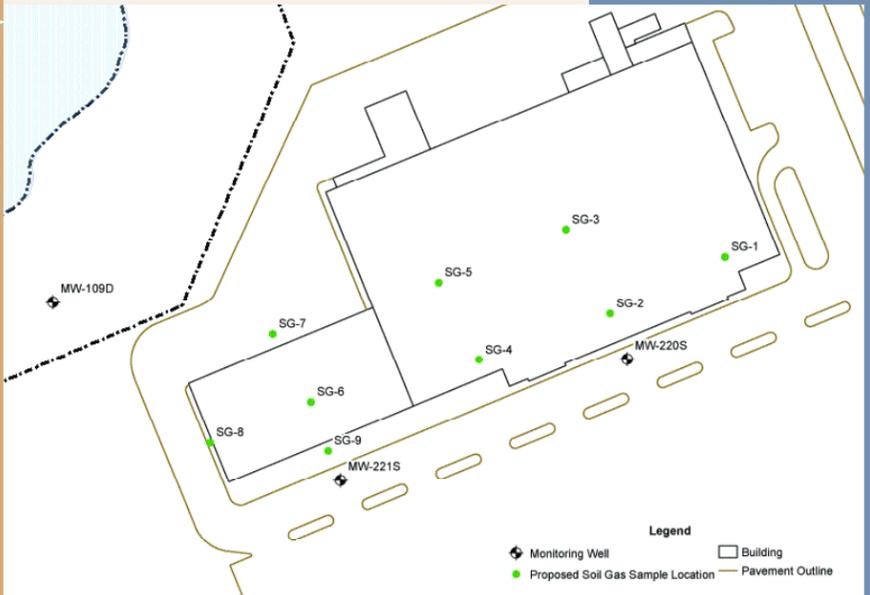


This figure illustrates the three-phase cleanup plan for the Park Parcel. The first phase is slated to begin soon and will be completed by September 2007. The remaining area of the Park Parcel behind the former Stop & Shop building would be addressed in 2008. Cleanup activities for Mashapaug Cove would also occur in 2008.



This overhead photo of the site was taken just before construction began on the high school, which is being built just to the left, or west, of the parking lot in the area marked "Planned Development 2006." The YMCA would be built to the west of the high school.

After concerns were voiced over indoor air quality in the retail stores, Textron installed two groundwater monitoring wells (designated at right as MW 220S and MW 221S) near the entrance to the former Stop & Shop. When analysis of that groundwater showed it to contain low levels of volatile organic compounds (VOCs), Textron proposed drilling through the floor of those buildings to collect and analyze soil gas. Locations where drilling is proposed are indicated at right by the green dots, labeled "SG" for "soil gas." The large area where SG's 1-5 are located is the former Stop & Shop, while areas to the left are adjoining retail outlets.



The Gorham Property CONTINUED FROM PAGE ONE

Textron purchased the Gorham Manufacturing Company in 1967 and continued operations at the site until 1985 at which time Textron sold the company, and operations were relocated to Smithfield, RI. Textron sold the property to a private developer in 1986, and the City of Providence, the current owner of the site, eventually obtained it in 1990 through a tax foreclosure.

In the early 1990s, the City decided to develop the property for reuse. After a series of environmental investigations, Textron, with the Rhode Island Department of Environmental Management (RIDEM) providing project oversight, found that Gorham's historic site operations had resulted in the presence of volatile organic compounds (VOCs) associated with cleaning solvents in groundwater. The investigations also found that underground tanks used to store fuel oil, had leaked over time, resulting in fuel oil getting into both soil and groundwater in the central portion of the site. Finally, other areas of soil at the site were found to contain metal by-products of Gorham Company operations at levels above state of Rhode Island standards for industrial/commercial use.

Textron developed a comprehensive cleanup plan that addressed soil and groundwater over the entire site. That plan, approved by RIDEM in 2001, was intended to bring the site into compliance with industrial/commercial standards and allow the City to redevelop the property to those standards.

By 2002, Textron had completed the phase of the cleanup that addressed fuel oil in soil. In that same year, Textron began chemical oxidation treatment of groundwater to reduce the level of VOCs – a process similar to that used to control algae in ponds.

A second treatment of groundwater was conducted in 2004, and by the fall of 2005, the process had reduced the affected area of groundwater by about 40 percent. Textron acknowledges that still more groundwater treatment is necessary to complete the job and hopes to submit a plan to RIDEM this summer to continue groundwater cleanup.

Throughout the groundwater remediation process, Textron has submitted progress reports to RIDEM – initially those reports were monthly; currently they are quarterly – and quarterly progress reports to the City. These reports include findings from several groundwater monitoring wells that Textron has installed at critical locations throughout the site.

In 2001, the same year that a Stop and Shop grocery and other retail stores were constructed on the site, the City announced that a new Providence YMCA would be built on the western portion of the property. The YMCA has not yet been constructed.

In 2005, the City proposed to build a high school between the proposed YMCA facility and the existing retail stores. In March 2006, RIDEM and the City signed a consent order agreement allowing that construction to proceed. The high school is now nearly finished, and the City is working toward a September 2007 opening.

Changes to the site's ultimate use have changed cleanup needs. The proposed YMCA and the high school are considered "residential" and/or "recreational" uses of the property that call for a cleanup standard above the category of industrial/commercial use, as was originally envisioned.

Textron also recognizes that it must be more responsive to the community; it is committed to seeking public input on the cleanup and to providing the community with information about cleanup plans and the results of the company's site investigation activities. To that end, Textron representatives began regular attendance in December 2006 at monthly RIDEM public meetings. "We plan on providing direct information to the community in a number of ways. We want people to know about what we have done to date and, importantly, about our commitment to the ongoing cleanup," said Gregory L. Simpson, Textron's Site Remediation Project Manager. ▸

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