

PLEASANT STREET CLEANUP PROJECT
PUBLIC BULLETIN

CITY OF NORTHAMPTON, MA
June 2, 2010

BACKGROUND

The current commercial properties in the area of 459, 480 and 492 Pleasant Street were once part of the Staab Gasoline Service Station. It was operated by the Staab family from 1912 until the early 1950s when the Massachusetts Highway Department constructed Route 5 right across the station property essentially cutting it in half. There were large aboveground storage tanks of heating oil and kerosene located at the rear of where the current Hampden Zimmerman Electric Supply building is located. There were numerous underground gasoline tanks. Fuels may have been brought in by the adjacent railroad tracks. Parcels of the land were later sold off. Route 5, also known as Pleasant Street, became the primary southern commercial gateway to Northampton. Gasoline stations continued to operate along Conz Street and Pleasant Street until 1984 when the last of the underground storage tanks were removed. The Staab Gasoline Service Station property was subsequently subdivided and sold to new owners for new uses.

In 1988, a wellpoint was installed at the car wash located at 492 Pleasant Street to evaluate installing a supply well. Gasoline was discovered in the groundwater pumped from the wellpoint. On June 14, 1988, the Department of Environment Protection (“the DEP”) under its former name was notified of the gasoline. No one was sure where the gasoline originated from. Groundwater monitoring wells were installed and up to 12 inches of free-phase gasoline was observed floating on the groundwater in three of the wells located on both sides of Pleasant Street. Groundwater was encountered at a depth of eight to 11 feet. The owners of the affected properties banded together and attempted to assess and remediate the gasoline contamination caused by the former owner of their properties. During the following 11 years, more than 40 monitoring wells were installed. The gasoline contamination was found to be extensive.

In 2002, Penney Engineering, Inc of Mansfield, MA was hired by one of the owners. It conducted additional assessment activities and designed a groundwater treatment system and a soil vapor extraction (SVE) treatment system to remediate the gasoline contamination at the 459, 480 and 492 Pleasant Street properties (“the site”). The treatment systems were to be installed along both sides of Pleasant Street. The former gasoline piping reportedly running under Pleasant Street was to be used to avoid the need to excavate across Route 5. Unfortunately, the former piping could not be located and only the portions of the groundwater and soil treatment systems located at 459 Pleasant Street were installed in 2003. From 2003 to 2006 the treatment systems were operated by Penney Engineering. A total of 2.2 million gallons of groundwater was treated and 729 gallons of gasoline was recovered. However, a majority of the gasoline contamination remained virtually inaccessible under the adjacent section of Route 5.

BROWNFIELDS CLEANUP GRANT

In December 2005, the City of Northampton on behalf of the Massachusetts Highway Department (MHD), as the owner of Route 5, applied for a Brownfields Grant from the Environmental Protection Agency (EPA). In May 2006, the EPA awarded a \$200,000 grant to MHD for the Pleasant Street Cleanup Project. A sum of \$40,000 was also contributed by one of the property owners. In March 2008, the MHD entered into an agreement with the City of Northampton, Mayor's Office of Economic Development to administer the grant. On September 5, 2008, the City entered into a contract with Penney Engineering to resume the cleanup. Cleanup technologies and alternatives were evaluated. Extending the existing soil SVE system and the biodiffuser groundwater aeration system across Route 5, as originally designed, was determined to be the best cleanup alternative.

PLEASANT STREET CLEANUP PROJECT

In November 2008, Penney Engineering ran pipes across Route 5 and extended the treatment systems to 480 and 492 Pleasant Street. The gasoline contamination in the groundwater and soil under Route 5 could then be remediated from both sides of the street. On January 14, 2009, the enlarged groundwater treatment system was restarted and continues to operate. The groundwater is pumped through a biodiffuser to remove the gasoline by aeration. The treated, oxygen-rich groundwater is discharged back into the groundwater to be recirculated through the contamination. A solution of micronutrients is injected into the first stage of the biodiffuser to further enhance the bioremediation of the gasoline contamination. Bioremediation allows microscopic "bugs" or microbes that live in soil and groundwater to eat certain harmful chemicals, such as those found in gasoline or oil spills. When microbes completely digest these chemicals, they change them into water and harmless gasses such as carbon dioxide. On September 21, 2009, the enlarged SVE treatment system was restarted with all three zones running. The highest contaminant concentrations were detected from the two zones running along each side of Route 5.

RESULTS OF CLEANUP PROJECT

As of March 5, 2010, 433,376 gallons of groundwater had been treated since the groundwater treatment system was restarted on January 14, 2009. To date, a total of 2,893,890 gallons of groundwater has been treated. As of March 5, 2010, 34.11 gallons of additional gasoline had been recovered during six steam regenerations to clean the carbon vessel. A total of 763.11 gallons of gasoline has been recovered by Penney Engineering and recycled off-site.

The effectiveness of the SVE treatment system is evaluated by reviewing the changes in the volume of gasoline recovered during each cleaning of the vapor phase carbon and the duration between the required cleanings. The amount of gasoline recovered has substantially decreased since the SVE treatment system was restarted and the length of time between cleanings has increased. The results indicate that very little gasoline remains trapped in the soil. There is no longer any gasoline odor in any of the wells and no free-phase gasoline has been observed since March 18, 2004.

The effectiveness of the groundwater treatment system is evaluated by sampling the groundwater and influent every three months. The results for wells WS-1 and MW-9 for the last four rounds of quarterly sampling have been below the DEP's applicable GW-3 cleanup standards. Only the xylenes results for well MW-10 have been above the applicable GW-3 cleanup standards, with the remaining results for MW-10 for the last four rounds of quarterly sampling all below the applicable GW-3 cleanup standards.

STATUS OF CLEANUP PROJECT

The goal of the Pleasant Street Cleanup Project was to develop a permanent solution that would adequately remediate the groundwater and soil over time, achieve Remedy Operation Status with the DEP, and, if possible, achieve site closure or partial site closure for the area within the Pleasant Street right-of-way. Remedy Operation Status under the Massachusetts Contingency Plan means that the nature and extent of the contamination at a site have been determined, a permanent solution has been implemented and any potential risk at the site shall be eliminated within a reasonable period of time.

With the extension of the treatment systems across Pleasant Street, Remedy Operation Status with the DEP was achieved on April 2, 2009. The improved groundwater monitoring results and reduced volume of gasoline recovered during the cleaning of the carbon vessel are indicators that the treatment systems are successfully remediating the gasoline contamination in the groundwater and soil under Route 5. However, the site cannot be closed until the groundwater results for all gasoline-related contaminants remain below the DEP's applicable GW-2 and GW-3 cleanup standards for at least four consecutive quarterly rounds of sampling.

On March 5, 2010, the SVE system was temporarily shut down due to the rising springtime groundwater table to prevent groundwater from being drawn into the electrical equipment. The SVE system may be restarted in the summer once the high springtime groundwater table recedes. The groundwater treatment system continues to operate.

FUTURE STEPS TO CLOSE THE SITE

The treatment systems shall continue to be operated until all the significant risk has been reduced to acceptable standards. The SVE system may have accomplished its goal. The influent concentrations have been significantly reduced. It may only be operated for a brief period when the groundwater table recedes during the summer and then permanently shut down. The groundwater treatment system shall continue to operate until the quarterly groundwater monitoring results are below the applicable GW-2 and GW-3 cleanup standards. Remedial additives shall be injected into the treated groundwater and manually applied to specific wells to enhance the bioremediation of any residual gasoline contamination. The remedial additives shall be monitored on a monthly basis and the groundwater shall be monitored quarterly. The groundwater treatment system may be shut down or intermittently operated to promote enhanced bioremediation.

The site shall be closed once the groundwater results for all the gasoline-related contaminants remain below the applicable GW-2 and GW-3 cleanup standards for at least four consecutive quarterly rounds of sampling. The contaminated soil shall be sampled to insure that it has been adequately remediated. At that time a Response Action Outcome Statement shall be prepared and submitted to the DEP to close the site.

COMMUNITY OUTREACH

On November 5, 2008, a Public Information Meeting was held at the Bridge Street School Library to discuss the proposed cleanup with the affected property owners and interested parties. This Public Bulletin has been prepared to document the cleanup activities for public distribution as part of the required Community Outreach Program.

To view or download any of the bi-annual Phase V reports prepared by Penney Engineering and submitted to the DEP since January 1, 2009, go to the DEP web site at http://public.dep.state.ma.us/wsc_viewer/main.aspx and reference Release Tracking Number 1-00705. Hard copies of any Phase V reports may be obtained at the DEP's Western Regional Office in Springfield by referring to Release Tracking Number 1-00705. Since September 2008, Penney Engineering's reports have also been posted on the City's web site.

For more information on this critical project contact:

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