



# FACT SHEET

## Manufactured Gas Plant Program

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**Bay Shore Former Manufactured Gas Plant**  
**October 2015**  
**Site 1-52-172 – Bay Shore, NY**

Have questions?  
See "Who to Contact" Below

### **PUBLIC MEETING ANNOUNCEMENT:**

**NYSDEC Public Availability Session**  
**Where: Bay Shore High School**  
**155 Third Avenue, Bay Shore, NY 11706**  
**When: October 28, 2015**  
**7:00-9:00PM**

### **Former Manufactured Gas Plant Site Cleanup Update**

#### **Summary:**

Since January 2014, National Grid has continued remediation activities in Operable Units (OU) 1, 2, & 3 and operations, maintenance and monitoring activities in all four OUs which make up the site. The cleanup of this site is not yet complete, but contaminant levels have decreased sharply throughout the area and this trend is expected to continue.

#### **About Operable Units:**

The site has been divided into four separate areas called Operable Units (OU-1 through OU-4). Each OU includes a specific portion of the project area which is shown on the attached site map.

OU-1 consists of the main site area where gas manufacturing operations once took place (the primary source of contamination) and properties immediately to the west and south. OU-2 consists of the contaminated ground water plume which originates in OU-1 and has moved southward towards Lawrence Creek. OU-3 contains the Brightwaters Yard, where fuel for the gas making process was stored, and the contaminated groundwater plume which originates from it. OU-4 is an area east of the main plant site where treated MGP waste water was discharged to a surface water body.

#### **Operable Unit No. 1:**

Cleanup of the most significant, central portion of OU-1 where gas making operations took place has been largely completed since 2009. The cleanup included the excavation of contaminated soils, installation of a subsurface barrier wall, and operation of an ozone treatment system behind the wall to destroy the highly concentrated groundwater contamination found in this area. Treated

groundwater which then passes through the subsurface barrier wall is free of site-related contaminants. In February 2013, an additional recovery well was installed inside of the barrier wall to increase the physical removal of coal tar from the subsurface. This ozone system is functioning well and is designed to continue operating indefinitely into the future.

Outside the core area of OU-1, National Grid has completed investigations on properties immediately to the east and west of the former MGP site. In October 2012, National Grid removed shallow soil contamination from beneath the Long Island Railroad (LIRR) crossing of North Clinton Avenue, in conjunction with a planned upgrade of the crossing. In October 2013, National Grid relocated the existing oxygen injection line west of the barrier wall to more effectively treat groundwater inside and outside of the barrier prior to migrating into OU-2. Between October and November 2013, an oxygen injection system was installed in OU-1 on the eastern side of the barrier wall to treat groundwater impacts in OU-1 and supplement the existing treatment at the OU-1/OU-2 boundary. Based on the results observed in 2014, additional modifications were planned and implemented to the existing systems to target the remaining groundwater impacts at OU-1/OU-2 boundary under North Clinton Avenue. The work was completed June-July 2015.

**About the Manufactured Gas Plant Program:**

NYSDEC has one of the most aggressive Manufactured Gas Plant (MGP) site investigation and remediation programs in the country. Since the problems associated with the former MGP sites were identified, NYSDEC has been working with all the utilities on a state-wide basis to identify and address the issue of MGP sites for which they may have responsibility. This effort has resulted in approximately 220 sites identified for action by the eight utilities operating in New York State.

Currently we have multi-site orders or agreements with seven utilities, including National Grid, and several other individual site volunteers, to address 216 MGP sites in NYS.

In addition, there are 28 MGP sites that NYS is evaluating for action under the State Superfund. NYSDEC continues to seek to identify any other possible MGP sites throughout the State.

For more information about the NYSDEC's MGP Program, visit:

[www.dec.ny.gov/chemical/8430.html](http://www.dec.ny.gov/chemical/8430.html)

**Operable Unit No. 2:**

The OU-2 groundwater plume consists of contaminated water which had already migrated southward from OU-1 prior to the remediation of the OU-1 source areas several years ago. This water moves very slowly through the subsurface. Without additional cleanup efforts, it would take several decades for natural groundwater flow to flush contaminants out of the aquifer beneath this predominantly residential area.

To date, National Grid has installed eight oxygen injection systems to treat groundwater in OU-2. The purpose of this system is to increase the amount of oxygen dissolved in the groundwater throughout the OU-2 area, allowing naturally-occurring soil bacteria to consume the contaminants in place, rather than waiting for the flushing process to be completed.

The oxygen injection systems within OU-2 continue to operate as designed. NYSDEC and National Grid continue to monitor their effectiveness. Detailed results are posted on the Bay Shore MGP website: [www.bayshoreworksmgp.com](http://www.bayshoreworksmgp.com).

Groundwater contamination in OU-2 has responded very well to the oxygen injection treatment. Figure 1 compares the original extent of the groundwater contaminant plume to the current extent, and demonstrates that the plume has been sharply reduced. In particular, contamination in shallow groundwater (the water closest to the ground surface, which presents the highest possibility for human exposure) has been reduced to levels which meet drinking water standards, with the exception of a small area near the corner of Union Boulevard and North Clinton Avenue.

Significant reductions are also evident in the intermediate zone in recent sampling events. As discussed above, modifications to the existing systems to target the remaining groundwater impacts in this area were implemented in June-July 2015. As a result of the groundwater concentration reductions, two of the eight oxygen injection systems in OU-2 have been deactivated in accordance with the Site's remediation system shutdown criteria. The two deactivated systems are the short oxygen line located on Community Road halfway between Cooper Lane and Montauk Highway, and the system that runs along Lawrence Creek (see attached site map).

Pockets of contaminated groundwater remain in the rest of OU-2 at depths of 13 to 60 feet below the ground surface. These pockets are responding more slowly to treatment, but they are responding. Modifications to several of the oxygen injection systems were made in late 2013 to target these lingering impacts.

### **Operable Unit No. 3:**

OU-3 is at the western end of the site. A large fuel storage tank and associated piping once stood in this area, containing a kerosene-like petroleum product that was used as the feedstock for the gas manufacturing process. Several other, smaller tanks were also present. OU-3 is defined to include the "Brightwaters Yard" portion of the original plant site west of North Clinton Avenue, and the plume of contaminated groundwater which originated in this area and previously extended southward as a narrow band in the vicinity of Lanier Lane.

As was the case with OU-1 and OU-2, the cleanup strategy in OU-3 has been to remove as much of the contaminated source material as possible from the original MGP plant site, and to introduce oxygen into the groundwater to encourage soil bacteria to consume the contaminants that have already dissolved in groundwater and migrated beyond the site boundaries.

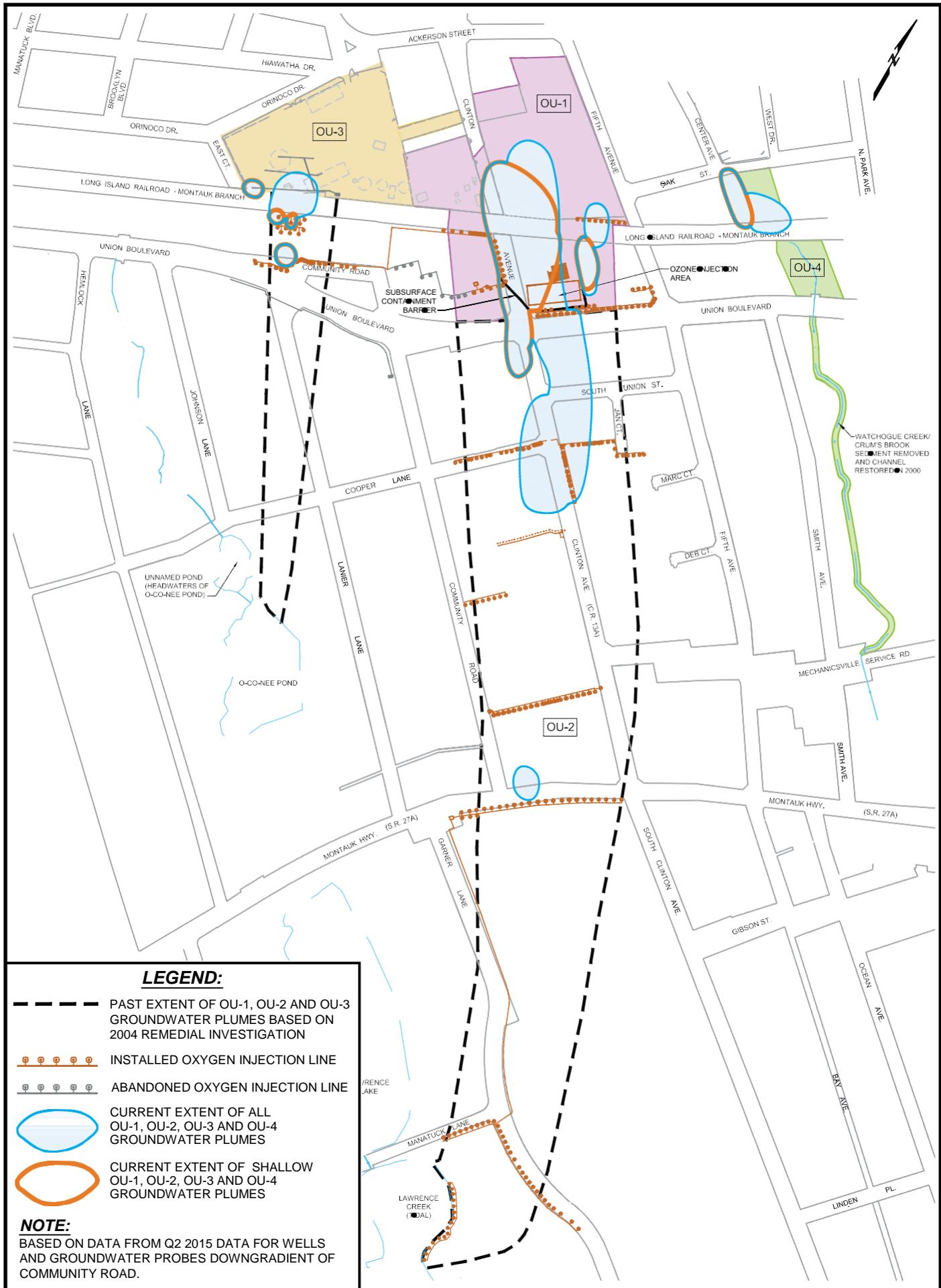
Contaminated soil in the Brightwaters Yard was removed during several rounds of excavation. The most recent effort, in 2010, included temporary relocation of the LIRR tracks adjacent to the site to allow excavation of contaminated soil below the tracks.

A line of oxygen injection wells, similar to those in OU-2, was installed along the south side of Union Boulevard in 2000. This system was replaced in 2010 with a new system located on the north side of Community Road. An area of high groundwater contaminant concentrations was present in the area between the 2010 LIRR excavation and the new oxygen injection line. In response, National Grid upgraded the new Community Road injection system in 2012 and installed an additional oxygen injection system in August 2013 upgradient (north) of the Community Road system and south of the LIRR to accelerate the destruction of groundwater contamination in this area.

This system was effective in significantly reducing groundwater impacts in this area. However, residual impacts have been identified north of this system under the LIRR property. In order to expedite the elimination of groundwater impacts in this area, modifications to the oxygen injection system north of Community Road to facilitate the installation of additional oxygen injection wells on the LIRR property were implemented in June 2015.

Contaminant levels south of Union Boulevard have declined sharply. Groundwater impacts at concentrations above drinking water criteria have not been detected downgradient of Union Boulevard in OU-3 since the second quarter of 2014.

A small area of shallow groundwater contamination was identified near the intersection of Lanier Lane and Cooper Lane in early 2013. A detailed investigation was performed to determine the



scope of the problem. It appears that the installation of an upgraded basement dewatering system was drawing more heavily impacted groundwater upward from the deeper plume. In response, National Grid installed a treatment system to remove contaminants from the water being produced by the basement pumping system. The initial treatment system was upgraded in October 2013 to a system designed to handle the fluctuating flow rates produced by the basement pumping system.

Under direction from NYSDEC, National Grid also initiated a more direct strategy for increasing oxygen levels in the surrounding groundwater beneath the property. To expedite the treatment, a series of 21 slurry-injection points were installed surrounding the small contaminated area in March 2013. These points serve the same purpose as the oxygen gas injection wells, but they are a one-time application that is much simpler and quicker to implement. The slurry consists of a chemical compound which slowly dissolves and releases oxygen over a time period of several months. Monthly groundwater data indicate that these efforts were successful in treating the small area of groundwater impacts in this area.

A second round of slurry injections was performed in August 2013 upgradient of the previous application to address a small area of impacts north of the property. Groundwater analytical data indicate that the combination of the operation of the upgradient oxygen injection systems and the oxygen release compound (ORC) injections were successful in eliminating groundwater impacts downgradient of Union Boulevard in OU-3.

Groundwater analytical data and sump discharge water analytical data indicate that there have been no impacts in the vicinity of this property since April 2014. The treatment system was removed from the property in February 2015. A final round of slurry injection was performed in January 2015 in the vicinity of this property prior to system removal.

#### **Operable Unit No. 4:**

There have been several significant remedial projects in OU-4 including the remediation and then creek bank restoration of Watchogue Creek/Crum's Brook at the start of this project in 2000, the removal of contaminated soils in the vicinity of the former cesspool structure and replacement of a portion of the Oak Street storm drain line which was completed in 2005. In 2009-2010 an in-situ chemical oxidation project was completed in the Cesspool Area of the site. In the spring and summer of 2011 the excavation of remaining contamination in the upper 10 feet was completed in designated areas throughout OU-4. Site restoration activities were completed in the spring of 2012.

Final restoration activities associated with the OU-4 excavation activities on the Town of Islip LIRR parking lot and two adjoining Union Boulevard properties were completed in April 2012. This concludes major remedial work in this area. Follow-up sampling has shown that these sediments in the streambed of Watchogue Creek, which was remediated in 2000, remain free of site related contamination.

#### **Site Health Assessment**

Some contaminated soils remain at the site near the source areas in Operable Units 1 and 4. However, these soils lie below clean soil, buildings, or asphalt and people will not come in contact with contaminated soils unless they dig below the surface materials. Contaminated groundwater in each of the Operable Units is not used for drinking or other purposes and the area is served by a public water supply that obtains water from a different source not affected by this contamination. Measures are in place to control the potential for people to come in contact with Sub Surfaces oil and groundwater contamination that has migrated off the site.

Volatile organic compounds in the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, that is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. The potential for people to inhale site contaminants in indoor air due to soil vapor intrusion in off-site buildings has been extensively evaluated, and the environmental sampling conducted to date indicates that soil vapor intrusion is not a concern for off-site buildings located over site-related groundwater contamination.

**For More Information:**

Project documents are available at the following location(s) to help the public stay informed.

Bay Shore/Brightwaters Public Library  
1 South Country Road  
Brightwaters, NY 11718  
(631) 665-4350  
Repository is open during normal library hours.

NYSDEC Region 1 Office  
50 Circle Road  
Stony Brook, NY 11790  
Contact: Mr. Walter Parish  
(631) 444-0240  
Hours: M-F: 8:30 AM – 4:45 PM (by appointment)

For additional information about site activities and other related information about the site, please visit National Grid's website for the project at: [www.bayshoreworksmgp.com](http://www.bayshoreworksmgp.com).

**Who to Contact:**

Comments and questions are always welcome and should be directed to the following:

**Project Related Questions**

Richard Dana, Project Manager  
NYSDEC  
Division of Environmental Remediation  
625 Broadway  
Albany, NY 12233-7014  
(518) 402-9662 richard.dana@dec.ny.gov

**Bay Shore MGP Hotline**

Terri Kelly  
Community Liaison for National Grid  
(516) 545-3839

**Site-Related Health Questions**

Steven Karpinski, BEEI Public Health Specialist II  
NYSDOH  
Bureau of Environmental Exposure Investigation  
Empire State Plaza  
Corning Tower, Room 1787  
Albany, NY 12237  
(518) 402-7880 beei@health.state.ny.us

If you know someone who would like to be added to the site contact list, have that person contact the NYSDEC Project Manager above. We encourage you to share this fact sheet with neighbors and tenants and/or post this fact sheet in a prominent area of your building for others to see.

<b>Project Milestones</b>	
1999	<ul style="list-style-type: none"> <li>• KeySpan (now National Grid) and NYSDEC enter into Order on Consent</li> <li>• Smith Avenue remediation work start</li> <li>• Brightwaters Yard remediation work</li> <li>• Field work for Remedial Investigation planned</li> </ul>
2000	<ul style="list-style-type: none"> <li>• First Public Meeting (January)</li> <li>• Watchogue Creek/Crum's Brook Interim Remedial Measure (IRM) field work</li> <li>• Brightwaters Yard chemical oxygen injections</li> </ul>
2001	<ul style="list-style-type: none"> <li>• Planning for Supplemental Remedial Investigation</li> <li>• OU-3 chemical oxidation injections in the Brightwaters Yard</li> </ul>
2002	<ul style="list-style-type: none"> <li>• Supplemental Remedial Investigation</li> <li>• OU-3 underground storage tank excavation and chemical oxidation injections</li> </ul>
2003	Final Remedial Investigation Report
2004	<ul style="list-style-type: none"> <li>• Remedial Action Plan and Record of Decision for Operable Unit 1</li> <li>• OU-3 soil removal under a temporary movable fabric enclosure</li> <li>• OU-3 additional chemical oxidation injections</li> <li>• OU-3 installation of the Brightwaters Yard oxygen injection system</li> <li>• OU-4 background soil sampling</li> </ul>
2005	<ul style="list-style-type: none"> <li>• OU-2 oxygen system installations begin</li> <li>• OU-1 testing for sheet wall installation</li> <li>• OU-4 excavation of hot spots of contaminated soil in Cesspool Area</li> </ul>
2006	<ul style="list-style-type: none"> <li>• First quarterly Operations, Monitoring and Maintenance(OM &amp; M) Report</li> <li>• Excavation IRM in south cell of OU-1 paves way for full excavation</li> <li>• Indoor air monitoring of OU-2 residences on request begins</li> </ul>
2007	<ul style="list-style-type: none"> <li>• Installation of OU-1 Barrier wall</li> <li>• Excavation of OU-1 begins</li> </ul>
2008	<ul style="list-style-type: none"> <li>• OU-1 Barrier wall completed</li> <li>• OU-1 shallow and deep excavation program completed</li> <li>• Three additional oxygen injection lines planned and installed in OU-2</li> <li>• Storm drain rehabilitation project was completed in OU-3</li> <li>• <a href="http://www.bayshoreworksmgpsite.com">www.bayshoreworksmgpsite.com</a> is re-launched</li> </ul>
2009	<ul style="list-style-type: none"> <li>• An additional oxygen injection system installed at the tail end of OU-2</li> <li>• Cooper Lane line extended</li> <li>• LIRR tracks relocated and excavation of contaminated soils began in OU-3</li> <li>• In-Situ chemical oxidation injections performed in the cesspool portion of OU-4</li> <li>• OU-1 Groundwater treatment facility completed and activated</li> </ul>
2010	<ul style="list-style-type: none"> <li>• Areas west of barrier wall inOU-1 investigated and remediated, an additional oxygen line installed</li> <li>• OU-3 excavations under LIRR tracks and in the Brightwaters Yard completed, tracks restored</li> <li>• Installation of Community Road oxygen injection line and abandonment of Union Boulevard oxygen injection system.</li> </ul>
2011	<ul style="list-style-type: none"> <li>• OU-2 installation of one additional and an extension of an existing oxygen injection system</li> <li>• OU-3 post LIRR excavation groundwater evaluation conducted</li> <li>• OU-4 excavation of MGP impacts, backfilling and restoration completed</li> </ul>
2012	<ul style="list-style-type: none"> <li>• OU-3 post LIRR excavation groundwater evaluation completed</li> <li>• OU-3 upgrade of Community Road oxygen injection line completed</li> <li>• OU-4 restoration of site following excavation activities completed</li> <li>• OU-4 post remediation sampling of Watchogue Creek sediment and surface water completed</li> </ul>

<b>Project Milestones</b>	
<b>2013</b>	<ul style="list-style-type: none"> <li>• <b>OU-1 additional recovery well installed to remove additional coal tar from within the barrier wall</b></li> <li>• <b>OU-1 installation of an oxygen injection system to treat groundwater contamination east of the subsurface barrier wall</b></li> <li>• <b>OU-2 modification of existing oxygen injection system to better treat remaining areas of groundwater contamination</b></li> <li>• <b>OU-2 installation of oxygen release slurry injection points to remediate a small area of shallow contamination near the intersection of Union Boulevard and North Clinton Avenue</b></li> <li>• <b>OU-3 injection of oxygen release slurry to remediate a small area of shallow contamination near the corner of Lanier &amp; Cooper Lanes and along Lanier Lane north of Cooper Lane completed</b></li> <li>• <b>OU-3 installation of an oxygen injection system to treat shallow and intermediate groundwater contamination south of the LIRR tracks and north of Community Road</b></li> </ul>
<b>2015</b>	<ul style="list-style-type: none"> <li>• <b>OU-3 injection of oxygen release slurry prior to sump water treatment system removal along Lanier Lane north of Cooper Lane completed</b></li> <li>• <b>OU-1 and OU-3 completed construction for modifications/expansions to oxygen injection systems to address residual groundwater impacts in July 2015</b></li> </ul>

### **Receive Site Fact Sheets by Email**

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NYSDEC invites you to sign up with one or more contaminated sites county email listserv available at the following webpage: [www.dec.ny.gov/chemical/61092.html](http://www.dec.ny.gov/chemical/61092.html). It's quick, it's free, and it will help keep you better informed.

As a listserv member, you will periodically receive site-related information/announcements for all contaminated sites in the county(ies) you select.

You may continue also to receive paper copies of site information for a time after you sign up with a county listserv, until the transition to electronic distribution is complete.

Note: Please disregard if you already have signed up and received this fact sheet electronically