New York State Department of Environmental Conservation

FACT SHEET

Manufactured Gas Plant Program

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Bay Shore former Manufactured Gas Plant **May 2013**
Site 1-52- 172 **Bay Shore, NY**

Former Manufactured Gas Plant Site Cleanup Update

This Fact Sheet provides an update of remediation activities conducted at the former Bay Shore Manufactured Gas Plant (MGP) site since the most recent Fact Sheet dated October 2012. The investigation and remediation are being performed by National Grid, with the oversight of the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH).

Summary:
Since October 2012, National Grid has conducted or continued remediation activities at all four of the Operable Units 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 as shown on the attached site map). Each OU includes a specific portion of the project area.

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 east, west and south. OU-2 consists of the contaminated groundwater 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 complete for several years. The cleanup included the excavation of contaminated soils, installation of a subsurface barrier wall to stop further migration of coal tar, and operation of an ozone treatment system to destroy the highly concentrated groundwater contamination found in this area. Treated groundwater which passes through the subsurface barrier wall and leaves this area is free of site-related contaminants. This ozone system is functioning well and is designed to continue operating indefinitely into the future. 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.

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, and is preparing a cleanup plan to address the groundwater impacts identified. In October 2012, National Grid removed shallow soil contamination from beneath the Long Island Railroad crossing of North Clinton Avenue, in conjunction with a planned upgrade of the crossing.

About the Manufactured Gas Plant Program:

NYSDEC has one of the most aggressive Manufactured Gas Plant (MGP) Programs 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 235 sites identified for action by the eight utilities operating in New York State.

Currently we have multi-site orders or agreements with six utilities, including National Grid, and several other individual site volunteers, to address 222 MGP sites in NYS. Multi-site agreements are under negotiation with a seventh utility and several other responsible parties which have newly-identified sites.

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

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 continue to operate as designed in OU-2. NYSDEC and National Grid continue to monitor their effectiveness. Detailed results are posted on the Bay Shore MGP web site 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 Clinton Avenue. Even in this small area, contaminant levels are trending downward and this trend is expected to continue.

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. NYSDEC and National Grid are investigating whether modifications can be made to the existing oxygen injection systems to further increase the rate of treatment. No human exposure pathways to this contamination have been identified.

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 Fifth Avenue, and the plume of contaminated groundwater which originates in this area and extends 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 remains 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. Although performance has improved, this area still does not appear to be responding adequately to the cleanup efforts completed to date. NYSDEC recently approved a proposal by National Grid to install additional oxygen injection wells in this area to accelerate the destruction of groundwater contamination.

In the residential area along Lanier Lane, south of Union Boulevard, contaminant levels have declined sharply. Some pockets of contaminated groundwater remain, as shown on the attached figure. The same general pattern of contaminant decline observed in OU- 2 is under way in OU-3, with deeper groundwater contamination taking longer to respond to the addition of oxygen.

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. Once results were received from 13 temporary sampling points and 5 additional long term monitoring wells, it became clear that the zone of shallow contamination was very small, centered on a single property. 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. 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. These points serve the same purpose as the oxygen gas injection wells, but they are much simpler and quicker to install. The slurry consists of a chemical compound which slowly dissolves and releases oxygen over a time period of several months. Preliminary results show that oxygen levels are increasing, and contaminant levels are beginning to decline. This pattern is expected to continue as the slurry slowly dissolves and delivers oxygen

throughout the surrounding area. Contaminant levels are being monitored weekly, and additional slurry injections will be performed as necessary to ensure effective groundwater treatment.

NYSDEC and SCDHS conducted follow up inspections of residences in OU3 to determine if there have been any changes in conditions since Super Storm Sandy.

Operable Unit No. 4:

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 the sediments in the stream bed of Watchogue Brook, which was remediated in 2000, remains free of site related contamination.

Site Health Assessment

Some contaminated soils remain at the site near the source areas in Operable Units 1 and 3. 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 subsurface soil 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, which 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, New York 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.

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

Project Related Questions
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Bay Shore MGP Hotline
Terri Kelly
Community Liaison for National Grid
(516) 545-3839

Site-Related Health Questions
Steven Karpinski NYSDOH, BEEI
Public Health Specialist II
Bureau of Environmental Exposure
Investigation
New York State Department of Health
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Albany, New York 12237
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beei@health.state.ny.us

If you know someone who would like to be added to the site contact list, have them 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.

Project Milestones	
1999	• **KeySpan (now National Grid) and NYSDEC enter into Order on Consent** • **Smith Avenue remediation work start** • **Brightwaters Yard remediation work** • **Field work for Remedial Investigation planned**
2000	• **First Public Meeting (January)** • **Watchogue Creek/Crum's Brook Interim Remedial Measure (IRM) field work** • **Brightwaters Yard chemical oxygen injections**
2001	• **Planning for Supplemental Remedial Investigation** • **OU 3 chemical oxidation injections in the Brightwaters Yard**
2002	• **Supplemental Remedial Investigation** • **OU 3 underground storage tank excavation and chemical oxidation injections**
2003	• **Final Remedial Investigation Report**
2004	• **Remedial Action Plan and Record of Decision for Operable Unit 1** • **OU 3 soil removal under a temporary movable fabric enclosure** • **OU-3 additional chemical oxidation injections** • **OU-3 installation of the Brightwaters Yard oxygen injection system** • **OU 4 background soil sampling**
2005	• **OU-2 oxygen system installations begin** • **OU-1 testing for sheet wall installation** • **OU-4 excavation of hot spots of contaminated soil in Cesspool Area**
2006	• **First quarterly Operations, Monitoring and Maintenance (OM&M) Report** • **Excavation IRM in south cell of OU-1 paves way for full excavation** • **Indoor air monitoring of OU-2 residences on request begins**

2007	• **Installation of OU-1 barrier wall** • **Excavation of OU-1 begins**
2008	• **OU-1 Barrier wall completed** • **OU-1 shallow and deep excavation program completed** • **Three additional oxygen injection lines planned and installed in OU-2** • **Storm drain rehabilitation project was completed in OU-3** • **www.bayshoreworksmgpsite.com is re-launched**
2009	• **An additional oxygen injection system installed at the tail end of OU-2.** • **Cooper Lane line extended** • **LIRR tracks relocated and excavation of contaminated soils began in OU-3** • **In-Situ chemical oxidation injections performed in the cesspool portion of OU-4** • **OU-1 Groundwater treatment facility completed and activated**
2010	• **Areas west of barrier wall in OU-1 investigated and remediated, two additional oxygen lines installed** • **OU-3 excavations under LIRR tracks and in the Brightwaters Yard completed, tracks restored** • **Installation of Community Road oxygen injection line and abandonment of Union Boulevard oxygen injection system.**
2011	• **OU-2 installation of one additional and an extension of an existing oxygen injection system** • **OU-3 post LIRR excavation groundwater evaluation conducted** • **OU-4 excavation of MGP impacts, backfilling and restoration completed**
2012	• **OU-3 post LIRR excavation groundwater evaluation completed** • **OU-3 upgrade of Community Road oxygen injection line completed** • **OU-4 restoration of site following excavation activities completed** • **OU-4 post remediation sampling of Watchogue Creek sediment and surface water completed** • **OU-1 investigative work on adjacent property completed**
2013	• **OU-1 additional recovery well installed to remove additional coal tar from within the barrier wall** • **OU-3 installation of 21 oxygen injection points to remediate a small area of shallow contamination near the corner of Lanier & Cooper Lanes completed** • **OU-3 planned remediation of area of shallow contamination south of the Long Island Railroad tracks and north of Community Road**

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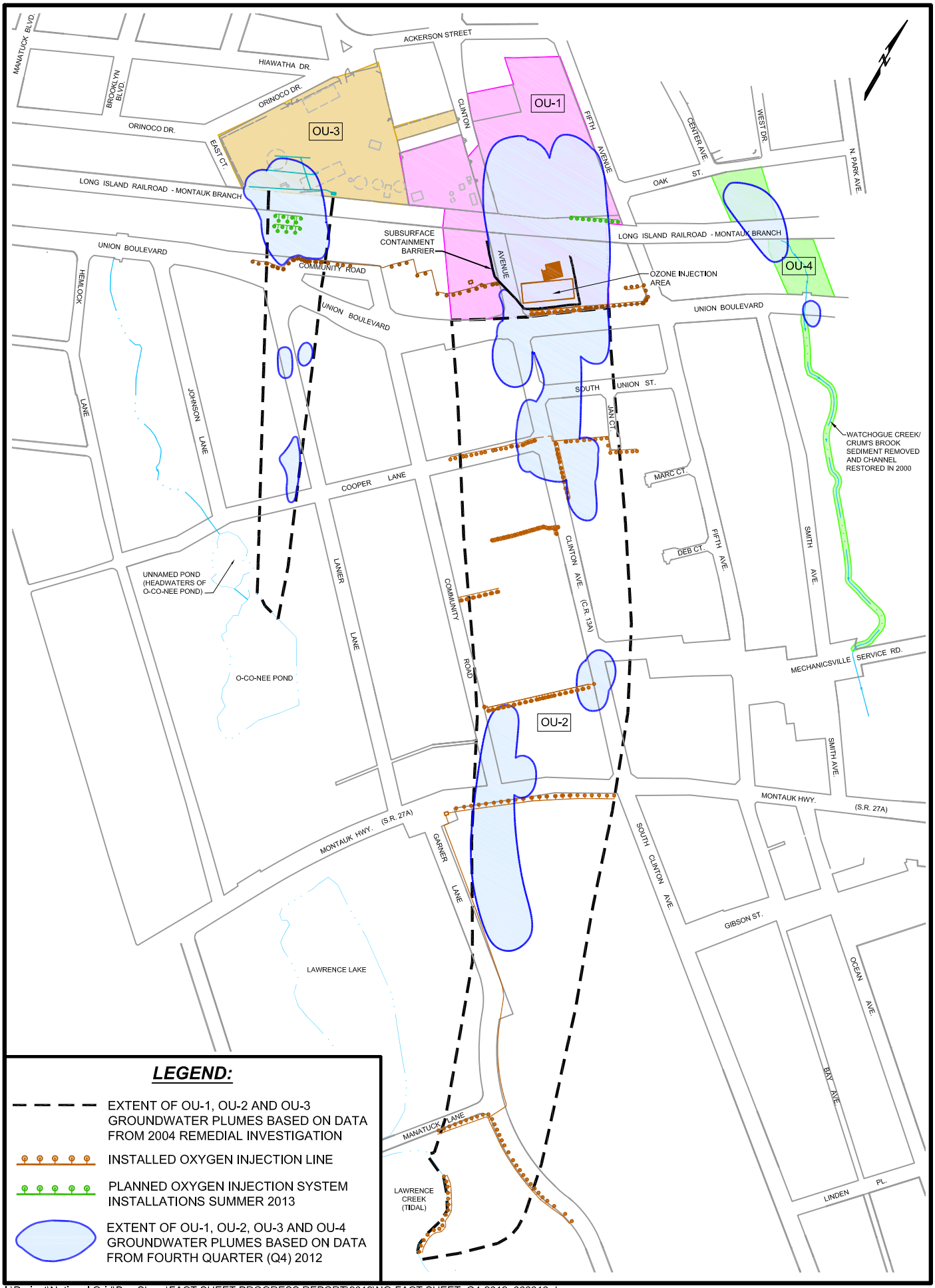
NYSDEC invites you to sign up with one or more contaminated sites county email listservs available at the following web page: www.dec.ny.gov/chemical/61092.html . It's quick, it's free, and it will help keep you better informed.

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



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