VOLUNTARY CLEANUP PROGRAM
DECISION DOCUMENT

KeySpan/National Grid - Former BayShore/Brightwaters MGP Site
Manufactured Gas Plant Site
Operable Unit 2: MGP Off-site Plume
BayShore (V), Suffolk County, New York
Site No. 1-52-172

July 2008

Statement of Purpose and Basis

This Decision Document presents the remedy selected by the New York State Department of Environmental Conservation (Department) for Operable Unit 2 (OU-2) of the Former BayShore/Brightwaters Manufactured Gas Plant (MGP) Site.

Description of the Site

The Former Bay Shore/Brightwaters Manufactured Gas Plant (MGP) Site is located in Bay Shore and the Incorporated Village of Brightwaters, Suffolk County, New York. The site is the location of a former MGP which operated at the site from the late 1880s until it was demolished in 1973. The site has been divided into four separate operable units (OU-1 through OU-4) whose operation resulted in soil and groundwater contamination. OU-2 Bay Shore Groundwater Plume consists of a plume of contaminated groundwater from the MGP site which has migrated in the direction of the natural groundwater flow, from the site to the southeast where it discharges to Lawrence Creek, a tidally influenced surface water body located south of Montauk Highway (see Figure 1). The remedy to address this off-site groundwater plume is the subject of this document.

Nature and Extent of Contamination

The gas manufacturing process produced a dark, oily liquid waste known as coal tar. Over the years, coal tar leaked from the former holders and other structures located at the main site resulting in the contamination of soil and groundwater. The contaminated groundwater from the site flows south to southeast beneath a largely residential area toward Lawrence Creek, resulting in the OU- 2 plume. The contaminants of concern in the groundwater are the volatile organic compounds; benzene, toluene, ethylbenze and xylene (collectively referred to as BTEX) and polycyclic aromatic hydrocarbon (PAH) compounds, notably naphthalene.

The OU2 plume has not impacted any active groundwater wells. Two active public water supply wells are located within a half-mile radius of the site; however, these wells are not located in the OU-2 groundwater plume area and obtain their water from the deeper Magothy aquifer at depths ranging from 595 feet to 800 feet below ground surface. There is no evidence that the public water supply wells have been impacted by the site or will be impacted in the near future. Four private wells were also identified in the area, based on the results of a well survey conducted at the site these private wells have since being closed.

In most areas within the OU-2 plume, the water table is within a few feet of the ground surface. Although contaminated water is present near the ground surface, no direct exposures to this shallow groundwater have been identified. Indoor air and potential soil vapor intrusion has been evaluated at over 25 buildings within and adjacent to the OU2 plume, with no adverse impacts identified to date.

An oxygen injection system has been in service since December 2005 in the lower portions of the OU-2 plume, nearer the discharge point to Lawrence Creek. The system introduces oxygen into the groundwater, which increases the ability of native soil bacteria to consume the dissolved contaminants in the groundwater plume. Groundwater monitoring results indicate that the injection system is effectively reducing groundwater contaminant concentrations down gradient of the injection lines. A third line was added recently at the upper end of the plume,just outside of the OU-1 barrier wall. The middle portion of the OU-2 plume does not currently have any active remediation systems in place and due to the slow movement of groundwater through the plume area, additional remedial efforts are required in order to accelerate the cleanup of the middle portion of the plume.

Description of Selected Remedy

Groundwater contamination identified during the Remedial Investigation of this site represents a potential threat to human health and the environment, requiring a remedial program as identified below. The Alternatives Analysis (AA) prepared by National Grid examined 5 alternatives to address the OU-2 groundwater plume. Based on the evaluation, additional oxygen injection is the preferred remedial technology to address the off-site OU-2 groundwater plume. The components of this remedy include the following:

1. Installation of additional oxygen injection lines within the OU-2 groundwater plume. The injection lines will be spaced as evenly as possible throughout the plume, based on property access, with a minimum of three new locations planned.

2. A site management plan (SMP) covering all the operable units (one through four) would be developed and implemented. The SMP would identify the institutional controls and engineering controls (IC/ECs) required for the remedial action plan (RAP) and other interim measures and detail their implementation. The SMP would include, specifically to this operable unit:

   (a) an IC/EC control plan to establish the controls and procedures necessary for National Grid to operate, maintain and monitor the injection systems and require National Grid to provide the Department an IC/EC certification on a periodic basis;
   (b) a monitoring plan to monitor the effectiveness of the system as specified in 3-6 below, as well as the trend of contaminants concentrations in the groundwater; and (c) an operation and maintenance plan to provide the detailed procedures necessary to operate and maintain the remedy. The operation of the components of the remedy would continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

3. To assess groundwater and soil vapor conditions within the area of injection prior to and

during the operation of the system an extensive monitoring plan will be implemented. Multi-level monitoring at the end of each injection line will be required with the locations of monitoring points and frequency of monitoring to be determined during the design and initial operating phase of the project. If monitoring results indicate possible soil vapor intrusion as a result of the operation of the oxygen injection system, appropriate actions would be employed to address this concern.

4. System performance monitoring for groundwater will include, at a minimum, the following parameters: volatile organic compounds (including BTEX compounds), PAHs, nitrate/nitrogen, ammonia, iron, manganese, and sulfate, dissolved oxygen, carbon dioxide, pH, oxygen-reduction potential, temperature, and conductivity. This will be necessary in order to monitor the effectiveness of the bioremediation and assess the need for additional injections. The sampling frequency will be outlined in the system design document and included in the site management plan. Soil vapor will be monitored for volatile organic compounds and PAHs.

5. Monitoring of some targeted occupied structures in the vicinity of the injection will be required on a predetermined schedule. Specific locations targeted for monitoring will be determined during the design phase of the project.

6. Injection system monitoring to include periodic system checks, monthly system operations and maintenance visits, and annual system maintenance.

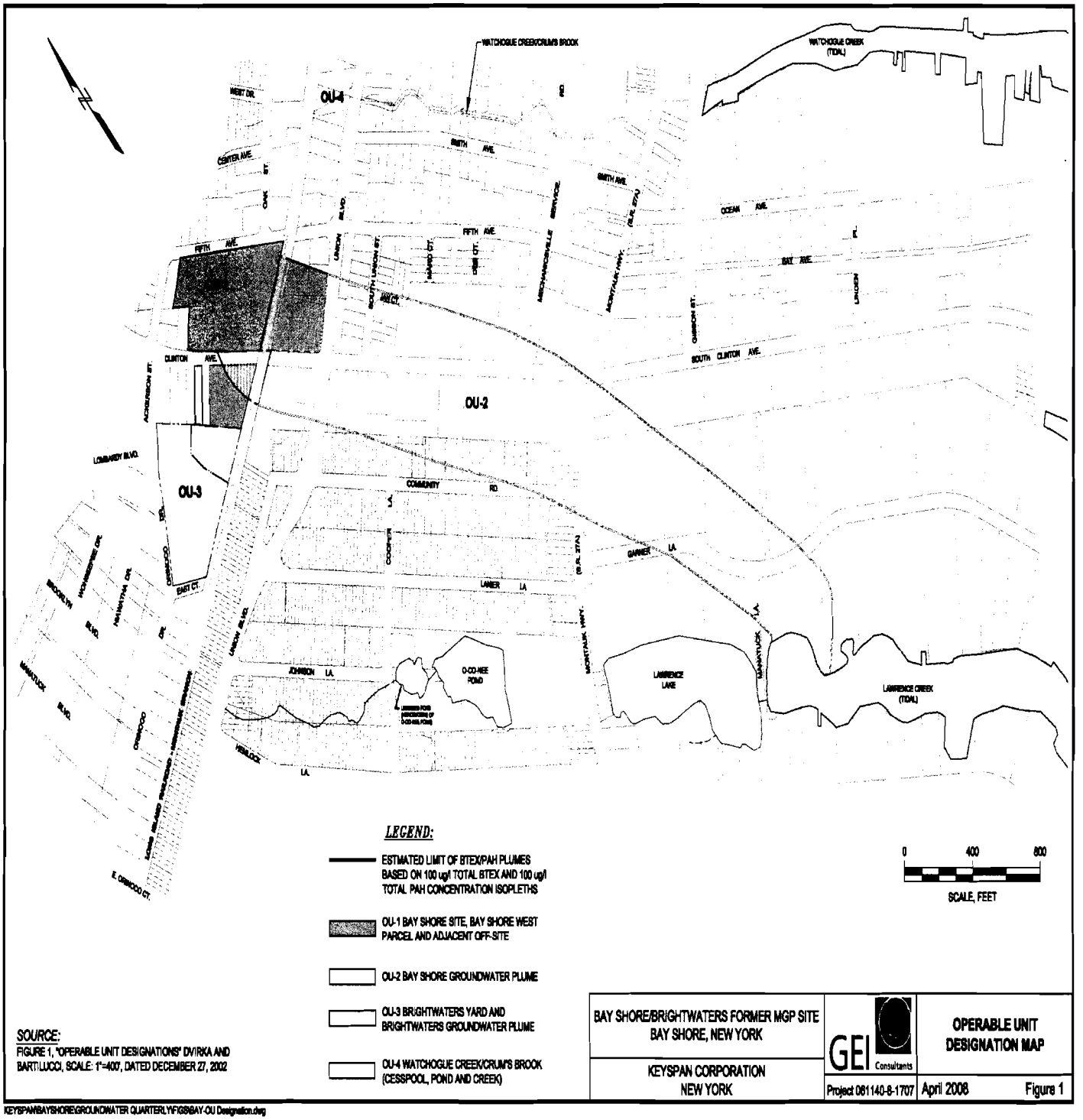
7. Institutional controls in the form of agreements between National Grid and the property owners for where injection or monitoring points are located for the continued operation, maintenance and monitoring of the systems in accordance with the SMP

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action and will allow for the identified use of the site. This remedy utilizes permanent solutions and alternative treatment to the maximum extent practicable, and satisfies the preference for remedies that reduce, remove or otherwise treat or contain sources of contamination and protection of groundwater.

July 18, 2008
Date

Robert W. Schick, P.E.
Director,
Remedial Bureau C
Division of Environmental Remediation


OU-1
OU-2
OU-3
OU-4
WATCHOGUE CREEK/CRUM'S BROOK
WATCHOGUE CREEK (TIDAL)
WEST DR.
CENTER AVE.
SMITH AVE.
FIFTH AVE.
OCEAN AVE.
BAY AVE.
SOUTH CLINTON AVE.
CLINTON AVE.
ANDERSON ST.
LOMBARDY BLVD.
COMMUNITY RD.
GARNER LA.
LANER LA.
JOHNSON LA.
PERLOCK LA.
E. ORINOCO CT.
O-CO-NEE POND
LAWRENCE LAKE
LAWRENCE CREEK (TIDAL)
MANHATTUCK BLVD.
MONTAUK HWY.
LEGEND:
ESTIMATED LIMIT OF BTEX/PAH PLUMES BASED ON 100 ug/l TOTAL BTEX AND 100 ug/l TOTAL PAH CONCENTRATION ISOPLETHS
OU-1 BAY SHORE SITE, BAY SHORE WEST PARCEL AND ADJACENT OFF-SITE
OU-2 BAY SHORE GROUNDWATER PLUME
OU-3 BRIGHTWATERS YARD AND BRIGHTWATERS GROUNDWATER PLUME
OU-4 WATCHOGUE CREEK/CRUM'S BROOK (CESSPOOL, POND AND CREEK)
0
400
800
SCALE, FEET
SOURCE:
FIGURE 1, "OPERABLE UNIT DESIGNATIONS" DVIRKA AND BARTILUCCI, SCALE: 1"=400', DATED DECEMBER 27, 2002
BAY SHORE/BRIGHTWATERS FORMER MGP SITE
BAY SHORE, NEW YORK
KEYSPAN CORPORATION
NEW YORK
GEI Consultants
OPERABLE UNIT DESIGNATION MAP
Project 061140-8-1707
April 2008
Figure 1
KEYSPAN\BAYSHORE\GROUNDWATER QUARTERLY\FIGS\BAY-OU Designation.dwg