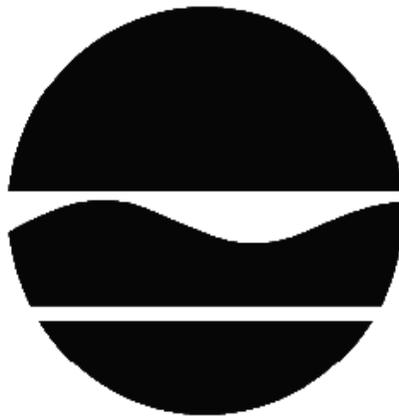


DECISION DOCUMENT

CH - Catskill Former Manufactured Gas Plant (MGP)
Brownfield Cleanup Program
Catskill, Greene County
Site No. C420027
July 2011



Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - DECISION DOCUMENT

CH - Catskill Former Manufactured Gas Plant (MGP)
Brownfield Cleanup Program
Catskill, Greene County
Site No. C420027
May 2011

Statement of Purpose and Basis

This document presents the remedy for the CH - Catskill Former Manufactured Gas Plant (MGP) site, a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the CH - Catskill Former Manufactured Gas Plant (MGP) site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the selected remedy are as follows:

The Catskill Former MGP Site includes three distinct areas, Areas A, B and C. The proposed remedy is structured to address each specific area (and the affected media) as follows:

Area A - Soil:

Area A:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program for on- and off-site soil and Creek sediment, including structural evaluation of adjacent buildings prior to any intrusive remedial activities to ensure the structural integrity of the buildings. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would

otherwise be considered a waste;

- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Soil will be excavated where visible tar, non-aqueous phase liquids (NAPL) and/or total MGP-related PAHs greater than 500 ppm total PAHs are identified. This will require excavation of approximately 8,700 cubic yards of impacted material to an average depth of 16 feet below ground surface (bgs) in Area A and additional excavation of approximately 4,300 cubic yards of impacted material to an average depth of 18 feet bgs from the adjoining Union Mills property. Dewatering and treatment of groundwater encountered during excavation will be required.

3. Post-excavation sampling to confirm that impacted materials exceeding the clean-up standards have been removed.

4. All excavations will be backfilled with clean materials from an off-site source that meet the Department criteria as defined in 6 NYCRR Part 375-6.8(b). Area A will be backfilled with material which meets the requirements for commercial use for backfill and cover material as set forth in 6 NYCRR Part 375-6.7(d). Also see item 6 below. Off-site areas (i.e., the adjoining Union Mills property) will be backfilled with material which meets the residential requirements for backfill and cover material set forth in 6 NYCRR Part 375-6.7(d).

5. Introduction of oxygen releasing compound (ORC) in the excavated areas during backfilling activities to address any remaining MGP residuals and promote biological activity for restoration of site groundwater.

6. A site cover will be required to allow for commercial use of the site. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where the soil cover is required it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

7. Installation of a temporary turbidity barrier to control suspended sediment during dredging activities.

8. Dredging of impacted sediments in Catskill Creek located in the vicinity of Area A to an approximate depth of 8 feet below the mud line. The approximate limits of sediment removal are depicted in Figure 2, however, the actual limits of the dredging will be established by the remedial design.

9. Dewatering of the dredged sediments for off-site disposal at a permitted facility;

Areas B and C:

10. The remedial investigation did not identify any significant exceedances of the commercial use SCOs as set forth in 6 NYCRR Part 375 in areas B and C. No exceedances of ambient groundwater standards were observed in either area. Currently, Areas B and C are largely covered by buildings, concrete and/or asphalt which are providing an appropriate cover. However, there are limited areas of exposed surface soil in Areas B and C. Where the exposed soil is determined to contain contaminants in exceedance of commercial use SCOs, the area will be covered with a minimum of one foot of clean material to meet the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. In addition, institutional controls will be placed to limit the use of these areas to commercial use. In any areas where the existing cover system (e.g., concrete, asphalt) will be disrupted by future development activity, the site cover will be reinstalled to allow for continued commercial use of the site, consistent with item 6.

11. Imposition of an institutional control in the form of environmental easements for the controlled properties (including Areas A, B, and C) that will:

- (a) require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);
- (b) restrict the use and development of Area A to restricted residential, commercial and/or industrial uses; and Areas B and C to commercial and/or industrial uses, as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- (c) restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Department, NYSDOH or County DOH;
- (d) prohibit agriculture or vegetable gardens on the controlled properties; and
- (e) require compliance with the Department approved Site Management Plan.

12. A Site Management Plan is required, which includes the following:

(a) An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to assure the institutional and/or engineering controls remain in place and effective. The plan will include, but may not be limited to:

- (i) an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination,
- (ii) descriptions of the provisions of the environmental easements including any land use, or groundwater use restrictions,
- (iii) provisions for the management and inspection of the identified engineering controls,
- (iv) maintaining site access controls and Department notification, and
- (v) the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls;

- (b) A Monitoring Plan to assess the performance and effectiveness of the remedy.

The plan includes, but is not limited to:

- (i) the monitoring of site cover system(s) and groundwater to assess the performance and effectiveness of the remedy,
- (ii) a schedule of monitoring and frequency of submittals to the Department,
- (iii) a provision to evaluate the potential for vapor intrusion to occur in any new buildings developed on site and/or prior to a change of use for the existing structure on Area A, including mitigation if necessary.

Declaration

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.

Date

Michael Ryan, Director
Remedial Bureau C

DECISION DOCUMENT

CH - Catskill Former Manufactured Gas Plant (MGP)
Catskill, Greene County
Site No. C420027
May 2011

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: SITE DESCRIPTION AND HISTORY

Location: The site is approximately 3.7 acres in size and is located along Water Street in the Village of Catskill. It includes three separate areas upon which two different gas manufacturing facilities operated during two different periods in time.

Area A, the site of the older gas plant, is adjacent to an old foundry building. The first gas plant building has been demolished, and the land is currently fenced and undergoing commercial development. Area B is the location of a former gas holder and is currently occupied by an art studio. The northernmost area (Area C) is the location of the second gas plant and is currently a paved parking lot. It is surrounded by a perimeter fence in the southern half and a retaining wall in the northern half. The site is bounded to the north by an office building adjacent to Thompson Street, to the east by Water Street, to the south by a former millworks property where the former mill building is currently undergoing renovations adjacent to Factory Street, and to the west by Catskill Creek.

Site Features: The coal carbonization plant (Areas A and B) contained the following major structures until it was decommissioned in 1958: gas holder, gas plant building (with retort room,

coal shed, and lime house), three oil cisterns, and two gasometers (holders). The carbureted water gas plant (Area C) contained: gas holder, purifier boxes, tar well, coal shed, and gas plant building containing retorts and a boiler.

Historical Uses: The first Catskill MGP began operation in 1858 (Areas A and B) using the coal carbonization process. In 1923, the Upper Hudson Electric and Railroad Company constructed a new carbureted water gas plant on Area C, nearly adjacent to its first plant. In doing so, the capacity of the gas plant was doubled. In 1926, the Upper Hudson Electric and Railroad Company merged with several other small utility companies to form Central Hudson Gas and Electric Company, which later became the Central Hudson Gas and Electric Corporation (Central Hudson). In 1932, Central Hudson converted the carbureted water gas plant to a butane air gas operation. The plant operated in this manner until 1958, at which time a natural gas transmission line was introduced to the area and the plant closed.

Geology and Hydrogeology: The ground surface of the site slopes westward toward Catskill Creek, with elevations ranging from 8 to 17 feet above mean sea level. Site investigations identified three principal stratigraphic units beneath the site. At the ground surface, the site contains fill materials consisting of sand, silt and gravel with thickness ranging from 8 to 19 feet. Below the fill unit is a fine sand with trace amounts of silt, ranging in thickness from 3.5 to 16 feet. Beneath the fine sand unit is sand and gravel with a thickness varying from 2 to 10 feet.

Groundwater in the overburden flows toward Catskill Creek.

A site location map is attached as Figure 1.

SECTION 3: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, both alternatives that restrict the use of the site to restricted-residential use and alternatives which allow for commercial use and industrial use as described in Part 375-1.8(g) were evaluated, in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the Remedial Investigation (RI) to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in the RI Report.

SECTION 4: ENFORCEMENT STATUS

Central Hudson Gas and Electric Corporation (CHGE) entered into a Brownfield Cleanup Agreement with the Department in 2006 as a participant.

The agreement obligates the CHGE to perform a remedial investigation and to implement a remedy, including remediation of any off-site impacts.

SECTION 5: SITE CONTAMINATION

5.1: Summary of the Remedial Investigation

A remedial investigation (RI) serves as the mechanism for collecting data to:

- characterize site conditions;
- determine the nature of the contamination; and
- assess risk to human health and the environment.

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 5.4.

5.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. For a full listing of all SCGs see: <http://www.dec.ny.gov/regulations/61794.html>

5.1.2: RI Information

The analytical data collected on this site includes data for:

- groundwater
- surface water
- soil
- sediment
- soil vapor
- indoor air

The data have identified contaminants of concern. A "contaminant of concern" is a contaminant that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants

of concern. The nature and extent of contamination and environmental media requiring action are summarized below. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

coal tar	toluene
benzo(a)pyrene	ethylbenzene
acenaphthene	xylene (mixed)
benzo[k]fluoranthene	pyrene
benzene	naphthalene

The contaminant(s) of concern exceed the applicable SCGs for:

- soil
- sediment

5.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Decision Document.

There were no IRMs performed at this site during the RI.

5.3: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure*.

Direct contact with contaminants in the soil is unlikely because the majority of the site is covered with pavement, buildings or the remaining foundations of demolished buildings. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. 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 the buildings, is referred to as soil vapor intrusion. Soil vapor intrusion sampling of the one on-site building and one adjacent off-site building did not identify impacts in indoor air quality. However, the potential exists for the inhalation of site contaminants due to soil vapor intrusion for any future on-site redevelopment or new development for occupancy. People may come in contact with contaminants present in shallow creek sediments while entering or exiting the creek during recreational activities.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

The RI report presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors.

A Remedial Investigation Report was completed in May 2010.

The Remedial Investigation Report indicates that a portion of the site, known as Area A and the contiguous Union Mills property is contaminated with MGP related contaminants including coal tar. Coal tar contains benzene, toluene, ethylbenzene and xylenes (collectively referred to as BTEX) and polycyclic aromatic hydrocarbons (PAH). Subsurface soil and groundwater have been impacted by these contaminants, in some cases exceeding Department standards and guidance values. Tar was found at shallow depths in a subsurface soil in Area A. In addition, elevated levels of contaminants including several PAH compounds were detected in the Creek sediment located adjacent to Area A. These subsurface soil and sediment contamination have resulted in significant threat to the environment.

SECTION 6: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and evaluation of the remedial criteria are present in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a Track 4: Restricted use with site-specific soil cleanup objectives remedy.

The elements of the selected remedy, as shown in Figure 2, are as follows:

The Catskill Former MGP Site includes three distinct areas, Areas A, B and C. The proposed remedy is structured to address each specific area (and the affected media) as follows:

Area A - Soil:

Area A:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program for on- and off-site soil and Creek sediment. Including structural evaluation of adjacent buildings prior to any intrusive remedial activities to ensure the structural integrity of the buildings Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;

- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Soil will be excavated where visible tar, non-aqueous phase liquids (NAPL) and/or total MGP-related PAHs greater than 500 ppm total PAHs are identified. This will require excavation of approximately 8,700 cubic yards of impacted material to an average depth of 16 feet below ground surface (bgs) in Area A and additional excavation of approximately 4,300 cubic yards of impacted material to an average depth of 18 feet bgs from the adjoining Union Mills property. Dewatering and treatment of groundwater encountered during excavation will be required.

3. Post-excavation sampling to confirm that impacted materials exceeding the clean-up standards have been removed.

4. All excavations will be backfilled with clean materials from an off-site source that meet the Department criteria as defined in 6 NYCRR Part 375-6.8(b). Area A will be backfilled with material which meets the requirements for commercial use for backfill and cover material as set forth in 6 NYCRR Part 375-6.7(d). Also see item 6 below. Off-site areas (i.e., the adjoining Union Mills property) will be backfilled with material which meets the residential requirements for backfill and cover material set forth in 6 NYCRR Part 375-6.7(d).

5. Introduction of oxygen releasing compound (ORC) in the excavated areas during backfilling activities to address any remaining MGP residuals and promote biological activity for restoration of site groundwater.

6. A site cover will be required to allow for commercial use of the site. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where the soil cover is required it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

7. Installation of a temporary turbidity barrier to control suspended sediment during dredging activities.

8. Dredging of impacted sediments in Catskill Creek located in the vicinity of Area A to an approximate depth of 8 feet below the mud line. The approximate limits of sediment removal are depicted in Figure 2, however, the actual limits of the dredging will be established by the remedial design.

9. Dewatering of the dredged sediments for off-site disposal at a permitted facility;

Areas B and C:

10. The remedial investigation did not identify any significant exceedances of the commercial use SCOs as set forth in 6 NYCRR Part 375 in areas B and C. No exceedances of ambient groundwater standards were observed in either area. Currently, Areas B and C are largely covered by buildings, concrete and/or asphalt which are providing an appropriate cover. However, there are limited areas of exposed surface soil in Areas B and C. Where the exposed soil is determined to contain contaminants in exceedance of commercial use SCOs, the area will be covered with a minimum of one foot of clean material to meet the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. In addition, institutional controls will be placed to limit the use of these areas to commercial use. In any areas where the existing cover system (e.g., concrete, asphalt) will be disrupted by future development activity, the site cover will be reinstalled to allow for continued commercial use of the site, consistent with item 6.

11. Imposition of an institutional control in the form of environmental easements for the controlled properties (including Areas A, B, and C) that will:

- (a) require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);
- (b) restrict the use and development of Area A to restricted residential, commercial and/or industrial uses; and Areas B and C to commercial and/or industrial uses, as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- (c) restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Department, NYSDOH or County DOH;
- (d) prohibit agriculture or vegetable gardens on the controlled properties; and
- (e) require compliance with the Department approved Site Management Plan.

12. A Site Management Plan is required, which includes the following:

(a) An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to assure the institutional and/or engineering controls remain in place and effective. The plan will include, but may not be limited to:

- (i) an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination,
- (ii) descriptions of the provisions of the environmental easements including any land use, or groundwater use restrictions,
- (iii) provisions for the management and inspection of the identified engineering controls,
- (iv) maintaining site access controls and Department notification, and

(v) the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls;

(b) A Monitoring Plan to assess the performance and effectiveness of the remedy.

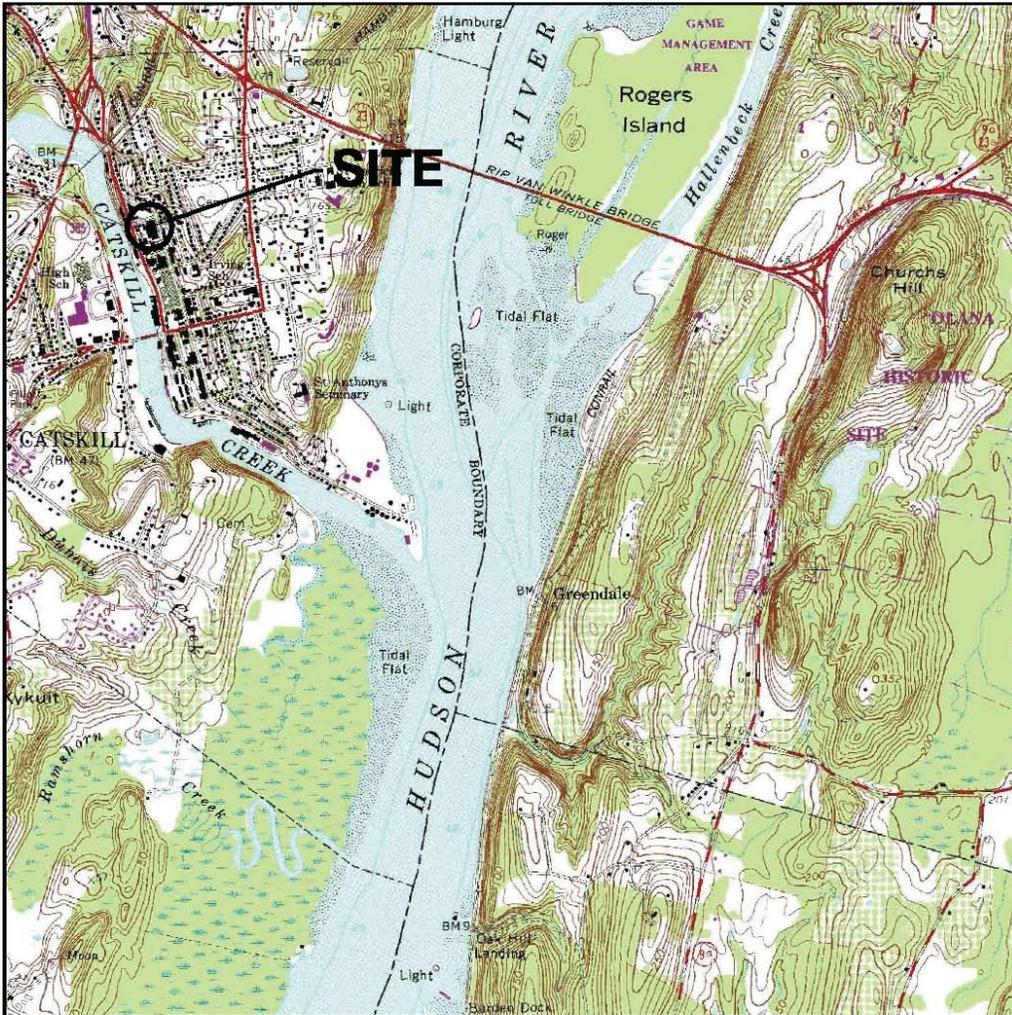
The plan includes, but is not limited to:

(i) the monitoring of site cover system(s) and groundwater to assess the performance and effectiveness of the remedy,

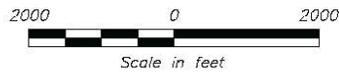
(ii) a schedule of monitoring and frequency of submittals to the Department,

(iii) a provision to evaluate the potential for vapor intrusion to occur in any new buildings developed on site and/or prior to a change of use for the existing structure on Area A, including mitigation if necessary.

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MAP SOURCE:
USGS TOPOGRAPHIC QUADRANGLE
HUDSON SOUTH, NEW YORK



ORIGINAL SHEET - ANSI A

12/2010
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Client/Project
CENTRAL HUDSON GAS & ELECTRIC CORP.
FORMER CATSKILL MGP SITE
CATSKILL, NEW YORK

Figure No.
1
Title

SITE LOCATION MAP

