Historical Investigation Report - Former Ossining Works MGP Site (Site #V00568)

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RETEC Project Number: CECN1-15957-400

Prepared for:

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Februrary 19, 2003

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Executive Summary

The RETEC Group, Inc. (RETEC) has prepared this historical investigation report for Consolidated Edison of New York, Inc. (Con Edison). This report is part of a comprehensive program to research and assess the history of sites formerly used by Con Edison and its predecessor companies for the manufacture and/or distribution of gas, and documents the historic and current conditions of the sites.

The purpose of this historical investigation program is to support Con Edison in its negotiations with the New York State Department of Environmental Conservation (NYSDEC), to support Con Edison's efforts to rank manufactured gas plant (MGP) site investigation priorities, and to provide a starting point for future site investigations. This report presents the summary of the research and findings for the former Ossining Works MGP site located near the northeast corner of the intersection of Main Street and North Water Street in Ossining, Westchester County, New York (Site #V00568).

As part of its historical investigation, RETEC reviewed a number of sources to assess the historical ownership and operations of the MGP, subsequent site uses, and current site conditions. These sources included historical records obtained from private and public repositories, a chain-of-title search, tax and zoning records, and geologic reports for the general area.

In addition, RETEC visited the former MGP site on May 2, 2002 to do the following:

- assess current site environmental conditions and property use;
- perform a visual inspection for the presence of potential MGP site residuals on the site and surrounding properties; and
- identify potential receptors that may be at risk if MGP residuals or other by-products are present.

From our records review and site reconnaissance, RETEC was able to determine the following about the former Ossining Works MGP site:

- The former MGP site included property north of Central Avenue and south of Central Avenue.
- The former Ossining Works MGP site is located in a mixed residential, commercial, and manufacturing community. The site itself is zoned as a waterfront development district and used for a Con Edison substation and Ossining Department of Public Works (ODPW) maintenance buildings, garages, and storage. Bedrock and vegetation bound the immediate eastern ends of the former site. Commercial,

manufacturing, and neighborhood businesses as well as residences are located north, west, south and southwest of the former MGP site.

- The only current visible indications of any MGP structures are a former MGP works building used as a maintenance building and concrete pad of a former above-ground gas holder located south of the Sing Sing Kill in a paved area. However, there are no visible indications of MGP residuals on the site.

- The nearest surface water body is the Sing Sing Kill, which flows through the site property into the Hudson River. The Hudson River is approximately 1,000 feet to the west of the site.

- The regional geology indicates that the site is underlain by silty clay with occasional boulders, however, the presence of a "sand" overburden west of the site may indicate that this unit is not continuous.

- Groundwater is not used on the site. However, there are five known potable water wells within a mile of the site. Three wells are used for industrial cooling purposes, one well is unused well, and one well located east of the site is used for public water supply.

- The exact construction and starting date for gas production at the site could not be determined. The Sing Sing Gas Manufacturing Company was incorporated in 1855, and the parcel of land on which the gas production building and first gas holder were constructed was purchased that same year. In 1860 the property was expanded to the west to North Water Street, and in 1867 to the east. The first map of the site (the Beer's 1868 *Atlas of New York and Vicinity*) shows a gas plant and gas holder located on central portion of the property on the south side of Sing Sing Creek.

- The Brown's Directory indicates that the Ossining MGP site operated at least until 1929, at which time it became incorporated into the Westchester Lighting Company and was maintained for stand-by service. The entry for Westchester Lighting Company of Mt. Vernon indicated that the Ossining plant was maintained for stand-by service until 1945.

- By 1971, the southern property was used by the Ossining Village Highway Department [Sanborn Map, 1971], which continues to occupy the site today as the ODPW. The northern property continues to be owned by Con Edison and is the location of an active substation.

- The former Ossining MGP produced gas via coal carbonization and carbureted water gas processes. The gas manufacturing processes generated a variety of residuals including tar, ammonia liquor, coke, clinker, gas purification residues, tar/water emulsions, and wastewaters. Subsurface structures containing residuals may remain at the site; however, there is no available information regarding decommissioning of the site or disposition of residuals from MGP operations.

- The property north of Central Avenue was the location of "junk" storage for a short time around the turn of the century. The exact type of items stored is not known, however, residuals associated with refuse yards during that time period may have included petroleum products. Subsequent to the removal of the MGP holder on this parcel, this property was maintained as the location of a substation. Residuals associated with the substation may include PCBs. At the top of the hill to the east and upgradient of the gas holder was an older Con Edison electrical substation that may have also used PCBs.

- The property south of Central Avenue and north of Sing Sing Creek was the location for a lumber yard for a number of years prior to the limited use of this parcel by the MGP in the last years of MGP operations. Residuals associated with lumber yard use may have included stains, paints, varnishes, or oil and grease associated with equipment.

- The property both north and south of Sing Sing Creek in the years subsequent to MGP operations was and currently is by the ODPW as a truck maintenance garage and public works storage/maintenance facility. The ODPW is listed as an active petroleum bulk storage facility, storing gasoline, diesel fuel, and fuel oil in one aboveground and seven underground tanks at the site. The ODPW facility is also listed as a large quantity generator of hazardous waste. In addition, residuals may include other automotive products (e.g., coolant, motor oil, batteries, etc.) and solvents used to clean truck parts or equipment. Furthermore, a shed on the property may be used to house road salt during the winter months. Road salt has the potential to contain cyanides.

- Given the past uses of the site, there may be residuals remaining in the subsurface either in subsurface structures or in the soil or groundwater underlying the site or sediments adjacent to the site.

- Potential receptors to residuals remaining on the site include primarily workers and excavation workers. Since most of the site surface is covered, the potential for direct contact with residuals in surface soil is limited. Vapor intrusion into buildings on the site is a potential exposure pathway. Excavation workers may be exposed to residuals in subsurface soil, should excavation be necessary. Groundwater and sediments containing residuals have the potential to migrate to offsite downgradient properties.

1 Objective

The RETEC Group, Inc. (RETEC) has prepared this historical investigation report for Consolidated Edison of New York, Inc. (Con Edison). This report is part of a comprehensive program to research and assess the history of sites formerly used by Con Edison and its predecessor companies for the manufacture and/or distribution of gas, and documents the historic and current conditions of the sites. These sites are located in New York City and Westchester County. The purpose of this historical investigation program is to support Con Edison in its negotiations with the New York State Department of Environmental Conservation (NYSDEC), to support Con Edison's efforts to rank manufactured gas plant (MGP) site investigation priorities, and to provide a starting point for future site investigations. This report presents the summary of the research and findings for the former Ossining Works MGP site in the Village of Ossining, New York (Site #V00568).

The report consists of eleven sections and eight appendices:

- Section 1 provides an introduction to report objective, the investigative methodologies and processes, and a summary of limiting conditions of this report.
- Section 2 presents a property description.
- Section 3 provides a summary of the current site use and site reconnaissance.
- Section 4 presents the site setting, including site geology, topography, zoning, demography, and neighboring property description.
- Section 5 presents a summary of the past site ownership according to the chain-of-title and tax records, and supplemented by historical records as appropriate.
- Section 6 presents a summary of past site operations, including potential residuals associated with site use and any significant reconstruction or excavation activities that took place on the site.
- Section 7 provides a summary of the environmental and regulatory agency database searches for the site and surrounding areas.
- Section 8 discusses potential exposure pathways based on past site operations and human and environmental receptors to residuals from the site.

- Section 9 provides a discussion of the accuracy and completeness of the research conducted and offers conclusions to this historical component of investigative activities at the site.

- Section 10 summarizes the findings of the historical investigation and presents the information in a manner that can be used for further assessment of the site.

- Section 11 presents a list of references used in this report.

- Appendices A through H provide the documentation that was gathered during this historical investigation.

RETEC reviewed a number of sources to assess the historical ownership and operations of the MGP, subsequent site uses, and current site conditions. These sources include historical records obtained from private and public repositories (e.g., Con Edison resources, federal, state, and local agencies), a chain-of-title search, tax and zoning records, review of geologic reports for the general area, and site reconnaissance. A report checklist summarizing the review requirements and our findings is provided in Appendix A. A detailed list of the sources reviewed and the findings are provided in Sections 5, 6, and 7 of this report.

The findings presented in this historical investigation report are based on the scope of work agreed to by Con Edison and the data that could be obtained in the course of this process. The availability of historical records may be limited by a number of factors including the size and duration of MGP activities at the site, the record keeping practices of the time, and local interest in the property. An assessment of the current site conditions may be limited by current site ownership and access, the ability to assess only general geologic conditions and lack of site-specific data, and availability of public records.

The opinions presented in this report are in accordance with currently accepted hydrogeologic and engineering standards and practices. This report may be based, in part, on unverified information supplied to RETEC by third-party sources. While efforts have been made to substantiate this third-party information, RETEC cannot guarantee its completeness or accuracy.

This historical investigation report shall not be construed to offer legal opinion or representations as to the requirements of, nor compliance with, environmental laws, rules, regulations, or policies of federal, state, or local governmental agencies. Any use of this historical investigation report constitutes acceptance of the limits of RETEC's liability. RETEC's liability extends only to its client and not to any other parties who may obtain the report.

2 Property Description

This section includes a description of the property based on the furthest extent of the MGP boundaries, the site size, and the current tax map designations for parcels located within the former MGP boundaries.

2.1 Site Location and Property Boundaries

The former Ossining Works MGP site consisted of several adjacent properties in the Village of Ossining, Westchester County, New York. The site location is illustrated in Figure 2-1.

The main property was located near the northeast corner of the intersection of Main Street and North Water Street. The property was an irregularly shaped parcel that extended north from Main Street along North Water Street to Central Avenue, and east to a point approximately 250 feet east of the Central Avenue bridge over the Sing Sing Creek at the base of a steep bluff (Figure 2-2). The Sing Sing Creek (also known as Kill Brook or Sing Sing Kill) divided the former Ossining Works MGP site. This property was approximately 3.45 acres in size.

An additional property north of Central Avenue near the northeast intersection with North Water Street was the location of an above-ground gas holder associated with the gas plant. This additional property was estimated to be 0.5 acre, although the dimensions of this parcel are not well defined on the maps.

The coordinates for the site are approximately N 41°9.0’34.8” latitude and W 73°52’2.76” longitude.

2.2 Tax Designation

The following tax lots were identified as being part of the former MGP site:

- Section 3, Block 25, Lots 1 and 2 – former MGP location - these parcels are owned by the Village of Ossining and are used by the Village’s Department of Public Works.

- Section 3, Block 15, Lot 20 – former above-ground gas holder location and the present location of a Con Edison electric substation.

Note that Block 15, Lot 20.1 is also owned by Con Edison. Lot 20.1 is the location of a former Con Edison electric substation. Lots 20 and 20.1 comprised a single lot at the time the gas holder was present; however, no MGP activities have been identified for Lot 20.1 and it is therefore not considered to be part of the MGP site.

Several small portions of Block 15, Lot 1 (immediately west of Lots 20 and 20.1) were also at one time owned by Con Edison or its predecessor companies. These parcels were incorporated into Lot 1 so that buildings and structures of the Hudson Wire Company that encroached or extended onto the utility company property would remain on the wire company property. No gas production or storage facilities were located on these small parcels.

3 Current Site Use

This section provides a summary of the current site use and the site reconnaissance conducted by RETEC for the former Ossining Works MGP site.

3.1 Site Use

The Ossining Department of Public Works (ODPW) currently occupies the former Ossining Works MGP site on the north and south sides of Sing Sing Creek. Current site use of the property south of Central Avenue is used as a maintenance facility for the ODPW. The portion of the MGP site located north of Central Avenue is currently used as a Con Edison substation. The site is currently used for commercial purposes. The current site layout is illustrated in Figure 3-1.

3.2 Site Reconnaissance

A team of RETEC geologists and environmental engineers visited the location of the former Ossining Works MGP site on May 2, 2002. The purpose of the reconnaissance was to a) assess current site environmental conditions and property use, b) perform a visual inspection for the presence of potential MGP site residuals on the site and surrounding properties, and c) identify potential receptors which may be at risk if MGP residuals or other by-products are present. During the site reconnaissance, the inspection team reviewed a site inspection checklist developed by RETEC to ensure that all the necessary information was collected, documented their observations in a bound field notebook, and took photographs of the site. A photographic log of the site reconnaissance is provided in Appendix B.

RETEC's inspection team did not access the former site, however, they were able to walk the perimeter of the property to make their observations. The current site surface is approximately 90% covered by buildings and paved areas (Figures 1-6 in Appendix B photo log), aside from the exposed areas along Sing Sing Creek. There were no visual indications of MGP residuals on the surface of the former MGP site. A description of the observed site conditions is provided below:

Former Gas Plant Area South of Sing Sing Creek

The property to the south of Sing Sing Creek is occupied by the ODPW. On-site structures include a two-story building with two attached garages. The two-story building appears to be former MGP process building. West of this building is an ODPW garage/shop near North Water Street. A circular concrete pad, between the main building and the garage/shop in the vicinity of one of the former gas holders, is used for storage. The areas around the buildings are paved and the property is fenced off.

Former Gas Plant Area North of Sing Sing Creek
The property north of Sing Sing Creek is also occupied by the ODPW. On-site structures include two adjacent auto/truck repair buildings and associated paved areas. The property is fenced off.

Former Gas Holder Lot North of Central Avenue
The former holder property north of Central Avenue is currently the location of an operating Con Edison substation. The Con Edison property includes a two-story structure and paved areas including a parking lot. The property is fenced off.

All Other Areas
Commercial/manufacturing businesses bound the former MGP parcel to the north. Commercial businesses including a restaurant and residences bound the former MGP parcel on the southern side. Wooded areas with residences and a former Con Edison substation beyond steep, nearly vertical rock walls bound the former MGP parcel to the east. A mixed residential/commercial/ manufacturing area along with parking lots bounds the MGP parcel to the west beyond North Water Street.

It is unknown if subsurface utility lines exist on the site, however subsurface lines are likely to be present in association with the current site use. Storm drains are located at the curb line along Central Avenue, North Water Street, and Main Street.

The site reconnaissance also identified the one school and one day care center within ¼ mile of the former MGP site:

SCHOOLS
Ossining Senior High School (0.21 mi.)
29 S Highland Ave.
Ossining, NY 10562-4811

DAY CARE CENTERS
A Kids Place (0.27 mi.)
1 Emwilton Pl.
Ossining, NY 10562-4809

4 Site Setting and Demography

This section provides the current zoning characteristics for the former Ossining Works MGP site and surrounding area and a description of the physical setting of the site, including geological and hydrogeological characteristics.

4.1 Characteristics of Site and Neighboring Properties

The former Ossining Works MGP site is located in a mixed residential, commercial, and manufacturing community. The site itself is zoned as a waterfront development district and used for a Con Edison substation and ODPW garages and storage. Bedrock and vegetation bound the immediate eastern ends of the former site. Commercial, manufacturing, and neighborhood businesses as well as residences are located north, west, south and southwest of the former MGP site.

The neighboring properties include the following:

- Residences and a former Con Edison substation beyond nearly vertical bedrock walls to the east.
- Hudson Wire Company, storage, Budget Car Rental, and Snowden Avenue Park with a playground to the north and northwest.
- Roofing and Siding Supplies, Bob Akin Motorsports Inc., a former generating station, Smartvision, residences, Metro North's Hudson Line (railroad tracks) to the west and northwest across North Water Street with an oil recycling facility, Ossining Plumbing, and several marinas beyond the railroad tracks.
- Residences, a restaurant, train station, parking lot, and a public waterfront park to the south and southwest beyond North Water Street.

The U.S. Census Bureau's records from the 2000 Census were used to determine the demographics for the site and surrounding area. The census showed that the Village of Ossining had a population of 24,010 people. The area surrounding the site was identified in the 2000 Census as Census Tract 133.01, Westchester County, New York (see Figure 4-1). The population for this area is 2,779 people.

4.2 Physical Setting

4.2.1 Site Topography and Surface Drainage

The 1979 U.S. Geologic Survey (USGS) topographic map for the Ossining, New York Quadrangle was reviewed to provide information about the topography of the site. The site is located on the western flank of an escarpment along the Hudson River valley, and is bisected by the narrow channel of Sing Sing Creek, which is cut into bedrock as it passes through the site. The elevation of the site ranges from approximately 15 feet above Mean Sea Level (MSL) along North Water Street, up to approximately 50 feet above MSL along Main Street and at the gas holder property north of Central Avenue. Within the site, the surface of Sing Sing Creek is cut approximately 5 feet below the surrounding ground surface.

Surface water from the southern parcel of the site appears to runoff via sheet flow and discharge into the Sing Sing Creek. The Sing Sing Creek is designated as a Class C surface water body. Class C surface water is defined as follows: "The best usages is fishing. These waters shall be suitable for fish propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes." Surface water in the stream then flows into the Hudson River approximately 1,000 feet west of the site. Surface water runoff from the northern parcel of the site (north of Central Avenue) appears to flow southwest and discharge to storm drains located in the curb line of Central Avenue.

According to the database search completed by Environmental Data Resources, Inc. (EDR), the portion of the site which bounds the Sing Sing Creek is within a mapped Federal Emergency Management Agency (FEMA) 100-year flood zone. This flood zone follows the streambed of Sing Sing Creek to the northeast of the site and to the southwest to the Hudson River. A map of the site location and the flood zone area is provided in a map in EDR's report in Appendix C. Evidence of recent flooding was observed during the site reconnaissance.

The site itself is not mapped as a designated wetland area. The closest wetland is along the shoreline of the Hudson River 1,000 feet to the west of the site that is mapped as a New York State Part 6 NYCRR 661 tidal wetland area.

4.2.2 General Site Geology

The Surficial Geology Map of New York – Lower Hudson Sheet [Cadwell, 1989] was reviewed to obtain information about the surficial deposits at the site. The map shows that a thin layer of glacial material is likely to be present at the site. The formation is comprised of silty clay with occasional boulders. According to information presented on the map, the till can be expected to

have low permeability. However, records from a well located approximately 500 feet west of the site also identified a sand overburden.

The Geologic Map of New York published by the New York State Museum of Science [Fisher, 1970] was reviewed to provide information about the bedrock geology at the site. The site is located in the Manhattan Prong, which is a geologic sub-province of the New England Upland physiographic region of New York that encompasses most of Westchester County. The bedrock at the site is a metamorphic schist of the Manhattan Group of the Trenton Formation that is Cambrian in age.

Bedrock is exposed in the hillside at several locations at the site. Based on the location of the site on the hillside it is likely that bedrock is located within several feet of the surface across the site.

4.2.3 General Site Hydrogeology

Surface water in the Sing Sing Creek flows in a westerly direction towards the Hudson River, which it intersects approximately 1,000 feet west of the site. Sing Sing Creek has been channelized in the area adjacent to the site, primarily with concrete sidewalls and a cobble-like bottom. This channelization continues downstream to the Hudson River.

The flow direction of groundwater was not directly measured during the site reconnaissance. Groundwater flow is expected to be generally towards Sing Sing Creek in the low areas immediately bordering the stream, and towards the Hudson River in the higher flanking areas. The depth to water at the site is expected to be approximately 5 to 7 feet below ground surface, based on the elevation of water in Sing Sing Creek. The depth to water may vary significantly however, based on the elevation of any given location above Sing Sing Creek.

A map entitled “Unconsolidated Aquifers of Westchester County, New York” [Keneally, June 2001] was reviewed to determine if the site is located within a significant unconsolidated groundwater aquifer. The site is not located within or near to a significant unconsolidated aquifer.

A well search of both Federal and New York State databases was completed to determine if water wells are present in the vicinity of the site. A total of five wells were identified within a one-mile radius of the site. The locations of the wells are provided on the Physical Setting Source Map in the EDR database search results in Appendix C. As shown on the map, two of the wells are present within a ¼ mile radius of the site. These wells are located near the shoreline of the Hudson River to the west of the site and are used to withdraw water for industrial cooling purposes. One well was mapped by the database search to be between ¼ and ½ mile from the site to the east. This well is identified as a public water supply well; however, from the description of the well it is located further east and north of the site along New York State Route

100. Two wells are located between ½ and 1 mile from the site. These include a well located to the southeast of the site, which is used to withdraw water for industrial cooling purposes. The second well is located to the east of the site. According to information provided in the EDR Report this well is unused; however, no additional information regarding the well condition or reason for it not being used is provided in the report.

Records for two fifty-foot overburden wells, both installed approximately 500 feet downgradient of the MGP site were found in The Ground Water Resources of Westchester County [Asselstine and Grossman, 1955]. These wells were drilled to the west of the site, on the west side of the railroad tracks. The overburden for both wells was reported to be sand, and the water table in both wells is reported at 6 feet below the ground surface. Although the wells are installed to 50 feet, the depth to bedrock is reported at 100 feet bgs. Drilling records for one of the wells logged the top 22 feet as "black muck", and from 22 to 100 feet bgs as "sand". The yields from the wells are listed as 20 and 25 gpm. The notes for one well indicate that the water level fluctuates with the tides. The ground surface at this location is cited as 5 feet above sea level; therefore, tidal influence would be fully expected at this location along the river. Both wells were installed for supplying cooling water.

Groundwater in the vicinity of the site is classified as GA - Fresh groundwaters with best usage as a source of potable water supply. However, this area is not classified as a primary water supply aquifer or a principal aquifer.

5 Past Site Ownership

The ownership history of the former MGP site in Ossining was established using historical and current records from the earliest record of the site, through the time of the MGP operations, to the present time. A list of the records reviewed and a description of each is provided below, followed by a summary of site ownership as established using all the resources that were identified.

5.1 Records Reviewed

5.1.1 Brown's Directory of American Gas Companies

Brown's Directory of American Gas Companies (Brown's Directory) began publication of gas companies' statistics in 1887 and continues into recent times to provide information on currently operating gas companies. RETEC reviewed the available Brown's Directories for the years 1887 through 1957, which covers the operational period of most MGPs, to determine site ownership and operational information for the former Ossining Works MGP. Years that are not available in the public domain and are therefore unavailable for review are 1888, 1895 through 1898, and 1952-1953. It is noted that Brown's Directory may not distinguish between two or more sites, if they were operated simultaneously by the same company. The results of the Brown's Directory search are provided in Table 5-1. Note that the information presented in any given edition of Brown's Directory is generally for the previous year's operations.

The former Ossining Works MGP originally operated as the Sing Sing Gas Manufacturing Company, as recorded in the 1887 Brown's Directory. It later becomes the Ossining Light, Heat and Power Company (cited as the Ossining Gas Manufacturing Company) in 1901 and the Northern Westchester Lighting Company in 1905. Northern Westchester Lighting Company was incorporated in May 1905 as a consolidation of the Northern Westchester Light and Power Co., Ossining Light, Heat, and Power Co., and Briarcliff Manor Light and Power Co. Northern Westchester Lighting Company was controlled by Consolidated Gas Company of New York (predecessor to Con Edison) by at least 1913.

The Browns Directory cited gas production by the coal gas process in the 1887 through 1905 directories, with both coal and oil cited in the 1893 and 1894 directories. Water gas (Lowe process) and coal gas production were cited in 1903 through 1905. From the 1906 through 1929 the Lowe process alone was cited. The Ossining Works MGP produced between 9 million cubic feet (1891 and 1892 listings) and 140 million cubic feet (1928 listing) of gas per year, with the plant operating continuously until approximately 1929.

After 1929, Brown's Directory did not list a gas plant in Ossining, New York; however, the Westchester Lighting Company of Mt. Vernon, New York (another affiliate of Consolidated Gas Company/Con Edison) was indicated as supplying gas to Ossining. However, the entries for Westchester Lighting Company of Mt. Vernon from 1935 through 1945 indicated that the Ossining plant was maintained for stand-by service. The Westchester Lighting Company was fully merged into Consolidated Edison in 1951, at which time it switched to natural gas.

5.1.2 Public Service Commission Reports

The New York Public Service Commission (PSC) Reports for the years 1907 to 1968 were reviewed to determine the ownership and operational history of the former Ossining Works MGP site. The 1911 PSC Report indicates that the Northern Westchester Lighting Company was incorporated May 5, 1905 and on May 26, 1905 consolidated the Ossining Heat, Light and Power Company (incorporated December 27, 1900), Northern Westchester Light and Power Company, and Briarcliff Manor Light and Power Company. The PSC Report also indicated that the Northern Westchester Lighting Company is the owner of franchises and privileges of the Sing Sing Electric Lighting Company, the Sing Sing Gas Manufacturing Company (incorporated November 1, 1855), and Croton Electric Light Power Company.

PSC Reports for the Northern Westchester Lighting Company for various years between 1911 and 1920 indicate that the water gas was tested for sulfur and ammonia. Annual gas production increased from 46 million cubic feet in 1914 to almost 143 million cubic feet in 1926. After 1926, annual production decreased until the plant was put on stand-by in 1930, the year after the plant became part of Westchester Lighting Company. The PSC reports indicate that the former Ossining Works MGP was retired from stand-by use in 1943.

5.1.3 Chain-of-Title Search

A deed chain-of-title search was to be performed by Commonwealth Land Title Insurance Company of White Plains, New York on behalf of Con Edison for the former Ossining Works MPG site. The chain-of-title search was conducted to establish the ownership history of the site from the time immediately prior to gas company ownership to the present day. The summary of the title search information is presented in Table 5-2.

The title search indicated that the first portion of the property used for the MGP site was acquired from a private party in 1855 by the Sing Sing Gas Manufacturing Company. This property was located in the central portion of Lot 1, south of Sing Sing Creek. Additional property to the west was acquired in 1860, and property to the east was acquired in 1867, all from private parties. In 1882, the gas company deeded a small portion of land to the Village of Sing Sing for the construction of a bridge to extend Central Avenue across the Sing Sing Creek. The extent of the gas company property along the

south side of Sing Sing Creek is shown in an 1892 historical map in Appendix D.

In 1901 a deed indicated the sale for one dollar of the Sing Sing Gas Manufacturing Company to the Ossining Heat Light and Power Company. A 1904 deed then showed the merger of the New York and Westchester Lighting Company into the Westchester Lighting Company. There is no record of the New York and Westchester Lighting Company in any of the other property records for the site, therefore it is unknown whether this company was in the chain-of-title for the site.

The final portions of the property south of Sing Sing Creek were acquired by the Northern Westchester Lighting Company from private parties in 1906 and 1923. These were parcels located to the south of the gas works along Main Street. This brought the dimensions of the property to that shown as modern Lot 1, Block 25.

Lot 2, Block 25 was acquired by Northern Westchester Lighting Company in several stages. The eastern half of the lot was purchased in 1922 from The Jarl Company. The western half, excepting the corner property at High Street and Central Avenue, was acquired in 1923 from a private party. This corner property was then acquired in 1926, also from a private party. In 1957 Lots 1 and 2 were sold by Consolidated Edison Company to the Village of Ossining. The Village has owned these lots from this time to the present day.

The property north of Central Avenue was acquired by Northern Westchester Lighting Company in 1921 from The Jarl Company. This property was a single parcel, identified at the time as Block 15, Lot 20. The original dimensions of this lot were approximately that of modern Lots 20 and 20.1, with the exceptions described below. (Note that no records were provided on when Lot 20 was subdivided into Lots 20 and 20.1.)

- A small triangular area at the eastern end of Lot 20.1 along Central Avenue was not included in any of the property deeds. It is unknown when the property line was adjusted to the east at this location.

- A small rectangular area at the northern end of Lot 20.1 on the steep slope in line with the western end of Hill Street, measuring approximately 20 feet by 40 feet, is also not included in any of the property deeds.

- Three small parcels of land were carved out of Lots 20 and 20.1 and added to Lot 1, Block 15.

    - In 1922 a strip of land measuring approximately 277 feet by 7 feet along the west side of Lot 20.1 was transferred from Northern Westchester Lighting Company to the Hudson Wire Company. A

historical map from the time indicates that eastern wall of some of Hudson Wire's buildings were on this strip of land.

- In 1929 a narrow triangular-shaped strip of land along the west side of Lot 20 was also transferred to Hudson Wire. This strip of land was approximately 256 square feet in size. A property line agreement in 1941 between Westchester Lighting Company and Hudson Wire further clarified the property boundary in this area.
- In 1948 a rectangular parcel of land located at the northern end of Lot 20 was transferred by Westchester Lighting Company to Hudson Wire Company. This parcel measured approximately 50 feet by 30 feet.

Currently, Lots 20 and 20.1 are both owned by Con Edison. Lot 20 is the site of an active electric substation. Lot 20.1 is the site of a former electric substation.

The Hudson Wire property (Lot 1, Block 15) is currently owned by The Wire Mill, LLC, having acquired the property in 1997. A notice dated December 12, 2001 was place on the deed for The Wire Works; this notice stated that The Wire Mill had entered into an agreement with NYSDEC (Index # W3-0842-99-02, signed October 19, 2001) for an investigation of the property.

5.1.4 Historical Maps

Historical Sanborn Fire Insurance Maps (Sanborn Maps) were obtained from Con Edison for the Ossining Works MGP site. Sanborn Maps were available for the years of 1886, 1891, 1897, 1903, 1911, 1924, 1931, 1942, 1949, and 1971. A copy of the Sanborn Maps are included in Appendix E and were used to compile a composite historical site layout map as illustrated in Figure 5-1. Figure 5-2 presents the historical site layout as it falls within the current tax map property boundary.

Additionally, the *Atlas of New York and Vicinity* [Beers, 1868] and the *Atlas of the Hudson River from New York City to Troy* [Beers, 1891] were reviewed to determine if additional historical maps were available for the site location. The 1868 Beers atlas showed the gas plant at the site. This historical map is included in Appendix F.

The results of the historical map review are summarized below:

- The Beers Atlas of 1868 shows the Sing Sing Creek running northeast to southwest through the site, with an area south of the stream identified as the "Sing Sing Mfy Gass Co.". A single gas holder and building are shown at the central portion of the site. Other unnamed structures are shown to the west of the gas holder; it is unknown if they were part of the gas company facilities. A widening of the stream is shown to the east (upstream) of the gas plant, upstream of what is

shown as a small dam on later site maps. The area between Sing Sing Creek and Central Avenue is labeled as "Isaac Terwilliger Sash & Blind Sh."; however, only one structure is shown, located over Sing Sing Creek at the east side of North Water Street. No structures are shown on the future gas company property north of Central Avenue.

- The earliest Sanborn Map of the site is from 1886. This map shows one gas holder present. This holder is located along High Street, west of the holder shown on the Beers map. A building labeled Sing Sing Gas Works is shown south of Kill Brook, with one section of the building labeled as containing retorts and a section labeled purify. Moving south, a coal house is shown. At the top of the bank along Main Street a tenement building, carpenter shop, a dwell, and an unnamed building are shown. Northwest of the retort building is a building labeled storage, which rests on the bank of Sing Sing Creek (which is identified as Kill Brook on all Sanborn maps until 1931). A small dam is shown on the stream to the east of the gasworks building, with a narrow mill pond upstream of the structure to the east. The area between Sing Sing Creek and Central Avenue is labeled as Terwilliger Co. and lumberyard. The area north of Central Avenue (Lot 20) contains two small unlabeled structures, with Youngman's Coal Yard located to the west of the lot at the corner of Central Avenue and North Water Street.

- The 1891 Sanborn Map shows the gas plant in much the same configuration as the previous edition, with the retorts, purifying, coal house, and storage building present. One gas holder is still present. No new structures are present. The area north of Sing Sing Creek is now labeled Terwilliger & Allison Sash Doors Co., and the lumberyard is still present. The area north of Central Avenue shows a larger building that replaces the two small structures. This building is labeled as containing junk. The coal yard formerly located along the west side of this property is no longer present and the lot is vacant.

- The 1897 Sanborn Map shows the gas plant in much the same configuration as the previous edition, with the retorts, purifying, and coal house. Four small structures within the gas works building are labeled as benches. The building labeled "storage" is no longer present. A smaller gas holder is shown immediately west of the retort building in addition to the larger holder still present from the 1886 Sanborn Map. A dwelling is shown on the map immediately north of the gas holder along North Water Street. The area north of Sing Sing Creek is now labeled L. Terwilliger Sash Doors Co., and the lumberyard remains unchanged. The area north of Central Avenue still contains a building labeled junk.

- The 1903 Sanborn Map shows the gas plant in much the same configuration as the previous edition, with the original retorts, purifying, coal house, and two gas holders. The site is now labeled Ossining Heat, Light, and Power Co. The area north of Sing Sing Creek shows Terwilliger Sash, Doors Co. and the lumberyard as unchanged. The lot to the north of Central Avenue is also unchanged.

- The 1911 Sanborn Map shows changes to the gas plant and an expansion of the gas facilities. The site is now labeled Northern Westchester Lighting Co. The area formerly labeled as retort house is now labeled generator room, and the single boiler shown on the 1903 Sanborn now appears to be larger. The four benches inside the building are no longer shown. The gas holder west of the generator house is now labeled an oil tank, and a new gas holder with a capacity of 100,000 cubic feet is shown immediately northeast of the holder along North Water Street. These changes to the site indicate that the gas plant has converted from producing coal gas to carbureted water gas. The dwelling to the north of the westernmost gas holder is now labeled as storage. To the south of the gas plant, the tenements along Main Street are no longer shown and the former carpenter shop building is labeled as vacant. To the north, Terwilliger's Son Sash and Door business, and the lumberyard continue to be shown. There is an additional building west of the lumberyard labeled lumber shed. North of Central Avenue the junk building is no longer shown and the property is vacant. Wire manufacturing buildings are shown north of (but not contiguous with) Lot 20 and west of Lot 20.1.

- The 1924 Sanborn Map shows changes from the previous edition. The generator room is compartmentalized into the engine room to the east and purifying room to the north. North of the purifying room are two small round purifying tanks. The oil tank just west of the generator building is still present along with the two westernmost gas holders. New structures include a small oil tank and a meter house just north of the two gas holders. Northwest of the gas holders, the storage building is still present. The dam on Sing Sing Creek and the associated pond are no longer shown. South of the gas plant only one small building is shown to be present along Main Street. The property between the Sing Sing Creek and Central Avenue is now shown as vacant. North of Central Avenue a 500,000 gallon (changed on later editions to read 500,000 cubic foot) capacity gas holder is shown on Lot 20. A small square structure is shown immediately adjacent to the southwest side of the holder. North of the gas holder property the Hudson Wire Works is shown as expanding to both the north and south, and is now contiguous with Lot 20.

- The 1931 Sanborn Map shows some changes from the previous edition. The generator room is further compartmentalized into an engine room to the east, controller room to the south, boiler room to the north, and the purifying room to the north. The two small purifying tanks are still present. The oil tank just west of the generator room is no longer present. The gas holder and storage building along North Water Street are also no longer shown to be present, while the newer gas holder and the oil tank and meter room north of this holder remain. No structures are shown to be present south of the gas plant along Main Street. The formerly vacant land north of Sing Sing Creek (now labeled as such) shows oil tanks within a concrete wall and two small buildings present. One of the buildings is labeled "stge" (storage). The Lot 20 area north of Central Avenue with the gas holder remains unchanged. The Hudson Wire facility is shown to have expanded further south, to a point immediately west of the gas holder. To the northeast, the substation building located on the west side of Market Street is shown to be present.

- The 1942 County Atlas sheet provided by EDR with the Sanborn maps shows little detail of the site, but the label Westchester Lighting Gas Mfg Co is present across the site. Also present is the outline of the two gas holders and the generator building.

- The 1949 Sanborn Map shows considerable change from the previous edition. The site is now labeled Westchester Lighting Co. Gas Plant. The westernmost gas holder, oil tank, meter room, storage, and two purifying tanks are no longer present. The generator room is now labeled compressor, control room to the northwest and boiler room to the north. The oil tanks and two buildings north of Sing Sing Creek are no longer present, and the entire area between Sing Sing Creek and Central Avenue is vacant. The large gas holder north of Central Avenue, the substation building, and the Hudson Wire property remain unchanged.

- The 1971 Sanborn Map shows changes from the previous edition. Ossining Village Highway Dept is labeled over the area south and north of Sing Sing Creek. The former compressor, control room, and boiler room are all labeled storage. The area north of Sing Sing Creek has a rectangular building labeled as truck storage and repair. The large gas holder north of Central Avenue is no longer present, while the substation building and Hudson wire remain unchanged.

5.2 History of Site Ownership

The history of site ownership was compiled using the chain-of-title search, Brown's Directory, PSC reports, and Sanborn Maps. A site ownership summary is provided in Table 5-2.

The Sing Sing Gas Manufacturing Company purchased its first parcel of land for construction of a gas plant in 1855. The gas production building and a gas holder were constructed on this lot sometime between 1855 and 1868. Additional properties contiguous to this core area south of Sing Sing Creek were acquired in 1860, 1867, 1906, and 1923. The property between Sing Sing Creek and Central Avenue, which was used for construction of an oil tank and smaller miscellaneous structures, was purchased in 1922 (eastern half), 1923 (western area minus corner lot), and 1926 (corner of Central Avenue and North Water Street). The property north of Central Avenue, which was used for construction of a gas holder, was purchased in 1921.

In 1901 the Sing Sing Gas Manufacturing Company was sold to the Ossining, Heat, Light and Power Company [PSC Report, 1911 and chain-of-title record]. (Note however, that this company is cited as the Ossining Gas Manufacturing Company in Brown's Directory for the years 1901 through 1904.] The Ossining Heat, Light and Power Company merged into the Northern Westchester Lighting Company in 1905 (Brown's Directory and Con Edison records). The 1914 Brown's Directory stated that the Northern Westchester Lighting Company operated under the control of the Consolidated Gas Company at this date. (This affiliation is cited again in the 1924 and 1929 Brown's Directories.) According to Con Edison records the Northern Westchester Lighting Company merged into the Westchester Lighting Company in 1925. Westchester Lighting Company continued to operate the plant until 1929 at which time it was put on stand-by service. The southern property continued to be maintained by Westchester Lighting Company at least until 1957. In 1957 the former gas works property south of Central Avenue was sold to the Village of Ossining (chain-of-title records), which uses the property today for its Department of Public Works. The property located north of Central Avenue continues to be owned by Con Edison. The former gas holder location is now occupied by an active substation.

6 Past Site Operations

The operational history of the former MGP site in Ossining was established using historical and current records from the earliest record of the site, through the time of the MGP operations, to the present time. A list of the records reviewed and a description of each is provided below, followed by a summary of the MGP site operational history and subsequent site uses as established using all the resources that were identified. For each site use, potential residuals associated with the process are identified.

6.1 Records Reviewed

The historic records identified in Section 5.1 were reviewed for information related to the site operational history as well as ownership history. These records include, Brown's Directory, PSC Reports, chain-of-title, and historical maps. In addition, historical aerial photographs for the former Ossining Works MGP site were reviewed at the Westchester County Planning Department in White Plains, New York. Aerial photographs were available for the years 1940, 1947, 1954, 1960, 1970, 1976, 1986, 1990, 1995 and 2000.

Aerial Photograph Review

In the 1940 photograph, gas holders were present on both sides of Central Avenue with the larger holder on the northern parcel. One holder and an oil tank were present on the south side of Central Avenue, and buildings associated with the gas plant were present. In the 1947 photograph, the holder south of Sing Sing Creek was no longer present.

In the 1954 photograph, the larger holder was present on the north side of Central Avenue, and the above-ground portions of all holders or tanks were removed on the south side of Central Avenue. In 1960, the holder north of Central Avenue was no longer present, and a new building was present on the south side of Central Avenue. There were no apparent changes in the 1970 photograph. In 1976, the south side of Central Avenue was more built up, and Sing Sing Creek appeared to be more confined. In the 1980 photograph, the outline of the northern holder foundation pad was visible.

In the 1986 photograph, there was more vegetation present over the outline of the northern holder and the buildings appeared to be unchanged. In 1990, the substation was present in the location of the northern holder.

The configuration of the property appears to have stayed the same from 1990 until present time. Additional details of the current site conditions are provided in the site reconnaissance in Section 3.2. Copies of selected aerial photographs are included in Appendix G.

Historic Photographs

Historic photographs of the former MGP site and a substation located on Market Street were obtained from Con Edison. Two of the photographs illustrated the former MGP site. A 1930 photo taken from the south side of Sing Sing Creek facing north shows the gas holder on the north side of Central Avenue. The holder appears to be a two-lift above-grade structure, with the adjacent rock hillside cut away to make room for the holder. Two small round tanks with above-ground piping are also visible in the photograph on the south side of Central Avenue. These tanks appear to be in the location shown as oil tanks within concrete wall on the 1931 Sanborn Map. A 1937 photograph taken from Central Avenue looking south shows the gas plant facilities on both sides of Sing Sing Creek. Along the south side of the stream can be seen the gas production building, two round purifier tanks, an above-grade gas holder, and other smaller structures. Visible structures on the north side of the stream include an above-ground oil tank within a secondary containment structure, a storage building, and the two tanks shown in the 1930 photograph.

6.2 Site Operational History

The records identified in Section 5.1 were used to compile an operational history of the former Ossining Works MGP site, including gas production at the site (including capacity, equipment, and residuals produced), MGP site closure activities (including structures remaining, converted to other uses, dismantling), other site uses, and any general changes to the site over time.

6.2.1 History of Gas Production

Operational History

An operational site history was developed for the former Ossining Works MGP site using Brown's Directory, PSC Reports, historical maps (Sanborn Maps and Atlas Maps), aerial and historical photographs, and information provided by Con Edison.

The exact construction and starting date for gas production at the site could not be determined. The Sing Sing Gas Manufacturing Company was incorporated in 1855, and the parcel of land on which the gas production building and first gas holder were constructed was purchased that same year. In 1860 the property was expanded to the west to North Water Street, and in 1867 to the east. The first map of the site (the Beer's 1868 *Atlas of New York and Vicinity*) shows a gas plant and gas holder located on central portion of the property on the south side of Sing Sing Creek. The holder is likely to have a below-ground holder, given the timeframe of construction. However, the generally shallow depth to bedrock at the site may have influenced the type of construction.

By 1867, the gas plant had expanded to occupy much of the property south of Sing Sing Creek below the hillside north of north of Main Street. A second

holder was constructed on the western portion of the property [Sanborn Map, 1886], which was also likely to have been a below-ground holder. This holder replaced the original holder located next to the gas production building, which was absent from the 1886 Sanborn Map. In 1886 the production building included a retort house, purifying room, coal houses, and a storage building.

According to the Sanborn Maps and Brown's Directory, the gas plant produced coal gas in the initial years of operation. For just two years (1893-1894), the addition of oil gas was noted in Brown's Directory. Water gas production began at the site in 1902, initially in addition to coal gas for three year, and eventually replacing coal gas completely in 1904 [Brown's Directory].

Gas production at the Ossining Works MGP site increased over time from 9 million cubic feet in 1891 (first record of production) to almost 143 million cubic feet in 1926 [Brown's Directory; PSC Reports].

The Sing Sing Gas Manufacturing Company merged with the Ossining Heat, Light and Power Company in 1901, and merged again into the Northern Westchester Lighting Company in 1905.

By 1911, generators had replaced the retorts and a third gas holder was constructed in the western portion of the property to the south of Sing Sing Creek. This holder had a capacity of 100,400 cubic feet and was likely to have been an above-ground holder (constructed between 1903 and 1909, the first year for which gas holder capacity is noted in Brown's Directory). The other holder in the western portion of the property (below-ground) was noted to be an approximately 40,000 cubic foot holder, and the original gas holder had been converted to an oil tank with a capacity of approximately 144,000 gallons [Sanborn Map, 1911]. Through this point in time, there were no gas plant structures located north of Sing Sing Creek. The Northern Westchester Lighting Company became affiliated with Consolidated Gas Company sometime prior to 1914 [Brown's Directory, 1914].

In 1921 a 500,000 cubic foot gas holder was constructed on the parcel north of Central Avenue [Brown's Directory, 1922]. This holder is illustrated on the 1924 Sanborn Map; however, the property immediately north of Sing Sing Creek was still vacant. The property immediately north of Sing Sing Creek had been a lumber yard from at least the 1890s. An additional oil tank, purifying tanks, and a meter house had been constructed on the southern side of Sing Sing Creek [Sanborn Map, 1924].

Gas production at the site continued steadily increasing until 1927. From 1927 to 1929 production decreased and the plant was put on stand-by service in 1930. At this time Northern Westchester Lighting Company is no longer cited in Brown's Directory, and Westchester Lighting Company is cited as the gas supplier for Ossining. By 1931, gas plant structures appeared on the property

immediately north of Sing Sing Creek. These included oil tanks and a storage building [Sanborn Map, 1931]. A pump house was added to the southern parcel, adjacent to Sing Sing Creek. Another above-ground tank, not previously shown on Sanborn Maps, was also observed on the far eastern end of the property south of Sing Sing Creek in a historic photograph from 1937.

The plant was retired from stand-by service in 1945 [Brown's Directory]. The original holder/oil tank and one of the other holders on the southern portion of the property were no longer present by 1949 [Sanborn Map, 1949], however, many of the other gas plant structures remained at that time. By 1947, the remaining holder was no longer visible on aerial photographs [Aerial Photograph, 1947]. The holder to the north of Central Avenue was removed sometime between 1949 and 1960 [Aerial Photograph, 1960]. By 1960, other buildings had been constructed south of Central Avenue and the site use may have changed by that time.

Residuals Associated with MGP Site Use

The former MGP at Ossining produced gas via coal carbonization and carbureted water gas processes, and oil gas for a short time. The gas manufacturing processes generated a variety of residuals including tar, ammonia liquor, coke, clinker, gas purification residues, tar/water emulsions, and wastewaters. The following provides a general overview of the residuals produced and used at a typical MGP site, and it is not specific to the former Ossining Works MGP site except where it is noted.

Coke is a solid material that is primarily carbon (typically 80 to 90%). It is the remnant of bituminous coal that has been subjected to high temperature destructive distillation. The non-carbon portion of the coke contains metals in varying concentrations.

Tar produced during gas manufacture was a complex mixture of hydrocarbons that could range from viscous liquid to a gummy solid depending on its water content, origin, age, storage conditions, and temperature. Tar contains hundreds of compounds with the ones of primary environmental interest being volatile aromatics and polynuclear aromatic hydrocarbons (PAHs). Tar produced during coal carbonization also contained tar acids, such as phenols. For the most part, tar and water were immiscible, being readily separated by gravity settling. However, at intermittent and unpredictable times, some carbureted water gas processes produced tar/water mixtures that were miscible and not readily separable by gravity settling methods. These tar/water mixtures were called tar/water emulsions. Tar is the most likely the residual to be found on MGP sites, and may be found in subsurface structures remaining on the site.

Typically, tar was allowed to gravity settle from the gas in below-ground tar separators, tar tanks, or similar structures. Tar separators were baffled structures typically constructed of brick or wood and the bottoms may have

been lined; in some cases the bottoms were left unlined, particularly if the naturally occurring material underlying the structure was clay-like in nature. Tar tanks may have been iron tanks, or in many cases, were the former gas holders. Residual tars often settled to the bottom of the gas holders, particularly in the case of relief holders. The relief holder (often the original gas holder) was the first holder into which the gas was pumped and any remaining tar was allowed to settle before the gas was then pumped to the storage or distribution holder. The tar separator, relief holder/tar tank, or other holders on the site have the potential to contain tar residuals that settled to the bottom of the structure and were not removed at the time the gas plant was dismantled. If these structures remain on a site, there is a potential for tar to remain in the structures, and leaks into the subsurface may occur.

Four gas holders were shown on various times on the historical maps of the site: one holder north of Central Avenue and three holders south of Sing Sing Creek [Sanborn Map, 1924]. Photographs show that the two newest holders were constructed with above-groundwater tanks (the Central Avenue holder and the holder constructed at the center of the parcel south of Sing Sing Creek). The original gas holder (which may have been converted later into an oil tank) and a second gas holder to the west were likely to have been below-ground holders based on the timeframe in which they were constructed. It is not known if residuals remain in below-ground holder foundations at the site. Tar structures were not indicated on the Sanborn Maps; however, the absence of the structures from the site has not been confirmed.

As produced at the time, ammonia was generally in the form of an ammonia-water solution. Typically, ammonia was collected in ammonia wells; however, the Sanborn Maps did not indicate the presence of these structures. The PSC Reports did indicate that the water gas was tested for ammonia. Ammonium sulfate crystals were sometimes produced in by-product coke ovens.

For the most part, gas purification residues were solid materials generally made up of woodchips, corn cobs, or a similar fluffing agent impregnated with iron salts. During gas purification, these materials absorbed hydrogen sulfide and, in the case of coal carbonization, cyanide from the gas. These purification materials were generally regenerated and reused several times, but when the sulfur content reached approximately 30 to 40% of the material, the purification materials were no longer useable and became "spent." Prior to the use of iron salts, lime was used as a purifying agent and may be present at MGP sites as a purification residual. A purifying room and purifying tanks were noted in the eastern portion of the property south of Sing Sing Creek.

Clinker was a granular solid material resulting from the coke or coal reaction in the water gas generator vessel. The material was the fused ash remaining after the carbon had been reacted to form gas.

Wastewater was the water overflow from tar separators. A major portion of this overflow was recycled as cooling water. Excess overflow was wastewater.

Wastewater was universally considered a waste at the time of operation. Other materials were considered useable as by-products or fill. Coke, tar, and ammonia were sometimes sold to generate revenue, thereby reducing the cost of gas to the consumer. Coke and tar were sometimes used in gas making as feedstock or fuel. Gas purification residues (e.g., spent oxides) and clinker were sometimes used as fill materials at MGP sites and elsewhere.

In addition to residuals produced, feed stocks to the process, including gas oil used in the carbureted water gas process, have the potential to remain in the subsurface.

There are no available records to indicate how residuals or feedstock at the site may have been managed, stored, or disposed (including potential sale of by-products) during and subsequent to MGP operations. Table 6-1 summarizes potential MGP residuals that may be remaining at the site.

6.2.2 Other Site Uses

Operational History

From the earliest available map, the property to the south of Sing Sing Creek was the location for the gas plant. The property to the north was occupied by a lumber yard up to Central Avenue until sometime between 1911 and 1924, after which it was vacant. Based on the available historic maps, the property north of Central Avenue where the gas holder was eventually constructed was unoccupied until approximately 1886 when two unidentified buildings appear and in 1891 a building labeled "junk" was shown on the property. This building was gone by 1911 and the property again appeared vacant. The holder was constructed around 1921.

After the gas plant ceased production, the area north of Central Avenue continued to be the location for the 500,000 cubic foot gas holder. The 1949 Sanborn Map illustrated this property, and the property immediately north and east of this holder as being occupied by the Westchester Lighting Company. The area north of Sing Sing Creek and south of Central Avenue was vacant until sometime between 1954 and 1960, by which time a new building was constructed [Aerial Photographs]. This building was identified as a "truck storage" building in association with the Ossining Village Highway Department on the 1971 Sanborn Map. The former MGP property south of Sing Sing Creek was used for storage by the Ossining Village Highway Department by 1971.

Current site use of the property south of Central Avenue continues to be as a maintenance facility for the ODPW. The parcel north of Central Avenue is the location of a Con Edison substation.

The property surrounding the former MGP site was historically used for commercial/manufacturing purposes to the north and west, and was mostly residential with small commercial properties directly south of the site. No historic site uses on surrounding properties that may have impacted the site (i.e., were located in the presumed upgradient direction) were identified.

Residuals Associated with Other Site Uses

The property north of Central Avenue was the location of "junk" storage for a short time around the turn of the century. The exact type of items stored is not known, however, residuals associated with refuse yards during that time period may have included petroleum products. Subsequent to the removal of the MGP holder on this parcel, this property was maintained as the location of a substation. Residuals associated with the substation may include PCBs. At the top of the hill to the east and upgradient of the gas holder was an older Con Edison electrical substation that may have also used PCBs.

The property south of Central Avenue and north of Sing Sing Creek was the location for a lumber yard for a number of years prior to the limited use of this parcel by the MGP in the last years of MGP operations. Residuals associated with lumber yard use may have included stains, paints, varnishes, or oil and grease associated with equipment.

The use of the former MGP property both north and south of Sing Sing Creek in the years subsequent to MGP operations was and currently is by the ODPW as a truck maintenance garage and public works storage/maintenance facility. The ODPW at this location is identified in the EDR search as an active petroleum bulk storage facility, storing gasoline, diesel fuel, and fuel oil in one aboveground and seven underground tanks at the site. The ODPW facility is also listed as a large quantity generator of hazardous waste. Additionally, residuals may include other automotive products (e.g., coolant, motor oil, batteries, etc.) and solvents used to clean truck parts or equipment. Lastly, a shed on the property may be used to house road salt during the winter months. Road salt has the potential to contain cyanides.

6.2.3 Previous Site Investigations

No records of previous site investigations were identified for the former MGP south of Central Avenue or the former holder area north of Central Avenue. However, a Phase I Environmental Site Assessment was performed on the former Market Street substation property (Block 15, Lot 20.1) in 1999. This property is located to the northeast, adjacent to the former holder area north of Central Avenue. The former substation was located along Market Street at the top of a steep bank above the gas holder location. The Phase I Environmental Site Assessment identified 1) several environmental concerns related to former industrial uses and 2) oil releases, potentially containing PCBs, asbestos containing material (ACM), and lead paint at the former substation.

7 Environmental and Agency Records Review

A review of information available in public and private databases and records was conducted to collect information related to the site and the surrounding properties. An EDR database records search was provided to RETEC from Con Edison and was reviewed to establish history of environmental actions involving the site or nearby properties. Additionally, RETEC searched public agency records to obtain information about the site. The results of each of these searches are provided below.

7.1 Environmental Records

7.1.1 Database Searches

An environmental records search for the former Ossining Works MGP site was conducted by EDR on behalf of Con Edison. This report was provided to RETEC for review and incorporation into the historical investigation report. The EDR report includes the results of searches of federal, state, and EDR proprietary databases for listings of the target property (site) and any other properties within up to a 1-mile radius of the site. The report also includes a physical setting summary as performed by EDR. A copy of the EDR report is included in Appendix C.

The Ossining Heat, Light and Power Co. on Main Street was listed in the EDR proprietary database of former manufactured coal gas plant sites. The target property was also listed in several databases based on current site use by the Village of Ossining. Surrounding properties within 1-mile of the site were identified on several federal and state databases. The results are summarized according to lower elevation or higher elevation to the target property, which may be an indication of properties that are upgradient (higher elevation) or downgradient (lower elevation) from the target property.

As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund Action or NPL consideration. A review of the November 21, 2001 CERC-NFRAP list, as provided by EDR, has revealed that there is one CERC-NFRAP site located at equal or higher elevation within approximately 0.25-mile of the target property.

The Federal Resource Conservation and Recovery Information System (RCRIS) database includes selected information on sites that generate, store, treat or dispose of hazardous waste as defined by the Resource Conservation

and Recovery Act. The source of this database is the U.S. EPA. The EDR review of the RCRIS-LQG list dated June 21, 2000, identified three large quantity generator sites located within approximately 0.25-mile from the target property at an equal or higher elevation and two sites located within approximately 0.25-mile from the target property at a lower elevation.

The EDR review of the RCRIS-SQG list dated June 6, 2000, identified one small quantity generator site located within approximately 0.25-mile at an equal or higher elevation and eight sites located within approximately 0.25-mile from the target property at a lower elevation from the target property.

The State Leaking Storage Tank Incident Reports (LTANKS) database includes an inventory of reported leaking storage tank incidents reported from April 4, 1986 through the most recent update. A review of the LTANKS lists dated October 1, 2001, as provided by EDR, revealed that there are 23 LTANK sites located within approximately 0.5-mile at equal or higher elevations from the target property and eight LTANK sites at lower elevation within approximately 0.5-mile of the target property. One of the sites is located within 0.125-mile upgradient of the former MGP property (APT, 63 Central Ave.) and recorded a spill of #2 fuel oil that affected groundwater. Additional upgradient spills within 0.25-mile upgradient of the target property included #2 fuel oil, #4 fuel oil, and diesel fuel. Two LTANK sites at a lower elevation from the former MGP property are located on property across from the former MGP site. One site (Hudson Wire Co., 62 Water Street) recorded two spills of #2 fuel oil that affected groundwater and another site (Mark Brake Rebuilders, 36 North Water Street) recorded a spill of 50 gallons of #4 fuel oil.

The State Underground Storage Tank (UST) database contains registered USTs. The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database. EDR's review of the UST list dated October 1, 2001, has revealed that there are five UST sites at equal or higher elevation within approximately 0.25-mile of the target property, and there are four UST sites at lower elevation within approximately 0.25-mile of the target property. The State Voluntary Cleanup Agreements (NY VCP) program covers virtually any kind of site and contamination. EDR's review of the VCP lists dated December 18, 2001 has revealed that there is one VCP site at lower elevation within approximately 0.5-mile of the target property.

The state Chemical Bulk Storage Database (CBS) includes registration data collected as required by 6 NYCRR Part 596. It includes facilities storing hazardous substances listed in 6 NYCRR Part 597 in aboveground tanks (ASTs) with capacities of 185 gallons or greater and/or in underground tanks of any size. Includes facilities registered (and closed) since effective date of CBS regulations (July 15, 1988) through the date request is processed. The EDR review of the CBS AST list dated October 1, 2001 has revealed that there is one CBS AST site at equal or higher elevation within approximately

0.125-mile of the target property. There are two CBS AST sites at lower elevation within approximately 0.25-mile of the target property.

The target property as currently used by the Department of Public Works Garage is listed by EDR as being an active petroleum bulk storage facility. The target property is listed on the CBS UST database as having seven USTs used to store unleaded gasoline, diesel fuel, and #1, 2, or 4 fuel oil. The target property is also on the CBS AST database and is indicated as having one AST to store diesel fuel. Lastly, the target property is listed on the RCRIS-LQG database, and no violations were noted.

Additional Environmental Records Searches

RETEC conducted searches of additional records to provide the most comprehensive collection of current and historical records regarding the site. A Freedom of Information Law (FOIL) request was made to the NYSDEC for any information regarding the former Ossining Works MGP site. No information was obtained; NYSDEC indicated that no information was available for the site. Note however that the deed search revealed that the adjacent wire factory (The Wire Mill, formerly Hudson Wire) has entered into an agreement with NYSDEC to perform a site investigation. No information regarding this investigation was obtained.

A Con Edison records search identified a Phase I report for a former substation on Market Street in Ossining. This substation was located on parcels of land owned by Westchester Lighting Company or Con Edison that are contiguous with the former holder location north of Central Avenue. However, this property was not known to be part of the former gas plant and is not the same as the current substation located on Central Avenue. No previous environmental assessments or reports were identified for the former Ossining Works MGP site.

Lastly, real estate records were searched to determine real estate transactions regarding the former MGP property.

7.2 Public Agency Searches

A number of city agencies were searched to determine availability of historic or current information for the site.

7.2.1 City Directories

City directories for the City of Ossining were not obtained, however, a review of historical Sanborn Maps, newspaper articles and photographs was conducted at the Ossining Historical Society. Sanborn Maps were previously obtained for the former Ossining Works MGP site and no new maps were found at the Historical Society. A photograph dated 1937 was found displaying the above ground holder south of Sing Sing Creek. Newspaper articles that were available were not relevant to our investigation.

7.2.2 Public Library

The public library of the City of Ossining was visited, however, no information relevant to the former Ossining Works MGP site was found.

7.2.3 Building Department

The Ossining building department was contacted; however, no records were available for review.

7.2.4 Real Estate Records

Con Edison real estate records were searched to identify real estate transactions for the former Ossining Works MGP property. A review of the real estate records was conducted and insurance maps were identified for the former MGP property and the former Market Street substation. In addition, a Phase I Environmental Assessment report was identified for the former Market Street substation.

8 Potential Exposure Pathways and Receptors

This section will discuss the imminent or potential risks to human health or the environment based an evaluation of potential residuals on the site, potential exposure pathways and receptors.

8.1 Potential Residuals

Past uses of the Ossining Works site may have impacted soil and groundwater and residuals may be present in the subsurface. Additionally, offsite properties that may have or may in the future contribute to the health and environmental hazards of the area include those properties identified in the EDR database search.

A discussion of potential residuals that may be at the site based on past and current site use was presented in Section 6.0. To summarize, MGP residuals include tarry residuals containing volatile compounds, PAHs, and phenolics that may be present in subsurface structures and surrounding soils and may impact soil and groundwater quality. Purifier residuals containing lime, iron oxides, and cyanide may be present on the site. Ammonia residuals and clinker may also remain in the site soils. Lastly, gas oil used in generation of carbureted water gas could be present on the site in subsurface structures or surrounding soils.

Other site uses prior to the MGP or after the MGP operations ceased may have contributed paints, stains, varnishes, oil and grease, other automotive products, gasoline, diesel fuel, fuel oil, or cyanide to the residuals present on the portion of the site south of Central Avenue. The property to the north of Central Avenue may have been impacted by petroleum products or PCBs. Spills on offsite properties, as recorded in the EDR database, have the potential to impact groundwater quality at the site.

8.2 Potential Exposure Pathways and Receptors

The current and anticipated future use of the former Ossining Works MGP site is commercial. Con Edison occupies the parcel north of Central Avenue, which is the location for a substation and an asphalt parking lot. The Ossining Department of Public Works (ODPW) occupies the south side of Central Avenue. Since the portion of the property north of Sing Sing Creek was used only briefly in association with MGP operations, the holder north of Central Avenue was an above-ground holder, and most of the MGP structures and activity were located on the south side of Sing Sing Creek, the most significant pathways associated with the MGP are expected to be from the portion of the former MGP site south of Sing Sing Creek. Other uses of the

property prior to or subsequent to the MGP may have also impacted each of the parcels.

Site workers are potential receptors that could experience direct contact exposures. Since the site is fenced, and access is limited, it is unlikely that there will be other significant human receptors (i.e., visitors or trespassers). Since the majority of the site is covered, direct contact exposures with soil by these receptors would be minimal. Construction workers or subsurface utility maintenance workers may be exposed to constituents in subsurface soil if performing subsurface excavation work (e.g., utility line maintenance or replacement). Since there are a number of subsurface tanks at this site in association with the current site use [EDR Database], subsurface activity is a possibility at this site. Additionally, site surface and subsurface soils may have been removed or relocated in association with installation of the current underground storage tanks, therefore residuals associated with the MGP may have been displaced. Lastly, Sing Sing Creek is in a 100-year flood zone, and flooding at the site may have affected the distribution of residuals within the soil at the site. A potential route of exposure to site workers may be vapor intrusion from volatile constituents in soil or groundwater under the buildings. The former MGP process building is used by the ODPW. This structure was expanded to accommodate the current site use. The expansion of the structure is located over the former purifying house. The original gas holder was located very close to this building and there is a potential for residuals to remain in the subsurface in this structure.

Leaching of constituents from soil to groundwater is not expected to be a significant pathway, since much of the site is covered. However, constituents potentially present as free product in soils or in groundwater have a significant potential to discharge to Sing Sing Creek.

Groundwater at the site is expected to be shallow, less than 10 feet based on wells in the vicinity of the site. Surface water runoff and groundwater flow immediately adjacent to Sing Sing Creek is expected to flow towards the stream. Surface and groundwater north of Central Avenue is assumed to mimic surface topography, which slopes towards the Hudson River. Wells are located within ½ mile of the site. Two downgradient wells along the river are used for industrial purposes, and two wells are located upgradient of the site. Given the topography of the area and the strong groundwater gradient towards the Hudson River it is unlikely that upgradient wells would be affected by residuals in groundwater at the site. Due to the distance from the site to the Hudson River and the dilution effect of Sing Sing Creek, it is unlikely that the river would be an environmental receptor to potentially impacted site groundwater.

There are no known significant environmental habitats (i.e., endangered species or sensitive receptors) on the site, however, sediments in Sing Sing Creek are likely to have been affected by residuals at the site, thereby

affecting potential environmental receptors in sediments or surface water at and downgradient of the site.

The site reconnaissance also identified one school and one day care center within ¼ mile of the former MGP site.

SCHOOLS
Ossining Senior High School (0.21 mi.)
29 S Highland Ave.
Ossining, NY 10562-4811

DAY CARE CENTERS
A Kids Place (0.27 mi.)
1 Emwilton Place
Ossining, NY 10562-4809

Both facilities identified are upgradient from the former MGP site (topographically several hundred feet up-hill) and are not in locations which would be impacted by MGP site residuals

9 Discussion and Conclusions

9.1 Summary of Findings

A historical investigation of the former Ossining Works MGP site was conducted to determine the history of site ownership and operations of the site, to assess current site use and conditions, and to determine if there are potential receptors to residuals that may be present at the site. This investigation was in accordance with the scope of work agreed to with Con Edison at the initiation of the project.

The Sing Sing Gas Manufacturing Company was incorporated in 1855, and the MGP at Main and Water Streets was operational prior to 1868. The plant became Ossining Heat, Light, and Power Company around 1901 and merged into Northern Westchester Lighting in 1905. According to Brown's Directory, Northern Westchester Lighting began its affiliation with Consolidated Gas Company, the predecessor to Con Edison sometime before 1914. The former Ossining Works MGP site continued to operate on a regular basis to produce manufactured gas for the City of Ossining and nearby communities until approximately 1929. In 1930, the Northern Westchester Lighting became affiliated with Westchester Lighting Company, a different affiliate of Consolidated Gas Company. The plant continued to operate on a stand-by basis until 1945 [Brown's Directory]. There are no records of how the gas plant was decommissioned or dismantled, although the 1949 Sanborn Map no longer showed any structures other than the gas production building and the holder north of Central Avenue.

The MGP structures were mostly situated on the portion of the property south of Sing Sing Creek and included at least two below-ground gas holders. An above-ground holder was also located on this parcel, and a larger above-ground holder was constructed around 1921 on the parcel north of Central Avenue. The property north of Central Avenue had been the location of "junk" building for a short time period. The property immediately north of Sing Sing Creek had been the location for a lumber yard/mill/building supply from at least 1868 through sometime after 1911, and was vacant following this site use at least until 1924. By 1931 until at least 1942, this portion of the property was used for the location of some small structures associated with the gas plant (oil tanks and small storage shed), which were removed by 1949.

Following the operations of the MGP, the portion of the site north of Central Avenue was maintained by Con Edison and is currently the location of a Con Edison substation. The ODPW, or its predecessor the highway department, has occupied the northern and southern sides of Sing Sing Creek since in the 1960s. The site reconnaissance indicated the site is approximately 90% covered with buildings or parking lots, except for the area adjacent to Sing Sing Creek. There were no visual indications of MGP residuals on the surface

of the property. However, there was a visible concrete pad of a former above ground gas holder at the ODPW.

Given the past and current uses of the site, there may be residuals remaining in the subsurface either in subsurface structures or in the soil or groundwater underlying the site.

Potential receptors to residuals remaining on the site include primarily site workers and excavation workers. Since most of the site surface is covered, direct contact with residuals in surface soil is very limited and site workers are not expected to be in contact with subsurface soils. Since the site is located within a 100-year flood plain, and observations of recent flooding were made during the site reconnaissance, there is a potential for site soils to have been displaced during flooding events. Construction workers or maintenance workers may contact subsurface soil at the site. Subsurface soils may also have been displaced during installation of the USTs currently used by the ODPW.

Vapor intrusion into buildings on the site is a potential exposure pathway, since the OPDW buildings may have been expanded over former subsurface MGP structures. The original gas holder was a subsurface holder located very close to the former production building, which is now used by the ODPW. The regional geology indicates that a thin layer of glacial till material is likely to be present at the site. The formation is comprised of silty clay with occasional boulders. Sand was also indicated in the vicinity of the site.

Groundwater is relatively shallow at the site, is not used on the site, and it is likely that groundwater discharges to Sing Sing Creek from the southern portion of the site. Therefore wells in the vicinity of the site would not be expected to be impacted with residuals from former MGP site use. The limited use of the area north of Sing Sing Creek as part of the MGP is not likely to be significant in terms of residuals, and the holder on the parcel north of Central Avenue was an above-ground holder.

Sediments in Sing Sing Creek have likely been impacted by the residuals from former MGP operations and possibly uses of the property prior to and subsequent to the MGP.

9.2 Limitations of Findings

9.2.1 General

The completeness and accuracy of the historic information presented in this report are limited by the records that are readily available including Brown's Directory, PSC Records, Sanborn Maps, chain-of-title search, other historic maps, aerial photographs, and other sources. The coverage offered by these records may not be complete and there are data gaps in the historic

information available pertaining to MGP site ownership and operational periods.

To the extent reasonable, additional records searches were conducted to gather as much information regarding the site as possible. Certain records were not readily available and could not be reviewed including:

- city directories;
- library records; and
- building department records.

Information regarding the procedures for handling residuals at the site, the dismantling and decommissioning of the gas plant equipment, and subsequent site activities that may have involved removal of soil or subsurface equipment were also not available.

9.2.2 Roadways

RETEC's interpretation of the relationship between historical MGP operation areas and modern roadways is based on available historical and modern maps. Land surveying and subsurface investigations have not been performed to attempt to mark-out the location of modern and historical features. Because the subsurface environmental conditions at the former MGP sites are currently unknown, our interpretation of roadway relationships and conditions are subject to change based on the acquisition of new data.

The location and orientation of the roadways adjacent to the former Ossining Works MGP site does not appear to have changed during or after MGP operations at the site. Most of the gas facilities were located in the interior area of the block; therefore changes to the roads surrounding the block would not be on former MGP property.

9.2.3 Mapping of Property Use

Note that the spatial relationship between the historic MGP property and gas production structures and facilities, and the present-day property could not be exactly determined. Mapping by a surveyor in conjunction with an expanded deed search would be required to establish this relationship

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10 Summary of Historical Research Findings

This section presents a summary of findings of the historical research conducted for the former Ossining Works MGP site.

- The MGP site operated continuously from at least 1868 until approximately 1929, after which it was used on a stand-by basis until 1945 [Brown's Directory].

- The MGP site produced coal gas and carbureted water gas. Residuals associated with these processes include tar containing volatile compounds, PAHs, and phenolics, purifier residuals, ammonia residuals, clinker, and gas oil.

- Subsurface structures containing residuals may remain at the site. There were two known subsurface gas holders on the southern portion of the site. Information regarding decommissioning of the site or disposition of residuals from MGP operations is not available.

- Other site uses before or after the MGP operations ceased may have contributed petroleum products (oil & grease, gasoline, fuel oil, diesel fuel, etc.), PCBs, paints, stains, or varnishes, automotive products, solvents, or cyanides to the residuals present at the site.

- The portion of the site north of Central Avenue is currently used as a substation by Con Edison. The portion of the site south of Central Avenue but north of the Sing Sing Creek is used by the ODPW for truck storage and repair. South of the Sing Sing Creek the property is used by the ODPW as a maintenance facility and garage. Surrounding properties are mixed commercial, manufacturing, and residential use.

- Surficial deposits are likely to be present at the site consisting of a thin layer of glacial material. The material is comprised of silty clay with occasional boulders.

- Groundwater at the site is expected to be shallow at less than 10 feet below surface. Groundwater flow is expected to be generally towards Sing Sing Creek, which discharges to the Hudson River, in the low areas immediately bordering the stream, and directly towards the Hudson River in the higher flanking areas. The shoreline area of the Hudson River is approximately 1000 feet to the west of the site.

- Potential receptors include primarily site workers and excavation/maintenance workers. Direct contact of site workers with residuals in surface soil is very limited, however, vapor intrusion into

buildings on the site is a potentially complete exposure pathway. Excavation workers may be exposed to residuals in subsurface soil, should excavation be necessary. Groundwater containing residuals has the potential to migrate to offsite Sing Sing Creek, and sediments in Sing Sing Creek have likely been affected by site use.

11 References

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Tables

Table 5-1 Brown's Directory Summary - Ossining, New York

Year	Company Name	Process	Annual Gas Production (cf)	Gas Holder Capacity (cf)	Byproducts Made/Sold	Service Area Population	Operating Information	Holding and Operating Companies	Financial Reports	Other Brown's Information	Reference Page(s)
Ossining											
1887	Sing Sing Gas Manufacturing Co.	Coal				5,000					42
1889	Sing Sing Gas Manufacturing Co.	Coal				6,000					53
1890	Sing Sing Gas Manufacturing Co.	Coal				7,000					85
1891	Sing Sing Gas Manufacturing Co.	Coal	9,000,000			8,000					77
1892	Sing Sing Gas Manufacturing Co.	Coal	9,000,000			8,000					83
1893	Sing Sing Gas Manufacturing Co.	Coal and Oil	10,000,000			8,000					86
1894	Sing Sing Gas Manufacturing Co.	Coal and Oil	10,000,000			8,000					91
1899	Sing Sing Gas Manufacturing Co.	Coal	10,000,000			8,000 pop. (1899)					87
1900	Sing Sing Gas Manufacturing Co.	Coal	15,000,000			7000; pop. (1899) 10,000					96
1901	Sing Sing Gas Manufacturing Co.	Coal	20,000,000			10,000					100
1902	Ossining Gas Manufacturing Co.	Coal	20,000,000			10,000					102
1903	Ossining Gas Manufacturing Co.	Coal and Lowe	20,000,000			10,000					108
1904	Ossining Gas Manufacturing Co.	Coal and Lowe	20,000,000			10,000					113
1905	Ossining Gas Manufacturing Co.	Coal and Lowe	20,000,000			10,000					118
1906	Northern Westchester Lighting Co.	Lowe	20,000,000			10,000				Successors to Ossining Gas Manufacturing Co.	124
1907	Northern Westchester Lighting Co.	Lowe	20,000,000			8,000					125
1908	Northern Westchester Lighting Co.	Lowe	22,000,000			10,000					131
1909	Northern Westchester Lighting Co.	Lowe	25,000,000 (sales)	150,000		8000; city pop.-20,000	Supplies Ossining				144
1910	Northern Westchester Lighting Co.	Lowe	25,000,000 (sales)	150,000		8000; city pop.-20,000	Supplies Ossining and outlying territory.				159
1911	Northern Westchester Lighting Co.	Lowe	25,000,000 (sales)	150,000		8000; city pop.-20,000	Supplies Ossining, Briarcliff, Hillside, Pleasantville, Croton-on-Hudson, Mt. Pleasant, Cortlandt, and New Castle			Office 127 Main St.	189
1912	Northern Westchester Lighting Co.	Lowe	25,000,000 (sales)	150,000		8000; city pop.-20,000	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson				195
1913	Northern Westchester Lighting Co.	Lowe	25,000,000 (sales)	150,000		8000; city pop.-20,000	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson		Northern Westchester Lighting Co., Ossining, NY was incorporated May 1905 and was a consolidation of the Northern Westchester Light and Power Co., Ossining Light, Heat, and Power Co., and Briarcliff Manor Light and Power Co.		199, 550
1914	Northern Westchester Lighting Co.	Lowe	35,581,100 (sales)	150,000		14637; city pop.-16,443 (1910 Census)	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson	Northern Westchester Lighting Co. is controlled by Consolidated Gas Company of New York (124 East 15th St.)	Same as above		200, 433, 587
1915	Northern Westchester Lighting Co.	Lowe	35,581,100 (sales)	150,000		14637; city pop.-16,443 (1910 Census)	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson	Same as above	Same as above		221, 450, 619
1916	Northern Westchester Lighting Co.	Lowe	42,147,100 (sales)	150,000		14637; city pop.-16,443 (1910 Census)	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson	Affiliated with Consolidated Gas Co. of New York, New York. 130 East 15th Street.	Same as above		223, 457, 627
1917	Northern Westchester Lighting Co.	Lowe	52,861,000	150,000		14637; city pop.-16,443 (1910 Census)	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson	Same as above	Same as above	Annual Sales-47,790,500 cf.	228, 472, 642
1918	Northern Westchester Lighting Co.	Lowe	61,793,000	148,500		14637; city pop.-16,443 (1910 Census)	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson	Same as above	Same as above	Annual Sales-53,910,900 cf.	229, 507, 685
1919	Northern Westchester Lighting Co.	Lowe	65,872,000	148,500		14637; city pop.-16,443 (1910 Census)	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson	Same as above	Same as above	Annual Sales-58,533,700 cf.	326, 588, 780
1920	Northern Westchester Lighting Co.	Lowe	65,872,000	148,500		14637; city pop.-16,443 (1910 Census)	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson	Same as above	Same as above	Annual Sales-58,533,700 cf.	579, 757, 890
1921	Northern Westchester Lighting Company	Lowe	88,188,000	148,500		city pop. 10,739 (1920 pop.)	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson	Same as above	Same as above	Annual Sales-79,016,800 cf	618, 795, 938
1922	Northern Westchester Lighting Company	Lowe, water gas	Water Gas-100,112,000 cf	648,500		city pop. 10,739 (1920 pop.)	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson	Same as above	Same as above	Coal Carbonized- 2,127.97 Net Tons. Gas Oil used-335,297 gals. Annual Sales-89,775,000 cf	588, 730, 838
1923	Northern Westchester Lighting Company	Lowe, water gas	Water gas-100,112,000 cf	648,500		city pop. -10,739 (1920 pop.)	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson	Same as above	Same as above	Coal Carbonized- 2,127.97 Net Tons. Gas Oil used-335,297 gals. Annual Sales-89,775,000 cf	589, 728, 845
1924	Northern Westchester Lighting Company	Lowe, water gas	Water Gas-100,112,000 cf	648,500		city pop. -10,739 (1920 pop.)	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson	Same as above	Same as above. Financial reports for Consolidated Gas Company indicated Northern Westchester Lighting Co. is an affiliated gas company	Coal Carbonized- 2,127.97 Net Tons. Gas Oil used-335,297 gals. Annual Sales-89,775,000 cf	593, 728, 846, 860
1925	Northern Westchester Lighting Company	Lowe, water gas	Water gas-135,766,000	640,000		city pop. -10,739 (1920 pop.)	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson	Same as above	Same as above	Gen. Coal used-2,461.18 gr. Tons. Gas oil used-426,243. Annual Sales-115,626,300 cf	595, 739, 858, 872
1926	Northern Westchester Lighting Company	Lowe, water gas	Water Gas-132,021,000	640,000	tar made-65,820 gals. Tar sold-51,836 gals. Light Oils made-2,057 gals	city pop. -10,739 (1920 pop.)	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson	Same as above		Gen. Coal Used-2,382.88 gr. Tons, Gas oil used-411,377 gals. Annual Sales-116,714,000 cf Owns franchises and privileges of Sing Sing Electric Co., Sing Sing Gas Manfg. Co., and Croton Electric Lt & Pr Co.	578, 723
1927	Northern Westchester Lighting Company	Lowe, water gas	Water gas-142,973,000	500,000	Tar made-77,128 gals. Light oils made-2,322 gals.	city pop. -10,739 (1920 pop.)	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson	Same as above		Gen Coal used-2,597.41 gr. Tons. Gas Oil Used-464,565 gals. Coal used as water gas generator fuel-2,597.41 tons. For Boilers-2,060.97 tons. Annual Sales-124,073,600 cf. Owns franchises and privileges of Sing Sing Electric Co., Sing Sing Gas Manfg. Co., and Croton Electric Lt & Pr Co.	583, 584, 733

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1928	Northern Westchester Lighting Company	Lowe, water gas	Water gas-140,720,000	600,000, relief-100,000	tar made-71,698 gal. Light oils-2,240 gal.	city pop.-10,739	Supplies Ossining, Briarcliff Manor, Pleasantville, and Croton-on-Hudson	Same as above		Coal used-688.84 tons, coke-1,560.13 tons, gas oil used-448,111 gal. Coal used for boilers-1,132.05 tons. Annual Sales-125,918,000 cf. Owns franchises and privileges of Sing Sing Electric Co., Sing Sing Gas Manfg. Co., and Croton Electric Lt & Pr Co.	580, 582, 725
1929	Northern Westchester Lighting Company	Lowe, water gas	Water gas-73,670,000	600,000, relief-100,000	tar made-26,723 gal., light oils, 1,148 gal.	city pop-10,739	Supplies Ossining, Briarcliff Manor, Pleasantville, Mt. Pleasant, Croton-on-Hudson, Cortlandt, Yorktown, and New Castle	Affiliated with Consolidated Gas Co. of New York, New York. 130 East 15th Street.		Coal used as generator fuel 58.90 tons, for boilers 528.71 tons, coke 1,150.64, coke for boilers 863.02 net tons, gas oil used 229,512 gal Owns franchises and privileges of Sing Sing Electric Co., Sing Sing Gas Manfg. Co., and Croton Electric Lt & Pr Co.	116, 118, 260
1930	No listing under Ossining								Financial reports for Consolidated Gas Company no longer lists Northern Westchester Lighting Co. as an affiliate.	Listed under Consolidated Gas Company of New York as an affiliate company. No information specific to Ossining provided. Westchester Lighting Company of Mt. Vernon, an affiliate of Consolidated Gas Company, supplies gas to Ossining.	108, 109, 262
1931-1935	No listing under Ossining									Gas supplied to Ossining by Westchester Lighting Co. of Mt. Vernon, a affiliate of Consolidated Gas Co.	
1936	No listing under Ossining - Westchester Lighting Company, Mt. Vernon						Plants at Pelham and Ossining maintained for Standby Service. Gas supplied by Consolidated Edison Company of New York, N.Y.	Controlled by Consolidated Edison Company of New York, New York. Office, 4 Irving Place. Same company as Consolidated Gas Company.		Main Office 9 South First Ave., Mount Vernon, N.Y., Annual sales 4,681,377,600 cu ft., storage holders 12	311, 558
1937	No listing under Ossining - Westchester Lighting Company, Mt. Vernon						Plants at Pelham and Ossining maintained for Standby Service. Gas supplied by Consolidated Edison Company of New York, N.Y., process water gas	Controlled by Consolidated Edison Company of New York, New York.		Main Office 9 South First Ave., Mount Vernon, N.Y., Annual sales 5,008,432,500 cu ft., 15 storage holders	315, 570
1938	No listing under Ossining - Westchester Lighting Company, Mt. Vernon						Plants at Pelham and Ossining maintained for Standby Service. Gas supplied by Consolidated Edison Company of New York, N.Y., process water gas	Controlled by Consolidated Edison Company of New York, New York.		Main Office 9 South First Ave., Mount Vernon, N.Y., Annual sales 5,326,986,600 cu ft., 14 storage holders	317, 578
1939	No listing under Ossining - Westchester Lighting Company, Mt. Vernon						Plants at Pelham and Ossining maintained for Standby Service. Gas supplied by Consolidated Edison Company of New York, N.Y., process water gas	Controlled by Consolidated Edison Company of New York, New York.		Main Office 9 South First Ave., Mount Vernon, N.Y., Annual sales 5,752,283,700 cu ft., 14 storage holders	356, 657
1940	No listing under Ossining - Westchester Lighting Company, Mt. Vernon						Plants at Pelham and Ossining maintained for Standby Service. Gas supplied by Consolidated Edison Company of New York, N.Y., process water gas	Controlled by Consolidated Edison Company of New York, New York.		Main Office 9 South First Ave., Mount Vernon, N.Y., Annual sales 6,171,898,800 cu ft., 14 storage holders	364, 664
1941	No listing under Ossining - Westchester Lighting Company, Mt. Vernon						Plants at Pelham and Ossining maintained for Standby Service. Gas supplied by Consolidated Edison Company of New York, N.Y., process water gas	Controlled by Consolidated Edison Company of New York, New York.		Main Office 9 South First Ave., Mount Vernon, N.Y., Annual sales 6,633,946,100 cu ft., 14 storage holders	359, 662
1942	No listing under Ossining - Westchester Lighting Company, Mt. Vernon						Plants at Pelham and Ossining maintained for Standby Service. Gas supplied by Consolidated Edison Company of New York, N.Y., process water gas	Controlled by Consolidated Edison Company of New York, New York.		Main Office 9 South First Ave., Mount Vernon, N.Y., Annual sales 6,364,047,700 cu ft., 14 storage holders	352, 649
1943-1944	No listing under Ossining - Westchester Lighting Company, Mt. Vernon						Plants at Pelham and Ossining maintained for Standby Service.	Controlled by Consolidated Edison Company of New York, New York.		Main Office 9 South First Ave., Mount Vernon, N.Y.,13 storage holders, Materials used: coal 233 short tons, coke 391 short tons , oil 2,425 gal	309, 584
1944-1945	No listing under Ossining - Westchester Lighting Company, Mt. Vernon						Plants at Pelham and Ossining maintained for Standby Service.	Controlled by Consolidated Edison Company of New York, New York.		Main Office 9 South First Ave., Mount Vernon, N.Y., 13 storage holders, Materials used: coal under boilers 259 short tons, coke 391 short tons, gas oil 62,425 gals.	306, 584
1945-1951	No listing under Ossining - Westchester Lighting Company, Mt. Vernon						No longer indicates Ossining plant is on stand-by.	Controlled by Consolidated Edison Company of New York, New York.			
1951-1952	No listing under Ossining - Consolidated Edison Company of New York, Inc. (Westchester Div.) (Formerly Westchester Lighting Co.)						Company converted to natural gas				247, 452

Table 5-2 Site Ownership Summary - Ossining Gas Works - Ossining, New York

Block	Lot(s)	Utility Owner	Purchased	Sold	Current Owner	Purchased	Other Potential Industrial Activity
25	1	Sing Sing Gas Manufacturing Co.	9/22/1855		Village of Ossining	12/26/1957	village garage
		Sing Sing Gas Manufacturing Co.	3/1/1860				
		Sing Sing Gas Manufacturing Co.	3/1/1867				
		Sing Sing Gas Manufacturing Co.	5/10/1867				
		Sing Sing Gas Manufacturing Co.	6/12/1867				
		Ossining Heat Light and Power Co. (Merger with Sing Sing Gas)	6/3/1901				
		Northern Westchester Lighting Co.	7/3/1906				
		Northern Westchester Lighting Co.	7/19/1923				
		Consolidated Edison Co. of NY		12/26/1957			
25	2	Northern Westchester Lighting Co.	1/14/1922		Village of Ossining	12/26/1957	lumber yard and woodworking company, village garage
		Northern Westchester Lighting Co.	7/19/1923				
		Northern Westchester Lighting Co.	9/7/1923				
		Northern Westchester Lighting Co.	6/15/1926				
		Consolidated Edison Co. of NY		12/26/1957			
15	1, sublot 6	Northern Westchester Lighting Co.	1/14/1921	9/30/1929	The Wire Mill, LLC	12/12/2001	wire factory
15	1, sublot 8	Northern Westchester Lighting Co.	1/14/1921	7/27/1948	The Wire Mill, LLC	12/12/2001	wire factory
15	1, sublot 15	Northern Westchester Lighting Co.	1/14/1921	2/23/1922	The Wire Mill, LLC	12/12/2001	wire factory
15	20	Northern Westchester Lighting Co.	1/14/1921		Consolidated Edison Co. of NY		junk storage, active electric substation
15	20.1	Northern Westchester Lighting Co.	1/14/1921		Consolidated Edison Co. of NY		former electric substation building

Notes:
1) No deed provided which breaks Block 15, Lot 20 into Lots 20 and 20.1.
2) The northernmost portion of Lot 20.1 which is in line with Hill Street (a 35' x 15' area), and the easternmost triangular corner area of Lot 20.1 along Central Avenue are not described in any of the property deeds, but which are included with the property on the current tax map.
3) Shaded lines indicate the dates when portions of the indicated lots were purchased and incorported into the gas company holdings. These smaller lots were merged to form Lot 1 and Lot 2 in Block 25.

Table 6-1 Summary of Potential Residuals Associated with Site Use and Offsite Sources

Potential MGP Residuals

- Coal tar and carbureted water gas tar or tar/water mixtures in structures (Volatile Organic Compounds, particularly Benzene, Toluene, Ethlybenzene, and Xylenes (BTEX); Polynuclear Aromatic Hydrocarbons (PAHs))
- Solid constituents (BTEX, PAHs) or non-aqueous phase liquids (NAPLs) in subsurface (from leaks or spills)
- Purifier residuals (cyanide and lime)
- Metals in soil or groundwater
- Fuel oil (used in carbureted water gas process)
- Coke/Clinker

Potential Residuals from Other Site Uses

- Oil and grease
- Paints, varnishes, stains
- PCBs
- Gasoline
- Fuel Oil
- Diesel oil
- Other petroleum products
- Automotive residuals
- Solvents
- Road Salt (may contain cyanides)

Potential Residuals from Off-Site Sources

- Based on known onsite or upgradient leaks or spills from EDR Database:
  - #2 and #4 Fuel oil
  - Diesel fuel

Figures

Appendix A - History Research Report Checklist

Appendix B - Site Reconnaissance Photographic Log

Appendix C - EDR Radius Map Report

Appendix D - Chain-of-Title Search Results

Appendix E - Sanborn Maps

Appendix F - Historical Maps

Appendix G - Aerial Photographs

Appendix H - Historical Photographs