Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Niagara Mohawk - Schenectady Seneca Street Former Manufactured Gas Holder Site Schenectady (C), Schenectady County, New York Site Number 4-47-025

March 2003

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* ERIN M. CROTTY, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Niagara Mohawk - Schenectady Seneca Street
Former Manufactured Gas Holder Site
Schenectady (C), Schenectady County, New York
Site No. 4-47-025

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Niagara Mohawk - Schenectady Seneca Street Former Manufactured Gas Holder site. The selected remedial program was chosen in accordance with the New York State Environmental Conservation Law and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Niagara Mohawk - Schenectady Seneca Street Former Manufactured Gas Holder site, and the public's input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site have been addressed by implementing the interim remedial measure identified in this ROD. The removal of contaminated soil from the site has significantly reduced the threat to public health and the environment.

Description of Selected Remedy

Based on the results of the Interim Remedial Measure for the Niagara Mohawk - Schenectady Seneca Street Former Manufactured Gas Holder site and the criteria identified for evaluation of alternatives, the NYSDEC has selected no further action other than institutional controls. The institutional controls required for this site are as follows:

- a prohibition of land development for residential use, only appropriate commercial or industrial use will be allowed;
- worker notification if utility or other excavation work was planned;
- notification to the NYSDEC prior to any action which could jeopardize the integrity of the remedy;

- development and approval of a soil management plan for operation and maintenance of the site to address how any contaminated soil or waste removed from below the asphalt cap or building is to be handled;
- prohibition of the development of water supply wells; and,
- annual certification to ensure that engineering and institutional controls included in the remedy are in place and remain effective to control the identified exposures.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

_____ _____

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

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SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the Schenectady - Seneca Street former manufactured gas holder site. As more fully described in Sections 3 and 5 of this document, manufactured gas storage resulted in the release of hazardous wastes, including benzene and polycyclic aromatic hydrocarbons (PAHs). These wastes contaminated the subsurface soils at the site, and resulted in:

- a significant threat to human health associated with potential exposure to contaminated subsurface soils; and

- a significant environmental threat associated with the impacts of contaminants in shallow subsurface soils to vegetation and burrowing wildlife.

During the course of the investigation certain actions, known as interim remedial measures (IRMs), were undertaken at the Schenectady Seneca Street former manufactured gas holder site in response to the threats identified above. An IRM is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the remedial investigation/feasibility study (RI/FS). The IRM undertaken at this site included the removal of the majority of the gas holder ring wall and associated structures, as well as soils containing visual coal tar impacts. Contaminated soils above the action levels have been addressed either by removal or containment and capping.

Based on the implementation of the above IRM, the findings of the investigation of this site indicate that the site no longer poses a significant threat to human health or the environment, therefore No Further Action with institutional controls was selected as the remedy for this site.

The selected remedy, discussed in detail in Section 6, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially promulgated standards and criteria that are directly applicable, or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, criteria and guidance are hereafter called SCGs.

SECTION 2: SITE LOCATION AND DESCRIPTION

The Schenectady - Seneca Street former manufactured gas holder site is located at 308 Seneca Street in the City of Schenectady. The site is situated on approximately 5 acres and is the former location of a six million cubic foot at grade manufactured gas storage and distribution holder. The holder received purified manufactured gas from the Water Street manufactured gas plant (MGP) in Troy, NY. Gas was not manufactured at this site. The site is currently utilized as a crew facility for natural gas and electric distribution services. It also houses a natural gas regulator station. It is situated in a mixed commercial/industrial and residential section of the city, approximately 800 feet east of the Mohawk River. No residences border the site and the surrounding area is served by public water.

The site is relatively flat with a gentle downward slope to the northwest. The elevation ranges from approximately 498 to 502 feet above mean sea level across the site. The site is rectangular with Seneca Street comprising the northern border, with railroad tracks along the southern and western sides of the site. A bike path is located near the eastern border of the site. A chain link fence encompasses the perimeter of the site. The United Plating site, a class 2 inactive hazardous waste site, is located approximately one quarter mile west of the site. A site location map is provided as Figure 1.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

In 1930, New York Power and Light Corporation purchased the property and constructed an at grade tar sealed gas holder with a height of approximately 266 feet, diameter of 182 feet and a capacity of 6 million cubic feet. The manufactured gas was produced in Troy and distributed via transmission lines to the Seneca Street holder. Directly south of the holder was a 9000 gallon steel skimmer tank and tar pumphouse. Between 1931 and 1933, a building was added to the site southwest of the gas holder. The building contained a compressor room, an electrical room and office. This building remains on site, and was reconstructed as a crew facility and utility truck garage in 1967. In 1961, the gas holder was decommissioned and removed. In 1973, a utility training center building was constructed adjacent to the booster station and enclosed by a ten feet high chain link fence (Niagara Mohawk, 1998).

In 1993, a spill was reported to the NYSDEC due to a leaking 2,000 gallon underground diesel fuel tank. The tank was promptly removed and the spill file has since been closed. The incident is no longer impacting the site.

The walls of the holder were fixed to a near surface concrete slab. Around the perimeter of the holder a foundation ring wall, including piers with anchor bolts, was used to support the holder walls. The anchor bolts were mounted to the piers within oversized steel sleeves for ease of installation. Figure 2 details a typical pier along a portion of the holder ring wall.

In a tar seal holder such as this one, the piston roof was designed to move up and down to regulate gas pressure. This roof was sealed with tar to prevent gas leakage. The tar was stored in the steel

skimmer tank south of the holder. The tar was pumped from the tank to the top of the holder and distributed around the periphery of the piston roof into the piston seal ring. The ring was not completely tar tight because the piston was designed to slide along the steel holder walls as the piston moved up and down within the holder. Tar would escape through the seal and would flow down along the walls to the bottom of the holder. Accumulated tar was conveyed from the holder floor into a series of tar vaults around the perimeter of the holder. The tar was then transferred from the vaults through pipes back to the skimmer tank and tar pump house. The tar was passed through the skimmer tank and pumped back up to the top of the holder for re-circulation (Niagara Mohawk, 2003).

Condensate would also form along the gas piping route. This was collected in drip pots connected to the gas distribution piping. The condensate likely contained low concentrations of coal tar, a non-aqueous phase liquid (NAPL).

This site is not typical of most other MGP sites as manufactured gas was never produced at this location. The gas was produced in Troy, NY and only stored for distribution from the site. Nearly all gas waste products were removed at the producer plant. However, the tar conveyance system described above resulted in the release of some contaminants around the perimeter of the holder.

3.2: Remedial History

The following is a chronology of the remedial history of the site:

Mar	1991	USEPA Preliminary Assessment
Dec	1992	NMPC signs consent order to address sites, one of which is Schenectady - Seneca Street.
Feb	1998	Work Plan for PSA/IRM Study
Nov	1998	PSA & IRM Study Report
May	2001	IRM Work Plan
Oct 16	2001 to Jan 22	2002 IRM Undertaken
Feb	2003	Distribution Holder Interim Remedial Measure (IRM) Summary Report

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The NYSDEC and Niagara Mohawk Power Corporation (NMPC) entered into a Consent Order on December 7, 1992. In 2002, NMPC was acquired by National Grid resulting in a new company Niagara Mohawk, A National Grid Company. The Order obligates the responsible party to implement a full remedial program.

SECTION 5: SITE CONTAMINATION

A preliminary site assessment has been conducted to evaluate whether significant threats to human health and the environment were present at the site.

5.1: Summary of the Investigation

The purpose of the investigation was to define the nature and extent of any contamination resulting from previous activities at the site. A preliminary site assessment/interim remedial measures (PSA/IRM) study was conducted in June and July 1998**.** The field activities and findings of the investigation are described in the PSA and IRM Study report.

The following activities were conducted during the PSA/IRM study:

- Research of historical information;
- Installation of 5 soil borings for analysis of soils as well as physical properties of soil and hydrogeologic conditions;
- Collection of four surface soil samples;

To determine whether the soil contains contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater, drinking water, and surface water SCGs are based on NYSDEC "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.
- Soil SCGs are based on the NYSDEC "Technical and Administrative Guidance Memorandum (TAGM) 4046; Determination of Soil Cleanup Objectives and Cleanup Levels".
- Background surface soil samples were taken from two locations. These locations were off-site, and were unaffected by historic or current site operations. The samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals and polychlorinated biphenyls (PCBs). The results of the analysis were compared to data from the PSA & IRM study (Table 1).

Based on the PSA & IRM study results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site required remediation. These are summarized below. More complete information can be found in the PSA & IRM study.

5.1.1: Site Geology and Hydrogeology

There are three unconsolidated units located beneath the site. These layers, from shallowest to deepest, are fill, alluvial deposits, and glacial till. The fill unit was found to range from approximately one foot to several feet thick and consists of sand, gravel, concrete, and brick. The alluvial deposit was found to range from several feet to approximately five feet thick and consists of sand, silt, and gravel. The till unit was encountered beneath the alluvial deposit and consists of a very dense, dry, dark brown, gray to black silt. Bedrock was not encountered during any activities at the site. The bedrock in this area consists of alternating shale and sandstone.

Groundwater was encountered within the glacial till layer between 24 and 25 feet below ground in two of the PSA borings. The unconsolidated aquifer in this area is assumed to be located within this layer. Groundwater flow near the site is presumed to be to the west toward the Mohawk River.

5.1.2: Nature of Contamination

As described in the PSA & IRM study report, many soil samples were collected to characterize the nature and extent of contamination. As summarized in Table 1, the main categories of contaminants in soil that exceed their SCGs are volatile and semivolatile organic compounds (VOCs and SVOCs).

The VOCs of concern are benzene, toluene, ethylbenzene and xylenes (BTEX). The specific SVOCs of concern are polycyclic aromatic hydrocarbons (PAHs). These compounds are found at elevated levels in soils impacted by MGP tars.

5.1.3: Extent of Contamination

This section describes the findings of the investigation for all environmental media that were investigated.

Chemical concentrations are reported in parts per billion (ppb) for water and parts per million (ppm) for soil. For comparison purposes, where applicable, SCGs are provided for each medium.

Table 1 summarizes the degree of contamination for the contaminants of concern in soil and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Surface Soil

Four surface soil samples and one duplicate sample were collected from two on–site and two off-site locations. None of the BTEX compounds were found above TAGM-4046 levels. Total PAH concentrations for the two on-site samples and one duplicate sample were 1.74 ppm, 0.81 ppm and 0.86 ppm. The two off-site samples had concentrations of 0.88 ppm and 11.92 ppm. Based on this information it appears that past MGP operations at the site have not resulted in impacts to the surface soils.

Subsurface Soil

Twelve subsurface soil samples and two duplicate samples were collected. Two of these samples were collected adjacent to the on-site surface soil locations from the 0-2 foot interval. The other samples and two duplicate samples were collected from five soil borings completed on-site. Individual BTEX compounds were only detected in two samples; SB-03 and SB-05, but at concentrations below TAGM-4046 levels. Individual PAH compounds were detected in the majority of samples. However, only one sample was within the same order of magnitude as the 500 ppm total PAH TAGM value. This was taken from SB-03 at 0 to 2 feet with a total PAH concentration of 461 ppm. Eleven individual PAH concentrations exceeded TAGM values in SB-03. Total PAH concentrations in the other samples ranged from not detected to approximately 16 ppm.

Groundwater

Groundwater was only encountered in two PSA soil borings at approximately 25 feet below the surface. Due to the depth of groundwater and the tight nature of the till, no groundwater impacts were observed or expected, and samples were not collected.

5.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS.

Following the PSA and IRM study, an IRM was proposed to excavate and properly dispose of the shallow soils in the immediate area of SB-03. This area had the most detections of individual PAHs above TAGM-4046 levels. A five foot by five foot square was proposed to be excavated to a depth of four feet. Confirmation soil samples were to be collected for comparison with TAGM 4046 guidance values. The remedial action objective was 500 ppm total PAHs and 0.1 ppm benzene.

The IRM also proposed the excavation of six test pits along the perimeter of the former distribution holder. The purpose was to locate a series of chambers along the perimeter of the holder and determine if there was any contamination associated with them.

The IRM began on October 16, 2001. As the excavation took place in the vicinity of SB-3 and along the perimeter of the holder ring wall. Significant NAPL impacts were discovered. These impacts were found as a zone of contamination around the perimeter of the ring wall and extending to a depth of approximately 13 feet at the pier locations. This was due to apparent leaks in the tar re-circulation piping found around the perimeter. In addition, the sleeves around the anchor bolts within the foundation piers which supported the holder walls were found to be conduits for NAPL seepage. The tops of the sleeves were apparently not well sealed off from the interior of the holder floor. The sleeves received NAPL from the floor allowing the NAPL which penetrated the sleeves to move through cracks and pores in the concrete piers and surrounding soils.

These discoveries lead to an expanded IRM, though the remedial action objectives remained unchanged. The final excavation would require removal of significant quantities of NAPL impacted soils, portions of the holder ring wall and associated structures. The excavation included: (1) the holder ring wall and associated soils/NAPL, (2) 16 piers to a depth of approximately 13 feet, (3) two

drip pots containing NAPL impacted debris and (4) four tar vaults. Soil excavation extended outward from these structures around the circumference of the holder, removing all visually impacted materials. A total of 8,323 tons of soil were excavated from these areas. Of these soils, 2,949 tons were shipped to thermal treatment facilities. The balance went to the Seneca Meadows Landfill for disposal. Approximately 366 tons of construction debris was removed from the site. The excavation limits are provided in Figure 3.

Dewatering of the excavation area was performed when necessary throughout the IRM. Dewatering activities focused on the removal of perched groundwater infiltrating from behind the ring wall or surface runoff which entered the excavation. The water was pumped from the excavation areas into an on-site fractionation tank. A total of 23,439 gallons of water and the liquid portion of sludge were removed from the tank and transported to a disposal facility. The heavy solid sludge was removed from the tank and shipped off-site with dry soils for thermal treatment.

Backfilling was performed following removal of soils and debris from the excavation area. Certified clean bank run sand was used as backfill. A geo-textile fabric was placed over all backfilled areas on which an eight to twelve inch thick layer of gravel was placed and compacted.

The existing on-site metal garage overlies approximately twenty percent of the eastern portion of the concrete ring wall. Therefore portions of the ring wall and pier structures beneath the garage have been left in place. The predicted locations of four remaining piers and one vault are shown on Figure 3. The excavation in this area was advanced no closer to the garage than a 1:1 slope would allow. To prevent the possibility of re-contamination of remediated areas, a sprayed on liner system was installed on the slope face of the material to remain. A detail of the liner system is shown in Figure 4. An asphalt cap and the building will be maintained as a cap over this area. The cap will restrict groundwater infiltration beneath the site. Groundwater at the site was not encountered during the remediation, as it is below the deepest presence of contamination. Therefore groundwater is not expected to come in contact with any remaining contamination. Due to the tight till and depth to the groundwater in this area, these actions are expected to satisfactorily contain any remaining waste material and effectively cut off the exposure or migration pathways.

The removal portion of the IRM was completed on January 22, 2002. The paving was completed in December 2002.

5.2.1: IRM Confirmation Sampling

This section describes the findings of the confirmation sampling completed during the IRM.

Chemical concentrations are reported in parts per billion (ppb) for water and parts per million (ppm) for waste and soil. For comparison purposes, where applicable, IRM objectives are provided for each medium.

Table 2 summarizes the degree of contamination for the contaminants of concern in soil and compares the data with the IRM objectives for the site. The following are the media which were sampled and a summary of the findings.

Surface Soil

Surface soil samples were not collected during the IRM. The PSA/IRM study revealed that surface soils at the site were not impacted by historic gas storage activities. In addition, the entire area of gas storage operations was paved as a component of the IRM.

Subsurface Soil

Thirteen subsurface soil confirmation samples were collected during the IRM. Six of these samples were taken from the sidewall while the remaining seven were bottom samples. The majority of these samples were collected in areas of the excavation associated with the foundation piers. Individual BTEX compounds were only detected above the TAGM-4046 values in one sample (BM-08). However, these exceedances were minor and the IRM objective of 0.1 ppm benzene was only exceeded in one confirmation sample, BM-08 (1.8 ppm). Two samples exceeded the 500 ppm IRM objective for total PAHs; SW05_Pier-11 (1,150 ppm) and SW-07 (880 ppm). Each of the these samples represent a discrete portion of the soils remaining at the site. SW05_Pier-11 was taken from the sidewall adjacent to the garage. BM-08 and SW-07 were collected near the termination of the excavation south of the garage. These samples is representative of the most impacted soils which will remain contained by application of the sprayed on liner system. This contamination would be removed in the future if the building is taken down. The IRM removed all visually contaminated materials from this area. All confirmation samples were discrete and biased to the suspected location of greatest contamination. No visual product or staining was observed at the sidewall. Therefore, the soils represented by these samples comprise a small discrete area of moderate contamination. This contamination is not mobile and does not contact groundwater. The depth of these soils combined with the in-place soil cover will provide further protection of human health and the environment.

Groundwater

Perched groundwater beneath the holder slab was encountered during the IRM. This water was pumped from the excavation and removed from the site. The top of the groundwater aquifer was not reached during the IRM and no groundwater samples were collected.

5.3: Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site.

An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point

is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway are documented. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

The IRM completed at the site has reduced the potential for future exposures to site contaminants. However, inaccessible contamination remains in soil beneath an on-site building. Potential exposure pathways, which could exist in the future as a result of the remaining contamination at the site, include:

- Direct contact, incidental ingestion and inhalation exposures to site contaminants in sub-surface soil by construction workers involved in future excavation activities near the footprint of the metal garage building.

- Inhalation of vapors accumulating in indoor air of on-site structures by future site occupants.

- Currently, groundwater is not considered an exposure pathway of concern. The potential for future exposures to contaminants in groundwater is unlikely due to the completion of the IRM and the fact that the site is serviced by public water. However, potential exposures to contaminated groundwater could occur in the future if a drinking water well is installed on site, near the remaining contaminated soil.

5.4: Summary of Environmental Impacts

This section summarizes the existing and potential future environmental impacts presented by the site prior to the IRM. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

The Fish and Wildlife Impact Analysis, which is included in the PSA/IRM Study report, presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors. The following environmental exposure pathways and ecological risks have been identified:

- a significant environmental threat associated with the impacts of contaminants in shallow subsurface soils to vegetation and burrowing wildlife.

Samples from surface soils collected from the site did not contain elevated levels of contaminants, and evidence of deep rooted vegetation or burrowing wildlife was not present. Additionally, the former area of gas storage and distribution activities has been paved as part of the remedy. Therefore a viable exposure pathway to wildlife receptors was not present.

Groundwater was encountered during the investigation within the glacial till layer approximately 25 feet below ground surface in SB-1 and SB-2. The excavation depth during the IRM did not reach

groundwater, although perched groundwater infiltrating from beneath the holder was removed. Visual contamination was not observed below the depth of the pier foundations, at approximately thirteen feet bgs. A viable exposure pathway of groundwater to wildlife receptors was not present.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS AND SELECTED REMEDY

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

Prior to the completion of the IRM described in Section 5.2, the remediation goals for this site were to eliminate or reduce to the extent practicable:

- exposures of persons at or around the site to BTEX and PAHs in subsurface soils;
- environmental exposures of flora or fauna to BTEX and PAHs in shallow subsurface soils; and
- the release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards.

Further, the remediation goals for the site include attaining to the extent practicable:

- ambient groundwater quality standards
- remedial action objectives of 500 ppm total PAHs and 0.1 ppm benzene for soils

The NYSDEC believes that the IRM has accomplished these remediation goals provided it continues to be maintained in a manner consistent with its design.

Based on the results of the investigations at the site, the IRM that has been performed, and the evaluation discussed below, the NYSDEC is has selected No Further Action as the preferred alternative for the site.

The basis for this selection is the NYSDEC's conclusion that No Further Action with institutional controls will be protective of human health and the environment and will meet all SCGs. Overall protectiveness is achieved through meeting the remediation goals listed above. These goals were met by the IRM which removed all accessible soils and structures visually impacted by NAPL. This was completed along the circumference of the holder except where prohibited by the presence of an on-site garage. Sidewall and bottom confirmation samples demonstrate the effectiveness of this action in removing site contaminants above the action levels for continued commercial/industrial use of the site.

The main SCGs applicable to this project are as follows:

TAGM 4046 - Soil Cleanup Objectives of:

- 500 ppm total PAHs in subsurface soils
- 0.06 ppm benzene in subsurface soils

The IRM was performed by excavating all accessible subsurface soils visually impacted by NAPL. Samples were collected to confirm that the IRM objectives were met. Only three of thirteen confirmation samples exceeded the SCGs. BM-08 had a benzene concentration of 1.8 ppm. SW05_Pier-11 and SW-07 had total PAH concentrations of 1150 and 880 ppm, respectively. All confirmation samples were biased to the specific location of greatest contamination. These samples represent a small discrete portions of the soil found at the site which will remain and are contained by the sprayed on liner system. The IRM was therefore successful in removing contaminated materials assessable along the former holder ring wall. These results and the other components of the IRM demonstrate the effectiveness of the remedy in protecting human health and the environment and achieving the SCGs.

The NYSDEC concludes that the following elements of the IRM already completed have achieved the remediation goals for the site:

1. Demolition and removal of the holder ring wall and associated structures including 16 piers to a depth of approximately 13 feet, two drip pots containing NAPL impacted debris and four tar vaults.

2. Approximately 366 tons of construction debris were removed from the site. A total of 16.4 tons of construction debris were landfilled as non-hazardous material.

3. Excavation of NAPL impacted soils surrounding the circumference of the holder. A total of 8,323 tons of soil were excavated from areas adjacent to the ring wall and piers. Of these soils, 2,949 tons were shipped to thermal treatment facilities.

4. An existing on-site metal garage overlies approximately twenty percent of the eastern portion of the concrete ring wall. Therefore based on historical documents and field observations, portions of the ring wall, four piers and a tar vault likely remain beneath the garage. Due to the need to maintain the building, the excavation was advanced no closer to the garage than a 1:1 slope would allow. To contain the remaining contamination and prevent the re-contamination of remediated areas, a sprayed on liner system was installed on the face of the contaminated material left in place. The building and adjacent asphalt cap serve as an effective barrier to exposure or migration pathways.

5. Post- excavation sampling was performed at the base and sidewalls of the excavation at approximately 50-foot intervals. Six test pits were completed adjacent to the garage to assure the extent of contamination did not extend beyond the building footprint other than in the vicinity of the ring wall.

6. Backfilling was performed using certified clean bank run sand. A geo-textile fabric was placed over all backfilled areas on which an eight to twelve inch thick layer of gravel was compacted.

7. The site was paved with asphalt to provide an impermeable cap which will prevent infiltrating groundwater from passing through contaminants remaining under the on-site garage.

Therefore, No Further Action is needed other than the institutional and engineering controls to limit future site development and prevent future exposures to site contaminants. These will include: (a) a prohibition of land development for residential use, only appropriate commercial or industrial use will be allowed; (b) worker notification if utility or other excavation work was planned; (c) notification to the NYSDEC prior to any action which could jeopardize the integrity of the remedy; (d) **development and approval of a soil management plan (SMP) for operation and maintenance of the site to address how any contaminated soil or waste removed from below the asphalt cap or building is to be handled;** (e) an assessment of indoor air quality will be required should the use of the existing building change from its current use as an equipment storage garage; **and,** (f) prohibition of the development of water supply wells.

In addition, language will be included in the deed to require Niagara Mohawk or any future property owner to complete the excavation of contaminated soil from beneath and adjacent to the building if the building is demolished or removed in the future. Appropriate industrial or commercial uses of the property will have to be consistent with any applicable zoning ordinances, but will not include any enterprises that draw susceptible portions of the community to the properties for activities that may lead to exposures to residual site contamination (e.g. day care, child care, medical treatment facilities, some recreational enterprises). Annual certification will be required to ensure that engineering and institutional controls included in the remedy are in place and remain effective to control the identified exposures.

TABLE 1
Nature and Extent of Contamination
PSA / IRM Study
June - July 1998

SURFACE SOILS	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)[d]	Benzene	ND[c]	0.06	0 / 3
	Toluene	ND	1.5	0 / 3
	Ethylbenzene	ND	5.5	0 / 3
	Xylenes	ND	1.2	0 / 3
	Total BTEX[e]	ND	10	0 / 3
Semivolatile Organic Compounds (SVOCs)[f]	Total PAHs[g]	0.81 - 1.74	500	0/3

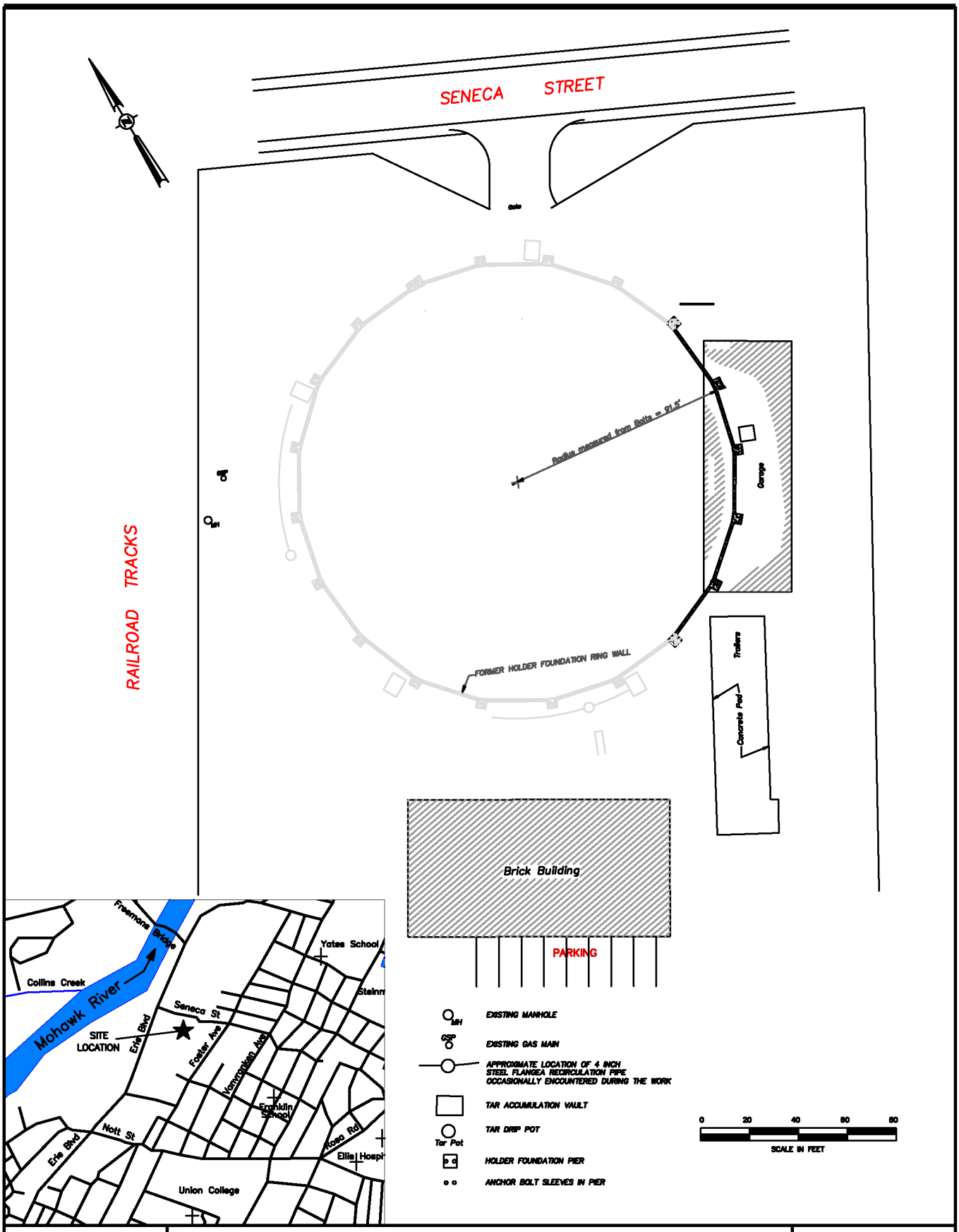
TABLE 1
Nature and Extent of Contamination
PSA / IRM Study
June - July 1998

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)[d]	Benzene	ND[c]	0.06	0 / 13
	Toluene	ND	1.5	0 / 13
	Ethylbenzene	ND - 0.0103	5.5	0 / 13
	Xylenes	ND - 0.0016	1.2	0 / 13
	Total BTEX[e]	ND - 0.0103	10	0 / 13
Semivolatile Organic Compounds (SVOCs)[f]	Total PAHs[g]	ND - 461	500	0 / 13

TABLE 1A
Nature and Extent of Contamination
Post IRM Confirmation Sampling
2001 - 2002

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	IRM[h] Objective (ppm)	Frequency of Exceeding IRM Objective
Volatile Organic Compounds (VOCs)[d]	Benzene	ND[c] - 1.800	0.1	1 / 13
	Toluene	ND - 0.61	1.5	0 / 13
	Ethylbenzene	ND - 0.38	5.5	0 / 13
	Xylenes	ND - 2.2	1.2	1 / 13
	Total BTEX[e]	ND - 4.99	10	0 / 13
Semivolatile Organic Compounds (SVOCs)[f]	Total PAHs[g]	0.139 - 1,152	500	2 / 13

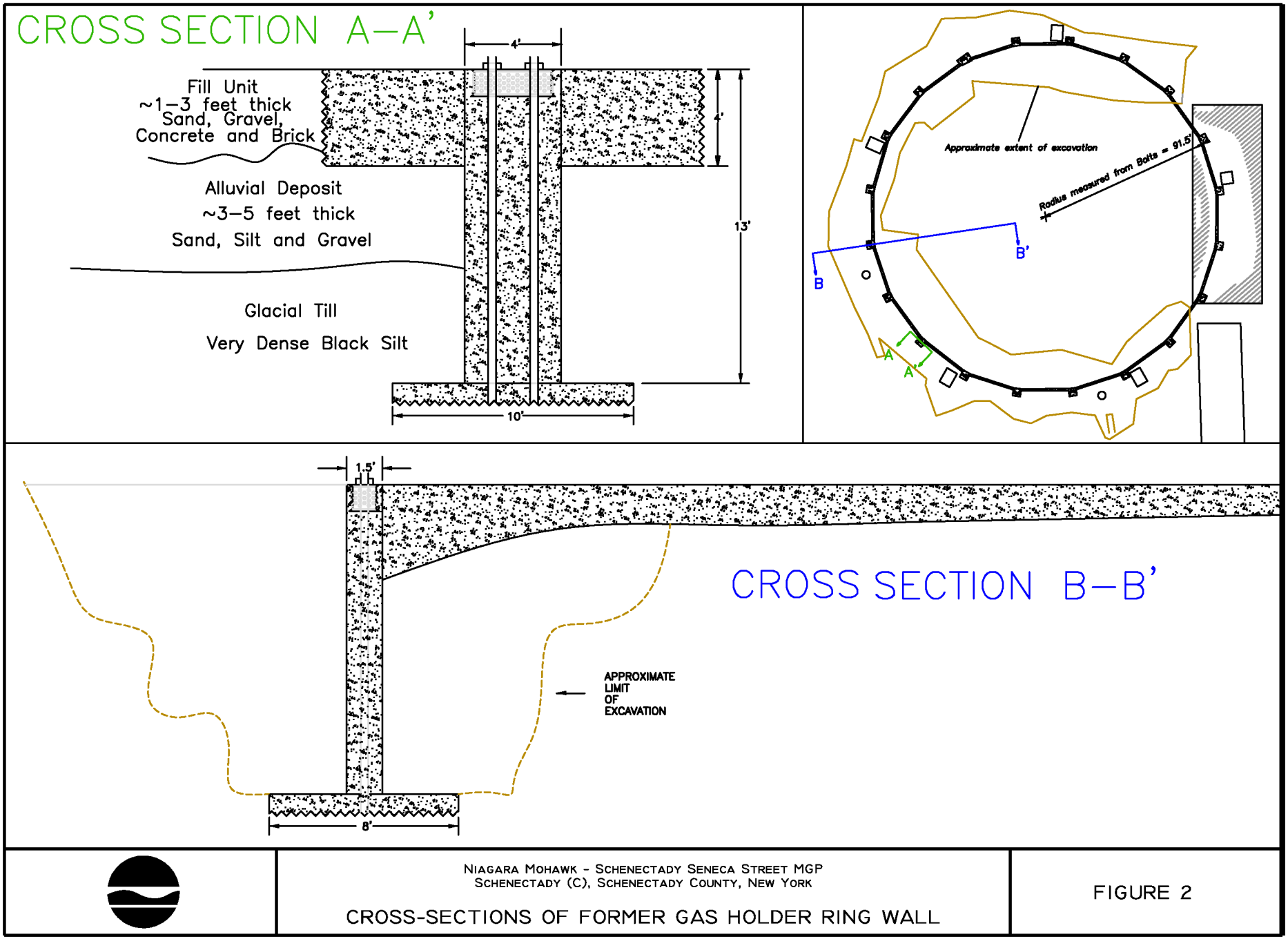
[a] ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
[b] SCG = standards, criteria, and guidance values;
[c] ND = concentration not above detection limits;
[d] VOCs = volatile organic compounds;
[e] BTEX = benzene, toluene, ethylbenzene and total xylenes;
[f] SVOCs = semi-volatile organic compounds;
[g] PAHs = polycyclic aromatic hydrocarbons;
[h] IRM = interim remedial measure



NIAGARA MOHAWK - SCHENECTADY SENECA STREET MGP
SCHENECTADY (C), SCHENECTADY COUNTY, NEW YORK

SITE LOCATION MAP

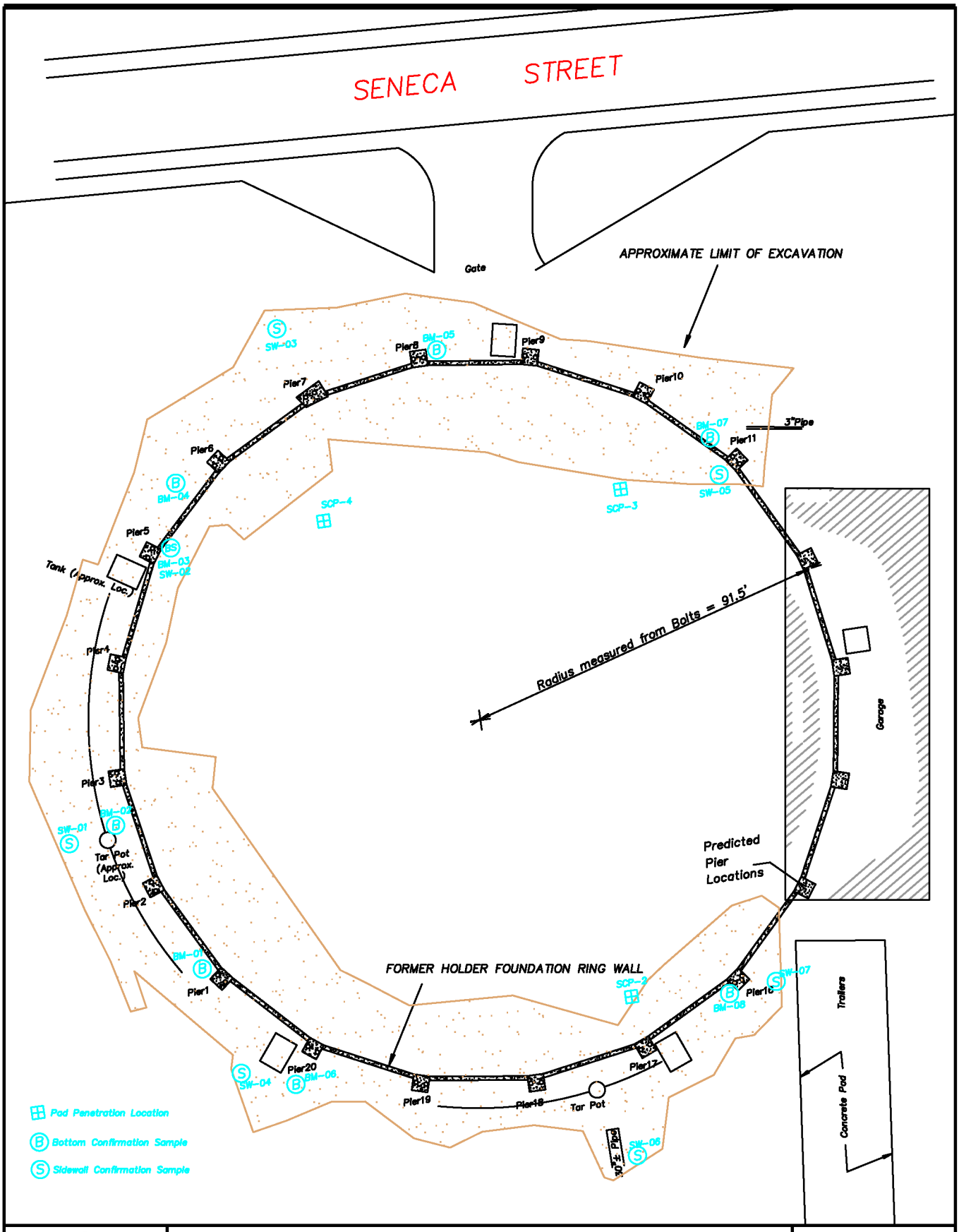
FIGURE 1



NIAGARA MOHAWK - SCHENECTADY SENECA STREET MGP
SCHENECTADY (C), SCHENECTADY COUNTY, NEW YORK

CROSS-SECTIONS OF FORMER GAS HOLDER RING WALL

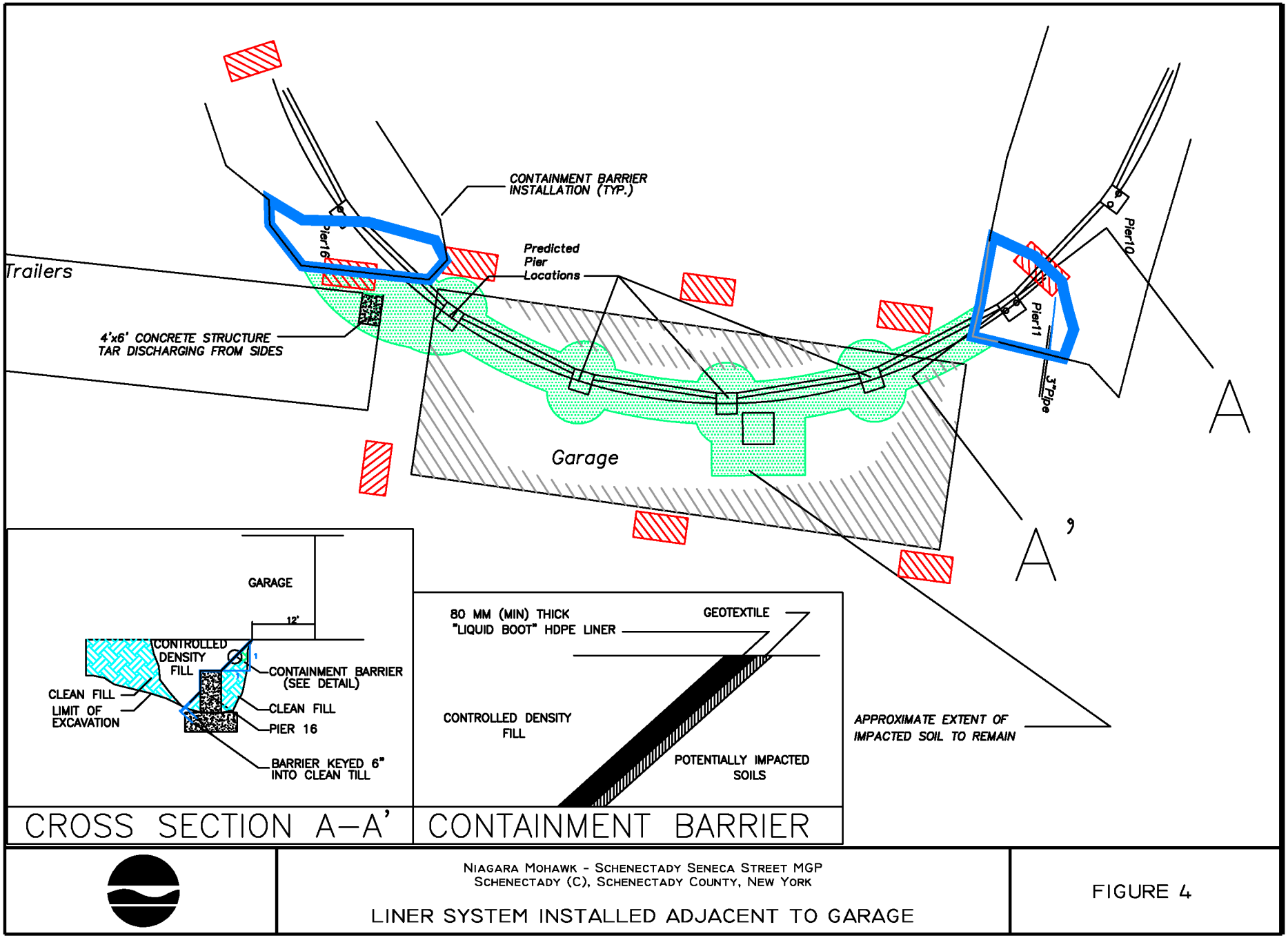
FIGURE 2



NIAGARA MOHAWK - SCHENECTADY SENECA STREET MGP
SCHENECTADY (C), SCHENECTADY COUNTY, NEW YORK

EXCAVATION LIMITS AND CONFIRMATION SAMPLING

FIGURE 3



NIAGARA MOHAWK - SCHENECTADY SENECA STREET MGP
SCHENECTADY (C), SCHENECTADY COUNTY, NEW YORK

LINER SYSTEM INSTALLED ADJACENT TO GARAGE

FIGURE 4

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Niagara Mohawk - Schenectady Seneca Street
Former Manufactured Gas Holder Site
Schenectady (C), Schenectady County, New York
Site No. 4-47-025

The Proposed Remedial Action Plan (PRAP) for the Niagara Mohawk - Schenectady Seneca Street Former Manufactured Gas Holder site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 3, 2003. The PRAP outlined the remedial measure proposed for the contaminated soil at the Niagara Mohawk - Schenectady Seneca Street Former Manufactured Gas Holder site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on February 11, 2003, which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy, however no members of the public attended the meeting. Therefore, there are no meeting comments to become part of the Administrative Record for this site. The public comment period for the PRAP ended on March 6, 2003, with the only comments submitted a letter from Niagara Mohawk, A National Grid Company.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the NYSDEC's responses:

Mr. Steven Stucker, of Niagara Mohawk, A National Grid Company**,** submitted a letter dated March 6, 2003 which included the following comments:

COMMENT 1: Page 1, Is there really a risk to vegetation and burrowing wildlife given that this is a developed site/active utility operation? Or was this a **potential** future risk if the operation went away? On page 5, Section 5.1.3, it states that surface soils weren't impacted by MGP operations – if so, how are vegetation/burrowing animals impacted? The same issue applies to human health. There is no current risk, but there may have been a future risk if the IRM was not completed.

RESPONSE 1: A threat to vegetation and burrowing wildlife existed prior to the IRM due to the presence of impacted soils beneath the surface soils. Impacts were found beneath the shallow surface soils, yet within the potential root zone for vegetation or burrowing system of wildlife. Although, deep rooted plant life or evidence of burrowing activity was not noted near the former gas holder location prior to the IRM, a threat did exist. The fact that this site is a active developed utility operation did not itself lessen this threat. The IRM successfully eliminated this threat.

COMMENT 2: Page 1, NM's position is that the IRM be characterized as comprehensive.

RESPONSE 2: The IRM, with the inclusion of appropriate institutional controls, is comprehensive.

COMMENT 3: Page 2, Section 3. DEC should indicate what the detailed site history is based on. It appears to be Sanborn Fire Atlases. The description of how the tar seal holder works is very detailed and there should probably be a reference given.

RESPONSE 3: The detailed site history is based on Niagara Mohawk's, 'Initial Submittal Schenectady (Seneca St.) Site Schenectady, New York'. The description of the tar seal holder process uses information provided in the IRM Summary Report. References have been provided in the ROD.

COMMENT 4: Page 8. It is not clear how an ecologic risk **exists** if no surface soil is impacted – does the PRAP mean that a risk existed but is now remedied?

RESPONSE 4: An ecological risk existed prior to the IRM due to the possibility of vegetation (root zone) or burrowing wildlife coming in contact with impacted shallow subsurface soils. However, through contaminant removal and capping, the IRM has remedied this threat. Also, see RESPONSE 1.

COMMENT 5: Upon review of the document, we suggest that the area of applicability for any post-remedial subsurface use restrictions (as potentially identified in a HASP or Soil Management Plan (SMP)) be more clearly defined. There are areas underneath the metal garage building where we need to limit future excavation, however the other areas on-site have been cleaned up and should not need this restriction. This would also help to clarify potential issues raised by on-site workers for subsurface activities elsewhere on this active site.

RESPONSE 5: The soil management plan (SMP) is developed to address specific issues related to the future use of this site. As a commercial/industrial cleanup, the human health exposure is managed in two ways. First by the application of use restrictions, specifically the prohibition of residential use of the site, while other potential exposure to site workers is addressed by providing for the safe handling and disposal of any excavated material, to avoid health and safety impacts on the workers or users of the site. In this case, any excavation into the unremediated material will require proper health and safety considerations, as well as appropriate characterization, handling and disposal of the soil. For instance, excavation in an area where the removal left 400 ppm total PAHs health and safety precautions would still be required. While the soil could remain on site, it would have to be below the surface**,** or if it could not be put back with sufficient cover, then off-site disposal would be required. The SMP will identify areas where this would apply, not the PRAP or ROD.

COMMENT 6: In regards to the need to excavate underneath the metal garage building if it is decommissioned in the future, I would suggest that the need for excavation would be **evaluated** at that time. If the existing concrete floor remains in place following decommissioning of the building, then no exposure pathway exists and no excavation would be necessary.

RESPONSE 6: The intent of this requirement is that if the building is removed then so should the waste. The only reason the removal was stopped during the IRM was due to the existence of the building.

COMMENT 7: The deed restriction language is too broad and should be revised. Do we need to specify maintenance of an asphalt cap in perpetuity if the remediation already addressed most of the former holder footprint? Could the PRAP simply isolate certain areas where the cap must be maintained based on any elevated PAH levels identified by post-excavation sampling or where an impacted structure remains? We think the issue of potentially "jeopardizing the integrity of the remedy" in the future, as discussed on page 10 of the PRAP, is only applicable to those few areas where impacts remain and a potential exposure pathway is still identified. These areas should be specifically addressed in the HASP and SMP.

RESPONSE 7: There are some areas of the site where the asphalt pavement is part of the remedy. This is clearly the case over the contamination left adjacent to the building. While sampling has identified areas of the site where no removal was needed, due to low PAH levels, it could be agreed no cap would be needed. However, there is a significant area adjacent to where the removal was stopped, where remaining PAH levels do not allow unrestricted use of the site. This is supported by the confirmation samples collected at the end points of the excavation, near the building, where remedial goals were not achieved. This is discussed in Section 6 and these are the areas to be addressed by the soil management plan.

COMMENT 8: The requirement in Section 6 at the end of the PRAP for prior notification to DEC for intrusive work is not appropriate. The SMP and HASP can be written to adequately address any concerns and be protective of human health and the environment.

RESPONSE 8: The Department agrees, the SMP and HASP will be written to better define the requirements for notification to the Department for intrusive work. For example, due to the existence of critical utility infrastructure on the site, the potential for emergency utility work to occur that would preclude advance notice is certainly possibly. Whereas, the installation of a new building or extensive landscaping would require Department notification.

COMMENT 9: Page 8, Section 5.3. The ROD should specify that the only remaining potential human exposure pathway is the footprint underneath the metal building.

RESPONSE 9: The remaining potential exposure pathway which will exist is the presence of potentially impacted subsurface soils located beneath and adjacent to the metal building, behind the sprayed on liner system. **To a lesser degree, soils adjacent to the excavation below the 500 ppm total PAH action level will require special handling as to be described in the SMP.** This exposure is managed by the required SMP, as noted in RESPONSES 7 and 8.

COMMENT 10: A note should be added in Section 5.3 that the site is serviced with public water, and that no ground water concerns were identified.

RESPONSE 10: The ROD now states in Section 2, that the site is serviced with public water. Groundwater observations have been described and no impacts were identified, as discussed in Section 5 of the PRAP and again in the ROD.

COMMENT 11: Page 9, Section 6. The summary of goals and proposed remedy discusses the "design". The appropriate reference should be the IRM.

RESPONSE 11: The section in question refers to the design of the IRM.

COMMENT 12: Page 10, Section 6, Item 4. The PRAP contends that a tar vault remains on-site beneath the garage. This is not known, therefore speculation should not be included.

RESPONSE 12: Based on historical drawings of the facility and field observations, the remaining portions of the ring wall, four piers and one tar vault are expected to remain beneath the garage, no change will be made.

COMMENT 13: Page 10. It should be noted that the area is a commercial/industrial area, and that any deed restriction will be consistent with this usage.

RESPONSE 13: It has been noted in the site description (Section 2) that the area is a mixed commercial/industrial and residential area of the City of Schenectady, although no residential properties border the site. The deed restriction will be consistent with the current commercial/industrial usage of the property.

APPENDIX B

Administrative Record

Administrative Record

Niagara Mohawk - Schenectady Seneca Street
Former Manufactured Gas Holder Site
Schenectady (C), Schenectady County, New York
Site No. 4-47-025

1. Order on Consent, Index No. DO-0001-9210, between NYSDEC and Niagara Mohawk, executed on December 7, 1992.

2. "Initial Submittal, Schenectady (Seneca St.) Site, Schenectady, New York", January 1998, prepared by Niagara Mohawk Power Corporation.

3. "Preliminary Site Assessment & Interim Remedial Measures Study for the Schenectady (Seneca St.) Site Schenectady, New York", November 1998, prepared by Foster Wheeler.

4. "Distribution Holder Interim Remedial Measure (IRM) Summary Report for the Schenectady (Seneca St.) Site Schenectady, New York", February 2003, prepared by Foster Wheeler Environmental Corporation.

5. Letter from Gary Litwin of the New York State Department of Health, to Dale A. Desnoyers, NYSDEC, dated January 15, 2003, concurring with the PRAP.

6. Proposed Remedial Action Plan for the Niagara Mohawk - Schenectady Seneca Street Former Manufactured Gas Holder site, dated January 2003, prepared by the NYSDEC.

7. A letter dated March 6th, 2003 from Mr. Steven P. Stucker of Niagara Mohawk, A National Grid Company, providing comments on the PRAP.