Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision
Nyack Gas Plant Site
Operable Unit No.1
Former Plant Site
Nyack (V), Rockland County, New York
Site Number 3-44-046

March 2004

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

DECLARATION STATEMENT - RECORD OF DECISION

Nyack Gas Plant Site
Operable Unit No. 1 Former Plant Site
Nyack (V), Rockland County, New York
Site No. 3-44-046

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for Operable Unit 1 of the Nyack Gas Plant 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 Operable Unit 1 of the Nyack Gas Plant 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 releases of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and/or the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation and Feasibility Study (RI/FS) for the Nyack Gas Plant site and the criteria identified for evaluation of alternatives, the NYSDEC has selected a remedy using excavation, in-situ solidification, NAPL recovery, chemical oxidation and institutional controls. The components of the remedy are as follows:

- Impacted soils and subsurface structures in the upper terrace will be excavated to bedrock and transported to an off-site permitted treatment/disposal facility;

- Remaining manufactured gas plant (MGP) subsurface structures and other obstructions in the lower terrace will be excavated. Gross contamination in and immediately adjacent to subsurface structures will be excavated to the extent practicable;

- Flowable coal tar in the overburden in the lower terrace remaining after excavation will be extracted by recovery wells;

- Impacted soils in the lower terrace will be augured and mixed with cement. This process, in-situ solidification, will produce a stable, low permeability monolithic mass;

- Flowable coal tar will be removed from the shallow bedrock by recovery wells and/or trenches. Remaining contamination will be treated using in-situ chemical oxidation;

- In-situ chemical oxidation will be used to treat MGP contamination on the adjoining Hudson Vista Associates property;

- Final grading will include placement of a minimum of two feet of clean soil, asphalt paving, or other appropriate cover;

- A site management plan will be developed to: (a) address residual contaminated soils that may be excavated from the site during future redevelopment, (b) ensure that appropriate barriers (soil, paving or buildings) remain in place between the ground surface and residual contaminated soils, (c) evaluate the potential for vapor intrusion for any buildings developed on the site, and (d) identify use restrictions for development of groundwater;

- The property owner will provide an annual certification that the institutional and engineering controls remain in place and effective;

- An institutional control will be imposed in the form of an environmental easement that will: (a) require compliance with the approved site management plan, (b) restrict use of groundwater, and (c) require the property owner to complete and submit to the NYSDEC an annual certification.

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.

MAR 3 1 2004

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 this remedy for the Nyack Gas Plant, Operable Unit No. 1 (OU1) - Former Plant Site. The presence of hazardous waste has created significant threats to human health and/or the environment that are addressed by this remedy. As more fully described in Sections 3 and 5 of this document, operations at the former manufactured gas plant (MGP) have resulted in the disposal of hazardous wastes, including coal carbonization and water gas tars. These coal tars contain chemicals including polycyclic aromatic hydrocarbons (PAHs) and benzene, toluene, ethylbenzene, and xylene (BTEX). These wastes have contaminated the soils, groundwater and soil gas at the site, and have resulted in:

- a threat to human health associated with potential exposure to groundwater, surface soil, subsurface soil and soil gas vapors; and

- an environmental threat associated with the impacts of contaminants to groundwater, surface soil, and subsurface soils.

To eliminate or mitigate these threats, the NYSDEC has selected the following remedy:

- Impacted soils and subsurface structures in the upper terrace will be excavated to bedrock and transported to an off-site permitted treatment/disposal facility;

- Remaining MGP subsurface structures and other obstructions in the lower terrace will be excavated. Gross contamination in and immediately adjacent to subsurface structures will be excavated to the extent practicable;

- Flowable coal tar in the overburden in the lower terrace remaining after excavation will be extracted by recovery wells;

- Impacted soils in the lower terrace will be augured and mixed with cement. This process, in-situ solidification, will produce a stable, low permeability monolithic mass.

- Flowable coal tar will be removed from the shallow bedrock by recovery wells and/or trenches. Remaining contamination will be treated using in-situ chemical oxidation;

- In-situ chemical oxidation will be used to treat MGP contamination on the adjoining Hudson Vista Associates property;

- Final grading will include placement of a minimum of two feet of clean soil, asphalt paving, or other appropriate cover;

- A site management plan will be developed to: (a) address residual contaminated soils that may be excavated from the site during future redevelopment, (b) ensure that appropriate barriers (soil, paving or buildings) remain in place between the ground surface and residual contaminated soils (c) evaluate the potential for vapor intrusion for any buildings developed on the site, and (d) identify use restrictions for development of groundwater;

- The property owner will provide an annual certification that the institutional and engineering controls are in place and remain effective;

- An institutional control will be imposed in the form of an environmental easement that will: (a) require compliance with the approved site management plan, (b) restrict use of groundwater, and (c) require the property owner to complete and submit to the NYSDEC an annual certification.

The selected remedy, discussed in detail in Section 8, 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 Nyack Gas Plant site is located on Gedney Street in the Village of Nyack in the Town of Orangetown, Rockland County, NY. The site covers a total land area of approximately 4 acres.

The plant site is divided into a number of areas. The western parcel is on the west side of Gedney Street between Lydecker Street and High Avenue and is currently used as a paved parking lot. The eastern parcel (i.e., former plant area) is across Gedney Street from the western parcel, extending from Gedney Street to the Hudson River. The former plant area, which is currently vacant, is divided into the upper terrace, along Gedney Street, and the lower terrace, along the Hudson River. Pedestrian and vehicle access to the Eastern Parcel is restricted by a low chain link fence. Also referenced in this document is an area of off-site contamination directly south of the lower terrace, which is referred to as the "Hudson Vista Associates Property." The site is in an urban setting, with adjacent properties used for a mix of commercial and residential purposes. The site location is shown on Figure 1.

Operable Unit No. 1 (OU1), which is the subject of this ROD, consists of the MGP related wastes on the former MGP site located on the west bank of the Hudson River (i.e., the eastern and western parcels, excluding the sediments in the Hudson River), and the adjacent Hudson Vista Associates property. An operable unit represents a portion of the site remedy that for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination.

The remaining operable unit (i.e., Operable Unit No. 2) for this site will address sediments in the Hudson River which have been impacted by MGP related wastes. The investigation of this area is currently under review by the NYSDEC.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

An MGP operated at this site from 1852 until 1965. The location of historic MGP structures is show on Figure 2. It is believed that gas was made from the coal carbonization process from 1852 until 1887. From 1887 until 1889 the plant used oil instead of coal, and from 1890 until 1938 the plant used both coal and oil as feedstock for the carburetted water gas (CWG) process. From 1938 until 1965, the site was used as an oil gas facility only during times of peak demand, a practice known as "peak shaving."

The coal carbonization process heated coal in retorts or beehive ovens, carbonizing the coal in the absence of air. The carburetted water gas process involved the passage of steam through burning coal. This formed a gaseous mixture (water gas or blue gas) which was then passed through a super heater which had an oil spray. The oil spray would generate additional gas, enhancing the heat and light capacity of the overall gas mixture. In each process, the gas produced was purified prior to distribution. Coal tar was formed as a condensate as the gas cooled, and was a by-product of the gas production.

3.2: Remedial History

There were no previous environmental investigations of this site prior to the start of the RI/FS process. The properties to the south and west of this site were previously investigated for unrelated reasons. All buildings on the site were razed by 1974. Very little information is available regarding the site from 1974 until the remedial investigation commenced in 1999.

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 Orange and Rockland Utilities Inc. (O&R) entered into a Consent Order on January 8,1996. The Order obligates O&R to investigate the former MGP sites in their service

area. This order was superceded by an second order dated March 11, 1999, which further clarified the obligation to investigate, and as necessary, remediate the Nyack Gas Plant Site.

SECTION 5: SITE CONTAMINATION

A remedial investigation/feasibility study (RI/FS) has been conducted to evaluate the alternatives for addressing the significant threats to human health and the environment.

5.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between October 1999 and January 2002**.** The field activities and findings of the investigation are described in the RI report.

The following activities were conducted during the RI:

- Research of historical information;
- Collection of nine surface soil samples;
- Excavation of 21 test pits;
- Installation of 31 soil borings and 14 monitoring wells for analysis of soils and groundwater as well as physical properties of soil and hydrogeologic conditions;
- Sampling of 14 new and existing monitoring wells; and
- Collection of six soil gas samples.

To determine whether the surface soil, subsurface soil and groundwater contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater SCGs are based on NYSDEC “Ambient Water Quality Standards and Guidance Values” and Part 5 of the New York State Sanitary Code; and
- Soil SCGs are based on the NYSDEC “Technical and Administrative Guidance Memorandum (TAGM) 4046; Determination of Soil Cleanup Objectives and Cleanup Levels."

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

5.1.1: Site Geology and Hydrogeology

The site is covered with a varying thickness of fill. The jetty area which protrudes into the Hudson River has the thickest layer of fill (13 feet). A second significant area of fill is the slope between the upper and lower terraces, which was apparently placed after plant operations had ended. A layer of native silty sand generally underlies the fill material. A layer of glacial till was noted in one boring on the upper terrace. Underlying the silty sand is sandstone bedrock.

The bedrock is a productive aquifer with the groundwater flowing upward through the bedrock. The overburden in the upper terrace is entirely above groundwater. In the lower terrace, groundwater is found in the overburden, and is seen to fluctuate with the tide, indicating some hydraulic communication between the river and the groundwater.

5.1.2: Nature of Contamination

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

Specific volatile organic compounds of concern are benzene, toluene, ethylbenzene and xylenes. These are referred to collectively as BTEX in this document.

The specific semivolatile organic compounds of concern in soil and groundwater are the following polycyclic aromatic hydrocarbons (PAHs):

acenaphthene	acenaphthylene
anthracene	*benzo(a)anthracene*
benzo(a)pyrene	*benzo(b)fluoranthene*
benzo(g,h,i)perylene	*benzo(k)fluoranthene*
dibenzo(a,h)anthracene	*chrysene*
fluoranthene	fluorene
indeno(1,2,3-cd) pyrene	2-methylnaphthalene
naphthalene	phenanthrene
pyrene	

PAH concentrations referred to in this plan are the summation of the individual PAHs listed above (i.e., total PAHs or tPAHs). The italicized PAHs are probable human carcinogens. The summation of the italicized PAHs are referred to in this document as cPAHs.

As reported in Section 5.1.3, coal tars are present at this site in the form of a dense oily liquid which does not readily dissolve in water. Materials such as this are typically found at MGP sites, and are referred to as non-aqueous phase liquids or NAPL. Since this NAPL is more dense than water, it is also referred to as a dense NAPL or DNAPL. Analysis of the NAPL reveals that it contains BTEX and PAHs several orders of magnitude greater than the SCGs for these compounds. The NAPL was found to saturate the unconsolidated deposits and/or exist in scattered, discontinuous globules. Any of these conditions could coincide with high BTEX and PAH concentrations in soil, groundwater and soil gas.

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, parts per million (ppm) for soil and micrograms per cubic meter ($\mu g/m^3$) for soil gas samples. For comparison purposes, where applicable, SCGs are provided for each medium.

Table 1 summarizes the degree of contamination for the contaminants of concern in surface and subsurface soil, groundwater and soil gas 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.

Waste Materials

Coal tar was found in the subsurface in both the upper and lower terrace areas. The sources of the coal tar wastes appear to be the former MGP structures. Coal tar deposits have not migrated a significant distance horizontally from these sources (approximately 20 feet, maximum). Coal tar has migrated vertically into the bedrock underlying the site to a depth of over 40 feet below ground surface.

Surface Soil

Surface soil samples (0-6 inches) contained elevated levels of PAHs. Total PAH levels ranged from 6 ppm to 836 ppm. Total cPAHs were detected at levels of 3 to 158 ppm. No BTEX were detected in the surface soil. Cyanide levels ranged from non-detect to 14 ppm. Cyanide detections were co-located with areas of elevated PAHs. One sample showed lead to be present at a level of 1,200 ppm, which is above the typical background level, but within the range which would be expected in an urban environment.

Subsurface Soil

Subsurface soil in direct contact with and in the vicinity of MGP structures or related coal tar deposits has been impacted by PAHs, BTEX, and cyanide. Total PAHs levels in subsurface soils ranged from non-detect to 19,388 ppm, with total cPAH values of non-detect to 1,936 ppm. BTEX levels in subsurface soils ranged from non-detect to 2,860 ppm. Cyanide levels ranged from non-detect to 56 ppm. All samples with elevated BTEX and cyanide levels also had elevated total PAHs, so total PAH levels are used to delineate subsurface soil impacts. The extent of PAH and visible coal tar contamination are shown on Figure 3.

Groundwater

Groundwater in the vicinity of the coal tar and the contaminated subsurface soil has also been impacted by PAHs and BTEX. BTEX levels in groundwater ranged from non-detect to 199,500

ppb. These results are two to three orders of magnitude above SCGs. Total PAH levels in groundwater ranged from non-detect to 11,450 ppb. Carcinogenic PAHs were detected in only one sample, at a level of 717 ppb. Total cyanide levels ranged from non-detect to 495 ppm. All wells with elevated levels of PAHs and cyanide also had elevated levels of BTEX, so BTEX levels are used to delineate groundwater impacts. The extent of groundwater BTEX contamination is shown on Figure 4.

Soil Gas

Soil gas on-site did have BTEX at levels above typical background. Benzene levels ranged from non-detect to 61 Fg/m^3 (micrograms per cubic meter), toluene from 4 to 68 Fg/m^3, ethylbenzene from non-detect to 23 Fg/m^3, and xylene from 13 to 130 Fg/m^3. These chemicals appear to be from a combination of sources, some site related and some not related to the MGP.

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.

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

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. A more detailed discussion of the human exposure pathways can be found in Section 6.1.3 of the RI report.

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

Pathways which are known to or may exist at the site include:

- Dermal contact with and incidental ingestion of contaminated surface soil in the Eastern Parcel by trespassers and site workers;

- Dermal contact, inhalation or incidental ingestion with contaminated subsurface soils in the Eastern Parcel by construction and utility workers; and

- Potential for inhalation of volatile organic compounds in the form of vapors from the intrusion of contaminated soil gas into buildings constructed on the Eastern Parcel in the future.

The analyses of soil samples collected from the Western Parcel did not indicate the presence of any significant subsurface contamination that would represent an exposure concern. In addition, the parcel is paved and landscaped further diminishing the potential for contact with any residual MGP-related soil contamination. The analyses of surface soil samples from the Eastern Parcel indicates the presence of PAHs and lead at levels which could present an exposure concern. However, a chain link fence is installed around the perimeter of the parcel so as to control access by trespassers. Authorized access to the parcel is provided to site workers, and the potential for their exposure is minimal based on the vegetated cover present.

The presence of MGP-related contamination at depth presents an exposure concern to construction and utility workers who may excavate into contaminated soils on the Eastern Parcel. The potential exposures to these workers may be minimized by the use of personal protective equipment in areas known to be impacted by MGP contamination.

The presence of any MGP-related contamination remaining at depth following remediation of the Eastern Parcel presents a potential exposure concern should buildings be constructed at a future date. Of concern is the potential for the intrusion of contaminated soil gas into the basements or foundations of newly constructed buildings resulting in discernable impacts to indoor air quality.

5.4: Summary of Environmental Impacts

This section summarizes the existing and potential future environmental impacts presented by the site. 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 RI 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:

- NAPL has impacted the groundwater resource in the shallow and bedrock aquifers at the site, and contamination is migrating off-site as NAPL and as dissolved phase;

- The potential for direct contact by fauna and flora with NAPL and contaminated subsurface soils; and

- MGP contamination has migrated into the Hudson River. Impacts from this contamination will be addressed in Operable Unit 2.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

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.

The remediation goals for this site are to eliminate or reduce to the extent practicable:

- the presence of NAPL and MGP-related contaminants as the sources of soil, groundwater and soil gas contamination;
- migration of NAPL and MGP-related contaminants that would result in soil, groundwater or soil gas contamination;
- the release of contaminants from NAPL in on-site soil into groundwater that result in exceedances of groundwater quality standards;
- the potential for ingestion of groundwater with contaminant levels exceeding drinking water standards;
- the potential for ingestion/direct contact with contaminated soil;
- impacts to biota from ingestion/direct contact with soil; and
- the release of contaminants from subsurface soil under buildings into indoor air through soil gas migration and intrusion.

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

- recommended soil cleanup objectives in TAGM 4046; and
- ambient groundwater quality standards.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential

remedial alternatives for the Nyack Gas Plant Site, were identified, screened and evaluated in the FS report which is available at the document repositories identified in Section 1.

A summary of the remedial alternatives that were considered for this site are discussed below. The present worth represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the contaminated subsurface soils, groundwater and soil gas at the site.

Alternative 1: No Action

Present Worth: *$1,070,000*
Capital Cost: *$0*
Annual OM&M:
(Years 1-30): *$60,000*

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Alternatives S-1 through GW-4

No single technology would be effective in addressing both soil and groundwater impacts at this site, so the remedy for this site will require a combination of a number of different technologies. In analyzing the remaining remedial alternatives, solutions to the groundwater and soil contamination are evaluated separately.

None of the remedial alternatives evaluated would be capable of addressing contamination in the bedrock underlying the Eastern Parcel completely enough to provide unrestricted use of that property. Even with the most aggressive treatment, restrictions would still be required to address groundwater contamination and the potential for re-contamination of subsurface soil from the bedrock. As such, the soil alternatives (S-1 through S-5) do not include any remedies which would remediate the site to unrestricted criteria. In the following soil alternatives, impacted soil are defined as those containing PAHs at levels above the TAGM 4046 objective of 500 ppm total PAHs. Since residential development of this site is contemplated following remediation, and since all remedial alternatives would leave soil behind with individual PAHs above TAGM 4046

levels, all remedial alternatives include institutional and engineering controls to prevent human exposure to these soils.

As previously indicated, other contaminants of concern in soils are co-located with areas of elevated PAHs, so total PAHs are used to delineate impacted soils. Similarly, other contaminants of concern in groundwater are co-located with areas of elevated BTEX, so BTEX are used to delineate groundwater impacts.

Chemical Oxidation of Offsite Area
A small area to the south of the lower terrace, on the Hudson Vista Associates property, is impacted by both MGP wastes and petroleum sources apparently unrelated to this site. The MGP impacts are generally concentrated in the three feet of soil overlying bedrock, approximately ten feet below ground surface. Orange and Rockland has proposed to address this contamination by in-situ chemical oxidation (oxidation). The goal of oxidation would be to oxidize the residual coal tar soils to reduce leaching of coal tar related chemicals to groundwater. The specific performance standard for the oxidation of the Hudson Vista Associates property would be determined during treatability testing. If treatability testing does not demonstrate that oxidation would be effective in eliminating these impacts as a continuing source of contamination, this area would be addressed by the technology selected to address on-site soil contamination on the lower terrace.

Alternative S-1:**In-situ Solidification of Upper and Lower Terraces**

Present Worth: *$8,072,000*
Capital Cost: *$8,072,000*
Annual OM&M:
(Years 1-30): *$0*

Alternative S-1 would occur in three phases. In the preparation phase, major obstructions such as rip rap, concrete debris and remaining MGP substructures including piping would be removed by conventional excavation. This excavation would also remove gross contamination in and immediately adjacent to subsurface structures and piping to the extent practicable. Where excavation is not practicable, principally in the lower terrace, flowable DNAPL would be extracted by recovery wells. The excavation would be conducted in a manner which controls the emission of dust, odors, and VOCs.

In the second phase, impacted soils in the Upper and lower terrace would be augered and mixed with pozzolanic agents (typically Portland cement). This process would produce overlapping columns of solidified soil, resulting in a low permeability monolith. The result would eliminate the mobility of the contamination and greatly reduce or eliminate the contamination as a continuing source of groundwater contamination. Approximately 19,000 cubic yards of soils would be solidified.

In the third phase, site restoration would occur, with final slope stabilization and grading, and placement of appropriate cover to prevent exposure of the stabilized soil at the ground surface (two feet of seeded, clean soil; asphalt paving; or structure). An environmental easement would

be placed on the property which would: 1)describe the location and characteristics of the solidified material, 2)restrict groundwater usage, 3)require that any future on-site building construction address the potential for soil gas intrusion and implement any necessary engineering controls, 4)require a soil management plan to control subsurface exploration or excavation, and 5)require annual certification that the institutional and engineering controls remain in place and are effective in controlling exposures.

Alternative S-2:**In-situ Solidification of Lower Terrace / Excavation and Ex-situ Solidification of Upper Terrace**

Present Worth: *$8,282,000*
Capital Cost: *$8,282,000*
Annual OM&M:
(Years 1-30): *$0*

This remedial action would occur in four phases. The preparation phase would be identical to that of Alternative S-1 and would involve removal of flowable DNAPL and impacted subsurface structures.

In the second phase, in-situ solidification (ISS) would be conducted as in Alternative S-1, but in the lower terrace only.

In the third phase, impacted soils in the upper terrace would be excavated to bedrock and mixed with pozzolanic agents in a temporary processing facility located on site. This ex-situ solidification (ESS) process would produce a concrete-like thick slurry, which would be placed into forms within the lower terrace. Excavation and ESS activities would occur in a manner which would control emissions of odors, dust, and VOCs. Initial estimates indicate that not all of the volume could be accommodated in the lower terrace, and a few feet of material would need to be placed in the upper terrace area as well. This additional material represents 4,000 to 8,000 cubic yards of soil that would otherwise require off-site transport and disposal.

In the fourth phase, site restoration would occur, with final slope stabilization, grading, and placement and seeding of two feet of clean soil or other appropriate surfacing material. An environmental easement would be placed on the property which would: 1)describe the location and characteristics of the solidified material, 2)restrict groundwater usage, 3)require that any future on-site building construction address the potential for soil gas intrusion and implement any necessary engineering controls, 4)require a soil management plan to control subsurface exploration or excavation, and 5)require annual certification that the institutional and engineering controls remain in place and are effective in controlling exposures.

It is estimated that approximately 8,000 cubic yards of impacted soil would be ex-situ solidified and 11,000 cubic yards of soil would be solidified by ISS techniques during this remedial alternative.

Alternative S-3:**In-situ Solidification of Lower Terrace / Excavation and Off-site Transport of Upper Terrace**

Present Worth: *$8,426,000*
Capital Cost: *$8,426,000*
Annual OM&M:
(Years 1-30): *$0*

This remedial action would occur in four phases. The preparation phase for the lower terrace would be the same as that of Alternatives S-1 and S-2. Additional construction would be performed to facilitate loading and off-site transport of excavated soil.

In the second phase, impacted soils and subsurface structures in the upper terrace would be excavated to bedrock and transported to an off-site permitted treatment/disposal facility. The excavation would occur in a manner which would control emissions of odors, dust, and VOCs.

In the third phase, ISS would be conducted as in Alternatives S-1 and S-2, but in the lower terrace only.

In the fourth phase, site restoration would occur, with final slope stabilization, grading, and placement and seeding of two feet of clean soil or other appropriate cover materials such as asphalt pavement. An environmental easement would be placed on the property which would: 1)describe the location and characteristics of the solidified material, 2)restrict groundwater usage, 3)require any future on-site building construction to address the potential for soil gas intrusion and implement any necessary engineering controls, 4)require a soil management plan to control subsurface exploration or excavation, and 5)require annual certification that the institutional and engineering controls remain in place and are effective in controlling exposures.

Approximately 8,000 cubic yards of impacted material would be excavated and transported off site from the upper terrace while approximately 11,000 cubic yards would be mixed using ISS techniques in the lower terrace.

Alternative S-4:**Partial Excavation of Lower Terrace, In Situ Chemical Oxidation of Soil, and Excavation of Upper Terrace with Off-site Transport**

Present Worth: *$6,936,000*
Capital Cost: *$6,936,000*
Annual OM&M:
(Years 1-30): *$0*

This remedial action would occur in five phases. The preparation phase would prepare the site to accommodate loading of excavated soil and importing of clean fill. DNAPL recovery wells would be installed in the northern portion of the lower terrace to collect any flowable DNAPL present where excavation would not be performed.

In the second phase, impacted, unsaturated soils and impacted structures would be excavated from the upper terrace. Partial excavation of the lower terrace would first involve removal of the small quantity of unsaturated soils exceeding the RAO action levels. The primary remedial action for the lower terrace would be the removal of grossly impacted saturated soils located at the former drainage pits. This excavation is currently estimated to be a 130-foot by 70-foot area of grossly impacted soil. Grossly impacted soil consists of soil which has at least a six-inch thick lens of waste material distributed throughout. The excavation activities in the upper and lower terrace would occur in a manner that would control emissions of odors, dust, and VOCs. Impacted materials would be transported to an off-site permitted treatment/disposal facility.

In the third phase, the upper terrace and lower terrace excavation areas would be backfilled to the extent required to accommodate possible future site development.

In the fourth phase, in situ chemical oxidation would be used to treat impacted saturated soil in the south and north areas of the lower terrace. During chemical oxidation, contaminants are converted to less toxic compounds that are more stable, less mobile, and/or inert through the action of oxidizing agents. To implement the oxidation process, an aqueous solution of the oxidizing agent would be placed in contact with the saturated, impacted soils, usually by a grid of temporary injection points. The process would be repeated several times until the remedial goals are achieved. The process would be monitored before and after treatment. Long-term trends in groundwater quality would also be monitored.

The northern area consists of a 150-foot x 40-foot zone along the toe of the bank, between the excavation area and the northern property line, while the southern area is comprised of a 35-foot x 70-foot area on the southern part of the lower terrace including an area within the Hudson Vista property. These soils, while not constituting gross contamination, contain impacts above 500 ppm total PAHs and cPAHs above 1 ppm as benzo(a)pyrene, and could possibly be a source of continuing impact to groundwater quality in the long term, and therefore should be addressed by remedial action. These soils appear to be amenable to oxidation technology because they are sands and gravels with sheens and small pinhead globules of NAPL that could be contacted by a grid of oxidation injection points. The performance standard to be used for the chemical oxidation would be determined in a bench-scale treatability study conducted during the pre-design investigation.

In the fifth phase, site restoration would occur, with final slope stabilization, grading, placement and seeding of 2 feet of clean soil or other appropriate surfacing material. An environmental easement would be placed on the property which would: 1)describe the location and characteristics of the remaining residual contamination, 2)restrict groundwater usage, 3)require that any future on-site building construction address the potential for soil gas intrusion and implement any necessary engineering controls, 4)require a soil management plan to control subsurface exploration or excavation, and 5)require annual certification that the institutional and engineering controls remain in place and are effective in controlling exposures.

In this alternative, approximately 14,000 cubic yards of impacted soil would be excavated and transported off site for treatment/disposal.

Alternative S-5:**Excavation with Off-site Transport of All Soils**

Present Worth: *$10,095,000*
Capital Cost: *$10,095,000*
Annual OM&M:
(Years 1-30): *$0*

This remedial action would occur in four phases, the first being preparation of the site for excavation and transport, including shoring and dewatering systems in the lower terrace, and accommodations for loading of excavated soil and unloading backfill.

In the second phase, all impacted soils in the upper terrace and lower terrace would be excavated. Excavation of deep saturated soils immediately adjacent to the Hudson River in the lower terrace would require a substantial dewatering system, a water treatment system, and discharge to the Hudson River. A large shoring structure consisting of steel sheeting, pilings, and bracing would be required. All excavation activities would occur in a manner which would control emissions of odors, dust, and VOCs.

In the third phase, the upper terrace would be backfilled to the extent required to accommodate site development. The lower terrace would be backfilled to its original grade. Large quantities of backfill material would be required for the lower terrace.

In the fourth phase, site restoration would occur, with final slope stabilization, grading, addition of two feet of clean soil, and seeding or other appropriate surfacing. An environmental easement would be placed on the property which would: 1)describe the location and characteristics of the remaining residual contamination, 2)restrict groundwater usage, 3)require that any future on-site building construction address the potential for soil gas intrusion and implement any necessary engineering controls, 4)require a soil management plan to control subsurface exploration or excavation, and 5)require annual certification that the institutional controls remain in place and are effective in controlling exposures.

In this alternative, approximately 19,000 cubic yards of impacted soil would be excavated and transported off site for treatment/disposal.

Alternative GW-1: In-situ Biotreatment and NAPL Recovery

Present Worth: *$4,822,000*
Capital Cost: *$2,776,000*
Annual OM&M:
(Years 1-10): *$180,000*
(Years 10-30): *$60,000*

In-situ biotreament enhances the biodegradation of organic contaminants in the subsurface by microorganisms by providing additional oxygen and/or nutrients. Common methods of adding oxygen include placement of oxygen releasing compounds (ORC), injection of low concentration hydrogen peroxide, or air sparging. Addition of nutrients would also be

considered to support the biodegradation process. The system would be expected to operate for many years until the groundwater quality would meet the remedial action objectives.

Cost estimates for this alternative are based on the system being active for a period of 10 years and then monitored for an additional 20 years.

Alternative GW-2: Groundwater/NAPL Recovery and Treatment

Present Worth: *$6,067,000*
Capital Cost: *$4,389,000*
Annual OM&M:
(Years 1-10): *$135,000*
(Years 1-30): *$60,000*

In this alternative, groundwater and NAPL would be recovered from a system of downgradient wells or trenches located in the shoreline area of the lower terrace. A barrier wall would be required to provide hydraulic control so that the system would not be recovering clean river water. Above-ground treatment of the water would be conducted using granular activated carbon (GAC) or other appropriate treatment technologies. The system would be expected to operate for many years until groundwater quality meets the remedial action objectives. Elements of the in-situ biological treatment could be added to further increase the system's effectiveness.

Alternative GW-3: Rapid NAPL Recovery Followed by Bedrock Isolation

Present Worth: *$6,939,000*
Capital Cost: *$5,876,000*
Annual OM&M:
(Years 1-30): *$60,000*

This remedial action would be conducted in three phases. In the first phase, the site would be prepared by conducting initial NAPL recovery and clearing obstructions to the drilling activities. These activities would overlap substantially with many of the site preparation activities described in the soil alternatives.

In the second phase, the grouting of the fractured bedrock matrix would proceed in a designed, controlled procedure. A series of borings would be completed, typically ten borings in a staggered pattern of five-foot spacings, each followed immediately by pumping out the contents of the borings to remove grossly impacted groundwater/NAPL. Controlled pressure grouting would proceed in an outward to inward sequence. The spacings of the borings and characteristics of the grout would be adjusted in response to grout pressure and volume data collected during the initial portion of the program, to ensure that the bedrock matrix has been substantially grouted.

In the third phase, the site would be restored in conjunction with the soil remedial actions.

Alternative GW-4: NAPL Recovery and Chemical Oxidation

Present Worth: *$4,178,000*
Capital Cost: *$2,936,000*
Annual OM&M:
(Years 1-30): *$70,000*

Wells and/or trenches would be used to recover flowable NAPL in the bedrock to the extent practicable. The extent of bedrock contamination would be verified during pre-design investigation, and the construction and distribution of recovery wells and/trenches would be determined during the remedial design. NAPL removal actions would continue until the volume of NAPL recovered is no longer significant.

After the NAPL is removed, the chemical oxidation of MGP contaminants would be implemented using active means, including strategic placement of oxidizing agents or other methods of introducing oxidants to the groundwater. The chemical oxidation process would proceed over a period of several months of intensive oxidant addition. Due to the difficulty of measuring before and after conditions in the hidden fractures of the bedrock, no other performance standard would be applicable for this action in the upper terrace.

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York State. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the NYSDEC has determined to be applicable on a case-specific basis.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

7. Cost-Effectivness. Capital costs and operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Table 2.

This final criterion is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the PRAP have been evaluated. The responsiveness summary (Appendix A) represents the public comments received and the manner in which the NYSDEC addressed the concerns raised. In general, the public comments received were supportive of the selected remedy.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the NYSDEC has selected Soil Alternative S-3, Excavation of upper terrace with In-Situ Solidification of the lower terrace for addressing the impacts in soil, and Alternative GW-4, Chemical Oxidation and NAPL Recovery to address groundwater/NAPL impacts as the remedy for this site. The areal extent of the groundwater treatment system is shown on Figure 4 and the areal extent of the soil remedy is shown on Figure 5. The elements of the selected remedy are described at the end of this section.

The selected remedy is based on the results of the RI and the evaluation of alternatives presented in the FS. In selecting the remedy for this site, each of the distinct site areas were evaluated separately to select the optimum solution for each area. While this approach increases the complexity of the remedy selection process, it is warranted in this instance due to the distinct characteristics in each of the evaluated areas.

In the upper terrace, all soils are above groundwater, which would make excavation less complicated. As a result, excavation of the upper terrace could be completed for a similar or lower cost, when compared to other remedies while providing a preferred solution by permanently removing impacted materials from this portion of the site.

In the lower terrace, the increased cost and complexity associated with operating below the groundwater table in close proximity to the Hudson River would make excavation much more difficult to implement, and more costly. In addition, the complexity of this excavation would be expected to lead to a much longer construction period, resulting in increased disruption to the community. The ability of solidification to meet the remedial goals with less short term impacts and less cost than excavation would make this the preferred remedy for the lower terrace.

Chemical oxidation of the lower terrace (Alternative S-4) would be more cost effective than Alternative S-3, and would result in the permanent destruction of the hazardous waste. However, the site's location along the Hudson River would make it especially difficult to establishing hydraulic control over the injected chemical and it would be difficult to establish a performance criteria. In comparing these two alternatives, there was greater confidence that Alternative S-3 could be effectively implemented at this site.

All four of the groundwater remedies would be expected to have similar levels of reliability and effectiveness. Alternatives GW1 and GW-4 are significantly less expensive than GW-2 and GW-3, and would be similar in there ability to meet remedial objectives. Groundwater alternatives GW-1 and GW-2 would require extended operation periods to be effective. Alternative GW-4 would address contamination effectively, quickly and at a reasonable cost.

The estimated present worth cost to implement the combined groundwater and soil remedy is $11,806,000. The cost to construct the combined remedy is estimated to be $9,835,000 and the estimated average annual operation, maintenance, and monitoring costs for 30 years is $70,000.

The elements of the selected remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. This will include treatability studies to allow the design of in-situ chemical oxidation of the bedrock and Hudson Vista Associates property.

2. In the upper terrace, all MGP structures, including piping, and soils which contain total PAHs over 500 ppm or which are visibly impacted by coal tar will be excavated and transported to an off-site permitted treatment/disposal facility. The excavation will occur in a manner which will control emissions of odors, dust, and VOCs. Following excavation, slopes will be stabilized using on-site material meeting the cleanup criteria.

3. Wells and/or trenches will be used to recover flowable NAPL in the bedrock in both the upper and lower terrace to the extent practicable. NAPL removal actions will continue until the volume of NAPL recovered is no longer significant.

4. In the lower terrace, major obstructions such as rip rap, concrete debris, piping and remaining MGP structures will be removed by conventional excavation. This excavation will also remove gross contamination in and immediately adjacent to subsurface structures and piping which will be removed to the extent practicable. Where excavation is not practicable, flowable NAPL will be extracted by recovery wells. The excavation will be conducted in a manner which controls the emission of dust, odors, and VOCs.

5. Soils in the lower terrace which contain total PAHs over 500 ppm or which are visibly impacted by coal tar will be augered and mixed with pozzolanic agents (typically Portland cement). This process, in-situ solidification, will produce overlapping columns of solidified soil, resulting in a low permeability, solidified mass.

6. In the steeply sloped area between the upper and lower terraces, all soils which contain total PAHs over 500 ppm or which are visibly impacted by coal tar which are above the groundwater table will be excavated and transported off-site. All soils which contain total PAHs over 500 ppm or which are visibly impacted by coal tar and which are below the groundwater will either be excavated or solidified using in-situ solidification.

7. Residual contamination in the bedrock will be treated using in-situ chemical oxidation.

8. MGP related contamination on the Hudson Vista Associates property will be treated using in-situ chemical oxidation. In-situ solidification (ISS) may be used if it is determined during the design program that ISS would be preferable to oxidation in this location.

9. Since the remedy results in MGP waste remaining at the site, a long term monitoring program will be instituted. A monitoring plan will be developed which will include installing monitoring wells and sampling them on an annual basis. Analysis will include BTEX and PAHs. This monitoring program and the effectiveness of the remedy will periodically be re-evaluated. If site groundwater conditions improve and the site remedy remains physically secure, the monitoring interval could be extended.

10. Since the remedy will result in soil remaining on site with PAHs above individual TAGM 4046 soil cleanup objectives, the entire site will be covered with two feet of clean fill, pavement, or buildings.

11. A site management plan will be developed to: (a) address residual contaminated soils that may be excavated from the site during future redevelopment. The plan will require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC regulations, (b) ensure that appropriate barriers (soil, paving or buildings) remain in place between the ground surface and residual contaminated soils, (c) evaluate the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified, and (d) identify use restrictions for groundwater.

12. The property owner will provide an annual certification, prepared and submitted by a professional engineer or environmental professional acceptable to the Department, which will certify that the institutional controls and engineering controls put in place, are unchanged from the previous certification and nothing has occurred that would impair the ability of the control to protect public health or the environment or constitute a violation or failure to comply with any operation an maintenance or soil management plan.

13. An institutional control will be imposed in the form of an environmental easement that will: (a) require compliance with the approved site management plan, (b) restrict use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Rockland County Department of Health, and (c) require the property owner to complete and submit to the NYSDEC an annual certification as indicated above.

14. Since no significant contamination has been observed on the western (holder) parcel, no active remediation will be undertaken on this parcel as part of this remedy. If ongoing testing detects residual contamination which could present a potential human health risk to workers who may excavate the site in the future, the site management plan would include appropriate safety measure to be in place and would require appropriate handling and disposal of all excavated soils.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Repositories for documents pertaining to the site were established;
- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established;
- A fact sheet was distributed to the public contact list announcing the availability of the PRAP and the public meeting;.
- The fact sheet included an internet address where the PRAP could be downloaded from the NYSDEC website;
- A public meeting was held on February 25, 2004 to present and receive comments on the PRAP; and
- A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.

TABLE 1
Nature and Extent of Contamination
Sampling performed September 1999 through January 2002

SURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Semivolatile Organic Compounds (SVOCs)	Total PAHs	6-836	NA	NA
Individual cPAHs	Benzo(a)anthracene	0.55-37	0.224	9 of 9
	Chrysene	0.59-30	0.4	9 of 9
	Benzo(b)fluoranthene	0.52-16	1.1	8 of 9
	Benzo(k)fluoranthene	0.51-23	1.1	8 of 9
	Benzo(a)pyrene	0.52-40	0.061	9 of 9
	Indeno(1,2,3-cd)anthracene	0.36-16	3.2	7 of 9
	Dibenzo(a,h)anthracene	0.15-6	0.014	9 of 9
	Total cPAHs*	3-158	NA	NA
Inorganic Compounds	Cyanide	ND-14	NA	NA

*Total cPAHs values are calculated from discreet samples and are less than the sum of the individual maximum values listed.

TABLE 1 (Cont.)
Nature and Extent of Contamination
Sampling performed September 1999 through January 2002

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	ND-270	0.060	13 of 55
	Toluene	ND-780	1.5	7 of 55
	Ethylbenzene	ND-1,000	5.5	15 of 55
	Xylene	ND-1,000	1.2	19 of 55
	Total BTEX*	ND-2,860	10	17 of 55
Semivolatile Organic Compounds (SVOCs)	Total PAHs	ND-19,388	500	21 of 55
Individual cPAHs	Benzo(a)anthracene	ND - 450	0.224	48 of 55
	Chrysene	ND - 410	0.4	44 of 55
	Benzo(b)fluoranthene	ND - 280	1.1	36 of 55
	Benzo(k)fluoranthene	ND - 240	1.1	35 of 55
	Benzo(a)pyrene	ND - 430	0.061	49 of 55
	Indeno(1,2,3-cd)anthracene	ND - 150	3.2	31 of 55
	Dibenzo(a,h)anthracene	ND - 58	0.014	46 of 55
	Total cPAHs	ND-1,936	NA	NA
Inorganic Compounds	Cyanide	ND-56	NA	NA

*Total cPAHs and BTEX values are calculated from discreet samples and are less than the sum of the individual maximum values listed.

TABLE 1 (Cont.)
Nature and Extent of Contamination
Sampling performed September 1999 through January 2002

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	ND-47,000	1	19 of 30
	Toluene	ND-4,500	5	6 of 30
	Ethylbenzene	ND-62,000	5	14 of 30
	Xylene	ND-86,000	5	15 of 30
Semivolatile Organic Compounds (SVOCs)	Total PAHs	ND-11,450	NA	NA
	Total cPAHs	ND-717	NA	NA
Inorganic Compounds	Cyanide	ND-495	200	1 of 30

SOIL GAS	Contaminants of Concern	Concentration Range Detected ($\mu g/m^3$)[a]	SCG[b] ($\mu g/m^3$)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	ND - 61	NA	NA
	Toluene	4 - 68	NA	NA
	Ethylbenzene	ND - 23	NA	NA
	Xylene	13 - 130	NA	NA

[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
ug/m^3 = micrograms per cubic meter

[b] SCG = standards, criteria, and guidance values;
Coal Tar - N/A
Surface and Subsurface Soil - NYSDEC TAGM 4046 Remedial Cleanup Objectives
Groundwater - NYS DEC Groundwater Standards
ND=No detection above the laboratory method detection limit.
NA=No applicable SCG.

Table 2
Remedial Alternative Costs

Remedial Alternative		Capital Cost	Annual OM&M	Total Present Worth
SOIL ALTERNATIVES		**Capital Cost**	**O&M NPV**	**Total NPV**
S-1	ISS of Upper and Lower Terraces	$8,072,000		$8,072,000
S-2	ISS of Lower Terrace/ Excavation and Ex-situ Solidification of Upper Terrace	$8,282,000		$8,282,000
S-3	ISS of Lower Terrace/ Excavation and Offsite Transport of Upper Terrace	$8,426,000		$8,426,000
S-4	Excavation of Upper Terrace with Offsite Transport/ Partial Excavation of Lower Terrace and In-situ Chemical Oxidation of NAPL in Soils	$6,936,000		$6,936,000
S-5	Excavation with Offsite Transport of All Soils	$10,095,000		$10,095,000
GROUNDWATER/NAPL ALTERNATIVES		**Capital Cost**	**O&M NPV**	**Total NPV**
GW-1	In-situ Biotreatment and NAPL Recovery	$2,776,000	$2,046,000	$4,822,000
GW-2	Groundwater/NAPL Recovery and Treatment	$4,389,000	$1,678,000	$6,067,000
GW-3	Rapid NAPL Recovery followed by Bedrock Isolation	$5,876,000	$1,063,000	$6,939,000
GW4	In-situ Chemical Oxidation and NAPL Recovery	$2,938,000	$1,971,000	$4,178,000

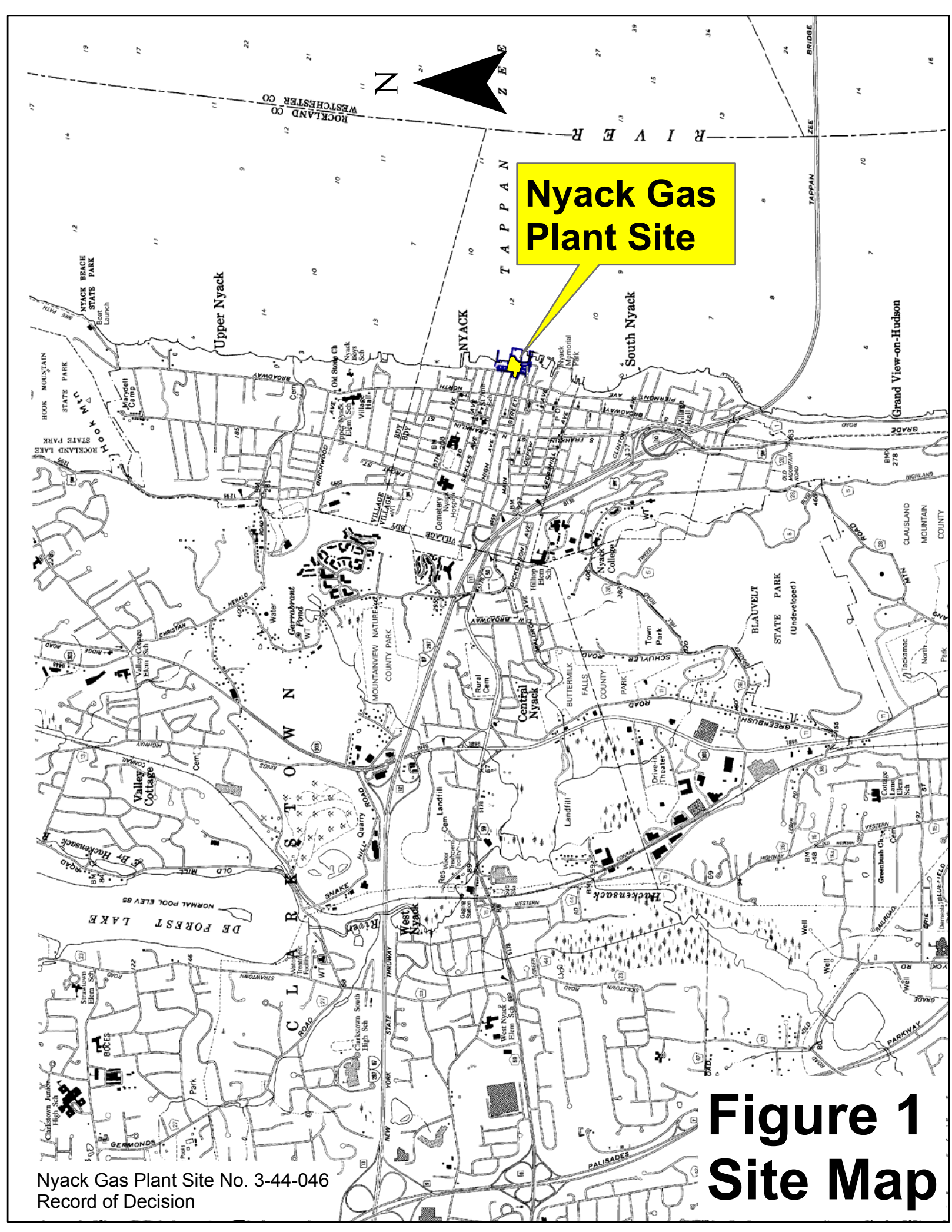


Figure 1
Site Map

Nyack Gas Plant Site No. 3-44-046
Record of Decision

NYACK GAS PLANT SITE (OU-I)
NYACK (C), ROCKLAND COUNTY, NEW YORK
SITE NO. 3-44-046

HISTORIC STRUCTURES

FIGURE 2

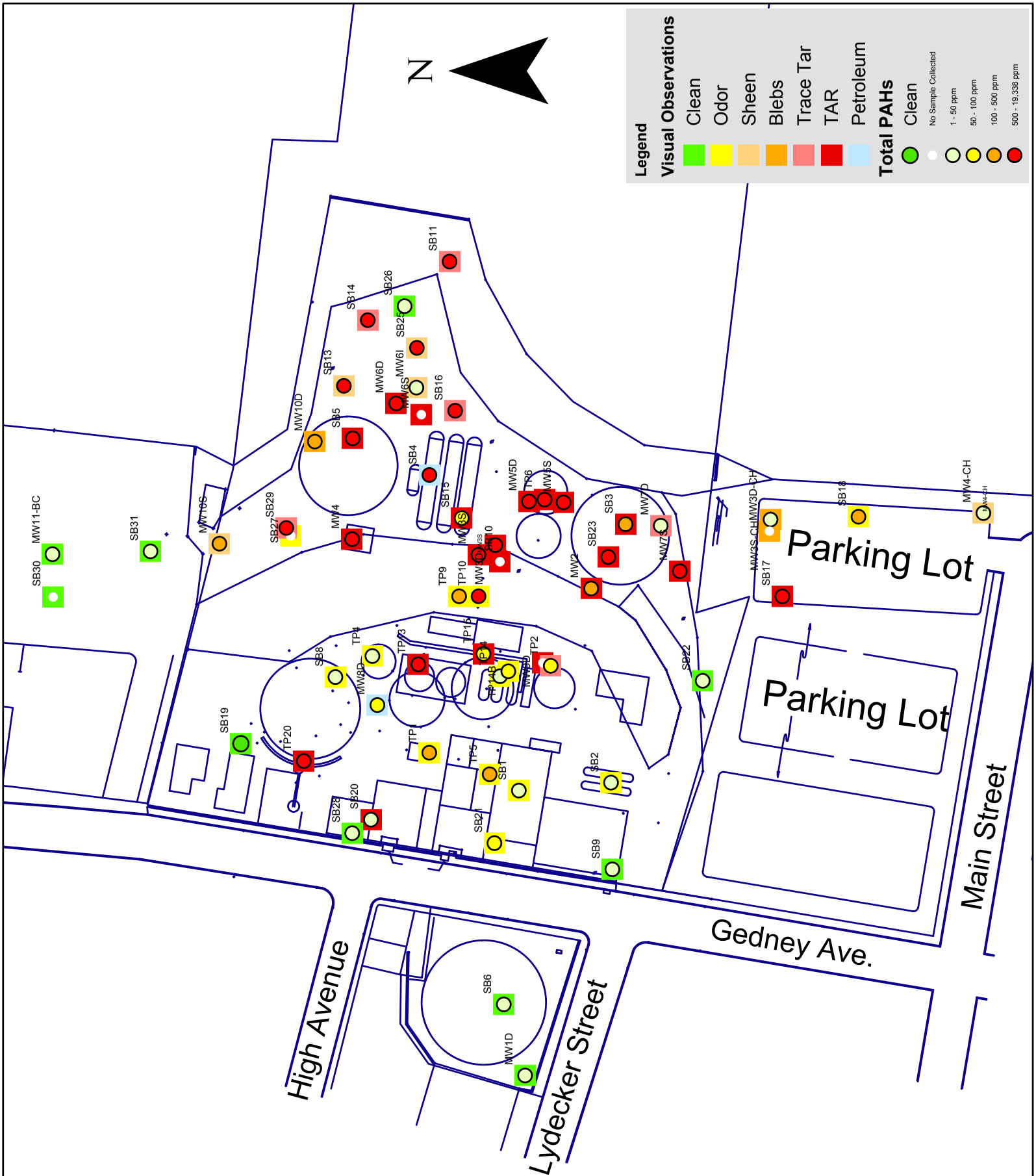
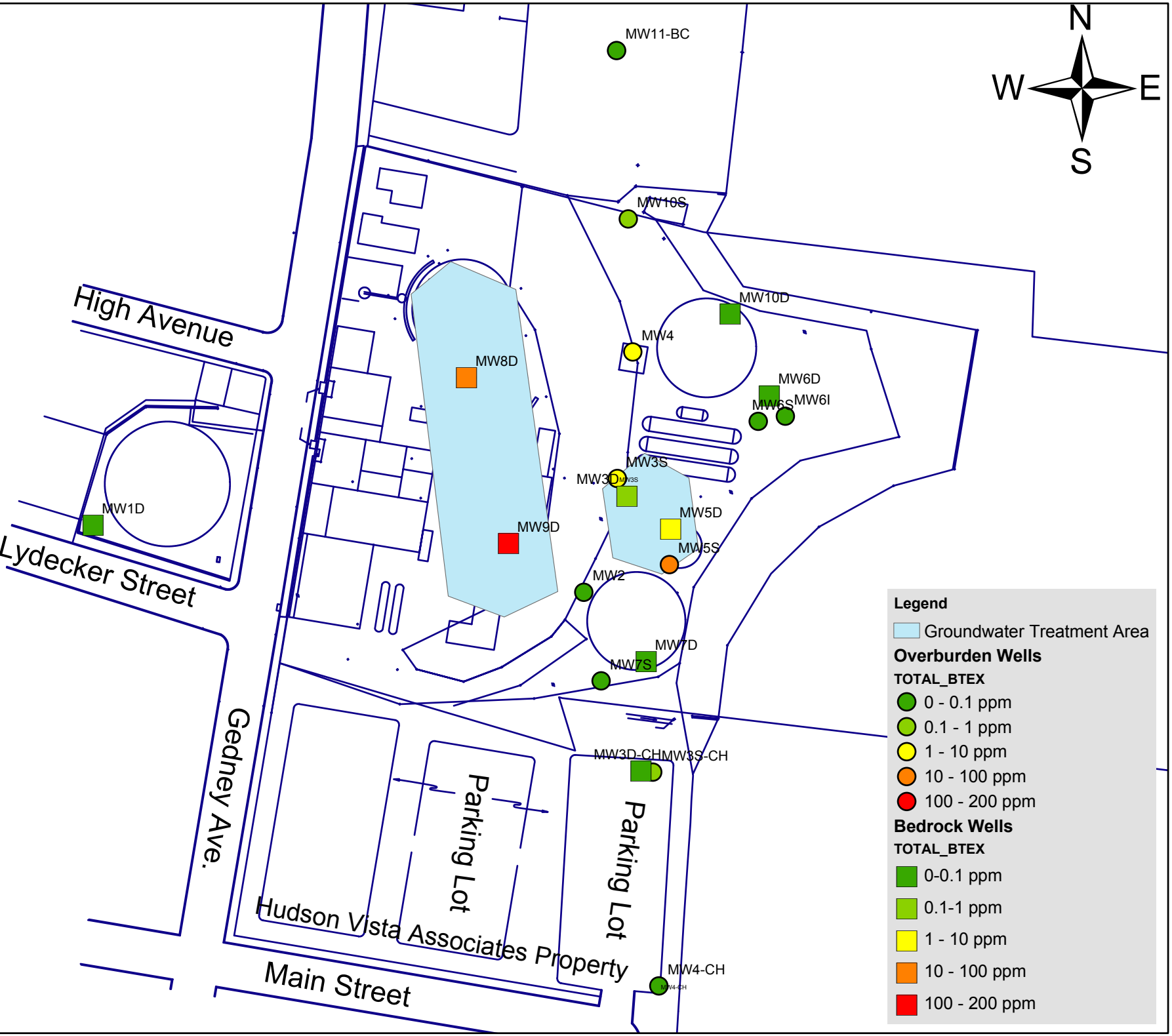


Figure 3
Extent of Contamination

Nyack Gas Plant Site, No. 3-44-046
Record of Decision

Nyack Gas Plant Site, No. 3-44-046
Record of Decision

Figure 4: Extent of Groundwater Contamination and Selected Groundwater Remedy



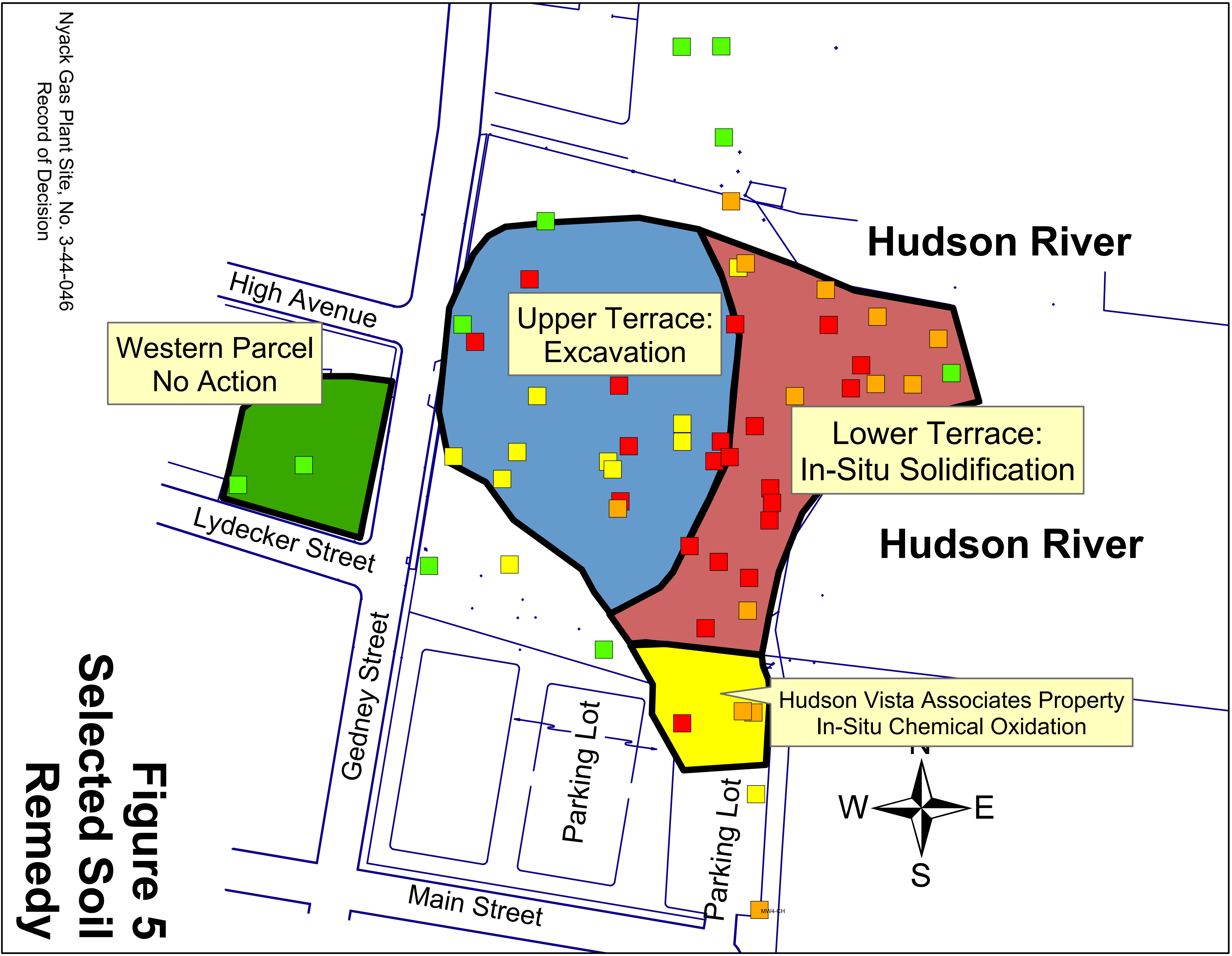


Figure 5
Selected Soil
Remedy

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Nyack Gas Plant Site
Operable Unit No. 1 - Former Plant Site
Nyack (V), Rockland County, New York
Site No. 3-44-046

The Proposed Remedial Action Plan (PRAP) for the Nyack Gas Plant 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 9, 2004. The PRAP outlined the remedial measure proposed for the contaminated soil, and groundwater at the Nyack Gas Plant 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 25, 2004, 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. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on March 12, 2004.

This responsiveness summary responds to all questions and comments raised during the public comment period.

The following are the comments received at the meeting, with the NYSDEC's responses:

COMMENT 1: What are the two pools in the lower terrace?
RESPONSE 1: This is the drainage pit area, one of the more heavily contaminated areas of the site. In historic figures, they are referred to as the drainage pits. Tar and other materials mixed with the water from the operations and collected in the drainage pits.

COMMENT 2: Would the remedy include solidification of the heavy coal tar contamination in the area of the drainage pits?
RESPONSE 2: No, the remedy will eliminate mobile tar before in-situ solidification. The remedy would excavate the structures and grossly contaminated material associated with the structures, and use NAPL collection to remove the mobile tar that is not feasible to remove through excavation.

COMMENT 3: What will be solidified?
RESPONSE 3: The material to be solidified on the lower terrace generally consists of coal tar impacted soils with PAHs above 500 ppm. Some of the soil has seams of tar or blebs (small points of tar), but does not include large volumes of tar saturated soil.

COMMENT 4: Where would the excavated material go during remediation?

RESPONSE 4: Excavated material would be sent off-site to a permitted treatment or disposal facility. Much of the coal tar contaminated soil generated at MGP sites goes to low temperature thermal desorption units. This process heats the dirt, driving the organic chemicals off. Those chemicals are then collected or destroyed. The large stones and the structural debris would have to go to a landfill.

COMMENT 5: Who will be conducting the cleanup?
RESPONSE 5: Orange and Rockland Utilities Inc.

COMMENT 6: Does Orange and Rockland own the property?
RESPONSE 6: No. Orange and Rockland does not own the property.

COMMENT 7: What would happen if you did not have hydraulic control over the chemical oxidation process.
RESPONSE 7: It depends on the chemical used. It could be as innocuous as adding a lot of oxygen to the river water, but it could also involve release of other chemicals, including intermediate products of oxidation.

COMMENT 8: Is chemical oxidation of the bedrock groundwater limited to the upper terrace?
RESPONSE 8: No. Both, the upper and lower terrace have bedrock contamination which will be addressed using chemical oxidation.

COMMENT 9: If the public is not using the groundwater, why spend millions of dollars to clean it up?
RESPONSE 9: A cleanup can either be driven by environmental concerns or it can be driven by public health concerns. In this case, even though the groundwater isn't used for consumption, it still represents an environmental contamination concern which has to be addressed. There would also be a potential for health impacts from vapor intrusion if the contamination is not remediated and the site is redeveloped.

COMMENT 10: What is coal tar? What can that do to you?
RESPONSE 10: Coal tar contains polycyclic aromatic hydrocarbons (PAHs) and benzene, toluene, ethylbenzene, and toluene (BTEX) compounds. Seven of these PAHs and benzene are identified human carcinogens. A number of other compounds have been associated with other health risks. From the standpoint of the community, the coal tar doesn't represent any on-going health exposure because it is in the ground and there is no groundwater use in the area. The Department of Health has indicated that there is no current exposure to the site related contamination.

COMMENT 11: I know that the State Department of Health, has done some past surveys in this County about cancer. Have they done any in that particular area or that street or that neighborhood?
RESPONSE 11: Cancer incidence studies have not been conducted specifically for the Village of Nyack. However, information about cancer and the incidence of the four most common types of cancer in New York State has been gathered as part of the New York State Department of Health's *Cancer Surveillance Improvement Initiative* project. The information includes comparisons of the actual incidence of the four cancer types for individual zip codes with the expected incidence of each cancer type for the zip code. For more information about the project or about cancer, you may call 1-800-458-1158 or look at the Department of Health's Web Page on the Internet at www.health.state.ny.us.

COMMENT 12: Can the site reasonably be developed for commercial or residential use. It would seem that the stigma of the hazardous waste would make potential end users of the property uneasy. Are there examples of sites being used for residential or commercial purposes following remediation?
RESPONSE 12: There are many examples of sites which have been successfully remediated and returned to productive use. There are even sites that have been continuously used for residential purposes before, during, and after remediation. In all cases, it is critqical that potential exposure is eliminated before the property is reused. Exposure to any residual contamination at this site would be controlled by imposing the institutional and engineering controls described in the ROD: appropriate cover, vapor control for structures, and a site management plan required by an environmental easement.

COMMENT 13: Where you've called for in-situ solidification, on the lower terrace, could that area then be excavated for the construction of buildings?
RESPONSE 13: You can construct on material that's been solidified. The solidified material would have a greater bearing capacity than the original soil, so it's ability to support slab-on-grade construction would be improved. In addition, the material would not be as hard as concrete - it would be soft enough to drill through if the proposed construction required placing piles to bedrock.

COMMENT 14: On the lower terrace, why don't you just excavate the whole thing? Why are you going to excavate that huge section above and leave that little section down below to solidify? Why not do it all?
RESPONSE 14: The process of excavating the lower terrace would be much more complex and much more expensive than excavating the upper terrace. On the upper terrace, the bedrock is shallow (~10 feet), and there is no groundwater above bedrock, so, that area can be excavated easily and relatively inexpensively. On the lower terrace, the contamination extends much deeper, and the groundwater is quite shallow. It would be a much more expensive, much more complicated process to do an excavation on the lower terrace. There will be some excavation on the lower terrace to clear MGP structures and obstructions and eliminate gross contamination in the immediate vicinity of the structures.

COMMENT 15: Can you elaborate on your remedial goals for, both, soils and groundwater?
RESPONSE 15: As indicated in section 6 the ROD, the remediation goals for this site are to eliminate or reduce to the extent practicable:1)the presence of NAPL and MGP-related contaminants as the sources of soil, groundwater and soil gas contamination, 2)migration of NAPL and MGP-related contaminants that would result in soil, groundwater or soil gas contamination, 3)the release of contaminants from NAPL in on-site soil into groundwater that result in exceedances of groundwater quality standards, 4)the potential for ingestion of groundwater with contaminant levels exceeding drinking water standards, 5)the potential for ingestion/direct contact with contaminated soil, 6)impacts to biota from ingestion/direct contact with soil, and 7)the release of contaminants from subsurface soil under buildings into indoor air through soil gas migration and intrusion. Further, the goals for the site include attaining to the extent practicable recommended soil cleanup objectives in TAGM 4046 and ambient groundwater quality standards.

COMMENT 16: What do TAGM numbers mean for soil? Are they suitable for residential use versus commercial use?
RESPONSE 16: TAGM 4046 provides screening levels for various compounds. There are two separate sets of TAGM numbers that we looked at for this site. One is a total PAH level of 500 ppm and the other is the levels for individual compounds. The levels for individual compounds are applicable for direct contact. Because

there will be soil remaining on site with individual PAH levels above TAGM levels, appropriate cover will be required. By providing appropriate cover, a site management plan, and engineering controls, exposure to residual contamination would be eliminated, which will allow the property to be used for restricted residential purposes.

COMMENT 17: For the groundwater, what numbers are you going to clean up to? Is it going to be protective of surface water criteria? I understand you're going to defer the Hudson River sediments to OU-2, but what about the Hudson River surface water?
RESPONSE 17: Since soil with total PAHs above 500 ppm will be removed, treated, or solidified as part of this remedy, the source of continuing water contamination will be eliminated, and natural processes will work over time to bring groundwater and the ground water discharging to the Hudson into compliance with applicable standards. Ongoing monitoring of the groundwater will be performed to verify the effectiveness of the remedy. Also refer to RESPONSE 24.

COMMENT 18: I know there's a house at High Avenue and Gedney. Is there groundwater contamination underneath that house?
RESPONSE 18: No. This house is upgradient from the contamination. Wells between the contamination and this house were not contaminated.

COMMENT 19: Is there some contamination? Do they have to worry about vapor intrusion into their basement?
RESPONSE 19: Some investigation of the soil gas has been completed, and soil gas levels were not of concern. Additional testing of the soil gas will be conducted this spring to confirm soil gas does not present an exposure risk.

COMMENT 20: Does that include indoor air sampling?
RESPONSE 20: Typically, not. The indoor air would only be sampled if there was some evidence of soil gas contamination.

COMMENT 21: Is groundwater analyzed for PAHs, or just BTEX?
RESPONSE 21: Groundwater is sampled for an extensive suite of chemicals, including volatile and semivolatile organic chemicals, which include BTEX and PAHs.

COMMENT 22: How can you be sure that there's not groundwater contamination or soil contamination at the High/Gedney Street intersection? Is that going to be included in your future investigation?
RESPONSE 22: We have clean wells and borings bounding the proposed remedy to the west, which is why we do not think we have any contamination extending west beyond Gedney Street. During the cleanup, the sidewall of the excavation will be observed and sampled to confirm there is no remaining material which shows visible evidence of coal tar or PAH levels above 500 ppm. In addition, our investigations have shown the groundwater and tar moving toward the river, making contamination west of Gedney Street even less likely.

COMMENT 23: What are your remedial goals for groundwater? Would it be compared to surface water standards or groundwater standards?
RESPONSE 23: Our goal is to meet ambient groundwater standards to the extent practical. The proposed remedy provides the best chance of meeting groundwater criteria at this site. However, particularly with the

NAPL in the bedrock, we anticipate that groundwater standards may not be achieved immediately following completion of the remedy. For that reason, the remedy includes a restriction of groundwater use and continued monitoring of the groundwater. Even if groundwater standards are not initially achieved, groundwater quality would be expected to improve over time, since gross contamination, which would be a continuing source of groundwater impacts, will be removed. Please also refer to RESPONSE 24.

COMMENT 24: Are the surface water standards more stringent than the groundwater standards? Do you plan on mitigating to groundwater standards or to surface water standards? Will you address groundwater discharging to surface water?
RESPONSE 24: There will be no man-made discharge from this site, so surface water discharge standards would not be applicable. Sampling of surface water already completed shows that ambient surface water standards are met, even before remediation. Although ambient surface water standards can be more stringent than groundwater standards, these standards can not be directly applied as discharge criteria. Discharge criteria would include assessment of the assimilative capacity of the receiving water to determine whether the discharge would be likely to create ambient conditions that would not meet standards. In this case, the groundwater standards are more stringent than surface water standards, and those are the standards that we have identified as a remedial goal.

COMMENT 25: My chief concerns is discharge of contaminated groundwater into the Hudson River. I would like to request that a careful analysis be made to consider this concern as this remedy and the remedy for OU2 are assessed.
RESPONSE 25: The inter-tidal zone, where groundwater appears to be discharging to the surface water, will be assessed during the design of the OU1 remedy and during the Feasibility Study for OU2.

COMMENT 26: Will there be surface water sampling as a part of the ongoing monitoring following the cleanup?
RESPONSE 26: None is planned since pre-remedial samples have not identified any problems. Groundwater monitoring has been identified as the appropriate measure of the effectiveness of the remedy, since surface water samples would be significantly diluted by river water. Please also refer to RESPONSE 24.

COMMENT 27: Have you seen coal tar globules surfacing in the intertidal zone?
RESPONSE 27: No, but hand probing of the near-shore area did produce hydrocarbon like sheens in some locations.

COMMENT 28: You're talking about making this impermeable barrier, because it's going to encapsulate the contamination. We have all this water coming down the hill and it sounds like we're going to have a big concrete dam. What's going to keep that from turning into a swamp behind this concrete dam along the front right up to the top and all the water coming down from the bedrock?
RESPONSE 28: The groundwater which would be of concern is the water which flows through the bedrock, and then enters the unconsolidated material in the lower terrace. Orange and Rockland's engineer has identified this as an important design consideration, and a hydraulic analysis will be incorporated into the design to ensure that there are no unintended complications from the redirection of groundwater.

COMMENT 29: There are incentives for a riverfront walk in this location. Will the proposed remedy in anyway limit access to the riverfront?

RESPONSE 29: No, the remedy would not preclude a riverfront walk or other public access.

COMMENT 30: How significant are the risks to public health from the excavation? Who monitors the health effects from the excavation and how often is the monitoring done?
RESPONSE 30: Orange and Rockland has indicated that they intend to perform the excavation under a temporary structure with negative pressure air handling and treatment. This will provide the best protection for the community against both vapors and nuisance odors. There will be an approved Community Health and Safety Plan in place, providing for continuous air monitoring for both volatile organic compounds and particulates. If levels exceed the criteria in the health and safety plan, appropriate engineering controls will be required.

In addition, Orange and Rockland has indicated that they intend to use a state-of-the-art perimeter air monitoring system to monitor the air 24 hours a day, 7 days a week, with an after-hours paging system. Should the air quality be compromised, even if nobody is on site, the monitoring system would alert the contractor that something needs to be done. This system was used very successfully during an earlier remediation of their Haverstraw site.

COMMENT 31: When will the work begin? How long do you anticipate it will go for?
RESPONSE 31: Based on the schedule being discussed at this time, the design process should take 12 to 16 months. Construction could begin in the winter of 2005. The complete project should take four years to complete. Overall, the project could continue through 2008.

COMMENT 32: Suppose we decided to let sleeping hydrocarbons lie. Suppose the people in the area decided we wanted to keep this property as open space. Would the State have any objection if the Village took the property and kept it as open space. We could even add the soil cover and have the environmental easements to enact the site management plan?
RESPONSE 32: Restricting the end use for this property would not significantly change the remedy. This comment proposes to break the human exposure pathways only, and not to eliminate any of the source material. This would leave the site continuing to discharge contamination to the Hudson River, impacting both the river water and the sediments. In addition, the coal tar would remain on site. This material is highly mobile, and can be made to move significantly by relatively minor disturbances such as changes in groundwater flow patterns, vibration from construction equipment or traffic, or nearby construction or earthwork. Any of these disturbances could make the tar move - potentially off-site, or into the Hudson River. Unless the source material is addressed, there will always be a potential for this tar to migrate to where it could cause harm to the environment or to human health.

COMMENT 33: What would be the potential use of the property following remediation.
RESPONSE 33: There would not be any development restrictions on the property. There would be institutional controls to address any residual contamination, including the requirement to have a sub-slab vapor control system on any on-site buildings and appropriate cover for any open space.

COMMENT 34: Would appropriate cover include grass?
RESPONSE 34: The site management plan, which is part of the remedy, will require that there is appropriate cover across the entire site. That cover could be buildings, two feet of clean fill with vegetative cover, or

pavement. There will be an environmental easement established, which will require that the site management plan is followed for this property.

COMMENT 35: If this site were to be left as open space, or used for industrial purposes, is it fair to say that you would not have to do this?
RESPONSE 35: No, please refer to RESPONSE 32.

COMMENT 36: I have a question about the process. Who initiated this project?
RESPONSE 36: In 1996, the State approached various New York State utilities, asking them to identify manufactured gas plant sites. Orange and Rockland identified 8 sites and signed an initial consent order in 1996 agreeing to investigate these sites. Following this, Orange and Rockland signed subsequent consent orders to remediate these sites where contamination was found. The order for the Nyack site was signed in 1999.

COMMENT 37: Usually, with in-situ oxidation, you control vapors. Will this be considered in the Remedial Design.
RESPONSE 37: The potential need to control vapors during chemical oxidation will be assessed during the Remedial Design. Not all chemical oxidation applications require vapor control.

COMMENT 38: Would a vapor control system be consistent with the adjacent residential development.
RESPONSE 38: If a vapor collection system is necessary, it would be designed to be compatible with site development. Air monitoring will be conducted to ensure compliance with the site specific health and safety plan.

COMMENT 39: How was the southern boundary on the cleanup defined? I notice there's one test on the Hudson Vista Associates property with PAHs between 100 to 500 parts per million which is not included in the area to be remediated.
RESPONSE 39: Soils with total PAHs above the NYSDEC TAGM 4046 value of 500 ppm will be excavated, solidified or treated. Orange and Rockland will conduct a design level investigation to accurately determine the areal extent of those impacts.

COMMENT 40: When is the next time the public can have input?
RESPONSE 40: After the ROD is finalized, the detailed design of the remedy will begin. A fact sheet will announce the availability of the Remedial Design for public review and comment.

COMMENT41: When would the community expect to hear about OU-2?
RESPONSE 41: Orange and Rockland submitted a detailed Remedial Investigation Report to the NYSDEC in 2003. Once the DEC has reviewed that report, we will be able to assess the schedule more clearly. Once the Remedial Investigation Report is approved, work would begin on the Feasibility Study (FS). If the site cleanup could impact the decisions made in the OU-2 FS, completion of the FS could be delayed until the conclusion of the land based cleanup.

COMMENT 42: I would appreciate clarification with regard to existing environmental concerns as the property exists now.

RESPONSE 42: Contaminated groundwater is going into the Hudson River, and unless the source material is removed, there is a potential for coal tar to be released to the Hudson River.

COMMENT 43: Can we submit comments via E-mail?
RESPONSE 43: Yes, an e-mail address is on the handout and on the Fact Sheet.

The following comments were received by e-mail from Diane Cutt on March 12, 2004:

COMMENT 44: It is difficult to determine by the figures in the PRAP if the extent of soil and groundwater contamination have been defined to TAGM levels and groundwater standards, respectively. The contaminant levels on Figures 3 and 4 are represented as ranges, therefore, it is difficult to determine the actual concentrations of each contaminant at each sampling location. Of particular concern is that no sampling appears to have been conducted on the west side of Gedney Avenue at its intersection with High Avenue. I respectfully request that the actual concentrations at each sampling location be provided to the public. If these data indicate that additional sampling, including new monitoring wells and soil borings, are required to fully define the extent of contamination, I respectfully request that the soil and groundwater contamination be fully defined and remediated and that any proposed work to do so be made available to the community.
RESPONSE 44: The actual results of each sampling point are provided in the Remedial Investigation Report, which is in the document repository. This report defines the nature and extent of contamination at this site. Based on a full review of this data, additional investigation work was called for in the ROD. The additional investigation includes work on the west side of Gedney Avenue; soil borings south of High Street, and soil gas points both north and south of High Street. No additional groundwater investigation is necessary based on existing data. When the work plan for this work is finalized, it will be added to the document repository, as will results of this investigation. The definition of the extent of contamination and remediation will be further clarified during the design process.

COMMENT 45: The PRAP indicates that "of concern is the potential for the intrusion of contaminated soil gas into the basements or foundations of any newly constructed buildings resulting in discernable impacts to indoor air quality." Presumably this is directed at any new structures built on the site. Has an off-site vapor intrusion study been conducted? Houses located directly across Gedney Avenue may be impacted by vapor intrusion.
RESPONSE 45: A soil gas investigation of this area is currently planned, as indicated in RESPONSE 44.

COMMENT 46: I am concerned that only sediments in the Hudson River that have been contaminated by this site will be addressed in Operable Unit-2. It was my impression from comments made by Orange and Rockland, the responsible party, at the public meeting on February 25 that it is their opinion that groundwater from this site is not discharging to the Hudson River and is not impacting the River. However, without technical evidence of this, I believe, as a geologist and groundwater specialist, that groundwater from this site likely discharges to the Hudson River and that it is important to identify that a primary remedial goal of OU-1 is to prevent the further migration of contaminated groundwater to the Hudson River. Will the groundwater remedies proposed in the PRAP prevent further migration of contaminated groundwater into the Hudson River?
RESPONSE 46: Please refer to RESPONSE 24.

COMMENT 47: Based on the information provided in the PRAP, no soil remediation alternatives were developed for the Western Parcel and the South Area, the Hudson Vista Association Property. How will contaminated soils in these areas be addressed?

RESPONSE 47: No contaminated soils were encountered in the Western Parcel. On the Hudson Vista Associates property, the selected remedy calls for contaminated soil to be treated by chemical oxidation, if this remedy is demonstrated to be effective during design. If work completed during the remedial design fails to demonstrate that chemical oxidation will successfully remediate these contaminated soils, the Hudson Vista Associates Property will be remediated using in-situ solidification.

The following comment was received from Hudson Vista Associates in a letter dated March 9, 2004:

COMMENT 48: We are the owners of the property to the south of the subject site. We attended the Public Hearing on February 25, 2004 and had previously been advised by Orange and Rockland that they would be required to do some work on our property.
We want to express our support for the work to be performed and offer our cooperation. We are however; disappointed with the schedule indicating the remedial action will not be completed until 2006.
We understand that the work on our site is small in relation to the overall project. Can the work on our site be expedited? We have been waiting for this work to take place since 1996, so that we can proceed with the development of our property. Anything that you can do to expedite the work will be greatly appreciated.
RESPONSE 48: The NYSDEC will work to complete this remediation as expeditiously as possible.

The following comments were received in a letter dated March 11, 2004 from David S. Yudelson of Sive, Paget and Riesel, P.C. on behalf of Presidential Life Insurance, the owner of the site:

COMMENT 49: The site has been out of productive use for a number of decades. Thus, in addition to protecting human health and the environment, a primary goal of this remediation must be to facilitate the re-use of the site as expeditiously as possible and without undue restrictions. This is consistent with State policy as well as being in the best interests of the public.
RESPONSE 49: The NYSDEC will work to complete this remediation as expeditiously as possible. This remediation will facilitate the safe re-use of the site without undue restrictions.

COMMENT 50: Restrictions that can be eased or avoided with a reasonable amount of additional remedial effort must be. If the site is unduly encumbered with deed restrictions and obligations reuse will be delayed if not prevented outright.
RESPONSE 50: Anticipated restrictions on the future use of the plant site property have been minimized to the extent practicable.

COMMENT 51: In order to minimize or eliminate the need for further review, approval or involvement by NYSDEC and NYSDOH in any as yet unspecified redevelopment plan, the competent bedrock surface on the upper terrace and the top surface of the solidified “monolith” should include a clean concrete or grout cap and vapor barrier.
RESPONSE 51: The proposed cap and vapor barrier would not decrease the involvement of the DEC and DOH.

COMMENT 52: Any soils above TAGM found on the lower terrace that can be excavated and disposed of off-site without unreasonable difficulty, should be. At minimum, this must include excavation of any soils above TAGM that can be removed without significant de-watering.

RESPONSE 52: Removal of additional soils on the lower terrace would not increase the effectiveness of the remedy nor decrease the future restrictions on the property.

COMMENT 53: It must be planned that any work on OU2 must be undertaken from the water and not through the site.
RESPONSE 53: Routing of material or equipment associated with the OU2 remediation will be addressed in the remedial design for that project. Since a remedy for that portion of the site has not been selected, it is premature to address short term impacts to implementation.

COMMENT 54: The western parcel should be removed from classification as part of the site as soon as possible. Any testing required to accomplish should be undertaken without delay.
RESPONSE 54: This site has not been listed on the State's registry of inactive hazardous waste disposal sites, so no de-listing is necessary.

COMMENT 55: Serious thought must be given to a means of expediting the flowing product recovery phase of both the upper and lower terraces. It is possible that injection grouting should be used in conjunction with removal and oxidation so that defined schedules can be met. It will be unacceptable if trenches or recovery wells are used for extended periods thus delaying implementation of the ultimate remedy of soil removal and oxidation/solidification.
RESPONSE 55: The selected remedy recognizes the importance of an expeditious completion of the bedrock remedy. Based on the Feasibility Study, it is anticipated that the NAPL extraction and chemical oxidation can be accomplished in a similar time frame as the above proposed injection grouting. All parties will work to ensure that the remedy is implemented in an effective and timely manner.

COMMENT 56: We anticipate that during the design phase of the remediation we will provide input on the specifications for the solidification material and on the determination on whether such monolith should extend to bedrock on the lower terrace. The purpose of such input is to ensure that implementation of the remedy does not preclude or interfere with any reuse of the site.
RESPONSE 56: The property owner will be given the opportunity to provide input on the specifications for the solidification material and on the determination on whether such monolith should extend to bedrock on the lower terrace.

COMMENT 57: We also anticipate being a party to any discussions that bear on the suggested environmental easement and site restrictions. Thus, we respectfully request that a Presidential representative be present for any future communication or discussion respecting the final choice of remedy and phasing.
RESPONSE 57: The ROD dictates the scope of the environmental easements required. The degree of involvement between the property owner and Orange and Rockland during the design and implementation of the remedy should be negotiated between those two parties.

The following comments were received from Robert J. Nelson in a letter dated March 14, 2004:

COMMENT 58: I would like the former plant site (OU-1) to be maintained as open space; a park-like location with riverfront access to the Hudson and its scenic beauty.
RESPONSE 58: The redevelopment of the site following remediation is a subject for the municipal planning and zoning officials.

COMMENT 59: I would like to see no residential development on the site to minimize the necessary clean-up of contamination resulting from its former industrial use.
RESPONSE 59: Please refer to RESPONSE 32.

COMMENT 60: I would prefer the contamination to be contained to prevent contamination in the river's sediments (OU-2).
RESPONSE 60: The selected remedy on the lower terrace is a containment remedy. A containment remedy was considered for the upper terrace, and the excavation remedy was selected because it will permanently remove the contamination at a cost similar to the containment remedy, with similar short term impacts.

The following comment was received from Rockland County Conservation Association Inc. in a letter dated March 14, 2004:

COMMENT 61: The referenced site on Gedney Street in Nyack is being considered for remediation of contamination to the standard of safety for building and occupation of enclosed dwellings. The Rockland County Conservation Association, Inc. is interested in contemplation of a less restrictive proposal: clean-up to the extent of safe public use including a riverfront walk and park for utilization and enjoyment as open space by the people of the State of New York. This possibility should in no way alter protecting the Hudson River from adjacent soil contaminants and measures for their containment and/or removal (OU-2).

RCCA is a seventy-two year old organization devoted to the preservation of our region's environment. One on-going tenet is its advocacy of public access to the scenic beauty of the Hudson with its accompanying communication with nature and restorative recreational and educational capabilities.

The Gedney Street site is within the state designated Tappan Zee Scenic District (NYSDEC, 1987). Its availablity is a rare opportunity to renew New York's commitment to the public covenant. We welcome the inclusion of this letter in the comments from the public about the project.
RESPONSE 61: Please refer to RESPONSES 32, 59 and 60.

APPENDIX B

Administrative Record

Administrative Record

Nyack Gas Plant Site
Operable Unit No. 1 - Former Plant Site
Nyack (V), Rockland County, New York
Site No. 3-44-046

1. Proposed Remedial Action Plan for the Nyack Gas Plant site, Operable Unit No.1 - Former Plant Site, dated February 2004, prepared by the NYSDEC.

2. Order on Consent, Index No. D3-0002-9412, between NYSDEC and Orange and Rockland Utilities Inc., executed on January 8, 1996.

3. Order on Consent, Index No. D3-0001-98-08, between NYSDEC and Orange and Rockland Utilities Inc., executed on March 11, 1996.

4. Remedial Investigation Report, Former Manufactured Gas Plant Site, Nyack New York," January 11, 2002, Prepared by the Retec Group, Inc.

5. "Feasibility Study Former MGP Site - Nyack, New York", January 26, 2004. Prepared by the Retec Group, Inc.

6. Fact Sheet, February 2004: Notice of Public Meeting, Proposed Remedial Action Plan, Nyack Gas Plant Site, OU-1 Former MGP Plant Site and Structures

7. Transcript, Nyack Gas Plant Site, Proposed Remedial Action Plan Public Meeting, Nyack College, Hilltop Auditorium, February 25, 2004

8. Letter Dated March 9, 2004 from William F. Hellmer, Hudson Vista Associates, Inc.

9. Letter Dated March 11, 2004 from David S. Yudelson of Sive, Paget, & Riesel, P.C. Representing Presidential Life Insurance.

10. E-mail dated March 12, 2004 from Diana Cutt

11. Letter dated March 14, 2004 from Robert J. Nelson

12. Letter dated March 14, 2004 from Rockland County Conservation Association.