RECORD OF DECISION

NM - North Albany
State Superfund Project
RCRA Corrective Action Program
Albany, Albany County
Site No. 401040
RCRA ID: NYD000730408
March 2016

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

DECLARATION STATEMENT - RECORD OF DECISION

NM - North Albany
State Superfund Project
Albany, Albany County
Site No. 401040
March 2016

Statement of Purpose and Basis

This document presents the remedy for the NM - North Albany site, a Class 2 inactive hazardous waste disposal site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 373 (RCRA) and (6 NYCRR) Part 375, 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 (the Department) for the NM - North Albany site and the public's input to the proposed remedy presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER- 31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance

ecological, economic and social goals; and

- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. In-Situ Solidification

In-situ solidification (ISS) of subsurface soils will be implemented over a section of the site north of Building 2 and around the vehicle maintenance building, covering an area of approximately 1.6 acres. This area encompasses the largest area of source material at depth and will extend to the top of bedrock, a depth of approximately 20 feet.

ISS is a process that binds the soil particles in place creating a low permeability mass. The contaminated soil will be mixed in place together with solidifying agents (typically portland cement) or other binding agents using an excavator or augers. The soil and binding agents are mixed to produce a solidified mass resulting in a low permeability monolith. The solidified mass will then be covered with a cover system as described in element 4 to prevent direct exposure to the solidified mass. The resulting solid matrix reduces or eliminates mobility of contamination and reduces or eliminates the matrix as a source of groundwater contamination.

3. Excavation

Along the Eastern edge of the site, purifier waste and source material would be excavated from the surface down to the silt and clay confining layer, to a depth of approximately 10-12 feet. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

Additionally, soil due north of Building 2 will be excavated, to a depth of approximately 5 feet, and transported off-site for disposal, to allow for the installation of the ISS element. If any of the excavated soils meet the commercial SCOs, then it may be reused on the site.

4. Cover System

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

5. Barrier Wall and Coal Tar Recovery

Installation and operation of a barrier wall and coal tar recovery wells along the eastern edge of the site to stop off-site migration and remove potentially mobile coal tar from the subsurface. A second barrier wall with tar collection wells will be installed to the east of the electrical substation in the northwest corner of the site. The number, depth, type and spacing of the recovery wells will be determined during the design phase of the remedy.

Coal tar will be collected periodically from each well; however, if wells are determined by the Department to accumulate large quantities of coal tar over extended time periods, they will be converted to automated collection.

Two additional wells will be installed on the west side of Broadway, across from the northwest corner of the site. These wells will serve to confirm that coal tar is not migrating from the northwest corner of the site.

Additionally an LNAPL collection well will be installed south of Building 2 to address any remaining LNAPL contamination related to fuel storage in that area.

6. Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- require compliance with the Department approved Site Management Plan.

7. Site Management Plan

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

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in paragraph 6 above.

Engineering Controls: The ISS noted in Element 2, the site cover discussed in paragraph 4, and the Coal Tar Recovery discussed in paragraph 5 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- a provision for further investigation and remediation if any of the existing structures are demolished, or if the subsurface is otherwise made accessible. The nature and extent of contamination in areas where access was previously limited or unavailable will be immediately investigated. Based on the investigations, a plan will be developed based on the investigation, for the removal or treatment of the any source areas, to the extent practicable, and any necessary remediation will be completed prior to redevelopment. This includes Building 2 and the Genesee Street Substation Area;
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, in any currently unoccupied on-site buildings upon occupancy or when site-related chemicals of concern are no longer in use in areas inside the on-site buildings, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department; and
- monitoring for vapor intrusion for any buildings developed on the site, in any currently unoccupied buildings that become occupied, or in existing on-site building, as may be required by the Institutional and Engineering Control Plan discussed above.

c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
- procedures for operating and maintaining the remedy;
- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy 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.

March 31, 2016
Date

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

RECORD OF DECISION

NM - North Albany
Albany, Albany County
Site No. 401040
March 2016

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of hazardous wastes at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of hazardous wastes at this site, as more fully described in this document, has contaminated various environmental media. The remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This Record of Decision (ROD) identifies the selected remedy, summarizes the other alternatives considered, and discusses the reasons for selecting the remedy.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment. The New York State Hazardous Waste Management Program (also known as the RCRA Program) requires corrective action for releases of hazardous waste and hazardous constituents to the environment. This facility is subject to these two programs.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York; (6 NYCRR) Part 373 (RCRA) and (6 NYCRR) Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repositories:

Albany Public Library North Albany Branch
616 N Pearl St

Albany,, NY 12204
Phone: 518 463-1581

NYSDEC Central Office
Attn: Douglas MacNeal
625 Broadway
Albany, NY 12233-7014
Phone: 518 402 9662

A public meeting was also conducted. At the meeting, the findings of the remedial investigation (RI) and the feasibility study (FS) were presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period was held, during which verbal or written comments were accepted on the proposed remedy.

Comments on the remedy received during the comment period are summarized and addressed in the responsiveness summary section of the ROD.

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The North Albany site is a 25 acre parcel located in an urban area of Albany County. It is bordered by Broadway on the west side, commercial property to the south and interstate 90 on the north. Active railroad tracks border the site on the east. The nearest residential property is on the west side of Broadway, roughly 50 yards to the west.

Site Features: The site is relatively flat and includes two occupied buildings and roughly a half dozen storage and maintenance structures surrounded by paved parking lots and gravel covered storage yards. One of the two occupied buildings is a combination of offices and vehicle service areas. The other is a vehicle maintenance garage.

Current Zoning/Use: The site is zoned for commercial use and is currently intensively used as a service center for National Grid. The surrounding parcels are a mix of various commercial uses with residential use across Broadway.

Past Use of the Site: The site was originally a Manufactured Gas Plant which operated through the 1940s and then was converted as a service center for the local utility. The principal waste

material is coal tar, which has escaped from gas holders and tar pits. The primary structures that act as source areas are the relief holder previously located in the northwest corner of the site underneath an electrical substation, and the tar tank and tar pit previously located in the north central area of the site, under the parking area.

The facility was formerly permitted to operate as a treatment, storage and/or disposal (TSDF) facility under the Resource Conservation and Recovery Act (RCRA) hazardous waste management program. As part of the permit, several Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) were identified for corrective action. The following SWMUs and AOCs were identified at the site:
L-1 (MGP-related contamination at the site),
DW-1 (Inactive Dry well),
B-2 (Soil beneath the transformer shop in building 2),
T-1 (Oil/water separator),
T-2 (Underground diesel tank),
T-3 (Waste oil tank),
T-4 (Skimmed oil collection tank),
T-5 and T-9 (Underground gasoline tanks),
S-3 (Mercury storage area),
S-5 (Yard storage area),
T-6200 (Non-hazardous waste oil tank),
T-6300 (PCB-contaminated waste oil tank),
the storm sewer AOC,
the AOC in the vicinity of MW-10, and
the AOC in the vicinity of SB-5.

Based on the investigations and previous actions at the site, all the AOCs and SWMUs have been closed with the exception of L-1 and B-2. The site has been included in the USEPA's tracking system under GPRA (Government Performance and Results Act) for corrective action. The RCRA Corrective Action Program requires investigation and cleanup of releases of hazardous wastes and hazardous constituents that pose an unacceptable risk at RCRA hazardous waste treatment, storage and disposal facilities. This site has not yet met indicators to show compliance with RCRA Corrective Action.

Site Geology and Hydrogeology: The site is underlain by fill, followed by silty sands and then till, with bedrock being found at least 16 feet below grade. The site is almost totally covered with buildings and/or pavement, with minimal surface soil exposed. Groundwater at the site is roughly 10 feet below grade and flows generally to the east/southeast.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site,

alternatives that restrict the use of the site to commercial use (which allows for industrial use) as described in Part 375-1.8(g) were evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the RI to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in Exhibit A.

SECTION 5: 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 PRPs for the site, documented to date, include:

Niagara Mohawk, doing business as National Grid

The Department and National Grid/Niagara Mohawk Power Corporation entered into a multi-site Consent Orders on December 7, 1992 (Index No.D0-0001-9210) and on November 7, 2003 (Index No.A4-0473-0000). These Orders obligate the responsible party to implement a full remedial program for 21 former MGP sites across the State, including the North Albany site.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment,
- Ecological and Human Health Exposure Assessments.

The analytical data collected on this site includes data for:

- air
- groundwater
- soil
- soil vapor
- indoor air

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

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

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a hazardous waste that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized in Exhibit A. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

- Coal Tar
- Benzene
- Total Polycyclic Aromatic Hydrocarbons (PAHs)
- Ethylbenzene
- Toluene
- Xylene (Mixed)
- Polychlorinated Biphenyls (PCB)
- Naphthalene
- Trichloroethene (TCE)
- Tetrachloroethene (PCE)

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil

6.2: Interim Remedial Measures

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

The following IRM(s) has/have been completed at this site based on conditions observed during the RI.

Storm Sewer Cleaning

During the RI work, PCBs were found in several areas of the storm sewer system. To address this contamination, as part of the closing of the RCRA permit in 2000, hydroflushing of the on-site storm sewer system was performed. Approximately 15.7 tons of debris and contaminated material, and 22,000 gallons of contaminated water was removed and sent for off-site disposal at an appropriately permitted facility. This work was documented in a May 2000 construction completion report.

South Yard Storage Area Soil Removal

As part of a facilities upgrade project, and to address SWMU S-5, in 2007, shallow soils contaminated with PCBs and PAHs were removed from the South Yard Storage Area and disposed off-site. The PCB contaminated soils were removed to meet the standards of 1 ppm in the top foot and 10 ppm one foot below the surface. A total of 3,079 cubic yards of soil was removed and disposed off-site. Backfill meeting the commercial SCOs was placed to bring the excavated areas up to the designed subgrade, then the entire area was paved. This work was documented in a November, 2007 construction completion report. This removal effectively left the northern section of the site, with its MGP contamination, as the only remaining area of the site needing remediation.

6.3: Summary of Environmental Assessment

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

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary for OU 01.

Nature and Extent of Contamination: Soil and groundwater samples were collected and analyzed for VOCs, SVOCs, metals, PCBs, and pesticides. The primary contaminants of concern are the chemical constituents of coal tar: benzene, toluene, ethylbenzene, xylene (BTEX) and polycyclic aromatic hydrocarbons (PAHs), including naphthalene. The tar is present as a dense non-aqueous phase liquid (DNAPL) which escaped from subsurface structures at the site into surrounding soils. There is also a small area of purifier waste (a waste by-product of the historic gas production process) in the east central edge of the site. South of Building 2 petroleum impacts

and PCB contamination was found in the top 8 feet of soil, associated with fuel storage and repair activities conducted in that area. This PCB contamination was addressed by the South Yard Storage Area IRM.

Soil: In the subsurface soil, BTEX and PAHs, including naphthalene are present in concentrations that exceed SCOs in areas adjacent to deposits of coal tar. These areas are found throughout the northern section of the site at depths from 2 to 25 feet below the surface. Due to the lateral migration of liquid tar, the contaminants are also found up to 400 feet off-site to the east, at depths between 20 and 25 feet. The contamination is found beneath both the railroad line and Erie Boulevard. Coal tar is also suspected to be present under the northern section of Building 2, as contamination has been found right up to the building's footprint. This migration of contamination has occurred through soils, mostly at the bedrock interface and the sand and gravel layer just above that, well below the ground surface.

Groundwater: The groundwater which comes into contact with the tar-contaminated soil is contaminated with BTEX and PAH at levels exceeding standards, criteria, and guidance. Contaminated groundwater is found both on and off the site downgradient, to the east and southeast, of source areas. Contaminant levels are found to be as high as 8,700 ppb for naphthalene and 2,900 ppb for benzene and ethylbenzene. The contaminated groundwater is found no more than 125 feet off-site. TCE and PCE were not found in groundwater samples.

Soil Vapor: Soil vapor samples were collected both from parking lot areas and beneath the building slabs of Building 2 and the vehicle maintenance building. Sub-slab samples showed elevated levels of tetrachloroethylene, trichloroethene, as well as some gasoline and diesel constituents. The maximum contaminant levels were 26,000 micrograms per cubic meter for total xylene, 9,400 micrograms per cubic meter for ethylbenzene, 1,700 micrograms per cubic meter for tetrachloroethylene, and 32 micrograms per cubic meter for trichloroethene. The soil vapor samples from the parking areas showed some elevated levels of benzene. There is no evidence of soil vapor contamination migrating off-site.

Indoor Air and Ambient Air: Indoor air samples were collected from Building 2 and the vehicle maintenance building to determine whether actions are needed to address exposures related to soil vapor intrusion. Ambient air samples were also collected from outdoor spaces on the site. The indoor air samples had elevated contaminant levels, but the levels were consistent with on-going use within the building and with the building inventories. At this time, the contaminants found in the soil vapor and indoor air sampling are still being used as part of the on-going operations.

6.4: Summary of Human Exposure Pathways

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

The site is completely fenced, which restricts public access. However, persons who enter the site could contact contaminants in the soil by digging or otherwise disturbing the soil. People are not

drinking the contaminated groundwater because the area is served by a public water supply that is not contaminated by the site. Volatile organic compounds in the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Sampling has indicated that soil vapor intrusion does not represent a current exposure pathway given the use of the site. However, an additional soil vapor intrusion evaluation is recommended if site related contaminants are no longer used at the facility. Sampling has indicated that soil vapor intrusion is not an off-site concern.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

SECTION 7: SUMMARY OF THE SELECTED REMEDY

To be selected the 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. The remedy must also attain the remedial action objectives identified for the site, which are presented in Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the feasibility study (FS) report.

A summary of the remedial alternatives that were considered for this site is presented in Exhibit B. Cost information is presented in the form of present worth, which 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. A summary of the Remedial Alternatives Costs is included as Exhibit C.

The basis for the Department's remedy is set forth at Exhibit D.

The selected remedy is referred to as the In-Situ Solidification, Capping, Limited Soil Removal, and Passive NAPL Recovery remedy.

The estimated present worth cost to implement the remedy is $24,600,000. The cost to construct the remedy is estimated to be $23,800,000 and the estimated average annual cost is $113,000.

The elements of the selected remedy are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER- 31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and

• Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. In-Situ Solidification

In-situ solidification (ISS) of subsurface soils will be implemented over a section of the site north of Building 2 and around the vehicle maintenance building, covering an area of approximately 1.6 acres. This area encompasses the largest area of source material at depth and will extend to the top of bedrock, a depth of approximately 20 feet.

ISS is a process that binds the soil particles in place creating a low permeability mass. The contaminated soil will be mixed in place together with solidifying agents (typically portland cement) or other binding agents using an excavator or augers. The soil and binding agents are mixed to produce a solidified mass resulting in a low permeability monolith. The solidified mass will then be covered with a cover system as described in element 4 to prevent direct exposure to the solidified mass. The resulting solid matrix reduces or eliminates mobility of contamination and reduces or eliminates the matrix as a source of groundwater contamination.

3. Excavation

Along the Eastern edge of the site, purifier waste and source material would be excavated from the surface down to the silt and clay confining layer, to a depth of approximately 10-12 feet. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

Additionally, soil due north of Building 2 will be excavated, to a depth of approximately 5 feet, and transported off-site for disposal, to allow for the installation of the ISS element. If any of the excavated soils meet the commercial SCOs, then it may be reused on the site.

4. Cover System

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

5. Barrier Wall and Coal Tar Recovery

Installation and operation of a barrier wall and coal tar recovery wells along the eastern edge of the site to stop off-site migration and remove potentially mobile coal tar from the subsurface. A second barrier wall with tar collection wells will be installed to the east of the electrical substation in the northwest corner of the site. The number, depth, type and spacing of the recovery wells will be determined during the design phase of the remedy.

Coal tar will be collected periodically from each well; however, if wells are determined by the Department to accumulate large quantities of coal tar over extended time periods, they will be converted to automated collection.

Two additional wells will be installed on the west side of Broadway, across from the northwest corner of the site. These wells will serve to confirm that coal tar is not migrating from the northwest corner of the site.

Additionally an LNAPL collection well will be installed south of Building 2 to address any remaining LNAPL contamination related to fuel storage in that area.

6. Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- require compliance with the Department approved Site Management Plan.

7. Site Management Plan

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

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in paragraph 6 above.

Engineering Controls: The ISS noted in Element 2, the site cover discussed in paragraph 4, and the Coal Tar Recovery discussed in paragraph 5 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- a provision for further investigation and remediation if any of the existing structures are demolished, or if the subsurface is otherwise made accessible. The nature and extent of contamination in areas where access was previously limited or unavailable will be immediately investigated. Based on the investigations, a plan will be developed based on the investigation, for the removal or treatment of the any source areas, to the extent practicable, and any necessary remediation will be completed prior to redevelopment. This includes Building 2 and the Genesee Street Substation Area;
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, in any currently unoccupied on-site buildings upon occupancy or when site-related chemicals of concern are no longer in use in areas inside the on-site buildings, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department; and
- monitoring for vapor intrusion for any buildings developed on the site, in any currently unoccupied buildings that become occupied, or in existing on-site building, as may be required by the Institutional and Engineering Control Plan discussed above.

c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
- procedures for operating and maintaining the remedy;
- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation for all environmental media that were evaluated. As described in Section 6.1, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each medium for which contamination was identified, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into four categories; volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides/ polychlorinated biphenyls (PCBs), and inorganics (metals and cyanide). For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 4 and Section 6.1.1 are also presented.

Waste/Source Areas

As described in the RI report, waste/source materials were identified at the site and are impacting groundwater, soil, and soil vapor.

Wastes are defined in 6 NYCRR Part 375-1.2(aw) and include solid, industrial and/or hazardous wastes. Source areas are defined in 6 NYCRR Part 375(au). Source areas are areas of concern at a site were substantial quantities of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium. Wastes and source areas were identified at the site include,

There are two primary wastes present on the site, coal tar and PCBs Coal tar is a dense non-aqueous phase liquid (DNAPL) which means that it will sink in water and does not readily dissolve in water. There is also a small area of purifier waste that has been identified along the eastern central edge of the site, and a small area of petroleum contamination south of building 2

The coal tar is found in the north end of the site, north of Building 2 in the areas of historic MGP structures such as the relief holder, under the substation in the northwest corner of the site, the tar tank in the north central portion of the site, and the large gas holder in the northeast side of the site. The liquid coal tar has migrated extensively through the subsurface soils and is now found across most of the northern section of the site at depths from 5 feet to roughly 25 feet below ground. The extent of the coal tar contamination can be seen in Figure 2.

The PCB oil was found south of building 2 in some of the storm drains adjacent to the transformer building. The PCBs were released in smaller quantities and in a more limited area than the coal tar, did not spread extensively in the subsurface, and were addressed as part of an IRM.

Certain waste/source areas identified at the site were addressed by the IRM(s) described in Section 6.2. The remaining waste/source area(s) identified during the RI will be addressed in the remedy selection process.

Groundwater

Groundwater samples were collected from overburden and bedrock monitoring wells. The samples were collected to assess groundwater conditions on and off-site. The results indicate that contamination in groundwater at the site exceeds the SCGs for volatile organic compounds and semi-volatile organic compounds. The area is serviced by municipal water supplies and there are no local private water wells.

Table 1 - Groundwater

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
VOCs			
Benzene	ND-2,900	1	12 of 21
Toluene	ND-1,200	5	6 of 21
Ethylbenzene	ND-2,900	5	9 of 21
Xylene	ND-2,700	5	9 of 21
SVOCS			
Acenaphthene	ND-130	20	7 of 21
Naphthalene	ND-8,700	10	9 of 21
Phenanthrene	ND-65	50	3 of 21

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b- SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).

The primary groundwater contaminants are benzene, ethylbenzene, xylene, naphthalene and acenaphthene associated with the coal tar which was released during the site's historic operation as a manufactured gas plant. The concentrations were as high as 8,700 ppb for naphthalene and 2,900 ppb for benzene and toluene.

As noted on Figure 3, the primary groundwater contamination is associated with the areas of coal tar contamination which is associated with the former MGP structures discussed above. Contaminant concentrations fall off sharply with increasing distance from these source areas.

Based on the findings of the RI, the presence of coal tar has resulted in the contamination of groundwater. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of groundwater to be addressed by the remedy selection process are: benzene, ethylbenzene, xylene, naphthalene, and acenaphthene.

Soil

Subsurface soil samples were collected from locations across the site and at depths from 2 feet below the surface to over 20 feet below grade. Surface soil samples (0 to 6 inches) were collected from accessible unpaved areas on the site. The surface samples indicated no levels of contaminants that exceeded the SCOs.

Subsurface samples indicate the contaminants of concern are BTEX compounds, and PAHs, including naphthalene. These are found at concentrations that range from non-detect to 1,370,000 ppm for total PAHs. The highest concentrations of PAHs and BTEX compounds are found in the areas where coal tar (NAPL) is present. The areas of elevated contaminant concentrations can be seen on Figure 2.

Table 2 - Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
VOCs					
Total BTEX	ND-9,800	N/A	N/A	10	77 of 241
SVOCs					
Total PAHs	ND-1,370,000	N/A	N/A	500	58 of 244
Naphthalene	ND-1,300,000	12	33 of 244	500	12 of 244

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Commercial Use, unless otherwise noted.

Based on the findings of the Remedial Investigation, the presence of coal tar has resulted in the contamination of soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are, total BTEX and total PAHs.

Soil Vapor

The evaluation of the potential for soil vapor intrusion resulting from the presence of site related soil or groundwater contamination was evaluated by the sampling of sub-slab soil vapor under structures and indoor air inside structures. At this site due to the presence of buildings in the impacted area a full suite of samples were collected to evaluate whether actions are needed to address exposures related to soil vapor intrusion.

Soil vapor samples indicated the presence of contaminated soil vapor under the structures. Maximum indoor air levels of total xylene was 90 micrograms per cubic meter, 50 micrograms per cubic meter for ethylbenzene, 3 micrograms per cubic meter for tetrachloroethylene, and 2.6 micrograms per cubic meter for trichloroethene.Gasoline and diesel constituents were also detected. The maximum contaminant levels in soil vapor were 26,000 micrograms per cubic meter for total xylene, 9,400 micrograms per cubic meter for ethylbenzene, 1,700 micrograms per cubic meter for tetrachloroethylene, and 32 micrograms per cubic meter for trichloroethene. Based on the levels of contaminants found in soil vapor and in indoor air, actions are recommended if the contaminants are no longer being used in normal operations in the areas that were sampled to evaluate exposures related to soil vapor intrusion, including provision for implementing actions as necessary., and .

Based on the findings of the Remedial Investigation, the presence of petroleum and chlorinated solvents has resulted in the contamination of soil vapor. The site contaminants that are considered to be the primary

contaminants of concern which will drive the remediation of soil vapor to be addressed by the remedy selection process are xylene, ethylbenzene, tetrachloroethylene and trichloroethene.

Exhibit B

Description of Remedial Alternatives

The following alternatives were considered based on the remedial action objectives (see Section 6.5) to address the contaminated media identified at the site as described in Exhibit A.

Alternative 1: No Further Action

The No Further Action Alternative recognizes the remediation of the site completed by the IRM(s) described in Section 6.2 This alternative leaves the site in its present condition and does not provide any additional protection of the environment.

Alternative 2: No Further Action with Site Management

The No Further Action with Site Management Alternative recognizes the remediation of the site completed by the IRM(s) described in Section 6.2 and Site Management and Institutional Controls and Engineering Controls are necessary to confirm the effectiveness of the IRM. This alternative maintains engineering controls which were part of the IRM and includes institutional controls, in the form of and environmental easement and site management plan, necessary to protect public health and the environment from contamination remaining at the site after the IRMs.

Present Worth: *$935,000*
Capital Cost: *$50,000*
Annual Costs: *$57,600*

Alternative 3: Restoration to Pre-Disposal or Unrestricted Conditions

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative would include excavation and off-site disposal of all waste and soil contamination above the unrestricted soil cleanup objectives. This would include the demolition of Building 2, the substation, and the vehicle maintenance building, excavation of 244,000 cubic yards of soil to depths of 25 feet over an area of 8.5 acres.

Capital Cost: *$112,000,000*

Alternative 4: Limited Soil Removal, Capping, Passive NAPL Recovery

This alternative would include excavation and off-site disposal of shallow soils (a depth of 10-12 feet below grade) from areas on the east side of the site to remove coal tar and purifier waste contaminated soils and source material. A site-wide asphalt cap would be installed to prevent exposure to remaining contaminants across the site. NAPL recovery wells located at the eastern edge of the site would be installed to prevent the migration of coal tar off the site. A barrier wall with collection wells would be constructed to the east of the relief holder in the northwest corner of the site to prevent migration of source material in that area. An institutional control in the form of an environmental easement would be placed on the site to prevent groundwater use and limit future site use to commercial. A Site Management Plan would be implemented on both on-site and off-site properties to maintain the site cover and barrier wall, operate the coal tar recovery system, monitor groundwater, and

assess for the future potential for soil vapor intrusion. Implementation of the off-site site management plan would be subject to an agreement with the off-site property owner. Natural attenuation of groundwater would reduce dissolved contaminant concentrations on-site and the limited off-site area impacted over a period of several years following completion of the excavation and capping.

Present Worth: *$15,900,000*
Capital Cost: *$14,200,000*
Annual Costs: *$113,000*

Alternative 5: Limited Soil Removal, Capping, Passive NAPL Recovery, and Barrier Wall

This alternative would include excavation and off-site disposal of shallow soils (a depth of 10-12 feet below grade) from areas on the east side of the site to remove coal tar and purifier waste contaminated soils and source material. A site-wide asphalt cap would be installed to prevent exposure to remaining contaminants across the site. A barrier wall with NAPL recovery wells located at the eastern edge of the site would be installed to prevent the migration of coal tar off the site. A second wall with collection wells would be constructed to the east of the relief holder in the northwest corner of the site to prevent migration of source material in that area. An institutional control in the form of an environmental easement would be placed on the site to prevent groundwater use and limit future site use to commercial. A Site Management Plan would be implemented on both on-site and off-site properties to maintain the site cover and barrier wall, operate the coal tar recovery system, monitor groundwater, and assess for the future potential for soil vapor intrusion. Implementation of the off-site site management plan would be subject to an agreement with the off-site property owner. Natural attenuation of groundwater would reduce dissolved contaminant concentrations on-site and the limited off-site area impacted over a period of several years following completion of the excavation and capping.

Present Worth: *$16,700,000*
Capital Cost: *$14,900,000*
Annual Costs: *$113,000*

Alternative 6: Limited ISS, Limited Soil Removal, Capping, Passive NAPL Recovery and Barrier Wall

This alternative would include the installation of a small area of in-situ solidification (ISS) in the northern section of the site which would immobilize some the coal tar contaminated soils preventing exposures, migration of contaminants, and prevent it from further contributing to groundwater contamination. Excavation and off-site disposal of shallow soils (a depth of 10-12 feet below grade) from areas on the east side of the site to remove coal tar and purifier waste contaminated soils and source material. An asphalt cap would be used to protect the ISS mass. A barrier wall with NAPL recovery wells located at the eastern edge of the site would be installed to prevent the migration of coal tar off the site. A second wall with collection wells would be constructed to the east of the relief holder in the northwest corner of the site to prevent migration of source material in that area. A collection well would be installed south of building 2 to address the remaining petroleum contamination there. Also, two monitoring wells with recovery capabilities would be installed on the west side of Broadway, across from the northwest corner of the site. This would serve to confirm that tar is not migrating to the west. An institutional control in the form of an environmental easement would be placed on the site to prevent groundwater use and limit future site use to commercial. A Site Management Plan would be implemented on both on-site and off-site properties to maintain the site cover and solidified mass, operate the coal tar recovery system, monitor groundwater, and assess for the future potential for soil vapor intrusion. Implementation of the off-site site management plan would be subject to an agreement with the off-site property

owner. Natural attenuation of groundwater would reduce dissolved contaminant concentrations on-site and the limited off-site area impacted over a period of several years following completion of the excavation and ISS.

Present Worth: *$24,600,000*
Capital Cost: *$22,800,000*
Annual Costs: *$113,000*

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
1. No Further Action	0	0	0
2. No Further Action with Site Management	50,000	57,600	935,000
3. Restoration to Unrestricted Conditions	112,000,000	0	112,000,000
4. Limited Soil Removal, Capping, Passive NAPL Recovery	14,200,000	113,000	15,900,000
5. Limited Soil Removal, Capping, Passive NAPL Recovery, and Barrier Wall	14,900,000	113,000	16,700,000
6. Limited ISS, Limited Soil Removal, Capping, Passive NAPL Recovery and Barrier Wall	22,800,000	113,000	24,700,000

Exhibit D

SUMMARY OF THE SELECTED REMEDY

The Department is selecting Alternative 6, Limited ISS, Capping, Limited Soil Removal, and Passive NAPL Recovery as the remedy for this site. Alternative 6 would achieve the remediation goals for the site by solidifying most of contamination on the site preventing it from migrating and contributing to the groundwater contamination. The cap and the limited soil excavation will prevent human exposures to contamination in the shallow depths of the site, while the NAPL recovery will collect contamination that has already left the site or may potentially leave the site. The elements of this remedy are described in Section 7. The selected remedy is depicted in Figure 4.

Basis for Selection

The selected remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375.

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.

The selected remedy (Alternative 6) would satisfy this criterion by solidifying contaminated soils and source materials in the central portion of the site. This addresses the source of the groundwater contamination by limiting groundwater contact with source material while also preventing human contact by creating a solid mass that will encompass the contaminated soil and source material and incorporating any present in the ISS areas into the monolith. Alternative 1 (No Action) does not provide any additional protection to public health and the environment and will not be evaluated further. Alternative 3, by removing all soil contaminated above the unrestricted soil cleanup objective, meets the threshold criterion. Alternatives 4 and 5 also comply with this criterion but to a lesser degree and with lower certainty as much of source material would be left in place and managed via a long-term site management program. All alternatives would require some form of a restriction on groundwater and site use. Alternatives 2, 4, 5, and 6 rely on a permanent restriction of groundwater use at the site to protect human health. Alternative 3 provides for the maximum amount of source removal, but still may require a short-term restriction on groundwater use. However, it is expected the restriction could be removed in approximately three years. The potential for soil vapor intrusion would be significantly reduced by Alternative 3 and, to a somewhat lesser extent, Alternative 6. The potential for soil vapor intrusion will remain higher under Alternatives 2, 4, and 5.

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 Department has determined to be applicable on a case-specific basis.

Alternative 6 complies with SCGs to the extent practicable. It addresses most of the areas which are the source of contamination and complies with the restricted use soil cleanup objectives at the surface through construction of a cover system. It also creates the conditions necessary to restore groundwater quality to the extent practicable. Alternatives 2, 4, and 5 also comply with this criterion but to a lesser degree or with lower certainty. Because

Alternatives 2, 3, 4, 5, and 6 all satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final remedy for the site. It is expected Alternative 3 will achieve groundwater SCGs in less than 5 years, while groundwater contamination above SCGs will remain on-site under Alternatives 2, 4, 5, and 6 for many years. Alternatives 2, 3, 4, 5, and 6 all address the potential for soil vapor intrusion with the use of future investigation and remediation is necessary.

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

3. 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.

Long-term effectiveness is best accomplished by those alternatives involving excavation and removal of the contaminated overburden soils (Alternatives 3, 4, and 5). Alternative 3 ranks highest in this regard, since it results in removal of almost all of the chemical contamination at the site and removes the need for property use restrictions and long-term monitoring. Alternative 2 provides the lowest degree of long-term effectiveness, since it would leave almost all of the contamination in place, and thus would require the most elaborate and detailed restrictions on future site use.

Alternatives 4 and 5 would result in the removal of a small proportion of the contaminated soil at the site and most of the contaminated soil which lies at shallow depths, above the water table. All of the alternatives, except number 3, would require an environmental easement and long-term monitoring. Alternative 6 does not remove most of the contaminated material; however, it would solidify and stabilize much more of the contamination than Alternatives 4 and 5. ISS has been shown at other sites to offer long-term permanence, provided that the stabilized soil mass is protected from freeze/thaw cycles near the ground surface. Alternatives 5 and 6 would prevent further off-site migration of tar through the installation of a barrier wall and tar recovery system along the downgradient boundary of the property.

All the Alternatives (2, 3, 4, 5, and 6) will require a groundwater and site use restriction. Alternative 3 would likely only require a short-term groundwater use restriction. Alternative 6 would also require a restriction on groundwater use, but it should greatly reduce the degree of groundwater contamination.

Alternatives 3 and 6 also significantly reduce the potential for soil vapor intrusion. While all the alternatives will require possible additional investigation and mitigation, Alternatives 2, 4, and 5 do little to nothing to reduce the potential for soil vapor intrusion, since they leave higher volumes of contaminated soil in place without treatment.

4. 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.

Alternative 2 would control potential exposures with institutional controls only and would not reduce the toxicity, mobility or volume of contaminants remaining. Alternative 3, (excavation and off-site disposal) offers the highest degree of reduction, by removing nearly all of the contaminated soil for treatment and disposal.

Alternatives 4 and 5 requires the excavation and consolidation of approximately 17,000 cubic yards of contaminated soil. Although the volume of the contaminated soil would be reduced under these alternatives, the majority of contamination found below the water table would remain in place. The collection wells and barrier

walls called for in Alternatives 4 and 5 could serve to limit the mobility of the remaining contamination, but only in one direction. Coal tar could migrate west if future construction activities adjacent to the site were to require extensive construction dewatering, or if future subsurface utility work along Broadway were to change groundwater flow patterns.

The ISS process called for under Alternative 6 actually increases the volume of the contaminated soil slightly, due to the addition of cement and binding agents. However, the mobility and of the contamination will be reduced significantly by the ISS process. The concern about westward migration of tar off-site is addressed by Alternative 6 with the additional monitoring wells on the west side of Broadway.

5. Short-term Impacts and 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.

The site is currently used intensively by National Grid field crews, so a high degree of coordination will be required in order to implement any of the Alternatives 3-6. Alternative 2 would result in no short-term disruption, since very little actual construction work would take place.

Alternative 3 would be highly disruptive to National Grid's operations at the site and the surrounding neighborhood, since a very large excavation and removal of buildings and utility infrastructure would be required. The excavation could be performed in phases, in order to minimize the proportion of the site that is unavailable at any given time, but the overall level of disruption would still remain high. Alternatives 4 and 5 would be less disruptive, since the excavation work could be accomplished more quickly than under Alternative 3. Alternative 6 offers better opportunities for completing the project in phases, since the ISS-stabilized soil can be repaved and used by motor vehicles within a few days.

Alternative 2 requires no additional work on the ground surface, and could thus be completed quickly. Alternatives 3-6 all require construction work. Of these, Alternative 3 would take the longest to complete. Alternatives 4, 5, and 6 are roughly comparable in the length of time required to complete them. All could probably be accomplished in a single field season.

The excavations called for in Alternatives 3-6 will require odor control measures due to the objectionable odors generated by coal tar and purifier waste when it is open to the atmosphere. Control measures are available, including spray foams for small areas and temporary fabric structures to cover larger excavations. The ISS stabilization called for in Alternative 6 is superior in this regard-NYSDEC has supervised over a dozen ISS treatments at MGP sites statewide, and has found the odors generated during the stabilization process to be far more easily managed than the odors generated by excavation.

Alternatives 3-6 all call for construction work which would generate truck traffic into and out of the site. Alternative 3 would require the maximum number of truck trips, both for removal of contaminated soil and for import of clean soil backfill. Alternative 4 calls for less soil removal and thus fewer dump truck trips, as does Alternative 5. In Alternative 5 though this is somewhat offset by the need to truck in steel sheeting for the barrier wall. Alternative 6 reduces truck traffic even further, but with some inbound loads of cement required to perform the ISS work.

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.

Alternative 2 is most readily implementable, since it does not require substantial construction work. Alternatives 3-7 call for the use of well-established techniques using readily available construction machinery. Extensive coordination will required in order to allow continued use of the site while construction proceeds. Because of the size of the excavation and need to demolish buildings, Alternative 3 presents the greatest coordination challenges. Alternative 6 should present the least severe challenges, because the ISS process can readily be conducted in phases, allowing repaving and reuse of each remediated area while construction proceeds elsewhere on the site. The ability to phase the work also provides for easier vapor and odor control by minimizing the areas of exposed contamination. Furthermore, Alternative 6 addresses the source area in the northwest corner, which is not readily accessible due to the large number of subsurface utilities, by place a wall and collection wells in the presumed downgradient side of the contamination as well as installing two monitoring wells on the west side of Broadway to insure that the source area does not migrate west.

7. Cost-Effectiveness. Capital costs and annual 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 of the alternatives vary significantly. Alternative 2 has a low cost, but the contaminated soil would not be addressed other than by institutional controls. With its large volume of soil to be handled, Alternative 3 (excavation and off-site disposal) would have the highest present worth cost. Alternatives 4 and 5 would be less expensive than Alternative 3, but would not provide equal protection of the groundwater resource and would leave a significant amount of source material at depth, effectively unaddressed. Although the capital cost for Alternative 6 would be higher than that of Alternatives 4 and 5 most of the source material would be addressed and the groundwater would be much more protected.

8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

The current use of the site is commercial, and this use is likely to continue into the foreseeable future. All of the considered alternatives would allow this use to continue, subject to restrictions. Groundwater use would be restricted under all Alternatives, although the extensive removal called for in Alternative 3 could allow this restriction to be lifted within a few years. Restrictions on subsurface excavation would be required for Alternatives 2, 4, 5, and 6, but not 3. The surface cap would serve to protect site users from direct contact with the underlying contamination. Excavation work which breached the cap could still be performed, but would be subject to provisions dictating how the excavated soil could be managed and disposed.

The final criterion, Community Acceptance, 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.

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected

remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

Alternative 6 is being selected because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.

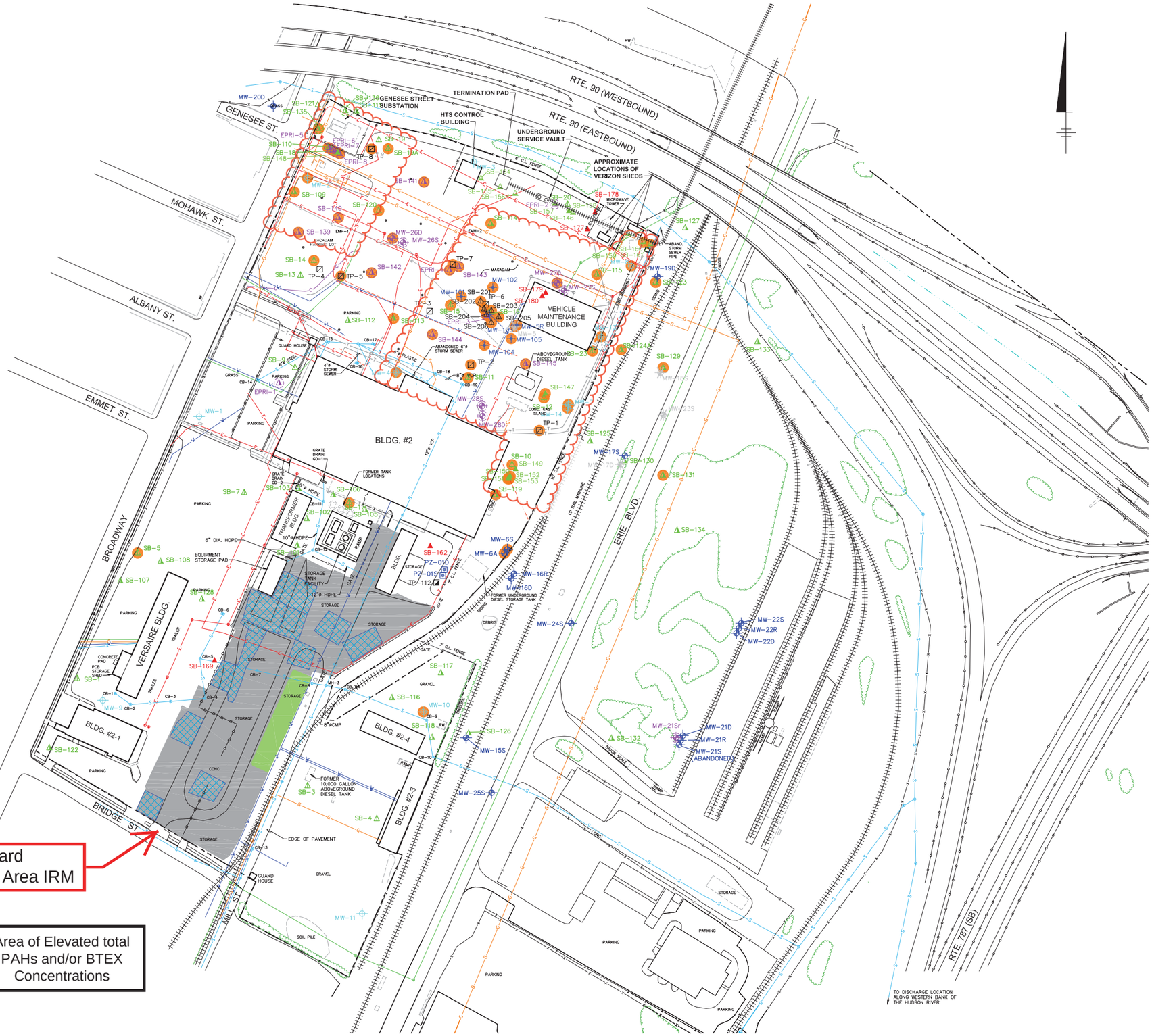
Google earth

feet 1000
meters 300

Record of Decision
March 2016

North Albany Former MGP Site 401040

Figure 1



LEGEND:

- APPROXIMATE LOCATION OF HIGH TEMPERATURE SUPERCONDUCTIVE CABLE
- GUARD RAIL
- FENCE
- EXISTING RAILROAD
- APPROXIMATE PROPERTY LINE
- MW–105 PILOT–TEST MONITORING WELL LOCATION
- SB–205 PILOT–TEST BASELINE SOIL BORING LOCATION
- SB–147 TREATABILITY STUDY SOIL BORING LOCATION
- SB–141 PRE–DESIGN INVESTIGATION SOIL BORING LOCATION
- MW–28S ADDITIONAL GROUNDWATER INVESTIGATION GROUNDWATER MONITORING WELL LOCATION
- MW–15S MGP/RCRA GROUNDWATER MONITORING WELL LOCATION
- PZ–01S MGP/RCRA PIEZOMETER
- SB–126 MGP/RCRA SOIL BORING LOCATION
- TP–105 MGP/RCRA TEST PIT LOCATION
- MW–11 PSA/IRM GROUNDWATER MONITORING WELL LOCATION
- SB–4 PSA/IRM SOIL BORING LOCATION
- TP–3 PSA/IRM TEST PIT LOCATION
- SB–156 HTS PROJECT SOIL BORING LOCATION
- SB–162 SUPPLEMENTAL INVESTIGATION SOIL BORING LOCATION
- MW–18S DESTROYED GROUNDWATER MONITORING WELL
- UTILITY POLE
- EXISTING CATCH BASIN
- EXISTING STORM SEWER MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING ELECTRICAL MANHOLE
- EXISTING TELEPHONE MANHOLE
- EXISTING UNKNOWN UTILITY MANHOLE
- STORM SEWER
- SANITARY SEWER
- TELEPHONE LINE
- ELECTRICAL LINE
- GAS LINE
- WATER LINE
- CABLE LINE
- UNKNOWN UTILITY
- APPROXIMATE SOIL EXCAVATION AREA BOUNDARY
- APPROXIMATE LIMITS OF ASPHALT CAP
- APPROXIMATE LIMITS OF SPCC AREA
- INVESTIGATION LOCATION OBSERVED TO CONTAIN MGP– AND/OR PETROLEUM–RELATED MATERIAL

NOTES:

1. BASE MAP (INCLUDING BUILDING LOCATIONS AND PSA/IRM SAMPLING LOCATIONS) DEVELOPED FROM ELECTRONIC FILE OF NIAGARA MOHAWK POWER CORPORATION (NMPC) DRAWING NO. C–29736–C, DATED JULY 1994, ENTITLED NORTH ALBANY SERVICE CENTER HAZARDOUS WASTE MANAGEMENT PERMIT APPLICATION, TOPOGRAPHIC MAP – INDEX SHEET.
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3. LOCATIONS OF MANHOLES AND CATCH BASINS WERE OBTAINED FROM SURVEYS CONDUCTED BY NMPC DURING JULY/AUGUST 1997 AND NATIONAL GRID DURING OCTOBER 2012.
4. LOCATIONS OF OFF–SITE STORM AND SANITARY SEWERS WERE DIGITIZED FROM CITY OF ALBANY DRAWINGS AND ARE APPROXIMATE.
5. LOCATIONS OF SOIL BORINGS SB–179 AND SB–180 WERE MEASURED IN THE FIELD AND ARE APPROXIMATE.
6. MGP = MANUFACTURED GAS PLANT.
7. RCRA = RESOURCE CONSERVATION RECOVERY ACT.
8. PSA/IRM = PRELIMINARY SITE ASSESSMENT/INTERIM REMEDIAL MEASURE.
9. HTS = HIGH TEMPERATURE SUPERCONDUCTIVE.
10. SPCC = SPILL PREVENTION, CONTROL, AND COUNTERMEASURE.

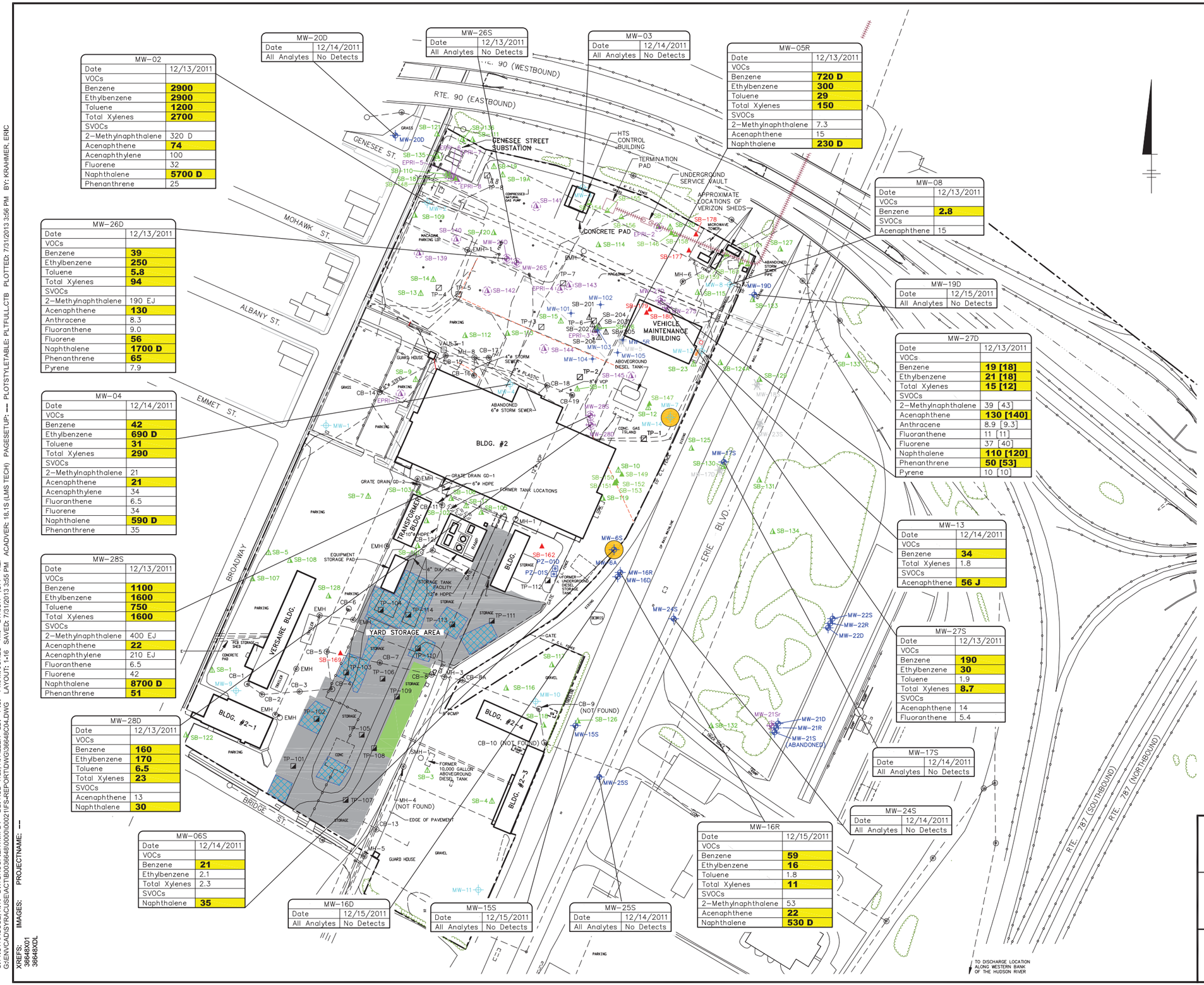
0 100' 200'
GRAPHIC SCALE

VISUAL EXTENT OF MGP AND/OR PETROLEUM-RELATED MATERIALS, AND AREAS OF ELEVATED TOTAL PAHS AND TOTAL BTEX CONCENTRATIONS

ARCADIS

FIGURE 2

CITY: SYRACUSE, N.Y. DIV/GROUP: ENV/IM-DIV DB: LJP R.BASSETT , R.ALLEN LDs:(Opt) PICs:(Opt) PM: M. JONES TM: J.HORSTMAN LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\B0036648\0000000021\FS-REPORT\DWG\36648C01.DWG LAYOUT: 1-14 SAVED: 7/25/2013 9:55 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---
XREFS: IMAGES: PROJECTNAME: ---
36648X01
36648XDL



LEGEND:

- APPROXIMATE LOCATION OF HIGH TEMPERATURE SUPERCONDUCTIVE CABLE
- GUARD RAIL
- FENCE
- EXISTING RAILROAD
- APPROXIMATE PROPERTY LINE
- MW-105 PILOT-TEST MONITORING WELL LOCATION
- SB-205 PILOT-TEST BASELINE SOIL BORING LOCATION
- SB-147 TREATABILITY STUDY SOIL BORING LOCATION
- SB-141 PRE-DESIGN INVESTIGATION SOIL BORING LOCATION
- MW-28S ADDITIONAL GROUNDWATER INVESTIGATION GROUNDWATER MONITORING WELL LOCATION
- MW-15S MGP/RCRA GROUNDWATER MONITORING WELL LOCATION
- PZ-01S MGP/RCRA PIEZOMETER
- SB-126 MGP/RCRA SOIL BORING LOCATION
- TP-105 MGP/RCRA TEST PIT LOCATION
- MW-11 PSA/IRM GROUNDWATER MONITORING WELL LOCATION
- SB-4 PSA/IRM SOIL BORING LOCATION
- TP-3 PSA/IRM TEST PIT LOCATION
- SB-156 HTS PROJECT SOIL BORING LOCATION
- SB-162 SUPPLEMENTAL INVESTIGATION SOIL BORING LOCATION
- MW-18S DESTROYED GROUNDWATER MONITORING WELL
- UTILITY POLE
- EXISTING CATCH BASIN
- EXISTING STORM SEWER MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING ELECTRICAL MANHOLE
- EXISTING TELEPHONE MANHOLE
- EXISTING UNKNOWN UTILITY MANHOLE
- STORM SEWER
- SANITARY SEWER
- TELEPHONE LINE
- ELECTRICAL LINE
- GAS LINE
- WATER LINE
- CABLE LINE
- UNKNOWN UTILITY
- CONSTITUENT DETECTED AT CONCENTRATION EXCEEDING NYSDEC STANDARDS/GUIDANCE VALUES PRESENTED IN TOGS 1.1.1.
- APPROXIMATE SOIL EXCAVATION AREA BOUNDARY
- APPROXIMATE LIMITS OF ASPHALT CAP
- APPROXIMATE LIMITS OF SPCC AREA
- DNAPL OBSERVED IN WELL DURING 12/2007 GROUNDWATER SAMPLING EVENT AND SUBSEQUENT QUARTERLY NAPL GAUGING EVENTS IN 2008
- LNAPL OBSERVED IN WELL DURING 12/2007 GROUNDWATER SAMPLING EVENT AND SUBSEQUENT QUARTERLY NAPL GAUGING EVENTS IN 2008

NOTES:

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4. LOCATIONS OF OFF-SITE STORM AND SANITARY SEWERS WERE DIGITIZED FROM CITY OF ALBANY DRAWINGS AND ARE APPROXIMATE.
5. LOCATIONS OF PRE-DESIGN INVESTIGATION SOIL BORINGS AND ADDITIONAL GROUNDWATER INVESTIGATION MONITORING WELLS WERE OBTAINED FROM A SURVEY CONDUCTED BY NMPC DURING NOVEMBER 2000.
6. ALL CONCENTRATIONS ARE IN PARTS PER BILLION (ppb).
7. B = INDICATES A VALUE WHICH IS LESS THAN THE CONTRACT REQUIRED DETECTION LIMIT, BUT GREATER THAN OR EQUAL TO THE INSTRUMENT DETECTION LIMIT.
8. J = THE COMPOUND WAS POSITIVELY IDENTIFIED; HOWEVER, THE NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY.
9. ANALYTICAL RESULTS SHOWN ARE FROM THE MOST RECENT SAMPLING EVENT AT EACH MONITORING WELL LOCATION.
10. MONITORING WELLS MW-6S AND MW-7 WERE INSTALLED BUT HAVE NOT BEEN SAMPLED DUE TO PRESENCE OF DNAPL.
11. LNAPL = LIGHT NON-AQUEOUS PHASE LIQUID.
12. DNAPL = DENSE NON-AQUEOUS PHASE LIQUID.
13. MGP = MANUFACTURED GAS PLANT.
14. RCRA = RESOURCE CONSERVATION RECOVERY ACT.
15. PSA/IRM = PRELIMINARY SITE ASSESSMENT/INTERIM REMEDIAL MEASURE.
16. HTS = HIGH TEMPERATURE SUPERCONDUCTIVE.
17. SPCC = SPILL PREVENTION, CONTROL, AND COUNTERMEASURE.

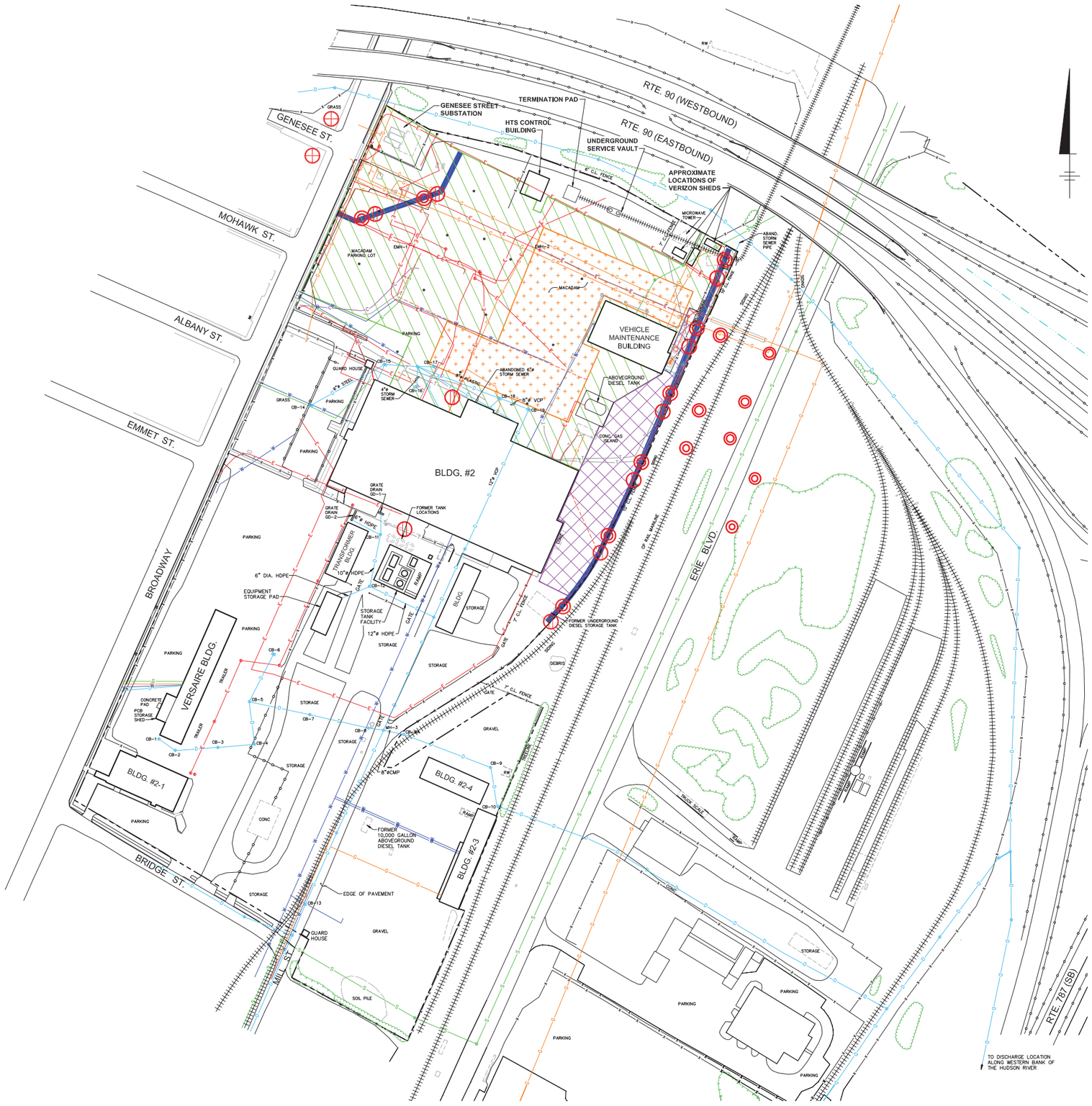
0 100' 200'
GRAPHIC SCALE

GROUNDWATER ANALYTICAL RESULTS (DECEMBER 2011) DETECTED VOCs AND SVOCs (ppb)

ARCADIS

FIGURE 3

CITY:SYRACUSE, N.Y. DIV/GROUP:ENV/IM=DV DB: RCB WLJ, R. ALLEN LD: PIC: PM: M. JONES TM: LYRON="OFF=*REF* G:\ENVCAD\SYRACUSE\ACTIB\003664B\000\00021\FS-REPORT\DWG\36648C04.DWG LAYOUT: 1-16 SAVED: 7/31/2013 3:55 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 7/31/2013 3:56 PM BY: KRAHMER, ERIC
XREFS: 36648X01 36648XDL IMAGES: PROJECTNAME: ---



LEGEND:

- APPROXIMATE LOCATION OF HIGH TEMPERATURE SUPERCONDUCTIVE CABLE
- GUARD RAIL
- FENCE
- EXISTING RAILROAD
- APPROXIMATE PROPERTY LINE
- UTILITY POLE
- EXISTING CATCH BASIN
- EXISTING STORM SEWER MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING ELECTRICAL MANHOLE
- EXISTING TELEPHONE MANHOLE
- EXISTING UNKNOWN UTILITY MANHOLE
- STORM SEWER
- SANITARY SEWER
- TELEPHONE LINE
- ELECTRICAL LINE
- GAS LINE
- WATER LINE
- CABLE LINE
- UNKNOWN UTILITY
- APPROXIMATE LOCATION OF PASSIVE NAPL BARRIER WALL
- APPROXIMATE SOIL EXCAVATION AREA
- APPROXIMATE CAP LIMITS
- APPROXIMATE ISS AREAS (SUBJECT TO ACCESS)(TO BE CAPPED)
- APROXIMATE LOCATION OF LNAPL COLLECTION WELL
- APPROXIMATE LOCATION OF DNAPL COLLECTION WELL
- APPROXIMATE LOCATION OF NAPL MONITORING WELL

NOTES:

1. BASE MAP (INCLUDING BUILDING LOCATIONS) DEVELOPED FROM ELECTRONIC FILE OF NIAGARA MOHAWK POWER CORPORATION (NMPC) DRAWING NO. C-29736-C, DATED JULY 1994, ENTITLED NORTH ALBANY SERVICE CENTER HAZARDOUS WASTE MANAGEMENT PERMIT APPLICATION, TOPOGRAPHIC MAP - INDEX SHEET.
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5. LNAPL = LIGHT NON-AQUEOUS PHASE LIQUID.
6. DNAPL = DENSE NON-AQUEOUS PHASE LIQUID.

0 100' 200'
GRAPHIC SCALE

NATIONAL GRID
NORTH ALBANY FORMER MGP SITE
ALBANY, NEW YORK
FEASIBILITY STUDY REPORT

Proposed Alternative

ARCADIS

FIGURE
4

CITY: SYRACUSE NY DIV/GROUP: ENV/IM-DV DB: R BASSETT, E. KRAHMER, R. ALLEN LD: (Opt) PIC: T. YOUNG PM: M. JONES TM: M. JONES TR: J. GOLUBSKI LYR:(Opt)ON=*;OFF=*REF*
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APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

NM- North Albany
State Superfund Project
Albany (c), Albany County, New York
Site No. 401040

The Proposed Remedial Action Plan (PRAP) for the NM-North Albany site was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 29, 2016. The PRAP outlined the remedial measure proposed for the contaminated soil and groundwater at the NM-North Albany 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 March 16, 2016, which included a presentation of the remedial investigation /feasibility study (RI/FS) for the NM-North Albany site 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 30, 2016.

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

COMMENT 1: What is the potential for odor impacts to the surrounding community?

RESPONSE 1: Excavating and installing an in-situ solidification system both have the potential to generate odors. However, the design of the remedy will include active odor and dust controls, a community air monitoring plan (CAMP) to detect any volatile chemicals, dust, or odors at the site boundary and contingencies for additional controls and shut down if odors cannot be controlled.

The CAMP must be consistent with the NYSDOH guidance for air monitoring at contaminated sites, which requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when all ground intrusive activities, such as soil excavation and handling, are in progress and during the demolition of contaminated or potentially contaminated structures. The location of such monitor(s) will vary based on wind direction and the location of the work, and the monitors are expected to be placed within the site. Air monitoring is required at all former manufactured gas plant sites undergoing remediation in New York State. Based on the Department’s experience at other sites, air exceedances at the site perimeter are not common. However, intermittent odors associated with manufactured gas plant waste excavations are more common, but because many people can detect MGP-related odors at very low concentrations, the presence of odors in the nearby properties does

not necessarily indicate there is an emission exceedance of VOCs or particulates. Regardless of air emission concentrations, odor control measures will be in place to limit the generation of nuisance odors.

COMMENT 2: What is the planned depth of the ISS?

REPSONSE 2: The planned depth of the ISS is roughly 20 to 25 feet below the ground surface.

COMMENT 3: What is the estimated volume of the ISS and the Excavation?

RESPONSE 3: The estimated volume of soils for ISS treatment is about 36,000 cubic yards. It is estimated that roughly 17,000 cubic yards of contaminated soil will be excavated.

Vincent Forte submitted an email (dated March 2, 2016) which included the following comments:

COMMENT 4: Is there a concern about long-term employees being exposed to contaminants.

RESPONSE 4: Based on the depth of the MGP contamination and the environmental samples collected to date, it is unlikely that onsite personnel have been or will be exposed to MGP related contamination by direct contact or inhalation. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Also see response 1 regarding the potential for exposure during remediation.

APPENDIX B

Administrative Record

Administrative Record

NM-North Albany
State Superfund Project
Albany (c), Albany County New York
Site No. 401040

1. *Proposed Remedial Action Plan for the NM-North Albany site*, dated February 2016, prepared by the Department.

2. Order on Consent, Index No. D0-0001-9210, between the Department and Niagara Mohawk Power Corporation, executed on December 7, 1992.

3. Order on Consent, Index No. A4-0473-0000, between the Department and Niagara Mohawk Power Corporation, executed on November 7, 2003.

4. "MGP/RCRA Investigation Report," dated November 1997, prepared by Blasland, Bouck, and Lee.

5. "Interim Remedial Measure Summary Report – Storm Sewer Cleaning Activities," dated May 2000, prepared by Blasland, Bouck, and Lee.

6. "TSDF Closure Certification Report," dated December 2000, prepared by Blasland, Bouck, and Lee.

7. "Pre-Design Soil Investigation/ Additional Groundwater Investigation," dated May 2001, prepared by Blasland, Bouck, and Lee.

8. "Yard Storage Area – Supplemental Soil Sampling Activities," dated August 2005, prepared by Blasland, Bouck, and Lee.

9. "Yard Storage Area Interim Remedial Measure Summary Report," dated November 2007, prepared by Arcadis.

10. "Vapor Intrusion Investigation Report," dated January 2010, prepared by Arcadis.

11. "Groundwater Monitoring and NAPL Monitoring/Recovery," dated October 2013, prepared by Arcadis.

12. "Feasibility Study Report," dated January 2016, prepared by Arcadis.

13. Email dated March 2, 2016 from Vincent Forte