Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

NYSEG Cortland Homer
Former MGP Site
Operable Unit No. 1
Homer (V), Cortland County, New York
Site Number 7-12-005

March 2007

New York State Department of Environmental Conservation
ELIOT SPITZER, *Governor*

DECLARATION STATEMENT - RECORD OF DECISION

NYSEG Cortland Homer Former MGP
Inactive Hazardous Waste Disposal Site
Operable Unit No. 1
Homer (V), Cortland County, New York
Site No. 7-12-005

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for: Operable Unit 1 of the New York State Electric and Gas (NYSEG) Cortland Homer Former Manufactured Gas Plant (MGP) site, a Class 2 inactive hazardous waste disposal 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 (the Department) for Operable Unit 1 of the NYSEG Cortland Homer Former MGP inactive hazardous waste disposal site, and the public's input to the Proposed Remedial Action Plan (PRAP) 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.

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 NYSEG Cortland Homer Former MGP site and the criteria identified for evaluation of alternatives, the Department has selected Partial Building Demolition, Excavation, and Off Site Disposal/Treatment as the remedy for this site. The components of the 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.

2. Demolition of the southern portion of the on-site building as necessary to enable the excavation of contaminated soils. The northern portion of the current site building will

remain in place. This will require additional construction efforts to shore and support the building's continued use during excavation.

3. Groundwater extracted during construction will be sent off-site or treated on-site and discharged in compliance with applicable discharge standards.

4. Excavation of MGP waste, NAPL and contaminated soils meeting one or more of the following criteria: visible tar or oil; the presence of sheens or odors with total PAHs over 1000 ppm; purifier waste with reactive cyanide levels above 250 ppm; or purifier waste with reactive sulfide levels above 500 ppm. The Feasibility Study estimated excavation of 44,000 cubic yards of contaminated soils to a depth of 24 feet below the ground surface. Soil excavation will proceed deeper if soils exceed one or more of the above criteria. Treatment and/or disposal of excavated materials meeting the above criteria will occur at an off-site facility.

5. Excavated materials which are below the criteria will be stockpiled and evaluated for reuse on-site. The excavation will be backfilled with stockpiled soils and clean soil as defined in 6 NYCRR 375-6.7(d), graded, and the ground surface will be prepared to meet future land use requirements. Non-vegetated areas (buildings, roadways, parking lots, etc.) will be covered by a paving system or concrete at least 6 inches thick.

6. Soil vapor intrusion in the remaining portion of the building will be evaluated after soil excavation and building modification, with mitigation and/or monitoring as determined to be necessary.

7. Imposition of an institutional control in the form of an environmental easement that will require (a) limiting the use and development of the property to commercial use, which will also permit industrial use consistent with local zoning; (b) compliance with the approved site management plan; ©) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.

8. Development of a site management plan which will include the following institutional and engineering controls: (a) management of the final cover system to restrict excavation below the soil cover's demarcation layer, pavement, or buildings. Excavated soil will be tested, properly handled to protect the health and safety of workers and the nearby community, and properly managed in a manner acceptable to the Department; (b) continued evaluation of the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; ©) monitoring of groundwater; (d) identification of any use restrictions on the site; and (e) provisions for the continued proper operation and maintenance of the components of the remedy. Since the remedy results in untreated hazardous waste remaining at the site, a monitoring program will be instituted. Groundwater monitoring will be used to evaluate the effectiveness of the remedy after construction. This program will allow the effectiveness of the soil remediation to be monitored and will be a component of the long-term management for the site.

9. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and ©) state that nothing has occurred that will impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

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 30 2007

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 (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected this remedy for the Operable Unit 1 of the New York State Electric and Gas (NYSEG) Cortland Homer Former Manufactured Gas Plant (MGP) site. The presence of hazardous waste has created significant threats to human health and/or the environment that are addressed by this selected remedy. As more fully described in Sections 3 and 5 of this document, the production of manufactured gas and the generation of related by-products have resulted in the disposal of hazardous wastes, including coal gas tars, carburetted water gas tars and purifier waste. These wastes contain benzene, toluene, ethylbenzene and xylene, as well as a number of polycyclic aromatic hydrocarbons and cyanide. These wastes have contaminated soils and groundwater at the site. This contamination has resulted in:

- a significant threat to human health associated with exposure to hazardous waste, contaminated site soils and contaminated groundwater.

- a significant environmental threat associated with the impacts of contaminants to the groundwater.

To eliminate or mitigate these threats, the Department has selected Partial Building Demolition, Excavation, and Off Site Disposal/Treatment as the remedy for this site.

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 NYSEG Cortland Homer Former MGP Site is located at 216 South Main Street, in the Village of Homer, Cortland County, New York (see Figures 1 and 2) just north of the City of Cortland. The site is approximately 2 acres in area and consists of two adjoining land parcels

that are privately owned. The southern parcel contains a single story commercial building which is approximately 30,000 square feet in area. This building is occupied by a general plumbing and electrical supply store and a utility company service and maintenance center. The northern parcel is utilized for parking.

The site parcels are bordered by New York State (NYS) Route 11 to the east, the New York and Susquehanna railroad line to the west, and commercial properties to the north and south. East of NYS Route 11 is the West Branch of the Tioughnioga River. The west bank of the river is approximately 150 feet to the east of the site parcels.

Current land uses adjacent to the site include retail/convenience stores, automotive/equipment repair shops, gasoline service stations and a motel. A private residence and a park with athletic fields is located immediately east of the West Branch of the Tioughnioga River. The Cortland Country Club is located to the west of the site, beyond the railroad line.

Operable Unit (OU) No. 1, which is the subject of this document, consists of the former Manufactured Gas Plant (MGP) and adjacent off-site contaminated soils under NYS Route 11. 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 for this site is the parcel of land between the river and NYS Route 11 and also includes contaminated sediments in the West Branch of the Tioughnioga River. The parcel of land is owned by NYSEG and is referred to as the downgradient area in this document. This downgradient area, as well as the identified sediments in the West Branch of the Tioughnioga, constitute operable unit 2 (OU 2) of the site, which is the subject of a separate ROD that was issued in March 2005.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

In 1858, the NYSEG Cortland- Homer MGP plant was constructed and began supplying manufactured gas to the Village of Homer under the name, “Homer and Cortland Gas Light Company”. A manufactured gas plant (MGP) is a facility where gas for lighting and heating homes and businesses was produced. Manufactured gas was produced at this site using the coal gasification and carburetted water gas processes. Coal gas was produced on site until 1921, and then carburetted water gas was produced from 1921 to 1932. The gas holder was used until early 1935 for storing natural gas.

Coal gas was produced by heating 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 cooled and purified prior to distribution. During the cooling, an oily liquid known as coal tar would condense from the hot gas and settle in the

bottom of gas holders, pipes, and other structures. Typically, these structures were built below the ground surface and would utilize the groundwater table as a bottom seal for cooling and pressure purposes. Hence these structures have a significant potential to introduce byproducts from the coal gasification and carburetted water gas processes directly into the site groundwater and subsurface.

Available records for the plant indicate that on-site coal tar production ranged from 19,528 gallons in 1907 to 51,347 gallons during 1913. Gas production in 1907 was 20,179,500 cubic feet of gas which was sold to 1,385 customers. Production had been expanded to approximately 600,000 cubic feet of gas per day by carburetted water gas processes in 1928. This translates to a potential for 219,000,000 cubic feet of gas per year.

In the 1940's, NYSEG partially decommissioned the plant. In 1944 the Brockway Motor Company purchased the subject property and razed the remaining structures. The building that presently stands on the site, is presumed to have been built by Brockway Motors and modified by subsequent owners.

3.2: Remedial History

In 1986, the Department first listed the site as a Class 2a site in the Registry of Inactive Hazardous Waste Disposal Sites in New York (the Registry). Class 2a was a temporary classification assigned to a site that had inadequate and/or insufficient data for inclusion in any of the other classifications. In 1987, the Department reclassified the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

Investigative activities at the site were conducted by NYSEG between 1985 and 1991 without direct involvement of the Department. These investigations identified an apparent source area of coal tar and related compounds in subsurface soils at the site. Groundwater from monitoring wells downgradient of the site also contained tar-related volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs). Sediment samples collected from the West Branch of the Tioughnioga adjacent to and downstream from the site contained PAHs (Operable Unit 2).

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 Department and New York State Electric and Gas (NYSEG) the entered into a multi-site Consent Order on March 30, 1994. The Order (#D0-0002-9309) obligates the responsible parties to implement a full remedial program for 33 former MGP sites across the State, including the Cortland/Homer 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 1999 and 2003. The field activities and findings of the investigation are described in the RI report.

The following investigative activities were conducted during the RI:

- research of historical information;
- a survey of public and private water supply wells in the area around the site;
- soil borings, to observe subsurface geologic conditions and collect subsurface soil samples;
- test pits to directly observe subsurface conditions, subsurface structures and collect soil samples;
- subsurface soil sampling;
- installation of monitoring wells to evaluate groundwater flow and collect groundwater samples;
- slug testing to evaluate groundwater velocities and soil transmissivity;
- sampling of the existing monitoring wells;
- groundwater elevation readings, to evaluate groundwater flow and the accumulation of non aqueous phase liquid;
- surface soil sampling; passive soil gas sampling from on-site and off-site locations;
- sub slab soil vapor and indoor air sampling from the on-site building along with outdoor air sampling;
- indoor air sampling in the off-site motel; and
- Fish and Wildlife Impact Analysis.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the soil, groundwater, or indoor air contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater, drinking water, and surface water SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

- Soil SCGs are based on the Department's Cleanup Objectives ("Technical and Administrative Guidance Memorandum [TAGM] 4046; Determination of Soil Cleanup Objectives and Cleanup Levels" and 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives).

- Concentrations of VOCs in air were compared to typical background levels of VOCs in indoor and outdoor air using the background levels provided in the State's guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006. The background levels are not SCGs and are used only as a general tool to assist in data evaluation.

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 in Section 5.1.2. More complete information can be found in the RI report.

5.1.2: Nature and Extent of Contamination

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

As described in the RI report, many soil, groundwater, soil vapor and sediment samples were collected to characterize the nature and extent of contamination. As summarized in Table 1, the main categories of contaminants that exceed their SCGs are volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs). For comparison purposes, where applicable, SCGs are provided for each medium.
The VOCs of concern are benzene, toluene, ethylbenzene and xylene. These compounds are referred to as BTEX in this document, and are a common component of coal and carburetted water gas tars. Of these compounds, benzene, which is a known human carcinogen, is the most significant.

SVOCs of concern are primarily a group of chemicals commonly referred to as polycyclic aromatic hydrocarbons (PAHs). The specific compounds of concern at this site, which are typically found at MGP sites are:

acenaphthene	*dibenzo(a,h)anthracene*
acenaphthylene	fluoranthene
anthracene	fluorene

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

Total PAH (TPAHs) concentrations referred to in this plan are the summation of the individual PAHs listed above. The italicized PAHs are probable human carcinogens. The summation of the italicized PAHs is referred to in this document as carcinogenic polycyclic aromatic hydrocarbons (cPAHs).

A dense oily liquid that does not readily dissolve in water is typically found at MGP sites. Although, this liquid is largely derived from the petroleum products used in the water gas process, it is commonly known as "coal tar." It is important to note that this liquid does not have the sticky, viscous consistency of other materials commonly labeled as "tar." The tar found at this site has the consistency of used motor oil, and is consequently able to move about as a liquid through the subsurface. The tar is slightly more dense than water, and thus tends to sink through the subsurface until it reaches a geologic unit which will not allow it to pass.

The main inorganic contaminant of concern at this site is cyanide. Cyanide is commonly found at MGP sites where waste from gas purification is present. Cyanide has been found in site soils and site groundwater; however, the cyanide levels are generally below SCGs for both media. Where cyanide exceeds its SCGs, it is commingled with other site contaminants of concern.

Chemical concentrations are reported in parts per billion (ppb) for water and parts per million (ppm) for waste, and soil. Air samples are reported in micrograms per cubic meter ($\mu g/m^3$).

Figures 4, 5, and Table 1 summarize the degree of contamination for the contaminants of concern in soil groundwater, and indoor air 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

MGP waste materials consist of coal tar or Non Aqueous Phase Liquid (NAPL) which contain organic contaminants. NAPL refers to contaminants that remain undiluted as their original bulk form in the subsurface. Tar is found most frequently near the former MGP structures. The area with the greatest evidence of waste materials occurs around the former gas holders and other structures under the site building. These impacts extend vertically to the top of the silty clay layer, approximately 40 feet below ground surface (bgs), and laterally approximately 150 feet to the West Branch of the Tioughnioga River. The extent of waste material contamination is shown in Figure 3 and 4.

The source of the benzene, toluene, ethylbenzene and xylene (BTEX) and PAH contamination found in OU 1 is the result of coal tar or NAPL which is found in and around the subsurface structures and is migrating through the subsurface. The NAPL was found to saturate the unconsolidated deposits, and is present as either a "putty-like matrix" or in discrete seams of staining and/or product. Both of these conditions generally coincide with BTEX and PAH concentrations several orders of magnitude greater than the SCGs in adjacent soils, and typically results in significant impacts to the groundwater as well.

Areas of significant waste disposal have been termed "source areas" and are defined as: free tar and tar-saturated soils, soils containing PAHs in excess of 1,000 ppm, soils containing reactive cyanide at concentrations above 250 ppm, or soils containing reactive sulfide at concentrations above 500 ppm. At the site, these source areas appear to be directly associated with several of the former plant structures, many of which remain on site below the current building. The extent of these source areas is identified on Figure 4, as well as the extent of those soils containing VOCs and SVOCs above TAGM guidance values.

PAHs account for a majority of the SVOCs present in site soils. These compounds are widespread and occur in higher concentrations beneath the ID Booth building and adjacent to former MGP structures.

Waste identified during the RI/FS will be addressed in the remedy selection process.

Surface Soil

The surface soil for the site is either fill that was placed after MGP operations ceased, or asphalt pavement. Site-related constituents were found above analytical detection limits; however, they are orders of magnitude below those found in the waste materials and found in subsurface soil.

Total PAHs (TPAHs) detected in surface (0-1 inch) samples ranged from 1.5 to 34.7 ppm. Values for TPAHs in the two samples collected on site were 10.5 and 34.7 ppm. Two samples collected to represent background ranged from 5.9 to 7.1 ppm for TPAHs. A sample collected from the downgradient area contained 1.5 ppm of TPAHs.

The following individual compounds and their range of concentrations were found to be above background levels and/or soil cleanup objectives: benzo (a) anthracene (0.6 to 3.6 ppm), chrysene (0.62 to 3.3 ppm), benzo (a,h) fluoranthene (1.4 to 2.5 ppm), benzo (k) fluoranthene (1.9 to 2.1 ppm), benzo (a) pyrene (0.58 to 3.3 ppm), dibenzo (a,h) anthracene (0.034 to 1.1 ppm). These compounds are also found in fuel, asphalt, as well as, combustion and coal residues in urbanized areas.

Surface soil contamination identified during the RI/FS will be addressed in the remedy selection process.

Subsurface Soil

During the RI, approximately 43 subsurface soil samples were collected and analyzed. These samples show that certain areas of the site are heavily impacted by MGP tar and related constituents, while other areas had more discrete impacts.

Contaminant concentrations are generally higher on the site and become more limited in concentration and physical extent to the east of the site building, under New York State Route 11. NAPL observed on the site occurs primarily as saturation of unconsolidated deposits and/or product in discrete horizontal zones, particularly towards the top of the water table and directly above the silty clay unit. To illustrate, NAPL has been observed at 9 to 10 feet below ground surface (bgs), 18 to 19 feet bgs, and a brown oily stain at 39 feet bgs in MW-24. Dense Non-Aqueous Phase Liquid (DNAPL) has been observed to accumulate in this monitoring well, and a soil sample of the stained interval at 39 feet bgs contained 16.1 ppm of BTEX and 2,446 ppm of PAHs.

PAHs levels in subsurface soils range from non-detect to 60,300 ppm. BTEX levels in subsurface soils range from non-detect to 950 ppm.

Figures 3 and 4 illustrate subsurface conditions throughout the site.

Subsurface soil contamination identified during the RI/FS will be addressed in the remedy selection process.

Groundwater

The RI identified significant groundwater contamination at the site. This groundwater contamination originates in the area of the former MGP structures under the on-site building and extends beyond the site property to the West Branch of the Tioughnioga. In the vicinity of the site, the groundwater discharges to the river. Monitoring wells installed on the opposite bank of the river, the east bank, show no impacts from the site.

The contamination in groundwater at the site was found at comparable levels in both the shallow and deep wells at the site. For example, in the well couplet of MW-3, which is screened at 7-12 feet, and MW-24, which is screened at 30-40 feet, the BTEX levels were 5,550 ppb and 3,030 ppb, respectively. The TPAH levels were similarly contaminated at 6,680 ppb and 7,570 ppb, respectively. The principal VOCs detected above groundwater quality standards include benzene, toluene, ethylbenzene, and xylenes (BTEX). The extent of these exceedances is shown in Figure 5. The BTEX compounds are the most mobile of the groundwater contaminants and are often present well above their individual groundwater quality standards in the on-site wells. SVOC groundwater contamination is comprised primarily of PAHs and their distribution in groundwater is similar to the VOC plumes (shallow and deep). The extent of SVOC groundwater contamination is shown in Figure 6.

Groundwater contamination identified during the RI/FS will be addressed in the remedy selection process.

Soil Vapor/Sub-Slab Vapor/Air

During the RI, air samples were collected with summa canisters to assess potential impacts to indoor air quality and soil vapor. Six indoor air samples from the on-site building were collected and submitted for analysis of volatile organic compounds by analytical method TO-14. BTEX was detected in all of the samples collected. Generally these detections were low and commingled with various chlorinated solvents. Individual concentrations ranged up to 87 ug/m^3 for toluene and 150 ug/m^3 tetrahydrofuran.

Subsequently, three sub-slab soil vapor grab samples were collected with summa canisters from beneath the site building. These samples found the sub slab vapor to be contaminated with BTEX. The most heavily impacted sample was collected from SB-9, near the relief holder. Values detected in this sample included: 2851 ug/m^3 of BTEX, 173 ug/m^3 of benzene, 60 ug/m^3 of cumene and 1832 ug/m^3 of xylene.

Soil vapor and indoor air contamination identified during the RI/FS will be addressed in the remedy selection process.

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 8 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.

At this site the potential exposure pathways are:

- Dermal contact with NAPL, contaminated soil or groundwater;
- Incidental ingestion of contaminated soils or groundwater; and
- Inhalation of contaminated soil vapors or dust.

The potential for exposure to contaminated soil and NAPL is unlikely since contaminated soils are subsurface and the site area is covered by a building, gravel, or grass. However, redevelopment, subsurface utility work or building maintenance work in the future could bring workers into contact with contaminated material or bring contaminated soils to the surface.

Exposure to contaminated groundwater is unlikely since the area is served by public water. However, the potential for exposure to contaminated groundwater in the future exists if a well were installed or construction was to occur below the shallow groundwater table.

There is currently an active industrial building on the site, therefore the potential exists for exposure to indoor air contamination. Sampling indicates the sub slab vapor is contaminated. Indoor air sampling in this building also identified site-related chemicals which may originate from site contamination, as well as from the use of the same chemicals in the current industrial use of the site. For example, chlorinated solvents are attributed to the building's current use since chlorinated solvents are not associated with MGP operations.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of 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.

Due to the size and industrial nature of the site there are very limited opportunities for fish and wildlife resources at the OU1 portion of the site. Site contamination at the site has negatively impacted the groundwater resource in the unconsolidated geologic units. This resource is identified as a sole source aquifer, the Homer/Preble aquifer, which provides area residents and buisnesses with water. The wellfield that extracts water from the aquifer is located 1.5 miles north of the site. The site has no direct impact on this water supply because of the groundwater flow direction is eastward.

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. These impacts were addressed in the March 2005 Record of Decision for OU2.

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. 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 Operable Unit 1 are to eliminate or reduce to the extent practicable:

- exposures of persons at or around the site to site-related constituents, VOCs, SVOCs and PAHs, in groundwater and subsurface soils;
- the release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards;
- the release of contaminants from subsurface soil under buildings into indoor air through soil vapor; and
- Migration of coal tar beyond the site boundary.

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

- 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 Operable Unit 1 of the NYSEG Cortland Homer Former Manufactured Gas Plant (MGP) site were identified, screened and evaluated in the FS report which is available at the document repositories established for this site.

A summary of the remedial alternatives that were considered for this site is 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 soils, groundwater and soil vapor at the site.

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment. There are no costs associated with this alternative.

All the following alternatives would require purchase of the current building to remove occupants or building tenants and facilitate remediation.

Alternative 2: Containment

Present Worth: $7,600,000
Capital Cost: $4,150,000
Annual Costs (Years 1-30): $276,000

For Alternative 2, approximately 1,200 feet of sealable joint sheet pile would be installed around the current site building, enclosing the former MGP structures and other source areas located beneath it. This sheet pile containment cell would be keyed into the underlying silty clay layer. Open areas of the site ground surface would be covered with a low permeability cap, most likely asphalt paving or the existing building.

An active sub-slab depressurization system would also be installed beneath the site building. Soil vapor extracted by the system from beneath the buildings floor slab would then be discharged to the atmosphere, after any necessary treatment.

Extraction wells would be installed within the sheet pile containment cell to remove groundwater that infiltrates into the cell. The required number, configuration and withdrawal rate would be determined during the design after additional hydraulic testing. However, conceptual estimates indicate 12 wells would be required with a total flow of 80 gallons per minute (gpm). Extracted groundwater would be treated on-site and properly disposed.

To prevent future exposure to the contaminated subsurface soil and groundwater, site and groundwater use restrictions would also be a component of this alternative. These restrictions would be in the form of an environmental easement placed on the property.

A Site Management Plan (SMP) would be developed to describe these restrictions in detail, along with procedures for the operation, maintenance, and monitoring of the containment cell and NAPL collection system, and continuing evaluation of the effectiveness of the remedy. The easement and SMP would require the property owner to periodically certify that the institutional and engineering controls (IC/ECs) necessary to protect public health and the environment are still in place and

effective. The certification would be prepared and submitted by a professional engineer or environmental professional acceptable to the Department.

Additional details of this approach can be found in the FS under media specific alternative: Alternative 2 for containment of source area MGP waste. The Feasibility Study included two containment alternatives (A and B) for evaluation. The main difference is the other alternative included building demolition. For simplicity only one has been included in the PRAP.

Alternative 3: Containment, Surfactant Enhanced Recovery and Treatment

Present Worth: $20,400,000
Capital Cost: $16,930,000
Annual OM&M (Years 1-30): $282,000

This alternative would further reduce the mass and mobility of the NAPL present at the site by using a surfactant-enhanced recovery system to remove waste from within the containment cell described in Alternative 2. The conceptual design would provide for forty four injection and extraction wells. A treatment system would be installed at the site to treat the extracted NAPL, groundwater and surfactant. Treated fluids would then be disposed at a permitted off-site facility. The site building would have to be temporarily vacated to facilitate the installation of the system components.

Because the surfactant flushing is not expected to remove all the NAPL and contaminants from the site soils, site and groundwater use restrictions would also be a component of this alternative to prevent future exposure to the remaining contaminants at the site.

A Site Management Plan (SMP) would be developed to describe these restrictions in detail, along with procedures for the operation, maintenance, and monitoring of the containment cell and NAPL collection system, and continuing evaluation of the effectiveness of the remedy. The easement and SMP would require the property owner to periodically certify that the institutional and engineering controls (IC/ECs) necessary to protect public health and the environment are still in place and effective. The certification would be prepared and submitted by a professional engineer or environmental professional acceptable to the Department.

Additional details of this approach can be found in the FS under media specific Alternative 3, containment and surfactant enhanced recovery for source area MGP waste. The Feasibility Study included two containment, surfactant enhanced recovery and treatment alternatives (A and B) for evaluation. The main difference is the other alternative included building demolition. For simplicity only one has been included in the PRAP.

Alternative 4: Building Demolition, Excavation, and Off-Site Disposal/Treatment

Present Worth: $12,000,000
Capital Cost: $11,900,000
Annual OM&M (Years 1-30): $11,300

This alternative would require complete demolition of the entire building. This alternative would physically remove MGP waste, NAPL and contaminated soil for off-site treatment and/or disposal. Temporary sheet piling or an alternate shoring technique would be used to construct cells for dewatering and excavation operations. The conceptual plan in the Feasibility Study assumes excavation of approximately 44,000 cubic yards of contaminated materials to a depth of 24 feet below the ground surface. Excavated areas would be backfilled with clean soil.

MGP waste, NAPL and contaminated soil consists of one or more of the following criteria: visible tar or oil; the presence of sheens or odors with total PAHs over 1000 ppm; purifier waste with reactive cyanide levels above 250 ppm; or purifier waste with reactive sulfide levels above 500 ppm.

Extracted water would be treated on-site using a temporary system that would provide unit operations for phase separation and removal of dissolved phase contaminants. Processed water would be sent off site for proper disposal, or discharged in accordance with applicable regulatory requirements. The dewatering effort would also facilitate the recovery of NAPL beneath the area to be excavated.

To prevent future exposure to the contaminants beneath the clean backfilled soil and contaminated on-site groundwater, site and groundwater use restrictions would also be a component of this alternative. These restrictions would be in the form of an environmental easement placed on the property.

A Site Management Plan (SMP) would be developed to describe these restrictions in detail, along with procedures for the operation, maintenance, and monitoring of the containment cell and NAPL collection system, and continuing evaluation of the effectiveness of the remedy. Due to the presence of residual MGP waste and contaminated soil beneath the clean soil backfill, any new buildings constructed at the site would be evaluated for soil vapor intrusion and mitigated as necessary. The easement and SMP would require the property owner to periodically certify that the institutional and engineering controls (IC/ECs) necessary to protect public health and the environment are still in place and effective. The certification would be prepared and submitted by a professional engineer or environmental professional acceptable to the Department.

Additional details of this approach can be found in the FS under media specific alternative: Alternative 4, building demolition and excavation of MGP waste for source area MGP waste.

Alternative 5: Partial Building Demolition, Excavation, and Off-Site Disposal/Treatment

Present Worth: $12,500,000
Capital Cost: $12,400,000
Annual OM&M (Years 1-30): $11,300

This alternative would be similar to Alternative 4, except that the northern portion of the current site building would remain in place. Soils beneath this portion of the building are less contaminated than in the source area, and would be managed in the long term without excavation. This would require additional construction efforts to shore and support the building's continued use during excavation.

Partial removal of the building may preclude approximately 1,120 cubic yards of MGP waste from excavation, dependent on the building remnant's shoring requirements.

After soil excavation and building modification, the remaining portion of the site building would be evaluated for soil vapor intrusion and mitigation system would be installed if necessary. Soil vapor extracted by the system, would be discharged to the atmosphere after any necessary treatment. Periodic monitoring of the system and indoor air sampling would be required to verify the effectiveness of this system.

To prevent future exposure to the contaminants beneath the soil cover and contaminated on-site groundwater, site and groundwater use restrictions would also be a component of this alternative. These restrictions would be in the form of an environmental easement placed on the property.

A Site Management Plan (SMP) would be developed to describe these restrictions in detail and evaluate the effectiveness of the remedy. The easement and SMP would require the property owner to periodically certify that the institutional and engineering controls (IC/ECs) necessary to protect public health and the environment are still in place and effective. The certification would be prepared and submitted by a professional engineer or environmental professional acceptable to the Department.

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 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 Department 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 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 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) presents public comments received and the manner in which the Department addressed the concerns raised.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion below, the Department has selected Alternative 5, Partial Building Demolition, Excavation, and Off-Site Disposal/Treatment as the remedy for this site. The elements of this 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. Alternative 5 is being selected because, as described below, this alternative satisfies the threshold criteria of being protective to human health and the environment and complying with New York State SCGs. Further, it provides the best balance of the primary balancing criteria, as described in Section 7.2, given the current and anticipated future use of the site.

Alternative 1 would not satisfy the threshold criteria of protecting public health and the environment; and complying with New York State standards, criteria and guidance because it would leave uncontrolled contamination at the site.

Alternatives 2, 3, 4 and 5 would protect public health and the environment by preventing exposure to contaminated soil, soil vapor and groundwater, and by preventing contaminated groundwater from leaving the site. Groundwater standards at the site boundaries would be achieved by these alternatives, but soil cleanup guidance values would not be fully achieved in the containment cell. Alternatives 4 and 5 would achieve the soil SCGs in the top 24 feet through excavation and the use of clean backfilled soil. Alternative 5 would allow approximately 1,120 cubic yards of contaminated soil to remain to support the remaining building structure. Alternatives 2 and 3 would not achieve soil SCGs within the contaminated area, however, exposure to contaminants would be prevented by the clean soil cover, Site Management Plan (SMP) and institutional controls.

Aside from the no action alternative, each of the alternatives would have short-term impacts which would need to be controlled with health and safety plans and engineering controls. The time needed to achieve the remediation goals and potential for adverse short term impacts for this operable unit is largely a function of the time and specific activities required by each remedial alternative. Excavation alternatives would present the greatest potential for short-term exposures to both site remediation workers and the surrounding community. The degree of short- term exposure varies with the extent of excavation, so that Alternative 4 would have a greater potential for short-term impact than Alternative 5. Alternative 3 would have a moderate short-term impact due to the potential exposure of building occupants to surfactants injected beneath the building. Alternatives 2 and 3 would have low levels of short-term impacts because MGP wastes would not be excavated.

The containment component of Alternative 2 would be effective in the long-term but would require extensive institutional controls and engineering controls and continued access to the site by NYSEG and the NYSDEC to ensure its effectiveness. Alternative 3 could also be considered to be effective and permanent due to the containment component, although the removal effectiveness for this surfactant technology is uncertain at this time. Alternative 3 would require a longer design effort due to the need for specialty contractors and a treatability study/pilot test. Long-term effectiveness and permanence would be best achieved by removal and off-site treatment of the contaminated materials present in the operable unit. Alternatives 4 and 5 would result in removal of most of the chemical contamination related to this operable unit, including source materials, thus reducing the need for long-term groundwater and NAPL treatment and containment. Alternative 5 would remove all of the MGP source materials, but would require long-term management of the lesser contaminated soils, as a portion of the on-site building would remain. Hence, Alternative 5 would require a component of institutional and engineering controls to be effective in the long-term.

Alternative 2 would reduce the mobility of the contaminants by containing them in place, but would not reduce the volume of the contamination at the site. Alternative 2 would allow the on-site building to remain, but would require the installation and operation of a vapor mitigation system and institutional/engineering controls. Alternative 3 would somewhat reduce the volume of the contamination at the site by removing NAPL from the containment area using surfactants. Alternative 4 would best achieve the remediation goals for Operable Unit 1 by removing the MGP waste materials present on the site. These waste materials represent the most significant threat to public health and the environment. Their removal would greatly reduce the source of contamination at the site and to other areas. Alternative 5 would significantly reduce the volume of waste by removing the portion of the building overlying the most heavily contaminated areas.

Alternative 2 would be relatively easy to implement as it employs proven construction means that would be readily available. Enhanced surfactant recovery in Alternative 3 is considered an innovative technology for MGP wastes and a pilot test would be needed for the site-specific contaminants and conditions to ascertain the effectiveness, methodology and cost of this technology. The implementability of this technology is therefore uncertain at this time. Although the containment of source areas in Alternatives 2 and 3 may prove challenging and costly due to hydraulic control issues and the required depth of the containment cell, these are manageable logistic concerns. Alternatives 4 and 5 would be the most difficult to implement, due to dewatering and shoring requirements.

Alternative 2 would require the greatest degree of operation, monitoring, and maintenance to monitor effectiveness, as the waste would be contained in place underneath an occupied building with no reduction in toxicity or volume. Conversely, Alternative 4 would have the least operation, monitoring, and maintenance for the building property and any risk to occupants, as well as reducing the potential for impacts in the future by permanently removing the largest portion of the waste from the site. Alternative 5 would have some additional monitoring for the contaminants under the building. The long-term effectiveness of Alternative 3 is uncertain due to the innovative nature of surfactant technology for treating MGP waste. Based on the expectation that surfactants could remove most, but not all, NAPL from the site, Alternative 3 would have an intermediate level of long-term effectiveness.

The cost of the alternatives vary substantially. Containment would be significantly less expensive than excavation (Alternative 2 versus Alternatives 4 and 5). However, excavation (Alternatives 4 and 5), may be more cost effective in the long-term due to the lower and more predictable operation and maintenance costs associated with these alternatives as compared to the Alternative 2 costs for maintaining a containment cell with hydraulic controls in this productive aquifer. These alternatives would also have less long-term impact on future use of the site than any of the other alternatives. Additionally, the excavation alternatives would have almost all their costs associated with capital costs, which would not be variable over time.

Enhanced surfactant recovery, Alternative 3, would have the greatest costs of the alternatives under consideration. This cost would also be the most uncertain of the alternative cost estimates due to the uncertain effectiveness of surfactant recovery and the need for extensive pilot testing.

The estimated present worth cost to implement the remedy is $12,500,000. The cost to construct the remedy is estimated to be $12,400,000 and the estimated average annual costs for 30 years is $11,300.

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.

2. Demolition of the southern portion of the on-site building as necessary to enable the excavation of contaminated soils. The northern portion of the current site building will

remain in place. This will require additional construction efforts to shore and support the building's continued use during excavation.

3. Groundwater extracted during construction will be sent off-site or treated on-site and discharged in compliance with applicable discharge standards.

4. Excavation of MGP waste, NAPL and contaminated soils meeting one or more of the following criteria: visible tar or oil; the presence of sheens or odors with total PAHs over 1000 ppm; purifier waste with reactive cyanide levels above 250 ppm; or purifier waste with reactive sulfide levels above 500 ppm. The Feasibility Study estimated excavation of 44,000 cubic yards of contaminated soils to a depth of 24 feet below the ground surface. Soil excavation will proceed deeper if soils exceed one or more of the above criteria. Treatment and/or disposal of excavated materials meeting the above criteria will occur at an off-site facility.

5. Excavated materials which are below the criteria will be stockpiled and evaluated for reuse on-site. The excavation will be backfilled with stockpiled soils and clean soil as defined in 6 NYCRR 375-6.7(d), graded, and the ground surface will be prepared to meet future land use requirements. Non-vegetated areas (buildings, roadways, parking lots, etc.) will be covered by a paving system or concrete at least 6 inches thick.

6. Soil vapor intrusion in the remaining portion of the building will be evaluated after soil excavation and building modification, with mitigation and/or monitoring as determined to be necessary.

7. Imposition of an institutional control in the form of an environmental easement that will require (a) limiting the use and development of the property to commercial use, which will also permit industrial use consistent with local zoning; (b) compliance with the approved site management plan; ©) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.

8. Development of a site management plan which will include the following institutional and engineering controls: (a) management of the final cover system to restrict excavation below the soil cover's demarcation layer, pavement, or buildings. Excavated soil will be tested, properly handled to protect the health and safety of workers and the nearby community, and will be properly managed in a manner acceptable to the Department; (b) continued evaluation of the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; ©) monitoring of groundwater; (d) identification of any use restrictions on the site; and (e) provisions for the continued proper operation and maintenance of the components of the remedy. Since the remedy results in untreated hazardous waste remaining at the site, a monitoring program will be instituted. Groundwater monitoring will be used to evaluate the effectiveness of the remedy after construction. This program will allow the effectiveness of the soil remediation to be monitored and will be a component of the long-term management for the site.

9. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and ©) state that nothing has occurred that will impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

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 public meeting was held on March 10, 2005 to present and receive comment on the PRAP for Operable Unit 2.
- A Fact Sheet was sent out February 15, 2007 describing the proposed remedy and soliciting public comment.
- A meeting with local officials from Cortland County Health Department, Cortland County Soil and Water Conservation District, and Town of Homer was held on March 8, 2007 to present the PRAP prior to the public meeting.
- A public meeting was held on March 8, 2007 to present and receive comment on the PRAP.
- 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
August 1994-December 2004

WASTE	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	290	NA	NA
	Ethylbenzene	32	NA	NA
	Toluene	380	NA	NA
	Xylenes	280	NA	NA
Semivolatile Organic Compounds (SVOCs)	Total PAHs	60,300	NA	NA

SURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	NT	0.06	NA/6
	Toluene	NT	1.5	NA/6
	Ethylbenzene	NT	5.5	NA/6
	Xylenes	NT	1.2	NA/6
	BTEX	NT	10	NA/6
Semivolatile Organic Compounds (SVOCs)	Total cPAHs	.8 - 18.9	10	2/6
	Total PAHs	1.5 - 34.7	500	0/6
Inorganic Compounds	Cyanide	ND	NA	0/6

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	ND - 290	0.06	14/43
	Toluene	ND - 380	1.5	7/43
	Ethylbenzene	ND - 32	5.5	5/43
	Xylenes	ND - 280	1.2	13/43
	BTEX	ND - 950	10	15/43
Semivolatile Organic Compounds (SVOCs)	Total cPAHs	ND - 6,400	10	16/42
	Total PAHs	ND - 60,300	500	12/42
Inorganic Compounds	Cyanide	ND - 82.3	NA	0/89

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	ND - 1,100	1	19/30
	Toluene	ND - 1,900	5	17/30
	Ethylbenzene	ND - 1,300	5	13/30
	Xylenes	ND - 3,190	5	20/30
	BTEX	ND - 5,850	NA	0/30
Semivolatile Organic Compounds (SVOCs)	Total cPAHs	ND - 457	NA	0/30
	Total PAHs	ND - 139,000	NA	0/30
Inorganic Compounds	Cyanide	ND - 7,960	200	12/30

SOIL VAPOR	Contaminants of Concern	Concentration Range Detected (μg/m^3)[a]	SCG[b] (μg/m^3)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	23 - 173	NA	NA
	Toluene	106 - 528	NA	NA
	Ethylbenzene	14 - 327	NA	NA
	Xylenes (o, m & p)	72 - 1823	NA	NA
	BTEX	ND - 2851	NA	NA
Semivolatile Organic Compounds (SVOCs)	Total cPAHs	NA	NA	NA
	Total PAHs	NA	NA	NA
Inorganic Compounds	Cyanide	NA	NA	NA

AIR	Contaminants of Concern	Concentration Range Detected (μg/m^3)[a]	SCG[b] (μg/m^3)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	ND - 23	NA	NA
	Toluene	ND - 87	NA	NA
	Ethylbenzene	ND - 18	NA	NA
	Xylenes (o, m, & p)	ND - 94	NA	NA
	BTEX	ND - 173	NA	NA
Semivolatile Organic Compounds (SVOCs)	Total cPAHs	NA	NA	NA
	Total PAHs	NA	NA	NA

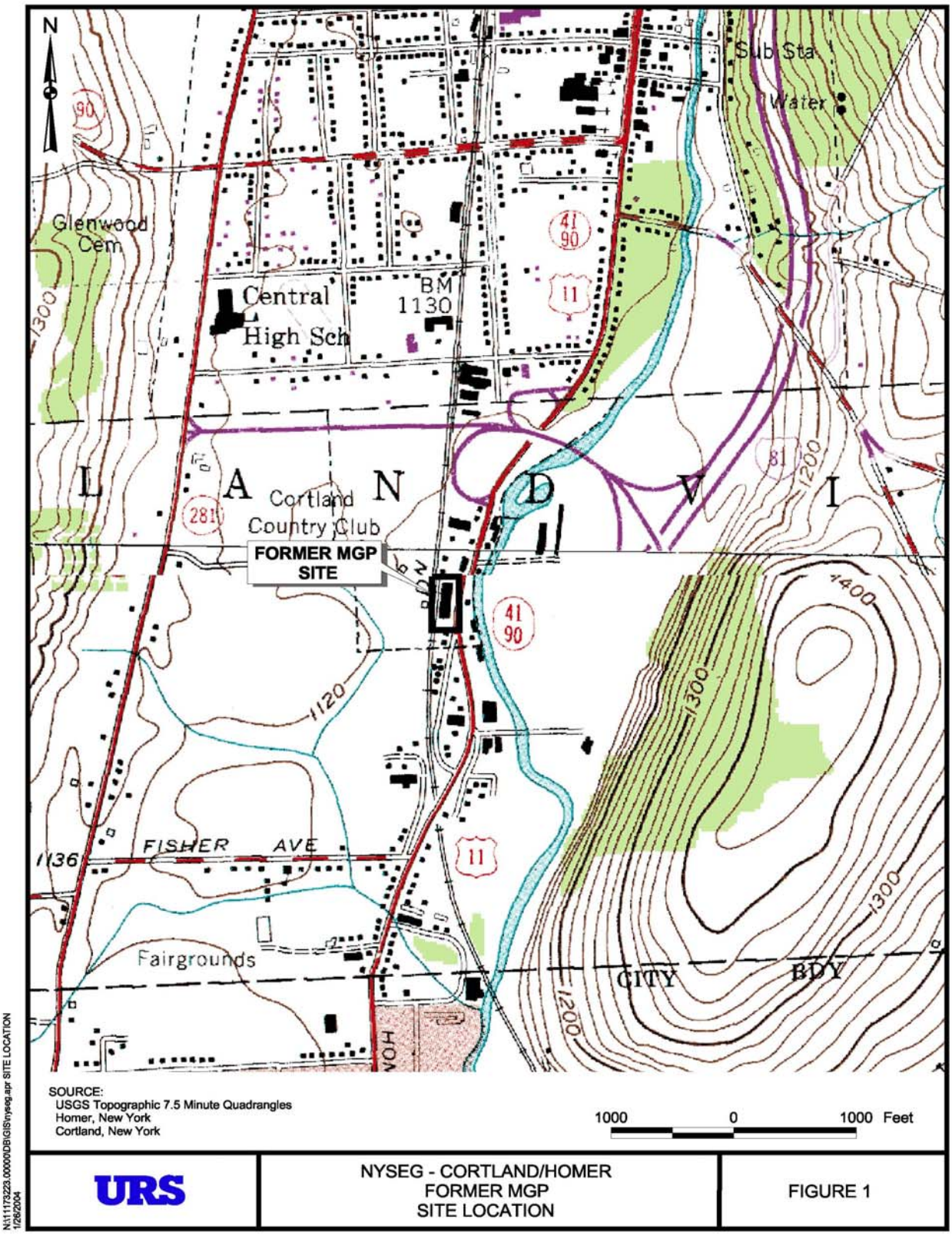
[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
ug/m^3 = micrograms per cubic meter

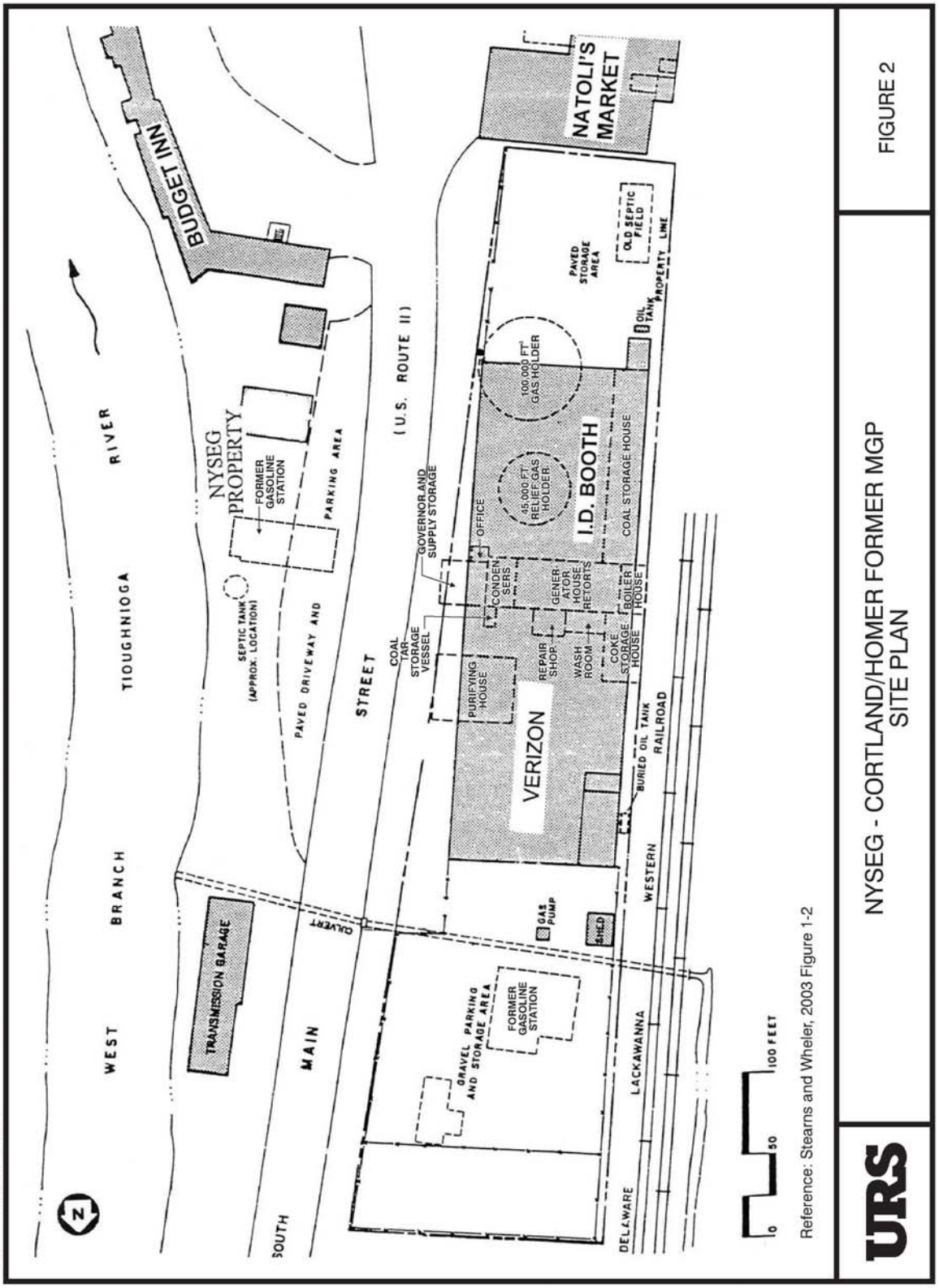
[b] SCG = standards, criteria, and guidance values;

NA = not analyzed
ND = not detected
NT = not tested

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
1: No Action	$ 0,000	$ 0,000	$ 000,000
2: Containment with the on-site building in place	$ 4,150,000	$ 276,000	$ 7,600,000
3: Containment with the on-site building in place and surfactant enhanced recovery	$ 16,930,000	$ 282,000	$ 20,400,000
4: Building demolition with excavation and off-site disposal/treatment	$ 11,900,000	$ 11,300	$ 12,000,000
5: Partial building demolition with excavation and off-site disposal/treatment	$ 12,400,000	$ 11,300	$ 12,500,000


N
Sub Sta
Water
Glenwood
Cem
Central
High Sch
BM
1130
L A N D V I
Cortland
Country Club
FORMER MGP
SITE
1120
FISHER AVE
1136
Fairgrounds
CITY BDY
1300
1200
1400
SOURCE:
USGS Topographic 7.5 Minute Quadrangles
Homer, New York
Cortland, New York
1000 0 1000 Feet
URS
NYSEG - CORTLAND/HOMER
FORMER MGP
SITE LOCATION
FIGURE 1
N:\11173223.00000\DB\GIS\nyseg.apr SITE LOCATION
1/26/2004

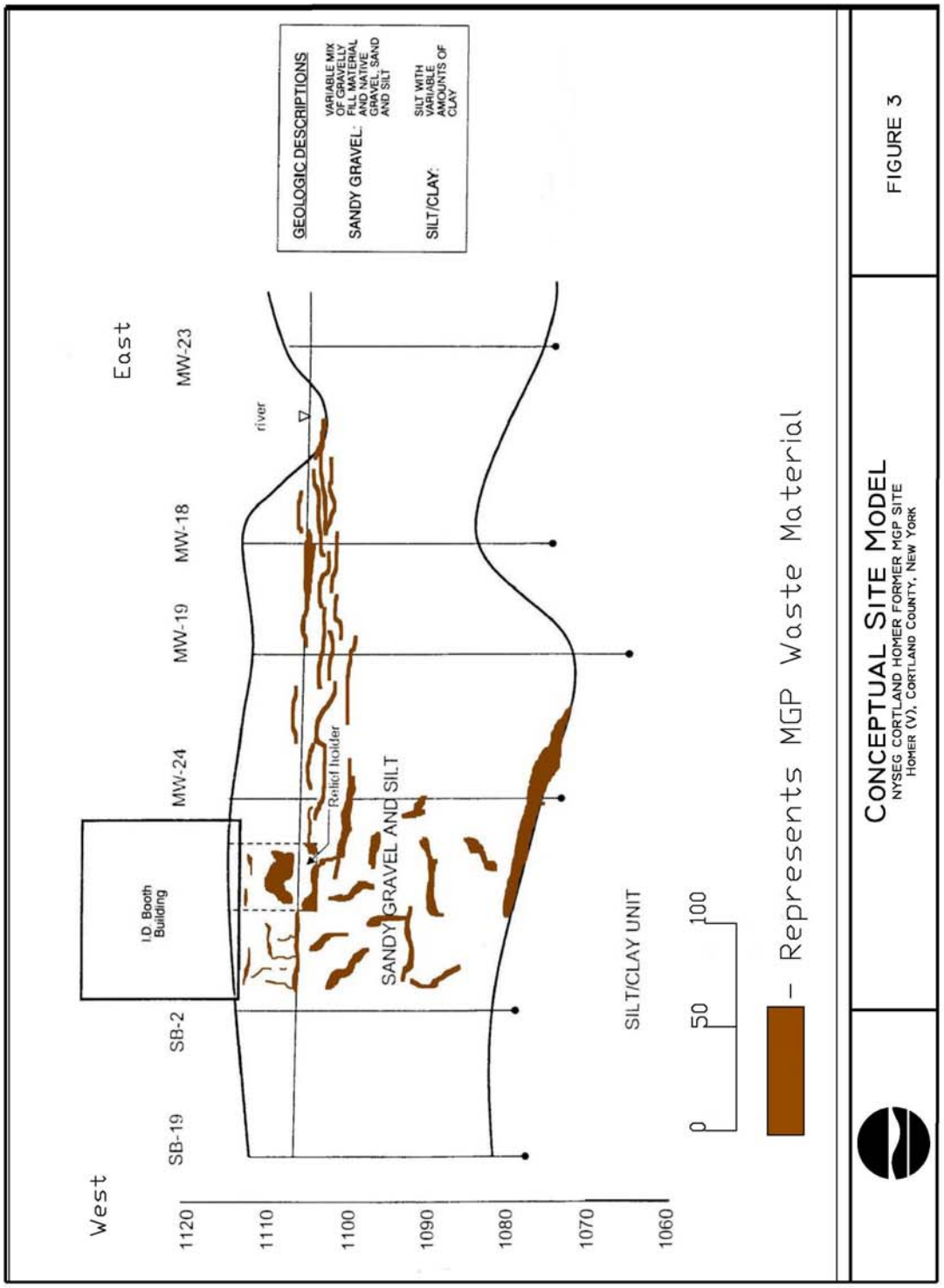


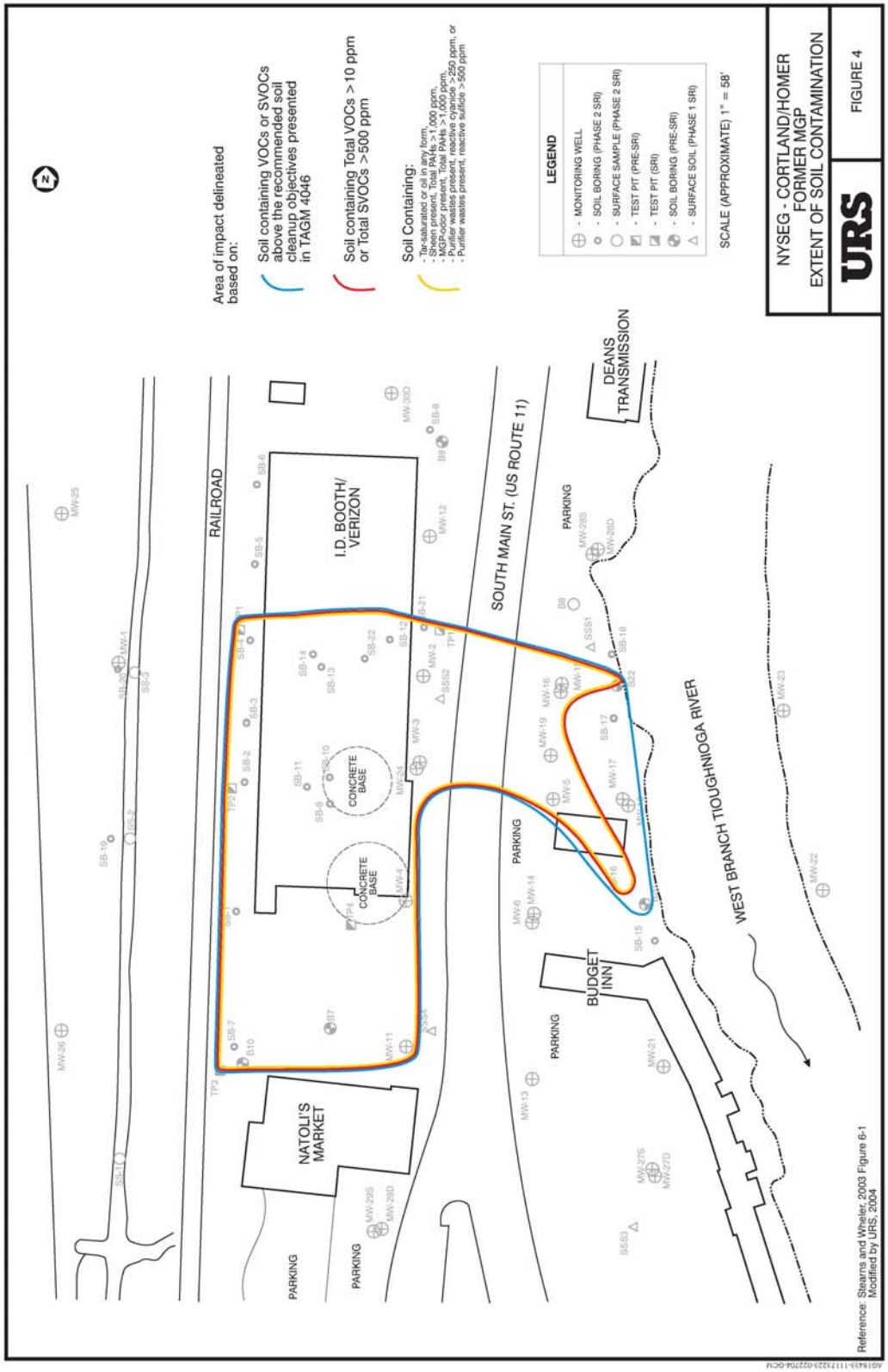
Reference: Stearns and Wheler, 2003 Figure 1-2

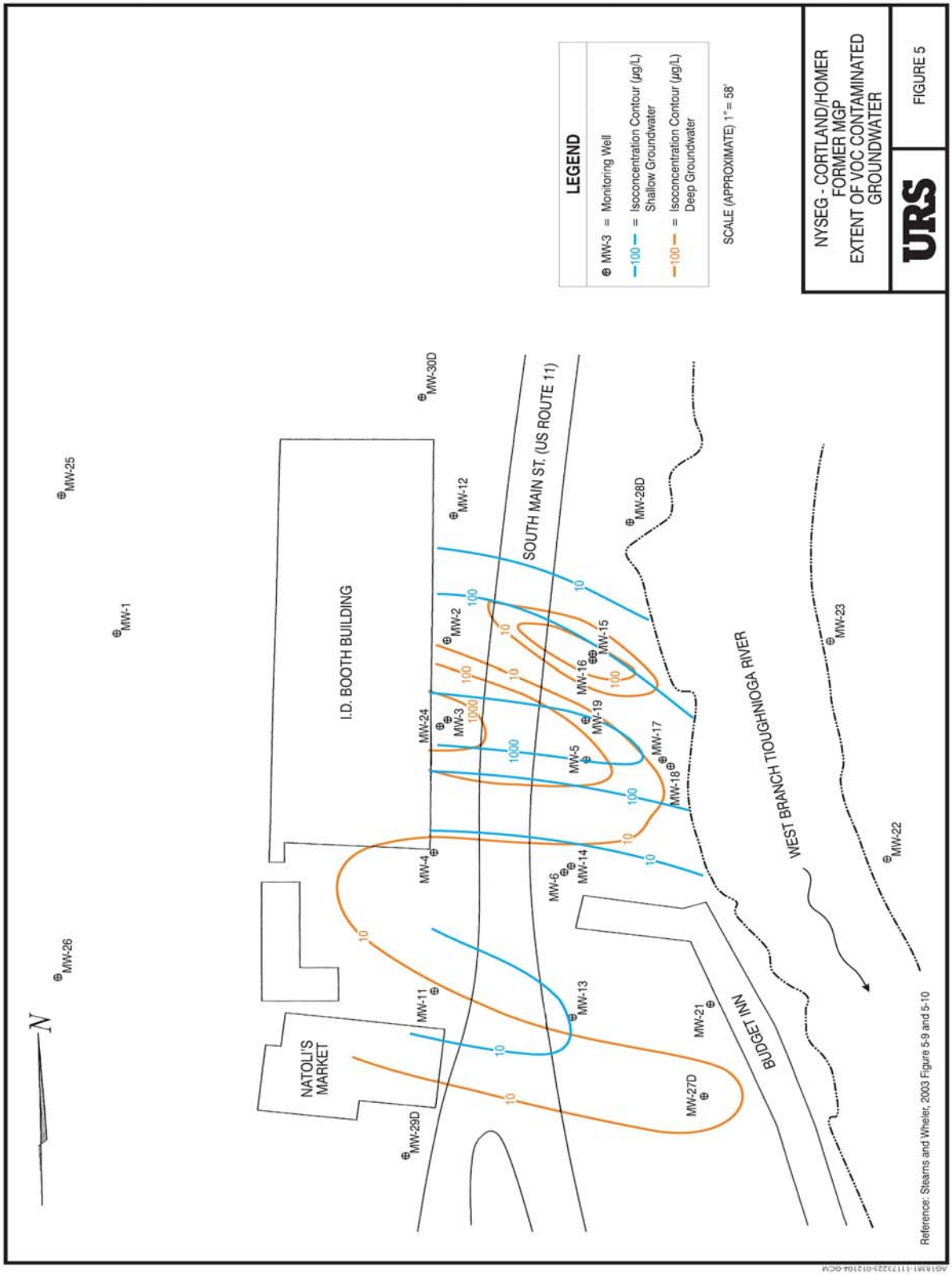
URS

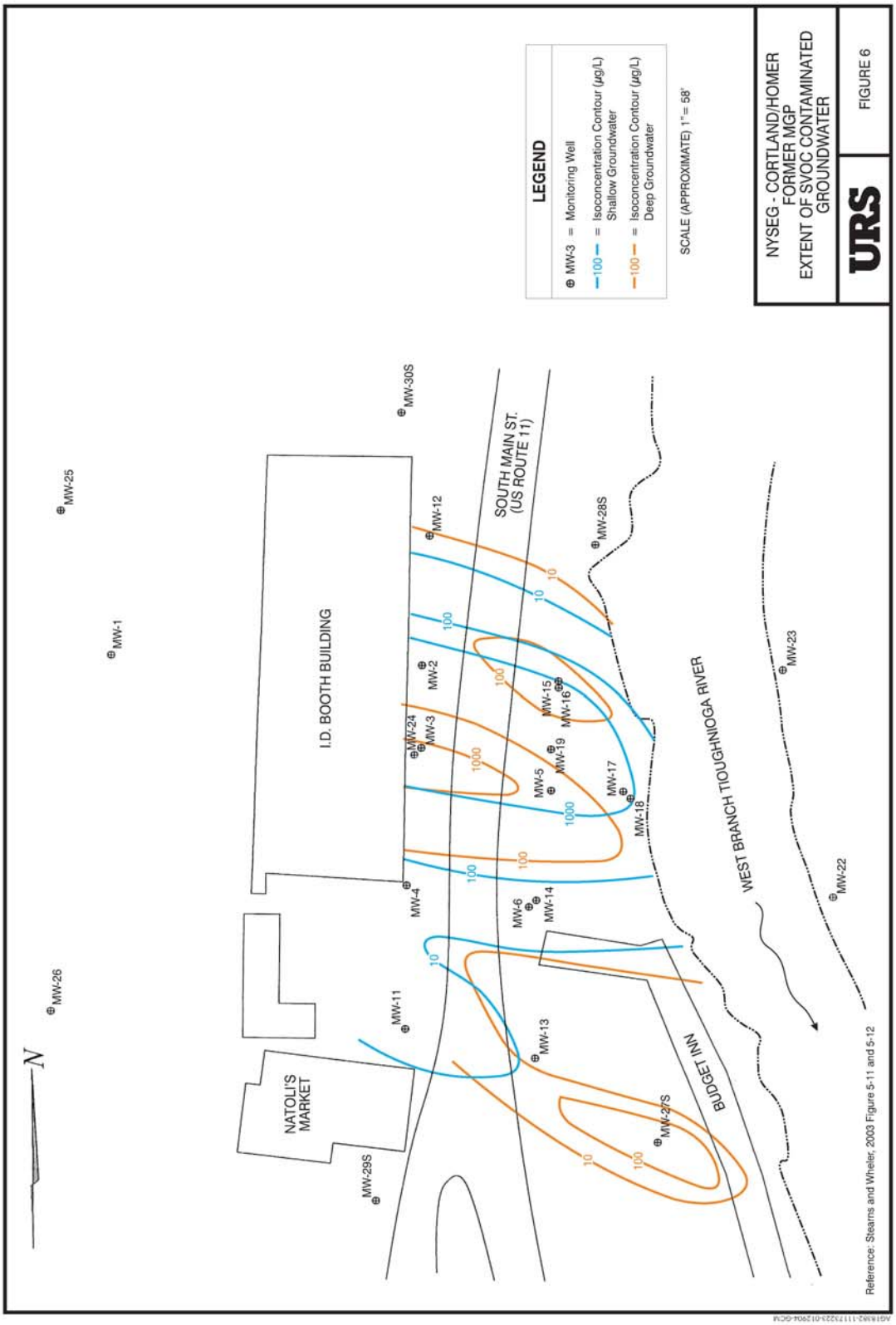
NYSEG - CORTLAND/HOMER FORMER MGP
SITE PLAN

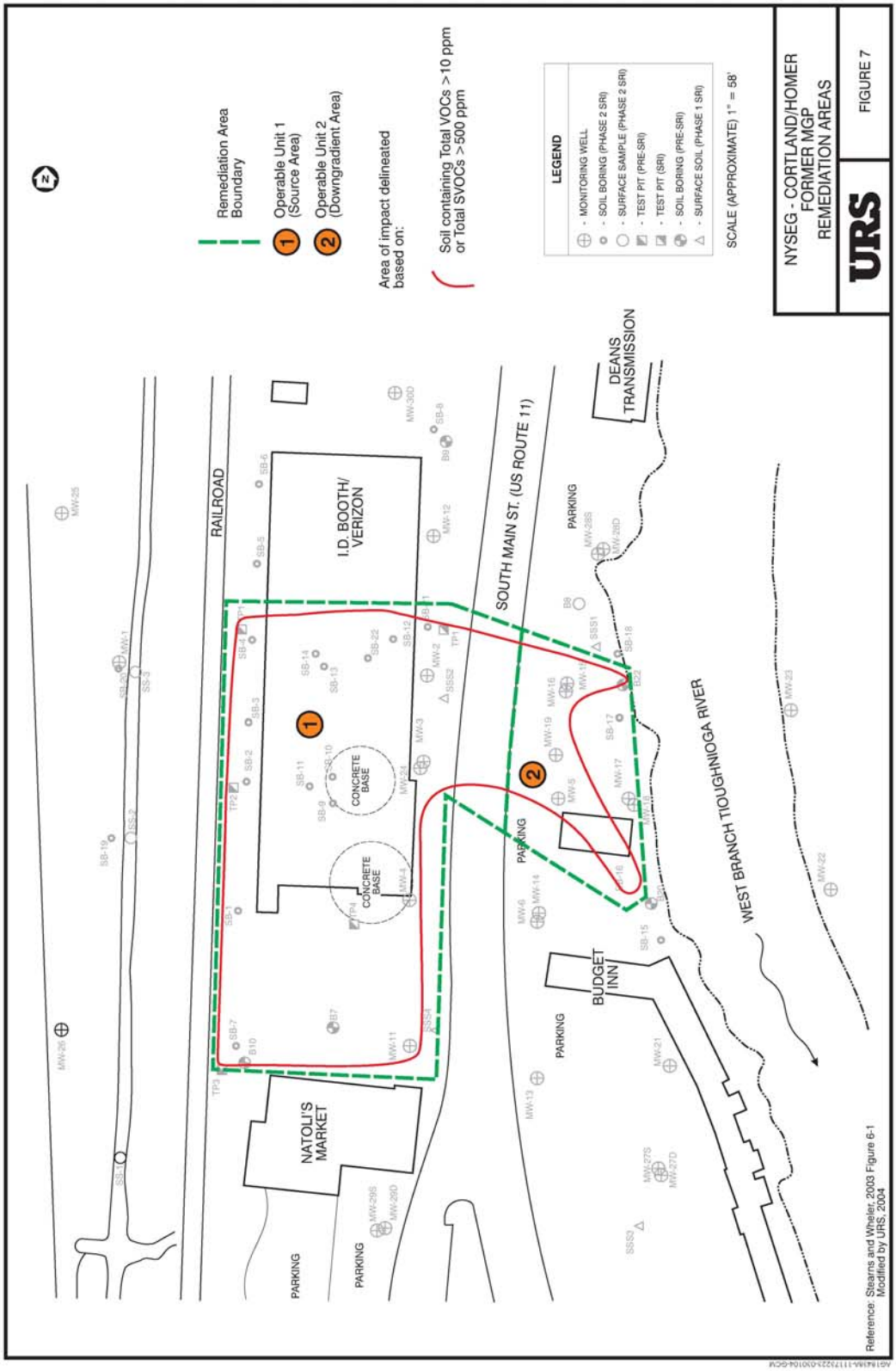
FIGURE 2


GEOLOGIC DESCRIPTIONS
SANDY GRAVEL: VARIABLE MIX OF GRAVELLY FILL MATERIAL AND NATIVE GRAVEL, SAND AND SILT
SILT/CLAY: SILT WITH VARIABLE AMOUNTS OF CLAY
West
East
SB-19
SB-2
MW-24
MW-19
MW-18
MW-23
I.D. Booth Building
river
Relief holder
SANDY GRAVEL AND SILT
SILT/CLAY UNIT
1120
1110
1100
1090
1080
1070
1060
0
50
100
- Represents MGP Waste Material
CONCEPTUAL SITE MODEL
NYSEG CORTLAND HOMER FORMER MGP SITE
HOMER (V), CORTLAND COUNTY, NEW YORK
FIGURE 3


Area of impact delineated based on:
Soil containing VOCs or SVOCs above the recommended soil cleanup objectives presented in TAGM 4046
Soil containing Total VOCs >10 ppm or Total SVOCs >500 ppm
Soil Containing:
- Tar-saturated or oil in any form,
- Sheen present, Total PAHs >1,000 ppm,
- MGP-odor present, Total PAHs >1,000 ppm,
- Purifier wastes present, reactive cyanide >250 ppm, or
- Purifier wastes present, reactive sulfide >500 ppm
LEGEND
- MONITORING WELL
- SOIL BORING (PHASE 2 SRI)
- SURFACE SAMPLE (PHASE 2 SRI)
- TEST PIT (PRE-SRI)
- TEST PIT (SRI)
- SOIL BORING (PRE-SRI)
- SURFACE SOIL (PHASE 1 SRI)
SCALE (APPROXIMATE) 1" = 58'
NYSEG - CORTLAND/HOMER
FORMER MGP
EXTENT OF SOIL CONTAMINATION
URS
FIGURE 4
RAILROAD
I.D. BOOTH/ VERIZON
SOUTH MAIN ST. (US ROUTE 11)
DEANS TRANSMISSION
WEST BRANCH TIOUGHNIOGA RIVER
NATOLI'S MARKET
BUDGET INN
CONCRETE BASE
PARKING
Reference: Stearns and Wheler, 2003 Figure 6-1
Modified by URS, 2004


LEGEND
MW-3 = Monitoring Well
100 = Isoconcentration Contour (µg/L) Shallow Groundwater
100 = Isoconcentration Contour (µg/L) Deep Groundwater
SCALE (APPROXIMATE) 1" = 58'
NYSEG - CORTLAND/HOMER FORMER MGP EXTENT OF VOC CONTAMINATED GROUNDWATER
URS
FIGURE 5
I.D. BOOTH BUILDING
NATOLI'S MARKET
SOUTH MAIN ST. (US ROUTE 11)
WEST BRANCH TIOUGHNIOGA RIVER
BUDGET INN
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-11
MW-12
MW-13
MW-14
MW-15
MW-16
MW-17
MW-18
MW-19
MW-21
MW-22
MW-23
MW-24
MW-25
MW-26
MW-27D
MW-28D
MW-29D
MW-30D
10
100
1000
N
Reference: Stearns and Wheler, 2003 Figure 5-9 and 5-10


LEGEND
MW-3 = Monitoring Well
100 = Isoconcentration Contour (µg/L) Shallow Groundwater
100 = Isoconcentration Contour (µg/L) Deep Groundwater
SCALE (APPROXIMATE) 1" = 58'
NYSEG - CORTLAND/HOMER FORMER MGP EXTENT OF SVOC CONTAMINATED GROUNDWATER
URS
FIGURE 6
N
I.D. BOOTH BUILDING
NATOLI'S MARKET
SOUTH MAIN ST. (US ROUTE 11)
WEST BRANCH TIOUGHNIOGA RIVER
BUDGET INN
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-11
MW-12
MW-13
MW-14
MW-15
MW-16
MW-17
MW-18
MW-19
MW-22
MW-23
MW-24
MW-25
MW-26
MW-27S
MW-28S
MW-29S
MW-30S
10
100
1000
Reference: Stearns and Wheler, 2003 Figure 5-11 and 5-12


Remediation Area Boundary
Operable Unit 1 (Source Area)
Operable Unit 2 (Downgradient Area)
Area of impact delineated based on:
Soil containing Total VOCs >10 ppm or Total SVOCs >500 ppm
LEGEND
- MONITORING WELL
- SOIL BORING (PHASE 2 SRI)
- SURFACE SAMPLE (PHASE 2 SRI)
- TEST PIT (PRE-SRI)
- TEST PIT (SRI)
- SOIL BORING (PRE-SRI)
- SURFACE SOIL (PHASE 1 SRI)
SCALE (APPROXIMATE) 1" = 58'
NYSEG - CORTLAND/HOMER FORMER MGP REMEDIATION AREAS
URS
FIGURE 7
RAILROAD
I.D. BOOTH/ VERIZON
SOUTH MAIN ST. (US ROUTE 11)
DEANS TRANSMISSION
WEST BRANCH TIOUGHNIOGA RIVER
NATOLI'S MARKET
BUDGET INN
CONCRETE BASE
PARKING
Reference: Stearns and Wheler, 2003 Figure 6-1
Modified by URS, 2004


Portion of
Building to Remain
N
E
S
W
0 50 100 200 Feet
Legend
Selected Remedy
Approximate building demolition/excavation
NYSEG Cortland Homer Former MGP
Homer (V), Cortland County, NY
Figure 8 - Selected Remedy

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Cortland Homer Former MGP Site
Operable Unit No. 1
Cortland, County, New York
Site No. 7-12-005

The Proposed Remedial Action Plan (PRAP) for the NYSEG Cortland Homer Former MGP 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 16, 2007. The PRAP outlined the remedial measure proposed for the contaminated soil and groundwater at the NYSEG Cortland Homer Former MGP 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 8, 2007 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 19, 2007.

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: In your presentation, you discussed soil vapors – how far do soil vapors travel? Will Natoli's Market (located next to the site) be monitored during construction? Can excavation/disturbance of the soil induce air contamination and what controls will be implemented during excavation to limit air contamination?

RESPONSE 1: The majority of soil contamination is beneath the I.D. Booth portion of the building, where the greatest soil vapor contamination is expected to occur. Indoor air sampling conducted at the Budget Inn across Route 11, approximately 120 feet from the source area, found that air quality in the motel's crawl space and guest rooms is not being affected by vapors resulting from the MGP site. A community air monitoring plan will be in place during construction and all ground-intrusive activities during the remedy. Air monitors will be stationed around the excavation areas, as well as the perimeter of the building to continuously test the air for vapors, odors and dust. There will be a plan in place to control vapors, odors and dust. There are a variety of controls that can be used, including limiting the open work space, covering work areas overnight, use of foaming agents, etc.. These controls and others will be an integral component of the remedial design. The on-site health and safety officer has the authority to stop work before vapors, odors or dust become a problem.

COMMENT 2: Could you show the depth profile slide depicting the excavation depth up to 24 feet? How deep will the excavation be?

RESPONSE 2: Figure 3 of the ROD provides a representation of the estimated depth of contamination. The drawing depicts the conceptual pattern of migration, rather than a precise depiction of actual subsurface contamination as determined by monitoring points. The intent is to excavate the waste until the criteria are reached. The remedial design will use the criteria in the selected remedy to determine the extent of contamination.

COMMENT 3: What is the remedy for soil in OU #2?

RESPONSE 3: The remedy for OU2 is in-situ soil stabilization for the property between Route 11 and the river. River sediments will be excavated and properly disposed off-site.

COMMENT 4: What contaminants were measured in soil vapor at the couple of hundred ppb concentrations?

RESPONSE 4: The compounds that were measured in the soil vapor below the concrete slab of the Booth building were primarily benzene, toluene, ethylbenzene and xylene (BTEX).

COMMENT 5: How long will construction take?

RESPONSE 5: Construction should take approximately one year for Operable Unit 1 and is somewhat weather dependent. The work may be performed in phases, due to the need to demolish the portion of the building before conducting additional investigations to determine the precise limits of excavation.

COMMENT 6: Wouldn't it be easier to demolish the entire building?

RESPONSE 6: Yes it would. However, the portion of the building that is to remain has economic and beneficial use to the property owner, and the property owner wants to keep it. Contaminant levels under this portion of the building are significantly lower than in the soil that will be excavated. The NYSDEC believes that the residual contamination that remains under the building can be effectively managed in a manner that protects public health and the environment.

COMMENT 7: What is the potential future use of the site?

RESPONSE 7: The property will be restricted to industrial/commercial use through an environmental easement. Note that this use includes certain recreational uses where minimal potential for

soil disturbance exists. For any new construction/redevelopment on the property, soil vapor intrusion will have to be evaluated.

COMMENT 8: Will the Site Management Plan address funding or future use?

RESPONSE 8: The Site Management Plan will not address funding. However NYSEG is under an Order on Consent with the State to perform a full remedial program, which includes long term site management.

COMMENT 9: Would the Institutional Controls remain on the property?

RESPONSE 9: Yes, an environmental easement will be granted to the NYSDEC that will run with the property deed.

COMMENT 10: Is the aquifer flow toward the river?

RESPONSE 10: Yes.

COMMENT 11: Has anything been found in the river water?

RESPONSE 11: Sampling of surface water only identified naphthalene at a concentration of 0.1 ppb in one sample, compared to the naphthalene surface water quality standard of 10 ppb. When the river sediments are disturbed, a sheen is created on the surface water, in violation of water quality standards. The remedies for on-site soils and off-site soils and sediments will address these impacts.

COMMENT 12: When was the last time the plant was used (to manufacture gas)?

RESPONSE 12: The site was last used to manufacture gas from coal in 1935.

COMMENT 13: Was the site a water gas reaction process?

RESPONSE 13: The plant used both the coal carbonization and carbureted water gas processes. The carbureted water gas process added an oil spray to increase the BTU content of the gas.

COMMENT 14: What is the anticipated impact on traffic from the project?

RESPONSE 14: The impact on traffic should be minimal because of the proximity of Interstate 81, which is approximately three-tenths of a mile away. Traffic flow will be considered as part of the

remedial design and traffic flow will be coordinated with New York State Department of Transportation.

COMMENT 15: Is this site similar to other plants in terms of construction remediation?

RESPONSE 15: Yes. The site characteristics favor excavation, which is the NYSDEC's preferred approach at MGP sites. If the site posed limitations such as geotechnical risks or critical infrastructure, then another alternative would have been proposed.

COMMENT 16: Will the sediments in the river be replaced or will they just be excavated for Operable Unit 2? The community is concerned with flooding.

RESPONSE 16: This design detail has not been resolved for Operable Unit 2. In general, the NYSDEC will replace sediments to the same depth and with the same type of substrate to preserve the habitat. The NYSDEC's remedial program will coordinate the remedial design with the agency's aquatic biologists and flood management personnel to develop a plan that addresses the flood protection and habitat restoration needs of the river.

COMMENT 17: How far from the source does the waste migrate and what is its consistency?

RESPONSE 17: Most of the manufactured gas plant waste is situated within the property footprint. Some waste has migrated approximately 200 feet to the West Branch of the Tioughnioga River where it is found in the sediments. In the sediments the tar is hard and viscous.

APPENDIX B

Administrative Record

Administrative Record

NYSEG Cortland Homer Former MGP Inactive Hazardous Waste Disposal Site
Operable Unit No. 1
Homer (V), Cortland County, New York
Site No. 7-12-005

1. Proposed Remedial Action Plan for the NYSEG Cortland Homer Former MGP Site, Operable Unit No. 1, dated February 2007, prepared by the NYSDEC.

2. Multi-Site Order on Consent, Index No. D0-0002-9309, between the NYSDEC and New York State Electric and Gas (NYSEG) , executed on March 30, 1994. The NYSDEC and NYSEG the entered into a multi-site Consent Order on March 30, 1994.

3. "Cortland Including McGraw, Cortland County, New York," January 1926, Sanborn Map Company.

4. "Investigation of Former Coal Gasification Sites, Cortland/Homer Homer, New York, Task 2 Investigation Report, Initial Field Investigation Report, New York State Electric and Gas", July 1987, E.C. Jordan Co.

5. "Investigation of the Former Coal Gasification Site, Cortland/Homer Homer New York, Task 3 Report Expanded Problem Definition Program, New York State Electric and Gas Corporation", May 1989, E.C. Jordan Co.

6. "Historical Summary NYSEG Cortland/Homer Former MGP, Cortland County", April 2001, Stearns and Wheler.

7. "Supplemental Remedial Investigation (SRI) Work Plan, NYSEG Cortland/Homer Former MGP, Cortland County, New York", August 1999, Stearns & Wheler Corporation.

8. "Work Plan Addendum Supplemental Remedial Investigation Phase 2, NYSEG Cortland/Homer Former MGP, Cortland County, New York", June 2001, Stearns & Wheler Corporation.

9. "New York State Electric and Gas, Interim Remedial Measures Final Engineering Report, Storm Drain Construction Activities Adjacent to Cortland/Homer South Main Street (Route 11) Former Manufactured Gas Plant (MGP) Site", March 2002, NYSEG Licensing and Environmental Operations Department.

10. "Supplemental Remedial Investigation (SRI), NYSEG Cortland/Homer Former MGP, Cortland County, New York", December 2003, Stearns & Wheler Corporation.

11. "New York State Electric and Gas Corporation, Former Cortland/Homer Former Manufactured Gas Plant, Homer, New York, Feasibility Study Report", April 2004, URS Corporation.

12. February 15, 2007 Fact Sheet/Notice for Proposed Remedy, Public Meeting and Comment Period