Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

NIMO - HARBOR POINT PROPERTY
OPERABLE UNIT No. 1 - Peninsula
Site No. 6-33-021
NEW YORK TAR EMULSION PRODUCTS SITE
Site No. 6-33-031
MOHAWK VALLEY OIL SITE
Site No. 6-33-032

March 2002

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

DECLARATION STATEMENT - RECORD OF DECISION

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Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the following three class 2 inactive hazardous waste disposal sites:

- NIMO - Harbor Point Property, Operable Unit No. 1
- New York Tar Emulsion Products Site
- Mohawk Valley Oil Site

The ROD was chosen in accordance with the New York State Environmental Conservation Law. The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the three inactive hazardous waste sites and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from these sites, if not addressed by implementing the response action selected in this ROD, present a current or potential significant threat to public health and the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation/Feasibility Study (RI/FS) for the three inactive hazardous wastes and the criteria identified for evaluation of alternatives, the NYSDEC has selected several actions in combination to address contamination. The components of the remedy are as follows:

- excavation and on-site low temperature thermal treatment of approximately 115,000 cubic yards of contaminated soil;

- containment of the highly contaminated Water Gas Plant area of the Niagara Mohawk site, with a barrier wall and cap, along with groundwater extraction and treatment;
- consolidation and capping of purifier wastes in the Water Gas Plant area from the Niagara Mohawk site;
- a two foot thick soil cover over approximately 40 acres of the peninsula area;
- soil vapor extraction and air sparging of groundwater in areas of higher volatile organic compound contamination;
- installation of NAPL recovery wells or trenches; and,
- institutional controls to limit development to nonresidential uses, prohibit groundwater use and ensure the integrity of the remedy, including a long-term monitoring program.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for these sites as being 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.

3/30/2002
Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

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Utica (C), Oneida County

March 2002

SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health has selected this remedy to address the significant threat to human health and the environment created by the presence of hazardous waste at the following class 2 inactive hazardous waste disposal sites:

- NIMO - Harbor Point Property - Operable Unit No. 1
- New York Tar Emulsion Products Site
- Mohawk Valley Oil Site.

As more fully described in Sections 3 and 4 of this document, operation of a former manufactured gas plant and other industrial operations at these sites have resulted in the disposal of hazardous waste which is toxicity characteristic for benzene, some of which was released or has migrated from the sites to the Mohawk River and Utica Harbor. These disposal activities have resulted in the following significant threats to the public health and the environment:

- a significant threat to human health associated with the potential for exposure to contaminated surface and subsurface soils and groundwater.

- a significant threat to the environment associated with contaminant levels in soil and groundwater at the site that result in potential significant adverse acute or chronic effects to benthic organisms and other wildlife.

- a significant threat to the environment associated with the migration of contaminants from the groundwater and subsurface soil at the three sites into the Mohawk River, harbor neck and Utica Harbor.

- a significant threat to the environment associated with the potential for migration or release of contaminants to the Mohawk River and Utica Harbor under flood conditions due to the presence of contamination at the surface of the sites within the regulatory floodway and floodplain on the Harbor Point peninsula. The regulatory floodway is the river and the adjacent land area which serves to drain water resulting from a flood.

- a significant threat to the environment associated with the contamination of the groundwater resource resulting from the presence of petroleum, coal tar, non-aqueous phase liquid (NAPL) and other contaminants in the subsurface.

In order to eliminate or mitigate the significant threats to the public health and the environment that the hazardous waste disposed at the sites has caused, the following remedy was selected:

- excavation and on-site low temperature thermal treatment of approximately 115,000 cubic yards of contaminated soil;

- containment of the highly contaminated Water Gas Plant area of the Niagara Mohawk site, with a barrier wall and cap, along with groundwater extraction and treatment;

- consolidation and capping of purifier wastes in the Water Gas Plant area;

- a two foot thick soil cover over approximately 40 acres of the peninsula area;

- soil vapor extraction and air sparging of groundwater in areas of higher volatile organic compound contamination;

- installation of NAPL recovery wells or trenches; and,

- institutional controls to limit development to nonresidential uses, prohibit groundwater use and ensure the integrity of the remedy including a long-term monitoring program.

The selected remedy, discussed in detail in Section 8 of this document, is intended to attain the remediation goals selected for this site, in Section 6 of this Record of Decision (ROD), in conformity with applicable standards, criteria, and guidance (SCGs).

SECTION 2: LOCATION AND DESCRIPTION

The NIMO - Harbor Point Property, Mohawk Valley Oil and New York Tar Emulsion Products Sites are all situated on the Harbor Point peninsula in Utica, New York (see Figures 1 and 2). The 100-acre, roughly triangular, peninsula is surrounded on two sides by water, via the

intersection of the Utica Harbor to the east and the Mohawk River to the west. The third (southern) side is bounded by an active railroad. Area topography is flat, with the entire peninsula lying within the 100-year floodplain. Approximately one-half of the peninsula also lies within the regulated floodway (see Figure 3). The majority of the peninsula has not been used within the last 30 years and plant life succession is occurring in many areas, although surface wastes have inhibited growth in some locations. Only two buildings remain from the gas-plant era; these are located on the Mohawk Valley Oil Site. A motor vehicle repair shop conducts business in one of these buildings while the other is vacant. Although few aboveground structures exist, numerous foundations and inactive pipelines lie below the surface. The nearest residential area is a multi-family public housing complex located across the railroad tracks, about 500 feet beyond the southern-most site boundary.

The NIMO - Harbor Point Property Site is adjacent to a forth Class 2 inactive hazardous waste disposal site, the Monarch Chemical Company Site. In March 2001, the NYSDEC issued a Record of Decision for the Monarch Chemical site requiring, among other items, soil vapor extraction of the groundwater contaminant source, hydraulic control and treatment of the groundwater contaminant plume, a soil cover and institutional controls. Contaminants of concern at the Monarch Chemical site are certain chlorinated and nonchlorinated volatile organic compounds and polycyclic aromatic hydrocarbons in soil and groundwater.

The New York State Canal Corporation is the primary user of Utica Harbor, which defines the eastern side of the peninsula. The Canal Corporation operates a canal maintenance facility on the southern and eastern sides of the harbor on property which is owned by New York State. On the other side of the Mohawk River, to the north and west of the peninsula are the Utica Marsh and three former dredged sediment disposal areas. Contamination attributable to the sites has been identified in the harbor, river and dredge spoil areas.

To facilitate the development of a remedy for the peninsula, Utica Harbor, the Mohawk River, and the dredge spoil areas, the NIMO Harbor Point Site was divided into three subareas, called operable units (See Figure 13). Operable Unit 1 consists of the Niagara Mohawk site. The affected Mohawk River is considered Operable Unit 2. Operable Unit 3 of the Niagara Mohawk site consists of the Utica Harbor and harbor neck, three dredge spoils disposal areas, the Washington Street storm sewer and several storm sewer lines located on Niagara Mohawk property. The NYSDEC's ROD (March 2001) for Operable Unit 3 calls for, among other items, placement of a sediment cap in the harbor, contaminated soil removal in dredge spoil area 1, soil covers at dredge spoil areas 1 and 2, and institutional controls. There are certain elements of the Operable Unit 3 ROD which will have to be incorporated into Operable Unit 1, these are discussed in Section 8.

No operable units have been designated for the Mohawk Valley Oil and New York Tar Emulsion Products Sites.

SECTION 3: HISTORY

3.1: Operational/Disposal History

In the 1920s, the Harbor Point peninsula was the location of the largest energy-producing complex in North America. Today, four inactive hazardous waste disposal sites and several other contaminated parcels, are situated on the peninsula. These sites are identified in Table 1 and shown on Figure 2. The following sites are addressed by this PRAP:

1. NIMO - HARBOR POINT PROPERTY : On this 72 acre parcel gas was manufactured from coal from approximately 1848 to the early 1950s. Gas was produced utilizing both the coal carbonization and the water gas processes. Wastes generated in the gas production were often used as raw materials by other chemical processors, also located on the peninsula. This site is the largest property on the peninsula and since 1950 has been owned by Niagara Mohawk, a National Grid Company, with the exception of a fringe area along the water bodies owned by the New York State Canal Corporation. Prior to 1950, the Utica Gas and Electric Company owned and operated the site.

2. MOHAWK VALLEY OIL (MVO): From 1926 to 1951 a plant located on the east side of this site refined the light oils generated during the NIMO Harbor Point gas production into gasoline and toluene. Tanks containing Number 6 oil were also present at the light oil plant. Located in the middle of the MVO site, during approximately the same time period, the Rosselli Tar Asphalt Services reportedly received tar from the Koppers Company. Petroleum bulk storage terminal operations existed at the western end of the Mohawk Valley Oil Site. Texaco, or other companies stored gasoline, number 2 fuel oil and other fuels here. All MVO site storage tanks were removed by the mid-1980s. This site is comprised of three parcels: the former Niagara Flats Terminal, the former Rosselli Associates Tar Asphalt Services and the former Texaco Terminal.

3. NEW YORK TAR EMULSION PRODUCTS SITE (NYTEP): Starting in 1926, the American Tar Products Company and later the Koppers Company used raw coal tar obtained from the NIMO Harbor Point gas production to produce road tars at this location. After 1955 raw coal tar was delivered to the NYTEP site from other locations, by barge via the Utica Harbor. Operations at NYTEP ceased in 1983.

Waste disposal is believed to have occurred at these sites as part of the typical industrial operations which required the wastes to be removed from the system. In addition, contaminants were also likely released to the environment through breaks or leaks in plant containment structures or piping.

3.2: Remedial History

Investigation of environmental conditions at the peninsula were initiated by Niagara Mohawk beginning in 1983 initially focusing on the Niagara Mohawk site, the Utica Harbor and Mohawk River. In 1985 the Niagara Mohawk site was classified by the NYSDEC as a Class 2 inactive

hazardous waste disposal site, meaning a significant environmental or public health threat existed and therefore action is required. The Niagara Mohawk site investigations continued through the 1990s, looking at additional contaminated or potentially contaminated areas. See Table 2 for a summary of the studies conducted at all three sites.

In addition to the investigations of the site, pilot-scale remedial demonstrations to evaluate potential innovative remedial technologies, including the Thermal Desorption Demonstration, ABC Demonstration, Hot and Cold Mix Asphalt Demonstrations, Granular Activated Carbon-Fluidized Bed Reactor Demostration, Tank-Based Bioslurry Demonstration, and NAPL Recovery Demonstration were undertaken at the site, during the late-1990's. In addition, in the fall of 2001, the sanitary sewer force main, which was aligned through a purifier waste disposal area, was realigned due to the significant corrosion of the pipe as a result of contact with purifier waste. A emergency repair of a section of this force main which failed due to this corrosion occurred in 1995.

The NYSDEC conducted Phase I and Phase II investigations on the NYTEP Site from 1987 to 1992. Based on these investigations, the site was listed as a Class 2 site in 1997. Beazer East Inc., a successor to the Koppers Company, and Suit-Kote, the current owner of the New York Tar Emulsion Products Site (NYTEP) initiated a remedial investigation of that site in 1998. The investigation concluded in July 2001.

The NYSDEC conducted Phase I and Phase II investigations at MVO from 1987 to 1992. This site was also listed as a Class 2 site in 1997. Niagara Mohawk conducted a remedial investigation and feasibility study at the MVO site from 1994 to 1999.

SECTION 4: SITE CONTAMINATION

As highlighted in the previous section, several investigations were conducted to evaluate the contamination present and to evaluate alternatives to address the significant threat to human health and the environment posed by the presence of hazardous waste at the three inactive hazardous waste disposal sites which are the subject of this document.

4.1: Summary of the Remedial Investigations

The purpose of the investigations was to define the nature and extent of any contamination resulting from previous activities at the sites.

The investigations included the following activities:

Collection of over 100 surface soil samples;

Installation of over 200 soil borings and over 120 monitoring wells for analysis of soils and groundwater as well as physical properties of soil and hydrogeologic conditions;

Excavation of test pits to locate underground structures, and characterize shallow soils;

Collection and analysis of surface water;

Collection and analysis of sewer water and sediment;

Collection and analysis of NAPL.

To determine which media, such as soil and groundwater, are contaminated at levels of concern, the RI analytical data were compared to environmental standards, criteria, and guidance values (SCGs). Groundwater, drinking water and surface water SCGs identified for the Harbor Point peninsula are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part 5 of New York State Sanitary Code. For soils, NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 provides soil cleanup guidelines for the protection of groundwater, background conditions, and health-based exposure scenarios. In addition, for soils, site specific background concentration levels can be considered for certain classes of contaminants. Guidance values for evaluating contamination in sediments are provided by the NYSDEC "Technical Guidance for Screening Contaminated Sediments".

Based on the investigative findings, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the peninsula require remediation. These are summarized below. More complete information can be found in the reports identified in Table 2.

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

4.1.1: Site Geology and Hydrogeology

The Harbor Point peninsula is covered by a fill layer ranging from less than two feet to 15 feet thick. Among the materials within the fill are cinders, ash, coarse sand, gravel, brick and wood. The fill layer is underlain by glacial-era river (fluvial) sediments which can be divided into upper and lower units; these vary laterally and vertically in composition across the site. The upper river deposits consist of organic silts interbedded with clay and peat. A coarser grained lower river unit consisting of fine to coarse sand with some gravel is present below the upper zone. In the central and northern portions of the peninsula the river sediments are underlain by glacial lake (lacustrine) deposits consisting of silts and sands with discontinuous thin clay and gravel layers. The glacial deposits are underlain by a till layer and the shale bedrock. The till unit dips to the north; depth to the till layer ranges from approximately 27 feet in the south end of the peninsula to over 130 feet in the north end.

The units consist of many thin beds of varying grain size and clay content which change laterally. There are no massive, distinct confining units across the peninsula. The dense till below the

sediments, however, is distinct where encountered, and represents a lower boundary to the unconsolidated deposits.

Three hydrogeologic units were identified on the peninsula, primarily by variations in grain size and clay content, as well as permeabilities derived from slug tests. A shallow aquifer exists within the fill and upper river deposits; an intermediate aquifer exists within the lower river sands and gravel. Where the glacial lacustrine deposit is present, a third, deep aquifer exists. The water table varies from the ground surface to 12 feet below grade. There is a strong interconnection between the intermediate aquifer and the surface water bodies. Both the shallow and intermediate aquifers discharge to the surrounding surface water bodies. The intermediate aquifer was observed to be the most permeable unit.

The significance of the peninsula geologic features for remedy selection are: 1. Thin and discontinuous upper river deposits and the presence of sand seams in the upper deposits has allowed contamination of the intermediate aquifer, particularly in the southeast corner. 2. The low permeability of the glacial lacustrine unit, where present, has prevented contamination of the deep aquifer. 3. A shallower depth to the till in the south supports a containment remedy for that area. 4. A shallow water table and a lower aquifer with hydraulic connection to the surrounding river and harbor would require significant dewatering for large excavations below the groundwater table. 5. The presence of weak, compressible and organic soils from the ground surface to significant depths, when combined with the shallow groundwater table, may limit the depth of excavation.

4.1.2: Nature of Contamination

Two major types of waste materials are present on the peninsula: coal tars and purifier waste. Coal tars are reddish brown, oily liquids which do not readily dissolve in water. Materials such as this are commonly referred to as a non-aqueous phase liquid, or NAPL. Although most tars are slightly more dense than water, the difference in density is slight. Consequently, they can either float or sink when in contact with water. Tars were disposed, or spilled or leaked from tanks, gas holders, and other structures at several locations throughout the peninsula, and have moved laterally away from these locations through the subsurface. This lateral migration allowed tar to contaminate large areas of the three sites. The NAPL was found to saturate the unconsolidated deposits and/or exist in scattered, discontinuous globules.

Near the ground surface, some of the tars have weathered and partially solidified. In these areas (for example, on much of the NYTEP site and some portions of the Niagara Mohawk site) tar is found in thin crusts on the ground surface, and fresh seeps of tar can be readily seen breaking through the crust when the weather is warm enough to allow the tar to liquify. Elsewhere, the tars retain their original, oily fluid properties and may still be capable of moving slowly through the subsurface.

Purifier waste is a mixture of wood chips and iron filings which was used to remove sulfur and other compounds from the manufactured gas before the gas was distributed to the public. Purifier waste which no longer was capable of removing the impurities was often disposed on-

site. It contains high concentrations of sulfur and cyanide and has a characteristic blue color from ferri/ferrocyanides.

As well as being present by themselves, these waste materials are found mixed with peninsula soils and groundwater. As described in the reports, many waste materials, soil and groundwater samples were collected at the sites to characterize the nature and extent of contamination. The main categories of contaminants which exceed their SCGs are volatile organic compounds and semivolatile organic compounds. Specific volatile organic compounds of concern in soil and groundwater are benzene, toluene, ethylbenzene and xylenes. These are referred to collectively as BETX in this document.

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

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

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

Tars contain high levels of PAH compounds, often greater than 100,000 parts per million. Tars also exceed SCGs for BTEX by several orders of magnitude. In certain tar samples, enough benzene may be present to require that the material be managed as a hazardous waste.
As indicated in Table 3, peninsula soil (both surface and subsurface) and groundwater also exceeded SCGs for PAH and BTEX compounds.

There are certain other compounds and analytes which exceed SCGs, specifically certain chlorinated volatile organic compounds found at the Monarch Chemical Site and at the southern edge of MVO. The presence of these compounds is being addressed by the remedy selected in the Record of Decision for the Monarch Chemical site.

Higher levels of lead and arsenic were also found in the surface soils covering approximately one acre near the former coal gas plant (CGP). This area has been addressed by the surface soil IRM described in Section 4.2.

A few, (less than 10%), surface and subsurface soil samples contained phenol in excess of the SCG. The locations where the samples exceeded the SCG are also areas of elevated PAHs.

4.1.3: Extent of Contamination

Table 3 summarizes the extent of contamination for the contaminants of concern in soil and groundwater 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

Tar on the ground surface is apparent at the NYTEP and Niagara Mohawk sites. The surface area of the tar at these two sites is estimated to be 2.3 acres.

The areal extent of NAPL in subsurface soils is approximately 17 acres, with depths varying from the surface to as great as 40 feet, across all three sites as shown on Figure 4. The NAPL is contiguous across the three sites that are the subject of this PRAP.

NAPL was found as a measurable separate phase in monitoring wells located at the water gas plant and along the southern, western and eastern boundaries of the NYTEP site (see Figure 5). Generally measurable NAPL, (NAPL of sufficient volume present in a monitoring well such that its vertical thickness in the well can be measured), was more evident in the intermediate aquifer. Of the wells measured at Niagara Mohawk and MVO, well MW-505I, on Niagara Mohawk property adjacent to the NYTEP southern boundary, had the greatest thickness of NAPL, measuring 5.5 feet. This well also had the most rapid recovery of NAPL; 4.1 feet of NAPL was measured in the well following the removal of NAPL from the well the previous day.

Purifier waste was found in the surface and subsurface over an area of approximately six acres on the Niagara Mohawk site. As shown in Figures 3 and 4, a majority of purifier waste lies within the regulatory floodway. The purifier waste is present in the surface to shallow subsurface, generally less than seven feet below grade.

Soils

Surface (0-6" depth) Soils: Areas of greater PAH concentrations ranging from the hundreds of ppm to greater than one hundred thousand ppm were found in the surface soils generally in the central portion of the peninsula and in areas of surface tar and NAPL on all three sites (see Subtable 3.1).

BTEX in surface soils at all three sites was generally below TAGM 4046 guidance values. It is worth noting, however, that the surface soil samples analyzed to draw this conclusion were collected separate and distinct from visibly contaminated coal tar and NAPL areas on the surface.

Cyanide was found in concentrations as high as 101,000 ppm. Higher cyanide concentrations were co-located with purifier waste disposed on the Niagara Mohawk site.

Subsurface (>6" depth) Soils: Benzene was found as high as 810 ppm. (See Subtable 3.2). PAHs were found in concentrations up to 77,000 ppm. Higher concentrations were generally found above the first aquitard. In addition, BTEX was found in subsurface soils as high as 4,750 ppm.

Areas of high concentrations of BTEX and PAH corresponded to areas containing tar and NAPL, such as certain former industrial structures or by-product management areas. These areas are the:

- Niagara Mohawk Central Area
- Niagara Mohawk Coal Gas Plant (CGP) area
- Niagara Mohawk Water Gas Plant (WGP) area
- NYTEP
- MVO

See Figure 6 for the location of these areas.

As shown in Figure 4, NAPL-contaminated soils were identified within 100 feet of the Mohawk River or Utica Harbor at three locations. These are: the northeast side of MVO, the CGP area and in the Niagara Mohawk Lee Street Extension Outfall area. Flowable NAPL in monitoring wells located within 100 feet of the river or harbor was only observed at the Niagara Mohawk Lee Street Extension Outfall. NAPL-contaminated soils also extend from the WGP onto the Monarch Chemical Site.

Methylene chloride was detected up to 200 ppm in an area limited to the northern portion of the Mohawk Valley Oil Site. The compound was generally found within eight feet of the surface in an area also marked with high BTEX concentrations.

Groundwater

With the exception of the northern tip, groundwater in all areas of the peninsula exceeded groundwater quality standards for individual BTEX compounds (See Subtable 3.3). The areal extent of the three sites where groundwater exceeds standards for the contaminants of concern is approximately 60 acres.

The highest concentrations of benzene in the groundwater were identified at:

- Niagara Mohawk WGP area
- NYTEP
- Niagara Mohawk Central Gas Holder area
- Niagara Mohawk CGP area
- MVO, western-half

Benzene was detected in shallow aquifer monitoring wells in the aqueous phase at concentrations up to 7,600 ppb. Benzene in the intermediate aquifer was found in concentrations up to 21,000 ppb. Higher concentrations of benzene in the intermediate aquifer generally mirrored the benzene contamination in the shallow aquifer, except in the Niagara Mohawk CGP area. Total PAH concentrations in groundwater ranged from not detected to 215,000 ppb; naphthalene concentrations ranged from not detected to 54,000 ppb. Higher concentrations of PAHs in both the shallow and intermediate aquifers typically coincided with the higher concentrations of benzene and the presence of NAPL. Benzene was detected in the deep aquifer at a concentration of 3 ppb in the northern

portion of the Mohawk Valley Oil Site. No other exceedences of groundwater standards and guidance were found in the deep aquifer on any of the sites.

There are three areas on the peninsula where groundwater contaminants exceeding the SCGs discharge to the adjacent water bodies. These areas are the Lee Street Extension Sewer outfall, the CGP area, and the MVO Site.

Total cyanide was found in the groundwater at concentrations as high as 11,000 ppb in the shallow aquifer and 5,500 ppb in the intermediate aquifer, exceeding the class GA groundwater standard of 200 ppb. Higher concentrations of cyanide correlated with areas of purifier waste on the Niagara Mohawk site.

Surface Water

Because of the flat topography and limited outlets to the surface water bodies, pools of standing water form over a substantial portion of the central and southwest areas of the peninsula on the Niagara Mohawk site. To a lesser extent, ponding also occurs at MVO and NYTEP. The Mohawk River at Harbor Point is a Class C water quality classification. Class C SCGs of 10 ppb for benzene and 0.0012 ppb for benzo(a)pyrene were exceeded in a ponded area in the southwest corner of the peninsula, on the Niagara Mohawk site.

Storm Sewers

Investigation of the Mohawk River identified NAPL and higher concentrations of PAHs in the sediment in the vicinity of the Lee Street Extension sewer outfall. NAPL was also found in the soil in the vicinity of the Lee Street Extension sewer outfall adjacent to the river. Except for this outfall area, no NAPL was found adjacent to the river, nor was NAPL observed in borings along the bank of the harbor neck and Utica Harbor except in the vicinity of monitoring well MW-22 in the CGP area. NAPL was found, however, in the Washington Street storm sewer and in the sediments of Utica Harbor at the sewer outfall. The sewer is aligned through NAPL-laden soils along the western edge of the MVO site, before passing through the northern tip of MVO on the way to the Harbor, and intercepts a portion of the contaminated groundwater flow downgradient from all three sites. Although the Washington Street sewer will be remediated as part of the NIMO Harbor Point OU3 Record of Decision (March 2001), critical to the success of that remediation will be the prevention of recontamination of the new drainage system.

4.2: 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.

Niagara Mohawk has conducted the following IRMs at the NIMO Harbor Point Site (see Figure 7 for locations within the site):

1. Fire Training Area IRM: Several drums, tanks, transformer shells, as well as 28 tons of contaminated soil and other debris were removed in 1990 from the former fire training area, located in the west-central portion of the peninsula.

2. Lee Street Extension Sewer IRM: This storm sewer, which extended west from the NYTEP parcel to an outfall at the Mohawk River, was found to contain dissolved phase contaminants. In 1991 the sewer was plugged at the outfall and a cutoff wall was constructed in the fill surrounding the pipe.

3. Surface Soil IRM: To reduce potential worker exposure to contaminants in the surface soil, Niagara Mohawk fenced specific areas within their property in 1994. In addition, gravel was placed in the Niagara Mohawk equipment laydown area where elevated levels of lead and arsenic were found.

4. Site Security IRM: In 1992, to restrict access to their property and the Utica Harbor, construction of additional chain-link fencing and mending of existing fencing was completed.

5. Southwest Corner IRM: In 1994, purifier waste deposits existing on former Genesee Valley Transportation/Conrail property were consolidated with an adjacent purifier waste deposit on Niagara Mohawk property. Swales were constructed to divert surface water and a temporary cover was placed over the purifier waste deposit to minimize surface water and wildlife contact. Subsequent rupture and repair of a sanitary sewer force main running beneath the IRM area disturbed the integrity of this measure.

No IRMs have been conducted at the MVO or NYTEP sites.

4.3: 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 health risks can be found in Section 6 of the 1993 Supplemental Remedial Investigation, Harbor Point Site; Section 6 of the Remedial Investigation Report for the Expanded (Off-Site) RI at the Mohawk Valley Site and Section 5 of the Remedial Investigation/Risk Assessment Report, New York Tar Emulsion Products Site.

An exposure pathway is the manner by which an individual may come in contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

Considering the contaminated soil and groundwater at the surface and in the subsurface, the following pathways are known to, or may exist, at the peninsula:

- Exposure through direct contact and ingestion, of contaminated surface soil including coal tar/NAPL and purifier waste;

- Exposure through direct contact and ingestion of contaminated groundwater;

- Exposure through direct contact and/or ingestion of excavated subsurface NAPL, soil or groundwater; and,

- Exposure via the inhalation of contaminated fugitive dusts and volatile organic compounds.

The NYSDOH considers all of these pathways to be complete, with the exception of the exposure through ingestion of groundwater. This is considered a potential pathway and action will be required to prevent it from becoming a complete exposure pathway.

4.4: Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures and ecological risks which may be presented by the site. The Fish and Wildlife Impact Assessment included in the 1993 Supplemental Remedial Investigation, Harbor Point Site and the Remedial Investigation Report for the Expanded (Off-Site) RI at the Mohawk Valley Site, present a more detailed discussion of the potential impacts from the site to fish and wildlife resources. The following pathways for environmental exposure and/or ecological risks have been identified:

- Migration of contaminants to the Mohawk River and Utica Harbor through the discharge of NAPL and contaminated groundwater.

- Migration of contaminants to the Mohawk River and Utica Harbor through the erosion of contaminated site soils, from the regulatory floodway/floodplain that may be transported during a flood event.

- Direct contact by terrestrial flora and fauna to contaminated surface and subsurface soils including coal tar/NAPL and purifier waste, and surface water.

- Direct contact by benthic life to contaminated sediments resulting from the migration of NAPL and NAPL-contaminated soil to the surface water bodies.

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 NYSDEC has identified Niagara Mohawk as a PRP for the NIMO Harbor Point Site and two of the three parcels comprising the Mohawk Valley Oil Site. As the investigations progressed, Niagara Mohawk and the NYSDEC entered into several Orders on Consent as identified below:

Date	Index No.	Subject of Order
9/89	A6-0201-89-05	RI/FS
7/90	A6-020889-09	IRMs
6/91	A6-0260-91-04	IRMs
12/92	D6-0001-9210	RI/FS/RD/RA

The 1992 Order on Consent obligates Niagara Mohawk to implement a full remedial program at the Harbor Point Property and all off-site areas attributable to Utica Gas and Electric Company waste. Niagara Mohawk has acknowledged responsibility for the MVO Site except for the former Texaco Terminal parcel.

The NYSDEC also identified Beazer East Inc., and Suit-Kote Corporation as PRPs for the NYTEP site. The NYSDEC and Beazer East/Suit-Kote entered into a Consent Order on July 10, 1998. The Order obligates the responsible parties to implement, at a minimum, a RI/FS remedial program.

Niagara Mohawk has completed the RI/FS for the entire MVO site; however, Niagara Mohawk has only acknowledged responsibility for two of the three parcels comprising the site. The NYSDEC is currently in discussion with other past owners, operators, as well as owners and operators of adjacent properties regarding contribution to the remedial program at the site. The PRPs are subject to legal actions by the State for recovery of all response costs the State has incurred.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all Standards, Criteria and Guidance (SCGs) and be protective of human health and the environment. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The goals selected for these sites are:

Eliminate, to the extent practicable, the environmental threat associated with the migration of contaminated soil including coal tar/NAPL, purifier waste, contaminated groundwater, and contaminated surface water into adjacent Class C surface water bodies.

Eliminate, to the extent practicable, the potential human health and environmental impacts associated with contamination of the groundwater resource from the leaching of contaminants in soil and NAPL and the migration of NAPL. Return groundwater to NYSDEC Class GA Water Quality Criteria to the extent practicable.

Eliminate the potential human health and environmental impacts associated with human and terrestrial biota exposure to contaminated surface and subsurface soil, including NAPL, to the extent practicable.

Eliminate, to the extent practicable, ingestion of groundwater, which does not attain Part 5, public drinking water standards, of New York State Sanitary Code.

Eliminate, to the extent practicable, the threat to the environment posed by the presence of contaminants within the regulatory floodway.

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 laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the NIMO Harbor Point Site and the Mohawk Valley Oil Site were identified, screened and evaluated in the report entitled Revised Feasibility Study for the Harbor Point Site, November 1999. Investigation of the New York Tar Emulsion Products Site, revealed the same hazardous wastes released to and migrating through similar geologic and hydrogeologic conditions. This site also is completely surrounded by the NIMO Harbor Point site. Therefore, alternatives presented in the November 1999 Feasibility Study were evaluated for this site as well. The remedial objectives, particularly those objectives relating to the protection of the groundwater resource, can only be achieved efficiently through a holistic remedy applied to all three sites.

A summary of the detailed analysis follows. As presented below, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy, procure contracts for design and construction or to negotiate with responsible parties for implementation of the remedy.

7.1: Description of Remedial Alternatives

The potential remedies are intended to address the waste materials present, contaminated soils and groundwater at the sites.

Alternative 1: No Further Action

Capital Cost:	$ 0
Annual O&M:	$ 30,000
Present Worth:	$ 540,000
No Time needed to Implement	

This alternative recognizes remediation of the Niagara Mohawk site conducted under previously completed IRMs. Only continued monitoring would be necessary to evaluate the effectiveness of the remediation completed under the IRMs and no action would be required at MVO or NYTEP other than monitoring of current conditions. Groundwater quality would be monitored annually. For cost estimating purposes a 30 year time span is assumed.

This alternative would leave the sites in their present condition and would not provide any additional protection to human health or the environment.

Alternative 2: Limited Consolidation/ Provide Soil Cover, Cap Purifier Waste

Capital Cost:	$ 14 million
Annual O&M:	$ 58,000
Present Worth:	$ 15 million
Time to Implement	2 years

Under this alternative purifier waste located outside of the Niagara Mohawk Central Area would be consolidated to within the Niagara Mohawk Central Area. In addition, a soil cover would be placed over all three sites. Specifically, Alternative 2 would consist of the following actions:

1. Purifier waste from all areas of the Niagara Mohawk site, with the exception of the WGP area, would be excavated and consolidated within the Central Area beyond the regulatory floodway. Purifier waste in the Central Area, that is within the floodway, would also be consolidated in this area outside of the floodway (see Figures 4 and 6). The amount of purifier waste to be consolidated is estimated at 80,000 cubic yards (cyds).

2. Upon completion of the purifier waste consolidation, the consolidation area would be graded to appropriate design slopes and a low permeability cap would be constructed. The cap would satisfy the requirements of a final cover system specified in Part 360-2.15.d. The need for a gas collection system, however, would be evaluated during the remedial design.

3. A minimum two-foot thick soil cover would be placed over the Niagara Mohawk Central Area, the WGP, MVO and NYTEP. Approximately 45 acres would be covered in this manner. The soil cover would consist of clean imported fill and/or site soils or sediment treated to TAGM 4046 recommended soil cleanup objectives for individual BTEX and PAH compounds. Beneath the two-foot soil cover a commercial grade filter fabric would be installed to serve as a demarcation layer. The upper six inches of the soil cover would have to be of sufficient quality to support vegetation. The remedial design would evaluate the need for armoring or other stabilization of areas of the cover subject to possible erosion adjacent to the floodway. Acceptable alternatives to the soil cover would be sidewalks, parking lots, building footprints, or other approved strategies that provide a barrier to contact with the contaminated subsurface soils.

4. In the Niagara Mohawk Northern and Niagara Mohawk Southern Areas, surface soil beyond the area of the soil cover exceeding 10 ppm cPAHs would either be removed (approximately 6,000 cyds) or would be covered with two feet of clean fill (see Figures 9 and 11). A more complete characterization of the surface soil would be conducted during the remedial design process.

5. Groundwater quality would be monitored annually. For cost estimating purposes a 30 year time span is assumed.

6. At all three sites, institutional controls would be established. The institutional controls would include: deed restrictions to protect remedial features and restrict on-site groundwater use; a deed restriction to prohibit the site from being used for purposes other than appropriate recreational, industrial or commercial uses, as explained below, without the express written waiver of such prohibition by the NYSDEC and the NYSDOH; long term monitoring of site conditions; and routine maintenance operations, such as, fence repairs and lawn mowing. Appropriate industrial or commercial uses of the property would have to be consistent with

any applicable zoning ordinances, but would not include any enterprises that draw susceptible portions of the community to the properties for activities that may lead to exposures to residual site contamination (e.g. day care, child care, medical treatment facilities). Site monitoring would include a periodic survey of groundwater use in the area and efforts for early identification of any future threats to drinking water wells. An annual certification would be required to ensure the effectiveness of the engineering controls.

Alternative 3A: Source Removal (1,000 ppm PAHs), Barrier Wall, SVE/Air Sparge, Cover, On-site Soil Treatment

Capital Cost:	$ 38 million
Annual O&M:	$ 240,000
Present Worth:	$ 42 million
Time to Implement	3 years

This alternative would:

- contain all the NAPL at the former water gas plant;
- treat or remove all NAPL-contaminated areas at MVO;
- remove all NAPL within the Lee Street extension sewer outfall area of the floodway;
- treat all NAPL within 100 feet minimum of Utica Harbor and the harbor neck;
- remove approximately 20% of the remaining NAPL through excavation, and an additional amount of NAPL via recovery wells or trenches.

Alternative 3A would expand upon Alternative 2 to include additional active measures to address damage to the groundwater resource. Alternative 3A would include the following actions in addition to those detailed in Alternative 2:

1. Areas of both the Niagara Mohawk and NYTEP sites where the subsurface soil contains PAHs greater than 1,000 ppm or visual tar or NAPL in the top six feet of the site would be removed (see Figure 8). Soil piles, including but not limited to, those existing near the central gas holder and on the NYTEP site are not included in the depth measurement. Approximately 64,000 cyds of contaminated material consisting of all soil containing PAHs greater than 1,000 ppm, or visual tar or NAPL contaminated soil from the areas identified in Table 4 would be removed to a depth of six feet and treated. The 1,000 ppm PAHs threshold and six-foot excavation depth were determined through an analysis of which excavation scenario would achieve the greatest hazardous substance mass removal per amount of soil volume excavated, and consideration of the groundwater table. These areas do not include: the Lee Street extension sewer outfall area, the MVO Site or the WGP, which are discussed below. Soil with no visual indication of NAPL or tar and containing less than 1,000 ppm PAHs, located above areas meeting the removal criteria, may be stripped, stockpiled and backfilled within the excavations resulting from the removal.

2. In the area of the former Lee Street extension sewer outfall, all visual tar or NAPL contaminated soil or soil containing greater than 1,000 ppm PAHs, approximately 20,000 cyds, would be removed and treated regardless of depth.

3. In the former CGP Area, all visual NAPL contaminated soil and tar (approximately 5,000 cyds) associated with the sludge sump, scale, underground gasoline tank and water gas tar tank would be removed and treated.

4. At the Mohawk Valley Oil Site, all soil containing greater than 1,000 ppm PAHs or visual tar or NAPL contaminated soil, to a 9 foot depth would be removed and treated (approximately 11,000 cyds - see Figure 10). Given the proximity of MVO to Utica Harbor, in areas where soil would not be removed, yet the groundwater contains greater than 1 ppb benzene, an in-situ air sparging and soil vapor extraction (AS/SVE) system would be installed. The system would inject air into the groundwater in any of the aquifers where benzene is greater than 1 ppb, to promote the volatilization of BTEX and, to a limited extent, certain PAHs. The introduction of air would also enhance biodegradation of the BTEX and PAHs. The volatilized compounds would be recovered from the treatment by using a vacuum applied to the unsaturated soil zone. This vapor phase contaminant air stream will be treated to acceptable levels defined by NYSDEC Air Guide 1 prior to discharge to the atmosphere. A series of wellheads optimally spaced would be used for both injection and extraction. The treatment system would be operated until groundwater contaminant concentrations achieve groundwater standards, or until vapor concentrations reach asymptotic levels for a sustained period of time and continued operation of the treatment unit would not result in additional significant mass removal of contaminants.

5. The materials removed from the above areas would be treated on-site by a low temperature thermal desorption unit. The thermal desorption unit operating parameters would be determined, based on trial burns of representative site related contaminated media.. These parameters would be set so that the treated soil would be expected to achieve TAGM 4046 limits, with the exception of benzene, which would be 0.1 ppm. Once the operating parameters are determined, the system would be operated at these parameters at all times. During actual operation if treated soil does not achieve these limits, but is below 10 ppm total cPAHs and 0.1 ppm benzene, it could be utilized for backfill in areas which would be covered with the two foot soil cover.

   Treated soils which achieve TAGM 4046 levels or 0.1 ppm benzene could be used as backfill and as cover material in the two foot soil cover. The upper six inches of the soil cover would have to be of sufficient quality to support vegetation. Material imported for use as a backfill or as soil cover material would also satisfy the above criteria.

6. A series of NAPL recovery wells or trenches would be provided in the area of monitoring well MW-505I (see Figure 5 for location). The remedial design would determine the areal extent of NAPL recovery.

7. An AS/SVE system would be required in the area surrounding monitoring well MW-22 cluster, adjacent to the Utica Harbor, to address the contaminated groundwater discharging to the harbor. The primary objective of the system would be to reduce groundwater contaminant migration to the harbor. The area treated would not be required to extend more than 100 feet westward of the top of the harbor bank. Northern and southern limits would be near sample locations ESSB-066 and ESSB-064, where no coal tar or NAPL was observed. These limits would be verified during the design. The treatment system would be operated until groundwater contaminant concentrations achieve groundwater standards, or until vapor concentrations reach asymptotic levels for a sustained period of time and continued operation of the treatment unit would not result in significant mass removal of contaminants.

8. A barrier wall would be installed around the former WGP and a portion of the Monarch Chemical Site where PAH concentrations in soil are greater than 1,000 ppm (see Figure 11). This wall would extend into the underlying dense till present approximately 20 to 50 feet below ground surface in this area. Approximately 9,000 cyds of surface tar and NAPL-laden soils at the dripbox and tarwell would also be removed and thermally treated. This containment system would also include a low permeability cap that would satisfy the requirements of a final cover system specified in Part 360-2.15.d. The need for a gas collection system, however, would be evaluated during the remedial design. Groundwater from within the wall would be extracted and treated to maintain an inward hydraulic gradient within the wall. The remedial design would establish performance standards for this treatment and the design would also evaluate whether the existing NIMO Harbor Point Site treatment system would be sufficient for meeting these standards.

   It is worth noting that Niagara Mohawk is proceeding with a barrier wall IRM at the WGP, with a portion of the wall on the Monarch Chemical Site. This IRM is currently in the design phase; the final specifications for the wall have not been approved by the NYSDEC as of the issuance of this ROD.

9. Purifier waste from all areas of the peninsula to a depth of six feet would be excavated and consolidated to within the WGP barrier wall. The remedial design would determine the maximum limit of purifier material that could be placed within the wall. Any areas of purifier waste which could not be consolidated at the WGP would be consolidated within the Niagara Mohawk Central Area outside of the regulatory floodway. The purifier waste consolidated at the WGP would be capped with a low permeability cap as described in Alternative 2. The purifier waste consolidated in the Central Area, if any, would also be capped. The cap would satisfy the requirements of a final cover system specified in Part 360-2.15.d. The need for a gas collection system, however, would be evaluated during the remedial design.

   A two foot thick soil cover would be provided over the areas where purifier waste was removed, as detailed in item 4 of Alternative 2.

The remedial design would evaluate whether areas that contain co-mingled purifier waste and NAPL contaminated soil or soil containing PAHs greater than 1,000 ppm could be thermally treated.

- A mitigation plan would be developed and implemented for wetlands adversely impacted by the remedy.

- Flowable tar within the existing abandoned and plugged Lee Street Extension Sewer would be removed.

Unlike Alternative 2, Alternative 3 would remove highly contaminated soil to a depth of at least six feet below the soil cover. Thus, although compliance with the Operation and Maintenance Plan would be required for site excavations, this alternative would be more conducive than Alternative 2 to the placement of foundations and subsurface structures in certain areas, such as those needed for nonresidential development.

Thermal treatment is highly effective in reducing contaminant levels for the particular hazardous substances found in former MGP Site soils and sediments such BTEX and PAHs. During a 1993 technology demonstration at the NIMO Harbor Point Site, approximately 10,000 cubic yards of coal tar contaminated soil was successfully treated by low temperature thermal desorption (LTTD). Comparison of the feed and treated soil showed an average destruction and removal efficiency of 99.7 % for BTEX and 98.6 % for PAHs.

Soils would be treated by LTTD in the following manner:

- Contaminated soil would first be screened of debris (eg. pipes, reinforced concrete) and large objects (eg. cobbles, brick) and homogenized. Other soil may be blended in to optimize moisture content and prevent clumps.

- Soil would be fed by a conveyor with a weigh scale into a rotating drum or kiln (about the size of a tractor-trailer) heated to 600 - 1,100 F. The heating causes contaminants to be released from the soil. The feed rate and kiln temperature are monitored continuously.

- The contaminants, now in the gas phase, pass into a afterburner which are destroyed through combustion at 1,400 to 2,000 F.

- The gas is cooled and particulates are removed prior to exit out the stack. Water vapor from the cooling process comprises a large percentage of the exit gas. During the operation, stack gases would be continuously monitored for nitrogen oxides, sulfur dioxide, total petroleum hydrocarbons and other parameters.

- The soil exiting the unit would be analyzed in batches to determine if established treatment levels have been achieved. If the soil exceeds the treatment level(s), it would be reintroduced into the unit for additional treatment.

Alternative 3B: Source Removal (500 ppm PAHs), Barrier Wall, SVE/Air Sparge, Cover, On-site Soil Treatment

Capital Cost:	$ 55 million
Annual O&M:	$ 240,000
Present Worth:	$ 59 million
Time to Implement	4 years

Alternative 3B would modify Alternative 3A by requiring excavations to be delineated by 500 ppm PAHs rather than 1000 ppm PAHs. The 500 ppm PAHs concentration is consistent with the TAGM 4046 guidance value of 500 ppm total semivolatile organic compounds. Specifically, Alternative 3B would modify Alternative 3A in the following areas:

1. For the Niagara Mohawk and NYTEP sites approximately 109,000 cyds of contaminated material consisting of all tar, NAPL contaminated soil and soil containing PAHs greater than 500 ppm would be removed to a depth of six feet and treated.

2. Within the area defined as the regulatory floodway, including the area of the former Lee Street extension sewer outfall, approximately 20,000 cyds of all tar, NAPL contaminated soil and soil containing greater than 500 ppm PAHs would be removed and treated regardless of depth.

3. At the Mohawk Valley Oil Site, approximately 25,000 cyds would be removed and treated to a 9 foot depth.

Thus, this alternative would require excavation of about 174,000 cyds, an additional 59,000 cyds as compared to Alternative 3A.

Alternative 4: Remove All Soil Containing Contaminants Greater Than TAGM 4046 Values, On-site Soil Treatment

Capital Cost:	$ 260 million
Annual O&M:	$ 46,000
Present Worth:	$ 260 million
Time to Implement:	8+ years

Under this alternative an estimated 1.2 million cyds of soil containing BTEX or PAH concentrations in excess of individual TAGM 4046 values would be removed at all three sites. Removal would occur over approximately 70 acres to depths of 40 feet. Removal would also include all purifier waste, coal tar or NAPL deposits. Removed soil would be thermally treated on-site. Purifier waste would be appropriately disposed of off-site.

No actions would be taken under this alternative to treat the groundwater in excess of drinking water quality standards. A long-term groundwater monitoring program would be included with this

alternative, until monitoring data shows compliance with groundwater standards. An institutional control would be required prohibiting the use of groundwater.

This alternative would have no restriction on future land use of the sites.

7.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each of the criteria, a brief description is provided, followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is included in the Feasibility Study. The first two evaluation criteria are termed threshold criteria and must be satisfied in order for an alternative to be considered for selection.

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance.

By removing all soil at the sites above individual compound TAGM 4046 recommended soil clean-up objectives, Alternative 4 would comply with soil SCGs. This same alternative would leave groundwater initially exceeding SCGs, however, with all contaminated soil removed, the groundwater contaminants would be expected to attenuate through time to concentration levels satisfying the SCGs. Alternatives 1, 2 and 3A would not satisfy soil or groundwater SCGs at the sites, but would likely satisfy groundwater SCGs at the downgradient perimeter, over time. Contaminated soil and groundwater would remain at the sites with concentrations of hazardous substances exceeding SCG levels. Alternative 3B would satisfy soil SCGs for total semivolatile compounds, but not groundwater SCGs. Thus, a hierarchy is evident among alternatives 1, 2, 3A and 3B. Alternative 3B would be closest to achieving the soil SCGs, followed by Alternative 3A, then Alternative 2, and lastly Alternative 1. Alternative 1 would include no effort to achieve SCGs, since the completed IRMs on the Niagara Mohawk property did not achieve the SCGs. Regarding groundwater compliance with SCGs, Alternative 2 would improve upon Alternative 1 by removing cyanide-leaching purifier waste from the floodway and capping, thus some amelioration of the groundwater would be expected. Alternatives 3A and 3B would further improve upon Alternative 2 by removing, to the extent practicable, those materials containing the highest concentrations of contaminants. Contamination of the groundwater originates or is exacerbated at these soil and NAPL hot spots. In Alternatives 3A and 3B, the removal of an estimated 115,000 cyds (3A) or 174,000 cyds (3B) of the highest concentrations of hazardous substances, the removal of recoverable NAPL and air sparging/SVE in critical areas would reduce the contaminant leaching to groundwater currently occurring at the sites. Thus, Alternatives 3A and 3B, as compared to Alternatives 1 and 2, would improve the groundwater quality to a point of closer compliance with groundwater standards by the removal of soils containing the highest concentrations of contaminants, resulting in the removal of a greater mass of contaminants. Alternative 3B would provide marginally greater groundwater protection as compared to Alternative 3A by removing an additional 59,000 cyds of soil containing from 500 ppm PAHs to 1,000 ppm PAHs. Any remediation in the floodway and

floodplain, for all Alternatives would have to comply with the requirements of Executive Order 11988 (Flood Management).

2. 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. In New York State, environmental protection encompasses groundwater quality protection since groundwater is a statutorily-defined component of the State's environment.

Alternative 1 would not be protective of public health and the environment, since with no additional remedial measures, the significant threat to human health and the environment would continue to exist. The current exposure pathways threatening human health, such as the ability to contact tar on the surface, would continue to exist under this alternative. By providing a cover, and restricting land and groundwater use, Alternatives 2, 3A and 3B would be protective of the public health. Alternative 2, however would not be as protective of public health and would not be protective of the groundwater resource, as compared to Alternatives 3A and 3B. The provision of source removal, barrier wall, air sparging/SVE and NAPL recovery measures in Alternatives 3A and 3B would provide significantly greater environmental protection in addition to eliminating public health exposure. By removing all contaminated soil above TAGM recommended soil cleanup objectives, Alternative 4 would be the most protective of public health and the environment.

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.

Potential adverse impacts would likely be greater with increasing contaminated soil movement and disturbance, where the soil could become airborne as fugitive dust or could become suspended in run-off and be transported to water bodies. The adverse impacts would be considered potential, as remedial construction requires measures to prevent fugitive emissions and run-off. Thus, the potential for short-term construction-related impacts would be minimal with Alternative 1 and greatest with Alternative 4, with Alternatives 2, 3A and 3B falling between these extremes. The contaminated soil consolidation and excavation components proposed in Alternatives 3A and 3B may result in a greater potential adverse impact as compared to Alternative 2. The on-site thermal desorption of contaminated soil as a component of Alternatives 3A, 3B and 4 would be expected to minimize potential short-term adverse impacts that would otherwise be created by the hauling of contaminated soil via thousands of truck trips from the site onto public roadways. The treatment unit would be required to have emission control devices which would minimize air emissions. The expanse of land available on the Niagara Mohawk property would attenuate the noise generated by the unit and supporting construction equipment. The use of partially or fully enclosed structures during treatment would further minimize the migration of contaminants.

With no further action, Alternative 1 would never achieve the remedial action objectives: leaching of hazardous substances into the groundwater resource and migration of contaminants into the surface water bodies would continue unabated; potential human exposure to probable carcinogenic PAHs and other contaminants would continue to exist. As a consequence, no development could occur with Alternative 1. Alternative 4 would achieve those remedial objectives relating to groundwater protection sooner than Alternatives 2, 3A and 3B since Alternative 4 would remove all sources of groundwater contamination. Alternatives 2, 3A and 3B would be more effective than Alternative 4 in the short-term with regard to eliminating exposure pathways and allowing redevelopment, because of the long remedial construction period anticipated (more than eight years) with Alternative 4. Alternative 3 would achieve the remedial objectives sooner than Alternative 2. While Alternatives 2, 3A and 3B would eliminate exposure pathways, Alternatives 3A and 3B would achieve the objectives relating to groundwater protection much sooner through the use of contaminated soil and NAPL removal, a barrier wall and in-situ groundwater treatment.

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 controls intended to limit the risk, and 3) the reliability of these controls.

The remedial alternatives in this PRAP are presented in ascending order of long-term effectiveness and permanence. Alternative 1 would not be effective in the long-term; the significant threat to human health and the environment would remain as no active mitigation measures would be undertaken to address the contaminated soil and groundwater as well as the human and environmental exposure routes. Alternative 2 would improve upon Alternative 1 by preventing public health and terrestrial exposures through the use of a soil cover. The long-term effectiveness of Alternative 2 is limited, however, as NAPL and higher concentrations of BTEX and PAHs, which would be removed under Alternatives 3A, 3B and 4, would remain at the sites contributing to the groundwater resource contamination. Alternatives 3A and 3B would provide greater long-term effectiveness and permanence than Alternative 2. In addition to eliminating public health and terrestrial exposure pathways to site contamination, Alternatives 3A and 3B would permanently reduce the mass of material acting as a source of groundwater contamination. By removing approximately 59,000 additional cyds of contaminated soil, Alternative 3B would provide a slightly higher degree of permanance than Alternative 3A. Also, this alternative's destruction by thermal desorption of a significant mass of toxic contaminants to harmless substances ensures permanence to the remedy. By removing and destroying via LTTD, all soil exceeding TAGM 4046 guidance values, Alternative 4 would be the most effective in achieving the remedial goals and would most ensure the permanence of the remedy.

Federal regulations also require that, "when restoration of groundwater to beneficial uses [such as a potable water supply] is not practicable, [expectations of the remedy are to] prevent further migration of the contaminant plume, prevent exposure to contaminated groundwater, and evaluate further risk reduction". Alternatives 3A, 3B and 4 would satisfy this requirement whereas Alternatives 1 and 2 would not. The provision of a barrier wall at the WGP, use of air sparging/SVE, and the use of NAPL recovery wells as components of Alternatives 3A and 3B would

prevent further migration of the plume. The removal or treatment of NAPL from key areas such as the shallow subsurface, the floodway area at the Lee Street extension sewer outfall, and vicinity of the Barge Canal/Utica Harbor would reduce the migration of NAPL into surface water bodies by 1) providing a greater distance between the NAPL that would remain at the site and the water body and 2) reducing pressure on the NAPL (NAPL head) remaining in the subsurface. The removal of NAPL would also provide greater risk reduction by providing a greater clean buffer zone between environmental and human receptors and NAPL remaining in the subsurface during post-remedial development.

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.

Similar to criteria 4 above, the remedial alternatives in this PRAP are presented in ascending order of their ability to reduce the toxicity, mobility and volume of the wastes at the sites. There would be no measures in Alternative 1 to reduce the toxicity, mobility and volume of the waste, beyond the completed IRMs. Alternative 2 would provide some reduction in the mobility of the waste by consolidating purifier waste out of the floodway. In addition, Alternative 2 would provide a cover over the waste thus reducing the mobility of the waste via wind, leaching and/or erosion. Alternatives 3A and 3B would include the limited mobility reductions of Alternative 2, plus more significant measures to isolate, extract and treat the contaminated groundwater at the WGP via the barrier wall. In addition, the volume and toxicity of a significant portion of the contaminant mass would be reduced in Alternatives 3A and 3B through the thermal treatment of approximately 115,000 and 174,000 cyds of contaminated soil and NAPL respectively. Although Alternative 3B removes a substantially greater volume as compared to Alternative 3A, the additional volume proposed in Alternative 3B contains a comparatively lower concentration of contaminants; that is, the additional volume would consist of soil concentrations less than 1,000 ppm PAHs. The additional volume that would be removed under Alternative 3B would remove less than 10% additional contaminant mass being removed under Alternative 3A. Also, Alternative 3B would not remove any additional NAPL as compared to Alternative 3A. The installation and maintenance of NAPL recovery wells under this alternative would also permanently reduce the volume in the subsurface over time. Alternative 4 would provide the greatest and nearly complete reduction in toxicity, mobility and volume of the waste. Under this alternative, the entire volume of waste exceeding TAGM 4046 requirements would be removed and thermally treated except for purifier waste which would be disposed of off-site. Only contaminated groundwater would remain, which would be expected to attenuate in toxicity and volume over time.

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

Alternatives 1 thru 4 are presented in increasing difficulty to implement. Alternative 1 would be the most technically feasible of the alternatives as no construction would occur with this alternative. Alternative 2 would be more difficult to implement than Alternative 1. Alternative 2 would,

however, be considered a technically feasible earth-moving remedy, capable of being completed with conventional construction equipment and techniques. Alternatives 3A and 3B would include some technical challenges in addition to Alternative 2, but these alternatives would still be implementable. The installation of a barrier wall requires designers and contractors experienced in this particular type of construction. The AS/SVE operations may require a pilot test for optimal effectiveness. Alternative 4 would be the most difficult to implement. The vast area requiring excavations to depths of 20 to 40 feet would require extensive shoring. To dewater the excavation, a sustained pumping rate of 300 gpm for over 300 weeks (6 years) would be required. This water would require subsequent treatment. Dewatering rates, excavation rates and thermal desorption rates would require synchronization to prevent costly construction delays.

There would be several administrative aspects to consider in the evaluation of alternatives. These include: the establishment of deed restrictions, including restrictions on property not owned by any of the PRPs; coordination of the project among the various PRPs; communication with the U.S. Army Corps of Engineers regarding the mitigation of federal wetlands and communication with various agencies regarding cut and fill activities within the regulatory floodway. With these considerations, Alternative 1 would be the most administratively feasible alternative. The other alternatives would not be precluded by this criteria, however.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. A remedy is cost effective if its costs are proportional to its overall effectiveness. The costs for each alternative are presented in Table 5.

Alternative 1 would be the least costly alternative. However, Alternative 1 provides no additional environment or human health benefit beyond the completed IRMs and thus would not be considered cost effective. Alternative 4 would also not be cost effective as the cost to remove and treat all soil contaminated above TAGM 4046 guidance would not be proportional to the benefit gained by the additional removal. Alternative 3A would be cost effective. In alternative 3A, the 1,000 ppm PAH soil concentration, which triggers soil removal over most of the peninsula was developed from an evaluation of the lowest soil concentration which could be removed without a disproportionate increase in cost. Thus, not only would Alternative 3A maximize the practical extent of groundwater source removal, it also would target removal of the most concentrated waste, that is, the NAPL and soils which have the most hazardous substances present per volume. It is the waste with the highest concentrations which provides the greatest hazardous substance loading to the groundwater. Although Alternative 3B would achieve the SCG of 500 ppm PAHs for at least the upper six feet of soil for all three sites (except for the WGP where it would be contained), the alternative would be one and one-half times more costly than Alternative 3A without a proportional gain in environmental and public health protectiveness. Alternative 3B would remove about one and one-half times more soil than Alternative 3A, but would not remove any additional soil containing NAPL and would remove less than 10% additional contaminant mass. As the NAPL-laden soil and soil with higher concentrations contribute the bulk of contaminant groundwater loading, only marginal restoration of the groundwater would occur with Alternative 3B as compared to Alternative 3A. Also,

Alternative 3B would not provide any additional reduction in public health exposure as compared to Alternative 3A. Thus, Alternative 3A would be the most cost effective of the alternatives.

The following 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 Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary" included as Appendix A presents the public comments received and the Department's response to the concerns raised.

In general the public comments received were supportive of the selected remedy. Several comments were received from PRPs for the sites, however, pertaining to: details of the remedy for which they were seeking clarification or modification; clarification of statements made or inaccuracies; and, challenges to the basis/support for statements made by the PRAP.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based upon the results of the Remedial Investigations and Feasibility Study, and the evaluation presented in Section 7, the NYSDEC is selecting Alternative 3A as the remedy for these sites.

This proposal is based on the evaluation of the alternatives to the criteria presented in Section 7.2. In addition, according to USEPA's *Presumptive Response Strategy and Ex-Situ Treatment Technologies for Contaminated Groundwater at CERCLA Sites*, EPA views dense NAPLs as a principle threat because they are sources of toxic contaminants to groundwater. For this reason NYSDEC expects to remove or treat dense NAPLs to the extent practicable in accordance with the NCP expectation to use treatment to address the principle threats posed by a site, wherever practicable. Therefore, EPA generally expects that the long-term remedy will control further migration of contaminants from subsurface DNAPLs to the surrounding groundwater and reduce the quantity of DNAPL to the extent practicable.

As evaluated in Section 7.2, the alternatives considered for selection are presented in order (i.e., Alternative 1, Alternative 2, Alternative 3A, Alternative 3B, Alternative 4) of increasing satisfaction of the threshold and modifying criteria, except for the implementability criterion. Alternatives 3B and 4 however, were not proposed because the alternatives were not considered cost effective nor implementable as discussed in Section 7.2. Alternative 3A is thus selected as the remedy.

Alternative 3A will be protective of public health and the environment and will satisfy the remedial objectives. In addition, Alternative 3A controls further migration of contaminants from surface and subsurface NAPL to the extent practicable and reduces the quantity of NAPL to the extent practicable. Thus, Alternative 3A will also be the most consistent with federal and state guidance regarding sites with dense NAPL present.

The estimated present worth cost to implement the remedy is $42 million. The cost to construct the remedy is estimated to be $38 million and the estimated average annual operation and maintenance cost for 30 years is $240,000. The estimated total costs for each site are:

NIMO - Harbor Point Property, Operable Unit No. 1 . . . . . $ 34,000,000
New York Tar Emulsion Products Site . . . . . $ 5,300,000
Mohawk Valley Oil Site . . . . . $ 3,100,000

The elements of the selected remedy, applicable at all three sites except where a specific area is identified, are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, health and safety, operation maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS will be resolved and appropriate removal area delineation, pilot testing or other evaluations undertaken. The remedial design will consider off-site disposal option(s) of a portion of the waste to be generated, if determined to be cost effective and facilitate construction of the remedy.

2. Areas of both the Niagara Mohawk and NYTEP sites where the subsurface soil contains visual tar, NAPL or PAHs greater than 1,000 ppm in the top six feet of the site will be removed. Soil piles, including but not limited to, those existing near the central gas holder and on the NYTEP site are not included in the depth measurement. Approximately 64,000 cyds of contaminated material consisting of all visual tar, NAPL contaminated soil and soil containing PAHs greater than 1,000 ppm, from the areas identified by Table 4, and as shown on Figure 8, will be removed to a depth of six feet and treated. Visual tar or NAPL, as defined for this ROD, is soil found to be saturated with NAPL, or have visually observable separate phase product. Soils exhibiting odors, staining and/or sheens will not be considered for removal as visual tar or NAPL. Soils exhibiting odors, staining and/or sheens will however be removed if found to exceed the 1000 ppm PAH criteria. The limits of excavation will be defined during the pre-design investigation.

   These areas do not include: the Lee Street extension sewer outfall area , the MVO Site or the WGP, which are discussed below. Soil with no visual indication of NAPL or tar and containing less than 1,000 ppm PAHs, located above or between areas meeting the removal criteria, may be stockpiled and reused as backfilled within the excavations resulting from the removal. Also not subject to the removal requirements are the locations of active gas and electrical infrastructure, vital to the City of Utica, which remain on the Peninsula. The remedy will not require utility relocation, in areas otherwise meeting removal criteria, and recognizes that reasonable setbacks may be necessary.

3. Excavation in the area of the former Lee Street extension sewer outfall will remove all visual tar or NAPL or soil containing greater than 1,000 ppm PAHs, regardless of depth (see Figure 10). Approximately 20,000 cyds., are expected to be removed from this area.

4. In the former CGP Area, all NAPL contaminated soil and tar (approximately 5,000 cyds) associated with the sludge sump, scale, underground gasoline tank and water gas tar tank will be removed and treated (see Figure 8).

5. At the Mohawk Valley Oil Site, all soil containing greater than 1,000 ppm PAHs, or visual tar or NAPL contaminated soil, to a 9 foot depth will be removed and treated (approximately 11,000 cyds - see Figure 10). Given the proximity of MVO to Utica Harbor, in areas where soil will not be removed, yet the groundwater contains greater than 1 ppb benzene, an in-situ air sparging and soil vapor extraction (AS/SVE) system will be installed. The system will inject air into the groundwater in any of the aquifers where benzene is greater than 1 ppb. The area to be addressed by the system will be delineated during the design. The volatilized compounds will be recovered from the treatment by using a vacuum applied to the unsaturated soil zone. This vapor phase contaminant air stream will be treated to acceptable levels defined by NYSDEC Air Guide 1 prior to discharge to the atmosphere. A series of wellheads optimally spaced will be used for both injection and extraction. The treatment system will be operated until groundwater contaminant concentrations achieve groundwater standards, or until the Department determines vapor concentrations have reached asymptotic levels for a sustained period of time and continued operation of the treatment unit would not result in significant mass removal of contaminants The treatment system will be operated if it continues to provide treatment of groundwater before discharge to the surface water body.

6. The materials removed from the above areas will be treated on-site by a low temperature thermal desorption unit. The thermal desorption unit operating parameters will be determined, based on trial burns of representative site related contaminated media.. These parameters will be set so that the treated soil would be expected to achieve TAGM 4046 limits, with the exception of benzene, which will be 0.1 ppm. Once the operating parameters are determined, the system will be operated at these parameters at all times. During actual operation if treated soil does not achieve these limits, but is below 10 ppm total cPAHs and 0.1 ppm benzene, it could be utilized for backfill in areas which will be covered with the two foot soil cover.

   Treated soils which achieve TAGM 4046 levels or 0.1 ppm benzene can be used as backfill and as cover material in the two foot soil cover. The upper six inches of the soil cover will have to be of sufficient quality to support vegetation. Material imported for use as a backfill or as soil cover material will also satisfy the above criteria.

7. A series of NAPL recovery wells or trenches will be provided in the area of monitoring well MW-505I (see Figure 5 for location). The remedial design will determine the areal extent of NAPL recovery along with criteria for determining when recovery efforts can be terminated. This will be a passive system, with the ability to upgrade the system to an active or partially active system should tar production by individual collection wells or trenches warrant such an upgrade during the recovery period.

8. An AS/SVE system will be required in the former CGP area adjacent to the Utica Harbor, surrounding the monitoring well MW-22 cluster, to address the contaminated groundwater

discharging immediately to the harbor (see Figure 10). The primary objective of the system will be to reduce groundwater contaminant migration to the harbor. As such, the area treated will not be required to extend more than 100 feet westward of the top of the bank to the harbor. Northern and southern limits will be near sample locations ESSB-066 and ESSB-064, where no coal tar or NAPL was observed. These limits will be verified during the design. The treatment system will be operated, consistent with 5 above, until groundwater contaminant concentrations achieve groundwater standards, or until vapor concentrations reach asymptotic levels for a sustained period of time and continued operation of the treatment unit will not result in significant mass removal of contaminants.

9. A barrier wall will be installed around the former WGP and a portion of the Monarch Chemical Site where PAH concentrations in soil are greater than 1,000 ppm. (See Figure 11) This wall will extend into the underlying dense till present approximately 20 to 50 feet below ground surface in this area. Approximately 9,000 cyds of surface tar and NAPL-laden soils at the drip box and tar well will also be removed and thermally treated. This containment system will also include a low permeability cap that will satisfy the requirements of a final cover system specified in Part 360-2.15.d. The need for a gas collection system, however, will be evaluated during the remedial design. Groundwater from within the wall will be extracted and treated to maintain an inward hydraulic gradient within the wall. The remedial design will establish performance standards for this treatment and the design will also evaluate whether the existing NIMO Harbor Point Site water treatment system will be sufficient for meeting these standards.

10. Purifier waste from all areas of the peninsula will be excavated, to a depth of six feet bgs, and consolidated within the WGP barrier wall. The delineation of the limits of purifier waste removal will be visual, based upon the presence of wood chips or soils exhibiting a prussian blue coloration and/or shades of purple-to-black, typical of the Central Area deposits of purifier waste. The areas for removal will be delineated during the design.

    The remedial design will determine the maximum limit of purifier material that could be placed within the wall. Purifier waste in the southwest corner IRM area (approximately 30,000 cubic yards, see Figure 7) will be given priority to be consolidated at the WGP. If areas of purifier waste cannot be consolidated at the WGP, then it will be consolidated within the Niagara Mohawk Central Area outside of the regulatory floodway. The purifier waste consolidated at the WGP will be capped as indicated in item 9 above. The purifier waste consolidated in the Central Area, if any, will also be capped. The cap will satisfy the requirements of a final cover system specified in Part 360-2.15.d. The need for a gas collection system, however, will be evaluated during the remedial design.

    The remedial design will evaluate whether areas that contain co-mingled purifier waste and NAPL contaminated soil or soil containing PAHs greater than 1,000 ppm can be thermally treated. The remedial design will also allow for the for the thermal treatment of purifier waste, in lieu of consolidation, if the appropriate air discharge limits can be achieved by the LTTD unit.

A soil cover will be provided over the areas where purifier waste was removed, as detailed in item 11.

11. A minimum two-foot thick soil cover will be placed over the Niagara Mohawk Central Area, MVO and NYTEP (see Figure 12). Approximately 40 acres will be covered in this manner. The soil cover will consist of clean imported fill and/or site soils or sediment treated to the levels identified in item 6 above.

    Beneath the two-foot soil cover a commercial grade filter fabric will be installed to serve as a demarcation layer. The upper six inches of the soil cover will have to be of sufficient quality, to support vegetation. The remedial design will evaluate the need for armoring or other stabilization of areas of the cover subject to possible erosion adjacent to the floodway. Acceptable alternatives to the soil cover will be sidewalks, parking lots, building footprints, or other approved strategies that provide a barrier to contact with the contaminated subsurface soils.

12. In the Niagara Mohawk Northern and Niagara Mohawk Southern Areas, surface soil beyond the area of the soil cover exceeding 10 ppm cPAHs will either be removed (approximately 6,000 cyds) or will be covered with two feet of clean fill. (see Figures 9 and 11). A more complete characterization of the surface soil will be conducted during the remedial design process.

13. A mitigation plan will be developed and implemented for any wetlands adversely impacted by the remedy and the design of any remediation in the floodway and floodplain will be consistent with Executive Order 11988 (Flood Management), including but not limited to the performance during the remedial design of a hydraulic analysis and floodplain assessment in accordance with the executive order.

14. Flowable tar within the existing abandoned and plugged Lee Street Extension Sewer will be removed (see Figure 7).

15. At all three sites, institutional controls will be established. The institutional controls will include: deed restrictions to protect remedial features and restrict on-site groundwater use; a deed restriction to prohibit the site from being used for purposes other than appropriate recreational, industrial or commercial uses, as explained below, without the express written waiver of such prohibition by the NYSDEC and the NYSDOH; long term monitoring of site conditions; and routine maintenance operations, such as, fence repairs and lawn mowing. Appropriate industrial or commercial uses of the property will have to be consistent with any applicable zoning ordinances, but will not include any enterprises that draw susceptible portions of the community to the properties for activities that may lead to exposures to residual site contamination (e.g. day care, child care, medical treatment facilities,). Site monitoring will include a periodic survey of groundwater use in the area and efforts for early identification of any future threats to drinking water wells. An annual certification will be required to ensure the effectiveness of the engineering controls.

16. Since the remedy results in untreated hazardous waste remaining at the sites, a long term monitoring program will be established. This program will allow the effectiveness of the remedial measures, such as the soil cover, impermeable cover, barrier wall, NAPL collection wells and air sparging/SVE to be monitored, and will be a component of the operation and maintenance for the site.

17. There are certain elements of the Operable Unit 3 ROD which will have to be incorporated into Operable Unit 1. The installation of the sediment cap will require prior removal of harbor sediments in order to achieve sufficient depth of water to allow the continued navigational use of the harbor. Navigational dredging will also be required in the uncapped harbor neck. The ROD requires dredged sediment containing PAHs at concentrations greater than 35 ppm PAHs to be treated or disposed at a NYSDEC-authorized facility. Niagara Mohawk has the option of using the on-site low temperature thermal desorption unit called for by this OU1 ROD, to be sited at the NIMO Harbor Point Property, for treatment of dredged sediment and may use the Harbor Point property for storage of the dredged sediments prior to treatment. The sediment must be treated to the requirements identified in Section 8, item number 6 of this ROD. Once treated, the sediment could be used as identified in the same item. Approximately 60,000 cubic yards of harbor sediment would be generated by OU3. The ROD for Operable Unit 3 also calls for the excavation and treatment or disposal of soil containing greater than 1,000 ppm PAHs or greater than 0.2 ppm benzene from Dredge Spoil Area 1 (DSA1). The approximately 20,000 cubic yards of soil generated by this activity could also be treated at the Harbor Pont site, as described above.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of citizen participation activities were undertaken in an effort 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 sites:

A repository for documents pertaining to the sites was established.

A site mailing list was established which included nearby property owners, local political officials, local media and other interested parties.

The NYSDEC and NYSDOH have participated in Niagara Mohawk's Citizens Advisory Committee meetings since 1993. During the meetings the NYSDEC and NYSDOH have disseminated information and answered questions about New York State's requirements for remediation of the sites.

In February 2002 the Proposed Remedial Action Plan (PRAP) was released for public comment and a fact sheet was sent to the site mailing list summarizing the PRAP, identifying the public comment period start and providing the date of a public meeting to present the PRAP

On February 26, 2002 the NYSDEC held a public meeting to solicit comments on the proposed remedy.

In March 2002 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.

TABLE 1
HARBOR POINT PENINSULA STUDY AREAS

Parcels	**Acres**	**Former Operation Summary**	**Proposed Remedy to be announced in:**
Niagara Mohawk Harbor Point Site (NMHPS Operable Unit 1) (Site Number 6-33-021)	72	Coal Gasification	This PRAP
Mohawk Valley Oil (NMHPS Operable Unit 1) (Site Number 6-33-032)	4.7	Light Oil Production Bulk Petroleum Storage	This PRAP
New York Tar Emulsion Products Site (Site Number 6-33-031)	3	Road Tar Production	This PRAP
New York State Canal Corporation[1]	7		This PRAP
Monarch/ Jones Chemical (Site Number 6-33-030)	7	Chemical Distribution	Monarch ROD Remedy Selected
Dredge Spoil Area 1 (NMHPS Operable Unit 3)	9	Sediment Disposal	NMHPS O.U. 3 ROD Remedy Selected
Dredge Spoil Area 2 (NMHPS Operable Unit 3)	7	Sediment Disposal	NMHPS O.U. 3 ROD Remedy Selected
Dredge Spoil Area 3 (NMHPS Operable Unit 3)	7	Sediment Disposal	NMHPS O.U. 3 ROD Remedy Selected
Utica Harbor including Harbor Neck (NMHPS Operable Unit 3)	20	Shipping Terminal	NMHPS O.U. 3 ROD Remedy Selected
Mohawk River (NMHPS Operable Unit 2)	17	Receive discharges from sites	NMHPS OU 2 PRAP To Be Issued
City of Utica[2]	3	sewer easements	This PRAP

[1]Includes property bordering the Utica Harbor including the harbor neck

[2]Includes the 50-foot easement of Washington Street and the 80-foot easement for Lee Street.

TABLE 2
CHRONOLOGY OF SIGNIFICANT INVESTIGATION STUDIES AT HARBOR POINT

Description (Consultant)	Scope	Period
Land and River/ Harbor Investigation Steps I, II, III, IV (C&S)	Soil, sediment, water - (Borings, test pits, sediment cores, surface water, geophysics, wells/piezometers, modeling, risk assessment)	1983-86
Phases I & II at NYTEP/ MVO, Monarch/Jones Chemical, and Utica Terminal Harbor (URS Consultants)	Soils, sediment, water (Borings, sediment cores, wells)	1987-92
Supplemental RI (AES)	Soils, sediment, water - (Borings, soil gas survey, test pits, sediment cores, surface water, wells/piezometers)	1990-93
IRMs at Fire Training Area and Lee Street Sewer Extensions (AES)	Design based on investigation	1991-92
Surface Soil FS (RETEC)	FS Report	1991-92
Engineering and Evaluation Report (RETEC)	IRM Evaluation	1992-93
SW Corner IRM (RETEC)	Design based on investigation	1994-95
Remedial Technologies Demonstrations (AES, RETEC, BB&L, Stearns & Wheler)	Soil, sediment, water, NAPL	1993-ongoing
MVO Site (Expanded RI) (Parsons ES)	(Borings, wells, groundwater elevation, slug tests)	1994-95
NYTEP/Beazer/Suit-Kote Perimeter (Parsons ES)	(Borings, wells, groundwater elevation, slug tests)	1994-95

TABLE 2
CHRONOLOGY OF SIGNIFICANT INVESTIGATION STUDIES AT HARBOR POINT
(continued)

Description (Consultant)	Scope	Period
Dredge Spoils Areas (Expanded RI) (Parsons ES)	(Borings, sediment cores, surface water, wells, groundwater elevation, slug tests)	1994-95
Phase I & II Groundwater Investigations (Parsons ES)	Groundwater, NAPL - (Wells/piezometers, slug tests, modeling, groundwater elevation, DNAPL characterization)	1994-96
Sediments and Fish Study (Parsons ES) for Harbor, Canal, and Mohawk River	Sediment, fish & wildlife - (Bathymetric survey, sediment cores, fish & wildlife Tissue)	1994-96
Data Gap Investigation (Parsons ES)	Soil, sediment - (Borings, sediment cores, point source discharge/dye test evaluation, Sediment treatability study)	1994-96
Human Health and Ecological Risk (Parsons ES) Assessment for NMPC Property & WGP, MVO, DAS, Harbor, Canal, Mohawk River	Soil, sediment, water (included terrestrial and benthic studies)	1995-96
Wetlands Delineation Study (Parsons ES) for NMPC Property and DSAs	Wetlands (Included jurisdictional and human-induced)	1996
Remedial Inv./Risk Assessment Report, NYTEP (Key Env.)	Soil, groundwater	1998-99
Step III Fish and Wildlife Analysis (Parsons ES)	Fish and wildlife	1999
Floodway Analysis (Parsons ES)	Floodway	1999
Results from Additional FS Data Collection (Parsons ES)	Soil, sediment	1999
NMPC Harbor Point DSAs 2 and 3 Supplemental Risk Assessment (Parsons ES)	Soil	1999

TABLE 3
NATURE AND EXTENT OF CONTAMINATION
NIMO Harbor Point
Mohawk Valley Oil
New York Tar Emulsion Products

SUBTABLE 3.1: SURFACE SOIL (less than six inches below ground surface)

Contaminant of Concern	Concentration Range (ppm)	Frequency of Exceeding SCG	SCG (ppm)	Frequency of Exceeding Background	Background (ppm)
benzo (a) pyrene	ND to 5,700	94%	0.061 or MDL	60%	1.4
Total cPAHs	ND to >28,000	-	-	-	-
Total PAHs	ND to >149,000	50%	500	-	-
cyanide	ND to >101,000	-	-	-	-

SUBTABLE 3.2: SUBSURFACE SOIL

Contaminant of Concern	Concentration Range (ppm)	Frequency of Exceeding SCG	SCG (ppm)
benzene	ND to 810	26%	0.06
methylene chloride	ND to 200	10%	0.1
benzo (a) pyrene	ND to 3,900	65%	0.061 or MDL
naphthalene	ND to 30,000	26%	13
total PAHs	ND to 77,000	20%	500
cyanide	ND to 1,580	-	-

SUBTABLE 3.3: GROUNDWATER

Contaminant of Concern	Concentration Range (ppb)	Frequency of Exceeding SCG	SCG (ppb)
benzene	ND to 21,000	60%	1
naphthalene	ND to 54,000	30%	10
cyanide	ND to 11,000	26%	200

ND = Compound Not Detected

TABLE 4
AREAS AND APPROXIMATE VOLUMES OF CONTAMINATED SOIL REMOVAL ALTERNATIVE 3A

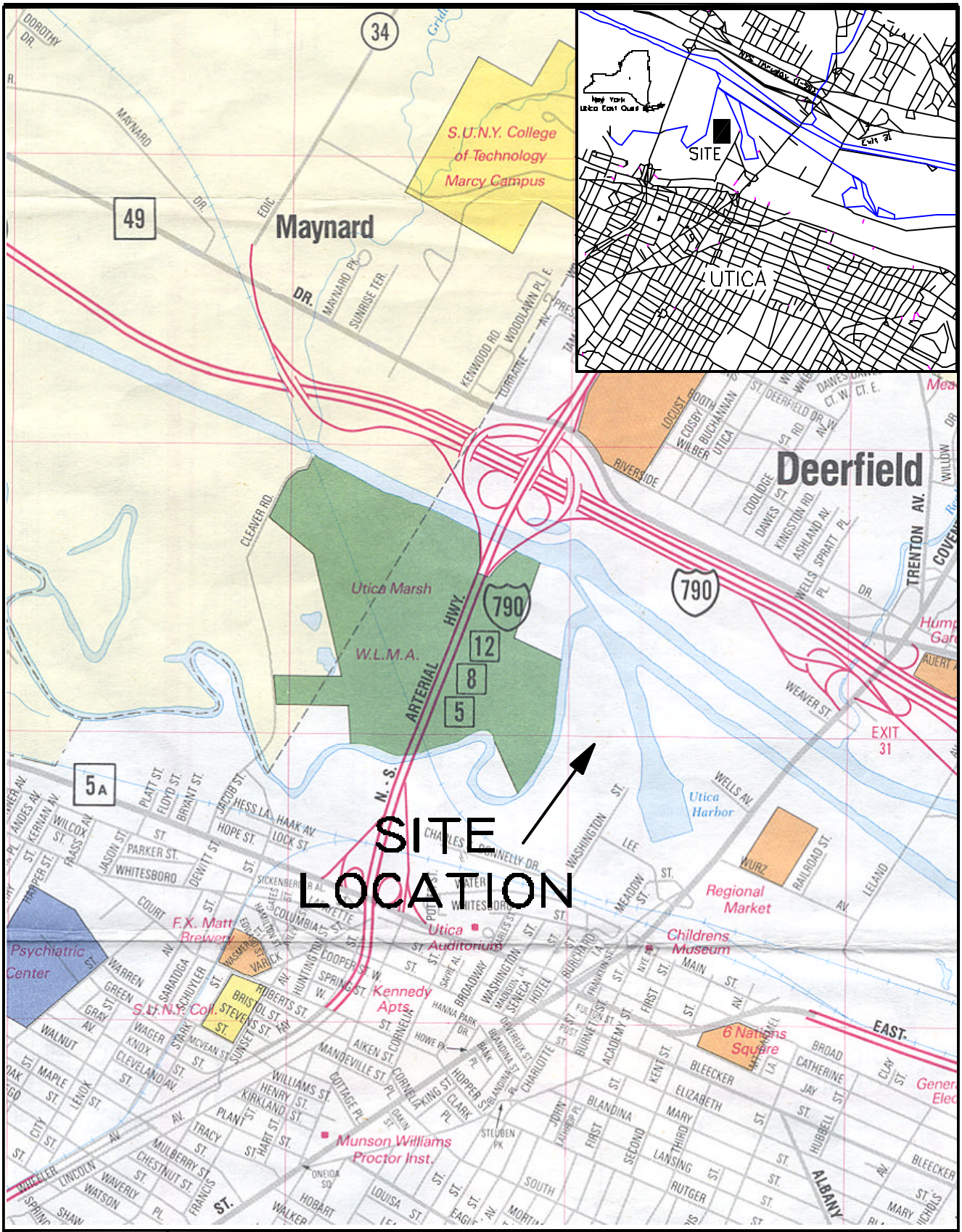
Area	Estimated Volume (cubic yards)
Item 1 Soil > 10 ppm cPAHs (0-2') (not including coal tar and NAPL-contaminated soil)	
a. NIMO Northern	5,000
b. NIMO Southern	1,000
Total, Item 1	6,000
Item 2 Soil with Greater than 1,000 ppm PAHs - NIMO, NYTEP	
NIMO Northern	7,000
NIMO Central (not including floodway)	28,000
NIMO Southern	2,000
NYTEP	27,000
Total, Item 2	64,000
Item 3 Floodway Removal	
Lee Street Extension Sewer	20,000
Item 4 CGP Structures	5,000
Item 5 Soil with Greater than 1,000 ppm PAHs - MVO	11,000
Item 6 WGP removal dripbox, tarwell and NAPL-laden soil in wall alignment	9,000
Total, All Items	115,000 cyds

TABLE 5

REMEDIAL ALTERNATIVE COSTS

NIMO - Harbor Point Property
Operable Unit No. 1 - Peninsula, Site No. 6-33-021
NEW YORK TAR EMULSION PRODUCTS SITE, Site No. 6-33-031
MOHAWK VALLEY OIL SITE, Site No. 6-33-032

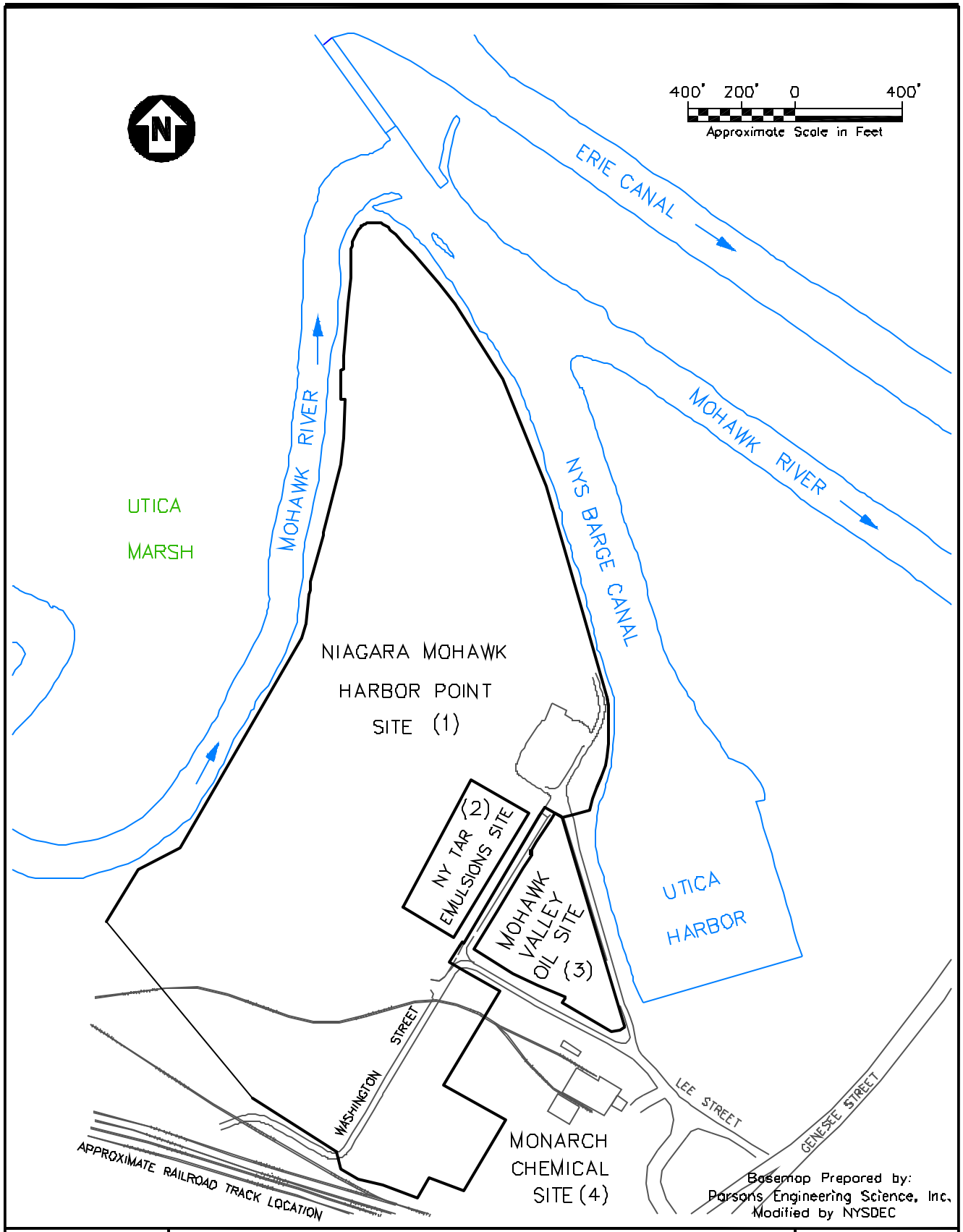
Alternative	Capital Cost	Annual O&M	Total Present Worth
1. No Further Action	$ 0	$ 30,000	$ 540,000
2. Consolidation and Cover	14 million	58,000	15 million
3A. Source Removal (1000 ppm PAHs), Wall, Cover	38 million	240,000	42 million
3B. Source Removal (500 ppm PAHs), Wall, Cover	55 million	240,000	59 million
4. Remove Soil > TAGM 4046	260 million	46,000	260 million



HARBOR POINT
UTICA, NEW YORK

SITE LOCATION MAP

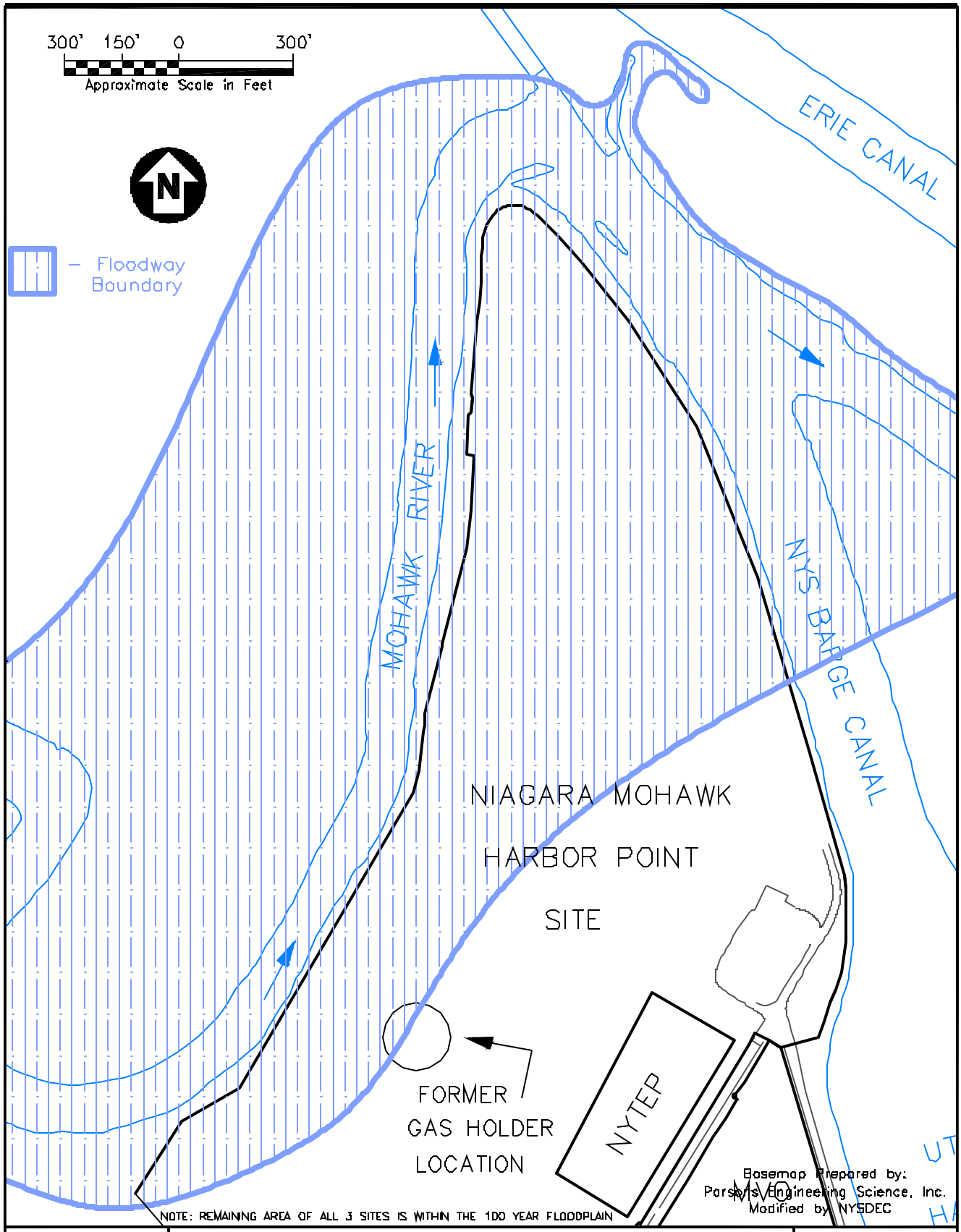
FIGURE 1



HARBOR POINT
UTICA, NEW YORK

INACTIVE HAZARDOUS WASTE DISPOSAL SITES (4)

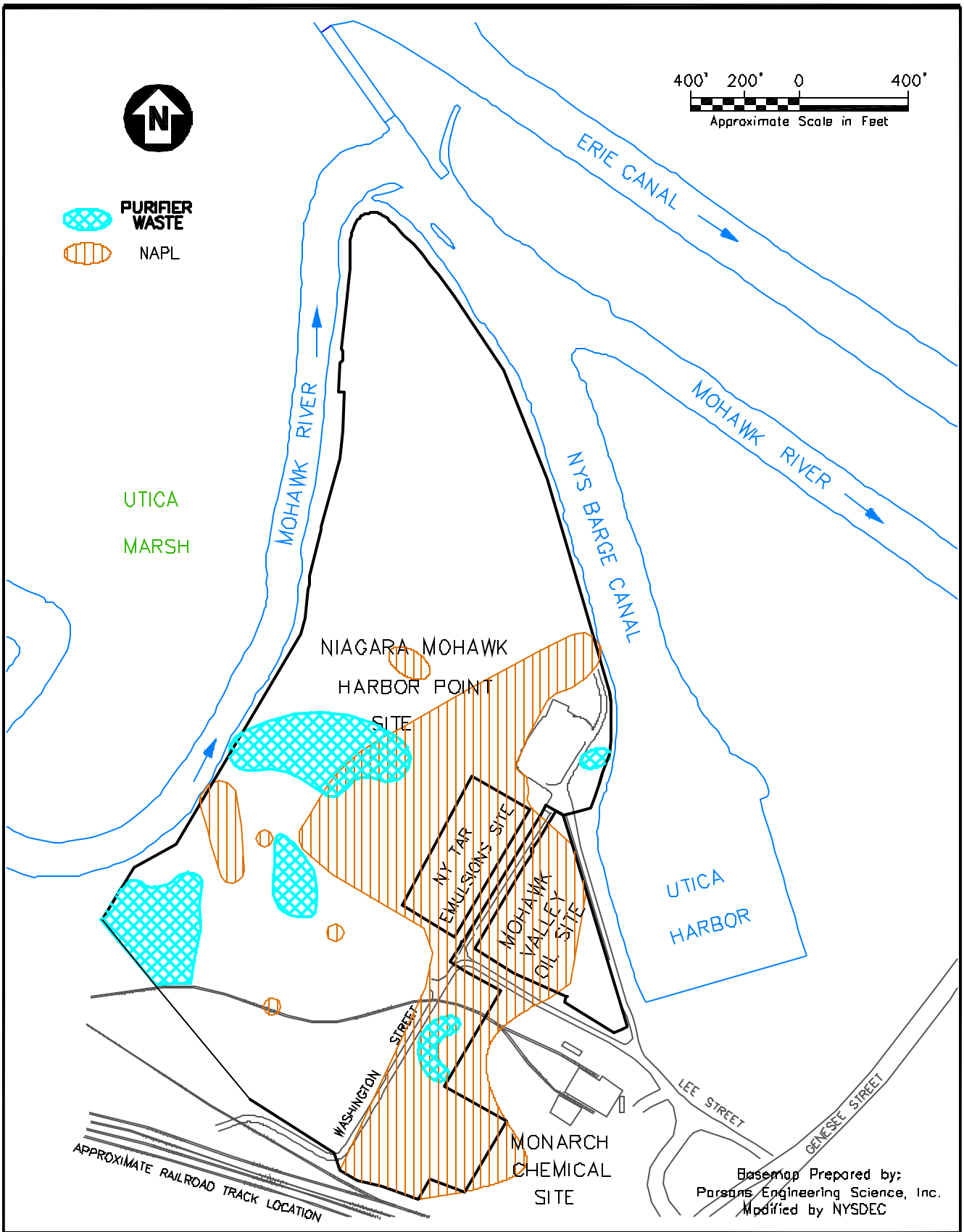
FIGURE 2



HARBOR POINT
UTICA, NEW YORK

APPROXIMATE REGULATORY FLOODWAY AREA

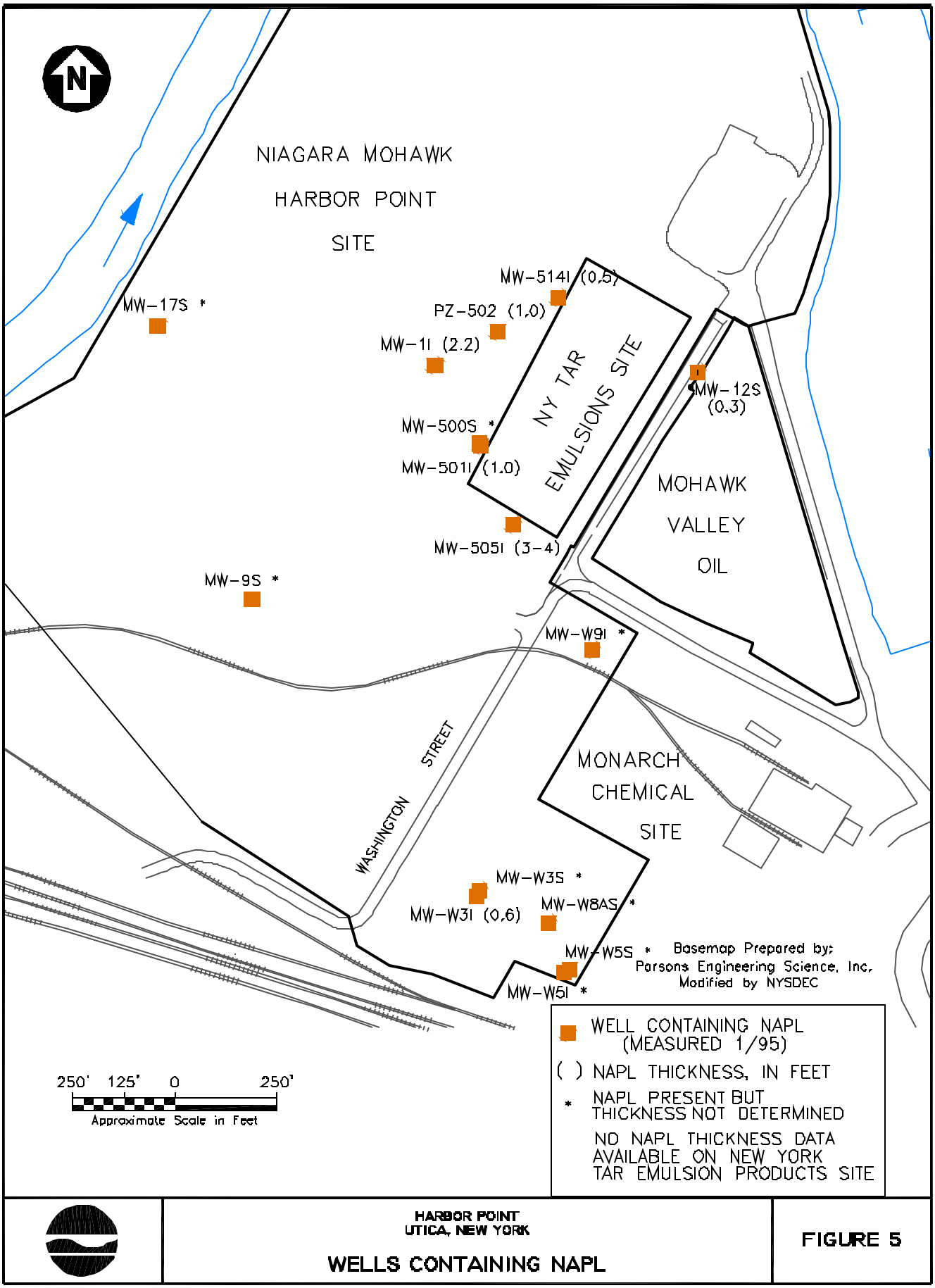
FIGURE 3



HARBOR POINT
UTICA, NEW YORK

LOCATION OF PURIFIER WASTE AND NAPL

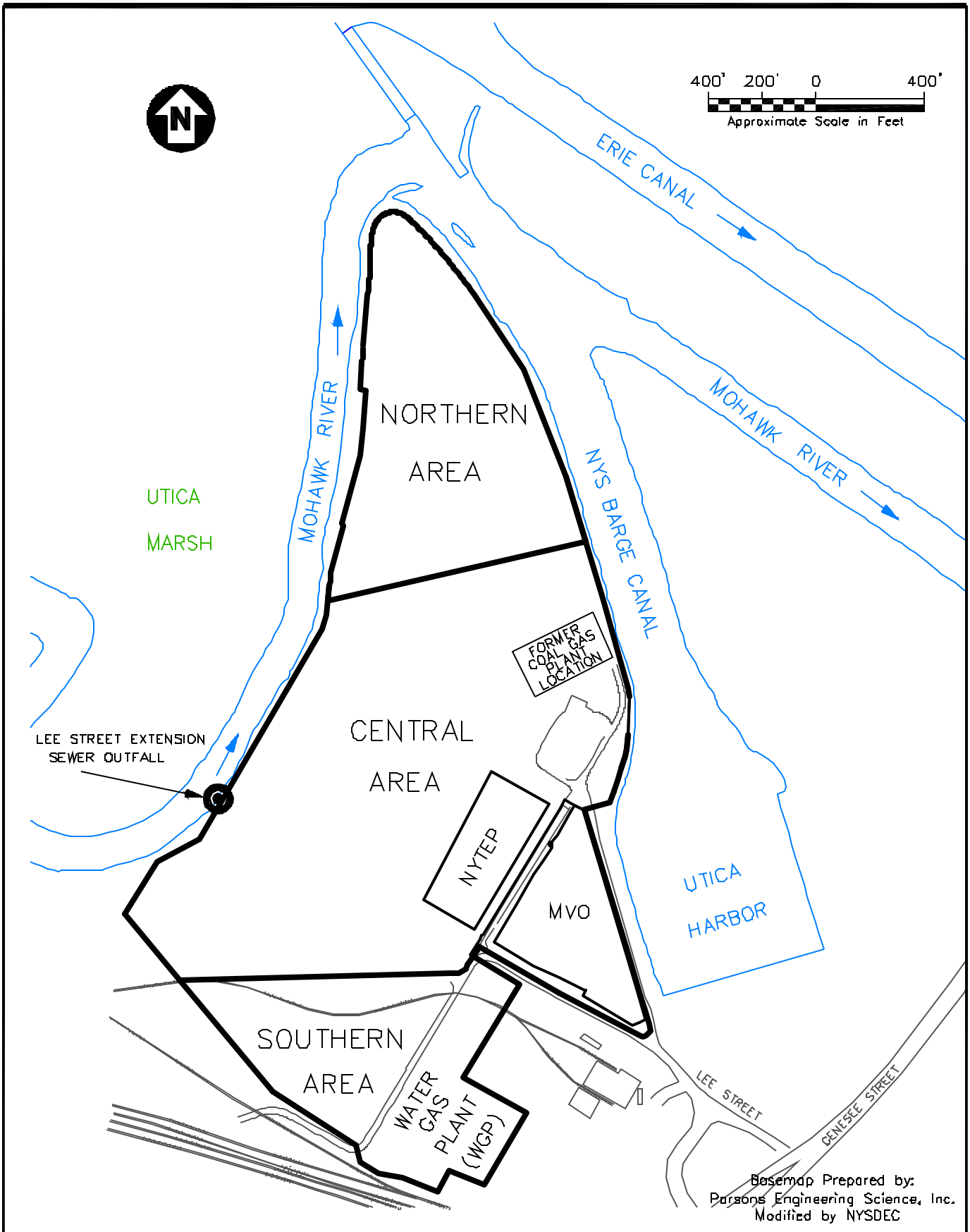
FIGURE 4



HARBOR POINT
UTICA, NEW YORK

WELLS CONTAINING NAPL

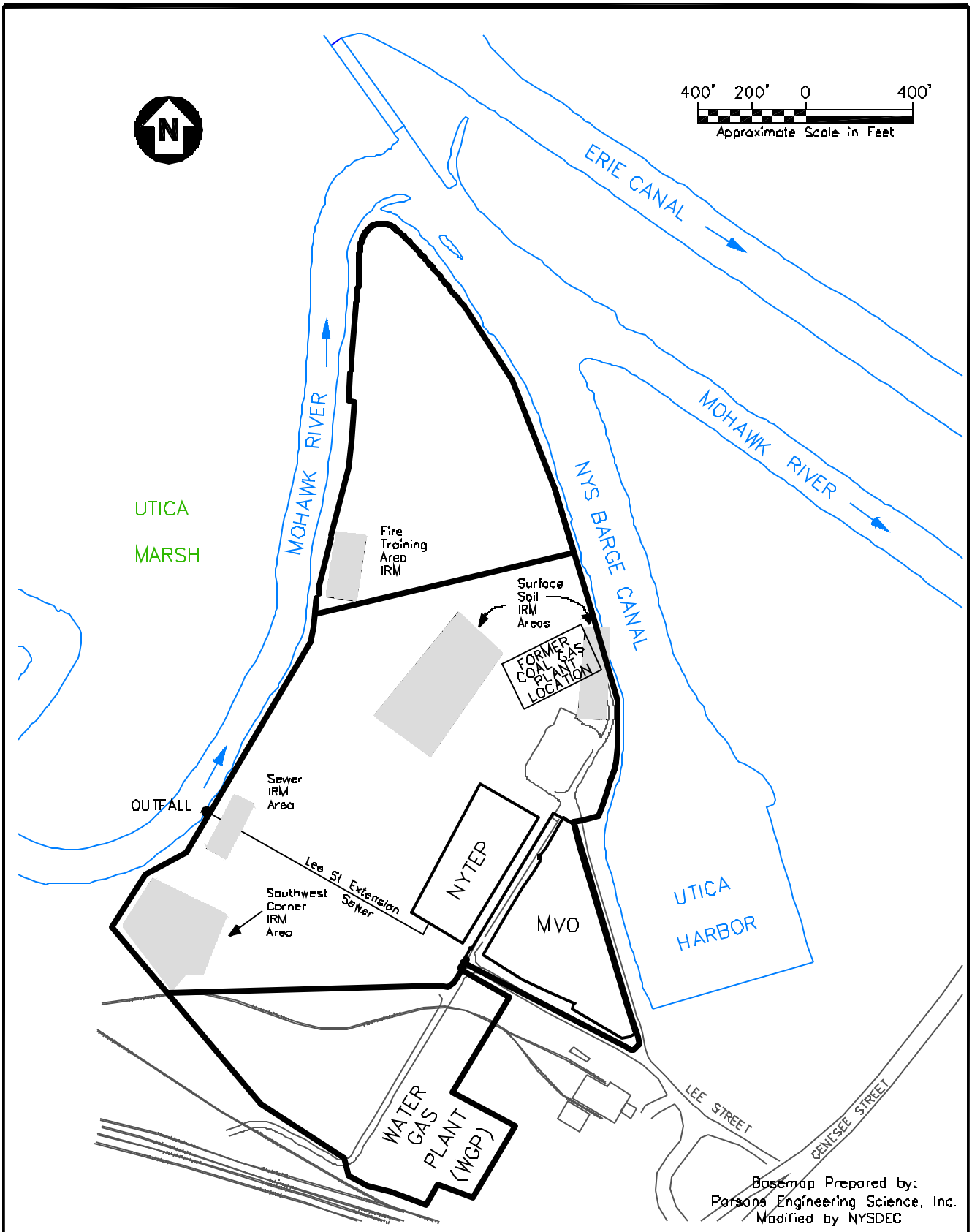
FIGURE 5



HARBOR POINT
UTICA, NEW YORK

AREA DELINEATIONS

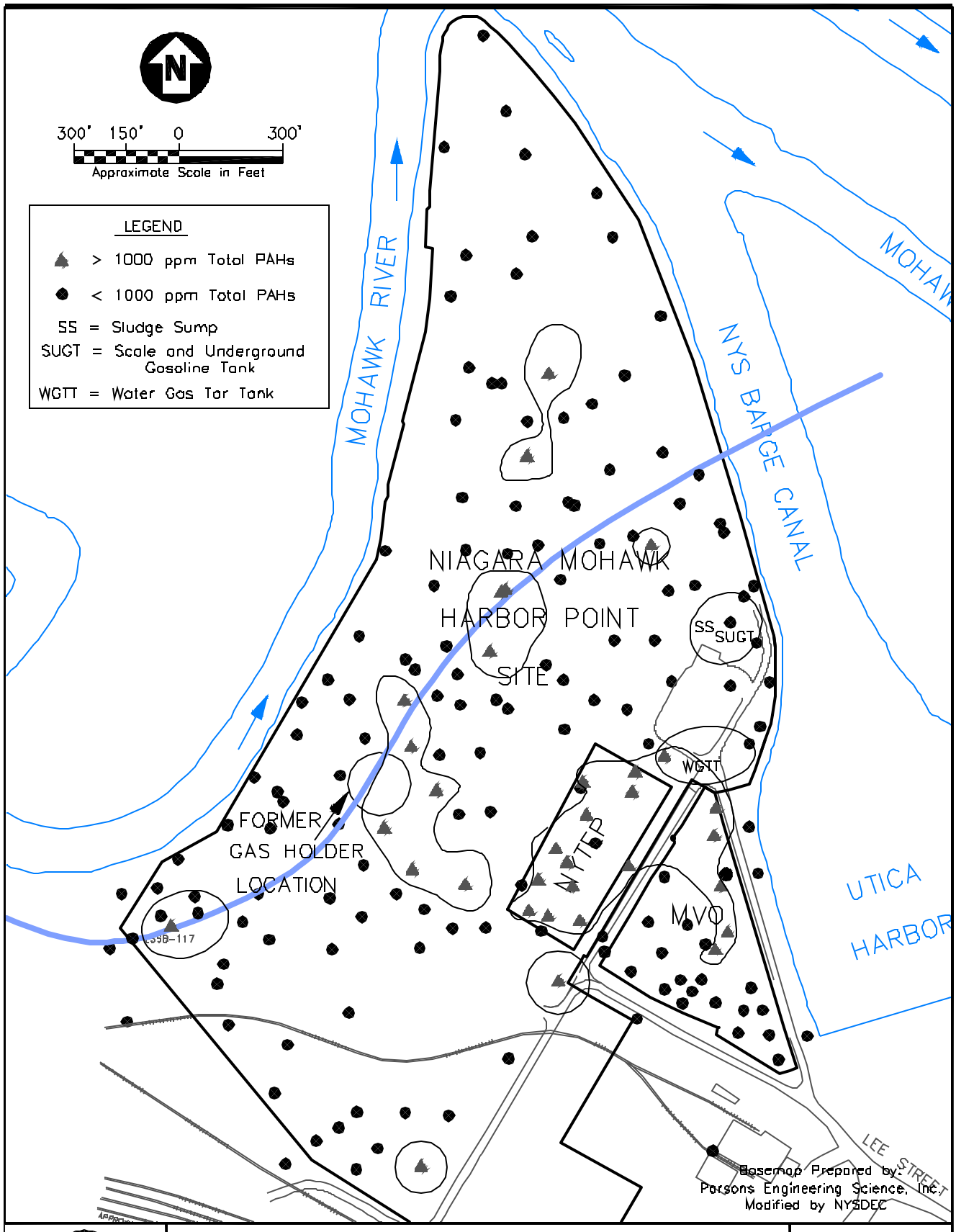
FIGURE 6



HARBOR POINT
UTICA, NEW YORK

IRM LOCATIONS

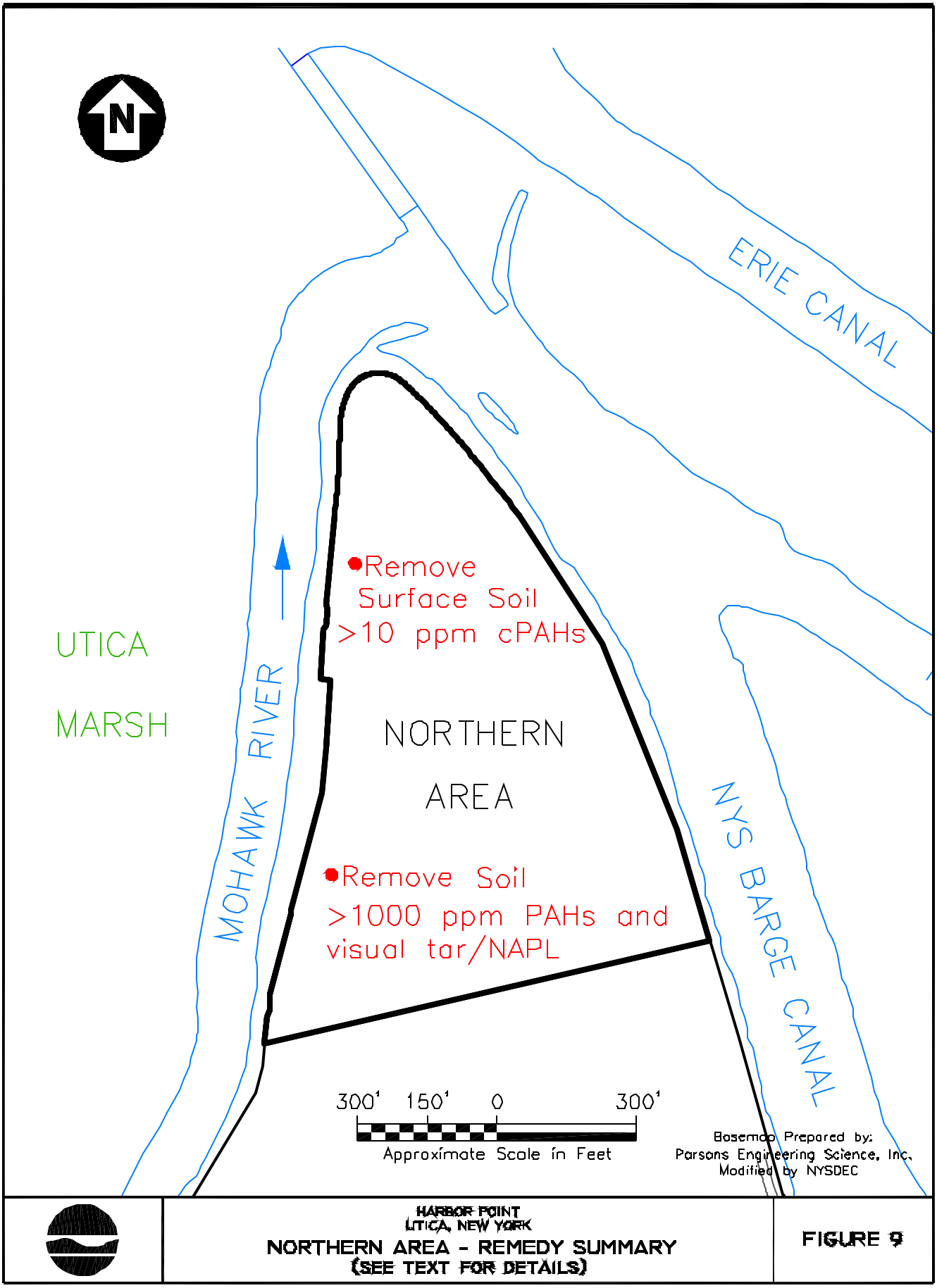
FIGURE 7



HARBOR POINT
UTICA, NEW YORK

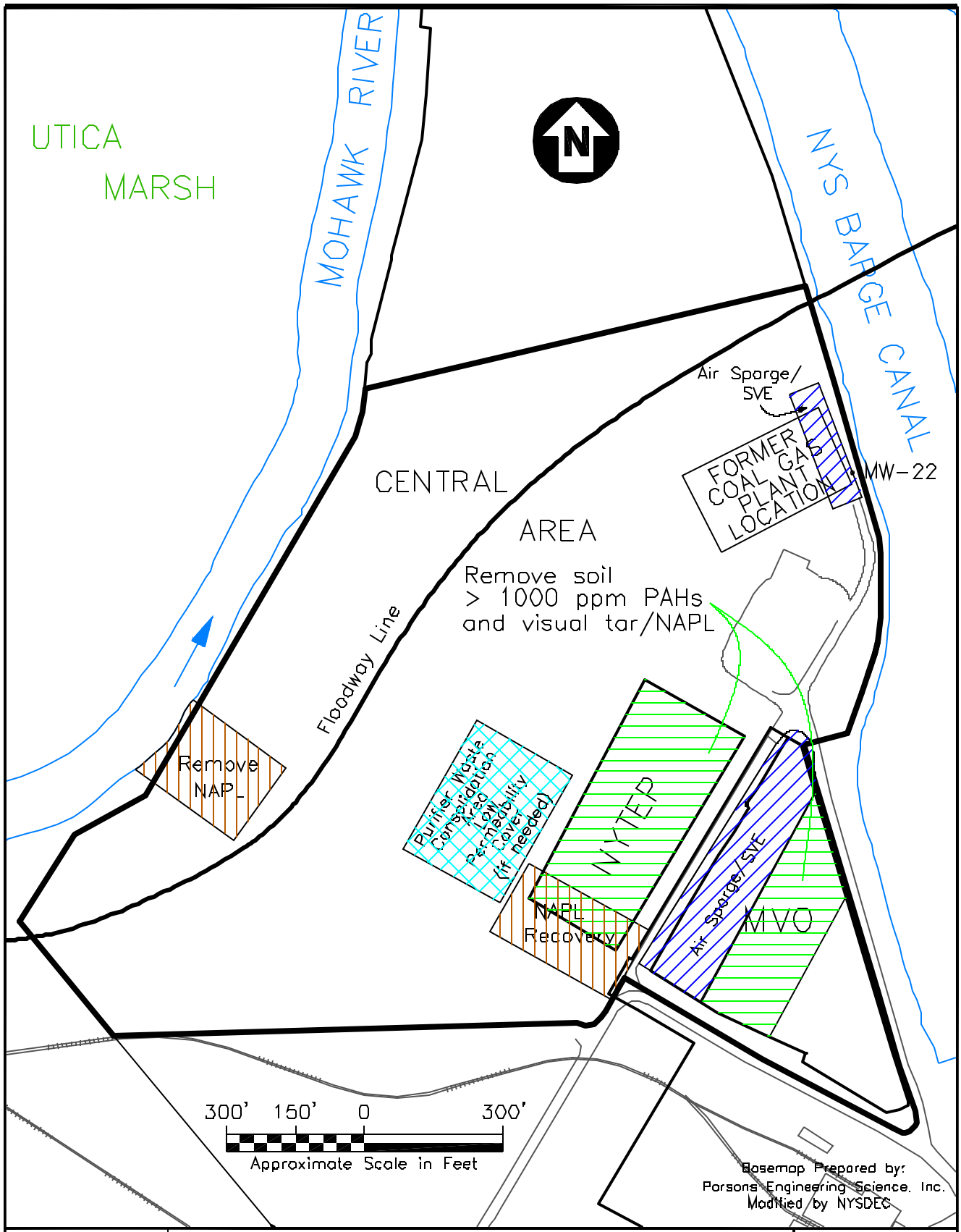
SUBSURFACE SOIL SAMPLES EXCEEDING 1000 PPM TOTAL PAHS (EXCLUDING WGP)

FIGURE 6



HARBOR POINT
UTICA, NEW YORK
NORTHERN AREA - REMEDY SUMMARY
(SEE TEXT FOR DETAILS)

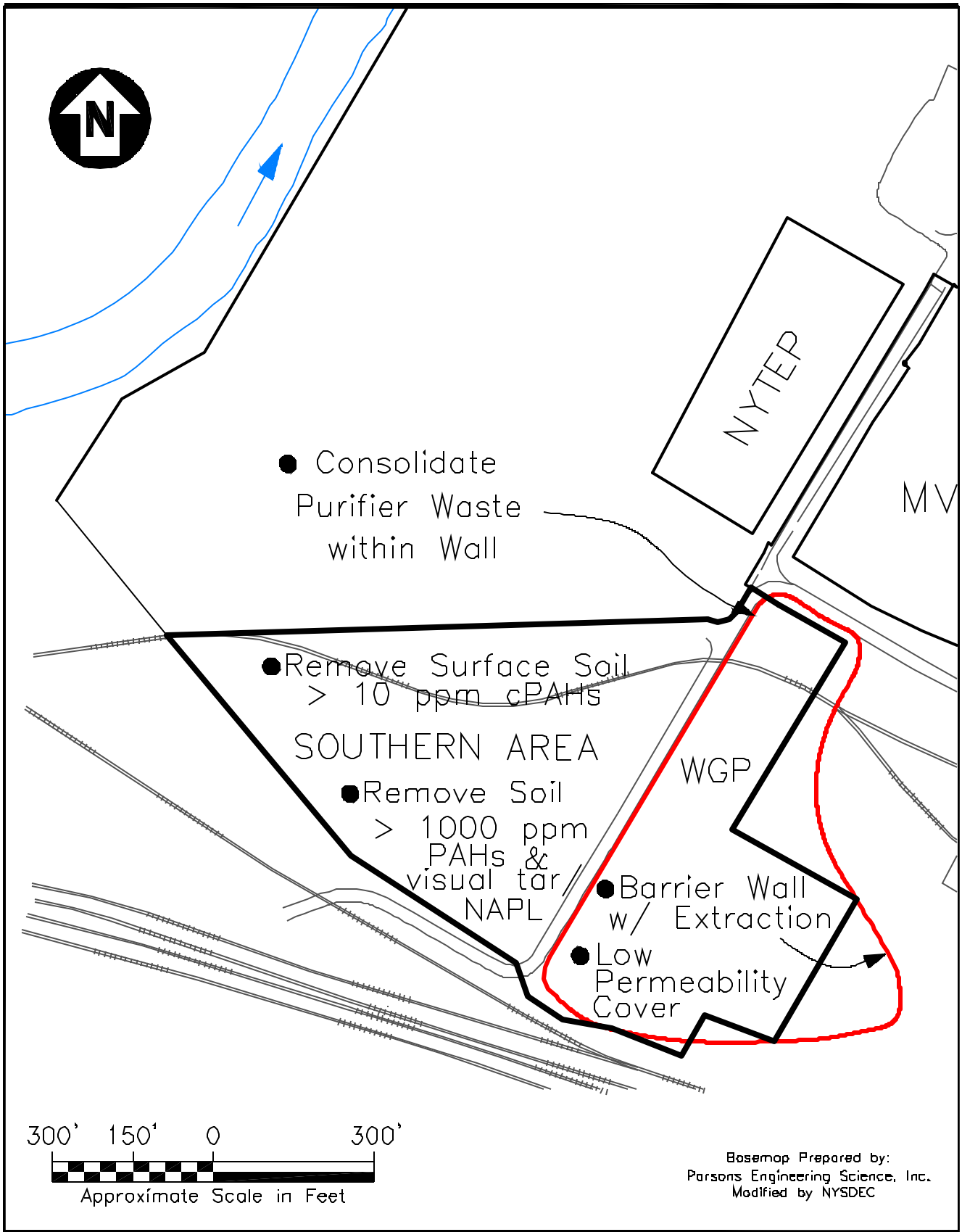
FIGURE 9



HARBOR POINT
UTICA, NEW YORK

CENTRAL AREA - REMEDY SUMMARY
(SEE TEXT FOR DETAILS)

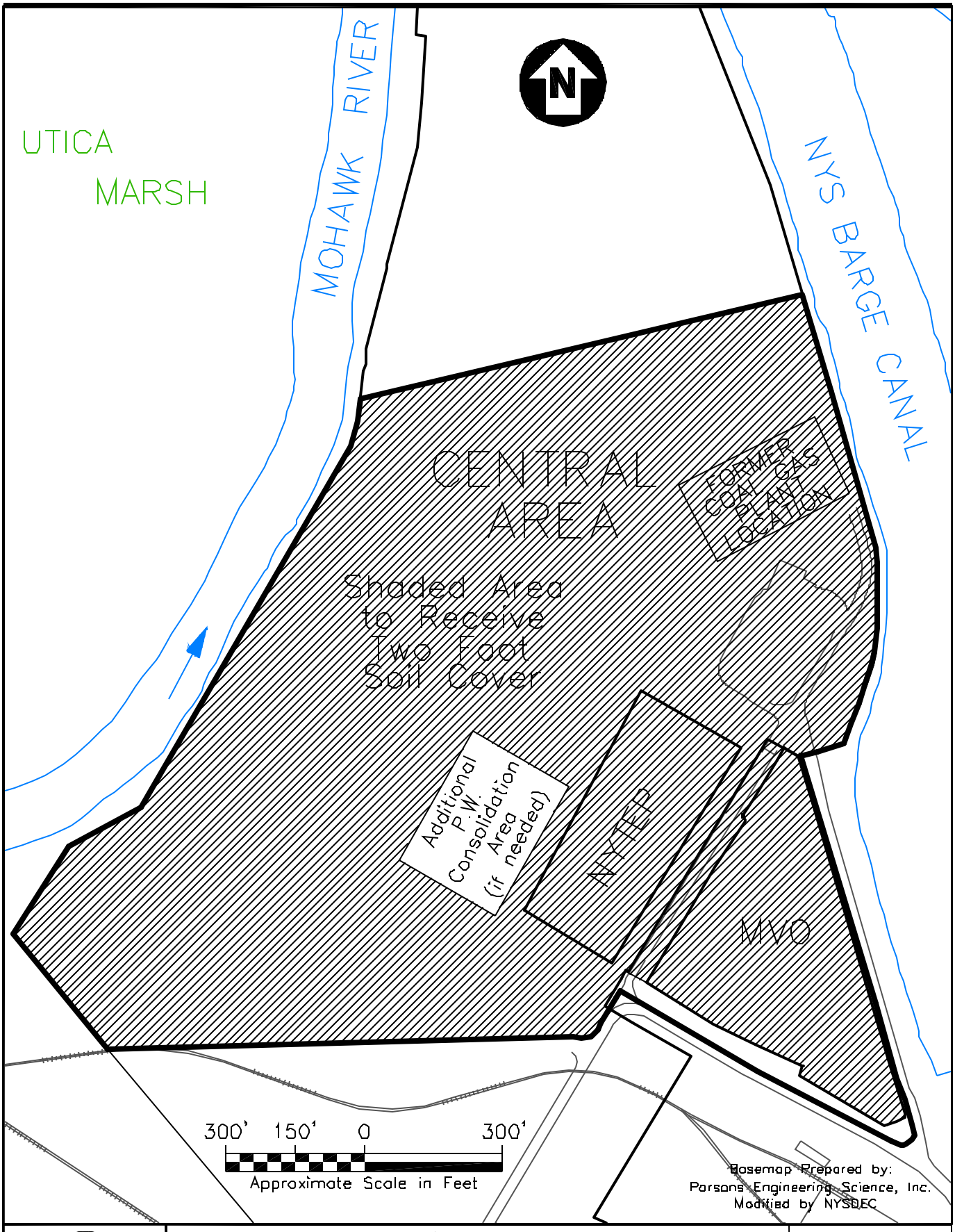
FIGURE 10



HARBOR POINT
UTICA, NEW YORK

SOUTHERN AREA - REMEDY SUMMARY
(SEE TEXT FOR DETAILS)

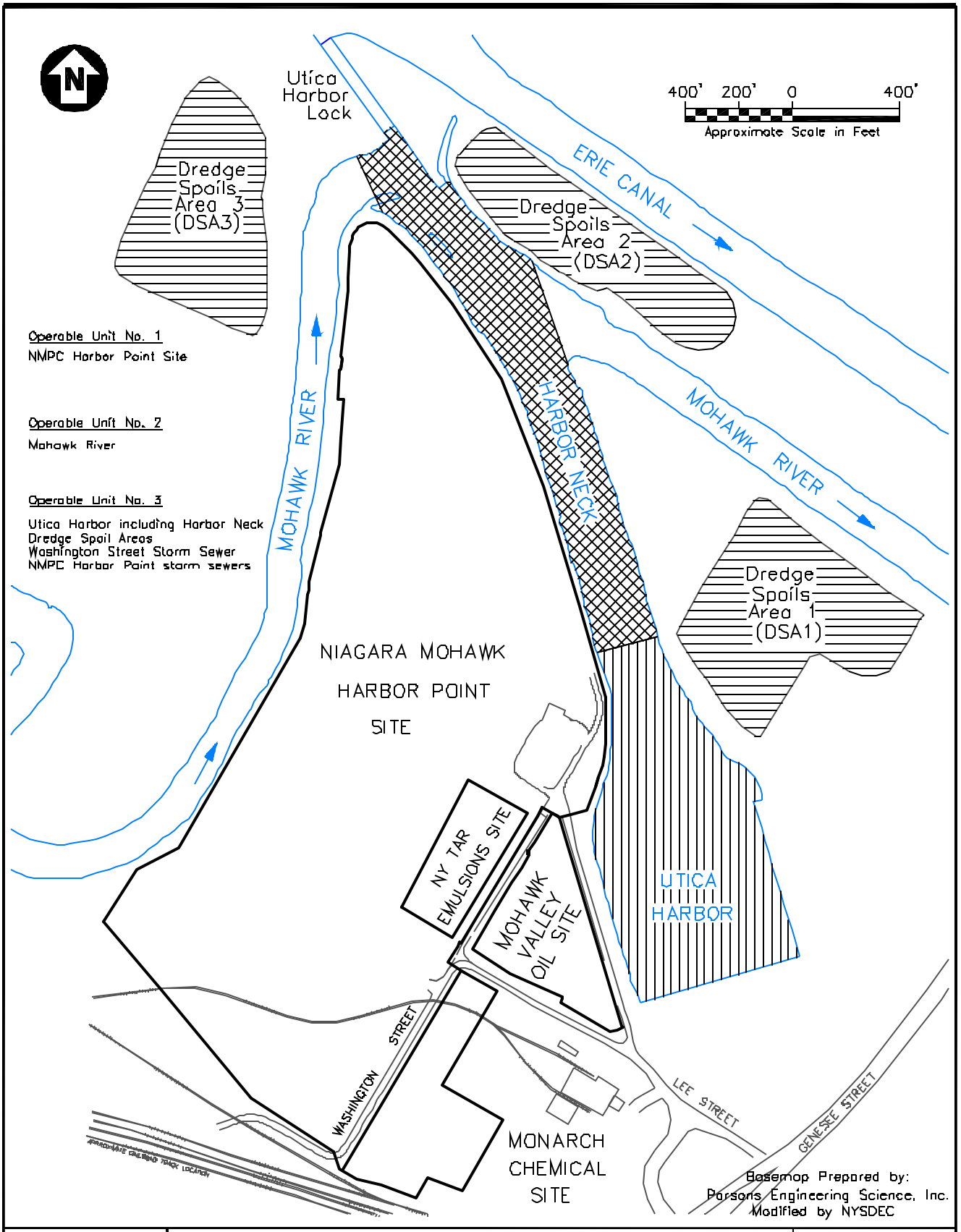
FIGURE 11



HARBOR POINT
UTICA, NEW YORK

CENTRAL AREA - REMEDY SUMMARY
(SEE TEXT FOR DETAILS)

FIGURE 12



HARBOR POINT
UTICA, NEW YORK

LOCATIONS OF OPERABLE UNITS - HARBOR POINT PROPERTY

FIGURE 13

APPENDIX A

RESPONSIVENESS SUMMARY

NIMO - Harbor Point Property, Operable Unit No. 1
Site No. 6-33-021
New York Tar Emulsion Products Site
Site No. 6-33-31
Mohawk Valley Oil Site
Site No. 6-33-032
Utica (C), Oneida County

March 2002

The Proposed Remedial Action Plan (PRAP) for the following sites was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on February 8, 2002:

- NIMO - Harbor Point Property, Operable Unit No. 1
- New York Tar Emulsion Products Site
- Mohawk Valley Oil Site

This PRAP outlined the preferred remedial measure proposed for the remediation of the contaminated soil and groundwater. The preferred remedy is Alternative 3A.

The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability.

A public meeting was held on February 26, 2002 which included a presentation of the Remedial Investigations and the Feasibility Study 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. Written comments were received from Niagara Mohawk, a National Grid Company; Earth Tech; on behalf of ChevronTexaco Corporation and Beazer East, Inc..

The public comment period for the PRAP was extended from March 13, 2002, at the request of Niagara Mohawk and Beazer East Inc., and closed on March 25, 2002.

This Responsiveness Summary responds to all questions and comments raised at the public meeting and to the written comments received.

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

COMMENT 1: Given the long history of the Peninsula area as an industrial area, pollutants have accumulated over a period of 30 to 150 years. How do we know contaminants haven't already migrated off-site into the Mohawk River due to flooding and the general movement of surface water and groundwater?

RESPONSE 1: Heavy industry on the Harbor Point peninsula occurred from approximately 1848 to 1983 and the various investigations of the area have identified that waste materials have accumulated on the site from these operations. Investigations of the Mohawk River and Utica Harbor adjacent to the peninsula have also confirmed that contaminants have migrated or have been released from the peninsula into these water bodies. The pathways for impact to the River from the peninsula are identified in Sections 4 and 6 of the ROD and remedial actions to address these pathways are detailed in Section 8. Contaminants in the Utica Harbor sediments are being addressed through the *Record of Decision for the Niagara Mohawk Harbor Point Site Operable Unit 3, Utica Harbor Sediments and Dredge Disposal Areas, March 2001*. Contaminants in the Mohawk River are still under investigation with a PRAP to address river contamination expected to be issued by the NYSDEC in the future.

COMMENT 2: Have you detected contaminants currently leaching into the Mohawk River?

RESPONSE 2: Yes. The area where contaminants are moving into the Mohawk River is most evident near the former Lee Street Extension sewer outfall. The presence of contaminants in monitoring wells near the river in this area and a groundwater flow to the river lead the NYSDEC to conclude that contaminants are migrating into the river. More significantly, non-aqueous phase liquid, which contains high concentrations of contaminants, was found in soil borings adjacent to the river in this area. The selected remedy will address this impact by the excavation of the NAPL/tar/contaminated soils in the vicinity of the Lee Street Sewer which are the apparent source of the release. In addition to the Mohawk River, contaminants are also migrating to the NYS Barge Canal in the vicinity of the former coal gas plant (see Figures 4 and 6) and to the Utica Harbor adjacent to the Mohawk Valley Oil Site. The migration of contaminants to the waterbodies at these locations is addressed by this ROD through a combination of excavation of NAPL/tar/contaminated soil and air sparging/soil vapor extraction.

COMMENT 3: Can you outline how the three sites [that make up Operable Unit 1] relate to the previous operable units?

RESPONSE 3: The operable units of the Harbor Point peninsula and certain nearby areas are summarized in Figure 13 and described in Section 2 of the ROD. It should be noted that the three sites which are the subject of this ROD are not part of Operable Unit 1 of the Niagara Mohawk site but are separate class 2 sites. However due to similar contaminants, contaminated media and their close proximity they are addressed by a single ROD. Operable Unit 3 is defined as the Utica Harbor including the harbor neck, dredge spoil areas, the Washington Street storm sewer and Niagara Mohawk storm sewers. The ROD for Operable Unit 3 calls for, placement of a sediment cap in the

harbor, contaminated soil removal in dredge spoil area 1, soil covers at dredge spoil areas 1 and 2, and institutional controls. The only significant interaction that would occur among operable units would be the on-site low temperature thermal treatment of OU3 contaminated material by the on-site thermal desorption unit identified by this ROD.

COMMENT 4: Does the soil cover area overlap with those other areas as described in previous proposals?

RESPONSE 4: The dredge spoil areas are across the Mohawk River/Utica Harbor from the three sites presented in this ROD. Thus, the soil covers for dredge spoil areas 1 and 2 do not overlap the soil covers required by this ROD.

COMMENT 5: How is the purifier area defined for this proposed remedy?

RESPONSE 5: The purifier wastes are best delineated by their distinctive blue staining ,with shades of purple to black, and the areas to be consolidated will be defined by the visual presence of purifier waste in implementing the ROD.

COMMENT 6: Are there other changes in this PRAP from the proposed Feasibility Study?

RESPONSE 6: The NYSDEC assumes this comment is asking for differences between the recommended remedy presented in Niagara Mohawk's Feasibility Study and the remedy selected in this ROD. The salient differences are:

- the Feasibility Study recommended an impermeable soil cap in the central area whereas the ROD requires a soil cover in the central area;
- excavation limits are expressed in the Feasibility Study in terms of the water table whereas excavation limits in the ROD are generally to a specified depth;
- the Feasibility Study recommended the consolidation of purifier waste in the Central Area outside the floodway whereas the ROD requires the preferential placement of purifier waste inside the Water Gas Plant barrier wall;
- the ROD has a lower concentration threshold for the removal of contaminated surface soil in the Northern and Southern Areas;
- the ROD requires NAPL recovery in the central area and NYTEP, areal extent to be determined during remedial design;
- the ROD requires air sparging/soil vapor extraction near the monitoring well MW-22 cluster.

COMMENT 7: What about the two areas of NAPL closest to open water? How much will be moved to the consolidation area?

RESPONSE 7: NAPL will not be consolidated, but will either be removed or treated. Figure 4 of the ROD shows three areas where NAPL is close to open water. At the Lee Street Extension sewer outfall, the NAPL, along with visible tar and soil over 1000ppm PAHs will be excavated and thermally treated as defined in Section 8, item number 3 and any NAPL in the plugged sewer will be addressed as defined in Section 8, item number 14. At the former coal gas plant location an air

sparge/soil vapor extraction system will be implemented as defined in Section 8, item number 8. At the Mohawk Valley Oil Site, NAPL will be excavated and thermally treated up to nine feet below ground surface. At depths greater than nine feet, this contamination will be addressed through an air sparge/soil vapor extraction system, as defined in Section 8, item number 5 of the ROD.

Approximately 80,000 cubic yards of purifier waste near the surface water bodies will be consolidated at either the water gas plant area or in the Central Area.

COMMENT 8: What kind of barrier wall is proposed?

RESPONSE 8: The ROD does not specify the type of barrier wall to be provided. However it is currently proposed to utilize a clay bentonite slurry wall, subject to successful compatibility testing.

COMMENT 9: What about NAPL in the neck of the peninsula?

RESPONSE 9: The NYSDEC is not clear on what is being considered as the "neck" in this comment, since the term "neck" has typically been applied to the harbor neck. As indicated in the ROD, the selected remedy will:

- contain all the NAPL at the former water gas plant;
- treat or remove all NAPL-contaminated areas at MVO;
- remove all NAPL within the Lee Street extension sewer outfall area of the floodway;
- treat all NAPL within 100 feet minimum of Utica Harbor and the harbor neck;
- remove approximately 20% of the remaining NAPL through excavation, and an additional amount of NAPL via recovery wells or trenches.

As explained in Section 7, it has been demonstrated that it is not feasible to remove, treat or contain all of the NAPL present in the subsurface on the peninsula. However, the selected remedy does actively remediate sources of groundwater contamination on the peninsula to the extent practicable. The selected remedy is aggressive at removing NAPL near the surface water bodies and at the surface. However, NAPL will remain untreated and not contained in the center of the peninsula at depths greater than six feet.

COMMENT 10: If you use a vacuum treatment technique for NAPLs, how will a significant flood affect the containment area?

RESPONSE 10: NAPL at all three sites will either be:

- removed by excavation; or
- removed through recovery wells; or
- contained within the barrier wall; or
- treated by AS/SVE; or
- remain under a minimum of six-foot depth of backfill

Because these are sub-surface activities, a flood is not expected to have a significant effect on the removal or containment of NAPL. The presence of floodwaters on these areas is not expected to prevent the ROD's requirements from being carried out. Recovery and removal would continue after the floodwaters recede. Large excavations will not be allowed to remain open for extensive periods or if a flood is predicted. Floodwaters could scour soil caps and soil covers, however the design will take this into account and seek to eliminate or control any impact from flooding. Finally, a monitoring and maintenance program will be required to look for such damage and make any necessary repairs.

COMMENT 11: I have a more generalized response [to the proposed remedial action plan]. Alternatives 1 and 2 would be an insult to the people of New York and Utica. Alternatives 3 and 4 have to be closely looked at to make sure they do the job. I understand some of the constraints, but I would prefer Alternatives 3B or 4.

RESPONSE 11: As detailed in Section 7.2, the remedy presented in the ROD was selected only after careful evaluation of all the alternatives, in accordance with state and federal regulations and guidance. This evaluation includes all public comments received.

COMMENT 12: What factors lead to the differences in allowable levels of soil contamination between taking out just surface soil and removing all contaminated soils?

RESPONSE 12: The selected remedy must be protective of both public health and the environment. Public health exposure was a more critical factor in the determination of surface soil remediation. Surface soil remediation is determined by assessing risks from exposure to contaminants present in surface soils. On the other hand, the remediation of subsurface soils is driven by restoration of the groundwater resource. These determinations resulted in different action levels for surface and subsurface soil.

COMMENT 13: If alternative 3A is implemented, what future uses would be possible at this site?

RESPONSE 13: Future use will be restricted to nonresidential development. A master plan exists for the redevelopment of the Peninsula and this remedy should allow the redevelopment identified in this plan to proceed, with the institutional controls detailed in Section 8, item 15 of the ROD.

COMMENT 14: If a person were to develop this area after remediation, would a permit from the Department of Health be required?

RESPONSE 14: As with any site on the inactive hazardous waste disposal site registry, notice must be given to the NYSDEC prior to the start of any physical alteration or construction constituting a substantial change in use. The NYSDEC would coordinate its review with the NYSDOH. Restrictions on the development of the sites are discussed in Section 8, item 15 of the ROD.

COMMENT 15: If a catastrophic event such as a major flood exposed the soil under the cap, who would be responsible for remedying that?

RESPONSE 15: The parties responsible for the site would have the responsibility for long term monitoring and maintenance at the time of any such event. We contemplate that the parties would include; Niagara Mohawk, a National Grid Company, whose consent order includes responsibity for long term monitoring and maintenance of the NIMO Harbor Point Property and two parcels of the Mohawk Valley Oil Site; and, Beazer East, Inc. and Suit Kote Corporation for the New York Tar Emulsion Products Site. The responsibility for the third MVO parcel will be determined by future negotiations.

COMMENT 16: If sewage is piped through the site and there is a problem, what happens if pipes break?

RESPONSE 16: The existing sewer force main was realigned in December 2001 though a less contaminated area of the NIMO Harbor Point Site, which should mitigate any adverse environmental impacts that may be caused by a break in the sewer pipe. The Operations and Maintenance Plan will address infrastructure repairs at the sites.

COMMENT 17: In the materials [concerning this project] available for review at the library, it indicates a large sewer line was sealed off at Lee Street. What will happen to that line in this proposed remedy? Is there any danger of underground water damage?

RESPONSE 17: The Lee Street extension sewer was abandoned and plugged as described in Section 4.2 of the ROD. Flowable tar within the sewer will be removed (see Section 8, item 14). Any water existing in the pipe would be from infiltration which would be managed during the removal of the tar. The remedial design will account for any water in the pipe which could damage remedial components.

COMMENT 18: On a positive note, I want to congratulate Mr. Moreau for the work Niagara Mohawk did in relocating the sewer line. That was significant work and that's why Alternative 3B should be considered [instead of 3A].

RESPONSE 18: Comment noted respecting Niagara Mohawk. As to the selection of the proposed alternative, see RESPONSE 11.

COMMENT 19: A separate document specifying how each operable unit fits into the overall remediation would be helpful. It would also be helpful to have a schedule for all the activities for each operable unit since some of the work overlaps significantly.

RESPONSE 19: A description of the interaction of this operable unit (OU 1) with the remediation of OUs 2 and 3 has been added as Section 8, item number 17 in the ROD. The NYSDEC will include information regarding ongoing and anticipated remedial activities including a schedule in future mailings to the public at appropriate time intervals. This is best accomplished through the citizen participation program, which will continue through design, construction and maintenance of the sites. Also, a document repository exists in the Utica Public Library which will be maintained and continue to be available to the public through the completion of the construction at the site. The

efficacy of the existing citizen participation plans (Niagara Mohawk and Beazer/Suit-Kote) will be evaluated in the remedial design. Also see RESPONSE 3.

COMMENT 20: At every opportunity the public should be given information that summarizes activities planned and underway so that it is more clear how all the separate parts of the remedial program fits together.

RESPONSE 20: See RESPONSE 19.

COMMENT 21: At what point would someone be able to comment on the various alternatives as they interact? For example, the thermal treatment schedules for OU1 and OU3 have to be coordinated. The total amount of material being thermally treated is the combination of OU1 and OU3. This should be detailed more specifically.

RESPONSE 21: At this time, it has not yet been determined whether OU3 sediments and soil will be thermally treated on-site. However, if Niagara Mohawk elects to treat contaminated DSA1 soil and harbor sediment on-site, then the total amount of material that would be thermally treated is the sum of OU1 and OU3. The ROD does include provision for the OU 3 sediment and soil treatment on-site as part of the overall OU 1 project. The NYSDEC agrees that if both OU1 and OU3 materials are thermally treated on-site, coordination would be required to minimize idling of treatment equipment and prevent delays. On-site thermal treatment or other disposal options for dredge spoil area 1 soil and/or harbor sediment will be determined during the remedial design for OU3. Citizen participation will continue through the remedial designs for both OU3 and OU1. Also see RESPONSES 3 and 19.

COMMENT 22: Who would be responsible if property is sold?

RESPONSE 22: As described in RESPONSE 13, Niagara Mohawk and Beazer, Inc. are ultimately responsible for long term remedial monitoring and maintenance of the sites NIMO-Harbor Point Property and New York Tar Emulsions Products site, respectively, regardless of property ownership. This holds true even if these parties pursue an agreement with a property owner for some or all of the monitoring or maintenance requirements. Responsibility for the MVO parcel is subject to continued negotiations.

A letter dated March 25, 2002 was received from Mr. Charles Willard of Niagara Mohawk, a National Grid Company, providing the following comments on the PRAP:

COMMENT 23: Our primary concern is that we believe the preferred remedy described in the PRAP is more extensive than required to protect human health and the environment and does so at a significantly greater cost than other remedies that achieve the goal of protecting human health and the environment. The 1997 Draft Harbor Point Feasibility Study (FS) addressed all elements required to protect health and the environment. Removal beyond that required to protect human health and the environment was added at the direction of the Department following comments on

the 1997 Draft FS. The additional removal was incorporated into the Department-approved 1999 FS

RESPONSE 23: The NYSDEC and NYSDOH consider the selected remedy to provide the greatest protection of human health and the environment while best satisfying the other evaluation criteria and meeting the remedial goals identified in Section 6.

COMMENT 24: Niagara Mohawk Power Corporation was recently acquired by National Grid. The current owner of the NIMO OU-1 Site should be referred to as Niagara Mohawk, A National Grid Company or Niagara Mohawk rather than NIMO or Niagara Mohawk Power Corporation.

RESPONSE 24: The ROD reflects this comment.

COMMENT 25: Page 1, 2nd column, and Section 4.4, page 12: A significant threat to the environment based on contaminant levels in groundwater was not demonstrated and, thus, should be eliminated from consideration. The impact of potentially contaminated groundwater on benthic organisms or other wildlife was not evaluated in the Department-approved site investigation or feasibility study reports. The contribution of contaminated groundwater from OU-1 to the sediment was not measured. The concentration of constituents in groundwater was measured in monitoring wells located on land at a distance from the waterbodies. This did not account for attenuation of the constituents prior to reaching the waterbodies. Additionally, groundwater migrating from the site flows through impacted material located beneath the waterbodies. This deep impacted material will remain in the harbor neck and Utica Harbor after remediation and it is likely that impacted material will remain in the Mohawk River at depth.

RESPONSE 25: Contaminant levels in groundwater *do* present a significant threat to the environment. Because of the presence of non-aqueous phase liquid, (NAPL), the NYSDEC must consider the contaminant levels in the NAPL as well as the aqueous phase contaminants. A significant threat to the environment is one in which the hazardous waste disposed at a site(s) results in, or is reasonably foreseeable to result in (among others) a significant adverse impact upon protected streams and/or significant adverse acute or chronic effects to fish and wildlife. The Utica Harbor, Barge Canal and Mohawk River are protected streams. Benthic organisms are considered wildlife. As food for fish and other aquatic life, an effect on benthic organisms is also an effect on fish and other aquatic life. In making a determination of significant threat (6 NYCRR 375-1.4), the NYSDEC may take into account (and these examples are not exhaustive):

- *the duration, areal extent, or magnitude of severity of the environmental damage the levels of contaminants present*: NAPL in the surface and subsurface soils on the peninsula extends over approximately 17 acres, encompassing all or part of the three sites. When migration of the NAPL to the surface water bodies is accounted for, tens of acres of sediment are also contaminated with NAPL or the hazardous constituents of NAPL. Contaminants on the peninsula have damaged the groundwater aquifer(s) over approximately 60 acres over all three sites. If the contamination were not present, the aquifers would be usable.

- *type, mobility, toxicity, quantity, bioaccumulation and persistence of hazardous waste present*: The NAPL at the site is mobile, as evidenced by: 1. its ability to enter monitoring wells that, when constructed, were devoid of any NAPL; 2. the presence of NAPL 40 feet into the ground surface; 3. the presence of NAPL in native, undisturbed soil below the fill; 4. the presence of NAPL on the surface after the area has been covered with clean fill; and 5. the finding of NAPL in at least one well several years after its construction, a well that, when constructed, showed no signs of NAPL in the soil around it. Persistence of the NAPL is evident by realizing that coal gasification operations have not occurred in the last 40 years, and other operations have not occurred in the last 20 years. NAPL was found in certain peninsula storm sewers including along the pipe walls and at the outfalls to those storm sewers. A NYSDEC guidance value for toxic effects on aquatic life toxic is 4 ppm PAHs in sediment. NAPL at the site has been found to contain over 100,000 ppm PAHs.
- *the location, nature and size of surface waters at and near the site:* As a peninsula, the majority of the Harbor Point area is bounded by surface water. All aquifers on the peninsula eventually discharge to the surrounding surface water. Surface water flow is generally laminar. These conditions exacerbate contamination of the waterbodies given the presence of upland hazardous waste disposal. The size is substantial: a portion of the surface water is the navigable watercourse for the New York State Barge Canal System.
- *levels of contaminants in groundwater, surface water, air and soils at and near the site and areas known to be directly affected or contaminated by waste at the site, including, but not limited to, contravention of ... ambient groundwater standards ...*: Aqueous phase groundwater concentrations at each site were found to be thousands of times greater than the respective groundwater standard for certain chemical contaminants. When NAPL is considered, the contravention is greater: analysis of site NAPL showed 25,000 times the standard for benzene.
- *the proximity of the site to areas of critical environmental concern (as wetlands or aquifers):* The peninsula has an estimated 13 acres of wetlands. Additional wetland exists across the Mohawk River in the Utica Marsh Management Area. Aquifers at the site prior to their contamination were usable.

The impact of potentially contaminated groundwater on benthic organisms or other wildlife was evaluated in the Department-approved site investigation and/or feasibility study reports. As noted above, potentially contaminated groundwater also includes NAPL. Aqueous phase groundwater contamination was shown adjacent and directed into the surface water bodies as reported in the Phase II Groundwater Investigation Report. NAPL and contaminated soil were reported adjacent to the waterbodies in the Data Gap Investigation Report. The Storm Sewer Evaluation Report and Study of Interim Remedial Measures for Harbor Point Site Storm Sewers found NAPL and contaminated sediments in the Washington Street and Lee Street Extension Storm Sewers. The Investigation of the Utica Terminal Harbor Report identified the extent of NAPL and contaminated sediments in the surface waterbodies. The 1997 Feasibility Study for the Harbor Point Site identified the need to address aquatic life exposure to contaminated sediment in the Mohawk River and Utica

Harbor including the harbor neck. The same study identified the prevention of Washington Street Storm sewer sediment from significantly impacting the Utica Harbor.

The NYSDEC agrees that the contribution of contaminated groundwater from OU-1 to the sediment was not measured. Critical to this measurement, however, would be measurement of the amount of NAPL which migrates and discharges to the waterbodies, such as that NAPL through or in the vicinity of certain storm sewers and in certain areas along the bank, partitioning to both the water column and sediment. Unlike aqueous phase groundwater which may have a relatively uniform concentration and a relatively uniform flow, NAPL migration and discharge rate are affected by small perturbations such as the groundwater table fluctuations and storm discharges through the Washington Street sewer. NAPL was found: in the Washington Street sewer which actively discharges to the Utica Harbor, at the Lee Street extension sewer outfall adjacent to the Mohawk River, and adjacent to the harbor in the former Coal Gas Plant area. The presence of NAPL in these areas coupled with the presence of NAPL in the sediments in the surface waterbodies adjacent to these areas makes it is foreseeable to result in continued discharge of NAPL into the sediments. The NYSDEC does not see a need to quantify this discharge.

There are several important considerations which are not accounted for in Niagara Mohawk's comment that "the concentration of constituents in groundwater was measured in monitoring wells located on land at a distance from the waterbodies. This did not account for attenuation of the constituents prior to reaching the waterbodies." First, groundwater concentrations were measured in groundwater samples both inland and on the perimeter, adjacent to the waterbodies. The groundwater standard for benzene was exceeded several hundred fold at monitoring wells MW-15I and 17S, approximately 50 feet and 100 feet, respectively, from the waterbodies. Well MW-17S contained NAPL. In addition, groundwater in monitoring well MW-22S, approximately 50 feet from the harbor, was found to contain benzene 98 times the groundwater standard. Secondly, natural attenuation can only occur at a distance from a continuing source of groundwater contamination. The presence of NAPL adjacent to the waterbodies provides a continuing source of groundwater contamination which would offset any possible reduction in concentration through microbial activity. Thirdly, natural attenuation can only occur in the aqueous phase; natural attenuation has no effect of the concentrations of contaminants present in the NAPL. Fourthly, sediments contaminated from a NAPL source being flushed through the Washington Street sewer do not have the residence time necessary for contaminant reduction by natural attenuation.

The presence of contamination elsewhere does not obviate the need to address the significant threat posed by the presence of hazardous waste constituents at the three sites. In addition, the majority of NAPL being discharged to the waterbodies is occurring above the plane of the sediment cap to be constructed as a component of the NIMO - Harbor Point OU-3 remedy and is thus occurring above any residual contamination that will remain following the completion of the OU-3 remedy. As a remedy has not been selected for the Mohawk River, it is not known at this time how much, if any, contaminated material will remain in the river.

Thus, for the three sites which are the subject of this ROD, there is an ongoing or potential for discharge of contaminants from the site(s) through: the migration of contaminated groundwater; subsurface NAPL migration; subsurface utilities or their bedding; and/or, erosion of contaminated

soil or waste from the site which is located in the floodplain/floodway. The NYSDEC considers all of these exposure pathways which exist under current conditions present at the site(s) to represent a significant threat to public heath and/or the environment.

COMMENT 26: Page 2, 1st column, 1st bullet: Petroleum was stored on the MVO site and should be referenced as a source. This paragraph should be expanded to include "... resulting from the presence of petroleum,..."

RESPONSE 26: The ROD reflects this comment

COMMENT 27: Page 4, 2nd column: NIMO did not exist prior to 1950. The Utica Gas and Electric Company operated the site prior to 1950.

RESPONSE 27: The ROD reflects this comment.

COMMENT 28: Page 7, 1st Column, last paragraph: Other relevant information regarding the site geology should be included. This information has bearing on the cost for site remediation and the impracticability of excavations below the water table at this site. The description in the PRAP should include, at a minimum, the presence of very weak, compressible and organic soils from the ground surface to some significant depths. This, when combined with the shallow groundwater table, will limit the depth of excavation using conventional construction equipment and will require the remediation contractor to institute substantial storm water runoff and groundwater collection and treatment facilities for any excavations, particularly those at any significant depth. An additional concern will include the bearing capacity of the bottom of any significant excavations carried out, particularly in the regulatory floodway.

RESPONSE 28: The ROD reflects the description of the soils present on the Peninsula "as weak, compressible and organic soils." It should be noted however that the recent force main sewer repair opened an excavation 10 feet deep in the middle of the purifier waste bed, an area very typical of the low bearing soil noted. This excavation remained open and dewatered (in March) for several days without the use of any extraordinary construction techniques, shoring or extensive dewatering.

COMMENT 29: Page 9, 1st Column, Waste Materials: The volume estimates provided in Table 4 of the PRAP are not correct if "or" rather than"and" visual contamination is used as a criteria for soil removal. It is assumed that the volume estimates in Table 4 of the PRAP were used to produce the cost estimates shown for Alternative 3A. If the "or visual tar or NAPL contaminated soil" criteria is included, the volume estimates presented by the Department are significantly less than what would be experienced during remediation.

RESPONSE 29: In preparing Table 4, the volumes estimates presented in the FS were reviewed to determine the impact of the use of visual tar or NAPL or 1000 ppm of PAHs as removal criteria. Where justified by the data, the volume estimates were revised to reflect this the removal criteria. NYSDEC feels these estimates are reasonable and reflect volumes to be anticipated given the level of data available at this time.

COMMENT 30: Page 11, Interim Remedial Measures: The Force Main Sewer Relocation Project should be included in the IRM listing. Pilot-scale remedial demonstrations, including the Thermal Desorption Demonstration, ABC Demonstration, Hot and Cold Mix Asphalt Demonstrations have also significantly reduced the volume of impacted media at the site and should be included in this discussion. The reduction in impacted materials that resulted from these activities and cost should be considered when evaluating additional future reductions in contaminant mass to be achieved by the proposed site remedy.

RESPONSE 30: The Force Main Sewer IRM responded to an impact attributable to the purifier waste in the environment, but was not conducted to address a source of contamination or exposure pathway which could be effectively addressed before completion of the RI/FS. Likewise, the wastes which have been treated by the various technology demonstrations conducted at the site were not targeted for removal to address a specific exposure, but rather to provide representative site material for treatability testing. Since we do not consider these projects to be IRMs, as defined in Section 4.2, these projects are discussed under Section 3.2, Remedial History, of the ROD.

COMMENT 31: Page 13, Section 5, last paragraph: Although, pursuant to the applicable Consent Order, Niagara Mohawk will implement the remedy at two of the three parcels comprising the MVO site, Niagara Mohawk has not "acknowledged responsibility." Moreover, the Department should note that Niagara Mohawk never owned or operated the Texaco portion (i.e., the third parcel) of the MVO site.

RESPONSE 31: The ROD has clarified this statement.

COMMENT 32: Page 14, 1st Column, 5th bullet.: The inclusion of the "Maintain the hydraulic capacity of the floodway" as a remediation goal is inconsistent with the rest of the remediation goals and, thus, should be eliminated from the site goals. While carrying out the remedial design, Niagara Mohawk and the design engineer need to comply with applicable SCGs and while the hydraulic capacity of the floodway will need to be considered in the design, the reason for including this requirement in the PRAP as a remediation goal is unclear. The NYSDEC should clarify this goal in terms of how it would impact the recommended alternative.

RESPONSE 32: Agreed, "Maintain the hydraulic capacity of the floodway", is not a goal of the remediation but rather an SCG to be complied with by the design of the remedy selected. This has been eliminated and instead the ROD includes a requirement that any remediation in the floodway and floodplain be consistent with Executive Order 11988 (Flood Management), including, but not limited to, the performance during the remedial design of a hydraulic analysis and floodplain assessment in accordance with the executive order.

COMMENT 33: The selected alternative in the PRAP requires the consolidation of all purifier material (estimated at 80,000 CY) and placement beneath an impermeable cap to be installed at the former Water Gas Plant area. The selected alternative in the Department-approved 1999 FS included the consolidation of purifier material from within the floodway. The goal of the consolidation was to address groundwater quality at the western site perimeter and eliminate the potential for scour

during flooding events. Niagara Mohawk expressed concern about air emissions associated with such a large consolidation in a letter dated December 26, 2001. Although Niagara Mohawk agrees that the emissions can be managed at a smaller scale the greater the purifier material removal volume, the greater the exposed surface area will be during the construction, and, thus, the greater the emission rate. The enhanced emission rates will pose a greater short-term exposure threat to the surrounding community.

RESPONSE 33: Air emissions will be an issue regardless of the volume or time to implement the remedy. Comparable appropriate air emission controls will have to be have to be in place to address this short term impact regardless of the volume of material handled or manner of consolidation. The only difference between the selected remedy and that cited for the Niagara Mohawk FS will be an increased duration during which the controls will be applicable, but there will be comparable controls and level of effort required for any purifier waste excavation.

COMMENT 34: Construction-related concerns were also documented in our December 26, 2001 letter. As explained in this letter, excavations below 6-7 feet are substantially more difficult and very expensive. In addition, the removal of purifier material below this depth does not provide any benefit with respect to the goal of removal within the floodway. Purifier material at this depth would not be subject to future scour. An excavation limit of 6 to 7 feet would remove a majority of the purifier material. As stated in the PRAP (page 7) purifier material is generally present to 7 feet below grade.

RESPONSE 34: As noted by this comment, the majority of the purifier waste is located within 6-7 of the surface, with only isolated areas of purifier waste disposal at greater depth. This distribution of purifier waste was recognized by DEC in preparing the PRAP and we also concur in the comment that this depth is reasonable for the limits of the purifier waste removal. Removal to this depth can be accomplished without extraordinary construction techniques, see RESPONSE 28. The PRAP did not contemplate removal of the purifier waste below 6-7 feet, and this is clarified in the ROD.

COMMENT 35: The removal of the additional purifier material targeted by the PRAP will not reduce human exposure, as the purifier material will be covered with a minimum 2-foot soil cap. The removal within the floodway will provide a 250 to 500-foot buffer between the purifier material and the western site boundary.

RESPONSE 35: The purifier waste represents improper disposal of a waste material. This waste is reactive and corrosive to subsurface structures; has a particularly pungent odor, resulting in nuisance conditions when encountered, and contains toxic constituents, namely cyanide. As such it must be handled as a solid, if not hazardous waste, and properly managed. Of additional concern, as evidenced by the degradation of the sanitary sewer force main, is the impact of this waste on underground utilities or structures, which can be significant. These concerns are what lead the NYSDEC to require this material be consolidated within the WGP containment system.

COMMENT 36: Page 15, #1 and Page 19, #9: The consolidation of purifier material should be limited to the following parameters:

- purifier material within the floodway;
- the maximum excavation depth should limited to the shallower of a six-foot depth or the water table; and
- purifier material should be defined by wood chips exhibiting a prussian blue coloration.

RESPONSE 36: As discussed in RESPONSE 35, the purifier waste is an odoriferous, reactive, and toxic material, which can adversely impact the integrity of subsurface structures and must be properly managed for the long term. NYSDEC will approach limitations on the consolidation of purifier waste as follows:

- Limiting the removal to the floodway is not justified, particularly as the majority of the purifier waste outside the floodway is located in areas also targeted for removal due to the impacts from PAHs and NAPL/coal tar. Also, even though out of the floodway this material is still located within the flood plain. Therefore, purifier waste removal will not be limited to the floodway.
- The purifier waste removal be limited to a six to seven foot excavation depth, as discussed in RESPONSE 34.
- The proposal to utilize visual delineation of purifier waste is reasonable. The remedial design will utilize a description similar to that included in RESPONSE 5.

COMMENT 37: Niagara Mohawk is also concerned regarding the definition of purifier material. The term "purifier waste" refers to a generic classification of materials that are not regulated. "Purifier waste" is typically identified by the presence of wood chips and odor and is thus, very subjective. As any potential threat to the environment is associated with purifier material containing cyanide, Niagara Mohawk proposes defining purifier material by its characteristic prussian blue color. This definition is consistent with our recently submitted comments on the Rome (Kingsley Ave.) site PRAP. To prepare biddable quality documents in accordance with the Order, the area subject to removal should be defined prior to construction. As discussed with the Department, Niagara Mohawk requests that the vertical and lateral extent of the purifier material to be relocated be established in the field during a pre-design investigation. The details of this investigation would be established in a work plan.

RESPONSE 37: The ROD reflects the use of visual delineation of purifier waste, as defined in RESPONSE 5.

COMMENT 38: Page 16, Alt 2, #4: The 10 ppm cPAH concentration value should be an average value rather than a "not to exceed" value. It is assumed that the 10 ppm cPAH value is based on human health exposure. Average concentration values are used in the preparation of health risk assessments. An average concentration value is consistent with USEPA remedies and the remedy for the Harbor Point OU-3 Site.

RESPONSE 38: The NYSDEC and NYSDOH do not utilize averaging or other "geostatistical" methods of assessing sampling data for determining the limits of remedial actions.

COMMENT 39: Page 16, Alt 2, #4: The basis for the removal or covering of soils containing greater than 10 ppm cPAHs should be provided. Assuming that this value is health-based, the exposure assumptions should be provided.

RESPONSE 39: The exposure assumption was based on a evaluation of what the benzo-a-pyrene (BAP) equivalents would be for a 10 ppm cPAH limit. After reviewing over twenty surface soil samples from the areas of the site where this value would be applied, the BAP equivalents of these samples were found consistently to be in the 30% range, meaning a 10 ppm sample could reasonably be expected to contain about 30% BAP equivalent cPAHs. With a BAP equivalent of 0.6 ppm equating to a roughly 1x10-6 risk factor, 3 ppm would equate to about 5x10-6 risk. With this understanding of what a 10 ppm cPAH level approximated, in this case, 10 ppm of cPAHs was deemed an acceptable level for surface soils, given the intended future use of the site.

COMMENT 40: Page 16, Alt 3A, Cost: The cost to implement Alternative 3A is substantially greater than that presented in the PRAP. The description of the remedy should be modified so that the cost provided in the PRAP is within an acceptable range. The capital cost presented by the Department appears to be based on the volumes contained in Table 4 of the PRAP. It is assumed that Table 4 is based on the volume estimates presented in the 1999 FS. The present worth cost of Alternate 3A was estimated to be as high as $115 million as compared to the estimate in the PRAP of $36 million (Niagara Mohawk property alone).

RESPONSE 40: As discussed in RESPONSE 29, Table 4 reflects the visual or 1000 PAH criteria. The cost estimates, and indirectly volume estimates, utilized to determine remedial costs in a FS are considered accurate within -50% to +30% range. Given the large areas of the site exhibiting impacts, regardless of the criteria utilized significant changes in volume can be anticipated once a more detailed delineation is undertaken to design a remedy. As was recently under taken for the Niagara Mohawk Oneida - Sconondoa Street MGP site, when pre-design sampling indicated a significantly greater volume of material to be addressed, Niagara Mohawk requested a reevaluation of the remedy by NYSDEC. This reevaluation resulted in a ROD amendment to address the greater volume to be treated. Should this be the case for this site, a ROD amendment could be considered. The Division of Environmental Remediation TAGM-4059, recognizes significant increases in cost and/or volume as a fundamental change in the ROD where a ROD amendment may be appropriate.

COMMENT 41: The PRAP should contain a break-out of costs relative to each of the sites.

RESPONSE 41: Agreed, a breakdown of the estimated total cost of the selected remedy for each site is included in Section 8 of the ROD.

COMMENT 42: Page 16, Alternative 3A, Time to Implement: The time to implement the remedy does not account for the stringent 4046 levels proposed as a treatment standard or project delays due to other Harbor Point sites. Based on the volume estimates that CDM presented in Table 1 (attached) and making some assumptions about the volume of material that can be treated through a 75 ton per hour treatment unit, the efficiency of the unit, etc, CDM estimates that the minimum time for treatment of the entire volume of material could be 15 months. If the material has to be

treated twice due to the requirement to achieve TAGM 4046 levels, this time could double to 30 months. Treatment to TAGM 4046 levels, rather than the levels presented in Comment # 18 (below) does not provide any additional benefits to human health or the environment and will result in increased costs, difficulties in implementation and potentially, additional site fill.

RESPONSE 42: A one hundred percent retreatment rate, and associated increased in time, contemplated by this comment is unrealistic, provided a throughly designed trial burn program has been undertaken, as will be the case for this site. Treatment to these levels does result in additional benefits to public health and the environment by the more complete destruction of contaminants. This will have a impact on future use and development of the site.

COMMENT 43: Page 16, Alternative 3A, Time to Implement: The implementation time should be fully described to allow the reader to understand the complexities of the project exclusive of the work required by the selected remedy. The time to implement this project is dependent on remedial actions in the Utica Harbor Canal (OU-3), the Monarch Chemical Site, and potential remedial action in the Mohawk River (OU-2). The impact of these projects on the OU-1 schedule should be noted within the remedy and fully described elsewhere in the PRAP. Based on CDM's experiences with similar sites, the complexities involved and the current proposed remediation approach at OU-1 alone, implementation time will more likely be 4 to 5 years.

RESPONSE 43: The time to implement as defined in the introduction to Section 7, "reflects only the time required to implement the remedy, and does not include the time required to design the remedy or procure contracts for design and construction." Time to implement is an estimate of how long a given alternative will take to implement and is intended to provide a baseline on which to evaluate each alternative's implementation schedule. The additional remedial actions for the other operable units and sites on the Peninsula are not part of this "time to implement", but rather are part of the overall site scheduling effort, which is addressed in RESPONSES 3, 19 and 21.

COMMENT 44: Page 17& 18, #1 & #2: The term "visual tar or NAPL" is too subjective without further definition The criteria for removal should include the following:

- visual tar or NAPL **and** (rather than or) concentrations greater than 1,000 ppm PAHs
- Visual tar or NAPL should be defined based on a 3-inch thick seam extending at least 10 feet beyond the excavation and exceeding a volume of 10 cubic yards.
- The limits of the excavation will be defined during the pre-design investigation.
- Excavation should be limited to the shallower of a six-foot depth or the water table.

RESPONSE 44: The NYSDEC will consider the following criteria for removal of visual material:

- "Visual tar or NAPL" will be defined, similar to the manner suggested by Niagara Mohawk for the Rome Kingsley Avenue MGP OU 1 ROD. "Visual tar or NAPL", as defined for this ROD, is soil found to be saturated with NAPL, or have visually observable separate phase product. Soils exhibiting odors, staining and/or sheens will not to be considered for removal as " visual tar or NAPL". Soils exhibiting odors, staining and/or sheens will however be removed if found to exceed the 1000 ppm PAH criteria.

- No qualification of the extent of visible tar or NAPL, such as a "3-inch thick seam extending at least 10 feet beyond the excavation and exceeding a volume of 10 cubic yards", will be considered.
- The limits of the excavation will be defined during the pre-design investigation
- Excavation will be limited to a six foot depth. Only those impacted soils meeting the visual or 1000 ppm PAH criteria will have to be treated, material located above or between contaminated areas, within the areal limits defined for removal, can be stockpiled and reused as backfill without further treatment.

The ROD reflects these criteria.

COMMENT 45: An upper limit to the excavation volume must be included. If the soil removal volume estimated by the pre-design investigation greatly exceeds the volume estimated in Table 4 (beyond the "plus 30 percent" range), the mass removal analysis performed in the FS or PRAP is not valid. If this volume is exceeded, the removal would focus on the most concentrated materials up to the volume estimated by the mass removal analysis.

RESPONSE 45: The NYSDEC recognizes Niagara Mohawk's concern that volumes to be excavated could increase significantly as a result of the pre-design investigation; however, the setting of an upper limit in the absence of data to determine how this will be accomplished or the resulting impact on the protectiveness of the remedy is not possible. Should the pre-design investigation result in significant increases in volume, the remedy can be reevaluated. Also see RESPONSE 40.

COMMENT 46: Page16 &17, #1 and #4: Removal beyond the structural sources and surface tar proposed in the 1997 Draft FS is not warranted and, at a minimum, should not exceed that volume provided in the 1999 Department-approved FS. Any measure of additional removal beyond that proposed in the 1997 FS will not substantially improve groundwater quality.

The FS consultant evaluated years of previous water level data in response to DEC comments and had determined that this figure roughly corresponded to the average site water table elevation.

RESPONSE 46: The Department selected remedy acknowledges the difficulty of excavation "significantly below the water table", but considers the water table on a site wide basis as opposed to the perched situation apparent in the middle of the site. A six foot excavation does not represent a significant excavation below the water table. Recent excavations undertaken as part of the force main relocation were completed well below this depth with no extraordinary efforts. See RESPONSE 28.

COMMENT 47: The site contains underground utilities, a gas regulator station and a substation vital to the City of Utica. The removal or relocation of these facilities was not contemplated during the feasibility studies and is not addressed by the PRAP. The cost to relocate these pipes has not been addressed in the PRAP and, if evaluated with respect to the volume of material immediately around these pipes/conduit, it would be considered infeasible. Therefore, the preferred remedy should allow for a reasonable offset from the pipes/conduit.

RESPONSE 47: The NYSDEC is aware of the presence of some active gas and electrical infrastructure and the ROD recognizes that utility relocation will not be required and that reasonable setbacks may be necessary.

COMMENT 48: Page 17, #2: The removal of soil in the floodway should be limited to 1,000 ppm within a reasonable depth for excavation (6 feet) or the water table. To increase the depth of the excavation beyond this would result in substantial cost increases beyond that estimated in the PRAP. If flowable NAPL is present below 6 feet, Niagara Mohawk proposes removal via a passive recovery system similar to that described in #6 (PRAP, page 18). Alternatively, the Department could consider requiring additional engineering controls be proposed and approved of during the design for residuals left below this depth. We assume the remediation goal the Department is attempting to achieve is primarily the elimination, to the extent practicable, of the environmental threat associated with the potential migration of contaminated soil and contaminated surface water into the adjacent surface water bodies. Secondary goals might also include issues associated with the groundwater. We believe removal of 6 feet of material in the floodway and subsequent replacement of these areas with clean fill will accomplish this goal without the need to extend the excavation below this level.

RESPONSE 48: The ROD has been revised to clarify that this removal is limited to the Lee Street sewer extension vicinity. Should the problem be determined to be more extensive during the pre-design delineation, alternatives such as those outlined above could be considered.

COMMENT 49: Page 17, #4: Requiring activated carbon be used prior to discharge without proper evaluation is not appropriate and may not be cost effective. Discharge limits should be provided so that a remediation system can be properly designed. Treatment systems using a thermal oxidizer or catalytic oxidizer can be less than 1/3 the cost while affording the same level of treatment.

RESPONSE 49: Agreed, the reference to activated carbon has been removed from the ROD. A decision on an air stream treatment technology will be reserved for the design. Discharge limits will be determined in accordance with Air Guide 1, as stated Section 8, item number 5 of the PRAP and now the ROD.

COMMENT 50: Page 18, #5: Treatment of site materials to individual TAGM 4046 recommended soil cleanup objectives is not appropriate, will be difficult to achieve and will add excessive cost to the project. The concentrations presented in TAGM 4046 are intended for unrestricted future site use. Future use restrictions will be implemented as described on page 16, item #6 of the PRAP. It is assumed that the Department feels that 10 ppm cPAHs in surface soil is protective of human health. This is substantially less restrictive than individual TAGM 4046 constituents.

RESPONSE 50: The NYSDEC does not consider that achieving TAGM 4046 levels in the treatment of soils to be inappropriate for this, or any other site, where thermal desorption will be utilized to treat MGP related contaminants in soils or sediments. Trial burns and operation of commercial units have shown that these levels can be routinely achieved with properly designed, operated, and maintained thermal desorption units. These levels are utilized for the permit at the commercial unit in operation NYS which has treated significant quantities of MGP related waste

successfully and, given the competitive prices quoted for treatment and disposal, economically. However, it has come to our attention that during the treatment process, benzene related compounds can be created during the PAH destruction reaction which result in difficulty attaining the TAGM objective for benzene of 0.06 ppm in soil, for the protection of groundwater. Therefore, in lieu of the TAGM objective, we agree that 0.1 ppm can be utilized for benzene, with the levels for the other volatile and semivolatile compounds remaining the TAGM levels.

COMMENT 51: As the soil will be placed back on the site and potentially below the soil cover, the effort to treat the soil to TAGM 4046 concentrations is not appropriate. An appropriate treatment standard for material placed within the upper 2 feet would be that required for the site surface soil or a $1x10^{-6}$ risk factor. Soil placed below the 2-foot cover should be performance based.

RESPONSE 51: The NYSDEC and NYSDOH have considered such a two tiered approach and the ROD reflects the following concept. The thermal desorption unit operating parameters will be determined, based on trial burns of representative site related contaminated media. These parameters will be set so that the treated soil will be expected to achieve the TAGM objectives, with exception of benzene, which will be 0.1 ppm (see RESPONSE 50). Once the operating parameters are determined, the system will be operated at these parameters at all times. During actual operation if treated soil does not achieve these objectives, but is below 10 ppm total cPAHs and 0.1 ppm benzene, it could be utilized for fill in areas which will be under the two foot soil cover. The 10 ppm total cPAH represents the level reached by all confirmatory sampling during the Field Test of MGP Remediation Technologies - Thermal Desorption at the NIMO-Harbor Point Site.

COMMENT 52: Page 18, #6: Please clarify that a passive system will be required for NAPL recovery in accordance with the findings of the NAPL Extraction Demonstration.

RESPONSE 52: A passive system is what was contemplated by the PRAP and this has been clarified in the ROD, along with the ability to upgrade the system to an active or partially active system should tar production by individual wells warrant.

COMMENT 53: Page 18, #8: The need to remove approximately 9,000 cubic yards of soil should be provided. The barrier wall at the former WGP will provide an effective barrier to contaminant migration.

RESPONSE 53: The removal of the MGP structures (tar well and drip box) and associated NAPL laden materials, as well as the surface tars, which the 9000 cubic yards represents are significant source areas. Source areas of this kind are consistently removed when identified at superfund sites in NYS. For example, when remediating a former industrial landfill, when drums or other significant sources of contamination are identified they are routinely removed prior to undertaking closure activities, such as capping and containment walls. This is also consistent with what has been required at MGP sites in Rome, Saratoga Springs and Troy.

COMMENT 54: Figure 10: Although property boundaries are not shown on Figure 10, it appears that the air sparge/SVE and soil removal boundaries on the former Texaco MVO site are not consistent with past studies.

RESPONSE 54: Figure 10 is intended to show in general the areas which will be the focus of the variety of remedial actions to be undertaken as part of the overall remedy for these three sites. Due to the large scale necessitated the limits depicted may be not be as well refined as other more focused figures or studies. As identified previously, predesign investigation will determine delineation of these areas for implementation of the remedy, consistent with the basis provided in Section 8, number 5.

COMMENT 55: We have evaluated the remedy selected by the PRAP and offer an alternative remedy. We believe that this alternative remedy is as protective of human health and the environment as Alternative 3A, yet is cost effective. Elements of this alternative remedy are as described below:

1. Elements of Alternative 2, #1 and #2 and Alternative 3a, #9
   Purifier Waste within the floodway that contains the characteristic prussian blue staining to a maximum depth of 6 feet or the water table will be consolidated beneath the WGP area cap. The purifier waste consolidated at the WGP would be capped with a low permeability cap. The remedial design would determine the maximum limit of purifier material that could be placed within the wall. The cap would satisfy the requirements of a final cover system specified in Part 360-2.15.d. The need for gas a collection system, however, would be evaluated during the remedial design or after operating data is available and indicates that a collection system is not required.

2. Elements of Alternative 2, #3
   A two foot-thick soil cover will be placed over the ANIMO@ Central Area, the WGP and non-Texaco MVO site. The cover would consist of clean imported fill and/or site soil or sediment treated to the site surface soil standard established in element 3 (below). Beneath the two-foot soil cover, a commercial grade filter fabric would be installed to serve as a demarcation layer. The upper six inches of the soil cover would have to be of sufficient quality to support vegetation. The remedial design would evaluate the need for armoring or other stabilization of areas of the cover subject to possible erosion adjacent to the floodway. Acceptable alternatives to the soil cover would be sidewalks, parking lots, building footprints, or other approved strategies that provide a barrier to contact with the contaminated subsurface material.

3. Elements of Alternative 2, #4
   In the NIMO Northern and NIMO Southern Areas, surface soil (defined as the upper 2 feet) beyond the area of the soil cover exceeding an average 10 ppm cPAHs would either be removed or be covered with two feet of clean fill. A more complete characterization of the surface soil would be conducted during the remedial design process.

4. Alternative 2, #5 and #6 (As described in the PRAP)

5. Elements of Alternatives 3A, #1 - #4
Source material associated with former structures (Niagara Mohawk property, not including the WGP) near water bodies will be excavated to a depth of six to eight feet and within an area five feet around the perimeter of each structure. This will include approximately 8,930 cubic yards at the central gasholder and approximately 4,740 cubic yards at the former coal gas plant. Up to 5,000 cubic yards of viscous surface tars outside of the former WGP will be excavated where the potential for upward migration through the soil cover exists. Contaminated material consisting of soil containing PAHs greater than 1,000 ppm and visual tar or NAPL contaminated soil from the areas identified in Table 4 would be removed to the shallower of a six-foot depth or the water table and treated. Visual tar or NAPL will be defined based on a 3-inch thick seam extending at least 10 feet beyond the excavation and exceeding a volume of 10 cubic yards. The limits of the excavation will be defined during the pre-design investigation. If the soil removal volume estimated by the pre-design investigation greatly exceeds the volume estimated in Table 4 (beyond the Aplus 30 percent@ range), the removal will focus on the most concentrated materials up to the volume estimated by the mass removal analysis.

6. Elements of Alternative 3A, #4
At the Mohawk Valley Oil Site, all soil containing greater than 1,000 ppm PAHs and visual tar or NAPL contaminated soil, to the shallower of a six-foot depth or the water table and treated. Visual tar or NAPL will be defined based on a 3-inch thick seam extending at least 10 feet beyond the excavation and exceeding a volume of 10 cubic yards. The limits of the excavation will be defined during the pre-design investigation. If the soil removal volume estimated by the pre-design investigation greatly exceeds the volume estimated in Table 4 (beyond the Aplus 30 percent@ range), the removal will focus on the most concentrated materials up to the volume estimated by the mass removal analysis.

An in-situ air sparging and soil vapor extraction (AS/SVE) system would be installed at the Mohawk Valley Oil site. The system would inject air into the groundwater in any area of the aquifers where benzene is greater than 1 ppb, to promote the volatilization of BTEX and, to a limited extent, certain PAHs. The introduction of air would also enhance biodegradation of the BTEX and PAHs. The volatilized compounds would be recovered from the treatment by using a vacuum applied to the unsaturated zone. This vapor phase air stream discharge would comply with applicable regulatory standards. A series of wellheads optimally spaced would be used for both injection and extraction. The treatment system would be operated until groundwater contaminant concentrations achieved groundwater standards or until vapor concentrations reach asymptotic levels for six months.

7. Elements of Alternative 3A, #5
The source material associated with former structures would be treated by a low temperature thermal desorption unit. If the soil is placed onsite at the surface, the upper two feet will comply with the surface soil standard established in Niagara Mohawk element #3 above.

The upper six inches of the soil cover would have to be of sufficient quality to support vegetation.

8. Elements of Alternative 3A, #6 and #2
Within the regulated floodway, including the area of the former Lee Street extension sewer outfall and the area of monitoring well MW-505I, a series of NAPL recovery wells or trenches will be installed. The remedial design would determine the aerial extent of the NAPL recovery.

9. Alternative 3A, #7 (As described in the PRAP)

10. Alternative 3A, #8 As described in the PRAP with the exception of soil removal.

11. Alternative 3A, #10 and #11 (As described in the PRAP)

RESPONSE 55: NYSDEC has revised Section 8 of the ROD to take into account, in whole or in part, some the elements of the Niagara Mohawk alternative remedy identified by this comment. The NYSDEC's evaluation of the elements of the Niagara Mohawk alternative are discussed in RESPONSES 29, 33-40 and 44-53.

A letter dated March 23, 2002 was received from Mr. Frank J. Williams of Earth Tech Inc., on behalf of ChevronTexaco Corporation , providing the following comments on the PRAP:

COMMENT 56: Operable Unit 1 has historically referred to only to the NIMO portion of the peninsula, as indicated on the cover of the PRAP and in the last paragraph of [Section 2]. If Operable Unit is now defined as including the MVO Site, it should include the NYTEP Site as well.

RESPONSE 56: The ROD has been revised to remove this reference to the MVO site as part of Operable Unit 1 of the Harbor Point site. Also see RESPONSE 3.

COMMENT 57: [Section 3.1.] The description of the MVO Site contains some inaccuracies. The NIMO Light Oil Plant reportedly occupied the entire northern portion of the MVO Site, including the parcel later occupied by Rosselli Tar Asphalt Services. NIMO refined benzene and light oil from the oils condensed from the raw gas generated by the coal gasification plant. The northern portion of the Light Oil Plant, which became known as the Niagara Flats Terminal, was acquired by Mohawk Valley Oil Company in 1961 and utilized for storage and distribution of Number 2 and Number 4 Fuel Oils. The 1.9 acre parcel in the southern portion of the MVO Site was purchased by Texaco in approximately 1917 and, by 1938, five large vertical tanks were erected at different locations on this southern portion. Texaco marketed kerosene and straight distillate gasolines from its terminal, not fuel oil. In 1965 Texaco sold the terminal to Mohawk Valley Oil Company, which used the terminal for storage of Number 2 and Number 4 Fuel Oils.

RESPONSE 57: The NYSDEC modified Section 3.1 to account for the comment. The NYSDEC notes the additional detail, but does not believe it is necessary to revise the ROD, inclusion of this comment in the responsiveness summary incorporates this for the record.

COMMENT 58: Page 5, column 2, paragraph 3, line 3. No hazardous wastes were generated or released by the petroleum terminal operators. As noted in the DEC's Registry of Inactive Hazardous Waste Disposal Sites (April, 2001), the hazardous wastes identified at the MVO Site are MGP wastes (hazardous waste code D018) and chlorinated solvents from the nearby Monarch Chemical Site.

RESPONSE 58: The NYSDEC acknowledges that petroleum contaminated media and debris are not regulated as hazardous wastes. However, consistent with the Registry, there are hazardous wastes and hazardous substances at the MVO Site of both on-site and upgradient origins. Remediation of petroleum related contamination, if mixed or co-mingled with hazardous waste, is required at Registry sites, as is petroleum related contamination unrelated to hazardous waste pursuant to Article 12 of Navigation Law.

COMMENT 59: Page 11, column 1, 7 lines from bottom. The statement that the Washington Street storm sewer "is aligned through NAPL-laden soils at MVO" is misleading. The NAPL-laden soils through which the sewer is aligned are along the western, upgradient edge of the MVO Site. The storm sewer is not on the MVO Site except for a small portion that cuts across the northern tip of the site. Furthermore, the data indicate that the NAPL found along Washington Street did not originate on the MVO Site. For example, the boring logs for monitoring wells MW-13S and MW-131, located on Washington Street next to the MVO Site, describe the soils as "coal tar saturated."

RESPONSE 59: The NYSDEC is not aware of data which would support a conclusion that all or a portion of the NAPL found along Washington Street could not have been of MVO origin. Since former operations at the MVO Site included the refining of coal gasification byproducts, it would not be unreasonable to find coal tar on or adjacent to the site. Also, NAPLs have been demonstrated to migrate independent of the groundwater flow direction. Thus, while a portion of the Washington Street sewer is hydraulically upgradient of the MVO Site, this would not preclude the migration of NAPL to the sewer from the MVO Site. The description of the storm sewer alignment, from this comment, is reflected in the ROD.

COMMENT 60: Page 13, column 2, paragraph 2, line 2. Niagara Mohawk has not acknowledged any responsibility for contamination present on the former Texaco parcel of the MVO Site. However, as discussed below and during Texaco's meeting with the DEC in late 1999, there is abundant evidence that the soil and groundwater at the former Texaco terminal are contaminated by MGP wastes, including NAPL, benzene and PAHs that migrated to the parcel from adjacent areas.

RESPONSE 60: The remedy selected by the ROD does not discriminate between former Texaco and non-Texaco owned property. The MVO Site includes, the Niagara Flats Terminal (parcel 1), the Rosselli Associates Tar Asphalt Services Parcel (parcel 2) and the former Texaco Terminal

(parcel 3). Contamination at the site is identified in Section 4 of the ROD. The NYSDEC will pursue all potentially responsible parties for the remediation of the site.

COMMENT 61: Page 28, column 1, paragraph 5. Reference is made to Figure 10, which indicates that soil in excess of 1,000 ppm total PAHs will be removed from the former Texaco parcel. However, the subsurface soil analytical data indicate that there are no areas on the Texaco parcel that exceed 1,000 ppm total PAHs (Figure 8). The PRAP provides no justification for excavating soils on the MVO Site to a depth of 9 feet instead of the 6-foot depth required on the NIMO property.

RESPONSE 61: The NYSDEC agrees the data to date has not indicated PAHs in excess of 1,000 ppm on the former Texaco parcel. As noted in RESPONSES 44, and 54, predesign investigations will confirm the limits of excavation for PAHs, coal tar and NAPL, and for the MVO site, the limits of the AS/SVE system. The PRAP followed the Niagara Mohawk FS recommendation to excavate to nine feet below ground surface at this site, since the greater depth to the water table in this area made the deeper excavation feasible, allowing a significant percentage of the waste in the impacted soils in this area to be removed. Because of its large scale, Figure 10 is intended to be a summary and is not intended to fully delineate every removal area. This delineation will be made based on the pre-design investigation.

COMMENT 62: Page 28, column 2, paragraph 5, 10 lines from bottom. The sparge/SVE system installed on the Texaco parcel may not achieve groundwater standards or asymptotic levels for benzene unless the upgradient sources of the benzene are addressed first. Investigations conducted by NIMO indicate that benzene in the shallow aquifer beneath the Texaco parcel has been migrating from coal tar source areas located west of the Texaco parcel. Benzene in the intermediate aquifer has been migrating to the Texaco parcel from source areas on the former Water Gas Plant.

RESPONSE 62: The sources of benzene upgradient of MVO will be addressed to the extent feasible through contaminated soil/ NAPL/tar removal and provision of a barrier wall. However, a reduced volume of the benzene source will remain following the completion of the remedy. Although sources of benzene will remain, particularly in the core of the peninsula, the AS/SVE system will reduce contaminants in the groundwater prior to its discharge to the Utica Harbor by treating contamination in the soil of the MVO site, as well as treating groundwater passing through the site before discharge to the Harbor. This is in keeping with the ROD's goal of eliminating, to the extent practicable, contaminants discharging into adjacent surface water bodies.

COMMENT 63: Page 29, column 1, paragraph 9. The PRAP does not adequately explain the purpose of the WGP barrier wall or the basis for installing it around "a portion of the Monarch Chemical Site where PAH concentrations in soil are greater than 1,000 ppm." If the intended purpose of the barrier wall is the containment of NAPL and groundwater contaminated by the NAPL, consideration should be given to revising the alignment of the wall to encompass these wastes where they have been found north of the Water Gas Plant parcel.

Boring and test pit logs from a number of studies, including the Pre-Design Investigation by Camp Dresser & McKee, provide abundant evidence that MGP wastes are present in the northern end of

the Water Gas Plant (WGP) panhandle. The same data show that these wastes have migrated to the north and east, beyond the proposed barrier wall alignment. The MGP wastes include coal tar and possibly oil from a former NIMO-owned above ground tank located in the northern portion of the WGP panhandle; Coal tar is present at considerable distances from the WGP panhandle along the south side of Lee Street and the MGP wastes, including coal tar and possibly oil, migrated to the north, as evidenced by direct observations in subsurface soils on the Texaco parcel.

If the intended purpose of the barrier wall is to contain NAPL and groundwater contaminated by the NAPL, consideration should be given to revising the alignment of the wall to encompass these wastes where they have been found north of the Water Gas Plant parcel.

RESPONSE 63: The intended purpose of the barrier wall is to contain NAPL and contaminated groundwater where feasible on the peninsula. Although the NYSDEC has approved a preliminary alignment of the wall, a final alignment has not been approved at this time. The majority of the NAPL impacted areas of the Water Gas Plant area and the Monarch Chemical site will be contained within the wall using the 1,000 ppm PAH critieria. The wall cannot be feasibly extended north of the water gas plant because of the increasingly greater depth to a suitable confining layer to key the wall into. NAPL and groundwater contamination on the MVO site north of the water gas plant will be addressed either through removal or groundwater treatment components of the selected remedy.

A letter dated March 25, 2002 was received from Michael Slenska of Beazer East, Inc. (Beazer), which conveyed an attached comment document containing the following comments on the PRAP.

COMMENT 64: The Department did not follow its own guidance document (TAGM 4022) or Department regulations (6 NYCRR 375-1.10) relating to remedy selection; nor did it follow the terms of the Order on Consent covering the investigation of the NYTEP site; and so, its proposed remedy was developed in an arbitrary and capricious manner.

RESPONSE 64: This comment comes from respondents under a Department Order on Consent committing them, among other things, to undertake the investigation of the NYTEP property and to recommend a remedy for that property.

In short, the Department disagrees with the commenter: the Department followed its own guidance and regulations in proposing the remedy for the Harbor Point peninsula, which includes the NYTEP property.

As to the assertion that the Department failed to follow the terms of the Consent Order issued to the commenter, it first must be understood that the obligations under the investigatory portions of a State Superfund consent order are to generate information sufficient to enable the Department to evaluate various remedial approaches and then to propose one to have implemented. The Department, therefore, may waive the necessity of a respondent to honor certain obligations identified in the consent order when it concludes that it has enough information to make its own remedial evaluations and decisions, and did so here. The Department met with the commenter on June 25, 2001 and told

it of the Department's conclusion, based upon information contained in the commenter's Remedial Investigation/Risk Assessment Report dated September 10, 1999 and upon other information within its possession, that prevention of further groundwater resource degradation and groundwater quality restoration would serve as key remedial objectives. The Department's decision to waive the commenter's obligation to submit a Feasibility Study also was based upon the Report's failure to interpret data correctly and to conclude that the contaminant sources found at the site constitute threats to the groundwater resource, despite repeated Department attempts to have the commenter correct the Report; and the Department's conclusion that any remedial proposal in a Feasibility Study the commenter would have generated from the Report would fail to protect the groundwater resource, thereby making it a futile exercise to demand something of the commenter that would not adequately address a key Department concern. This conclusion essentially meant that honoring these remedial objectives would result in cleanup goals more stringent than those that would pertain had groundwater protection and restoration not been an issue and the key concern was to ensure that current and future uses could proceed safely. Accordingly, by letter dated July 16, 2001, the Department notified the commenter that it did not have to undertake a Feasibility Study, the document in which the consent order authorized the commenter to submit a site-specific assessment (at Subparagraph I.A.1[1]). Instead of challenging this notification, the commenter elected, as its July 30, 2001 letter to the Department states, to work with the Department to develop a "mutually acceptable remediation approach for the Site" but ultimately failed to do so. The Department believes, therefore, that it did not violate the consent order issued to the commenter and that in fact, the commenter did violate it. It also believes that it tried to save the commenter the expense and effort of developing a study that would have generated cleanup objectives inadequate for groundwater protection and restoration and that therefore the Department would have rejected.

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[1]The full text of the provision is as follows: "Respondents may include as part of the focused Feasibility Study's evaluation of on-Site remedial actions to eliminate or mitigate, to the maximum extent practicable, all health and environmental hazards and potential hazards attributable to disposal or release of hazardous substances, remediation cleanup levels based upon a site-specific risk assessment that shall consider a range of exposure scenarios and assumptions...[and] which may include appropriate institutional controls. The site-specific risk assessment shall be consistent with guidance and regulations for exposure assessment developed by the United States Environmental Protection Agency pursuant to CERCLA and other statutory authorities as applicable; and any proposed remediation cleanup level based upon a Site-specific risk assessment shall be protective of the public health and safety and of the environment....Unless the Department determines that such risk assessment is not consistent with the expected future uses of the Site, and or not consistent with peer-reviewed scientific evidence or methodologies, or appropriate guidance and regulations--in which case, the Department shall provide Respondents with a written explanation of the basis for such a determination--the Site-specific risk-based remediation cleanup level determined by application of the risk assessment shall be approved by the Department and shall be used for purposes of selecting the remedial alternative for the Site and other areas covered by the focused Remedial Investigation."

The commenter makes a number of other statements in sections 1 and 2 of its remarks relating to the adequacy of its Remedial Investigation/Risk Assessment Report. Essentially, the commenter believes that it is adequate; and the Department believes that only the data are adequate and they are enough to enable the Department, in conjunction with other information it has, to develop remedial alternatives and to propose a remedy.[2]

The commenter also asserts that a single ROD covering multiple sites is arbitrary and capricious. The Department disagrees. What the Department has done here reflects past Department practice when dealing with a number of sites in close proximity to each other having similar hazardous substance constituents, geology, and receptors and potential receptors. Witness, for example, the ROD for ALCOA, March 1991; ROD for ALCOA, January 1992; ROD for Former Autoline Automotive Site, 89 Frost Street Site and Former Applied Fluidics Site, March 2000; ROD for Northrop Grumman and Naval Weapons Industrial Reserve Plant Sites March 2001. Nothing in the commenter's order expressly precludes the Department from combining this site with others for remedy determination purposes.

COMMENT 65: Section 3.1. Neither the Harbor Point RI nor the Mohawk Valley RI analyzed conditions at the NYTEP Site, and thus neither present any details concerning the health risks that may be presented by the conditions at the NYTEP Site.

RESPONSE 65: While the NIMO - Harbor Point Supplemental RI and the MVO RI do not specifically discuss the NYTEP Site, data collected from the NYTEP RI showed that NYTEP, like NIMO Harbor Point and MVO, has the same contaminants in concentrations in excess of the SCGs and the same exposure pathways, not only for human health exposure but also for environmental exposure. The NIMO Harbor Point, MVO and NYTEP risk assessments were each used in the remedy selection process to identify potential exposure pathways which need to be addressed. It is important to note that these risk assessments do not discuss the groundwater as an environmental resource, that, if damaged, must be actively corrected. Often, and this is the case at NIMO Harbor Point, MVO, and NYTEP, the remedial actions to correct the damage to the groundwater, an environmental resource is the driver of the remedy, overshadowing the remedial actions needed to address the human health risk or exposure.

COMMENT 66: The PRAP neglects to indicate that a Human Health and ecological risk assessment of the NYTEP Site was conducted. The PRAP should include reference to the risk assessments for NIMO Harbor Point and MVO.

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[2]More fully explained: "While the data gathered during the investigation ... is satisfactory, the Department found the report unsatisfactory in its interpretation of that data, and does not accept certain conclusions drawn in the narrative report ... For purposes of proceeding with this project, the Department will use the data and identified human health exposure pathways in developing remedial objectives for the combined site PRAP. Beazer is thus relieved of its obligation to undertake further work on the Remedial Investigation/Risk Assessment Report to the satisfaction of the Department." Spellman to Slenska letter dated July 16, 2001.

RESPONSE 66: Section 4.3 of the ROD references the NYTEP risk assessment. The NYSDOH reviewed the RA and, although there were some differences regarding assumptions made and methods used, the differences would not have affected the selection of a remedy, therefore NYSDOH did not pursue this with the PRP's consultant.

COMMENT 67: The PRAP does not indicate whether the potential exposure pathways identified in Section 4.3 are complete or hypothetical.

RESPONSE 67: The language from the PRAP, already reflects this comment since it states that " ...the following pathways are know to, or may exist, at the peninsula:" To clarify this issue, the ROD states, "The NYSDOH considers all of these pathways to be complete, with the exception of the exposure through ingestion of groundwater. This is considered a potential pathway and action will be required to prevent it from becoming a complete exposure pathway."

COMMENT 68: Because this area is currently supplied with municipal drinking water and because the anticipated future land use is commercial/industrial, ingestion of groundwater as a source of drinking water by an on-site resident should not be considered a potentially completed pathway; the PRAP should be revised accordingly.

RESPONSE 68: Neither the ability to supply the area with municipal drinking water nor the anticipated future land use as being commercial/industrial preclude one from providing a well(s) at the sites from which there could be ingestion of groundwater contaminants. Ingestion of groundwater whether in a residential or commercial/industrial scenario is still a potential exposure.

COMMENT 69: The mere existence of a completed exposure pathway does not connote that an unacceptable risk exists that requires remediation. The PRAP further does not indicate what criteria are used to determine whether the risk from a potential exposure pathway is considered unacceptable. The PRAP should be revised to describe in more detail the potential receptors and the portions of the peninsula for which an unacceptable potential risk may exist as a result of these potential exposures. Further, the PRAP should be clarified to state whether such exposures are "known to exist" or "may exist," and whether risk management and remediation decisions will be made on the basis of risk associated with potential exposure pathways that are "known to exist" or "may exist."

RESPONSE 69: As indicated in Section 4 of the PRAP, NYSDEC standards, criteria and guidance values are used in conjunction with 6 NYCRR 375-1.4 to determine whether a significant threat to the environment exists. The NYSDEC standards, criteria and guidance values have risk based origins which are protective of both public health and the environment. In some cases environmental SCGs are more conservative and thus environmental concerns must be taken into consideration as well as human health. The determination of the threat to public health is made by the NYSDOH considering a combination of quantitative risk assessment and a qualitative assessment of ongoing and potential exposures. Risk management decisions are made on the basis of numerical risks for any ongoing and potential exposures, in conjunction with the NYSDOH policy of eliminating or minimizing exposures where feasible. The NYSDEC and NYSDOH believe the PRAP sufficiently describes these exposures and receptors in Section 4.

COMMENT 70: Certain of the potential exposure pathways evaluated in the NYTEP, NIMO and MVO risk assessments indicated that potential risks exceeding EPA's target risk range of 1x[10]-6 to [1x]10-4 or EPA's target hazard index of 1 may be associated with potential exposures to surface soil. The PRAP proposes to excavate surface soil with "[concentrations of total] PAHs exceeding 1000 ppm [mg/kg] or visual indication of tar or NAPL " and replace the soil with clean fill as a means of reducing constituent concentrations in surface soil. However, such potential exposures and subsequent potential risks can be reduced by simply eliminating potential exposure to surface soil containing such concentrations, rather than by removing the soil containing the concentrations. Reduction in potential risk associated with constituents in surface soil can be achieved by placing clean fill over the existing surface soil such that potential receptors contact the fill material instead of the underlying soil. For the purposes of reducing potential exposures of the receptors evaluated in the risk assessments, excavating the existing surface soil and replacing with clean fill accomplishes no more risk reduction than clean fill alone, while adding considerable cost.

RESPONSE 70: This comment fails to recognize that below the contaminated surface soil lies more hazardous substance contamination which, in addition to the surface soil, contaminates the groundwater resource. Also, contamination in the subsurface is able to move laterally into adjacent properties and to more environmentally sensitive areas such as the Utica Harbor and Mohawk River. Where exposure to surface soil is the sole threat, a soil cover may be determined to be sufficient to eliminate that exposure; there are areas on the peninsula where this is the case and the ROD reflects this. However, where there is surface and/or subsurface contamination which contaminates the groundwater, a mere covering of the surface must be rejected as a potential remedy because:

- a soil cover alone does not satisfy the remedial action objective of restoring the aquifer(s) to Class GA Water Quality Criteria to the extent practicable;
- a soil cover alone does not satisfy the NCP requirement of active response measures to address groundwater contamination;
- a soil cover alone does not satisfy the "protective of the environment" requirement unless all removal or treatment options have been determined to not be cost effective;
- a soil cover alone does not give preference to reducing the toxicity, mobility or volume of the hazardous waste constituents as required by regulation; and
- a soil cover alone would not reduce exposure should excavation be desired or required under the cover.

As described in Section 4, the majority of the peninsula, including all three sites, has both surface and subsurface contamination which contaminates the aquifer and migrates to the surface water bodies. Reduction in potential risk is a factor to be considered in remedy selection. However, other factors, which often overshadow reducing the potential risk, must also be considered in remedy selection.

COMMENT 71: The PRAP indicates that the preferred remedy for the three Sites includes excavation of soil containing "visual indication of NAPL or tar or containing concentrations of total PAH exceeding 1000 mg/kg." The PRAP provides no basis for the selection of this performance

standard. The PRAP does not indicate whether the concentration is based on potential risk associated with certain potential human exposures, ecological exposures, or other considerations.

RESPONSE 71: The basis for the visual criteria is described in Section 7 of the PRAP and in RESPONSE 44.

COMMENT 72: The conclusions presented in Section 4.4 do not represent potential ecological risks, if any, posed by the NYTEP Site.

RESPONSE 72: The NYSDEC believes that the following NYTEP contaminants result in or contribute to the degradation of the environmental resources of the Peninsula and Utica Harbor. NAPL and/or tar and/or contaminated soil was found at the surface and in the subsurface at the NYTEP Site. In addition NAPL, as well as tar and contaminated soil, was found adjacent to the NYTEP Site. NAPL was found in the Washington Street sewer which is aligned adjacent to the NYTEP Site and discharges to the Utica Harbor. Sediments in the harbor at the outfall contained NAPL and were contaminated with the same constituents as those constituents present at NYTEP. The Lee Street extension sewer similarly runs adjacent to the NYTEP Site. NAPL was found in the Lee Street extension sewer. Sediments in the river at the outfall contained NAPL and were contaminated with the same constituents as those constituents present at NYTEP. Sediments in the harbor and river exceed sediment SCGs. It is an appropriate remedial objective to eliminate to the extent practicable the environmental exposure pathways presented in Section 4.4.

COMMENT 73: Similarly, Section 4.4 indicates that another potential exposure pathway is migration of site-related constituents from the site to the Mohawk River and Utica Harbor via erosion of soils during a flood event. Because no evidence exists to demonstrate that erosion will cause constituents from the NYTEP Site to reach either of these surface water bodies at concentrations that would pose a potential risk to fish and wildlife resources, there is no need for remediation of the NYTEP Site to prevent these potential exposures.

RESPONSE 73: Tar and contaminated soil were found on the surface of the NYTEP Site, which is located in the floodplain. It is reasonable to assume a flood event could transport the tar and/or contaminants. Drainage of the flood waters would occur through the floodway, which includes the Mohawk River and Utica Harbor at this location. Flood waters would likely not dissolve the tar and thus contaminants in the tar would remain at concentrations above the SCGs. Dissolution of the tar would also be a detriment to water quality. For the protection of the environment, it is an appropriate remedial goal to prevent the transport of tar and/or contaminants into the surface water bodies to the extent feasible.

COMMENT 74: Section 4.4 of the PRAP also indicates that direct contact of ecological receptors to constituents in surface and subsurface soils and surface water may result in potential risks. As described above, no evidence exists to suggest that concentrations of NYTEP Site-related constituents in surface water could result in potential risks. Because the NYTEP Site is a small (3 Acres), highly disturbed, industrial property, surrounded by industrial properties, it does not represent important ecological habitat and, thus, is not likely to pose a potential risk to valued fish

and wildlife resources. In any case, a detailed baseline ecological risk assessment has not been conducted for the NYTEP Site, so the PRAP has no basis on which to conclude that direct contact risks to terrestrial receptors exist. Further, if such potential risks were to exist, they could be eliminated by simply covering portions of the Site. Excavation of on-Site soils is not required to eliminate the terrestrial direct contact exposure pathway.

RESPONSE 74: Surface tar and contaminated surface soil exist at all three sites. Along with the toxic effects of the contaminants, the sticky-physical nature of the tar allows the tar to adhere to wildlife where the tar could be transported off-site and brought to burrowing or nesting areas or contact other wildlife. Tar, contaminated soil and NAPL also exist in the subsurface at all three sites. Burrowing animals and root systems could be exposed to contaminants. Birds may be particularly sensitive to the toxicity of MGP wastes being transported to nesting areas. Quantities of 7,12 dimethylbenz(a)anthracene as low as 0.002 microgram on the surface of an egg can produce mortality and reduction in embryonic growth. For a more complete discussion of the toxicity of PAHs see *Polycyclic Aromatic Hydrocarbon Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review* Eisler, R Biological Report 85(1.11) Contaminant Reviews US Fish and Wildlife Service. There is evidence, at the NYTEP Site in particular, that tar in the subsurface is able to move upward and breakthrough to the surface; the effects of erosion would also cause subsurface contaminants to become surface contaminants. Contaminated surface water also exists on the peninsula which could spread to other areas of the peninsula through a flood event. Eliminating wildlife (as well as human) exposure to the tar and contaminants is an appropriate remedial goal to be protective of the environment.

COMMENT 75: The fourth environmental exposure pathway listed in Section 4.4 of the PRAP that could result in potential risk is direct contact by benthic invertebrates to sediments containing Site-related constituents that migrated to the sediments either via runoff or groundwater. As indicated above, no evidence exists to demonstrate that constituents from the NYTEP Site have or will reach surface waters at concentrations that would pose a potential risk to benthic life.

RESPONSE 75: As detailed in RESPONSES 25 and 72, the NYTEP site contributes to sediment contamination of the adjacent surface water bodies. Sediment concentrations exceed the NYSDEC sediment SCGs; the NYSDEC has determined that the sediment conditions in these waterbodies pose a significant environmental threat.

COMMENT 76: Moreover, on December 4, 2000 Beazer provided to NYSDEC comments on the total PAH (tPAH) sediment cleanup levels of 4 and 10 ppm contained in the Proposed Remedial Action Plan for the Niagara Mohawk Harbor Point Site Operable Unit 3 – Utica Harbor for the top two feet of sediment in Utica Harbor (Beazer, December 2000). Those comments provide two lines of evidence that question the basis of, and the need for, the proposed cleanup levels... Thus, the site-specific biological data provide no basis to suggest that remediation of Utica Harbor sediments is required and contradict the conclusion in Section 4.4 of the PRAP that potential risks to benthic life are large enough to warrant the upland remedy presented in the PRAP.

RESPONSE 76: This comment is not relevant to the remedy addressed by this ROD.

COMMENT 77: NYSDEC inaccurately states that there are no massive distinct confining units across the peninsula, however, a confining unit for the shallow water bearing zone was identified underlying the entire NYTEP Site... The presence of this confining unit is a significant site-specific factor to be considered for developing and evaluating potential remedial alternatives for the NYTEP Site. The PRAP ignores this unit in developing alternatives for the NYTEP Site.

RESPONSE 77: Boring logs for the NYTEP site investigations indicate vertical fractures, vert[ical] root systems, wood fragments and sand seams in the upper river deposits which Beazer refers to as a confining unit. These fractures, roots, wood fragments and seams lead to localized areas of higher permeability. The majority of the drilling logs for soil borings through these deposits recorded the presence of tar and NAPL. Regardless of what the hydraulic conductivity tests may average, NAPL and tar is present in the deposits and thus has not been "confined". Also, NAPL and contaminated groundwater is present below the upper river deposits and thus, even if the unit was confining, it would be of little use in developing a remedial alternative.

COMMENT 78: The text in Section 4.1.3 of the PRAP references Figure 5, which purportedly depicts measurable nonaqueous phase liquid (NAPL) thickness. In the legend of Figure 5, NYSDEC incorrectly states that no NAPL thickness data was available on the NYTEP Site. ... ... As part of the NYTEP RI/RA field investigation, eight shallow monitoring wells and five intermediate zone monitoring wells were inspected, monitored, and sampled. Of these thirteen wells, only MW-507, an off-Site intermediate zone groundwater monitoring well located southeast and hydraulically and geologically upgradient of the Site, contained NAPL. Figure 5 in the PRAP should be revised to provide an accurate description of NYTEP Site conditions, which utilizes all of the available NAPL information. Accordingly, the text of the PRAP should be revised to state that no separate phase NAPL was observed in monitoring wells located on the NYTEP Site.

RESPONSE 78: Because a delayed entry effect can occur, in which it can take several months for NAPL to enter a monitoring well (which has been observed by the NYSDEC repeatedly at MGP sites), measuring for NAPL in monitoring wells should occur over a period of several months. This was not done at NYTEP and therefore the NYTEP data is inconclusive regarding measurable NAPL in NYTEP wells. Section 8, number 7 of the ROD reflects that additional data will be collected during the design phase.

COMMENT 79: The text inaccurately states that surface soils were collected distinct from visibly contaminated areas of the Site. As part of the RI field investigation Beazer collected surface soil samples and surface road tar samples. As discussed in the NYTEP Site RI/RA Report, Section 2.1.2, numerous soil samples were located, collected and analyzed specifically because of the presence of Site-related constituents. As concluded in Section 6.1 of the NYTEP RI/RA Report, no VOCs were present in the Site surficial soils at the NYTEP Site, however, VOCs were detected in the surface road tar samples.

RESPONSE 79: The PRAP text was correct and remains in the ROD. As pointed out by the comment, surface soil and surface tar samples were collected separately and their corresponding analyses reported separately.

COMMENT 80: The text states that "There are three areas on the peninsula where groundwater contaminants exceeding the SCGs discharge to the adjacent water bodies. These areas are the Lee Street Extension Sewer outfall, the CGP area, and the MVO Site." Note that the NYTEP Site is not adjacent to any of these potential discharge locations and that there is no evidence to demonstrate that constituents from the NYTEP Site have, or will, migrate(d) to these potential discharge locations. In addition, current and future discharges from the Lee Street Sewer Extension outfall were remediated by NIMO as part of the interim measure for this area.

Beazer requests that NYSDEC provide the basis for this statement. Furthermore, Beazer requests that NYSDEC identify whether or not this discharge is being attributed to the NYTEP Site.

RESPONSE 80: The statement quoted above is concluded from the NIMO-Harbor Point RI reports, including the Phase II Groundwater Investigation report. (Beazer's investigation was limited to the NYTEP Site.) NAPL, tar and contaminated soil on the NYTEP Site contribute to peninsula-wide groundwater contamination, which discharges to the surface water bodies. In addition, migration of NAPL, a groundwater contaminant source, occurs to the surface water bodies as described in RESPONSES 25 and 72.

COMMENT 81: The NYSDEC inaccurately states that the NYTEP Site wastes and conditions are the same as the surrounding NIMO site, therefore, NYSDEC evaluated NYTEP in accordance with the NIMO FS. As discussed above, important differences exist between the NIMO Sites and the NYTEP Site. Appropriate alternatives must be developed and evaluated for the NYTEP Site. Furthermore, as discussed in Sections 1 and 2 above, the NYTEP Site Consent Order requires that a separate FS be conducted for the NYTEP Site.

RESPONSE 81: Since the comment did not specify what the perceived differences are, a specific response cannot be given. As indicated in the ROD, the remedial objectives, particularly those objectives relating to the protection of the groundwater resource, can only be achieved efficiently through a holistic remedy applied to all three sites. This is in consideration of:

- Figure 2-1 of the NYTEP RI report which shows surface tar bounded by the property line. While Beazer was only required to investigate Suit-Kote property, this is not accurate; in reality the tar extends beyond the property line onto adjacent property.
- Figure 2.1 of the Data Gap Investigation Report which shows NAPL bounded by Niagara Mohawk's property line and indicates "No NMPC Testing Data" on the NYTEP Site. In reality NAPL exists on NYTEP as well, thus straddling the property line in the subsurface.
- Niagara Mohawk drilled 23 borings within 20 feet of the NYTEP Site. 8 borings were drilled on the NYTEP Site within 40 feet of the property line. The borings on both sides of the property line show NAPL or tar present in the soil at depths ranging from the ground surface to approximately 27 feet. 36 monitoring wells exist within 100 feet of the NYTEP Site; eight monitoring wells exist on the NYTEP Site. Groundwater contamination exceeding the SCGs for many of the same chemical compounds was found on both sides of the property line. The stratigraphy reported for the NYTEP Site (Figure 3-3, NYTEP RI

report) is consistent with the stratigraphy for the NIMO Harbor Point Site (Plate 3.2, Phase II Investigation Report) and the MVO Site (Figure 3.5, MVO RI Report). Upon evaluation of the data presented to the NYSDEC, the NYSDEC concludes there are no differences in the stratigraphy, nor differences in contaminant distribution within those soils to warrant significant separate remedial evaluation of the two sites.

- Monitoring well MW505I lies within 20 feet of the NYTEP Site boundary. This well has the highest recovery rate of NAPL on the peninsula. The NYTEP Site has not been investigated for NAPL recovery (see RESPONSE 78).
- A trespasser would likely not be able to distinguish the NYTEP Site from the NIMO Harbor Point Site. Although fencing exists, neither site is completely fenced and it is not known whether the fence coincides with the property line.

See RESPONSE 64, regarding the NYSDEC's adherence to the consent order.

COMMENT 82: The PRAP should address the inter-relationship between the remedial activities selected in this PRAP and the recently issued Record of Decision for the Utica Harbor (Harbor ROD, March 2001). Certainly, if an ongoing groundwater discharge were continuing into the Utica Harbor, this discharge would need to be addressed before implementation of any Utica Harbor remedial activities.

RESPONSE 82: The ROD reflects the inter-relationship between the remedial activities selected by this ROD and the March 2001 Record of Decision for the Utica Harbor. Assuming coordination among all parties involved, the discharge will be addressed concurrently with Utica Harbor remedial activities.

COMMENT 83: The NYSDEC PRAP proposes a two-fold soil clean-up criteria – visual indication of NAPL or tar or 1,000ppm TPAH. Beazer believes that visual criteria should be eliminated such that remediation areas can be identified and finalized by an appropriate pre-design study. Thus providing certainty to the final design and remedy implementation.

RESPONSE 83: See RESPONSE 44.

COMMENT 84: Beazer believes that a geostatistical analysis of Site data is appropriate for determining final Site soil remediation boundaries...

RESPONSE 84: See RESPONSE 38.

COMMENT 85: The NYSDEC states that excavation and removal of soils is required to depths of up to 6 feet below ground surface, which would be from 2.5 to 5.5 feet below the water table at the NYTEP Site, based on the shallow aquifer well data collected during the RI/ field work (RI/RA Report). The Draft Feasibility Study (Draft FS) for the Harbor Point Site (Draft NIMO FS, October 1997) Section 3.4.1, determined that soil excavation below the water table was not a viable technology. NYSDEC's evaluation presented in this PRAP does not explain how excavation below the water table is now a viable technology.

RESPONSE 85: See RESPONSES 28 and 46.

COMMENT 86: The PRAP [does not] discuss issues associated with treatment of groundwater generated during excavation dewatering.

RESPONSE 86: The method of treatment of the groundwater generated during excavation dewatering is a detail appropriate for the design, the ROD does not need to proscribe a specific method.

COMMENT 87: NYSDEC's Comment No. 34 on the Draft [Niagara Mohawk] FS states that an evaluation should be completed regarding the benefit of going slightly deeper than the water table for soil excavation verses disadvantages due to dewatering. The PRAP claims that this evaluation was completed, Alternative 3A - Item 1, but does not provide or cite a report/reference with the necessary details.

RESPONSE 87: See RESPONSES 7, 9 and 46.

COMMENT 88: NYSDEC has structured the alternatives to require saturated soil excavation (i.e., groundwater excavation) as a groundwater treatment remedy. Beazer believes that other approaches are more applicable to address groundwater impacts, such as product recovery, solidification and/or physical containment, if determined necessary.

RESPONSE 88: Soil excavation is only one of several remedial components. Product recovery and physical containment are also components of the ROD. Solidification was evaluated in the Niagara Mohawk Feasibility Study and was eliminated through the application of 6 NYCRR 375-1.10.

COMMENT 89: Low temperature thermal desorption (LTTD) is presented as the only soil treatment option in the PRAP. Beazer provided NYSDEC with a cost evaluation for alternate soil management approaches, including off-site disposal and in-situ stabilization, which would provide equal or better protection at a lower cost (Beazer, July 2001). What is the basis for NYSDEC's selection of LTTD? The PRAP should be revised to indicate that a range of soil options will be evaluated during the remedial design process.

Furthermore, specifically for soils excavated from the NYTEP Site, the PRAP should be revised to allow offsite soil disposal, without LTTD treatment, at an appropriately permitted soil disposal facility. Requiring LTTD for excavated soil from the NYTEP Site seemingly links Beazer's remedy implementation at the NYTEP Site to NIMO's remedy implementation for other surrounding areas. This creates a potentially insurmountable logistical hurdle regarding soil handling, timing, and water management. Therefore, the PRAP should be revised to allow off-site soil disposal.

RESPONSE 89: State regulation, specifically 6 NYCRR 375-1.10(c)(5), identifies that a preference be given to on-site or off-site destruction of the hazardous constituents, over other remedial technologies. Thus, low temperature thermal desorption is the preferred method of treatment since

it is the most preferable in the hierarchy of remedial technologies. However, off-site disposal options will be considered during the remedial design, if the option is considered cost effective and facilitates construction of the remedy. The ROD reflects this consideration.

COMMENT 90: NYSDEC's proposed remedy relies upon natural attenuation of dissolved-phase constituents in groundwater to achieve the groundwater-related objective of returning groundwater to NYSDEC Class GA criteria. The NYSDEC fails to fully discuss and evaluate natural attenuation as an alternative for groundwater remediation at the Sites. In fact, groundwater remedial alternatives are not even discussed for the NYTEP Site.

RESPONSE 90: Class GA groundwater standards are exceeded at the NYTEP perimeter, contributing to a significant threat to the use of that environmental resource without treatment, a condition which extends across all three sites. Since the source areas also extend across all three sites, groundwater remedial alternatives must be evaluated peninsula-wide. Thus, remedial alternatives developed specific to the NYTEP Site would not satisfy the remedial goal of restoring the groundwater to Class GA standards. The selected remedy does in part rely upon natural attenuation, but also requires active groundwater remedies including source removal, containment with hydraulic control, and air sparging/soil vapor extraction. Because some source areas will remain, groundwater standards in all areas may never be achieved through natural attenuation. However, the NYSDEC considers the remedy to be consistent with the federal and state guidance which require active response measures to the extent feasible.

COMMENT 91: NYSDEC should clarify within the PRAP that any DNAPL recovery efforts are intended to be passive in nature. Any product recovery instituted at the NYTEP Site should be implemented in a fashion that minimizes the generation of groundwater requiring handling and/or treatment. Additionally, the PRAP should indicate that appropriate shut-off criteria will be established prior to the initiation of product recovery efforts at the Site.

RESPONSE 91: Regarding a passive system, see RESPONSE 49. Termination criteria is a detail appropriate for the remedial design, as the ROD reflects, where the preliminary operation, maintenance and monitoring manual will be developed.

COMMENT 92: The risk assessment prepared by Beazer that NYSDEC failed to review did not establish that there was a "significant threat to public health and the environment posed by the NYTEP site.

RESPONSE 92: First, see RESPONSE 66 regarding the review of the risk assessment. Second, in 1997, the NYTEP site was listed on the registry of inactive hazardous waste disposal sites as a Class 2 site, meaning that the site is a significant threat to the public health or environment - action required. The significant threat was established prior to the development of the risk assessment, submitted in 1999. The additional data presented in the 1999 RI/RA Report supported the 1997 determination.

COMMENT 93: NYSDEC [believes they are] justified in prescribing the same remedy for all sites based on studies done on one of the sites because the "fire" damaging them all is the same. There are a number of problems with this analogy in the real world, and especially in the context of the Harbor Point sites.

RESPONSE 93: The NYSDEC used data collected from all three sites and studies regarding each site in the development of the PRAP. See also RESPONSES 64, 81 and 90.

COMMENT 94: The NAPL from the MVO Site would be petroleum-based and largely would be an LNAPL that would float on the surface of the groundwater, while the NAPL from the NIMO and NYTEP Sites would be coal tar-based and largely would be a DNAPL that would sink to the bottom of the groundwater zone. To date it appears that the DNAPL has not affected the NYTEP and NIMO Sites equally in that free phase NAPL has been identified in certain groundwater wells at the NIMO Site, but NAPL has not been located in any on-site shallow or intermediate zone monitoring well at the NYTEP Site, though there is evidence of DNAPL in soils at the NYTEP Site.

RESPONSE 94: These generalizations are not supported by the data. The MVO Site handled both petroleum and coal-tar. Both DNAPL and LNAPL are reported in monitoring well MW-12S located between MVO and NYTEP. The NYTEP data is inconclusive regarding measurable NAPL in NYTEP wells (see RESPONSE 78), however, the NYTEP RI/RA reported that the NAPL recovered during certain site boring operations floated on the drilling fluid.

COMMENT 95: The NYSDEC should not prescribe the same remedy for the NYTEP Site and the NIMO Harbor Point Site without completing the RI, RA, and FS for both sites first to determine how bad the problem is at each site and what needs to be done to remedy it.

RESPONSE 95: As described in Section 8 of the ROD, the remedy selected consists of many components. Some of the components apply only to the NIMO-Harbor Point Site while other components apply to both sites. The selected remedy is consistent across the peninsula, but is not identical for both sites. See also RESPONSE 93.

APPENDIX B

ADMINISTRATIVE RECORD

1. In the Matter of the Development and Implementation of a Supplemental Remedial Investigation/Feasibility Study, Order on Consent Index # A6-0201-89-05 September 28, 1989

2. Study of Interim Remedial Measures for Harbor Point Site Storm Sewers, Atlantic Environmental Services, September 14, 1990

3. Phase I Investigation, New York Emulsions Tar Products, URS Consultants, Inc., February 1990

4. Phase I Investigation, Mohawk Valley Oil, URS Consultants, Inc., March 1990

5. Phase II Investigation, Mohawk Valley Oil, URS Consultants, Inc., January 1992

6. Phase II Investigation, New York Emulsions Tar Products, URS Consultants, Inc., February 1992

7. In the Matter of the Development and Implementation of the NMPC Harbor Point Former MGP Site Investigation and Remediation Program. Order on Consent Index # D6-0001-9210, December 7, 1992

8. Final Harbor Point Southwestern Purifier Waste Area Interim Remedial Measure Work Plan, RETEC, October 1993

9. Final Report, Supplemental Remedial Investigation, Harbor Point Site, Utica, New York, Atlantic Environmental Services, October 1993

10. Interim Remediation of Surface Soils, Harbor Point Site, Atlantic Environmental Services, March 16, 1994

11. Perimeter Investigation Report for the New York Tar Emulsion Products Site, Engineering Science, January 1995

12. Phase I Groundwater Study Report, Conceptual Model Development for the Harbor Point Site, January 1995

13. Field Test of MGP Remediation Technologies, Thermal Desorption, Atlantic Environmental Services, March 24, 1995

14. Dense Non-Aqueous Phase Liquid Extraction Demonstration Report, Harbor Point Former Manufactured Gas Plant Site, Blasland, Bouck & Lee, Inc., January 1996

15. Data Gap Investigation Report for the Harbor Point Site, Parsons Engineering Science, May 1996

16. Phase II Groundwater Investigation, Harbor Point Site, Parsons Engineering Science, July 1996

17. Remedial Investigation Report of the Expanded (Offsite) RI at the Mohawk Valley Oil Site, Parsons Engineering Science, August 1996

18. Investigation of the Utica Terminal Harbor, Barge Canal, and Mohawk River, Parsons Engineering Science, Inc., October 1996

19. Final Investigation/Feasibility Study Work Plan, New York Tar Emulsion Products Site, Key Environmental, May 11, 1998

20. In the Matter of the Implementation of a Response Program for New York Tar Emulsion Products Site, Order Index Number D6-0001-97-11, July 10, 1998

21. Feasibility Study Submittal for the Harbor Point Site, Parsons Engineering Science, November 1999

22. Letter, James Van Hoesen, NYSDEC to Michael Slenska, Beazer East, Inc., March 10, 1999 regarding NYSDEC remedial program

23. Remedial Investigation Report, Former Monarch Chemicals, Inc. Site, LFR Levine-Fricke, March 16, 1999

24. Results from Additional Feasibility Study Data Collection, Harbor Point Site, Parsons Engineering Science, July 1999.

25. Remedial Investigation/Risk Assessment Report, New York Tar Emulsion Products Site, Key Environmental, Inc., September 10, 1999.

26. Revised Feasibility Study Submittal for the Harbor Point Site, Parsons Engineering Science, November 1999

27. Letter, John Spellman, NYSDEC to Michael Slenska, Beazer East, Inc., November 10, 1999 , regarding NYTEP RI/RA Report

28. Letter , John Spellman, NYSDEC to Charles Willard, Niagara Mohawk Power Corporation, January 21, 2000 regarding FS

29. Storm Sewer Evaluation Report for the Niagara Mohawk Power Corporation, Harbor Point Site, Camp Dresser & McKee, May 2000.

30. Letter, Charles E. Sullivan, Jr., NYSDEC to Paul Anderson, Ogden Environmental and Energy Services, 28 August 2000 regarding protection from contaminated groundwater

31. Harbor Point Site, IRM [Water Gas Plant] Work Plan, Camp Dresser & McKee, September 2000

32. Letter, John Sheehan, NYSDOH to John Spellman, NYSDEC, November 6, 2000 regarding Phase II RI/RA Work Plan

33. Letter, John Spellman, NYSDEC to Michael Slenska, Beazer East, Inc., November 27, 2000 regarding Phase II RI/RA Work Plan

34. Letter, Charles E. Sullivan, Jr., NYSDEC to Doreen A. Simmons, Hancock and Estabrook, LLP, 29 March 2001, regarding issue of groundwater contamination

35. NYSDEC's Draft Proposed Remedy Outline, June 22, 2001, discussed with Beazer June 25, 2001.

36. Letter, John Spellman, NYSDEC to Michael Slenska, Beazer East, Inc. July 16, 2001 regarding FS

37. Letter, Michael Slenska, Beazer East, Inc. to John Spellman, NYSDEC July 30, 2001 regarding remedial alternatives

38. Fax, John Spellman, NYSDEC to Michael Slenska, Beazer East, Inc. August 15, 2001 regarding averaging concentrations

39. Harbor Point Site, Monitoring Well 505I Area Sampling and Analysis Report, Camp Dresser & McKee, August 15, 2001

40. Letter, Michael Slenska, Beazer East, Inc. to John Spellman, NYSDEC August 23, 2001regarding remedial alternatives

41. Fax, John Spellman, NYSDEC to Robert Markwell, Beazer East, Inc. September 12, 2001 regarding figure for teleconference discussion

42. Letters, Charles Willard, Niagara Mohawk Power Corporation to J. Spellman, NYSDEC, October 30, 2001 and December 26, 2001 regarding purifier material consolidation

43. NiMo - Harbor Point Property, Operable Unit No. 1, New York Tar Emulsion Products Site, Mohawk Valley Oil Site, Proposed Remedial Action Plan, NYSDEC, February 2002

44. Letter, Gary A. Litwin, NYSDOH to Michael J. O'Toole, NYSDEC, February 8, 2002 re: PRAP

45. Letter, M. Ann Howard to John Spellman, NYSDEC, March 4, 2002 regarding public meeting comments

46. Letter, Frank Williams, Earth Tech, Inc. to John Spellman, NYSDEC, March 23, 2002 regarding PRAP

47. Letter, Charles Willard, Niagara Mohawk Power Corporation to John Spellman, NYSDEC, March 25, 2002 regarding PRAP

48. Letter, Michael Slenska, Beazer East, Inc. to John Spellman, NYSDEC March 26, 2002 with attachment: Beazer East Inc. Comments on the NYSDEC February 2002 PRAP

49. Letter, Gary A. Litwin, NYSDOH to Michael J. O'Toole, NYSDEC, March 29, 2002 regarding ROD