Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Niagara Mohawk Harbor Point Site
Operable Unit 3
Utica Harbor Sediments and
Dredge Disposal Areas
Utica, Oneida County
Site Number 6-33-021

March 2001

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

DECLARATION STATEMENT - RECORD OF DECISION

Niagara Mohawk Harbor Point
Inactive Hazardous Waste Site
Operable Unit 3:
Utica Harbor Sediments and
Dredge Disposal Areas
Utica, Oneida County, New York
Site No. 6-33-021

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Niagara Mohawk Harbor Point class 2 inactive hazardous waste disposal site, Operable Unit 3, which 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 Niagara Mohawk Harbor Point inactive hazardous waste site, Operable Unit 3, 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 this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Niagara Mohawk Harbor Point Site, Operable Unit 3 and the criteria identified for evaluation of alternatives, the NYSDEC has selected sediment capping for Utica Harbor along with soil removal and soil covers for certain dredge spoil disposal areas. The components of the remedy are as follows:

- Capping of contaminated sediments in Utica Harbor. In some areas, placement of the cap will require prior removal of sediments in order to allow the continued navigational use of the harbor.

- Removal of contamination "hot spots" in Dredge Spoil Area 1, followed by either: regrading and continued use of this area for disposal of less contaminated sediments in the future, or installation of a soil cover.

- Regrading and installation of a soil cover at Dredge Spoil Area 2. Dredged sediments of satisfactory quality could be used as alternative grading material before providing the cover.

- No Further Action at Dredge Spoil Area 3 beyond the actions described below for all DSAs.

- Deed restrictions on the future use of the three DSA areas will be necessary to ensure that redevelopment is limited to nonresidential uses. In addition, deed restrictions on groundwater usage on and in the vicinity of the DSAs will be required, as well as notices to future developers of the site regarding the need for worker protection and proper handling and disposal of any materials encountered during future development. Groundwater contaminant levels will be monitored at all three DSAs.

- Cleaning and sliplining, or abandonment and plugging of the Washington Street sewer and other drainage conduits which discharge from the Niagara Mohawk Harbor Point property to the harbor or to the Mohawk River. Storm water drainage will be maintained.

The investigation of the site has also determined that navigational dredging of the harbor neck may proceed. The need for further remedial action for the surface sediment subsequent to navigational dredging will be evaluated in conjunction with the Feasibility Study for the Mohawk River, or as a separate operable unit.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site 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.

_____ _____

Date

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

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SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health has selected this remedy to address the significant threat to human health and the environment created by the presence of hazardous waste at the Niagara Mohawk Harbor Point, Operable Unit 3, class 2 inactive hazardous waste disposal site. As more fully described in Sections 3 and 4 of this document, coal gasification operations have resulted in the disposal of hazardous waste at the site, some of which were disposed, released or have migrated from the site to surrounding areas, including the Utica Harbor. These disposal activities have resulted in the following significant threats to the public health and the environment:

- A significant threat to the environment associated with the adverse impacts of contaminated sediments on aquatic organisms in Utica Harbor. This threat is due principally to the toxic effects of a family of chemical contaminants contained in coal tars, known collectively as polycyclic aromatic hydrocarbons (PAHs).

- A significant threat to human health associated with contaminated dredge spoils at three dredge spoil disposal areas surrounding the harbor. This threat is due to potential human contact with a subset of the family of PAH compounds which are probable human carcinogens. Another significant threat to human health is posed by groundwater contaminated at these disposal areas, with benzene and xylene in excess of New York State drinking water standards.

- A significant threat to the environment associated with sediments in the City of Utica Washington Street storm sewer and certain small private stormwater sewers, all of which empty into either Utica Harbor or the Mohawk River. Contamination in these sewers could move into Utica Harbor or the Mohawk River in the future, which would partially negate remediation of these water bodies.

In order to restore Operable Unit 3 (OU3) (see Section 2 for a description of OU3 and other operable units) to pre-disposal conditions to the extent feasible and authorized by law, but at a minimum eliminate or mitigate all significant threats to human health and the environment caused by hazardous substances disposed at OU3, NYSDEC and NYSDOH have selected the following actions:

- Capping of contaminated sediments in Utica Harbor. In some areas, placement of the cap will require prior removal of sediments in order to allow the continued navigational use of the harbor.

- Removal of contamination "hot spots" in Dredge Spoil Area 1 (DSA1), followed either by continued use of this area for disposal of less contaminated sediments in the future or establishment of a soil cover.

- Regrading and installation of a soil cover at Dredge Spoil Area 2 (DSA2). Dredged sediments of satisfactory quality may be used as alternative grading material before providing the cover.

- No Further Action at Dredge Spoil Area 3 (DSA3) beyond the actions described below for all DSAs.

- Deed restrictions on the future use of the three DSA areas will be necessary to ensure that redevelopment is limited to nonresidential uses. In addition, deed restrictions on groundwater usage on and in the vicinity of the DSAs will be required, as well as notices to future developers of the site regarding the need for worker protection and proper handling and disposal of any materials encountered during future development. Groundwater contaminant levels will be monitored at all three DSAs.

- Cleaning and sliplining, or abandonment and plugging of the Washington Street sewer and other drainage conduits which discharge from the Niagara Mohawk Harbor Point property to the harbor or to the Mohawk River. Storm water drainage provided by the existing conduits would be maintained.

The selected remedy, discussed in detail in Section 8 of this document, is intended to attain the remediation goals selected for OU3, in Section 6 of this Record of Decision (ROD), in conformity with applicable standards, criteria, and guidance (SCGs).

Based upon the investigations undertaken as part of OU3, navigational dredging of the harbor neck will be allowed to proceed. Since navigational dredging is not part of the remedy for the

site, navigational dredging will require applicable permits and must satisfy the requirements of Section 401of the Clean Water Act and applicable NYSDEC guidance. The need for further remedial action for the surface sediment subsequent to navigational dredging (i.e. post-dredging) will be evaluated in conjunction with the Feasibility Study for the Mohawk River immediately upstream and downstream of the harbor neck (Operable Unit 2), or as a separate operable unit.

SECTION 2: SITE LOCATION AND DESCRIPTION

The Niagara Mohawk Harbor Point Site in Utica, New York is the location of a former energy-producing complex, situated on a peninsula formed by the intersection of the New York State Barge Canal, Utica Harbor and a bend of the Mohawk River. To facilitate the development of a remedy for the approximately 140-acre Niagara Mohawk Harbor Point Site, including off-site areas, the study area was divided into three subareas, called operable units. The proposed remedy in this document is for Operable Unit 3. Operable Unit 3 of the Niagara Mohawk Harbor Point 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 other two operable units, consisting of certain land-based portions of the peninsula and the adjacent parts of the Mohawk River, are still under investigation. Figure 1 shows the location of the three operable units.

Utica Harbor is a roughly rectangular water body measuring approximately 600 by 800 feet. The "harbor neck" links the harbor to a lock controlling the entrance to the Erie Canal.

Three dredge spoils areas (DSAs) border the harbor and harbor neck on the northwest and northeast (See Figure 1). These are soil mounds consisting of sediments dredged from the canal and harbor. Each area is surrounded by a berm of soil; however, the berms have been breached in several places.

DSA1 is located directly east of the harbor neck, on a triangular land parcel between the neck and the Mohawk River, and measures roughly 1300 by 700 feet. DSA2 is located north of DSA1, on a narrow strip of land between the Mohawk River and the main stem of the Erie Canal. Its approximate dimensions are 1600 by 300 feet. DSA3 measures roughly 800 by 500 feet, and is located to the northwest of Harbor Point, across the Mohawk River. It is bounded on the north, south, and west by the Utica Marsh and on the east by the Mohawk River.

Land uses surrounding Harbor Point OU3 are variable. The nearest residence is located over 1,000 feet to the southwest. Bounding DSA3 on the west, the Utica Marsh is maintained by NYSDEC as open space accessible to the public via bicycle and hiking paths. To the west and south of Utica Harbor are the following former industrial sites which are listed on the New York State Registry of Inactive Hazardous Waste Disposal sites:

1) The Mohawk Valley Oil site is a 4.7 acre triangular parcel immediately adjacent to the southwest corner of Utica Harbor. This site was operated as a petroleum transfer and storage facility from 1917 to 1977. Prior to this, a refinement plant had operated on this site, which

processed coal tars to produce light oils. For administrative purposes, Mohawk Valley Oil is included in Operable Unit 1 of the Niagara Mohawk Harbor Point Site.

2) Directly across Lee Street from Mohawk Valley Oil is the Monarch Chemical Site. This 7.6 acre property was operated as a chemical manufacturing and packaging facility from 1966 to 1995. It is not a part of the Niagara Mohawk Harbor Point Site.

3) The New York Tar Emulsion Products Site lies approximately 300 feet to the west of Utica Harbor. This three-acre site, operated from 1926 to 1983, processed tars from the adjacent former manufactured gas plant and asphalt from other sources to make road paving materials. It is not a part of the Niagara Mohawk Harbor Point Site.

4) Operable Units 1 and 2 of the Niagara Mohawk Harbor Point adjoin Operable Unit 3 to the south and west. This separation of the Niagara Mohawk Harbor Point Site into three operable units has been undertaken due to the complexity of the site and available data. Operable Unit 1 consists of the former Manufactured Gas Plant itself (which occupies most of the Harbor Point peninsula, approximately 75 acres) and the Mohawk Valley Oil site. Operable Unit 2 consists of the Mohawk River adjacent to the Niagara Mohawk Harbor Point Site and downstream of its confluence with the harbor neck.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

Some contamination in Operable Unit 3 came from a large manufactured gas plant (MGP) which was located on the present-day Niagara Mohawk Harbor Point property to the south and west of Utica Harbor. This plant operated between 1845 and the early 1950s, producing gas for heating and lighting by heat treatment of coal and petroleum products. Other industrial facilities surrounding the harbor have also contributed contamination. The Harbor Point Site area included two gas plant areas, a coal and petroleum-based refinery, two petroleum storage facilities, and a canal maintenance facility that are potential sources of PAHs found in the harbor sediment.

Purification of manufactured gas at the MGP resulted in the production of a dense, oily liquid known as coal tar. Although much of the tar produced was sold for commercial uses, recovery of the tar waste was incomplete. Substantial amounts of tar escaped collection, contaminating surface and subsurface soils. MGP wastes also infiltrated or may have been discharged to sewer lines. These sewer lines conducted the tars and tar-related contaminants to surrounding surface water bodies including Utica Harbor, where they sank to the harbor bottom. Coal tar was also shipped via the harbor, and releases to the harbor could have occurred during the transfer of the coal tar to inland industry. Some of this tar is still present in the sediments beneath the harbor in the form of a separate non-aqueous phase liquid (referred to as NAPL). Some constituents of the tar have been adsorbed to sediment particles.

The harbor and the adjoining harbor neck leading to the Erie Canal have been dredged periodically over the years to maintain a deep enough channel for boats and barges to safely

navigate. The contaminated sediments which were dredged during these activities were disposed of in three dredge spoil disposal areas on land surrounding the harbor**.**

3.2: Remedial History

As noted in earlier sections, the Niagara Mohawk Harbor Point Site has been split into three operable units to expedite cleanup of site contamination. Prior environmental investigations referred to in this PRAP may have included one or more operable units.

Below is a brief chronology of events relevant to the investigation of the site:

MGP converted to standby operation	1951
First Site Investigation	1983-1986
Remedial Investigations	1993-1999
Feasibility Study	1997-2000

SECTION 4: SITE CONTAMINATION

To evaluate the contamination present at the site and to evaluate alternatives to address the significant threat to human health and the environment posed by the presence of hazardous substances, Niagara Mohawk has conducted Remedial Investigations and Feasibility Studies (RI/FS).

Note: Hereafter in this document, “site” refers to Operable Unit 3.

4.1: Summary of the Remedial Investigations

The purpose of the RIs was to define the nature and extent of any contamination resulting from previous activities at the site. The RIs were conducted in several phases, between 1993 and 1999, and included components of all three Operable Units. The following reports have been prepared which describe the field activities and findings of these investigations in detail.

"Investigation of the Utica Terminal Harbor, Barge Canal and Mohawk River", prepared by Parsons-Engineering Science, Inc. dated October, 1996

"Remedial Investigation Report for the Expanded (Offsite) RI at the Dredge Spoil Areas" prepared by Parsons Engineering Science, Inc. dated August 1996.

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

The RIs included the following activities relevant to Operable Unit 3:

sampling and chemical analysis of sediments and underlying soils at the bottom of Utica Harbor and the harbor neck. Cores were collected to depths up to 20 feet below the harbor bottom;

bathymetric surveys of the harbor and the harbor neck to determine which areas will require dredging in order to maintain the area for boat traffic;

sampling and chemical analysis of surface water samples to determine if fish in the harbor and surrounding waterways were being directly exposed to site contaminants;

sampling and chemical analysis of fish tissue samples to determine if site contaminants were accumulating in fish tissues;

sampling and chemical analysis of sediments and stormwater from several storm sewer lines leading from the former MGP to the harbor;

sampling and chemical analysis of dredge spoils in the three Dredge Spoils Disposal Areas (DSAs);

installation of monitoring wells to collect groundwater samples in areas thought to be impacted by the dredge spoils at the three DSAs; and,

sampling and chemical analysis of sewer sediment, stormwater, and bedding in various sewers outfalling to the Utica Harbor or Mohawk River.

To determine which environmental media (soil, groundwater, etc.) 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 site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of New York State Sanitary Code. For soils, NYSDEC's Division of Environmental Remediation Technical and Administrative Guidance Memorandum (TAGM 4046) provides soil cleanup guidelines for the protection of groundwater and health-based exposure scenarios. In addition, site-specific background concentration levels can be considered for certain classes of contaminants in soils. Guidance values for evaluating contamination in sediments are provided by the NYSDEC publication entitled "Technical Guidance for Screening Contaminated Sediments."

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized in Section 4.1.3 . More complete information can be found in the RI Reports.

Chemical concentrations in groundwater are reported in units of parts per billion (ppb). Concentrations in soils and sediments are reported in parts per million (ppm). For comparison purposes, where applicable, SCGs are provided for each medium.

4.1.1: Site Geology and Hydrogeology

Prior to construction of the New York State Barge Canal in 1913-1918, the site was a low, marshy area. The Mohawk River flowed through the current location of Utica Harbor. During canal construction, the Mohawk River was relocated to the north, the area of the harbor and harbor neck was excavated, and extensive filling operations were undertaken surrounding the harbor to make dry land out of the formerly marshy river bank areas.

Today, land areas near the site are covered with man-made fill materials between 5 feet and 20 feet in thickness. This fill represents materials deposited on the former marsh to build up the land surface for development.

Underlying the fill material is a complex sequence of fluvial (river) and glaciolacustrine (lake) sediments made up of sands, silts, and clays. The total thickness of this sediment sequence ranges from 22 feet to over 100 feet. Below this, a dense glacial till deposit covers the bedrock surface. Hazardous substances have not reached downward to the till and bedrock, so detailed investigation of these units has not been conducted.

Utica Harbor and the harbor neck were originally constructed by excavating soils from the original Mohawk River channel. Once the Utica Harbor and harbor neck were filled with water, sediments began to accumulate on the bottom. Although these sediments have been periodically removed by further dredging, a layer of bottom sediment several feet thick is still present beneath portions of the harbor and harbor neck.

Sediment accumulation has been particularly noticeable in the harbor neck, because of its proximity to the Mohawk River (see Figures 2 and 8). In this area, water depths have decreased to the point that boat traffic into the harbor is impaired. Regardless of contaminant levels, dredging in this area is required in order to maintain boat access to Utica Harbor.

4.1.2: Nature of Contamination

As described in the RI reports, many soil, groundwater and sediment samples were collected at the site to characterize the nature and extent of contamination.

Contaminants were released to the harbor in the form of coal tar, which is a dense, oily liquid that does not readily dissolve in water. Materials such as this are referred to as non-aqueous phase liquids (NAPLs). NAPL is still present in thin seams in harbor sediments and in the dredge spoil disposal areas. However, the NAPL is observed to be bound to the sediment and soil and is thus unlikely to be mobile in the subsurface under present-day conditions. NAPL-containing sediments in the harbor and harbor neck are located beneath a dead-end water body. Turbulent, scouring currents, which could transport NAPL-containing sediments, do not occur.

Some sediments and soils which do not contain distinct NAPL are still considered contaminated, because chemical constituents from the tar have become bound to sediment particles. These contaminated sediments (both in the harbor and in the DSAs) are typically black or dark gray and generate strong odors when exposed to air.

In sediments, the main category of contaminants which exceed SCGs is polycyclic aromatic hydrocarbons (PAHs). PAHs are a diverse family of organic chemicals found in tars, asphalt, hydrocarbons such as diesel fuel, and waste materials from incomplete combustion. PAHs are of concern in sediments primarily because of their toxicity to bottom-dwelling aquatic organisms.

Other contaminants such as polychlorinated biphenyls (PCBs) and benzene were also identified in the sediments. Higher concentrations of PCBs were generally found in the same locations as the PAH contamination, however, these concentrations were in the range of allowable remediation levels. Also, the sediment cap to be provided as a requirement of this ROD will isolate PCB contaminated sediment in the harbor. Higher concentrations of benzene in the sediment also corresponded to areas of high PAH concentrations; the areas with elevated concentrations of benzene in the harbor will also be capped. The need to address any contaminants which are present in the sediments of the harbor neck subsequent to navigational dredging will be evaluated in conjunction with the feasibility study for OU2. The principal threat to the environment in the sediments is due to PAH impacts on wildlife; therefore, PAH levels are used as the principal indicator of contamination in sediments.

Benzene, xylene, and PAH contamination is also evident in the DSAs.

4.1.3: Extent of Contamination

The following are the media which were investigated and a summary of the findings of the investigation. Note that PAH concentrations referred to in this plan are total PAHs. Total PAHs is the summation of the following individual PAH concentrations:

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

* carcinogenic PAHs

Soil

Soil contamination in Operable Unit 3 was identified in DSAs 1, 2, and 3. This contamination is due to the use of these areas for disposal of contaminated sediments dredged from the harbor and harbor neck.

Soil contamination is of concern for two reasons. First, humans working or trespassing on a site can come into direct contact with surface soils (defined as materials less than two feet below ground surface). The principal contaminants of concern in surface soils are a subset of the PAH compounds which have been identified as probable human carcinogens. These are referred to as carcinogenic PAHs and are indicated by asterisks in the preceding list.

Contaminated soils can also cause groundwater contamination, whether the soils are located at the ground surface or below. The principal contaminants of concern relating to groundwater contamination at this site are benzene and xylene. PAH contamination in soils is less of a concern with respect to groundwater, because most PAH compounds do not readily dissolve in water.

DSA1 contains surface soils with PAH concentrations ranging up to 1,105 ppm. The highest concentrations were found inside the bermed area, where dredge spoils were deposited. Subsurface soils (more than two feet below ground surface) contained PAHs at levels ranging up to 1,725 ppm. (see Figure 3). Visible NAPL droplets were found in six adjacent borings, representing a soil volume of approximately 20,000 cubic yards. Benzene was also detected within the bermed area at concentrations as high as 5.6 ppm. Xylene in soil at DSA-1 exceeded the TAGM 4046 objective in four locations, two of which are co-located with PAH values greater than 1,000 ppm. The remaining locations are at soil boring SB-123 at a depth greater than 14 feet, and at monitoring well MW-105 with a concentration of 5.3 ppm at a depth of 6 to 8 feet.

DSA2 contains surface soils with PAH concentrations ranging from 11 to 77 parts per million. Subsurface soils in DSA 2 contained PAH concentrations ranging up to 1,848 ppm. The highest PAH levels were found near the southeastern berm at depths of eight feet or more below the ground surface (see Figure 4). Visible NAPL droplets were found in four borings, but large, distinct areas of NAPL contamination were not found.

Concentrations of benzene and xylene in the soil at DSA2 did not exceed TAGM 4046 objectives.

DSA3 consists of two cells. The southern cell was used as an overflow for the northern cell and contains ponded water. DSA3 contains surface soils with PAH concentrations ranging up to 5.7 ppm. Subsurface soils (more than two feet below ground surface) contained PAHs at levels ranging up to 78 ppm (See Figure 5). PAH concentrations in the sediments of the southern cell ranged up to 1,316 ppm. Excepting the 1,316 ppm result, which could not be reproduced through subsequent sampling and analysis at the same location, PAH concentrations ranged up to 14 ppm in the southern cell. Oily sheens were detected in some subsurface samples, but no distinct NAPL droplets were found. Concentrations of benzene and xylene in the soil at DSA3 did not exceed TAGM 4046 objectives. Overall, soil contamination in DSA3 was less severe and less widespread than in the other

DSAs. Analysis of the ponded water in the southern cell of DSA3 did not show any exceedances of Class C surface water quality standards.

Sediments

Sediment samples at the bottom of Utica Harbor within six inches of the sediment surface contained between 0.7 and 582 ppm PAH (see Figure 6). PAH concentrations in deeper sediments are considerably higher than in sediments at the sediment-water interface. PAH levels as high as 8,459 ppm were detected 8 feet below the harbor bottom (see Figure 7). Beyond a depth of 10 feet beneath the harbor bottom, contaminant levels decline, although some contamination has been visually observed as deep as 18 feet below the harbor bottom.

Some sediment samples contained low levels of polychlorinated biphenyl (PCB) contamination, with PCB concentrations ranging up to 24 ppm. The three highest concentrations of PCBs found in sediment were 24 ppm, 5.1 ppm and 3.7 ppm. Higher levels of PCB contamination were generally found in areas which were also contaminated with PAHs. The selected remedy will address the PCB contamination along with the PAH contamination.

Groundwater

Two rounds of groundwater samples were collected from the monitoring wells surrounding DSAs 1-3. These samples were collected to determine if disposal of contaminated sediments at these locations was impacting groundwater quality in surrounding areas. The principal contaminants of interest are benzene and xylene.

At DSA1, groundwater contamination by benzene and xylene was detected. Benzene levels in six monitoring wells ranged up to 3 ppb. Four of the six wells exceeded the New York State drinking water standard of 1.0 ppb. Xylene levels ranged up to 160 ppb, with four of the six wells exceeding the New York State drinking water standard of 5.0 ppb.

At DSA2, groundwater contamination by benzene was detected. Benzene levels in six wells ranged up to 3 ppb. Only one of the six samples exceeded the New York State drinking water standard of 1.0 ppb. Xylene was not detected in any of the wells.

At DSA3, the groundwater was contaminated with benzene. Benzene levels in 3 wells ranged up to 5 ppb. One of the samples exceeded the New York State drinking water standard of 1.0 ppb. Xylene concentrations ranged up to 2 ppb, but none of the three wells exceeded the New York State drinking water standard of 5 ppb.

In general, groundwater contamination at DSA1 was more widespread than at the other two DSAs. This is in keeping with the observation of more widespread soil contamination in this area.

Surface Water

Thirteen surface water samples were collected in Utica Harbor and the harbor neck. Naphthalene was found in one turbid surface water sample at a concentration of 18 ppb. The state guidance value is 13 ppb; however, the turbid nature of the sample makes it likely that much of this contamination was contained in suspended sediment and not in the water itself. No other exceedances of New York State SCGs were noted.

Sewer Sediments

NAPL was observed within the Washington Street storm sewer sediments retrieved from the three manholes closest to the sewer's outfall to Utica Harbor. Ethylbenzene and xylene concentrations in Washington Street sewer sediments were found as high as 540 ppm and 500 ppm respectively. These values exceed the NYSDEC's criteria for benthic aquatic life acute toxicity in freshwater sediments. PAHs were also found within the sediments at concentrations up to 2,059 ppm, which exceeds NYSDEC's effects range moderate threshold. Also, two samples from the Washington Street sewer were classified as characteristic hazardous wastes based on laboratory testing. One sample exceeded the threshold for sulfide reactivity. The other sample exceeded the regulatory level for benzene under the toxicity characteristic leaching procedure.

Lower levels of contamination were detected in sediments from certain private sewers on the Harbor Point peninsula. PAH levels up to 298 ppm were reported.

Air

Air quality was monitored during the RI while soil-disturbing activities such as drilling and excavation were under way. Monitoring did not detect dust contamination or volatile organic vapor contamination at levels of concern, even during periods when soils were being disturbed. Consequently, NYSDEC has concluded that air contamination from the site in its undisturbed state is not significant.

4.2: Summary of Human Exposure Pathways:

This section describes the types of human exposures that could present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Sections 5 and 6 of the 1996 Dredge Spoils Areas RI report.

An exposure pathway is the manner by which an individual may come in contact with a contaminant. Five elements are required for a pathway to be considered "complete" (that is, for humans to become exposed to site contaminants): 1) a source of contamination; 2) the environmental media and transport mechanisms; 3) a 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.

Because the contaminants in Utica Harbor and the harbor neck are located in sediments beneath water, no human exposure to these contaminants is considered likely.

Surface soils in DSA1 and DSA2 are contaminated with PAHs at levels which could present a human health risk.

Low levels of groundwater contamination have been identified near all three DSAs. Currently, no human consumers of groundwater are present in these areas. The contaminated groundwater discharges to the water bodies surrounding the DSAs: the Mohawk River, Utica Harbor, harbor neck, and the Barge Canal. With the exception of one surface water sample discussed in Section 4.1.3, no detectable impacts of this contaminated groundwater discharge have been noted in the three surface water bodies.

4.3: 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 RI presents 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:

Bottom-dwelling (benthic) organisms and bottom-feeding fish in Utica Harbor and the harbor neck are exposed to high levels of PAH contamination in sediments. PAH contaminated sediments have been shown in studies to be toxic to several different species of benthic organisms. Although PAH compounds generally do not accumulate in fish which eat these organisms, the loss of benthic organisms due to PAH toxicity reduces the supply of food available to fish.

From whole body sampling and analysis of fish caught in the area, a Niagara Mohawk report concluded that PAH concentrations were highest in fish collected from Utica Harbor. However, no fish consumption advisory was found to be necessary specific to Utica Harbor.

4.4: Significant Threat:

The NYSDEC Commissioner may find that hazardous waste disposed at the site constitutes a significant threat to the environment if, after reviewing the available evidence and considering the factors the Commissioner deems relevant set forth in 6 NYCRR 375-1.4(b), the Commissioner determines that the hazardous waste disposed at the site or coming from the site results in, or is reasonably foreseeable to result in:

- contaminant levels that cause significant adverse acute or chronic effects to fish, shellfish, crustacea, and wildlife (6 NYCRR 375-1.4[a][1][iv]); or

- significant environmental damage (6 NYCRR 375-1.4[a][2]).

In making a finding as to whether a significant threat to the environment exists, among others, the Commissioner may take into account any or all of the following matters, as may be appropriate under the circumstances of the particular situation:

- groundwater hydrogeology at and near the site (6 NYCRR 375-1.4[b][5];

- location, nature, and size of surface waters at and near the site (6 NYCRR 375-1.4[b][6]);

- 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 from the site, including, but not limited to, contravention of: ambient surface water standards set forth in 6 NYCRR Part 701 or 702; ambient groundwater standards set forth in 6 NYCRR Part 703; drinking water standards set forth in 10 NYCRR Subpart 5-1 and Part 170 (6 NYCRR 375-1.4[b][7]);

- the extent to which hazardous waste and/or hazardous waste constituents have migrated or are reasonably anticipated to migrate from the site (6 NYCRR 375-1.4[b][9]);

(For a more detailed discussion respecting the Department's "significant threat" determinations and the rationale for its use of the above, and other, factors, in its decision making, see the Draft Regulatory Impact Statement for 6 NYCRR Part 375, dated April 1991, at pages 19 to 25; and the Hearing Report, Responsiveness Summary, and Revision to the Draft Regulatory Impact Statement for 6 NYCRR Part 375, dated March 1992, at pages II-7 to II-19.)

The basis for the determination that the site poses a significant threat to the human health and the environment are founded on the following, respecting OU3, that the hazardous wastes present in areas investigated contribute to or result in:

- contravention of ground water standards for certain volatile organic compounds (for concentrations of contaminants in groundwater at the site, see Tables 1-G, 2-G and 3-G; for Water Quality Standards, see 6 NYCRR Parts 701 and 702,). The groundwater contamination exists within an aquifer which if not contaminated, would be usable and suitable for human consumption. Because of the groundwater contamination, the aquifer is now unusable due to the presence of volatile organic compounds above applicable standards.

- levels of volatile organic compounds and PAH contaminants contained within the sediment and the NAPL present in the sediments of a protected water body which are known to cause significant adverse acute or chronic effects to aquatic organisms (for concentrations of contaminants in sediments at the site, see Tables 4-SS and 4-DS). Also, deeper contaminated sediments have the potential to become redistributed to the surface, providing an exposure pathway to aquatic life.

- levels of volatile organic compounds and PAH contaminants contained within the soils and subsurface NAPL present in the dredge spoil areas which causes or materially contributes to groundwater contamination. The groundwater contamination exists within an aquifer which if not contaminated, would be usable and suitable for human consumption. Because of the groundwater contamination, the aquifer is now unusable due to the presence of volatile organic compounds above applicable standards.

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.

Niagara Mohawk Power Corporation consented to the issuance of a NYSDEC Consent Order (Index number D6-0001-9210) on December 7, 1992. The Order obligates Niagara Mohawk to implement a full remedial program.

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 restore the site to pre-release conditions to the extent feasible and authorized by law. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous substances disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

Eliminate, to the extent practicable, the exposure of fish and wildlife to levels of PAHs in sediments above guidance values and to provide an appropriate habitat for benthic life in the harbor.

Eliminate, to the extent practicable, human exposures to contaminated soils in the DSAs and impacts to the groundwater resulting from contamination present in the spoils.

Eliminate, to the extent practicable, the potential for contaminated materials in storm sewers to be transported into either the harbor or Mohawk River.

Prevent, to the extent practicable, ingestion of groundwater affected by the site that does not attain NYSDEC Class GA Ambient Water Quality Criteria.

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 Operable Unit 3 of the Harbor Point site were identified, screened and evaluated in two reports entitled "Feasibility Study for the Harbor Point Site (1997)" and "Revised Feasibility Study for the Harbor Point Site (1999)." These documents also discuss remedial alternatives for several other portions of the site in addition to Operable Unit 3.

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 contaminated sediment in the harbor and harbor neck, the contaminated surface and subsurface soils in the three DSAs, and the contaminated materials in and around the storm sewer lines leading into the harbor. Because the DSAs and contaminated sediments present different technical and engineering challenges, they are discussed separately below.

Contaminated Sediments

Alternative CS-1: No Action

Present Worth:	$ 300,000
Capital Cost:	$ 0
Annual O&M:	$ 63,000
Time to Implement:	6 months - 1 year

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

Alternative CS-2: Capping of Contaminated Sediments after Navigational Dredging and Remediation of Sewers

Present Worth:	$ 11,300,000
Capital Cost:	$ 11,000,000
Annual O&M:	$ 63,000
Time to Implement	2 years

Under this alternative, a two-foot layer of clean material (cap) would be placed on the floor of Utica Harbor. The cap would extend from the terminal wall towards the harbor lock to the surface sediment sample identified as SD-830A, a distance of approximately 1,400 feet (See Figure 8). The cap would be capable of supporting benthic dwelling organisms.

The purpose of the two-foot thick cap is to provide a clean habitat for benthic organisms and to prevent fish and wildlife contact with contaminated sediments underlying the cap. The details of the cap construction would be part of the design phase. The design would comply with the substantive requirements of Article 15 of the Environmental Conservation Law and 6 NYCRR Part 608 regarding stream protection. It is expected that the new, clean surface would be colonized by benthic organisms

within a few years. The underlying contaminated sediments and soils would remain at the site, but would be isolated from contact with humans and wildlife.

The design would also need to consider the fine-grained sediments in the harbor which may be easily resuspended into the water column when they are disturbed. If capping material were deposited directly on the existing sediment, some of the contaminated sediment may become suspended in the water, and settle out slowly above the soil cover. Since this suspended material may be contaminated with PAHs, the design will need to account for this suspension, as well as the action of vessel traffic. Consequently, it may be necessary to place a barrier (geotextile material, for example) and/or an armoring layer on the existing sediment surface prior to the placement of the cap.

Extensive sediment deposition has occurred between sample point SD-830A and the harbor lock, thus navigational dredging cuts of 10 vertical feet or more are anticipated to allow use of the harbor. The navigational dredging of the neck is part of a NYSDEC regulatory process separate from this ROD. These substantial dredging cuts create difficulty in characterizing the post-dredged surface and deeper sediment prior to such dredging. PAH contamination may be present in the sediments that would be exposed by the harbor neck navigational dredging. Thus, under this alternative, once navigational dredging is completed, an accurate characterization of in-situ post-dredged sediments would occur and the need for remedial action in the harbor neck would be evaluated in conjunction with OU2, or as a separate operable unit.

To mitigate the deposition of upland contaminants onto the sediment cap, the Washington Street storm sewer and other site storm sewers on the Harbor Point peninsula would be remediated. At a minimum, remediation would consist of cleaning and sliplining or abandonment and plugging of these sewers, (see Figure 9 for sewer outfall locations). This action would be required in order to prevent the contaminated material in the sewers and their bedding from being washed into the harbor or the Mohawk River.

Alternative CS-3: Remove Sediments > 4 ppm PAH

Present Worth:	$ 150,000,000
Capital Cost:	$ 150,000,000
Annual O&M:	$ 0
Time to Implement	2 years

Under this alternative, rather than capping the PAH-contaminated sediments in the harbor, all of the sediments and the underlying subsurface soils which have PAH concentrations greater than 4 ppm would be dredged and transported to a NYSDEC-authorized facility for treatment and/or disposal. This would require an estimated average dredging depth roughly 10 feet deeper than under Alternative CS-2, with a substantial increase in costs due to the higher volume of material to be dredged, dewatered and treated. The maximum depth of excavation would be as great as 20 feet in some areas. The deeper excavation would also require expansion of the sheet pile wall which currently bounds a portion of the harbor.

Dredge Disposal Areas

Although contamination levels at the three DSAs differ, the remedial options for each one are similar: 1) Limited Action or No Action, 2) Covering, 3) Excavation of "hot spots", and 4) Maximum Excavation. These alternatives are described in detail below.

Alternative D-1: Limited Action

	DSA1	DSA2	DSA3
Present Worth:	$ 150,000	$ 160,000	$ 94,000
Capital Cost:	26,000	30,000	0
Annual O&M:	7,000	7,500	5,500
Time to Implement:	6 months	6 months	6 months

Alternative D-1 consists of limited action, including land use restrictions to prevent future development of the sites. Fencing would be erected at DSA1 and DSA2 to control trespassing. This would not be necessary at DSA3 due to the lower contaminant levels present in this area. A 30-year inspection and monitoring program would be instituted at all three DSAs to detect any changes in environmental conditions that may take place in the future. As part of this monitoring, groundwater would be sampled annually for five years, followed by an assessment of whether the monitoring schedule could be changed.

Alternative D-2: Soil Cover

	DSA1	DSA2	DSA3
Present Worth:	$ 1,000,000	$ 1,100,000	$ 1,200,000
Capital Cost:	840,000	900,000	1,000,000
Annual O&M:	9,000	10,000	9,000
Time to Implement:	2 years	2 years	2 years

Under this alternative, existing vegetation would be removed, and a soil cover consisting of 18 inches of non-contaminated fill and 6 inches of topsoil would be placed on top of the existing dredge spoil piles.

The main purpose of providing a cover would be to prevent direct human and wildlife contact with contaminated surface soils. Some marginal improvement in groundwater conditions would also be expected, because rainwater infiltration through the contaminated soils would decrease. Groundwater monitoring would continue for 30 years, with annual sampling for the first 5 years, followed by an assessment of whether the monitoring schedule can be modified. Land use restrictions would be imposed to prevent direct exposure to groundwater and minimize direct exposure to soils.

Alternative D-3: Excavation and Removal of Soil > 1,000 ppm PAH or > 0.2 ppm benzene

For DSA1 Only:	
Present Worth:	$ 4,200,000
Capital Cost:	$ 4,100,000
Annual O&M:	$ 9,000
Time to Implement:	1 year

Under this alternative, soils containing greater than 1,000 ppm PAH or greater than 0.2 ppm benzene would be excavated down to an elevation of 398 feet amsl. Excavation deeper than this elevation become prohibitively expensive due to slope stability and dewatering costs. This alternative is only applicable to DSA1, where a sizable mass of NAPL-contaminated soil with PAH levels over 1,000 ppm has been identified and benzene exceeded TAGM 4046 objectives. 0.2 ppm represents the TAGM 4046 objective for benzene with soils of an approximate organic carbon content of 2%, such as those soils found at DSA1. Roughly 20,000 cubic yards of material would be transported from DSA1 to a NYSDEC-authorized treatment or disposal facility.

The 1,000 ppm PAH soil cleanup objective was derived following an evaluation of the extent to which contaminated soil at the DSAs could be removed cost-effectively. Excavation and treatment of dredge spoils to remove PAH contamination at concentrations less than 1,000 ppm would result in a disproportionately higher removal of soil volume, and hence cost, relative to environmental benefit gained by reducing the hazardous substance contamination at the DSAs. It is estimated an additional 10,000 cubic yards of soil at an additional cost of $1.4 million would need to be excavated and properly disposed in order to remove soil ranging in concentration from 500 ppm to 1,000 ppm PAHs. This 50% additional soil volume would result in less than 20% additional PAH mass removed from the DSAs. Removing soils containing greater than 1,000 ppm PAHs eliminates roughly 50 percent of the PAH contamination mass from DSA1. In addition, removing soils containing greater than 1,000 ppm PAHs and/or soils containing greater than 0.2 ppm benzene also removes the majority of contaminated soil providing a source of benzene and xylene contamination in the groundwater at DSA1.

Following soil removal, DSA1 would be graded and prepared as necessary to receive sediment from the harbor and harbor neck. Following this, DSA1 would continue to be used as a dredge spoils disposal area in the future.

In addition, deed restrictions on the use of DSA1 and on the use of groundwater, would be implemented.

The fencing which currently surrounds DSA1 would be modified as necessary to effectively restrict public entry.

Alternative D-4: Excavation to TAGM 4046 Objectives

	DSA1	DSA2	DSA3
Present Worth:	$ 50,000,000	$ 43,000,000	$12,000,000
Capital Cost:	50,000,000	43,000,000	12,000,000
Annual O&M:	5,600	6,100	6,000
Time to Implement:	2 years	2 years	2 years

Under this alternative, all of the soils in the DSAs which exceed TAGM 4046 objectives would be excavated. Roughly 280,000 cubic yards would be removed from DSA1, 240,000 cubic yards would be removed from DSA2, and 73,000 cubic yards would be removed from DSA3. The soils would be treated or disposed at an NYSDEC-authorized facility.

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 disposal 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.

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. At this site, the most important SCGs relate to PAH contamination in sediments, PAH and benzene contamination in dredge spoils, and benzene and xylene contamination in groundwater at and surrounding the dredge spoil disposal areas.

For harbor and harbor neck sediments, Alternative CS-1 (No Action) does not meet SCGs. Sediment quality in the harbor (and to a lesser extent, in the harbor neck) would continue to exceed sediment quality guidelines. Aquatic wildlife in these areas would continue to be exposed to unacceptably high levels of PAH. Alternative CS-2 would meet sediment SCGs by building a new sediment surface with clean material that would be colonized by benthic organisms within a few years. Site contaminants would remain at depth, but aquatic wildlife would no longer be exposed to them. Alternative CS-3 maximum dredging would meet SCGs by removing the entire mass of contaminated sediment and the underlying soils, exposing the uncontaminated material that currently lies deep beneath the harbor bottom.

For DSA1 and DSA2, Alternative D-1 (Limited Action) would meet SCGs for direct exposure to soils, but would not meet SCGs for groundwater. Human exposure to contaminated surface soils would be minimized with fencing and warning signs. Groundwater contamination caused by the presence of xylene and benzene-contaminated soils in the subsurface would continue, so land use restrictions would be required to prevent human consumption of groundwater. For DSA3, Limited Action meets SCGs for direct soil exposure without fencing the area. PAH levels, both in surface soil and subsurface soil, are lower in DSA3 than in the other two DSAs. Groundwater, however,

currently slightly exceeds SCGs, these contaminant levels would are expected to decline and would likely meet SCGs over time. A prohibition on residential development and use of the groundwater would be established to reduce potential exposure to residual contamination in this area.

For all three DSAs, Alternative D-2 (Soil Cover) would not meet soil SCGs. Direct exposure to contaminated soil would be mitigated, however. Groundwater SCGs would not be fully met, since contamination would not be totally eliminated by the construction of a soil cover. No human consumers of groundwater are present in the three areas, but deed restrictions would be imposed to prevent use of the groundwater in the future.

Alternative D-3 (for DSA1 only) meets SCGs for soil to the extent feasible. Contamination "hot spots" consisting of soil containing greater than 1,000 ppm PAHs or greater than 0.2 ppm benzene would be excavated and disposed at a NYSDEC-authorized facility. However, a fraction of the contaminated soil would remain at depths below 398 feet amsl, beyond the depth where excavation is feasible.

Following excavation, concentrations of contaminants in groundwater would be expected to decline over time. This would reduce the amount of groundwater contamination leaving DSA1. Groundwater conditions would continue to be monitored. Land-use deed restrictions would be imposed to prevent use of the groundwater in this area and residential development.

Under Alternative D-3, direct human exposure to contaminated surface soils would be eliminated by covering them with cleaner dredged sediment. After implementation of remediation in the harbor and harbor neck, future dredging activities should produce much lower levels of contamination. Only sediments containing less than 35 ppm PAH would be allowed for disposal at DSA1.

Alternative D-4 (Excavation to TAGM 4046 objectives) would also meet SCGs for the DSAs. Surface soil exposure would be eliminated by removing and treating the dredge spoils. However, this alternative would require large areas of excavation with depths to 26 feet below the ground surface and 16 feet below the annual-low groundwater table. Excavation below 398 feet amsl, which is well below the water table in these areas near surface water bodies would not be cost effective because of incrementally increasing costs for sidewall stability and dewatering.

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.

For harbor sediments, Alternative CS-1 (No Action) would not be protective, since aquatic organisms would continue to be exposed to high levels of contamination. Alternative CS-2 would be protective, since a new sedimentary environment would be created, isolated from underlying contamination. Alternative CS-3 would be protective, in that all contaminated sediments would be removed.

For DSA1 and DSA2, Alternative D-1 would be only partially protective. Human exposures to contaminated soils would be reduced by construction of a site fence; however, surface soil contamination would remain where any trespassers who penetrate the fence could be exposed. Groundwater contamination sources would remain. Alternative D-2 would be protective to a large

degree, but would leave some groundwater contamination sources in place. Alternative D-3 (for DSA1 only) is protective with regard to direct exposure to surface soils, but would also leave some groundwater contamination sources in place. Alternative D-4 would be the most protective of the environment of the alternatives compared, as it would remove the source of hazardous substances contributing to groundwater contamination.

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.

For harbor sediments, Alternative CS-1 (No Action) would cause minimal short-term disruption, but of course provides no long term benefit, either. Alternatives CS-2 (Capping) and CS-3 (Remove Sediments Above 4 ppm) would both severely disrupt the sedimentary environment during construction. Virtually all benthic organisms currently living in the sediments would be destroyed by dredging or burial. Recolonization of the new, clean, sediment surface would take place over the span of a few years. Alternative CS-3 would also require extensive disruption of the shoreline, because the existing sheet pile wall along the harbor edge would need to be replaced and expanded.

For the DSAs, Alternative D-1 (Limited Action) would cause minimal short term disruption. Fence construction would only impact a narrow strip of land immediately adjacent to the fence. Alternatives D-2, D-3, and D-4 all call for extensive surface disruption in the short term. Existing vegetation would be cleared and grubbed, and surface soils would be extensively disturbed during grading and covering activities. Alternative D-4 would have the greatest short-term impact, due to the large volumes of spoils that would be unearthed and transported. For alternatives D-2 and D-4, the new ground surface (following covering or excavation) would be seeded, with a full grass cover expected within a year or two following construction. Alternative D-3 would provide a similar grass seeding, but this effort would need to be repeated after each future dredging/disposal event.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If hazardous substances 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.

For the harbor sediments, the No Action alternative is not effective in the long term. Aquatic life would continue to be exposed to contamination in the harbor bottom indefinitely. PAH contamination is persistent in the environment, and there is no evidence that the contamination in the harbor is attenuating naturally.

All of the other harbor sediment alternatives involve some combination of capping contaminated sediments in place and/or removing them through dredging. Dredged materials would be transported to a NYSDEC- authorized facility for treatment and/or disposal. Both of these options offer a high degree of permanence. Land disposal of PAH-contaminated sediments containing less than 35 ppm

PAHs would be effective over the long term at DSA1 because DSA1 would have use deed restrictions and a long-term monitoring and maintenance program.

Due to the lack of currents in the waters of the harbor, and the establishment of a monitoring and maintenance program, capping of sediments (Alternative CS-2) would be effective in the long term. In flowing bodies of water, there would be a concern that the cap could be scoured or damaged during flood events; however, in a dead-end channel such as this, the potential for scour is minimal. Beneath the cap, contaminated sediments would remain on site. However, the contamination would lie isolated beneath a minimum a two-foot layer of clean material. Exposure to the material beneath the cap (by either humans or wildlife) would be unlikely. The remedial design would need to account for future dredging activities in the harbor to ensure the integrity of the cap. This might require using a warning material, barrier fabric or armoring.

The Limited Action alternative for the DSAs would leave these areas in their current unremediated state. Fencing and signage would need to be maintained indefinitely in order to remain effective. Groundwater contamination would remain and continue to move off site, so the deed restrictions on groundwater use would need to be retained and enforced. Alternative D-2 (Soil Cover) would offer a higher level of long-term effectiveness. Maintenance of the cover (annual mowing and monitoring for erosion) would be required. Groundwater contamination would remain at the DSAs, requiring the land use restrictions to remain in effect indefinitely. Alternative D-3 (DSA1 only) would rank higher in long-term effectiveness, since a portion of the source area for groundwater contamination would be removed. However, since contaminated soils deeper than elevation 398 feet amsl and soils contaminated with less than 1,000 ppm PAHs would remain, groundwater at DSA1 would remain contaminated, at least in the near term. Thus, deed restrictions on groundwater use in this area would continue indefinitely. Alternative D-4 (Excavation to TAGM 4046 Objectives) would offer the highest level of long-term effectiveness, since this alternative would result in the removal of all soil contributing to groundwater contamination. The groundwater would still be contaminated, and thus deed restrictions on groundwater use would need to continue.

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.

For harbor sediments, the No Action alternative (Alternative CS-1) would offer no reductions of mobility, toxicity or volume. Alternative CS-2 would reduce mobility by cutting the pathways by which benthic organisms are currently exposed to site contaminants. This reduction would be permanent as long as the integrity of the cap is not violated. Alternative CS-3 (maximum dredging) would provide the highest degree of reduction, since all of the contaminated materials beneath the harbor would be removed.

In the dredge spoil disposal areas, the Limited Action alternative (Alternative D-1) would provide no reductions of mobility, toxicity, or volume. Alternative D-2 (Soil Cover) would reduce mobility somewhat by reducing the percolation of groundwater through the contaminated sediments. Alternative D-3 (DSA1 only) would reduce volume by removing approximately 20,000 cubic yards of the most heavily contaminated material. The removal of soil containing greater than 1,000 ppm PAHs from above elevation 398 feet amsl would reduce the contaminated mass of PAHs at DSA1

by approximately 50%. Lowering the removal threshold below 1,000 ppm would require removing and handling far larger volumes of soil, without a corresponding benefit of contaminant mass removal. The continued use of DSA1 for future dredge disposal would have the effect of reducing the toxicity of surface soils by replacing them with less contaminated dredge spoils in the future. At DSA1, Alternative D-3 is preferred over Alternative D-2 since, by removing contaminated soil to the extent feasible, Alternative D-3 permanently and significantly reduces the toxicity, mobility and volume of the waste. Alternative D-4 would provide the maximum reduction in toxicity, mobility, and volume by removing and treating the largest quantity of contaminated dredge spoils.

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. A feasible remedy is one that is suitable to site conditions, capable of being successfully carried out with available technology, and that considers, at a minimum, implementability and cost effectiveness.

For the harbor sediments, the No Action alternative is easily implementable, since there is no active component to implement other than continued monitoring. Alternative CS-2 can be accomplished using standard construction techniques. Due to the status of Utica Harbor and the harbor neck as navigable waterways, Alternative CS-2 would require close coordination with the New York State Canal Corporation.

Alternative CS-3 for contaminated sediments would be feasible, although technically more difficult to implement than sediment Alternatives CS-1 and CS-2. Alternative CS-3 would require extensive sheetpiling to stabilize the slopes that would result from dredging to depths greater than 20 feet below the existing water-sediment interface.

For the DSAs, all alternatives involve actions (fencing, excavation, covering, and possible treatment) of standard construction practice that would be considered implementable.

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. The costs for each alternative are presented in Table 5.

For the sediment alternatives, capping the sediments (Alternative CS-2) would be considerably less in cost as compared to removing all the sediment containing greater than 4 ppm PAHs (Alternative CS-3). Sediment Alternative CS-3 would not be considered cost effective for this particular site condition as the incremental additional cost for sheetpile installation, and the removal and appropriate treatment or disposal of the additional contaminated sediment volume outweighs the environmental benefit derived from the removal.

Remedial alternatives to address the contamination in the dredge spoil areas consist of a range of costs. Limited action and soil cover alternatives would be less expensive as compared to maximum

soil excavation alternatives. Alternative D-4 would not be considered cost effective as this alternative would require large areas of excavation with depths to 26 feet below the ground surface and 16 feet below the annual-low groundwater table. Excavation below 398 feet amsl, which is well below the water table in these areas near surface water bodies would require incrementally increasing costs for sidewall stability and dewatering which outweigh the environmental benefit derived from the removal.

The 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. Nearly all of the comments received were from the following corporations: Niagara Mohawk, the New York State Canal Corporation, and Beazer East, Inc. In general, these corporations considered the remedy to be excessive, that sediment capping and contaminated soil removal are either not required, or not required to the areal and volume extent proposed. The Department addresses these concerns and others in the attached Responsiveness Summary. This ROD and the attached Responsiveness Summary show that the selected remedy has been evaluated in accordance with New York State Environmental Conservation Law and results in a remedy that, while unable to attain certain SCGs, strives to attain the SCGs in the most cost effective manner to the extent feasible and mitigate all significant threats to human health and the environment. After evaluating certain comments received, however, this ROD has been modified from the PRAP in that the selected remedy is definitive on a cap requirement for the Utica Harbor and that a decision regarding remedial action, if needed, in the harbor neck is deferred to NYSDEC review of post-navigational dredging sediment data. Several modifications to the language of the ROD were made to clarify the intent of the remedy, in response to the comments received. These changes are not considered significant with respect to the selection of the remedy. The review of sediment data will be included in the evaluation of OU2 or as a separate operable unit.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is selecting the following alternatives for this site):

Sediments	Alternative CS-2 - Capping of Contaminated Sediments after Navigational Dredging and Remediation of Sewers
DSA1	Alternative D-3 Removal of soils greater than 1,000 ppm PAHs or greater than 0.2 ppm benzene to elevation 398 feet amsl, and continued operation
DSA2	Alternative D-2 Soil Cover
DSA3	Alternative D-1 Limited Action

This selection is based on the significant threat to natural resources, including fish and wildlife, posed by sediment contamination in the Utica Harbor and the harbor neck, the significant threat of human exposure to soil and groundwater contamination in the three DSAs and the cost effectiveness of the remedial alternatives.

Sediment capping will eliminate the significant threat, providing a greatly improved bottom habitat in the harbor, with benefits for fish and other wildlife that depend on benthic organisms for food. The No Action Alternative provides a far lower level of protection. Maximum dredging of all contaminated harbor sediments would generate an extremely large volume of material and greatly increased costs, without a corresponding benefit to the environment or human health.

The three DSAs pose different problems, largely related to human exposure to contaminated surface materials and to generation of groundwater contamination.

DSA1 contains an estimated 20,000 cubic yards of NAPL-impacted spoils exceeding 1,000 ppm PAH and/or 0.2 ppm benzene. Some of this highly contaminated material is exposed at the ground surface. Soils containing greater than 1,000 ppm PAHs or 0.2 ppm benzene will be delineated and removed, fulfilling the preference for reducing mobility, toxicity and volume of contamination where practicable. Continued future use of DSA1 as a dredge spoils disposal area will cover the remaining contamination with sediment containing less than 35 ppm PAHs from future dredging projects, and will eliminate the environmental impacts associated with creation of a new disposal area elsewhere.

DSA2 contains no identifiable "hot spots" that can be readily removed. A soil cover on this area will eliminate direct human exposure to site contaminants and will reduce the generation of groundwater contamination. A use restriction will prevent future human exposure to contaminated groundwater.

At DSA3, the surface soil satisfies guidance for nonresidential direct soil exposure. In the subsurface, only select PAHs marginally exceeded SCGs. No significant sources of groundwater contamination were found. Although groundwater contamination exists, it is localized to the area of one monitoring well at a relatively low concentration. A use restriction would prevent human exposure to contaminated groundwater in the future.

In all three DSAs, excavation of all soil above TAGM 4046 objectives (Alternative D-4) would not be cost effective at this site because the marginal benefit achieved through the removal of approximately 600,000 cubic yards of soil is not proportional to the additional cost required to implement the alternative.

The estimated present worth cost to implement the remedy is $ 16.6 million. The cost to construct the remedy is estimated to be $ 16 million, and the estimated average annual operation and maintenance cost for 30 years is $ 87,500.

The elements of the selected remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS will be resolved.

2. Placement of a minimum two-foot thick layer of clean material suitable for benthic life to form the new harbor bottom. This sediment cap will extend from the terminal wall towards the harbor lock to the surface sediment sample identified as SD-830A, a distance of approximately 1,400 feet. The sediment cap will cover approximately 16 acres. Where determined to be necessary, a fabric liner over the contaminated harbor sediments will be a component of the cap. Also, the design will evaluate the need for an armoring layer of stone in areas likely to be subject to heavy boat traffic or other scouring forces. Because of the concern for contaminated sediment re-suspension and deposition during placement of the cap, the remedial design will establish a quality assurance program as part of the cap construction that will ensure that the top two-feet of cap material contains less than 4 (four) ppm total PAHs. Total PAHs is the summation of the concentrations of the 17 individual PAHs listed in Section 4.1.3.

   In some areas, placement of the cap will require prior removal of sediments in order to achieve sufficient depth of water to allow the continued navigational use of the harbor. Dredged materials containing less than 35 ppm PAHs could be disposed at DSA1. Dredged materials containing PAHs at concentrations greater than 35 ppm will be treated or disposed at a NYSDEC-authorized facility.

3. Removal from DSA1 of approximately 20,000 cubic yards of soil containing greater than 1,000 ppm PAHs or soil containing greater than 0.2 ppm benzene, to elevation 398 feet amsl. Contaminated soils will be treated or disposed at a NYSDEC-authorized facility. Dewatering of the excavation, with treatment of the water will be required as necessary. However, an adequate pre-design characterization of DSA1 may allow for quick backfill below the water table excavation, thus minimizing the amount of dewatering.

4. Regrading of DSA1 in preparation for receiving dredged material from navigational dredging in the area including navigational dredge spoils from the harbor or harbor neck. Soils containing a concentration of less than 1,000 ppm PAHs and less than 0.2 ppm benzene, but excavated to remove deeper, contaminated soils could be used as grading material. Fencing will be maintained at DSA1.

   This ROD envisions the placement of navigational dredged sediment as an interim soil cover until DSA1 is brought to final grade and closure. However, if dredged sediment is unable to be placed in DSA1 within three years commencing with the approval of the remedial design, then a soil cover consisting of a minimum 18-inch layer of non-contaminated fill material and a 6-inch layer of topsoil must be provided at DSA1.

   Use of DSA1 will be deed restricted as described in number 7 below.

5. Clearing, regrading and installation of a soil cover at DSA2, consisting of an 18-inch layer of non-contaminated fill material and a 6-inch layer of topsoil. Dredged sediment will be allowed as alternative grading material below the soil cover at DSA2 provided the concentration of PAHs in the sediment is less than 35 ppm and the concentration of total PCBs in the placed sediment is less than 10 ppm.

   Use of DSA2 will be deed restricted as described in number 7 below.

6. DSA3 will require deed restrictions on use as described in number 7 below.

7. At all three DSAs, there will be a deed restriction placed to ensure that redevelopment is limited to nonresidential uses. Further, deed restrictions on groundwater usage on and in the vicinity of the DSAs will be placed, as well as notices to future developers of the site regarding the need for worker protection and proper handling and disposal of any materials encountered during future development. Groundwater contaminant levels will be monitored. The deed restrictions will also require present and future owners to annually certify to the NYSDEC that the institutional controls have been maintained and that the conditions at the site are fully protective of public health and the environment in accordance with this ROD.

8. Cleaning and sliplining or abandonment and plugging of the Washington Street storm sewer. Also, bedding materials surrounding the sewer will be plugged with an impermeable material to eliminate the potential for site contaminants to migrate along the outside of the sewer pipe and re-contaminate Utica Harbor.

9. Cleaning and sliplining, or abandonment and plugging of private sewer lines on the Harbor Point peninsula.

10. Since the remedy results in untreated hazardous waste remaining at the site, a long term monitoring program will be instituted. This program will allow the effectiveness of the harbor cap and the closure of all three DSAs to be monitored, and will be a component of the operation and maintenance for the site. In addition, prior notification to the NYSDEC will be required for any activity which could jeopardize the integrity of the cap. Dredging to a depth below the cap elevation or installing piles would be examples of such activity.

Based upon the investigations undertaken as part of OU3, navigational dredging of the harbor neck will be allowed to proceed. Since navigational dredging is not part of the remedy for the site, navigational dredging will require applicable permits and must satisfy the requirements of Section 401of the Clean Water Act and applicable NYSDEC guidance. The need for further remedial action for the surface sediment subsequent to navigational dredging (i.e. post-dredge) will be evaluated in conjunction with the Feasibility Study for the Mohawk River immediately upstream and downstream of the harbor neck (Operable Unit 2), or as a separate operable unit.

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 site:

A repository for documents pertaining to the site 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 the remediation of the site.

On November 14, 2000 the NYSDEC held a public meeting to solicit comments on the proposed remedy.

In March 2001, a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.

NATURE AND EXTENT OF CONTAMINATION

Niagara Mohawk Harbor Point Operable Unit 3

DREDGE SPOIL AREA 1

TABLE 1-SS: DSA1 SURFACE SOIL (less than two feet 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 140	17 of 18	0.061 or MDL	13 of 18	0.6
total PAHs	1 to 1,105	2 of 18	500	-	-

TABLE 1-SB: DSA1 SUBSURFACE SOIL

Contaminant of Concern	**Concentration Range (ppm)**	**Frequency of Exceeding SCG**	**SCG (ppm)**
benzene	ND to 5.6	3 of 26	0.2
benzo (a) pyrene	ND to 52	31 of 42	0.061 or MDL
naphthalene	ND to 890	7 of 42	26
total PAHs	ND to 1,725	7 of 43	500

TABLE 1-G: DSA1 GROUNDWATER

Contaminant of Concern	**Concentration Range (ppb)**	**Frequency of Exceeding SCG**	**SCG (ppb)**
benzene	ND to 3	3 of 17	1
xylene	ND to 160	5 of 17	5

DREDGE SPOIL AREA 2

TABLE 2-SS: DSA2 SURFACE SOIL (less than two feet below ground surface)

Contaminant of Concern	Concentration Range (ppm)	Frequency of Exceeding SCG	SCG (ppm)	Frequency of Exceeding Background	Background (ppm)
benzo (a) pyrene	1 to 6	11 of 11	0.061 or MDL	11 of 11	0.6
total PAHs	11 to 77	0 of 11	500	-	-

TABLE 2-SB: DSA2 SUBSURFACE SOIL

Contaminant of Concern	Concentration Range (ppm)	Frequency of Exceeding SCG	SCG (ppm)
benzo (a) pyrene	ND to 42	29 of 31	0.061 or MDL
naphthalene	ND to 470	10 of 31	26
total PAHs	ND to 1,848	7 of 31	500

TABLE 2-G: DSA2 GROUNDWATER

Contaminant of Concern	Concentration Range (ppb)	Frequency of Exceeding SCG	SCG (ppb)
benzene	ND to 3	2 of 13	1

NATURE AND EXTENT OF CONTAMINATION - CONTINUED

Niagara Mohawk Harbor Point Operable Unit 3

DREDGE SPOIL AREA 3

TABLE 3-SS: DSA3 SURFACE SOIL (less than two feet 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 0.1	3 of 7	0.061 or MDL	0 of 7	0.6
total PAHs	ND to 5	0 of 7	500	-	-

TABLE 3-SB: DSA3 SUBSURFACE SOIL

Contaminant of Concern	Concentration Range (ppm)	Frequency of Exceeding SCG	SCG (ppm)
benzo (a) pyrene	ND to 4.3	10 of 17	0.061 or MDL
naphthalene	All < SCG	0 of 17	26
total PAHs	ND to 78	0 of 17	500

TABLE 3-G: DSA3 GROUNDWATER

Contaminant of Concern	Concentration Range (ppb)	Frequency of Exceeding SCG	SCG (ppb)
benzene	ND to 5	1 of 8	1

NATURE AND EXTENT OF CONTAMINATION - CONTINUED

Niagara Mohawk Harbor Point Operable Unit 3

UTICA HARBOR

TABLE 4-SS: HARBOR SURFACE SEDIMENT

	Contaminant of Concern	**Concentration Range (ppm)**	**Frequency of Exceeding SCG**	**SCG (ppm)**
Utica Harbor	total PAHs	2 to 582	11 of 12	4
Harbor Neck	total PAHs	0.7 to 7.9	3 of 12	4

TABLE 4-DS: HARBOR DEEPER SEDIMENTS (0.5 to 10 feet below sediment surface)

	Contaminant of Concern	**Concentration Range (ppm)**	**Frequency of Exceeding SCG**	**SCG (ppm)**
Utica Harbor	total PAHs	1 to 8,459	15 of 20	4
Harbor Neck	total PAHs	0.1 to 4,743	20 of 22	4

NOTES

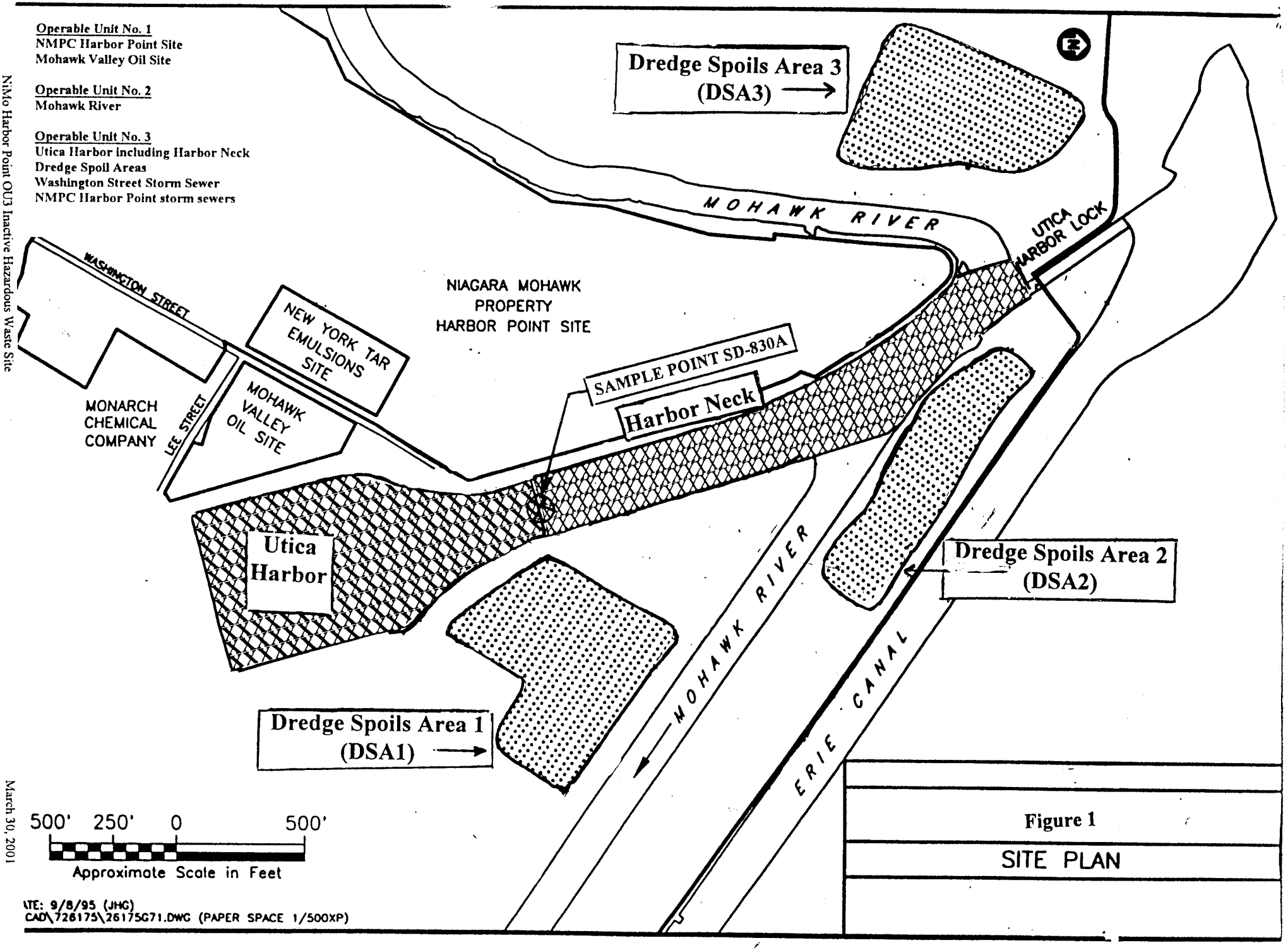
1. ND = Not Detected

2. Total PAHs is the summation of concentrations of the 17 individual PAHs listed in Section 4.1.3. For brevity, rather than listing all PAHs, a probable carcinogenic PAH, benzo(a)pyrene and one other PAH, naphthalene, were chosen for certain tables to provide representation of the nature and extent of contamination.

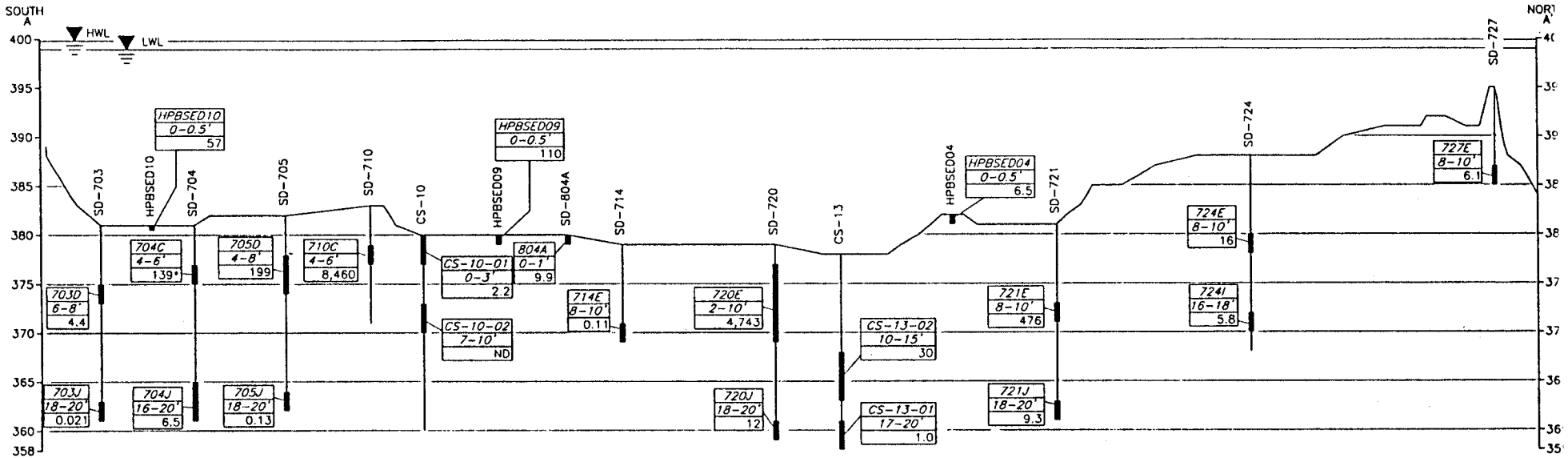
TABLE 5
REMEDIAL ALTERNATIVE COST ESTIMATES

Niagara Mohawk Harbor Point Operable Unit 3

Remedial Alternatives (sediments)	**Capital Cost**	**Annual O&M**	**Total Present Worth**
Alternative CS-1: No Action	$0	$63,000	$300,000
Alternative CS-2: Capping	$11,000,000	$63,000	$11,300,000
Alternative CS-3: Max. Dredging	$150,000,000	$0	$150,000,000
Remedial Alternatives (DSA1)			
Alternative D-1: Limited Action	$26,000	$7,000	$150,000
Alternative D-2: Cover	$840,000	$9,000	$1,000,000
Alternative D-3: Hot Spot Removal	$4,100,000	$9,000	$4,200,000
Alternative D-4: Max. Excavation	$50,000,000	$5,600	$50,000,000
Remedial Alternatives (DSA2)			
Alternative D-1: Limited Action	$30,000	$7,500	$160,000
Alternative D-2: Cover	$900,000	$10,000	$1,100,000
Alternative D-4: Max. Excavation	$43,000,000	$6,100	$43,000,000
Remedial Alternatives (DSA3)			
Alternative D-1: Limited Action	$0	$5,500	$94,000
Alternative D-2: Cover	$ 1,000,000	$9,000	$1,200,000
Alternative D-4: Max. Excavation	$12,000,000	$6,000	$12,000,000


Operable Unit No. 1
NMPC Harbor Point Site
Mohawk Valley Oil Site
Operable Unit No. 2
Mohawk River
Operable Unit No. 3
Utica Harbor including Harbor Neck
Dredge Spoil Areas
Washington Street Storm Sewer
NMPC Harbor Point storm sewers
Dredge Spoils Area 3 (DSA3)
MOHAWK RIVER
UTICA HARBOR LOCK
WASHINGTON STREET
NEW YORK TAR EMULSIONS SITE
NIAGARA MOHAWK PROPERTY HARBOR POINT SITE
SAMPLE POINT SD-830A
Harbor Neck
MONARCH CHEMICAL COMPANY
LEE STREET
MOHAWK VALLEY OIL SITE
Utica Harbor
Dredge Spoils Area 2 (DSA2)
MOHAWK RIVER
ERIE CANAL
Dredge Spoils Area 1 (DSA1)
500' 250' 0 500'
Approximate Scale in Feet
DATE: 9/8/95 (JHG)
CAD\726175\26175G71.DWG (PAPER SPACE 1/500XP)
Figure 1
SITE PLAN

PROFILE A – A'

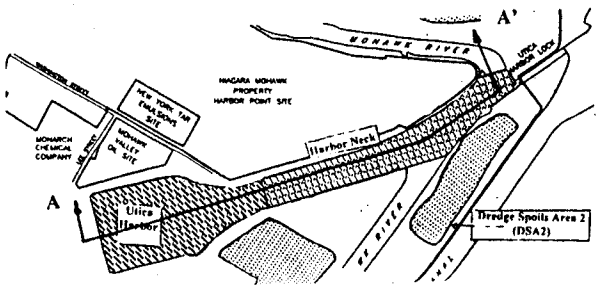


LEGEND

* = THE FOLLOWING PAH ANALYSES WERE REJECTED UPON DATA VALIDATION:

BENZO(a)PYRENE
BENZO(b)FLUORANTHENE
BENZO(k)FLUORANTHENE
DIBENZO(a,h)ANTHRACENE
INDENO(1,2,3-cd)PYRENE
ACENAPHTHYLENE
BENZO(g,h,i)PERYLENE

703D	SAMPLE IDENTIFICATION
6-8'	DEPTH OF SAMPLES IN FEET
4.4	TOTAL PAHs (PARTS PER MILLION)



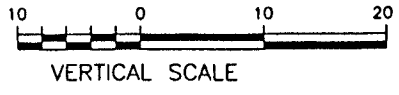


FIGURE 2

PROFILE A-A'
OF UTICA HARBOR & BARGE CHANNEL
HARBOR POINT SITE, UTICA, NEW YORK

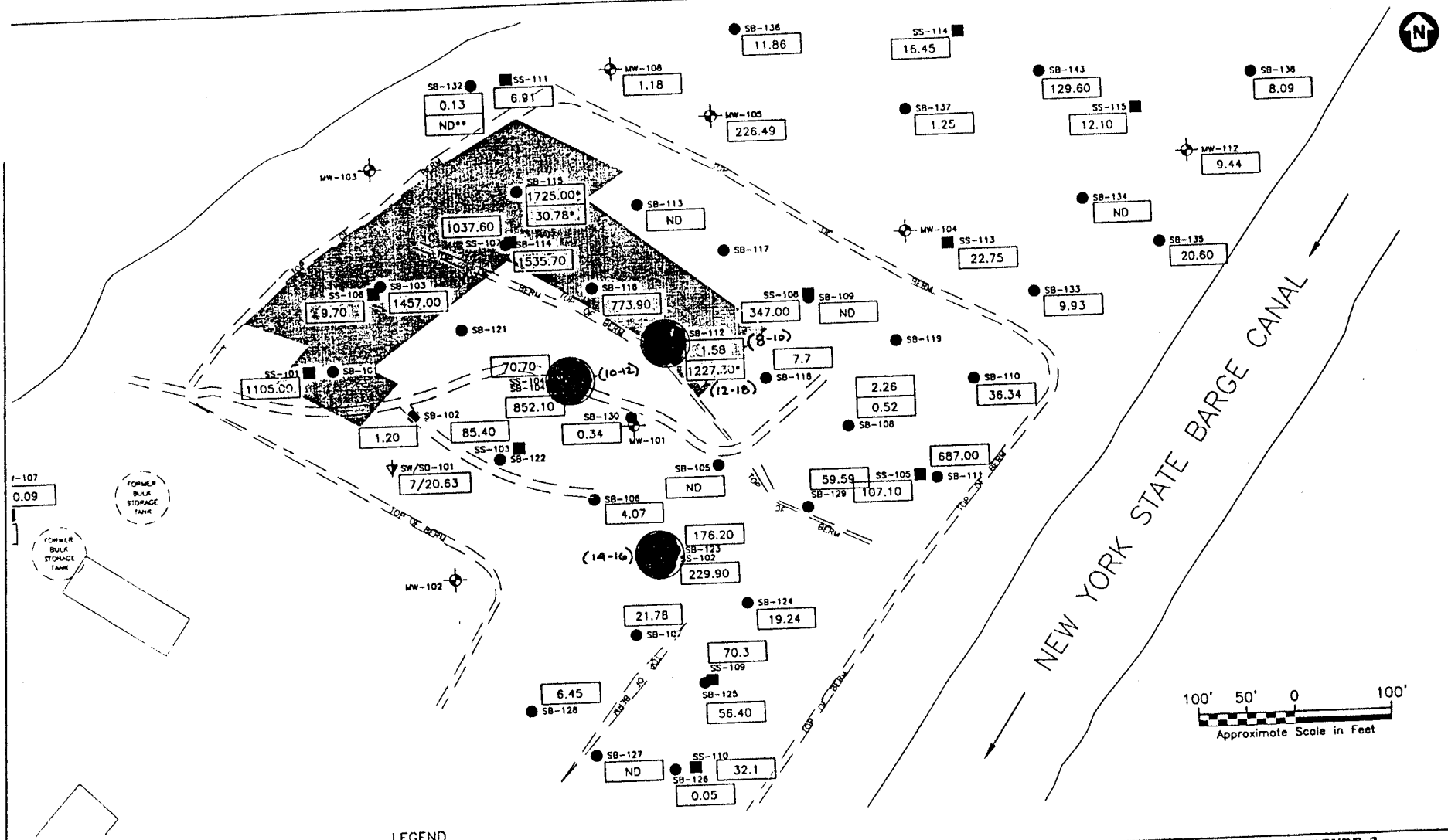


FIGURE 3

DSA1 SOIL CONTAMINATION: HOT SPOTS

HARBOR POINT SITE, UTICA, NEW YORK

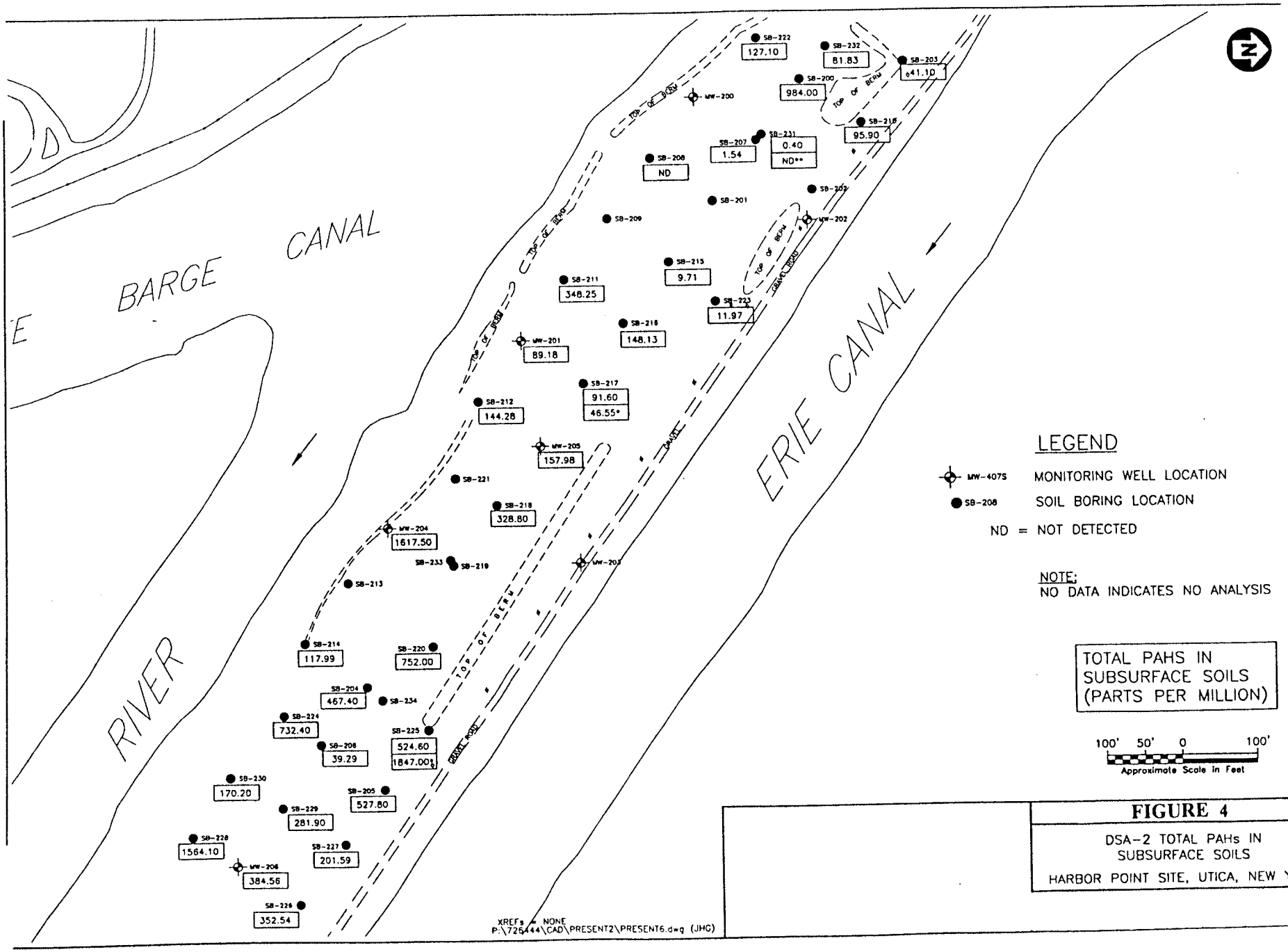


FIGURE 4

DSA-2 TOTAL PAHs IN SUBSURFACE SOILS

HARBOR POINT SITE, UTICA, NEW YO

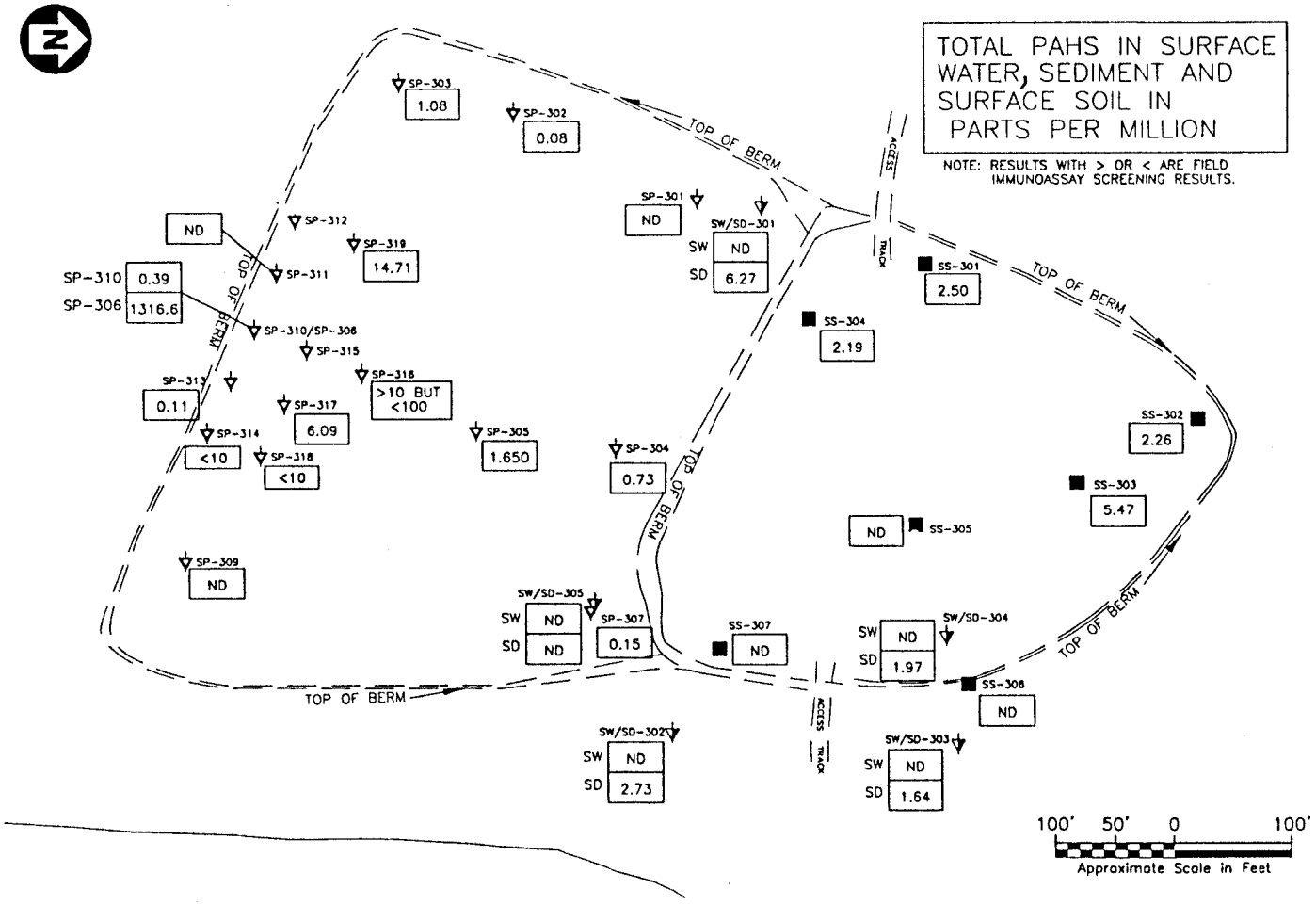


FIGURE 5

DSA-3 TOTAL PAHs FOR SURFACE WATER, SEDIMENT AND SURFACE SOIL HARBOR POINT SITE, UTICA, NEW YOR

XREFs = NONE
P:\726444\CAD\PRESENT2\PRESENT7.dwg (JHG)

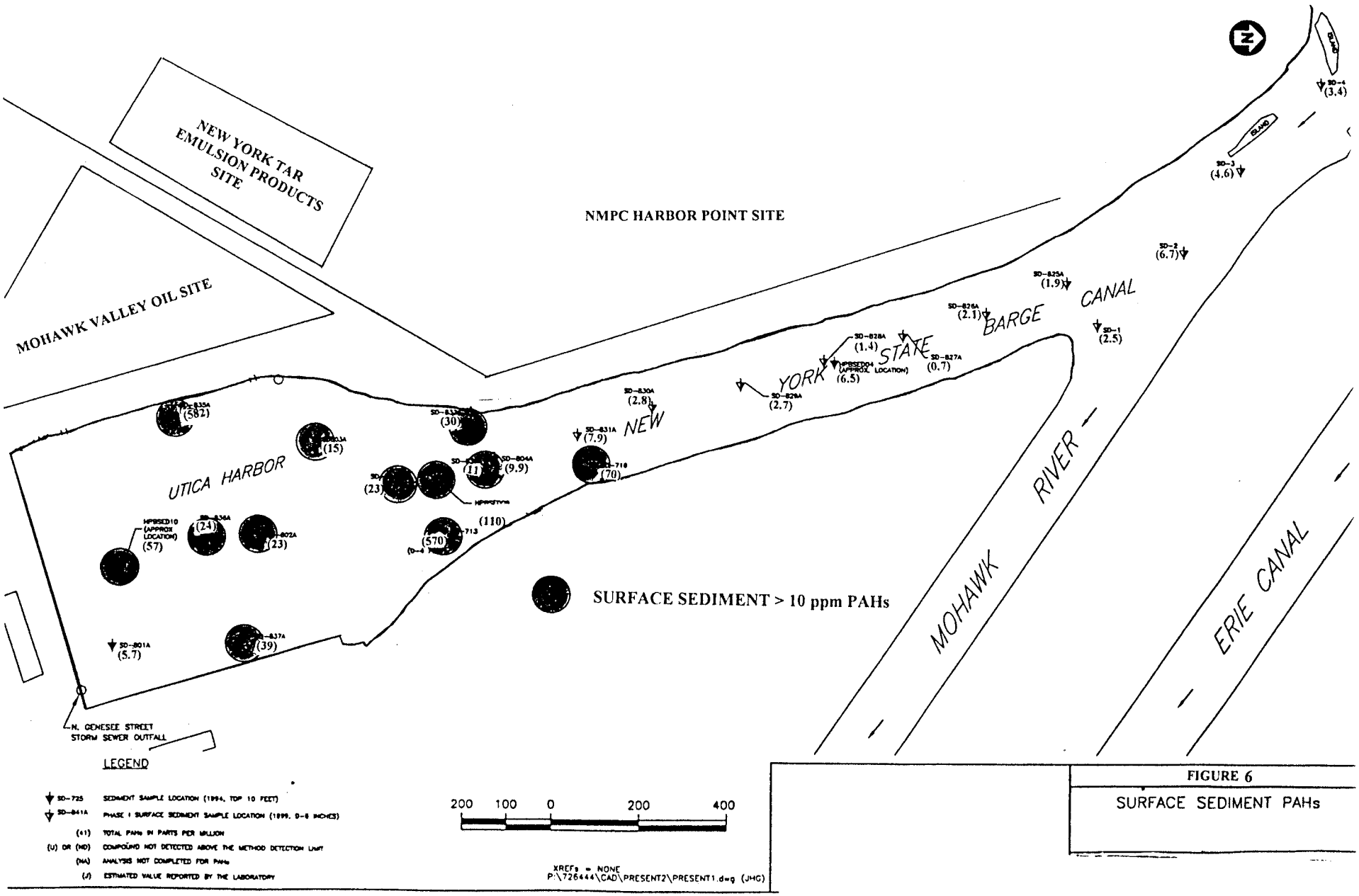


FIGURE 6
SURFACE SEDIMENT PAHs

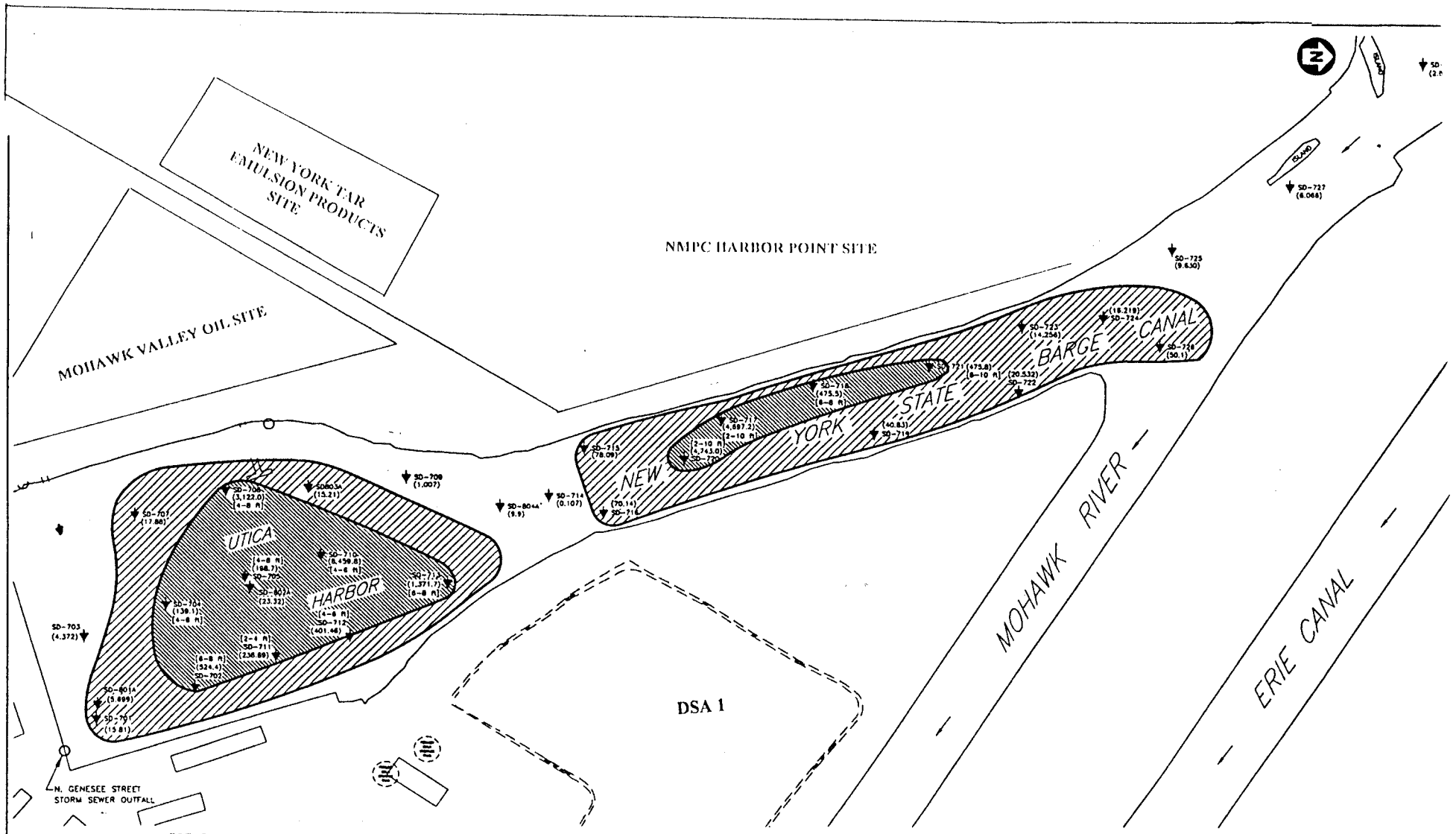


FIGURE 7

TOTAL PAH CONCENTRATIONS IN UTICA HARBOR SEDIMENT (TOP 10 FEET)

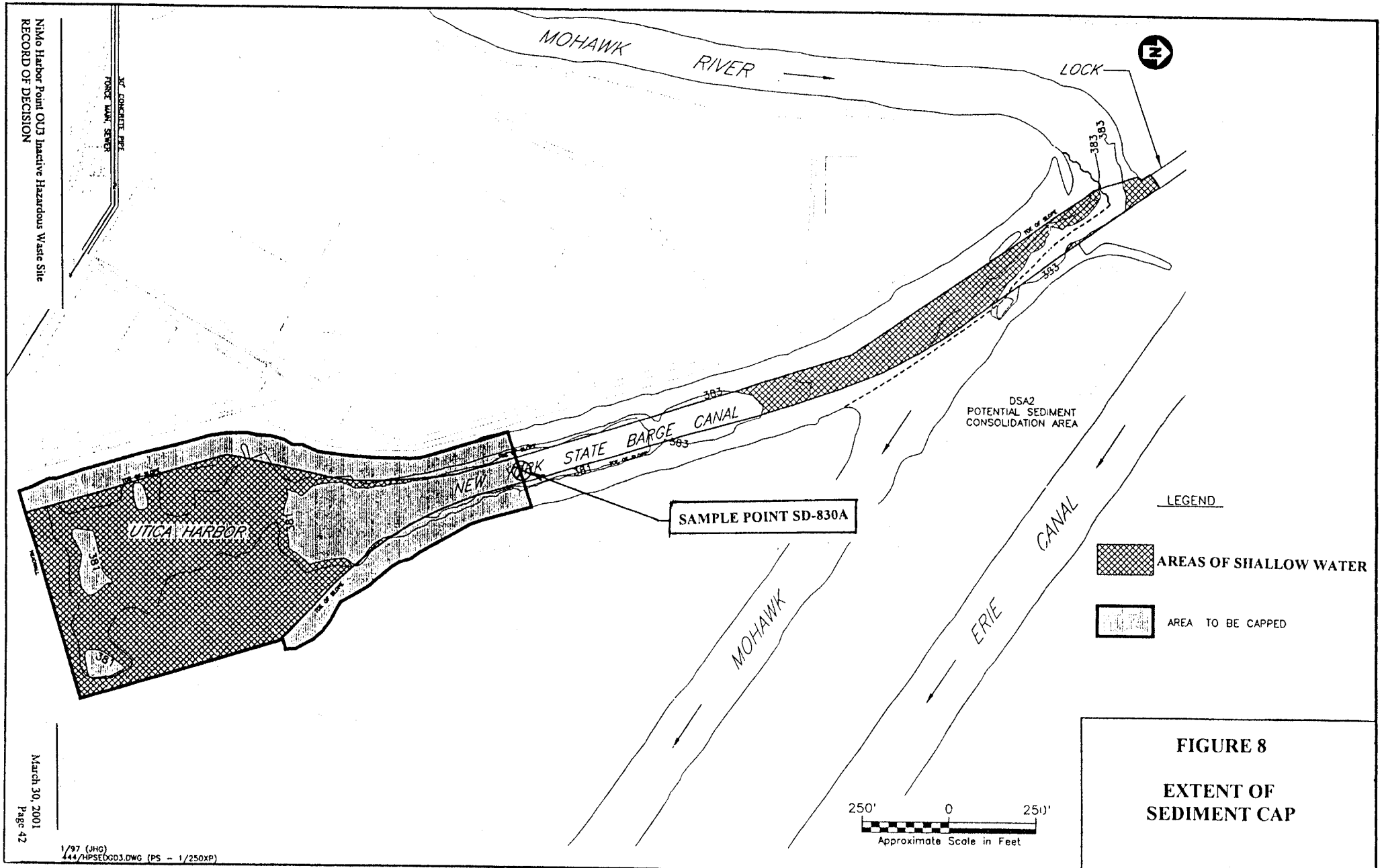


FIGURE 8

EXTENT OF SEDIMENT CAP

1/97 (JHG)
444/HPSEDG03.DWG (PS - 1/250XP)

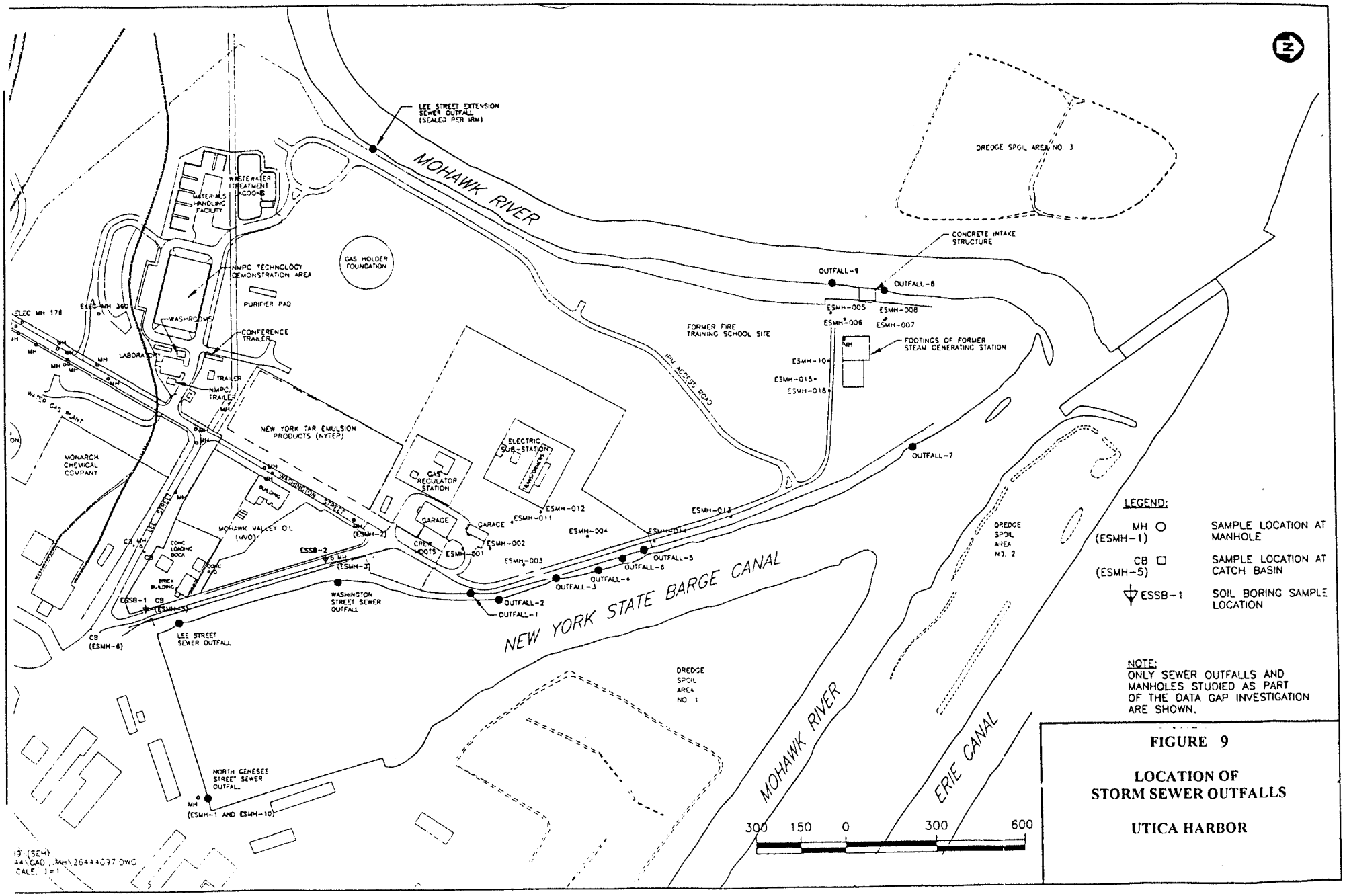


FIGURE 9

LOCATION OF STORM SEWER OUTFALLS

UTICA HARBOR

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Proposed Remedial Action Plan
for the
Niagara Mohawk Harbor Point
Inactive Hazardous Waste Site
Operable Unit 3: Utica Harbor Sediments and
Dredge Disposal Areas
Utica (C), Oneida County, New York
Site No. 6-33-021

The Proposed Remedial Action Plan (PRAP) for the Niagara Mohawk Harbor Point Site, Operable Unit 3, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and placed in the local document repository on October 18, 2000. This PRAP outlined the preferred remedial measure proposed for the remediation of the contaminated soil and sediment at the Niagara Mohawk Harbor Point Site, Operable Unit 3. The preferred remedy is capping of contaminated harbor sediments, hot-spot removal of contaminated soil and soil cover where needed in the dredge spoil areas and active measures to address the Washington Street storm sewer and other drainage conduits. In addition, there will be deed restrictions to preclude groundwater usage and residential development as well as notices to future developers of the site regarding the need for worker protection and proper handling and disposal of any materials encountered. There will also be a long-term monitoring program to supplement the remedy.

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 November 14, 2000, 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 and ask questions about, and to comment on the proposed remedy. These comments have become part of the Administrative Record for this site. Written comments were received from Niagara Mohawk Power Corporation, the New York State Canal Corporation and Beazer East, Incorporated.

The public comment period for the PRAP ended on December 4, 2000. This Responsiveness Summary responds to the written comments received and to all questions and comments raised at the November 14, 2000 public meeting.

The following are the comments received at the November 14, 2000 public meeting, with the NYSDEC's responses:

COMMENT 1: Is it feasible to pour concrete, rather than sand [on top of the harbor sediments] or put sand over the top of concrete?

RESPONSE 1: While concrete would isolate the contaminated sediments, there are several disadvantages to using concrete:

- The concrete would need to be a special mixture capable of maintaining integrity under water.
- Unlike the materials specified, the underwater concrete would have a limited lifetime and require replacement.
- The harbor would need to be drained to place and set the concrete. The harbor floor would require grading.
- The concrete would need to be periodically inspected for integrity. Inspection would be difficult in areas of sedimentation, or if the concrete was used in conjunction with sand.
- Concrete, if used alone, would not allow bottom-dwelling organisms to burrow.
- Concrete would cost significantly more than the selected cap materials.

For these reasons, the NYSDEC concluded that concrete would not be a suitable capping material.

COMMENT 2: What is a sheet pile?

RESPONSE 2: Sheet piles are metal plates with interlocking edges that are driven into the ground to form an underground wall. Sheet piling is often necessary for deeper excavations.

COMMENT 3: Is there a minimum depth of dredging required for navigation [in and out of the harbor]?

RESPONSE 3: From discussions with the New York State Canal Corporation, a depth of 14 feet is needed for navigation. However, establishing and maintaining a 14-foot depth is not a requirement of the ROD. The ROD recognizes that dredging will be required for re-use of the site and calls for the sediments to be capped at a depth to allow for navigation in the harbor.

COMMENT 4: Will DEC be deciding the depth of dredging required during the design phase? If not DEC, who will decide the appropriate depth?

RESPONSE 4: The NYSDEC will not be determining the depth of dredging required. The navigational dredge depth for the harbor will be provided by the New York State Canal Corporation for the remedial design.

COMMENT 5: What about DSA2? Has the New York State Department of Transportation had any comment about the proposed remedy?

RESPONSE 5: The New York State Department of Transportation did not comment on any aspect of the PRAP during the public comment period.

COMMENT 6: It is important to note that a number of local elected officials have been working with the Chamber of Commerce and Niagara Mohawk regarding reuse options for the Harbor Point area. It is important that remedial work and proposed reuse options are compatible.

RESPONSE 6: The NYSDEC is aware of this interest in redevelopment of the site and expects the remedy selected by this ROD to be compatible with nonresidential reuse options.

COMMENT 7: Is an extension of the comment period possible?

RESPONSE 7: The public comment period was extended from November 21, 2000 to December 4, 2000.

COMMENT 8: The depth of dredging is an important issue regarding redevelopment of the area, as is the continued use of DSA1 as a dredge spoil area.

RESPONSE 8: The ROD allows for a decision regarding the depth of dredging independent of the remedy. See also RESPONSE 3. The ROD also allows flexibility in the non-residential use of DSA1, including use as a dredged sediment disposal area.

COMMENT 9: Is it possible for sediments that are dredged from the harbor to be treated and used for the cap? Do you anticipate treating and using sediments removed from the harbor?

RESPONSE 9: Treated sediments could be used for the sediment cap provided the sediment satisfies the quality assurance requirements specified in this ROD and developed in the remedial design. At a minimum the sediments would need to be suitable for supporting benthic life.

COMMENT 10: What will be required at DSA 1 to make sure it is not contaminated as new dredge spoils are disposed of there in the future?

RESPONSE 10: All future dredging of sediment including its disposal, must satisfy the requirements of Section 401 of the Clean Water Act and applicable NYSDEC guidance. Thus, before dredging can take place, the NYSDEC must review and approve the sediment disposal location. This review includes the analysis of sediments prior to being dredged. If there are no plans to dispose of dredged sediments at DSA1 in the future, DSA1 must be properly closed as specified in the ROD.

COMMENT 11: What type of geotextile material will be used to cover the sediments? Will it be permeable?

RESPONSE 11: The need for a geotextile and its material of construction will be evaluated during the remedial design.

COMMENT 12: The harbor is a beautiful natural asset that has great potential for the community. It is important to keep reuse in perspective, and dredging decisions should be included in the remedial planning. We need to get the harbor back to a reusable state as quickly as possible. Harbor accessibility should be an important consideration in the remediation plan.

RESPONSE 12: The NYSDEC agrees with this comment. The NYSDEC believes the ROD accommodates the need for harbor accessibility and allows for dredging decisions during the remedial design.

A letter dated December 1, 2000 was received from Charles Willard of the Niagara Mohawk Power Corporation (NMPC). The following comments were provided by the NMPC:

COMMENT 13: In the interest of continuing the remediation process for OU-3, NMPC believes that the most prudent method for selecting a remedial goal for the OU-3 sediments would be to complete feasibility study-related efforts for all of the waterbodies associated with the Harbor Point Site sediments but must be completed. This could be accomplished for OU-3 by allowing flexibility in the OU-3 ROD for selecting a remedial level after the completion of the OU-2 Feasibility Study and pre-design efforts for OU-3. The feasibility of a 4 ppm total PAH level for sediment in the Mohawk River, a water body with benthic communities undisturbed by maintenance dredging, is not anticipated to be practicable. Alternately, the ROD may select the cap area proposed in Alternative 2A of the October 1997 Harbor Point Site Feasibility Study as a presumptive remedy without the use of the PAH screening level as a remediation goal. The cap area developed by the 1997 feasibility study and the anticipated area to be capped by the PRAP remedy are essentially the same.

RESPONSE 13: The NYSDEC agrees with NMPC that the cap area required under this ROD and the cap area discussed in the 1997 feasibility study are comparable. Therefore, this ROD has omitted the use of the PAH guidance level to define the capped area, as proposed in the PRAP, instead defining the area to be capped comparable to the 1997 FS. (Note, the ROD does not define the cap area in terms of the Effects Range - Median, as the 1997 FS does.) Based upon the existing data, the PRAP would have required Utica Harbor to be capped, while a cap for the harbor neck would have been determined as a result of post-dredged sampling. The ROD also requires Utica Harbor to be capped and simply defers the determination of whether to cap any areas of contamination encountered in the harbor neck after navigational dredging to the remedy selection for OU2 or a separate operable unit. Thus, the 4 ppm PAH value as a threshold for active remediation of the sediment is no longer necessary in the ROD.

The 4 ppm PAH value has, however, been retained as a criterion for the quality of the sediment cap material. To ensure that construction of the cap will not result in the disturbance of contaminated sediment, such as suspension of the sediment and subsequent deposition on top of the cap, the 4 ppm PAH value will be used as a quality assurance indicator during and following construction. The NYSDEC does not, however, see the need for this ROD to be contingent upon the completion of the

feasibility study for the Mohawk River. The remediation of OU3 can proceed, and thus is directed to proceed, through the issuance of this ROD.

COMMENT 14: The procedures used by DEC to arrive at the sediment remedy were deficient. The Department's decision to proceed with a different sediment remedy has no basis for a number of reasons, including without limitation, the following:

- In May 1999, the NYSDEC concluded that additional information was required in Utica Harbor for 'more informed decisions regarding the different remedial alternatives'. However, the NYSDEC published the OU3 PRAP without allowing additional, site specific information to be developed.

- The remedial alternative selected by the Department has not been evaluated in a Feasibility Study.

- Sediments in the Mohawk River, Barge Canal and Utica Harbor are connected. The selection of a remedy for the harbor and canal without a completed feasibility study for the river is not technically sound.

RESPONSE 14: The NYSDEC believes that sufficient information exists for a ROD to be issued for the harbor and harbor neck, whereas additional data are needed for the Mohawk River. In May 1999 the NYSDEC indicated that additional data were needed: a) for surface sediment in the neck; and b) for post navigational-dredged surface sediment at the neck entrance. The NYSDEC also stated that sufficient data existed in the harbor for the purpose of a feasibility study. Surface sediment data in the neck were collected in June 1999, reported in September 1999 and subsequently used to develop the PRAP/ROD. The NYSDEC believes the sediment surface can be better characterized after navigational dredging, rather than by coring through 11or more feet of sediment and then assuming an analyzed core sample would represent the post-navigational dredging sediment surface. This post-dredging characterization was a component of the PRAP and is a component of the ROD.

As identified in COMMENT 13 above, Niagara Mohawk's 1997 feasibility study did evaluate the capping of sediments in Utica Harbor, limited soil removal in the DSAs and remediation of sewer outfalls. In addition to presenting a remedy which restores OU3 to the extent feasible and authorized by law, but at a minimum eliminates or mitigates all significant threats to human health and the environment, the NYSDEC strived to satisfy the concerns of Niagara Mohawk, the New York State Canal Corporation (NYSCC) and others which were not accounted for in the FS. For example, the FS recommended DSA2 as the location for dredged sediment; the NYSCC and a political representative expressed opposition to this location. Also, the NYSCC was opposed to the 10-foot water draft limitation recommended in the FS, requesting instead a 14 foot depth in the Harbor. Acceptance of the FS by the NYSDEC does not obligate the NYSDEC ROD to select the FS recommended alternative without alteration. The NYSDEC may also elect to combine certain aspects of other alternatives, in the proposed remedy.

In the third bullet, the NYSDEC assumes the "connection" of sediments in the Mohawk River, Barge Canal and Utica Harbor is the transport and deposition of upstream Mohawk River sediment into the Barge Canal. From data provided in the RI report, Mohawk River sediment deposition is limited to the harbor neck. The NYSDEC believes the remedy for the harbor and canal is sound and can proceed because the ROD accounts for the deposition of river sediments, including potentially contaminated river sediments, in the harbor by allowing navigational dredging and subsequent evaluation of the post-dredged sediment in the harbor neck in conjunction with the feasibility study for the river. Potential active remedial measures in the harbor neck and/or river should not be used as an excuse to postpone a response for the harbor.

COMMENT 15: Several sections of the PRAP require revision to clarify the intent of the dredging and capping work as follows:

- Page 2, Section 1.2, Paragraph 2, bullets I and 2 - These paragraphs need to be correct[ed] to reflect that the dredging in the canal and harbor is required for navigation and that the placement of a cap is a presumptive remediation measure to isolate contaminated sediment after dredging.
- Page 16, Section Title - "Alternative- CS-2: Navigational Dredging and Isolation Capping"
- Page 16, Paragraphs 2, 3, and 5 - These paragraphs need to be corrected to reflect that the dredging in the canal and harbor is required for navigation and that the placement of a cap is a presumptive remediation measure to isolate contaminated sediment after dredging.
- Figure 9 should be revised to show that the navigational dredging extends throughout Utica Harbor and the barge canal.

RESPONSE 15: The corresponding sections in the ROD reflect that removal of sediments in the harbor and harbor neck is required for navigational use. Regarding Figure 9, this figure is redundant in the PRAP and was provided to give the reader a quick summary of the proposed remedy. For clarity, Figure 9 was deleted from the ROD.

COMMENT 16: Section 1.1- Significant Threats. - There are no site-specific data that show adverse impacts to biota in sediments.

RESPONSE 16: This comment apparently only considers one report, the January 1997 Supplemental Fish and Wildlife Data Collection Report, and in the NYSDEC's opinion misinterprets the conclusions in that report. The salient conclusion of the report was that there appeared to be little correlation between elevated PAH concentrations and various benthic community results. Not being able to correlate PAH concentrations with the test results is not the same as concluding that there are no adverse effects from the presence of PAHs. The report's suggestion that other factors, such as substrate, water stagnation and predators, may also have affected the test results does not dismiss the elevated PAHs from having an adverse effect on biota. The two sediment samples collected from Utica Harbor for the report had biotoxicity results similar to the other stations, yet had lower species diversity, lower evenness and lower richness in the benthic community analysis. Also, another study: *Final Report, Supplemental Remedial Investigation, Harbor Point Site, Utica, New York*, indicated that there was a risk to benthic invertebrates in the harbor from PAHs as well as other compounds.

More importantly, this comment ignores the abundance of site-specific data which characterize the sediment quality. Over 16 acres of the harbor and portions of the harbor neck area contain visible NAPL and/or sheens within the sediment to depths of 20 feet. Widespread areas of these sediments contain PAH concentrations which are thousands of times greater than that concentration reported in the scientific literature as causing adverse impacts to biota.

Also, in accordance with NYSDEC regulations, the NYSDEC may determine that the site presents a significant threat if the waste coming from the site results in, or is reasonably foreseeable to result in, *contaminant levels* that cause significant adverse acute or chronic effects to aquatic organisms (including benthic invertebrates). Thus, a site-specific demonstration of toxicity is not necessary for the NYSDEC's determination of a significant threat. Rather, the finding of contaminant levels which are reasonably foreseeable, that is, a potential for, acute or chronic effects based on other site-specific conditions and scientific literature is sufficient for determining that a significant threat exists.

In the absence of a cap, the potential for deeper contaminated sediment to become redistributed to the surface exists through the action of vessel traffic. Rotating ship screws can fluidize and scour sediments, resulting in redistribution. To overcome inertial forces in moving a barge, one would expect large underwater thrust forces capable of disturbing sediment. There is also anecdotal mention of vessels revving their engines to scour the sediment at the bulkhead.

COMMENT 17: Section 1.2 - Fish and wildlife are not receptors of concern.

RESPONSE 17: The NYSDEC disagrees. Fish and wildlife are receptors of concern at this site. Also, the NYSDEC's definition of wildlife includes benthic invertebrates, which are significant receptors at this site. The NYSDEC cannot respond to the statement that sediments above the SCG values selected by DEC have been shown to be non-toxic in studies that were used to develop DEC's SCG values, as no specific studies or references were identified. New York's standards, criteria and guidance may or may not be the same as the SCGs used in other states. The NYSDEC ROD must however comply with New York State SCGs.

COMMENT 18: Section 4.1 - Summary of the Remedial Investigations. - Simple comparisons with guidance or screening values are not sufficient to characterize risk and set cleanup levels.

RESPONSE 18: The results of the studies of effects may not have been included in the PRAP; however, the results of the studies were not dismissed. The NYSDEC is aware of only two studies involving either toxicity testing or benthic community analysis of the OU3 sediments.

The NYSDEC considered, where possible, the Menzie-Cura and Associates data conducted as part of Atlantic Environmental Services supplemental remedial investigation and the Parsons January 1997 Supplemental Fish and Wildlife Data Collection Report. The Menzie-Cura study was not provided to the NYSDEC in detail; however, the NYSDEC understands the results of this study were used to support the Atlantic report conclusion that PAHs in harbor sediment impacted benthic invertebrates and thus the NYSDEC did not seek a detailed review of this study. Parsons' report was inclusive regarding the effects of PAHs (see RESPONSE 16).

The NYSDEC did not dismiss Parsons' report; however, since it was inconclusive regarding the effects of PAHs on the benthic community, it could not be used to modify guidance values. Also, the Department notes that Niagara Mohawk did not use Parson's study to develop sediment remedial alternatives in the FS.

Neither TAGM 4046 nor the Technical Guidance for Screening Contaminated Sediments contain a risk assessment strategy. Many of the soil clean-up objectives, that is the SCGs for soil, presented in TAGM 4046 are, however, risk-based. NYSDEC regulations require a remedy to achieve the SCGs for all contaminated media, such as soil, sediment and groundwater, to the extent feasible. The evaluation of feasibility is discussed in detail in Section 7.2 of the PRAP. Included in the evaluation are "strategies" or risk management decisions to address the residual risk remaining when it is not feasible for a remedial alternative to achieve the SCGs. Specific examples of risk management decisions in the PRAP and ROD are the use of soil and sediment covers to address an exposure pathway.

COMMENT 19: In the case of PAH compounds in sediments, DEC has ignored its own guidance (Technical Guidance for Screening Contaminated Sediments), has inappropriately selected screening values that are questionable, and has applied those values in an inappropriate way.

RESPONSE 19: The NYSDEC believes it has appropriately applied regulations and guidance in the selection of a remedy for this site. As no specific example was included in the comment, the NYSDEC cannot provide a specific technical rebuttal. See RESPONSE 23 regarding the application of screening guidelines.

COMMENT 20: Section 4.3 - Summary of Environmental Exposure Pathways. - Impacts of PAH on invertebrate food resources have not been demonstrated by the available site data.

- Toxicity tests and benthic community analyses were conducted for Harbor Point sediments.
- The results of such were reported in the January 1997 Supplemental Fish and Wildlife Data Collection Data Report.
- The results of these tests showed site-related impacts that appear to be related to habitat differences and could not be clearly explained by chemical contamination.
- Hence, there is no factual basis either observed or implied supporting DEC's statement that "the data show adverse impacts in sediments."
- Comparisons of chemical concentrations in sediments with SCG values are intended to indicate the presence of toxicity, which may occur a very low to negligible levels.
- The PRAP fails to consider effects of navigational dredging on benthic community.

Comparisons of chemical concentrations in sediments with SCG values cannot be used to predict the absence of benthic community populations or their availability as a food resource to fish.

RESPONSE 20: See RESPONSES 16 and 18. The NYSDEC agrees chemical concentrations in sediments were compared to SCG values to indicate the presence of toxicity. These values may be low, but are not "negligible" if an adverse impact has been observed at this level.

It is true that navigational dredging will initially adversely affect the benthic community. However, the capping required by this ROD will allow the benthic community to reestablish on the sediment cap for the harbor without the impacts otherwise presented by the contaminated sediments as they exist today. While any navigational dredging occurring in the harbor after the sediment cap is placed will again impair the benthic community, the NYSDEC recognizes the need to maintain navigational depths. By the construction of a cap which will isolate the sediment surface from heavily contaminated sediment and the elimination of significant contaminant contributions via the sewers, the redevelopment of benthic communities following dredging is supported.

Benthic populations may be absent for reasons other than exceeding SCG values. For instance, lack of substrate with suitable physical attributes, such as grain size, can lead to disparate populations. If all environmental attributes are suitable to support a given benthic population excepting that an SCG value is exceeded then it is reasonable to anticipate that a benthic population may be affected by concentrations exceeding the SCG. If benthic populations that are food sources for fish are present then they are assumed to be available.

COMMENT 21: Section 4.3 - The PRAP is inconsistent with the January 1997 Fish and Wildlife Data Collection Data Report by Parsons Engineering Science, Inc. regarding the importance of benthic organisms to the fish community.

RESPONSE 21: See RESPONSES 16 and 18.

COMMENT 22: Section 4.4 - Significant Threat. A site-specific cause-and-effect relationship between sediment concentrations of PAH and benthic invertebrates has not been established. Therefore, a significant threat has not been established.

Section 4.4 - Significant Threats - The conclusion that "PAH contaminants contained within sediments at the site are known to cause significant adverse acute or chronic effects" is without any basis because a cause-and-effect relationship has not been established.

Section 4.4 - Significant Threat - The statement that deeper contaminated sediments have the potential to become redistributed to the surface is unsupported.

RESPONSE 22: The use of 4 ppm total PAH in sediment as a determiner of satisfactory remediation was eliminated in the ROD. See RESPONSE 13. Note however, the elimination of the sediment remediation level is not an indication of NYSDEC's agreement with the statements expressed in this comment. Also, PAH concentrations were as high as 8,459 ppm in the sediments (not 163 ppm as the comment from Beazer East, Inc. states). The sediments also contained NAPL; NAPL in its pure form typically contains PAH concentrations of 100,000 ppm or more. The exposure to these concentrations of hazardous substances does, in fact, constitute a significant threat to the environment; there is no regulatory requirement to establish a site-specific cause-and-effect relationship. Also see RESPONSE 16.

The comment targets the conclusions of one Niagara Mohawk study: *Supplemental Fish and Wildlife Data Collection Data Report* which, for scientific reasons, was never accepted by the NYSDEC. A different study: *Final Report, Supplemental Remedial Investigation, Harbor Point Site, Utica, New York*, indicated that there was a risk to benthic invertebrates in the harbor from PAHs as well as other compounds. The NYSDEC agrees that site-specific information is of value; however, satisfactory site-specific toxicity data is often not available because of the rigor associated with collecting such data. It that instance, which is the case at OU3, the NYSDEC will rely upon the available scientific literature to evaluate site conditions.

COMMENT 23: Section 7.1 - Description of Remedial Alternatives - A 4 ppm total PAH remediation goal is not appropriate. The NYSDEC is relying on a 1990 study published by Long and Morgan that is out-of-date and included freshwater and marine biological testing. Additionally, numerous subsequent documents including the EPA (1999) Guidance and DEC's own published guidance do not support this value. The following changes to the ROD should be made to reflect this.

- Page 16, para. 6 - "the mean PAH concentration in the top two feet of sediment must be at or less that the screening value, and the 90 percent upper confidence limit for PAH concentration must not exceed 2.5 times the screening value".
- Page 16, para. 7 - "dredging in the harbor neck would exceed the screening value in some limited areas".
- Page 17, para. 5 - "Alternative CS-3: Remove Sediments > Screening Value for PAH.
- Page 17, para. 6 - "...underlying subsurface soils which have PAH concentrations greater than the screening value would be dredged... ".
- Page 20, Section 7.2, subsection 1, para.2, "...Alternative CS-1 (No Action) does not meet the screening value for PAHS. Sediment quality in the harbor (an to a lesser extent, in the harbor neck) would continue to exceed the PAH screening value .... Alternative CS- 2 would meet the screening value by ... Alternative CS-3 maximum dredging would meet the PAH screening value by removing...".
- Page 22, para. 1, ...and CS-3 (Remove Sediments above the Screening Value)...".
- Page 24, Section 7, para. 2 - "...compared to removing all the sediment containing greater than the PAH screening value (Alternative CS-3)".
- Exhibit 1, Summary of Numerical Thresholds for Utica Harbor and Harbor Neck, item 1 ...must be at or less than the screening level".
- Exhibit 1, Summary of Numerical Thresholds for Utica Harbor and Harbor Neck, item 2 ...mustnotexceed2.5timesthescreeningvalue"
- Tables 4-SS and 4-DS, Column Headings - Should read "Frequency of Exceeding the Screening Level" and "Screening Value (ppm)".

RESPONSE 23: The use of 4 ppm total PAH in sediment as a determiner of satisfactory remediation was eliminated in the ROD. See RESPONSE 13. However, this value is appropriate as a specification for the sediment cap to provide the goal of benthic habitat restoration in the harbor. The NYSDEC also notes that the “screening value” term emphasized by NMPC in this comment is an

SCG and as such, must be achieved to the extent feasible. Thus, the requested text changes could be misleading and were not incorporated in the ROD. See also RESPONSE 22.

COMMENT 24: General - Development of remedial values for the harbor sediments without consideration of the river sediments is not appropriate.

RESPONSE 24: See RESPONSE 14 regarding the consideration of river sediments in the selection of the OU3 remedy. See RESPONSE 20 regarding disturbance of the benthic community during dredging.

COMMENT 25: General - Impacts of periodic dredging on the benthic community has not been, but must be considered.

RESPONSE 25: See RESPONSE 20.

COMMENT 26: General - PAHs from storm sewers, current development, and future development must be considered. Following capping, the sediment concentrations will increase, rendering the effort to achieve a 4 ppm mean PAH concentration futile.

RESPONSE 26: Regarding re-contamination, the NYSDEC believes Mohawk River contaminated sediment does not contribute significantly to harbor or harbor neck contamination. This is evidenced by the low level of contamination in the depositional sediments in the harbor neck. The remedial design will need to sequence the remediation of the identified sewers such that the sewers do not cause contamination of the sediment cap. As with other inactive hazardous waste disposal sites, there is the potential for a remediated site to be re-contaminated, such as direct discharges from vessels, discharges onto adjacent land, or discharges into the sewers which discharge to the surface water body. Niagara Mohawk will not be responsible for re-contamination of OU3 following the remedy, unless the re-contamination is the result of a failed remedy or a discharge for which Niagara Mohawk is accountable. Future remedial actions occurring on the Mohawk River and peninsula will require controls to ensure that hazardous substances are not released to surface water bodies or sediments, including the Harbor.

The specific total PAH remediation goal described in the PRAP has been omitted for this ROD. This ROD, however, does require that the sediment cap be less than 4 ppm total PAHs when initially placed. The flux from on-going contributions, such as the Genesee and Lee St.- south sewers are not expected to affect this quality assurance requirement.

COMMENT 27: Palermo et al. (1998) have demonstrated that an isolation cap of clean silty sand at a thickness of 45 cm (1.5 feet) can isolate the majority of benthic organisms from contaminated sediments, prevent bioaccumulation of contaminants, and effectively prevent contaminant flux for the long term. Final cap design will include material to isolate contaminants, sacrificial material and/or armor to prevent erosion of the isolation cap due to prop wash, and some sacrificial material to prevent damage to the isolation cap during future maintenance dredging.

RESPONSE 27: The NYSDEC expects the thickness of an effective sediment cap to vary, not only from site to site, but potentially within different areas of a site. For this site, a two foot depth for the cap has been determined to be protective. In addition to providing a suitable habitat for benthic organisms, the thickness must account for scour and provide isolation from the contaminated sediments underneath. The NYSDEC suspects the thicknesses offered in the comment are site-specific and thus likely have different hydraulic conditions than that of Utica Harbor. The NYSDEC notes that there have been remedies selected which call for the sediment cap to be greater than two feet thick.

COMMENT 28: General - Placement of a cap in the canal neck where frequent maintenance dredging occurs has not been, but must be, evaluated. The cutter head will disturb the cap more frequently, possibly resulting in greater cap maintenance costs. Additionally, the Canal Corp currently uses a spud to anchor the dredge. The spud is lifted and repositioned by dropping it to the bed. The repositioning of the spud may cause damage to the cap, particularly if dredging is a frequent (i.e. every few years) activity.

RESPONSE 28: The ROD has been modified to require that any remedial action, such as the placement of a sediment cap for example, in the harbor neck will be evaluated in conjunction with OU2 or as a separate operable unit. This evaluation should consider the dredging issues raised by this comment.

COMMENT 29: The PRAP is not consistent with NY State guidance for establishing site-specific cleanup goals. The NYS Technical Guidance for Screening Contaminated Sediment States "Sediments with contaminant concentrations that exceed the criteria listed in this document are considered contaminated ..... These concentrations do not necessarily represent the final concentrations that must be achieved through sediment remediation. Comprehensive sediment testing and risk management are necessary to establish when remediation is appropriate and what the final contaminant concentrations the sediment remediation efforts should achieve."

RESPONSE 29: See RESPONSES 18 and 22.

COMMENT 30: NMPC requests that the Operational/Disposal History Section include information regarding other sources of PAHs.

RESPONSE 30: The ROD has been modified to reflect that other industries in the area have contributed to the contamination at OU3.

COMMENT 31: NMPC also requests that inaccurate statements in the Operational/Disposal History Section be modified.

RESPONSE 31: The NYSDEC has reviewed the identified language and does not feel a revision is warranted. While tar may have been directed into the sanitary sewer, the NYSDEC considers it possible that some tar from the gas works also may have entered the Washington Street storm sewer.

COMMENT 32: Section 1.2: The remedy for DSA-1 in the PRAP requires the removal of material containing greater than 0.2 PPM benzene to a maximum of 5 feet below the water table at DSA-1. Soil excavation below the groundwater table is inappropriate. Future use of the DSA site will be addressed through use deed restrictions and therefore remediation below the groundwater table is unnecessary. Additionally, the cost for excavations below the water table and potentially greater volumes were not accounted for in the PRAP cost estimate. Excavation to five feet below the water table will increase the volume of excavated material by 13,430 cubic yards over the quantity estimated in the November 1999 Parsons FS Report cost estimate.

RESPONSE 32: Regarding the PRAP's remedial goal for benzene, benzene exceeds the groundwater standard at DSA1. Regardless of whether the FS included a goal for benzene, it is appropriate to remove the source of the benzene contamination in the groundwater, if feasible. The ROD presents a cost-effective and implementable method to address the contamination.

The vertical limit of soil removal at DSA1 has been modified from the PRAP to reference an elevation, rather than the water table. Since the water table plane varies both temporally and spatially, this modification was made to eliminate ambiguity associated with final excavation depths. Regarding soil excavation below the groundwater table however, 6 NYCRR 375-1.10 requires the remedy to conform to standards, such as groundwater standards (Parts 700-705), and criteria, such as TAGM 4046 - soil cleanup objectives, to the extent feasible. United States Environmental Protection Agency regulations require active response measures (e.g., treatment and/or containment of source material, restoration of ground waters to their beneficial uses) unless such active measures are determined not to be practicable. Institutional controls, such as a groundwater use restriction, cannot be substituted for an implementable active remedy; institutional controls can, however, supplement the active remedy for when that active remedy would still result in residual contamination remaining after the active remedy is implemented. USEPA's guidance also indicates the long-term remediation objectives for a DNAPL zone are to remove the free-phase and residual DNAPL to the extent practicable and contain DNAPL sources that cannot be removed. In short, regulations and guidance require "doing the best that one can" to rid the site of hazardous substance contamination.

NAPL and higher concentrations of PAHs and benzene in the soil at DSA1 present a source of groundwater contamination at DSA1. Boring log and analytical data show that the majority of NAPL and the highest concentrations of hazardous substances in soil at DSA1 exist in a horizontal band positioned from approximately 398 to 403 amsl. The NAPL and higher concentrations of hazardous substances are a source of groundwater contamination. While the selected remedy will not remove all of the NAPL at DSA1, the remedy will remove the majority of NAPL and NAPL reduction will be achieved to the extent practicable, and in doing so is consistent with regulations and guidance.

In the borings that may be too deep to excavate, NAPL was found only in a thin band. Also, no NAPL was observed at the bottom of any RI boring, suggesting that the NAPL, although dense, may not have migrated deeper into the higher clay content soils found at the bottom of the borings. In addition, water management for excavations advancing significantly below the water table is not considered cost effective at DSA1. It is for these reasons that the remedy does not require excavation

at depths below 398 feet amsl. The likelihood of a significant volume of NAPL constituents at the site occurring at greater depths is not supported by the RI data.

The use of institutional controls will not substitute for active response measures as the sole remedy, unless such active measures are determined not to be practicable. Thus, knowledge of the site's groundwater not being used for drinking water, or the promise of groundwater use deed restrictions by the owner, can not be used to dismiss an active remedy, such as removal of the source of groundwater contamination. Hence, the selected remedy's requirement for removal of hot-spot contaminated soil above and into the aquifer. Use restrictions are a supplemental component of the selected remedy as residual contamination will remain following the completion of the remedy.

As reported in the RI, DSA1 soils have a relatively low hydraulic conductivity and thus are not expected to yield large volumes of groundwater upon excavation below the water table. The NYSDEC estimates that dewatering costs would be in the range of a few hundred thousand dollars. The selected remedy allows soils containing a concentration of less than 1,000 ppm PAHs or 0.2 ppm benzene, which are disturbed to remove deeper, contaminated soils, to be used as grading material, which will reduce the project cost. Also, the Feasibility Study anticipated steps to dewater the sediments as they are dredged. Hence, an economy of scale can be achieved by employing the same equipment where necessary at the deeper excavations at DSA1. While there may be an additional cost to dewater DSA1 soil, the remedy is still cost effective because the benefit derived from permanently removing the majority of the source of groundwater contamination exceeds the cost to dewater.

The comment (from Beazer East Inc.) stating that NAPL is likely residual and cannot be collected fails to consider the feasibility of removing NAPL through excavation.

COMMENT 33: Long term groundwater monitoring at DSA -2 and DSA-3 is unnecessary. Both of these areas will be subject to land use deed restrictions that will ensure that human exposure to groundwater would not occur in the future.

RESPONSE 33: The groundwater at all three DSAs is contaminated; in addition to not satisfying drinking water standards, the groundwater exceeds environmental standards. Use restrictions do not eliminate the need to monitor an environmental resource that is not in compliance.

COMMENT 34: Section 4. 1: A complete listing of all Harbor Point RI and FS documents should be included in this section.

RESPONSE 34: The ROD was modified to include the "Final Report, Supplemental Remedial Investigation, Harbor Point Site, Utica, New York", by Atlantic Environmental Services, October 1993.

COMMENT 35: Sections 7.1 and 8: Placement of a geotextile or "fabric liner" between the sediment surface and the cap material should not be a requirement. The components of the cap should be determined during final design.

RESPONSE 35: The NYSDEC agrees with this comment and the ROD has been revised so that sediment cap components, such as armor or fabric layers, will be determined during the remedial design. Also reflected in the ROD is the requirement for construction of a sediment cap to effectively isolate the benthic habitat on the cap, from contaminated sediment below the cap. Suspension and settling of contaminated sediment during and after cap construction are of concern to the NYSDEC. The remedial design will need to ensure that such suspension and settling are minimized. This ROD requires sampling and analysis of the benthic material component of the cap after construction as a quality assurance measure.

COMMENT 36: Section 7. 1: To prevent re-contamination of harbor and harbor neck areas after dredging and capping, the sequence of work should be: address all sewer lines that discharge to Utica Harbor and other upland sources; dredge harbor neck and harbor to restore navigation depth; place cap to isolate contaminated sediment.

RESPONSE 36: The NYSDEC agrees that the sewer lines need to be addressed before placement of the cap. The ROD, however, is not intended to specify construction sequence; this is a remedial design detail.

COMMENT 37: The PRAP should contain a detailed reference list.

RESPONSE 37: The documents which support the ROD are identified in the Administrative Record, which is included as Appendix B of the ROD.

COMMENT 38: The costs in the PRAP are based on the FS cost estimate although the scope of work is not the same as in the FS. The volume of excavated material from DSA-1 has increased by l3,430 cubic yards. The PRAP cost estimate will also need to consider DSA- 1 dewatering operations. As discussed during the DEC meeting, the monitoring of DSA-3 wells is included in the PRAP; however, this alternative and associated cost were not included in the FS. The DEC estimate does not include dredging costs as it is not part of the remedy. Costs must be adjusted to take these additional items into consideration.

RESPONSE 38: The NYSDEC agrees the estimated volume of material to be excavated at DSA1 is greater than that estimated in the FS. However, the cost estimate is more sensitive to the volume of soil that would need to be removed then treated and disposed than to the volume excavated alone. As specified in the ROD, lightly contaminated soil that is excavated to remove deeper, more contaminated soil can be backfilled at DSA1; hence, there is no cost to transport, treat or dispose of the soil. The ROD considers dewatering operations as explained in RESPONSE 32. The FS recommends groundwater monitoring at DSA3 on page 4-44. Although the estimated cost for this activity was not included in the FS, the NYSDEC assumed an estimated cost which was considered in the development of the PRAP/ROD. Groundwater monitoring is required at DSA3 as explained in RESPONSE 33.

COMMENT 39: Information on the nine drainage conduits discussed in the FS is incomplete with regard to location or source (CDM Storm Sewer Evaluation Report for the Niagara Mohawk Power

Corporation, May 2000). Outfalls 2 and 3, 4, 5 and 6 located east of the former NMPC were not located in the field. Either these outfalls were previously removed or they are submerged. These outfalls are thought to be former discharge points for drainage swales. No upstream sources have been identified to these outfalls. The NMPC will perform trenching in the vicinity of the areas indicated by historical maps. Those outfalls found will be closed in the manner recommended in the evaluation report.

RESPONSE 39: The NYSDEC expects the remedial design to provide further detail regarding the conditions and locations of the outfalls. The reference to nine outfalls has been eliminated from the ROD.

COMMENT 40: The proposed actions for the Washington Street storm sewer [are] premature. The NMPC is currently preparing bidding documents to obtain a contractor for the purpose of cleaning and inspecting the Washington Street storm sewers. While slip-lining is the preferred remedy (CDM, Storm Sewer Evaluation Report for the Niagara Mohawk Power Corporation, May 2000), the integrity of the pipeline must be evaluated to determine the feasibility of such actions. If slip-lining is deemed infeasible then, plugging in-place and new line construction will be the recommended remedial approach for the storm sewers. The PRAP should be reworded to reflect the evaluation report conclusions.

RESPONSE 40: The ROD was modified to reflect this comment.

COMMENT 41: Section 7.1: No basis is given for the upper confidence limit of 10 ppm.

RESPONSE 41: The use of the upper confidence limit of 10 ppm was eliminated from the ROD.

A letter dated December 4, 2000 was received from John R. Dergosits, P.E. of the New York State Canal Corporation (NYSCC). The following comments were provided by the NYSCC:

COMMENT 42: Recent guidance by the US Army Corps of Engineers and an evaluation of case histories of sand caps in Japan suggests that a layer of sand eight inches to twenty inches in thickness is sufficient to isolate the benthic community from underlying contaminated sediments. The Canal Corporation believes that a cap comprised of clean material in overall thickness of twelve inches to twenty inches would be sufficient to isolate the contaminated sediments without having to employ a geotextile layer.

RESPONSE 42: See RESPONSE 27.

COMMENT 43: Cap installation necessitates dredging to a level below the current harbor and neck depths required to maintain navigation. The PRAP is silent on the costs of such incremental remedial dredging. The Canal Corporation believes that the costs of such dredging are a necessary part of the proposed harbor remediation and that such remedial dredging is significantly more expensive than those associated with dredging for navigational purposes. The need to dredge significantly deeper to

accommodate the cap will increase, by up to ten-fold, the volume of material needing treatment. It is the position of the Canal Corporation that the costs for all dredging in the Harbor and neck must be included in the PRAP as an integral component of the remedy.

RESPONSE 43: The ROD has been modified to reflect the estimated cost to dredge the harbor in order to provide for navigation in the harbor with the sediment cap in place. Dredging in the harbor neck is a separate action that, while necessary for the intended use of the Harbor, is not a remedial action required by this ROD.

COMMENT 44: The remediation alternative selected for DSA#1 calls for the excavation and removal of contaminated soils to a level of 5 feet below the groundwater table. First, since the area is not a source of drinking water, there is no need for any removal below the groundwater table. Second, future use of DSA#1 will be addressed through use restrictions and therefore remediation below the groundwater table is unnecessary. Thirdly, the costs identified in the PRAP do not include any costs associated with a well point system (necessary to excavate below the groundwater surface) or for water management or treatment prior to discharge. Finally, the costs related to excavations below the groundwater table, including the removal of potential increased volumes of soils were not accounted for in the PRAP cost estimate.

RESPONSE 44: See RESPONSES 32 and 38.

COMMENT 45: NYSDEC has progressed the remediation of OU3 ahead of any potential remediation of sediments in the Mohawk River or of soils located at the Harbor Point Site. The Canal Corporation urges the NYSDEC to consider steps to prevent the re-contamination of the Harbor, by requiring appropriate sequencing of the work in upstream areas or imposing mitigation measures to help in this regard.

RESPONSE 45: See RESPONSE 26.

COMMENT 46: Long term monitoring at all DSAs and in particular DSA#2 and DSA#3 is unnecessary. All DSAs will be subject to land use restrictions that will ensure that human exposure to groundwater will not occur in the future.

RESPONSE 46: See RESPONSE 33.

COMMENT 47: The Canal Corporation does not believe that a 4-ppm total PAH remediation goal is appropriate. The 1990 study published by Long and Morgan upon which the NYSDEC is relying is out dated and included both freshwater and marine biological testing which is inappropriate for this venue. The Canal Corporation questions this clean up goal since it believes that subsequent documents do not support this value.

RESPONSE 47: See RESPONSE 22.

A letter dated December 4, 2000 was received from Michael Slenska, P.E. of Beazer East, Inc (Beazer). The following comments were provided by Beazer:

COMMENT 48: Derivation and applicability of the proposed cleanup levels. In order to protect the benthic community, the PRAP proposes cleanup levels of a mean of less than 4 ppm total PAH and an upper 90 percent confidence limit of less than 10 ppm for the top two feet of sediments. It appears that the 4 ppm mean total PAH cleanup level contained in the PRAP is based upon the Technical Guidance for Screening Contaminated Sediments (NYSDEC, 1999) which uses data presented by Long et al. (1995) to derive the Effects Range-Low (ER-L). There are no supporting data for the upper 90 percent confidence limit of 10 ppm presented in NYSDEC (1999).

RESPONSE 48: See RESPONSES 22 and 41

COMMENT 49: Potential Toxicity of PAHs Found In Sediments of Utica Harbor. The PRAP states that the basis for the determination that the site poses a significant threat to human health and the environment is based, in part, on the assertion that the levels of PAHs in the sediments "are known to cause significant adverse acute or chronic effects to aquatic organisms."

RESPONSE 49: See RESPONSES 16,18,20,22 and 23.

COMMENT 50: The Depth of Sediments to be Excavated. With respect to the depth of Harbor sediments to be remediated under the PRAP, is important to recognize that, if the goal is protection of the benthic community, remediation of two feet of sediments is excessive.

RESPONSE 50: See RESPONSE 27.

COMMENT 51: Consistency Between Proposed Remedies. This issue relates to the differences between the proposed remedies for the DSAS. Based on Section 4.1.3 Extent of Contamination, the constituents and concentration levels presented for soil and groundwater at the three DSAs are very similar. The very similar distribution of constituents in these three areas does not warrant the extremely varied remedial approach identified for the three areas.

RESPONSE 51: See RESPONSE 32.

COMMENT 52: Excavation Below the Water Table. The remedy at DSA-1 calls for excavation of soils to a depth of five feet below the annual low water table. Beazer believes that no remedial goal is served by this proposed remedial action.

RESPONSE 52: See RESPONSE 32.

APPENDIX B

Administrative Record

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

Utica Harbor Phase II Investigation, URS Consultants, Inc., January 1992

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

"Data Report for Harbor and River Fish Tissue Sampling, Harbor Point Former MGP Site", Parsons Engineering Science March 1995

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

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

"Remedial Investigation Report for the Expanded (Offsite) RI at the Dredge Spoil Areas" prepared by Parsons Engineering Science, Inc. , August 1996.

"Investigation of the Utica Terminal Harbor, Barge Canal and Mohawk River", prepared by Parsons-Engineering Science, Inc., October, 1996

"Supplemental Fish and Wildlife Data Collection Data Report", Parsons Engineering Science, January 1997

Letter, John Spellman, NYSDEC to Jean-Pierre Moreau, Niagara Mohawk, August 28, 1997, re: bioassay testing

"Feasibility Study Submittal for the Harbor Point Site", Parsons Engineering Science, October,1997

Letter, John Sheehan, NYSDOH to John Spellman, NYSDEC, June 2, 1999, re: DSAs

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

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

Letter, G.A. Carlson, Ph.D., NYSDOH to O'Toole, NYSDEC, May 4, 2000, re: PRAP

Niagara Mohawk Harbor Point Site, Proposed Remedial Action Plan, Operable Unit No. 3, Utica Harbor Sediments and Dredge Disposal Areas, NYSDEC, October 2000

Letter, Charles Willard, Niagara Mohawk, to John Spellman, NYSDEC, December 1, 2000, re: Comments on the PRAP

Letter, Michael Slenska, Beazer East Inc., to John Spellman, NYSDEC, December 4, 2000, re: Comments on the PRAP

Letter, John R. Dergosits, New York State Canal Corporation, to John Spellman, NYSDEC, December 4, 2000, re: Comments on the PRAP

Letter, Jean-Pierre Moreau, Niagara Mohawk, to John Spellman, NYSDEC, January 15, 2001, re: documentation of public participation activities