PROPOSED REMEDIAL ACTION PLAN

Old Moreau Dredge Spoil Area
State Superfund Project
Moreau, Saratoga County
Site No. 546040
February 2012

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

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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the above referenced site. The disposal of hazardous wastes at the site has resulted in threats to public health and the environment that would be addressed by the remedy proposed by this Proposed Remedial Action Plan (PRAP). The disposal of hazardous wastes at this site, as more fully described in Section 6 of this document, has contaminated various environmental media. The proposed remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This PRAP identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for the preferred remedy.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

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

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all PRAPs. This is an opportunity for public participation in the remedy selection process. The public is encouraged to review the reports and documents, which are available at the following repositories:

USEPA - Hudson River PCB Project Field Office
421 Lower Main Street
Hudson Falls, NY 12839
Phone: (518) 747-4389

New York State Department of Environmental Conservation
Attn: William Shaw
625 Broadway
Albany, NY 12233
Phone: 518-402-9676

Town of Moreau Office Building
61 Hudson Street
South Glens falls, NY 12803
Phone: (518) 792-1030

A public comment period has been set from:

2/24/2012 to 3/26/2012

A public meeting is scheduled for the following date:

3/6/2012 at 7:00 PM

Public meeting location:

Town of Moreau Office Building / 61 Hudson Street / South Glens Falls, NY

A t the meeting, the findings of the remedial investigation (RI) and the feasibility study (FS) will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP.

Written comments may also be sent through to:

William Shaw
NYS Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233
wxshaw@gw.dec.state.ny.us

The Department may modify the proposed remedy or select another of the alternatives presented in this PRAP based on new information or public comments. Therefore, the public is encouraged to review and comment on the proposed remedy identified herein. Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision (ROD). The ROD is the Department's final selection of the remedy for this site.

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going

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

SECTION 3: SITE DESCRIPTION AND HISTORY

Location:

The Old Moreau Dredge Spoil Area site is located in the Town of Moreau (Saratoga County) on a 40-acre parcel of land situated along the western shore of the Hudson River and directly across the river channel from the southern end of Rogers Island near Fort Edward in Washington County.

Site Features:

The overall parcel is triangular in shape and is bounded by the River on the northeastern side, by a former waste paper recycling plant and the plant's access road on the western side, and a mixture of vacant farm land and wet meadows to the south.

Current Zoning/Use:

The site is currently zoned commercial and is vacant.

Historic Use:

The northern-most portion of this parcel was used by the New York State Department of Transportation for the disposal of sediment and debris removed from the Hudson River channels near Rogers Island and the Champlain Canal's navigation channel near Champlain Canal Lock 7 at Fort Edward following the demolition of the Fort Edward Dam in 1973. Department of Transportation records report that nearly 378,000 cubic yards of dredge spoil material were disposed of at this site between July 1974 and November 1975. The foot-print of the disposal area covers about 23 acres in area on the 40 acre parcel, formerly owned by New York State and now owned by Georgia Pacific.

Site Geology and Hydrogeology:

The natural site overburden is consistent with the regional model of alluvial and stratified unconsolidated glacio-fluvial and glacio-lacustrine deposits, except it is on a smaller scale with greater variability. Native material underlying and surrounding the dredge spoil materials at the site primarily consists of brown to gray silty clays inter-fingered with layers of gray to brown silty sands.

Groundwater flow in the area typically moves away from the slight topographic rise on the west and toward the Hudson River in a general east-southeast direction.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to commercial use (which allows for industrial use) as described in Part 375-1.8(g) are/is being evaluated in addition to an alternative which would allow for unrestricted use of the site.

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

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include:

General Electric Company

NYS Department of Transportation

The PRPs for the site declined to implement a remedial program when requested by the Department. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the Department will evaluate the site for further action. The PRPs are subject to legal actions by NYSDEC for recovery of all response costs the state has incurred.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

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

The following general activities are conducted during an RI:

- Research of historical information,

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

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

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

6.1.2: RI Information

The analytical data collected on this site includes data for:

- groundwater
- surface water
- soil

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

POLYCHLORINATED BIPHENYLS (PCB)

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

- groundwater
- soil

6.2: Interim Remedial Measures

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

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

6.3: Summary of Human Exposure Pathways

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

Access to the site is unrestricted and persons who enter the site could come in contact with contaminants in soil by digging or otherwise disturbing the soil. People could come in contact with contaminants in sediment and surface water within drainage areas on the site. Contaminated groundwater at the site is not used for drinking or other purposes.

6.4: Summary of Environmental Assessment

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

The Fish and Wildlife Resources Impact Analysis (FWRIA) for OU 01, which is included in the RI report, presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors.

The disposal of PCB-contaminated dredge spoil materials at this site has been confirmed. The Old Moreau Dredge Spoil Area site is not lined and the dredge spoil materials contained within are not covered. Based on these conditions, PCBs from this site could be dispersed into the environment, including the Hudson River, through the processes of erosion and/or groundwater infiltration. Direct contact with contaminated soils is also possible. PCBs are present in excess of the unrestricted SCOs and the commercial/recreational SCOs. Concentrations range from non-detect to 78 parts per million total PCBs.

6.5: Summary of the Remediation Objectives

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

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.

RAOs for Environmental Protection

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

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

SECTION 7: SUMMARY OF THE PROPOSED REMEDY

To be selected, the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy must also attain the remedial action objectives identified for the site, which are presented in Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the FS report.

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

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

The estimated present worth cost to implement the remedy is $1,189,000. The cost to construct the remedy is estimated to be $1,077,000 and the estimated average annual cost is $112,000.

The elements of the proposed remedy are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. Green

remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

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

2. Installation of a cover system where surficial PCB concentrations exceed 1 part per million - these areas include all portions of the Old Moreau site between the raised margin along the Hudson River and West River Road, along the toe of the raised margin shared with the Special Area 13 Dredge Spoil Disposal Area to the south and southeast, along the shared margin with the adjoining capped area/drainage system of the Moreau Dredge Spoil Disposal Site to the south and southwest, and between the northwestern margin of the adjoining capped area/drainage system of the Moreau Dredge Spoil Disposal Site and Mill Site Road.

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

4. In an area located near the southwestern part of the dredge spoil disposal area and the shared margin with the Moreau Dredge Spoil Disposal Site (proximal to groundwater monitoring well OM-08) where the soils are potentially contributing to an exceedance of groundwater standards for PCBs, removal and off-site disposal of PCB contaminated soil to meet the groundwater SCOs in Part 375 of 3.2 ppm. Groundwater sampling during the design will confirm the need to, and extent of, the removal needed to abate this potential source of groundwater contamination.

Approximately 6800 cubic yards of soil are estimated to require removal. Clean fill meeting the requirements of 6 NYCRR Part 375-6.8 will be brought in to replace the excavated soil and establish the designed grades at the site.

5. Imposition of an institutional control in the form of an environmental easement or an environmental notice for the controlled property that:

(a) requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
(b) allows the use and development of the controlled property for restricted residential (parcels zoned residential) or commercial (parcels not zoned residential) as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
(c) restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH;
(d) prohibits agriculture or vegetable gardens on the portions of the controlled property which were subject to remediation; and
(e) requires compliance with the Department approved Site Management Plan.

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

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

    Institutional Controls: The Environmental Easements and Environmental Notices discussed in Paragraph 5 above.

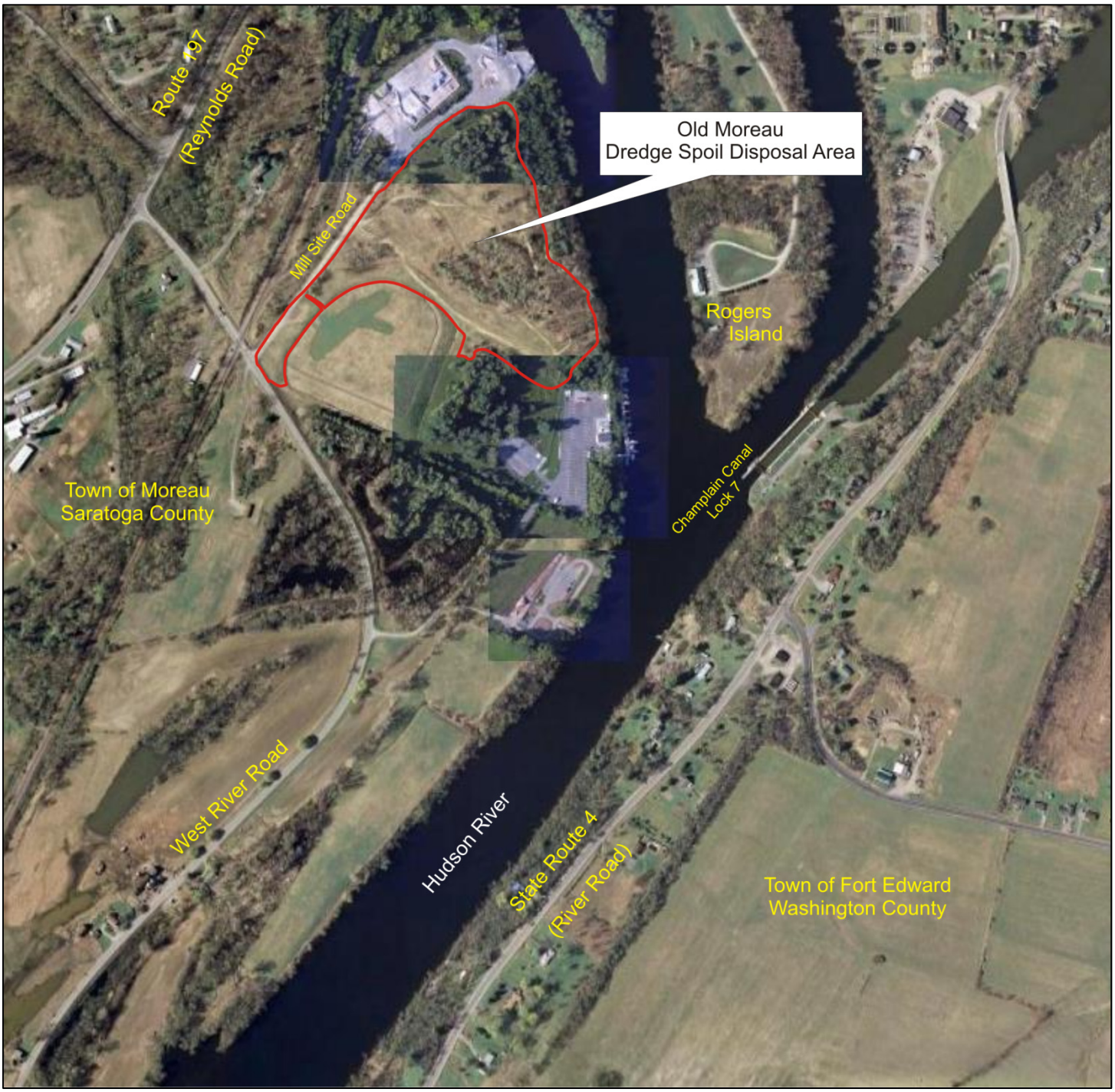
    Engineering Controls: The soil covers discussed in Paragraph 2 and 3 above.

    This plan includes, but may not be limited to: (i) Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination; (ii) descriptions of the provisions of the environmental easement including any land use and/or groundwater use restrictions; (iii) provisions for the management and inspection of the identified engineering controls; (iv) maintaining site access controls and Department notification; and (v) the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls; and

(b) a Monitoring Plan to include, but not be limited to: (i) monitoring of groundwater to assess the performance and effectiveness of the remedy; and (ii) a schedule of monitoring and frequency of submittals to the Department.

Figure 1 - Location Map

Old Moreau Dredge Spoil Disposal Area
Proposed Remedial Action Plan
February 2012



0 100 200 300 400 500 1000 1500 2000

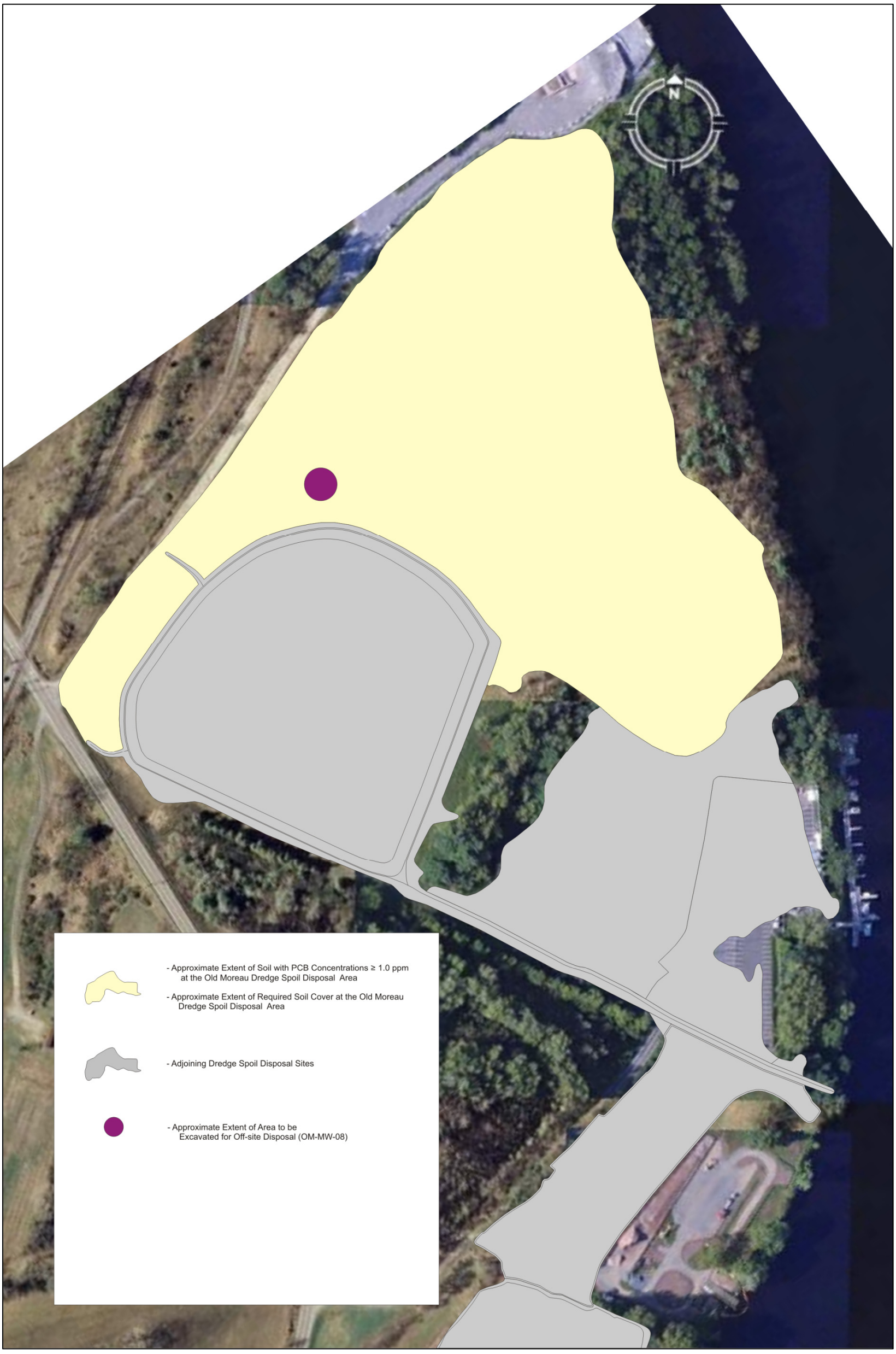
Scale in Feet

N
W E
S

Aerial Imagery extracted from Google Earth and Microsoft's Bing Maps.

Figure 2
Remedial Findings and Proposed Remedy

Old Moreau Dredge Spoil Disposal Artea
Proposed Remedial Action Plan
February 2012



Excerpt from the February 2012
"Remedial Investigation Report for the Old Moreau Dredge Spoil Disposal Area"

Exhibit A

Nature and Extent of Contamination

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

For each medium, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into one category: pesticides/ polychlorinated biphenyls (PCBs) Other parameters measured did not appreciably affect site exposures. For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 6.1.1 are also presented.

Waste/Source Areas

As described in the RI report, waste/source materials were identified at the site which could potentially impact groundwater, surface water, and/or sediment.

Wastes are defined in 6 NYCRR Part 375-1.2 (aw) and include solid, industrial and/or hazardous wastes. Source Areas are defined in 6 NYCRR Part 375 (au). Source areas are areas of concern at a site were substantial quantities of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium. Wastes and Source areas that were identified at the site include all areas used by the NYSDOT to dispose of dewatered dredge spoil materials removed from the Hudson River in conjunction with routine and emergency maintenance dredging operations following the removal of the Fort Edward Dam in 1973. Sampling has confirmed that the dredge spoil materials placed at the site were contaminated with PCBs at levels up to 78 ppm.

The waste/source area identified will be addressed in the remedy selection process.

Groundwater

Four rounds of groundwater samples were collected from eight monitoring wells which were installed to assess groundwater conditions around the perimeter of the dredge spoil disposal area. PCBs were only detected in groundwater samples from monitoring well OM-MW-08 during the December 2005, June 2006, and September 2006 rounds of sampling. In all three cases, the PCBs exceeded the groundwater criteria of 0.09 µg/L. OM-MW-08 is located along the southern portion of the property adjacent to the former Moreau Dredge Spoil Disposal cell and was installed through sandy, loam dredge spoils.

Table 1 - Groundwater

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
Pesticides/PCBs			
Total PCB	ND to 1.16	0.09	4/36

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

The dredge spoils containing PCBs in excess of the SCO for protection of groundwater in the vicinity of OM-MW-08 may be a source of groundwater containing PCBs in excess of standards.

Based on the findings of the RI, the presence of PCBs in the dredge spoils may has resulted in the contamination of groundwater. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of groundwater to be addressed by the remedy selection process are PCBs.

Soil

Surface Soil. One hundred and twenty-two surface soil samples were collected from the site, with 110 samples located on a 100-foot spaced grid covering 70% of the site and 12 locations in the western and northern areas of the site. The majority of surface soil samples collected on site contained PCB concentrations less than 1 ppm, with only seven surficial soil samples containing PCBs concentrations greater than 1 ppm.

Samples were collected from 20 locations in drainage ways which receive runoff from the area where dredge spoils were deposited at the site. Sixteen of 20 samples contained PCBs at concentrations ranging from 0.027 to 4.6 parts per million (ppm). Two samples contained PCBs at concentrations greater than the NYSDEC screening criteria for surficial soil of 1 ppm. The sediment analytical data obtained during the RI correlates well with the historical analytical data obtained by NYSDEC in 2002. These areas will be addressed as surface soils in remedy selection.

Subsurface Soil. A total of 217 subsurface soil samples were collected from eight monitoring well borings and 43 soil borings installed during drilling activities to define the thickness and extent of fill material. The subsurface soil samples exhibiting the greatest PCB concentrations were collected near the center of the triangular-shaped dredge disposal area and throughout the southwest portion of the site along the Moreau site border. The majority of subsurface soil samples that were collected from dredge spoils contained PCBs at concentrations of at least 10 ppm and greater. The majority of samples collected from native soils did not contain detectable concentrations of PCBs, except for a gray, silty clay collected from near the center of the site. In general, the PCB concentrations generally increased with depth and with increasing proximity to the center of the site. 38 subsurface boring samples exceeded the SCOs. A total of 147 soil samples were collected from 38 test pits for the purposes of defining the edge of fill at the site. Generally, at least four discrete samples were collected from each test pit. Test pit excavations were generally 2 feet wide, 25 feet long, and 10 feet deep. Dredge spoils were encountered in each test pit excavation with the exception of test pits excavated on the northern portion of the site along the base of the slope leading to the concrete building foundations. The greatest concentrations of PCBs were detected in dredge spoils collected from test pits that were excavated along the eastern and southeastern portions of the fill area, and from depths generally less than 6 feet below ground surface (BGS). 27 samples exceeded the SCOs.

Table 2 - Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
Pesticides/PCBs					
Total PCBs	ND - 72	0.1	400/ 451	1	72/451

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

The primary soil contaminants found at the is site are PCBs from the deposition of dredge spoils from the nearby portion of the Hudson River.

Based on the findings of the Remedial Investigation, the presence of PCBs within the dredge spoils disposed at the site has resulted in the soil contamination at the site. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are PCBs.

Surface Water

Surface water samples were collected from only nine of the 20 drainage way locations sampled due to too little or no water present in the drainage ways at the time of sampling. Five of nine surface water samples contained PCBs at concentrations ranging from 0.21 to 2.7 parts per billion (ppb), which correlates well with analytical results for soil samples that were collected from the same locations. PCBs in five surface water samples exceeded the NYSDEC Class D surface water standard for fresh water wildlife protection. The surface analytical data obtained during the RI correlates well with the historical analytical data obtained by NYSDEC in 2002.

Table 3 - Surface Water

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
Pesticides/PCBs			
Total PCBs	ND – 2.7	0.012	5/9

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b-SCG: Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1) and 6 NYCRR Part 703: Surface Water and Groundwater Quality Standards.

The primary surface water contaminant is PCB associated with rainfall runoff from areas where the dredge spoils were deposited. This runoff was not shown to reach the Hudson River.

Based on the findings of the Remedial Investigation, the presence of PCBs in the dredge spoils deposited at the site has resulted in the contamination of surface water. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of surface water to be addressed by the remedy selection process are PCBs.

Exhibit B

Description of Remedial Alternatives

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

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative leaves the site in its present condition and does not provide any additional protection to public health and the environment.

Alternative 2: Soil Cover, with Site Management

This alternative includes placement of a soil cover over the entire portion of the site which contains dredge spoils and soils/sediments in excess of surface sediment SCOs for PCBs in a commercial / recreational setting. This alternative also includes monitoring and maintenance of the soil cover for as long as it is necessary to do so for the remedy to be protective. Other engineering controls included in this alternative are signs to notify the public of restrictions on site usage and restrictions on disturbance of site soils. Institutional controls implemented as part of this alternative include an Environmental Easement or Environmental Notice and development and implementation of a site management plan, including a soils management plan to govern any necessary disturbance of the soil cover or covered dredge spoils / impacted soils.

Present Worth: $1,094,000
Capital Cost: $982,000
Annual / Periodic Costs: $112,000

Alternative 3: Hot Spot removal (offsite disposal) with soil cover and Site Management

Alternative 3 includes all of the elements of Alternative 2 but also includes groundwater sampling during design to confirm the continued presence of PCB contaminated groundwater in excess of State standards in the vicinity of OM-MW-08. If found, then this alternative includes excavation and offsite disposal of the portion of the contaminated soils in the vicinity of this well which contain PCBs above the SCO to protect groundwater.

Present Worth: $1,189,000
Capital Cost: $1,077,000
Annual / Periodic Costs: $112,000

Alternative 4: Consolidate and Cap with Site Management

This alternative includes the consolidation and capping (with a Part 360 cap) of the dredge spoils and soils containing PCBs in excess of SCOs. The alternative also includes monitoring and maintenance of the capped area for as long as it is necessary to do so for the remedy to remain protective. Additional engineering controls

included are signs to notify of restrictions on site usage, and restrictions on disturbance of the capped area. Institutional controls implemented as part of this alternative include an Environmental Easement or Environmental Notice and development and implementation of a site management plan, including a soils management plan to govern any necessary disturbance of the capped dredge spoils / impacted soils.

Present Worth: ..... *$*11,068,000
Capital Cost: ..... *$*7,318,000
Annual / Periodic Costs: ..... *$*237,000 / $113,000

Alternative 5: Restoration to Pre-Disposal or Unrestricted Conditions by Excavation and Onsite Treatment

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative would include the removal and onsite treatment of all dredge spoils and all soil/sediments found in excess of SCOs. Monitoring would be done to confirm that the groundwater standard exceedance was addressed via the soil removal. The dredge spoils and soils would be shipped via truck to a properly permitted offsite disposal facility.

There is no Site Management, no restrictions, and no periodic review. This remedy will have no annual cost, only the capital cost.

Capital Cost: ..... *$*107,948,000

Alternative 6 Restoration to Pre-Disposal or Unrestricted Conditions by Excavation and Offsite Disposal

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative would include the removal and offsite disposal of all dredge spoils and soil/sediments found in excess of SCOs. Monitoring would be done to confirm that the exceedance of the groundwater standard was addressed via the soil removal. The dredge spoils and soils would be shipped via truck to a properly permitted offsite disposal facility.

There is no Site Management, no restrictions, and no periodic review. This remedy will have no annual cost, only the capital cost.

Capital Cost: ..... *$*100,855,000

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual / Periodic Costs ($)	Total Present Worth ($)
Alternative 1 - No Action	0	0	0
Alternative 2 – Soil Cover with Site Management	$982,000	$112,000	$1,094,000
Alternative 3 – Hot Spot Removal with Soil Cover and Site Management	$1,077,000	$112,000	$1,189,000
Alternative 4 – Consolidation and Capping with Site Management	$7,318,000	$237,000 / $113,000	$11,068,000
Alternative 5 – Excavation and On Site Treatment	$107,948,000	0	$107,948,000
Alternative 6 – Excavation and Off Site Disposal	$100,855,000	0	$100,855,000

Exhibit D

SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Alternative 3: Hot Spot removal (offsite disposal) with Soil Cover and Site Management as the remedy for this site. Alternative 3 would achieve the remediation goals for the site by removing the source of any remaining groundwater contamination, and by eliminating the pathways of exposure to people and ecological receptors by installation of the soil cover, along with implementation of the OM&M, engineering controls, and institutional control elements of the remedy. The elements of this remedy are described in Section 7. The proposed remedy is depicted in Figure 2.

Basis for Selection

The proposed remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

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

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

Alternative 1 leaves the site in its present condition and is not protective of human health or the environment and therefore, will not be considered further in this evaluation.

The proposed remedy, Alternative 3 satisfies this criterion by removing the source of any remaining groundwater contamination, and by eliminating the pathways of exposure to people and ecological receptors by installation of the soil cover. Alternative 2 would address the routes of exposure to people and ecological receptors, but would not address the groundwater. Alternatives 4, 5 and 6 would also address the surface soil related routes of exposure and groundwater, but at a substantially greater cost without a commensurate increase in protectiveness.

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

Alternative 3 complies with SCGs to the extent practicable. It complies with the SCOs for commercial or recreational use through use of a soil cover system, and would prevent PCB migration during runoff events. It also creates the conditions necessary to restore groundwater quality to the extent practicable. Alternative 2 would address routes of exposure associated with surface soils, but does not address the soils potentially contributing PCB to the groundwater. Alternatives 4, 5 and 6 would also address SCGs (through either capping, offsite disposal, or treatment), but at a substantially greater cost without a commensurate increase in protectiveness.

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

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

Long term effectiveness is highest for alternatives 5 and 6, as all dredge spoils and soils in excess of SCOs would be excavated and either treated or disposed off site. The next highest is alternative 4, where the long term effectiveness would be slightly less than excavation with treatment or offsite disposal. However these would also result in the greatest commitment of energy.

The magnitude of the remaining risks with alternative 3, however, are still low, as the soil cover is effective in preventing the routes of exposure associated with the surface soils and would prevent migration during runoff events. The engineering controls and institutional controls are effective in keeping the soil cover in place and preventing future exposures. Alternative 2 is the least effective since it does not address the source of groundwater contamination.

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

Alternative 5 has the highest reductions of toxicity, mobility and volume, as the contaminated dredge spoils and soils are treated. Alternatives 2, 3, 4 and 6 all rely upon either soil cover or capping to reduce mobility; the capping alternatives provide slightly more assurance of mobility reduction by better reducing infiltration of precipitation. The capping alternatives (4 and 6) along with alternative 3, address mobility by eliminating groundwater as a migration pathway.

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

Alternatives 5 and 6 have the highest short term impacts, require the greatest amount of soil disturbance, and require the longest amount of time and resources to complete. Alternatives 2, 3, and 4 have increasing amounts of short term adverse impacts, as an increasing amount of disturbance of dredge spoil and impacted soils is required, resulting in longer durations and increasing potentials for impacts on workers and the community.

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

The degree of difficulty increases so implementability decreases as the volume of dredge spoil and impacted spoil disturbed increases. Alternative 4 is less implementable than Alternative 3 while Alternative 2 is the most implementable. Alternatives 5 and 6 include excavation and handling of all dredge spoils and contaminated soils above SCGs so these are much less implementable. Alternative 5, which includes on-site treatment is the least implementable of all.

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

The costs of the alternatives vary significantly. Alternative 3 has the best cost effectiveness, as it is the least expensive alternative which achieves SCGs and addresses all of the potential routes of exposure. Alternatives 4, 5, and 6 have better long term effectiveness and permanence, but are substantially more costly without a commensurate increase in protectiveness. Alternative 2 has lower cost, but does not address the potential groundwater SCG exceedance.

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

Since the anticipated use of the site is commercial or recreational, an alternative such as alternatives 5 and 6 to address contaminated soils down to the unrestricted SCOs is not necessary. Alternative 4 would result in a capped area which would likely not be available for the anticipated future use. Alternatives 2 and 3, with the included engineering and institutional controls, would meet the appropriate SCOs and allow for the anticipated future use through implementation of a site management plan.

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

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

Alternative 3, Hot Spot removal (offsite disposal) with Soil Cover and Site Management is being proposed because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.