

RECORD OF DECISION

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



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

DECLARATION STATEMENT - RECORD OF DECISION

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

Statement of Purpose and Basis

This document presents the remedy for the Old Moreau Dredge Spoil Area site, a Class 2 inactive hazardous waste disposal site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375, and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Old Moreau Dredge Spoil Area site and the public's input to the proposed remedy presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, 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.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

March 30, 2012

Date



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

RECORD OF DECISION

Old Moreau Dredge Spoil Area
Moreau, Saratoga County
Site No. 546040
March 2012

SECTION 1: SUMMARY AND PURPOSE

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

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

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

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

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

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

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

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

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

Receive Site Citizen Participation Information By Email

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

SECTION 3: SITE DESCRIPTION AND HISTORY

Location:

The 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) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

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

SECTION 5: ENFORCEMENT STATUS

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

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

General Electric Company

NYS Department of Transportation

The PRPs for the site declined to implement a remedial program when requested by the Department. Now that the remedy has been 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.

The analytical data collected on this site includes data for:

- groundwater
- surface water
- soil

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

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

6.1.2: RI Results

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

Polychlorinated Biphenyls (PCBs)

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 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.

6.4: Summary of Human Exposure Pathways

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

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.

6.5: 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 SELECTED REMEDY

To be selected the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy

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

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

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

The selected remedy is referred to as the Hot Spot Removal (Off-Site Disposal) with Soil Cover and Site Management remedy.

The estimated present worth cost to implement the remedy is \$3,010,000. The cost to construct the remedy is estimated to be \$2,777,000 and the estimated average annual cost is \$165,800.

The elements of the selected remedy are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, 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:

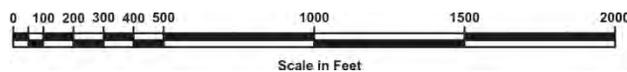
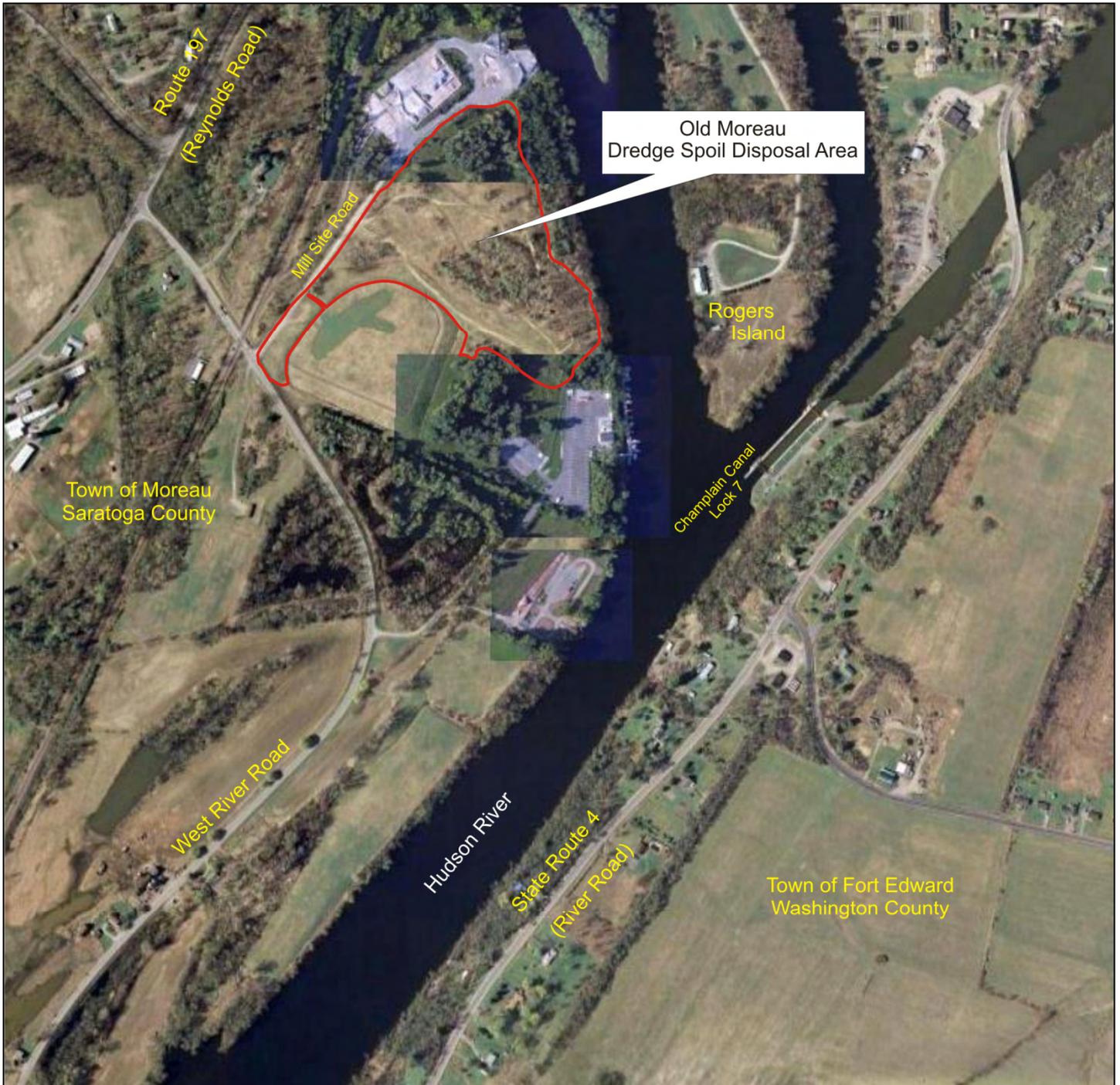
Institutional Controls: The Environmental Easements and Environmental Notices discussed in Paragraph 5 above.

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
Record of Decision
March 2012



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

Figure 2
Remedial Findings and Proposed Remedy

Old Moreau Dredge Spoil Disposal Area
Record of Decision
March 2012



0 100 200 300 400 500 1000

Scale in Feet



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

RECORD OF DECISION

Exhibits A through D

Old Moreau Dredge Spoil Disposal Area
State Superfund Project
Town of Moreau, Saratoga County
Site No. 546040
March 2012

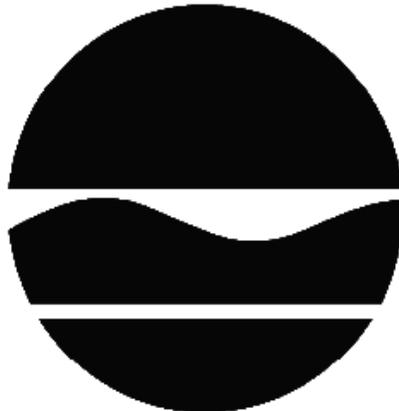


Exhibit A

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 where 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. Monitoring well 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 (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, µg/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).

Dredge spoil materials containing PCBs in excess of the SCO for the protection of groundwater in the vicinity of monitoring well 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 have resulted in the contamination of groundwater. PCBs are considered to be the primary contaminants of concern at the site and will drive the remediation of groundwater addressed by the remedy selection process.

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). Twenty-seven subsurface samples exceeded the SCOs.

Table 2 - Soil

Detected Constituents	Concentration Range (ppm) ^a	Unrestricted Use SCG ^b (ppm)	Frequency Exceeding Unrestricted Use SCG	Restricted Use SCG ^c (ppm)	Frequency Exceeding Restricted Use 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 are polychlorinated biphenyls (PCBs) associated with the sediments removed from nearby portions of the Hudson River as dredge spoil materials and placed at this site.

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

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 (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 uncovered 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 within the dredge spoils placed at the site has resulted in the contamination of surface water. PCBs are considered to be the primary contaminants of concern at the site and will drive the remediation of surface water addressed by the remedy selection process.

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: \$1,411,000
Capital Cost: \$1,178,000
Annual/Periodic Costs: \$165,800

Alternative 3: Hot Spot Removal (Off-Site 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 off-site 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: \$3,010,000
Capital Cost: \$2,777,000
Annual/Periodic Costs: \$165,800

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: \$8,059,000
Capital Cost: \$7,673,000
Annual/Periodic Costs: \$198,000

**Alternative 5: Restoration to Pre-Disposal or Unrestricted Conditions
by Excavation and On-Site 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 on-site 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 off-site 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: \$108,079,000

**Alternative 6: Restoration to Pre-Disposal or Unrestricted Conditions
by Excavation and Off-Site 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 off-site 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 off-site 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: \$100,985,000

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost (\$)	Annual/Periodic Costs (\$)	Total Present Worth (\$)
Alternative 1 No Action	<i>0</i>	<i>0</i>	<i>0</i>
Alternative 2 Soil Cover with Site Management	<i>\$1,178,000</i>	<i>\$165,800</i>	<i>\$1,411,000</i>
Alternative 3 Hot Spot Removal with Soil Cover and Site Management	<i>\$2,777,000</i>	<i>\$165,800</i>	<i>\$3,010,000</i>
Alternative 4 Consolidation and Capping with Site Management	<i>\$7,673,000</i>	<i>\$198,000</i>	<i>\$8,059,000</i>
Alternative 5 Excavation and On-Site Treatment	<i>\$108,079,000</i>	<i>0</i>	<i>\$108,079,000</i>
Alternative 6 Excavation and Off-Site Disposal	<i>\$100,985,000</i>	<i>0</i>	<i>\$100,985,000</i>

Exhibit D

SUMMARY OF THE SELECTED REMEDY

The Department has selected Alternative 3: Hot Spot Removal (Off-Site 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 selected remedy is depicted in Figure 2.

Basis for Selection

The selected remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. 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 selected 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, off-site 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 off-site 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 potential 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 (4 and 6) provide slightly more assurance of mobility reduction by better reducing infiltration of precipitation. The capping alternatives 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 has been prepared that describes public comments received and the manner in which the Department has addressed the concerns raised.

Alternative 3: Hot Spot Removal (Off-Site Disposal) with Soil Cover and Site Management has been selected because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.

APPENDIX A

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY

Old Moreau Dredge Spoil Disposal Area

State Superfund Project

Town of Moreau – Saratoga County - New York

Site No. 546040

March 2012

The Proposed Remedial Action Plan (PRAP) for the Old Moreau Dredge Spoil Disposal Area (Old Moreau), was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 24, 2012. The PRAP outlined the remedial measure proposed for the contaminated soil at the Old Moreau site.

The release of the PRAP was announced by sending a notice to the public contact list and served to invite the public to comment on the proposed remedy.

A public meeting was held on March 6, 2012 and provided information about the Remedial Investigation (RI) and the Feasibility Study (FS) for the Old Moreau site and discussed elements of the proposed remedy. The meeting also provided citizens with an opportunity to discuss concerns, ask questions and comment on the proposed remedy. All questions and comments received during the public comment period have become part of the Administrative Record for this site. The public comment period for the Old Moreau PRAP ended on March 26, 2012.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following passages provide the narrative of each question/comment received and the Department's response.

The following questions and comments were made and answered during the public meeting held on March 6, 2012:

COMMENT 1: Is surface water runoff from the site impacting the Hudson River?

RESPONSE 1: Contaminants at the Old Moreau Dredge Spoil Disposal Site do not appear to be impacting the Hudson River Hudson River as a result of overland runoff or water flowing along the various drainage swales at the site at the present time. There are a few drainage areas along the margin of the Old Moreau site and within the flood plain of the Hudson River that are contaminated with PCBs, but the source of the PCBs in these locations is most likely attributable to Hudson River flooding and not contaminant transport from the Old Moreau site. It is possible, however, that if not addressed, surface soils could erode into the River from the site.

COMMENT 2: There is a large amount of shredded plastic debris in some of the drainage swales between the eastern edge of the site and the Hudson River. Who disposed of this waste?

RESPONSE 2: The Department is aware of the plastic waste along portions of the eastern margin of the Old Moreau site, but is not certain of who disposed of this debris. In some areas this plastic debris is situated below the dredge spoil materials placed at the Old Moreau site - a setting that suggests that the disposal of the plastic debris pre-dates the placement of the dredge spoil material at the Old Moreau site in the mid-1970s.

COMMENT 3: Are the plants on the site removing contamination from the soil and if so, could pollen present exposure concerns?

RESPONSE 3: Any PCBs that may transfer from site soils into site plants are expected to mostly persist in roots, leaves and/or shoots, and are expected to return to nearby soil after the plants shed leaves or die. Generally, the uptake of PCBs in plants is low and is not expected to contribute substantially to a reduction of PCBs in soil. Available data do not suggest that pollen is a PCB exposure concern for people using the site.

COMMENT 4: Will you have to cut down trees in order to put this soil cover down?

RESPONSE 4: Yes. Some trees on the site will have to be cut down in order to place an adequate cover and minimize the potential for deterioration of the cover by tree roots and large plant growth.

COMMENT 5: If the State was to dig up the entire site and remove all of the PCB contamination, would the PCBs have to be destroyed or could they be placed in a landfill?

RESPONSE 5: PCB-contaminated soil from this site could be disposed of in a regulated land-based facility.

COMMENT 6: What technology would be used to treat the soil at the site?

RESPONSE 6: PCB-contaminated soil from this site could be treated by thermal and/or chemical means. One of the alternatives considered involved treatment by turning the soil material into glass or vitrification. However, the costs associated with the vitrification process and the huge energy demands made that alternative untenable.

COMMENT 7: The Town of Moreau is responsible for maintaining the Rogers Family Cemetery surrounded by the Moreau Dredge Spoil Disposal Site, the Old Moreau Dredge Spoil Disposal Area and the Special Area 13 Dredge Spoil Disposal Area, but present access to the cemetery grounds is very difficult. Will there still be access to the cemetery grounds so the Town will be able to fulfill their obligation now and in the future?

RESPONSE 7: Yes, the cemetery grounds will remain accessible.

COMMENT 8: Who is responsible for the cost?

RESPONSE 8: After the remedy is selected, all potential responsible parties (PRPs) will be approached about assuming responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the Department will evaluate the site for further action.

COMMENT 9: Has traffic from the Hudson River PCBs Site remedial dredging project potentially impacted any of these sites and have those potential impacts been considered?

RESPONSE 9: While some PCB contamination may be present under the roadways leading to the Work Support Marina and the Backfill Storage and Offloading Area associated with the Hudson River PCBs Site remedial dredging project, the roadways are covered with clean material including an adequate thickness of either pavement or crushed stone. These materials provide an adequate barrier and it is unlikely that any travel use of these roadways have caused any migration of any PCB contaminated soils underneath.

COMMENT 10: Could the remedy be implemented while the dredging project is underway or would the roadways need to stay clear for Hudson River dredging-related traffic?

RESPONSE 10: Yes. The remedy could be implemented while the Hudson River PCBs Site dredging project is underway. Any remedial work would be coordinated, to the extent necessary, with any of the operations associated with the Hudson River PCBs Site dredging project. For example, the application of the soil cover over the Old Moreau Dredge Spoil Disposal Area would be timed so that it would not interfere with access to the Backfill Storage and Offloading Area associated with the dredging project.

COMMENT 11: When do you anticipate issuing the RODs for the three Dredge Spoil Sites in Moreau?

RESPONSE 11: After the Public Comment Period closes, the Department will prepare a Responsiveness Summary addressing all of the questions and comments received for each site during the Public Meeting and the Public Comment Period and then begin assembly of the associated Record of Decision documents for each site. The Department intends to issue the RODs for Moreau and the Old Moreau Dredge Spoils Disposal Areas by March 31, 2012. It is expected the Special Area 13 Dredge Spoil area ROD will be issued by May.

John G. Haggard, Executive Director of the Remediation and Hudson Programs for General Electric, submitted a comment letter on March 26, 2012, which is included in the Administrative Record (Appendix B).

COMMENT 12: *The administrative record for the key Old Moreau Site documents is incomplete and, as a result, NYSDEC has compromised the public participation process that is required as part of remedy selection.*

NYSDEC commenced the requisite 30 day public comment period on February 24, 2012 with issuance of the PRAP with comments due by March 26, 2012. However, the Remedial Investigation

(RI) and Feasibility Study (FS) documents were not placed in the public repositories and made available for review until March 6, 2012 and March 2, 2012, respectively. This resulted in the RI and FS reports being made available eleven (11) and seven (7) days, respectively, into the public comment period.

The unavailability of the RI/FS documents for review at the start of the public comment period was further complicated by incomplete data assembly in the RI document to support the risk assessments and feasibility study both of which were issued after the public comment period commenced.

The unavailability of key administrative documents for review at the start of the public comment period compromises the process. Hence, NYSDEC should reconcile the cost estimates, place the RI and FS reports in the cited repositories, including electronic copies at the county email listservs, reissue the PRAP and re-start the public comment period.

RESPONSE 12: A request for a 30 day extension to the public comment period for the Moreau Dredge Spoil Disposal Site Proposed Remedial Action Plan (PRAP) was received from General Electric on March 6, 2012 and after deliberations between respective legal counsels, an agreement was reached where the close of the comment period for the given PRAP would remain Monday, March 26, 2012.

COMMENT 13: *The FACT SHEET for the Proposed Remedial Action at the Moreau Dredge Disposal Site incorrectly states that the remedial investigation and feasibility study for the site were submitted to the NYSDEC by New York State Department of Transportation (NYSDOT) and General Electric (GE).*

RESPONSE 13: The correct narrative reads: "NYSDEC developed the proposed remedy after reviewing the detailed investigation of the site and evaluating the remedial options in the feasibility study submitted under New York's State Superfund Program." The Fact Sheet has been revised.

COMMENT 14: *The PRAP presented a proposed remedy cost that was two and one-half times (2.5) lower than the costs provided in the FS Report, and NYSDEC's failure to explain this significant cost difference further compromises any meaningful review during the public comment period.*

The estimated present value (PV) cost to implement the proposed remedy set forth in the PRAP is \$1,189,000. The PV cost of the remedial alternative in the FS that represents the proposed remedy is \$3,010,000. This significant cost difference is unexplained by NYSDEC and complicates the review process during the public comment period.

RESPONSE 14: The costs in the FS Report are correct and the appropriate corrections have been made in the ROD narrative.

COMMENT 15: *The RI data that was used to calculate key statistical values and relied upon for making risk management decisions was not clearly defined by NYSDEC and appears to have excluded site sample results which were grouped with data from the adjacent Moreau site.*

There are three contiguous dredge spoil material disposal sites. The Old Moreau and Special Area 13 sites share common boundaries with the Moreau site. The clearest site boundaries for the Old Moreau site were provided in the FS report. Based on these boundaries, data clearly within the Old Moreau site was not included in its RI Report. Consequently, the data evaluation conducted for the Old Moreau RI likely did not include all site data and it appears the information relied upon by NYSDEC in selecting a proposed remedy was therefore biased.

To determine the 95% upper confidence level (UCL) on the mean for the upper 6-inches of soil and upper 1-foot of soil, soil results for the southern portions of the Old Moreau site were added to the dataset in the Old Moreau RI report. The source of this information was the Moreau RI Report. The 95% UCL on the mean was calculated using adjusted and unadjusted screening levels. The 95% UCLs on the mean for the unadjusted/adjusted screening levels are: 0.57 mg/kg/0.73 mg/kg (upper 6-inches) and 0.56 mg/kg/0.74 mg/kg (upper one-foot).

RESPONSE 15: As the comment points out, the Old Moreau Dredge Spoil Disposal Site shares common boundaries with the Moreau Dredge Spoil Disposal Area and the Special Area 13 Dredge Spoil Disposal Area. These common boundaries may or may not be coincident with the established tax map property boundaries for any one of the given sites. The tabular and narrative summaries and discussions within the Remedial Investigation Report for the Old Moreau Dredge Spoil Disposal Site include data point results for those sampling points within the established tax map property boundary for the given site and some data point results for sampling points on adjoining established tax map properties where relevant, even if those data point results were later assigned to be associated with and pertinent to the proposed remedy for either one of the other two adjacent dredge spoil sites. The proposed remedy for the Old Moreau Dredge Spoil Disposal Site as defined and illustrated in the given PRAP, and now this ROD, is based on an interpretation of those data point results deemed to be associated with and pertinent to the Old Moreau Dredge Spoil Disposal Site regardless of location with respect to established tax map property boundaries. (This approach is echoed in the selection of the proposed remedy provided in the respective PRAP documents for the Moreau Dredge Spoil Disposal Area and the Special Area 13 Dredge Spoil Disposal Area.) This issue was also discussed during the public meeting.

COMMENT 16: *A PCB concentration of 25 ppm should be the applicable soil cleanup objective (SCO) to evaluate potential remedial actions at the Old Moreau Site because it is zoned M-1 Industrial.*

The 40 acre parcel that comprises the Old Moreau dredge spoil Site is zoned M-1 Industrial. The SCOs set forth in 6 NYCRR Part 375-6.8 provide concentration based standards that are associated with certain land use categories. One of those categories is restricted industrial. The PCB concentration associated with restricted industrial use is 25 ppm and should be the soil standard that is used in evaluating remedial action alternatives and selecting a proposed remedy. Since none of the surface soil samples collected during the RI exceeded 10 ppm, the SCO of 25 ppm was not exceeded.

RESPONSE 16: The Department disagrees. In order to meet the RAOs for the protection of ecological resources (i.e. the Hudson River), the SCO set forth in 6 NYCRR Part 375-6.8 for PCBs is 1 ppm as applied to the surface soils which could erode into the River.

COMMENT 17: *The capping portion for the proposed remedy for the Old Moreau Site should use a statistical approach to determine the surface soil areas for capping.*

There were 215 soil samples collected from the upper one foot of soil at the Old Moreau dredge spoil Site as part of the RI. As discussed, the recalculated 95% UCL on the mean PCB concentration in these surface soil samples (see Comment 15) is 0.57 mg/kg or 0.73 mg/kg (upper 6-inches) and 0.56 mg or 0.74 mg/kg (upper one-foot). These levels are well below the 25 ppm SCO for restricted industrial, and even below the 1 ppm commercial SCO cited in the PRAP. Hence, the existing soil cover meets the remedial action objectives regardless of whether the PCB SCO is set at 25 ppm or 1 ppm for surface soils.

RESPONSE 17: The Department disagrees, and believes that the approach in remedy selection was to evaluate the cover of the entire area containing dredge spoils. However, the commenter's suggestion will be taken into account in design when finalizing the actual area to be covered. Existing portions of the site which may already meet the cover criteria to be established in design may not need an additional soil cover.

COMMENT 18: *The remedial action objective (RAO) to “Remove the source of ground or surface water contamination” that is intended to be addressed by excavating soil surrounding monitoring well OM-MW-08, a significant cost component of the proposed remedy, is based on implausible technical conclusion that PCBs are dissolved in groundwater.*

The borehole logs for OM-MW-08 indicate that monitoring well OM-MW-08 is installed in a fine grained (silty) material. Although the groundwater sample from this well was below the turbidity NYSDEC DER-10 guidance criteria of 50 NTUs, it nonetheless exhibited an elevated turbidity (i.e., greater than 10 NTUs) indicating the presence of suspended solids. Because PCBs exhibit very low solubility, EPA guidance recommends the following when sampling for contaminants that may be biased by the presence of turbidity (e.g., metals, PCBs, pesticides, etc.):

- achieving a stabilized turbidity level of less than 10 NTUs; and,
- avoiding the use of bailers for sampling as they have been shown to increase turbidity while sampling.

While the monitoring well was purged using a peristaltic pump, the samples were collected using a bailer. Thus the turbidity of the samples collected may have been higher than those measured during well purging.

Given the above conditions, any finding of PCBs in groundwater should not be used to automatically presume they are present in dissolved form and would have to be confirmed by analyzing filtered samples in conjunction with unfiltered ones.

Also, a review of Appendix I of the RI Report indicates that different PCB Aroclors were detected in the soil samples from the borehole, (in which OM-MW-08 was installed) and the groundwater sample collected from this well. The different PCB Aroclors identified in soil from those in an

unfiltered groundwater sample at the same location is a challenge to the recommendation that an engineering approach to excavate soil is an appropriate response action.

The aforementioned information coupled with the fact that multiple groundwater samples from other wells did not identify PCBs challenge a conclusion that the groundwater at this location is being impacted by PCBs in soil in the vicinity of monitoring well OM-MW-08. Therefore, this element of the proposed remedy should be eliminated until a more credible and technically supported link between PCB soil removal and improved groundwater quality is established.

RESPONSE 18: The Department recognized the aberrant nature of the groundwater results at monitoring well OM-MW-08 and will require additional evaluation of the groundwater conditions at that location in the design phase of the remedy. It is not implausible, however, that PCBs could be dissolved in groundwater, as there are several nearby sites where PCBs are found dissolved in groundwater. PCB is also found dissolved in the water of the adjacent Hudson River.

COMMENT 19: *The Human Health Risk Evaluation concluded that there is no unacceptable human health risk. Therefore, there is no basis for NYSDEC to conclude the site poses a significant threat to human health. Hence, there is no basis to support the Class 2 designation and no basis to propose a remedy to protect human health.*

The National Contingency Plan (NCP), which is incorporated by reference in 6 NYCRR Part 375-1.1 (g)(2), provides for the determination of human health and ecological risks based on the calculation of an exposure point concentration that represents the reasonable maximum exposure based on the available dataset. In accordance with regulatory guidance, the 95% UCL is intended to represent the reasonable maximum exposure scenario (RMES).

NYSDEC guidance recommends that public health exposure should consider surface soil at a depth of two inches below ground surface. However, the Human Health Risk Evaluation in the RI used a 95% UCL for PCBs for the upper 6-inches of 1.36 ppm for the adult industrial worker and adult and child visitor, and 8.27 ppm (0 – 10 ft) for the future adult construction/excavation and future adult and child resident. Using these conservative values, the Human Health Risk Evaluation still concluded that calculated risks fell within an acceptable risk range for carcinogens and were below a hazard index of 1 for non-cancer risks. (Note: these 95% UCL values could not be replicated using the dataset provided in the RI; rather lower values were calculated using the dataset.) Based on the RI findings that potential risks fall within an acceptable risk range for carcinogens and non-carcinogens, there is no basis to conclude that remedial action is necessary to address human health risks.

RESPONSE 19: The Department disagrees. Exceedances of the SCO for PCB in surface soils, combined with the potential for human exposures to these surface soils and the potential for these soils to migrate via erosion to the River, provide the basis for the selected remedy to address these surface soils.

COMMENT 20: *The RI finding that the site poses little or no risks to communities of terrestrial plants and soil invertebrates but may pose a risk to some wildlife species, amphibians and benthic invertebrates does not meet the standard to justify a determination of significant threat. Hence, there*

is no basis to support the Class 2 designation and no basis to propose a remedy to protect the environment.

A Screening-Level Ecological Risk Assessment (SLERA) is a conservative vetting tool whose purpose is to eliminate contaminants of concern from any further consideration of potential ecological risk. It is not intended to support a conclusion that contaminants, which are not eliminated by the screen, present a significant threat as per 6 NYCRR Part 375-1.2 (1) (a) (i), (ii), (iii), (iv), (v) (i.e. results in significant adverse impacts and/or acute or chronic effects or contributes to significant adverse ecotoxicity from bioaccumulation in flora or fauna or cause human consumption to be limited). While a SLERA to assess potential impacts to ecological receptors may be a useful first step in the assessment of potential ecological risks, the NYSDEC DER-10, Fish and Wildlife Resource Impact Assessment [FWRIA] guidance, and the USEPA ecological risk assessment guidelines established offer more thorough methods (qualitative and quantitative) to assess ecological risks that may arise from the presence of contaminants in various settings. According to USEPA (2001) *Eco Update, The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments*, SLERAs are not intended to provide definitive estimates of actual risk, generate cleanup goals and, in general, are not based upon site-specific assumptions.

Furthermore, the SLERA states "*...it should be noted that unfiltered samples were collected at the site whereas the benchmarks pertain to dissolved, ionic, or acid-soluble metals concentrations. Hence, the screening presented in Table 8-3 is conservative and likely overestimates that [sic] number of metals that are of ecological concern in surface water. Additional work (e.g., collection and analysis of filtered samples and/or surface water toxicity testing) would be needed to better define the actual risks posed to aquatic life by metals in surface water.*"

Based on the above, the SLERA is an insufficient basis for NYSDEC to determine the site poses a significant threat. As a consequence the NYSDEC has no basis to assign the site a Class 2 designation or propose a remedial action to protect the environment.

RESPONSE 20: The Department disagrees, and believes that the available site data support the need to implement the selected remedy.

COMMENT 21: *The remediation action objectives (RAOs) in the PRAP are already met under existing conditions and/or can be assured through institutional controls.*

The PRAP defines the following RAOs for the Site:

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards;
- Restore groundwater aquifer to pre-disposal/pre-release conditions, to the extent practicable;
- Remove the source of ground or surface water contamination;
- Prevent direct ingestion/direct contact with contaminated soil; and
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

As stated in Comment 18, the potential for PCBs to be dissolved in groundwater is not credibly supported by the RI data and analysis. Hence, the groundwater pathway for PCBs has not been

demonstrated to exist, and any associated RAOs that target this pathway are not applicable for consideration of remedial alternatives leading to a proposed remedial action.

The risk assessment concluded that potential human health risks were in the acceptable risk range or below a Hazard Index of 1, establishing that this goal is already met. To the extent it is prudent to continue to limit future exposure to surface as well as subsurface soil, institutional controls will effectively meet these goals. Further, the potential risks to biota from the identified contaminants were overstated in the SLERA. The assessment included inflated exposure factors (e.g., ingestion rates, bioaccumulation factors), toxicity benchmarks and exposure point concentrations (EPCs).

Consequently, the applicable RAOs for the Site can be met with implementation of institutional controls.

RESPONSE 21: The Department disagrees. As stated above in Responses 19 and 20, the selected remedy is needed to address site conditions and meet the RAOs.

COMMENT 22: *An alternate remedy requiring institutional controls would meet the threshold criteria pursuant to 6 NYCRR Section 375-1.8.*

6 NYCRR Section 375-1.8 (f) (Remedy Selection) sets forth nine factors that the Department considers in selecting a remedy. The first two factors, "overall protectiveness of the public health and the environment" and "standards, criteria and guidance" (SCGs) are similar to the "threshold criteria" set forth in the NCP. (Threshold criteria are ones a remedy must meet to be eligible for selection.)

With respect to "overall protectiveness of the public health and the environment," as discussed earlier, the HHRA indicates there were no unacceptable risks to humans. In the case of potential ecological risk, a SLERA alone is not the basis upon which risk management decisions should be made in proposing a remedial action.

With respect to "standards, criteria and guidance," the average concentration of 95% UCL on the mean PCB concentration in surface soil is less than 1 ppm. Thus, the Soil Cleanup Objectives (SCOs) for commercial exposure (as well as industrial, residential and restricted residential) and protection of ecological receptors, both 1 ppm, are met in their respective intervals in this area of the Site.

In conclusion, an Institutional Control remedial action provides adequate protection of human health and the environment and compliance with SCGs. As such, institutional controls would meet the threshold criteria at significantly less cost than the proposed remedy while achieving the same proportional risk reduction.

RESPONSE 22: The Department disagrees. Exceedances of the SCO for PCB in surface soils, combined with the potential for human exposures to these surface soils and the potential for these soils to migrate via erosion to the River, provide the basis for the selected remedy to address these surface soils. Also see Responses 19, 20 and 21.

COMMENT 23: *An alternate remedy requiring institutional controls would also satisfy the balancing criteria pursuant to 6 NYCRR Section 375-1.8.*

6 NYCRR Section 375-1.8 (f) (Remedy Selection) sets forth the nine factors that the Department considers in selecting a remedy; the first two are discussed in Comment 22. Factors three (3) through nine (9) are similar to the "balancing criteria" set forth in the NCP. The balancing criteria in 6 NYCRR Section 375-1.8 (f) include: long-term effectiveness and permanence; short-term impacts and effectiveness; implementability; reduction in toxicity, mobility or volume through treatment; cost-effectiveness; community acceptance; and land use. (Balancing criteria are considered in weighing the advantages and disadvantages of remedial alternatives that meet the threshold criteria in order to select a preferred remedy for a site).

The soil removal considered in the proposed remedy would not reduce the toxicity, mobility or volume of the materials. Hence, an institutional control remedy would meet this criterion to the same degree as the proposed remedy.

Institutional controls are less costly than the proposed remedy. Also, the Department can be reasonably certain of future commercial/industrial land use at the Site in light of continued use of the Site by the NYS Canal Corporation.

In conclusion, an institutional control remedy would also satisfy the balancing criteria at significantly less cost than the proposed remedy while achieving the same proportional risk reduction.

RESPONSE 23: The Department disagrees. As stated above in Responses 19, 20, 21 and 22, the selected remedy is needed to address site conditions and meet the RAOs.

COMMENT 24: *An alternate remedy that relies on institutional controls would be consistent with 6 NYCRR Part 375-1.8 (a) (5) (i) (ii) (iii) as well as the NCP, which is incorporated by reference in 6 NYCRR Part 375-1.1 (g)(2), while providing a greater degree of overall effectiveness.*

Threshold criteria are used to determine whether a specific remedial alternative is eligible to be selected. As demonstrated above, coupling existing conditions at the Site with institutional controls would result in the same degree of "overall protectiveness of the public health and the environment" while meeting "standards, criteria and guidance" as set forth in 6 NYCRR Section 375-1.8(f). Hence, the NYSDEC-proposed remedy offers no proportional benefit with respect to risk reduction or compliance with SCGs.

When evaluating the relative benefits of various remedial alternatives that meet the threshold criteria, the balancing criteria are relied upon to make a selection. When balancing the trade-offs among remedial alternatives, the NCP, which is incorporated by reference in 6 NYCRR Part 375-1.1 (g) (2), compares the costs and overall effectiveness. Overall effectiveness includes long-term effectiveness and permanence, reduction in toxicity, mobility or volume through treatment, and short-term effectiveness. The relationship between overall effectiveness and cost is examined across all alternatives to identify those that provide effectiveness that are proportional to their cost.^{vi}

As mentioned above, a remedy that couples existing conditions with institutional controls offers similar benefits in long-term effectiveness and permanence, and reduction in toxicity, mobility or volume through treatment as the proposed remedy. Hence, with respect to these criteria, the overall effectiveness of the proposed remedy **is not** proportional to the effectiveness that can be achieved given the option of an institutional control remedy.

And in the case of short-term impacts and effectiveness, a remedy based on institutional controls (along with the common action) would have equal short-term impacts and effectiveness as the proposed remedial action.

The alternative that ensures institutional controls remain in place represents the remedy whose overall effectiveness is proportional to its cost given the environmental conditions and current and future Site use.

RESPONSE 24: The Department disagrees. Also see Responses 19, 20, 21, 22 and 23.

COMMENT 25: In its March 26, 2012 letter GE asserts that the company should not be identified as a PRP for this site for various reasons listed in the letter.

RESPONSE 25: The Department and the State take no formal position in this document on comments received regarding the legal liability of any particular party or the applicability of any affirmative defenses to such liability and hereby reserves all rights thereto.

APPENDIX B

ADMINISTRATIVE RECORD

Administrative Record

Old Moreau Dredge Spoil Disposal Area Town of Moreau – Saratoga County - New York

Site No. 546042

March 2012

Documents

1. "Proposed Remedial Action Plan for the Old Moreau Dredge Spoil Disposal Area - Town of Moreau - Saratoga County - New York - Site No. 546040", dated February 24, 2012, prepared by the Department in consultation with the New York State Department of Health.
2. "Proposed Remedial Action Plan Fact Sheet and Meeting Announcement for the Old Moreau Dredge Spoil Disposal Area", dated February 2012, prepared by the Department.
3. "Feasibility Study for the Old Moreau Dredge Spoil Disposal Area - Site Number 546040 - Moreau, New York", dated February 2012, prepared for the New York State Department of Environmental Conservation by Ecology and Environment Engineering.
4. "Remedial Investigation Report for the Old Moreau Dredge Spoil Disposal Area - Site Number 546040 - Moreau, New York", dated February 2012, prepared for the New York State Department of Environmental Conservation by Ecology and Environment Engineering.
5. "Final Technical Work Plan for the Remedial Investigation and Feasibility Study at the Old Moreau Dredge Spoil Disposal Area", dated July 2005, prepared by Ecology and Environment Engineering.
6. "Technical Scope of Work for the Remedial Investigation and Feasibility Study at the Old Moreau Dredge Spoil Disposal Area", dated April 2005, prepared by the Department.
7. "Dredge Spoils Investigation in the Upper Hudson River Valley", Dated July 2001, prepared by the Department.
8. "Report - Hudson River PCB Project - Dredge Spoil Sites Investigation - Special Area 13 - Buoy 212, Old Moreau - Rogers Island - Site 518 - Buoy 204 Annex - Lock 4 - Lock 1", Volume I, dated December 1992, prepared by Malcolm Pirnie, Incorporated.
9. "Removal and Encapsulation of PCB-Contaminated Hudson River Bed Materials", dated 1977 - 1979, prepared for the New York State Departments of Transportation and Environmental Conservation by Malcolm Pirnie, Incorporated - includes a paper entitled "Removal and Disposal of PCB-Contaminated River Bed Materials", prepared by Richard Thomas (Malcolm Pirnie, Inc.), Russell Mt. Pleasant (NYSDEC) and Steven Maslansky (Malcolm Pirnie, Inc.), and presented at the 1979 National Conference on Hazardous Material Risk Assessment, Disposal and Management - April 25-27, 1979 - Miami Beach, Florida.
10. "Migration of PCBs from Landfills and Dredge Spoil Sites in the Hudson River Valley, New York - Final Report", dated November 1978, prepared by Weston Environmental.

Comment Letters

1. Letter dated March 26, 2012 from John G. Haggard, Executive Director of the Remediation and Hudson Programs for General Electric.