RECORD OF DECISION

Friedrichsohn Cooperage
Operable Unit Number: 03
State Superfund Project
Waterford, Saratoga County
Site No. 546045
March 2011

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

DECLARATION STATEMENT - RECORD OF DECISION

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Statement of Purpose and Basis

This document presents the remedy for Operable Unit Number: 03 of the Friedrichsohn Cooperage 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 Operable Unit Number: 03 of the Friedrichsohn Cooperage 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. 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 principals and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per guidance document, 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. The remedy will address the contamination in the sediments of the Old Champlain Canal from O'Connor Drive in the south to Burton Ave north of the site, with the horizontal and vertical extent to be refined by sampling during the design. The remedial objective will be removal of sediment within OU-3 for off-site disposal to achieve a cleanup goal of 1 ppm, for the marker compound PCBs, in the canal sediment. The contaminants identified in the sediment and the source area which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process, are PCBs, chlorinated compounds (tetrachloroethene, trichloroethene, dichloroethene, vinyl chloride, and chlorobenzene), BTEX, phenolic compounds (phenol and dimethylphenol), hexachlorobenzene, and metals (arsenic, barium, chrome, and lead). The PCB contamination in the sediment in OU 3 can be used as a marker for removal of the other contaminants detailed above. The estimate includes excavation of approximately 12,500 cubic yards of sediment from the canal within the boundary of OU-3 to a depth of approximately 2 feet. Where necessary, the excavated sediments in the canal will be replaced with clean fill to establish the original design depth of 6 feet. Clean fill will meet the criteria for backfill as established in NYCRR Part 375 for ecological resources. The restored canal bed will need to meet the NYS Canal Corporation requirements to retain the hydraulic integrity of the canal, i.e. to retain water within the canal and transmit water within the canal. No backfill will be placed in the canal above the original design depth other than to restore or ensure the water-tightness of the canal.

3. For the canal bank and sediments adjacent to the site the excavation will involve excavation and offsite disposal of sediment or soil which contains PCBs above 50 ppm and chlorinated compounds (tetrachloroethene, trichloroethene, dichloroethene, vinyl chloride, and chlorobenzene), BTEX, phenolic compounds (phenol and dimethylphenol), hexachlorobenzene, and metals (arsenic, barium, chrome, and lead). The estimate includes excavation of approximately 1,000 cubic yards of material from the canal bank and canal adjacent to the site down to bedrock, an approximate depth of 7 feet.

4. In order to prevent the recontamination of the canal sediment, the design will include removal and offsite disposal of approximately 2,800 cubic yards of soil from onsite within a delineated area of soil containing PCBs above 50 ppm and chlorinated compounds (tetrachloroethene, trichloroethene, dichloroethene, vinyl chloride, and chlorobenzene), BTEX, phenolic compounds (phenol and dimethylphenol), hexachlorobenzene, and metals (arsenic, barium, chrome, and lead). The contaminated soil in this area will be removed to bedrock, approximately 16 feet deep. The remedy will replace the excavated soil onsite with clean fill which will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

5. The design will contain elements to stabilize excavations, control water in the excavation, control odors, and dewater the excavated materials. In areas where the excavation does not end at bedrock, the design will also require confirmation samples be collected at the completion of the excavation.

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.

MAR 31 2011

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

RECORD OF DECISION

Friedrichsohn Cooperage
Waterford, Saratoga County
Site No. 546045
March 2011

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: SITE DESCRIPTION AND HISTORY

Location: The Friedrichsohn Cooperage site is located at 153-155 Saratoga Avenue in the Town of Waterford. The 0.45 acre property has approximately 315 feet of frontage on Saratoga Ave (Rte 32). The Old Champlain Canal borders the parcel on the side opposite the road. There are residential properties adjacent to the site along Saratoga Ave. Residential properties and a commercial property are located across Saratoga Ave from the site.

Site Features: The area is served by a public water supply system and public storm water and sanitary systems. The commercial parcel opposite the site is located on property formerly known as the Friedrichsohn Cooperage Lot and was used by the cooperage to store drums.

Current Zoning/Use: The site is currently a vacant lot and is zoned residential (R-75).

Historical Use: Friedrichsohn's operated at this location from 1817 to 1991. During its early

operations, the cooperage made and refurbished wooden kegs and barrels. When the cooperage closed in 1991 the primary business was cleaning and refurbishing metal drums. Industrial facilities in the area used materials shipped in drums in their industrial process. A portion of the contents would remain in each drum, typically less than 1 inch of material in each drum. The drums would be sent to the cooperage to be cleaned, repainted and sold. During the cleaning and refurbishing operation some portion of the contents of the drums was spilled, lost or disposed of. The lost contents of these drums, and components of the cleaning and painting operation, comprise the contamination now found at the site.

Inspection and examination of the abandoned business in 1994 found thousands of metal drums, some leaking, and the buildings themselves unstable and in poor condition. At the request of the NYSDEC, the USEPA began an emergency removal action in 1994. Activities completed by the EPA between 1994 and 1996 included removing for proper off-site disposal; 322.5 tons of contaminated sludge/soil, 9,000 gallons of liquid waste, and 3,767 drums. The cooperage buildings were torn down and clean fill was brought in to replace contaminated soil which had been removed from the sump area of building 3. This emergency removal action properly addressed the exposed wastes present at the site. The site is currently a vacant lot.

During its most recent history, the cooperage operated out of 5 buildings at the site. Three of the five were constructed as slab on grade. Two of the buildings contained structures below grade. One of the buildings had a basement area, below grade, where the sumps were located. It is believed a majority of the wastes disposed of at the site, the lost contents of the drums and components of the cleaning and painting operation, were disposed of at or through this building. Contamination from the building ended up in the environment by; (a) sinking out of the bottom of the sumps and into the ground, (b) flowing out the basement windows onto the ground and into the canal, or (c) out a drain pipe and onto the ground and/or into the canal. One of the buildings on the southwest end of the site is labeled as a garage on historical drawings and had a service trench associated with it. The service trench is below grade and provided access to the undercarriage of vehicles.

In the spring of 2008 the DEC collected samples of the groundwater, the surface water in the canal, the soil, and the sediments. These samples formed the basis for the listing of the site in December 2008 as a class 2 on the NYS Registry of Inactive Hazardous Waste Disposal sites.

Operable Units: The site was divided into three operable units. An operable unit represents a portion of a remedial program for a site that for technical or administrative reasons can be addressed separately to investigate, eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination. Operable unit 1 is comprised of the onsite and offsite soil at the former cooperage site. Operable unit 2 is comprised of the onsite and offsite groundwater. Operable Unit 3 is comprised of the sediments in the Old Champlain Canal between O'Conner Drive and Burton Ave.

Site Geology and Hydrogeology: Groundwater at the site has been found to be 4 to 6 feet below the ground surface at the site of the former Cooperage. In general groundwater flows to the southeast toward the Mohawk River. Surface water from the former cooperage generally flows to the Old Champlain Canal. Surface water in the area can flow to the canal or to the Mohawk

River.

Operable Unit (OU) Number 03 is the subject of this document.

A Record of Decision has yet to be issued for OU 01,02.

A site location map is attached as Figure 1.

SECTION 3: 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 residential use (which allows for restricted-residential use, commercial use and industrial use) as described in Part 375-1.8(g) is/are 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 4: ENFORCEMENT STATUS

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

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

Estate of Mary Sausville

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. PRPs are subject to legal actions by the state for recovery of all response costs the state incurs.

Saratoga County records list the Estate of Mary Sausville as the owner. At the close of the Friedrichsohn Cooperage in 1991, her family owned the property and the Friedrichsohn Cooperage business.

The following PRPs reimbursed the United States Environmental Protection Agency for costs associated with a removal action undertaken from 1994 through 1996:

Schenectady International, Inc.
General Electric Company
Agway, Inc.
Agway Energy Products, LLC, Successor to Agway Petroleum Corporation
Metalworking Lubricants Company

Nycomed Inc.
Mohawk Paper Mills, Inc.
Reliable Motor Parts Company
Monsey Products Co.
American Chemical & Equipment Co., Inc.
Jones Chemicals, Inc.
C.O. Jelliff Corp.

In accordance with New York State regulations, the Department will make all reasonable efforts to obtain a commitment by one or more PRPs to undertake the remedial program. If an agreement cannot be reached, the Department will evaluate the site for further action under the State Superfund.

Any PRP or other member of the public who has information regarding PRPs for the site is encouraged to forward the information to the Department.

SECTION 5: SITE CONTAMINATION

5.1: 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.

5.1.1: 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

5.1.2: RI Information

The analytical data collected on this site includes data for:

- air
- groundwater
- surface water
- soil
- sediment
- soil vapor
- indoor air

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 for this Operable Unit at this site is/are:

toluene	pcb-aroclor 1254
trichloroethene (tce)	pcb-aroclor 1260
vinyl chloride	phenol
xylene (mixed)	lead
dichloroethylene	cadmium
chlorobenzene	arsenic
hexachlorobenzene	barium
pcb-aroclor 1242	

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

- groundwater
- soil
- sediment

5.2: Interim Remedial Measures

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

The following IRM(s) has/have been completed at this site based on conditions observed during the RI.

IRM Site Fencing

An eight foot tall, lockable, chain link fence has been installed around the former Friedrichsohn Cooperage property to prevent access. Warning signs have been installed on the fencing.

5.3: 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.*

The site is completely fenced, which restricts public access. However, persons who enter the site could contact contaminants in the soil by walking on the site, digging or otherwise disturbing the soil. Soil removal actions have been completed to remove contaminated soil found in off-site residential surface soils. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. People may come in contact with contaminants present in the shallow canal sediments while entering or exiting the canal during recreational activities. Volatile organic compounds in the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Because there is no on-site building, inhalation of site contaminants in indoor air due to soil vapor intrusion does not represent a concern for the site in its current condition. However, the potential exists for the inhalation of site contaminants due to soil vapor intrusion for any future on-site development. In addition, sampling indicates soil vapor intrusion is not a concern for off-site residential buildings with the exception of one off-site commercial structure that has received a mitigation system.

5.4: 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.

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary for OU 03.

Wastes disposed of at the former Cooperage remain in the subsurface soil, sediments, and groundwater. Contamination in the sediments, soil, and groundwater include volatile organic contaminants, heavy metals, PCBs, Pesticides and semivolatile organic contaminants.

The contaminants considered to be the primary contaminants of concern are PCBs; chlorinated compounds (tetrachloroethene, trichloroethene, dichloroethene, vinyl chloride, and chlorobenzene); BTEX; phenolic compounds (phenol and dimethylphenol); hexachlorobenzene; and metals (arsenic, barium, chrome, and lead). Contamination is found in highest concentrations in the sediment adjacent to the site and in the subsurface soils in the center of the site approximately in the location of the former cooperage building number 3.

Soil contamination at levels exceeding the residential use soil cleanup objectives and resulting from past operations at the cooperage is present in several locations in the subsurface. Contamination is associated with the former automobile service trench on the south end of the site, beneath the 1400 sq ft concrete slab in the center of the site, and in two locations below the broken slab at the north end of the site. The contamination in these locations includes metals, PCBs and BTEX compounds.

Subsurface contamination exists beneath the location of former building 3 of the cooperage operations where the sumps were located. PCBs were found in the soil at levels above 50 ppm which characterize the contamination as hazardous waste. The groundwater in this location has been impacted by chlorobenzene, BTEX, chlorinated solvents (PCE, TCE, DCE and vinyl chloride), phenol, methyl phenol, and PCBs. The hazardous waste at this location is a source of the contamination in the sediments in the canal and the groundwater.

SECTION 6: SUMMARY OF THE EVALUATION OF ALTERNATIVES

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 Exhibit B. 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 C. 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 D.

6.1: Evaluation of Remedial 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.

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

The next 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.

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.

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.

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

7. Cost-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.

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.

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.

6.2: Elements of the Remedy

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

The estimated present worth cost to implement the remedy is $7,380,000. The cost to construct the remedy is estimated to be $7,303,000 and the estimated average annual cost is $5,000.

The elements of the selected remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. Green remediation principals and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per guidance document, 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. The remedy will address the contamination in the sediments of the Old Champlain Canal from O'Connor Drive in the south to Burton Ave north of the site, with the horizontal and vertical extent to be refined by sampling during the design. The remedial objective will be removal of sediment within OU-3 for off-site disposal to achieve a cleanup goal of 1 ppm, for the marker compound PCBs, in the canal sediment. The contaminants identified in the sediment and the source area which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process, are PCBs, chlorinated compounds (tetrachloroethene, trichloroethene, dichloroethene, vinyl chloride, and chlorobenzene), BTEX, phenolic compounds (phenol and dimethylphenol), hexachlorobenzene, and metals (arsenic, barium, chrome, and lead). The PCB contamination in the sediment in OU 3 can be used as a marker for removal of the other contaminants detailed above. The estimate includes excavation of approximately 12,500 cubic yards of sediment from the canal within the boundary of OU-3 to a depth of approximately 2 feet. Where necessary, the excavated sediments in the canal will be replaced with clean fill to establish the original design depth of 6 feet. Clean fill will meet the criteria for backfill as established in NYCRR Part 375 for ecological resources. The restored canal bed will need to meet the NYS Canal Corporation requirements to retain the hydraulic integrity of the canal, i.e. to retain water within the canal and transmit water within the canal. No backfill will be placed in the canal above the original design depth other than to restore or ensure the water-tightness of the canal.

3. For the canal bank and sediments adjacent to the site the excavation will involve excavation and offsite disposal of sediment or soil which contains PCBs above 50 ppm and chlorinated compounds (tetrachloroethene, trichloroethene, dichloroethene, vinyl chloride, and chlorobenzene), BTEX, phenolic compounds (phenol and dimethylphenol), hexachlorobenzene, and metals (arsenic, barium, chrome, and lead). The estimate includes excavation of approximately 1,000 cubic yards of material from the canal bank and canal adjacent to the site down to bedrock, an approximate depth of 7 feet.

4. In order to prevent the recontamination of the canal sediment, the design will include removal and offsite disposal of approximately 2,800 cubic yards of soil from onsite within a delineated area of soil containing PCBs above 50 ppm and chlorinated compounds (tetrachloroethene, trichloroethene, dichloroethene, vinyl chloride, and chlorobenzene), BTEX, phenolic compounds (phenol and dimethylphenol), hexachlorobenzene, and metals (arsenic, barium, chrome, and lead). The contaminated soil in this area will be removed to bedrock, approximately 16 feet deep. The remedy will replace the excavated soil onsite with clean fill which will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

5. The design will contain elements to stabilize excavations, control water in the excavation, control odors, and dewater the excavated materials. In areas where the excavation does not end at bedrock, the design will also require confirmation samples be collected at the completion of the excavation.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the April 2010 RI/FS report and data gathered subsequent to the RI. Waste/source materials were identified at the site and which are impacting the sediment in the canal.

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 four categories; volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides/ polychlorinated biphenyls (PCBs), and inorganics (metals). For comparison purposes the SCGs are provided for each medium that allows for unrestricted use. For soil, the restricted use SCGs for residential use are also presented.

Waste/Source Areas

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 were identified at the site which includes the area below former Friedrichsohn Cooperage building 3. The approximate location of building 3 is shown in Figure 1. The location of the source area for contamination is shown in Figures 2 and 3. This was the building where the sumps, pits in the basement which were filled with waste, were located.

Wastes and contaminated soil were removed from below former building 3 of the cooperage during the emergency removal action conducted by the USEPA from October 1994 to December 1996. In addition to removing wastes found at the surface, USEPA also removed contaminated soil to a depth of 3.5 feet and then backfilled the excavation with clean fill to eliminate the threat of direct exposure to people.

Using the results of the subsurface soil sampling conducted during the State funded investigation, a source area of contaminated soil and hazardous waste has been delineated beneath where building 3 had been located. The subsurface soil sampling locations and delineated source area are shown in Figure 3**.** PCBs and other contaminants of concern in this location has been found at levels which characterize the contamination as hazardous waste. Contamination from this location is migrating to the sediment in the canal and is impacting the groundwater. Volatile organic compounds were found in the groundwater, onsite and offsite, and in the sediment in the canal. The semi-volatile organic compound, phenol was found in the soil, the groundwater, and the sediment of the canal. Heavy metals, arsenic, and lead were found in the soil, groundwater and sediment. PCBs were detected in the soil, the groundwater and the sediment. These wastes are the remnants of the contents of barrels or drums which were cleaned

and refurbished at the cooperage. These contaminants have migrated to the sediment and the groundwater.

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

This section describes the findings for all environmental media that were evaluated. As described in the focused RI/FS Report, groundwater, soil, surface water, and sediment samples were collected to characterize the nature and extent of contamination.

Groundwater

Groundwater samples were collected from overburden and bedrock monitoring wells. The samples were collected to assess groundwater conditions on and off-site. The results indicate that there are no impacts to groundwater in the former barrel yard. The results indicate that contamination in shallow groundwater at the site exceeds the SCGs for VOCs, semivolatiles, PCBs, pesticides, and inorganics (metals). Contaminant levels in bedrock groundwater exceeded the guidance values for inorganics.
The groundwater monitoring well locations are shown in Figure 4. The groundwater data is presented here for discussion in evaluation of the remedial actions proposed to address the sediment contamination.

Table 1 – Groundwater

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
VOCs			
Acetone	16 – 1,800	50	4 of 21
Benzene	9 – 71	1	4 of 21
Ethyl Benzene	79 – 5,400	5	5 of 21
Toluene	69 – 24,000	5	6 of 21
Total Xylene	12 – 20,900	5	6 of 21
Chlorobenzene	10 – 170	5	4 of 21
Dichloroethylene	14 – 260	5	6 of 21
Trichloroethene	3.9 – 240	5	1 of 21
Tetrachloroethene	86	5	1 of 21
Vinyl Chloride	1.4 – 75	2	5 of 21
Methyl Chloride	1.4 – 99	5	2 of 21
SVOCs			
Dimethlyphenol	190 – 11,000	50	6 of 21
Phenol	440 – 90,000	1	5 of 21
Biphenyl	240 – 5,000	5	2 of 21
Metals			
Arsenic	63 – 168	25	3 of 21

Barium	1860	1,000	1 of 21
Chromium	89 – 197	50	3 of 21
Lead	130 – 321	25	3 of 21
Pesticides/PCBs			
Total PCBs	0.47 – 300	0.09	5 of 21

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).

Groundwater contamination identified during the RI will be addressed under Operable Unit 2.

Soil

Surface and subsurface soil samples were collected across the property on which the buildings of the cooperage had stood. Surface soil samples were collected from a depth of 0-2 inches to assess direct human exposure. Subsurface soil samples were collected from a depth of 0 to 18 feet to determine the extent of the contamination and to assess the potential for soil contamination to impact groundwater. See Figure 3 for soil sample locations. The results indicate that soil at the site (within the fence) exceed the unrestricted SCG for volatile and semi-volatile organics, PCBs, pesticides and metals.

Table 2 - Surface Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Residential SCG[c] (ppm)	Frequency Exceeding Restricted SCG
VOCs					
SVOCs					
Phenol	0.43 to 9.4	0.33	4 of 6	100	0 of 6
Metals					
Cobalt	12.0	9.5	1 of 6		
Chromium	15 to 621	30	3 of 6	36	3 of 6
Lead	15.9 to 3,000	63	5 of 6	400	1 of 6
Mercury	0.021 to 0.35	0.18	4 of 6	0.8	0 of 6
Pesticides/PCBs					
Total PCBs	0.013 to 0.88	0.100	3of 6	1.00	0 of 6

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 Residential Soil Cleanup Objectives.

Table 3 - Subsurface Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Residential SCG[c] (ppm)	Frequency Exceeding Restricted SCG
VOCs					
Chlorobenzene	10	1.1	1 of 76	100	0 of 76
Ethylbenzene	0.009 to 160	1	12 of 76	30	0 of 76
Toluene	0.009 to 230	0.7	13 of 76	100	0 of 76
Xylene (total)	0.001 to 570	0.26	19 of 76	100	0 of 76
SVOCs					
Hexachlorobenzene	0.033 to	0.41 [d]	13 of 76		
Phenol	0.097 to 43	0.33	21 of 76	100	0 of 76
Metals					
Arsenic	2.3 to 56.3	13	8 of 56	16	7 of 56
Barium	45 to1,770	350	4 of 56	350	4 of 56
Chromium	10.6 to 214	30	3 of 56	36	6 of 56
Lead	9.5 to 1920	63	15 of 56	400	4 of 56
Pesticides/PCBs					
Total PCBs	0.089 to 25,000	0.100	140 of 173	1.00	93 of 173

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 Residential Soil Cleanup Objectives.
D – SCG for residential use from CP-51 Supplemental Clean up Guidance

The soil in the area of the former cooperage building #3 is contaminated with VOCs, SVOCs, PCBs, Pesticides and Metals resulting from the cleaning of drums containing these materials. PCB waste in this area was detected at levels above 50 ppm at which PCBs are defined as a characteristic hazardous waste. The outline of the source area is shown in Figure**s** 2 and 3.

Based on the findings of the State funded investigation, the disposal of hazardous waste has resulted in the contamination of soil. The contaminants identified in the source area which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process, are PCBs;, chlorinated compounds (tetrachloroethene, trichloroethene, dichloroethene, vinyl chloride, and chlorobenzene); BTEX; phenolic compounds (phenol and dimethylphenol); hexachlorobenzene; and metals (arsenic, barium, chrome, and lead). The PCB contamination in the soil in OU 3 can be used as a marker for removal of the other contaminants detailed above.

Other than the soil contamination in the source area, soil contamination at the site will be addressed under Operable Unit 1.

Surface Water

Six surface water samples were collected from the Old Champlain Canal, one surface water sample was collected from the area between the canal and Garrett Field, and two surface water samples were collected from the area between the Mohawk Fine Papers, Inc. property and Garrett Field see Figure 5**.** These samples were collected to assess the potential impact from the site. The results indicate that there is no impact from the site to the surface water near Garrett Field or to the surface water in the wetland between Mohawk Papers and Garrett Field. Samples of the surface water in the canal did identify elevated levels of acetone and cis DCE, but not at levels exceeding NYSDEC Class C water standards. Aluminum and Iron were found in the surface water of the canal at levels exceeding Class C water quality standard's, however these metals are naturally occurring in NYS surface water and are not considered site related.

No site-related surface water contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for surface water.

Sediments

The sediment sampling program included collecting 144 sediment samples from the Old Champlain Canal. The samples were collected to assess the potential for impacts from the site to the canal sediments. The results indicate that there is impact to the canal sediments resulting from past operations at the Cooperage are related to the contaminants identified in the waste material and soil on the site. See Figure 5 for sediment sampling locations and Figure 6 for a depiction of impacts to the sediments in the canal adjacent to the site. The most widespread contaminant above action levels in the sediment is PCBs. However numerous other site-related contaminants of concern also exist in the sediments; however, such contaminants are generally co-located with the PCB contamination. For example; in the location where TCE was found at 4,000 ppm, PCBs were also found at 210 ppm, in the location, where lead is found at 1,800 ppm, PCBs were found at 5.8 ppm, and in the locations where the total SVOCs found in the sediments were above 200,000 ppm, PCBs were found at 121 ppm. The PCBs in the sediments are the result of operations at the former cooperage.

Table 4 - Sediments

Detected Constituents	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)	Detected or Frequency Exceeding SCG
VOCs			
Total Xylene	1 to 1,100		6 of 36
Chlorobenzene	1.3 to 8,800		4 of 36
Dichloroethene	0.6 to 3,200		2 of 36
Trichloroethene	4,000	60[c]	1 of 36
Tetrachloroethene	120		1 of 36

Vinyl Chloride	0.3 to 110		2 of 36
SVOCs			
Hexachlorobenzene	0.130 to 170	14[c]	8 of 118
Phenol	0.5 to 72		
Metals			
Arsenic	3.6 to 22.5	6.0 / 33.0	13 of 36
Cadmium	2.5 to 70.6	0.6 / 9.0	5 of 36
Chromium	15.4 to 179	26.0 / 110	27 of 36
Lead	64 to 1,800	31.0 / 110	33 of 36
Pesticides/PCBs			
Total PCBs	0.012 to 5,700	1 ppm	135 of 144

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in sediment;
b - SCG: The Department's "Technical Guidance for Screening Contaminated Sediments."
c – Site Derived Value: calculated based on Total Organic Carbon in the sediment

Based on the findings of the Remedial Investigation, the disposal of hazardous waste has resulted in the contamination of sediment in the canal. The site contaminants that exceed sediment criteria and need to be addressed include PCBs; chlorinated compounds (tetrachloroethene, trichloroethene, dichloroethene, vinyl chloride, and chlorobenzene); BTEX; hexachlorobenzene; and metals (arsenic, barium, chrome, and lead). PCBs as the most wide spread contaminant of concern in the sediment to be addressed by the remedy selection process will define the area to be evaluated for a remedy. PCB contamination in this area can be used as a marker for also addressing the other contaminants of concern.

Soil Vapor Intrusion

Soil Vapor was not evaluated relative to the sediments in the canal.

Exhibit B

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 objectives for this site are:

Public Health Protection

Soil

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of contaminants volatilizing from the soil.

Sediment

- Prevent direct contact with contaminated sediments.
- Prevent sediment contamination which may result in fish advisories.

Environmental Protection

Soil

- Prevent migration of contaminants that would result in groundwater or surface water contamination or recontamination of the sediments in the canal.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Sediment

- Prevent releases of contaminants from sediment that would result in surface water levels in excess of ambient water quality criteria.
- Prevent further migration of contamination in the sediment.
- Prevent impacts to biota from ingestion/direct contact with sediments causing toxicity and impacts from bioaccumulation through marine and aquatic food chain.

Exhibit C

SUMMARY OF THE EVALUATION OF ALTERNATIVES

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. Potential remedial alternatives for the Site were identified, screened and evaluated in the April 2010 focused remedial investigation/feasibility study which is available at the document repositories established for this site.

A summary of the remedial alternatives that were considered for this site is presented below. 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.

Description of Remedial Alternatives

The following alternatives were considered to address the contaminated media identified at the site as described in Section 5:

Alternative 1: No Further Action

The No Further Action Alternative recognizes the remediation of the site completed by the IRM(s) described in Section 5.2. This alternative leaves the site in its present condition and does not provide any additional protection of the environment.

Alternative 2: No Further Action with Site Management

The No Further Action with Site Management Alternative recognizes the remediation of the site completed by the IRM(s) and Site Management and Engineering Controls and Institutional Control is necessary to confirm the effectiveness of the IRM. This alternative maintains engineering controls which were part of the IRM and includes institutional controls, in the form of an environmental easement and site management plan, necessary to protect public health and the environment from the contamination remaining at the site after the IRMs.

Present Worth:.....*$76,000*
Capital Cost:.....*$*
Annual Costs:.....*$5,000*

Alternative 3: Restoration to Pre-Disposal or Unrestricted Conditions

This alternative achieves all of the SCGs discussed in Section 6.1.1 and soil meets the unrestricted soil clean-up objectives (SCOs) listed in Part 375-6.8 (a). This estimate for this alternative would include: excavating and disposing of an estimated 6,375 cubic yards of soil within the site fence down to bedrock (approximately 16 feet deep) to remove the source area and replacing with clean fill; excavating the sediments from the canal adjacent to the site down to bedrock and replacing with clean fill, and excavating and disposing of approximately 13,500 cubic yards of sediment in the canal to the original design depth of 6 feet between O'Conner Drive and Burton Ave. All clean fill will meet the criteria for backfill as established in NYCRR Part 375. The restored canal bed will need to meet the NYS Canal Corporation requirements to retain the hydraulic integrityof the canal, i.e. to retain water within the canal and transmit water within the canal. Removing the soil and sediment in this manner would remove all soil contamination to pre-disposal levels.

3 Capital Cost:.....***$14,170,000***

Alternative 4: Excavation of contaminated sediments in the canal and source area onsite

This alternative achieves all of the SCGs discussed in Section 6.1.1 and would establish a clean up goal for the sediments in the canal of 1 part per million (ppm) PCBs. This alternative would include excavating the sediment in the canal between O'Conner Drive and Burton Ave to achieve the 1 ppm cleanup goal. The estimate is based on; excavating and disposing of the soil and sediments from the canal adjacent to the site down to bedrock and replacing with clean fill, excavating and disposing of approximately 13,500 cubic yards of sediment from the canal to an average excavation depth of 2 feet between O'Conner Drive and Burton Ave, and excavating and disposing of an estimated 2,800 cubic yards of soil from the source area to bedrock (approximately 16 feet deep) and replacing with clean fill. All clean fill will meet the criteria for backfill as established in NYCRR Part 375. The restored canal bed will need to meet the NYS Canal Corporation requirements to retain the hydraulic integrity of the canal, i.e. to retain and transmit water within the canal. Removing the soil and sediment in this manner would remove the sediment contamination to 1 ppm PCB and prevent the recontamination of the sediment by removing the source of the contamination from the site.

Present Worth:.....*$7,380,000*
Capital Cost:.....*$7,303,000*
Annual Costs:.....*$5,000*

Alternative 5: Capping the contamination on the site and in the canal

This alternative does not achieve all of the SCGs in section 6.1.1. This alternative would involve installing an impermeable cap over the sediments in the canal to prevent further distribution of and direct contact with the contamination in the canal. This alternative would also include removing and disposing of 2 feet of soil over the source area and installing an impermeable cap

and placing clean fill on top of the cap. The estimate is based on construction of an impermeable cap in the canal bed between O'Conner Drive and Burton Ave.

Present Worth:.....*$1,299,700*
Capital Cost:.....*$920,700*
Annual Costs:.....*$25,000*

Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which sets forth the requirements for the remediation of inactive hazardous waste disposal sites in New York. A detailed discussion of the evaluation criteria and comparative analysis is included in the feasibility study.

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

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

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

The next 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.

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.

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.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with

potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

7. Cost-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 for each alternative are presented in the Remedial Alternatives Cost Table 1.

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.

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.

Exhibit D

Table 1
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
No Action	0	0	0
No Action with ICs		5,000	76,000
Restoration to pre-disposal	14,170,000	0	14,170,000
Excavation of canal sediments and soil in the source area	7,303,000	5,000	7,380,000
Capping the contaminated sediments and source area	920,700	25,000	1,299,700

Exhibit E

SUMMARY OF THE SELECTED REMEDY

The Department has selected Alternative 4, Excavation of contaminated sediments in the canal and source area onsite, as the remedy for this site as the most effective and complete alternative. The elements of this remedy are described at the end of this section. The elements of this remedy are described in Section 7.2. The area of the proposed remedy is depicted in Figure 7.

Basis for Selection

The proposed remedy is based on the results of the state funded investigation and the evaluation of alternatives.

Protection of Human Health and the Environment

Alternatives 1 and 2 which each involve No Action, would not be protective of human health or the environment since neither would achieve the remediation goals described in Exhibit B.

Alternatives 3 would be protective of human health and the environment.

Alternatives 4 will be protective of human health and the environment

Alternatives 4 will remove all sediment above 1ppm PCBs outside the current site fence.

Alternative 5 would be partially protective of the human health and the environment. Capping the sediment would prevent further migration of the contamination in the sediment and prevent direct contact with the contaminated sediment.

Compliance with New York State Standards, Criteria, and Guidance (SCGs)

For the soil removal the 6CNYRR Part 375 soil cleanup goals will be used to evaluate the remedies. For the sediment removal, the SCG will be 1 ppm PCB in the sediment and the sediment criteria for the other compounds, hence forth the 1 ppm PCB criteria will be used to define the remedy ni this evaluation.

Alternatives 1 and 2 which each involve No Action, would not achieve the SCGs.

Alternative 3 would meet and exceed the SCGs. Alternative 3 would achieve a removal of soil to the unrestricted clean up goals published in 6CNYRR Part 375.

Alternative 4 will meet the SCGs. Alternative 4 will achieve the 1ppm goal for PCBs in sediment and will remove all of the hazardous waste in the source area.

Alternative 5 would not achieve the 1 ppm goal for PCBs in the sediment. Alternative 5 would also not achieve the source removal goals of the remedial program. Soil and sediments containing PCBs of greater than 50 ppm would remain under alternative 5.

The groundwater soil clean up objectives do not apply for this remedy. The groundwater standard contravention is the result of an onsite source which is addressed by the removal action. The source of the groundwater contamination is the high levels of soil contamination within the source area. Groundwater contamination is found downgradient of this location. Groundwater downgradient of other locations is not contaminated. The soil in this area will be removed to bedrock thereby removing the onsite source of the groundwater contamination. The Department finds removal of the onsite source to be consistent with the goal of protecting groundwater.

Short-term Effectiveness

The no action alternatives would not have any short term impacts on the community or on-site workers since no active remediation would take place under this alternative. However, the no action alternative would not achieve the remediation goals described in Exhibit B, since the site condition would basically remain unchanged and contaminant reductions, if any, would rely solely on natural attenuation/degradation to achieve those goals.

Alternatives 3, 4 and 5 would present certain risks to the community and the workers which would need to be considered during the design of the remedy. These risks include odors created when the contaminated soil and/or sediment is excavated. Workers may be protected by careful planning and personal protective equipment. Engineering controls would be needed to protect the community. The engineering controls could include fencing, a structure or enclosure, application of odor control products, and scheduling of excavation work for colder weather to limit generation of odors.

The sediment removal could have an impact on the canal resulting from possible migration of contaminants during excavation. Alternative 3 and 4 will control the migration of contamination by constructing an engineered barrier and design consideration for engineered control of the water in the excavation.

All soil and sediment excavation and removal will involve hauling the material in trucks. This will have an impact on the community and the traffic on Saratoga Ave. All containers hauling materials will be covered. Careful coordination of schedules will need to take place to minimize the impact of trucking materials on the traffic on Saratoga Ave.

Alternative 5 would be effective in the short term in preventing direct contact with contaminated sediments.

Alternative 5 would prevent infiltration of surface water into the source area and mitigate some migration of contamination.

Long-term Effectiveness and Permanence

The no action alternatives would not be effective in the long term at minimizing the risks to human health or the environment, since those risks would continue to be unacceptable to public health and/or the environment.

Alternative 3, would achieve long term effectiveness by removal of the contamination. When completed the alternative would eliminate the significant threat created by the soil and sediment contamination.

Alternative 4 will achieve long term effectiveness by removal of the contamination. When completed the alternative will eliminate the significant threat created by the soil and sediment contamination.

Alternative 5 would not achieve long term effectiveness. Capping the sediments would prevent direct contact with the contamination, but would not prevent the contamination from migrating to the groundwater.

Alternative 5 would not prevent the migration of contamination from the source area to the groundwater, the wastes are in contact with groundwater.

Alternative 5 would require long term maintenance of the cap in the canal and would prevent the NYS Canal Corp from making any future improvements to the canal.

Reduction of Toxicity, Mobility or Volume

The no action alternatives would not reduce the toxicity, mobility, or volume of the wastes at the site.

Alternative 3 would remove the contamination to achieve the SCG of 1 ppm PCB in the sediment. Removal of the PCB contaminated sediment will also remove other contamination from the canal. Removal of the contamination from the canal would prevent migration of contamination from the canal to the groundwater.

Alternative 4 will remove the contamination to achieve the SCG of 1 ppm PCB in the sediment. Removal of the PCB contaminated sediments will also remove other contamination from the canal. Removal of the contamination from the canal would prevent migration of contamination from the canal to the groundwater.

Alternative 3 would remove the contaminated soil and hazardous waste from the source area. With removal of the source area associated with former building 3, which has been found to contain LNAPL and DNAPL, the mobility of the contaminants will be reduced or eliminated.

Alternative 4 will remove the contaminated soil and hazardous waste from the source area. With removal of the source area associated with former building 3, which has been found to contain LNAPL and DNAPL, the mobility of the contaminants will be reduced or eliminated.

Alternative 3 would remove all of the contaminated soil from the site and achieve the unrestricted use clean up goal.

For Alternative 3, with the removal of the soil contamination the possibility of soil vapor intrusion within the site (operable unit 01) would be reduced.

For Alternative 4, with the removal of the soil contamination the possibility of soil vapor intrusion within the site (operable unit 01) will be reduced.

Alternative 5 would not prevent the migration of contamination from the canal sediments to the groundwater.

Implementability

The no action alternatives would be the easiest to implement since no active remedial measures would be taken.

Alternatives 3 and 4 are of similar implementability. Each Alternative involves similar construction efforts.

Alternative 3 is not as implementable as Alternative 4. Alternative 3 involves excavating a larger area on a small site, creating space and operating issues. Excavation necessary during Alternative 3 would also impact the structural integrity of Saratoga Avenue and would require the design and implementation of additional engineering controls to mitigate the impact on Saratoga Ave.

Alternative 5 is easy to implement. Construction of a cap over the contaminated sediment would be similar to the excavation efforts without the considerations for disposal of materials or the impacts of hauling materials away.

All work in and along the Old Champlain Canal would involve coordination with the New York State Canal Corporation, the owner of the Old Champlain Canal.

Cost-Effectiveness

The no action alternative would be the least expensive to implement since there would be no cost or minimal cost associated with its implementation.

Alternative 3 is the most expensive alternative at over 14 million dollars.

The cost of Alternative 4, is 7.38 million dollars.

Alternative 5 is the least expensive of the action alternatives at 1.3 million dollars, but would not be considered due to the lack of long term permanence and hazardous waste left remaining.

Land Use

The site currently zoned residential.

Community Acceptance

We hope for Acceptance by the Community and eagerly await the public meeting to discuss the options with the community.

APPENDIX A

Responsiveness Summary
RESPONSIVENESS SUMMARY

Friedrichsohn Cooperage
Operable Unit No. 3
State Superfund Project
Waterford, New York
Site No. 546045

The Proposed Remedial Action Plan (PRAP) for the Friedrichsohn Cooperage site, was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 28, 2011. The PRAP outlined the remedial measure proposed for the contaminated soil and sediment at the Friedrichsohn Cooperage site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on March 16, 2011, which included a presentation of the remedial investigation feasibility study (RI/FS) for the Friedrichsohn Cooperage as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on March 30, 2011.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

COMMENT 1: We were confused by the list-serve website, there are many listings and we could not identify what we wanted to sign up for.

RESPONSE 1: Following is the link to the Saratoga County Listserv - http://lists.dec.state.ny.us/mailman/listinfo/saratogacountycleanupnews. As a member of this electronic list, DEC will periodically send you site-related information/announcements for all contaminated sites in the county. The Department’s project manager can assist you in signing up if you continue to have any difficulty.

COMMENT 2: We have had problems signing up for list-serve. We can find the site, but cannot sign up.

RESPONSE 2: See Response #1. If a problem persists, feel free to call the project manager and he will assist you in signing up or email derweb@gw.dec.state.ny.us.

COMMENT 3: Will this work take place next fall?

RESPONSE 3: The plan is to perform this work during the winter when the canal is not in operation and this section could be drained. The goal is to conduct the work in the winter of 2011/2012 or 2012/2013.

COMMENT 4: Is the money approved to spend on the remediation?

RESPONSE 4: After the ROD is issued, the Department will pursue potentially responsible parties to secure a commitment for the work to be performed by one or more parties responsible under law. If that effort is unsuccessful, the Department will review funding at that time.

COMMENT 5: How much of the canal bank will be taken when the sediments are removed? I live in the last house on the big basin and I am concerned by the drawing showing the area to be removed**.**

RESPONSE 5: The drawing was only intended to outline the area to be worked in. The selected remedy will remove the sediments only, not portions of the bank near off-site properties and will only remove the canal bank on the Friedrichsohn Cooperage property.

COMMENT 6: Could you explain how the State determined the limits of the area to be excavated in the canal?

RESPONSE 6: The limits of excavation in the canal were selected based on the sediment sample results in the canal. There are very high levels of contaminated sediment adjacent to the site. At the north and south boundaries of the site the levels of PCBs, which is used as a marker in delineating the extent of contamination, drop to less than 20 ppm and then trend down to 1 ppm closer to the bridges. The Department delineated the area (which is OU-3) in part based on where the 1 ppm level of PCB was found and in part based on the visible landmarks represented by the bridges. We will be working in the canal in the area between O'Conner Drive and Burton Avenue. The exact area of excavation will be determined during the remedial design.

COMMENT 7: How was the 1 ppm clean up goal established?

RESPONSE 7: The Department has used 1ppm as a sediment cleanup at many sediment sites (e.g., Cumberland Bay, Arthur Kill Generating Station, Crouse-Hinds Landfills). This cleanup level is protective of public health and the environment.

COMMENT 8: Are there any studies about the Health Impacts from the site?

RESPONSE 8: There have been no studies about the health impacts and none are planned. An evaluation of the potential exposure scenarios to site related contamination is presented in section

6.3 of the PRAP.

COMMENT 9: Can you tell us where the residential and off-site areas were remediated?

RESPONSE 9: There will be a public meeting in April or May to discuss these topics.

COMMENT 10: Can you tell us the health effects posed by the chemicals at the site?

RESPONSE 10: The New York State Department of Health (DOH) has chemical specific fact sheets available for many of the chemicals found at the site. The fact sheets contain information about the chemical, its use, and toxicology information. For further information on where to find these fact sheets, contact the DOH project manager, Mr. Nathan Freeman at 518-402-7860 or ntf01@health.state.ny.us.

In addition, the Agency for Toxic Substances and Disease Registry provides information about specific chemicals on their public website. This information can be found at: http://www.atsdr.cdc.gov/toxfaqs/indes.asp.

COMMENT 11: What about the residences south of the site on Saratoga Ave? (Are there any exposures there?

RESPONSE 11: The DOH has evaluated the residences adjacent to the site on both sides of Saratoga Ave to the south of the site. No issues were identified and there are no plans to investigate beyond the area investigated to date.

COMMENT 12: It has been 18 years since the site was found. I live close to the site. Is the soil around the residences safe**?**

RESPONSE 12: Site related contamination was found in soil and was removed from four off-site residential properties during the fall of 2010. Site related contamination was not found to exist beyond the properties that have already been addressed. The results of this work will be presented in the future relative to the PRAP for OU-1. With the exception of one property discussed below, the potential for exposure to site related contaminates in off-site residential soil has been addressed.

During the off-site soil removal conducted in the fall of 2010, the confirmation samples collected at the completion of the excavation indicated that levels above residential SCOs remained. The Department will be returning to that property in the spring of 2011 to fully assess the area and take appropriate action.

COMMENT 13: You said there was no impact to the canal water**.**

RESPONSE 13: Correct. The RI tested the water in the canal and did not find any contaminants exceeding the surface water standardsThe sediment in the canal is impacted and will be remediated.

COMMENT 14: I am concerned that the contamination will migrate during remediation.

Nobody is exposed now, so why not leave it there?

RESPONSE 14: A permanent remedy is necessary to address the contamination in the canal. A community health and safety plan will be developed during the remedial design; wich plan will include measures to address concerns relative to migration of contaminants or exposures to the surrounding community.

COMMENT 15: How will you keep us safe from air-borne contamination during the remediation?

RESPONSE 15: See Response #14. As part of the community health and safety plan, there will be monitoring and controls to prevent exposure to the chemicals (air-borne and otherwise). A key component of which is the Community Air Monitoring Program that will be implemented during all remedial activities that have the potential to release contaminants to air. This monitoring program will require continuous monitoring for volatile organic compounds (vapors) and particulates (dust), to ensure the work is performed within the established action levels so that work activities do not spread contamination off-site and is done in a manner protective of public health.

COMMENT 16: You know this has a direct impact on the property values of the homes in the area?

RESPONSE 16: Comment noted.

COMMENT 17: Are you expanding the sampling area, west of Saratoga Avenue?

RESPONSE 17: No, the investigation results do not indicate that sampling west of Saratoga Avenue is warranted.

COMMENT 18: What are the hoses on the bank of the canal now?

RESPONSE 18: The Department is collecting more data on the sediments in the canal by lowering the water in the canal to make the sampling effort as efficient as possible. The pumps in the canal and the hoses running on the path near Burton Ave. are part of this effort.

COMMENT 19: How long will the hoses be there? We will be bringing 1200 fourth graders out on the canal walk in June.

RESPONSE 19: The hoses will be removed by April 15. We need to be out of the canal before the Canal Corp opens for the spring.

COMMENT 20: Where will you be dredging from?

RESPONSE 20: The remedy will be removing sediment from the area between Burton Ave. and O'Conner Drive based on where the levels of PCB in the sediment are greater than 1 ppm.

COMMENT 21: What time of year will this clean-up work take place?

RESPONSE 21: During the winter months from mid November to mid April when the Barge Canal is not in operation and this portion of the Old Champlain Canal can be drained.

COMMENT 22: We do clean up along the canal. Is it safe to come in contact with the water?

RESPONSE 22: Site related contaminants were not found in the surface water of the canal, therefore coming in contact with the surface water should not represent an exposure concern. Also see Response # 13.

COMMENT 23: Have you been in contact with the Canal Corp.?

RESPONSE 23: Yes, we have been working with the Canal Corp and will continue to do so throughout the project.

COMMENT 24: Aesthetically, what will improve if this project is completed?

RESPONSE 24: When the project is complete, in addition to the contamination being removed, the debris which has collected in the canal between O'Conner Drive and Burton Ave will be removed. The downed trees will also be removed.

COMMENT 25: What if all of the contamination cannot be removed?

RESPONSE 25: The plan is to remove the PCB contamination over 1ppm. By doing so, other contaminants which are co-located with the PCBs will also be removed.

COMMENT 26: Wouldn't it be nice if there was a biological way to attack the PCBs.

RESPONSE 26: No reliable methods have been identified despite significant research.

COMMENT 27: Where will the contamination be sent to?

RESPONSE 27: The disposal location will be determined during the remdial design. However, the Department approved plan will include disposal at one or more facilities permitted to receive the contamination.

COMMENT 28: Do you know the specific facility?

RESPONSE 28: See Response #27.

COMMENT 29: Will it be in New York?

RESPONSE 29: See Response #27.

COMMENT 30: Can I get a copy of this presentation**?**

RESPONSE 30: Yes.

COMMENT 31: When will the next meeting be?

RESPONSE 31: See Response #9.

A letter dated March 28, 2011 from Mr. John Uruskyj of the General Electric Company was received which provided the following comments:

COMMENT 32: The selected remedial alternative in the Proposed Remedial Action Plan (PRAP) was developed in a manner that was not fully consistent with the National Contingency Plan (NCP), 6 NYCRR Part 375 as well as Department guidance.

RESPONSE 32: The Department believes the remedy selection process for this operable unit of the Friedrichsohn Cooperage site is not inconsistent with the NCP in that alternatives were developed, screened and evaluated against the evaluation criteria identified by the NCP in a Feasibility Study (FS). In its review of the FS and preparation of the PRAP, the Department as provided for in 6NYCCR375-2.8(c)(4)ii determined it necessary to develop an alternative in addition to those presented in the PRAP. Accordingly the Department's selected remedy utilized the FS alternatives to address an expanded area of the Canal in a similar manner to the FS developed alternatives.

Further the April 2010 RI/FS considered a wide variety of remedial alternatives to address the sites impacts on the Champlain Canal and bank area. These preliminary alternatives are discussed in Section 4 of the Feasibility Study, Preliminary Screening of Remedial Technologies and, in addition to the alternatives presented in the PRAP, included In-Situ Treatment Technologies, Barrier/Containment Technologies, and Extraction/Ex-situ Technologies. Each of the techniques evaluated under these general technologies could be applied to address some portion of the contamination resulting from operations at the cooperage. For example, Air Sparge/Soil Vapor Extraction could be successful in addressing the volatile organic contamination in the soil and the groundwater, but would not successfully address the LNAPL, DNAPL, metals or PCBs. Permeable reactive barriers could be successful in addressing a targeted contaminant, but would not address all contamination (VOCs, SVOCs, PCBs. Pesticides and metals) known to result from operations at the cooperage. A detailed evaluation in the FS of such alternatives identified that several would not be successful at addressing all contaminants present given their comingled distribution and inclusion of these alternatives the final FS evaluation was determined to be unwarranted.

COMMENT 33: The relationship between the alternatives considered in the Focused RI/FS and the PRAP are unclear.

RESPONSE 33: The difference in the alternatives between the FS and PRAP is primarily in the volume of canal sediments to be removed, which is a result of the change in the area of the canal to be addressed from the FS to the PRAP. The FS evaluated addressing a limited portion of the canal sediments in comparison with the area proposed in the PRAP. The Department received a comment to the proposal in the FS from the community at a Town Board Meeting which questioned why the

Department was proposing to address one portion of the contaminated sediments in the canal and then return in the future to address the remainder of the contaminated sediments, why not address all of the sediments in one decision. The comment resulted in the the Department increasing the area of sediment to be addressed by the PRAP.

Data gathered subsequent to the publication of the FS has been considered in preparation of the PRAP and is available upon request.

COMMENT 34: Why were the SCOs used to define impacted sediment in the Focused RI/FS Report while the Sediment Screening Criteria were used in the PSA and referenced in the PRAP?

RESPONSE 34: As pointed out in this comment, the SCOs (soil cleanup objectives) are not the appropriate standards, criteria or guidance (SCG) to address the impacts to the sediment. Rather the sediment criteria cited by this comment and included in the PRAP/ROD are the correct SCGs. See also Response #6.

COMMENT 35: A review of the sediment data in the Focused RI indicates that the concentration of SVOCs exceed the commercial SCOs. Therefore, shouldn't SVOCs also be identified as Contaminants of Concern (COCs) in affected media?

RESPONSE 35: The ROD includes phenol and hexachlorobenzene, both SVOCs an both associated with cooperage operations, in the list of identified sediment COCs. Also as noted in Response 34 above, the commercial SCOs are not the proper SCG for sediment.

COMMENT 36 The PRAP (section 6.1.2) identifies a variety of organic compounds (chlorinated and non-chlorinated compounds, phenolics), metals along with polychlorinated biphenyl (PCB) aroclors as exceeding standards, criteria and guidance (SCGs) and defines them COCs. These compounds were noted in what was described as a soil source area and in canal sediments. Please confirm that the remedial program is intended to address all of these contaminants of concern in the source area and the sediment.

RESPONSE 36: Additional language has been included in the ROD to make it clear that the site contaminants that exceed sediment criteria will be addressed by the remedy. These include in addition to PCBs; chlorinated volatile organic compounds (tetrachloroethene, trichloroethene, dichloroethene, vinyl chloride, and chlorobenzene); BTEX; the SVOCs hexachlorobenzene and phenol; and metals (arsenic, barium, chrome, and lead). PCBs as the most wide spread contaminant of concern in the sediment to be addressed by the remedy selection process will define the area to be addressed by the remedy. PCB contamination in the sediments, however, can be used as a marker for also addressing the other COCs. This clarification has been made in the ROD.

COMMENT 37: The absence of quality control and quality assurance documentation in the Focused RI/FS, including but not limited to a Data Usability Report, raises questions of uncertainty regarding the accuracy and precision of the information being relied upon to propose a remedial action in the PRAP.

RESPONSE 37: All of the data used to evaluate the proposed alternatives (as identified by the Administrative Record in Appendix B) has been validated, and applicable data usability summary

reports (DUSRs) prepared. The DUSRs and data validation supporting documentation was not directly included in the RI/FS in accordance with DER-10, but is available upon request in accordance with FOIL.

COMMENT 38: Why is the cleanup goal of 1 ppm for PCBs in canal sediment lower than the location specific cleanup levels for PCBs calculated in the PSA Report?

RESPONSE 38: See Response #7. Also, it is noted that a Preliminary Site Assessment does not result in the selection of cleanup levels. The PSA is an evaluation to determine if more investigation is needed at a site. Further, the use of 1 ppm as a PCB sediment value is routinely applied to define the area of impacted sediments requiring action in the Department's remedial programs. In addition further delineation of the sediments as part of the remedial design is planned. This sampling will allow further consideration of the areal extent of the sediments to be removed. The language in the ROD reflects these changes from the PRAP.

COMMENT 39: The absence of vertical delineation in the sediment will likely cause a significant increase in the quantity of sediment removed and trucked off-site under a dredging alternative. Hence, this could significantly change the project schedule, duration, short term impacts (e.g., air monitoring, construction traffic, carbon emissions, etc.) as well as overall project cost. The PRAP was therefore unable to reliably compare factors such as cost across the remedial alternative spectrum.

RESPONSE 39: Further vertical delineation of the sediments will be part of the pre-design evaluation and this is reflected in the ROD. It is true that this may change the overall quantities and time frames. However, all alternatives presented in the PRAP were evaluated using the same estimated quantities. Therefore, the comparison of costs is still valid. Further, it is noted that the NCP acknowledges that FS cost estimates are only within a range of -30% to +50%.

COMMENT 40: Given the likelihood of increased sediment removal, the preferred remedy for the site should include a combination of methods that ensure focused removal of more highly contaminated material and engineering controls that will achieve protection of human health and the environment.

RESPONSE 40: The Department disagrees. Capping of canal sediment was evaluated in the PRAP despite being screened out during the FS. In addition to engineering concerns with capping generally (e.g., effectiveness long term due to cap erosion, disruption or contaminant migration through the cap), capping of the canal sediments would decrease the functional use of the canal. The NYS Canal Corporation uses the Old Champlain Canal throughout the operational season of the Barge Canal. The Department is working closely with the NYS Canal Corp. to ensure that the remedial efforts have only a minimal if any impact on operation of the canal. See Response #s: 47, 48, and 49.

COMMENT 41: Careful planning and design should be undertaken with implementation of any sediment dredging alternative to ensure its overall effectiveness.

RESPONSE 41: The design will gather the additional information identified by this commenter. The Friedrichsohn Cooperage site is a complex project with a small area to work in.

Accordingly, it is agreed that careful design and planning are imperative to a successful outcome.

COMMENT 42: The implementation of the OU3 remedial program should be scheduled to dovetail with any soil removal activities that may be required under the OU1 remedy so that the source soils, involving a wide variety of contaminants of concern, do not recontaminate the OU3 area. What is the expected schedule for PRAPs to be issued for these OU-1 and OU-2?

RESPONSE 42: An efficient schedule would be to implement operations relative to OU-1 and OU-3 together. However, while this is a goal of the program due to the proximity of the OU1 and OU3 areas, it is not a necessity. For OU2, however, it is beneficial to address the source of the groundwater contamination from OU1 and OU3 prior to addressing OU2. The OU2 remedy will benefit from a degree of separation in time from the source areas control efforts to be implemented by OUs1 and 3. The proposed plan for OU-1 is expected later in 2011. The investigation related to OU-2 is underway and a proposed plan for OU-2 will be issued when sufficient data has been obtained and remedial options evaluated.

COMMENT 43: The statement in the PRAP that the Potential Responsible Parties (PRPs), "…declined to implement a remedial program when requested by the Department" is not accurate with respect to GE. Additionally, the PRAP fails to mention all the companies that used the site for drum cleaning and recycling and, as a result, are also PRPs.

RESPONSE 43: The Enforcement History section of the ROD reflects the full list of PRPs that reimbursed the United States Environmental Protection Agency for its 1994 through 1996 removal action. This is a change from the PRAP.

A letter dated March 28, 2011 was submitted by Mr. Keith Cowan of Clough Harbor Associates on behalf of Schenectady International Clough Harbor Associates, Co., which provide the following comments:

COMMENT 44: The PRAP states that the potential remedial alternatives for OU 03 were identified, screened and evaluated in the April 2010 Feasibility Study (FS). Based on our review of the Feasibility Study, the proposed remedy that has been presented in the PRAP is not consistent with the identification, screening or evaluation of alternatives presented in the Feasibility Study. Typically, a FS is finalized to include a detailed screening of alternatives that will form the basis of the proposed remedy. It is also understood that the selected remedy can be based on a combination of alternatives presented in a FS. However, even though the PRAP for Operable Unit 03 references the FS, the PRAP does not consider the varying dredging technologies that were identified and screened in the FS. In addition, the FS introduces new technologies (e.g. capping the sediments in place), which were not screened and evaluated in detail within the FS. Based on a review of available information, it appears that the FS was incomplete or inadequate prior to developing the PRAP.

RESPONSE 44: See Response #32.

COMMENT 45: There is no detailed summary of remedial construction capital cost presented in the PRAP. Based on our review of the FS, the estimated capital costs are expected to be on the

order of $3.4 to $3.6 million, which are based on detailed estimates which are included in the FS. The PRAP indicates that the selected remedial alternative will cost in excess of $7.0 million with no justification or basis for the difference in the estimated cost presented in the FS.

RESPONSE 45: The comment correctly points out a difference between the cost of the selected alternative in the PRAP and Alternative #6 in the FS. The area selected for remediation in the proposed alternative in the PRAP is larger and involves a greater volume of contaminated sediments than the area of the Alternative 6 in the FS. As such the cost is greater for the proposal in the PRAP. Also see Response #33.

COMMENT 46: We understand the Department's desire to expedite the remediation activities at the Friedrichsohn Cooperage Site; however, we believe that considering the magnitude of the remedial costs, the FS should be updated to include a review of the additional technologies presented in the PRAP prior to selecting a remedy. Not only is the PRAP inconsistent with the FS, the FS does not provide an evaluation of any active remedial alternatives other than dredging of the canal and excavation of onsite source soils. Considering the cost of excavation and its intrusive nature on the community, the evaluation of additional alternatives (e.g. in-situ technologies) appear to be warranted for this site.

RESPONSE 46: See Response #32.

A letter dated March 30, 2011 was submitted by Mr. Joseph Moloughney of the New York State Canal Corporation, which provided the following comments:

COMMENT 47: The Canal Corporation supports DECs proposed plan to remove PCB contamination from the Old Champlain Canal. The contamination was not caused by the Canal Corporation and the Canal Corporation supports DECs efforts to restore the site to pre-release conditions under the State Superfund Program.

RESPONSE 47: Comment noted.

COMMENT 48: The DEC should ensure that excavation in the canal does not compromise the integrity of the canal bed and its ability to retain water. Any actions that disrupt the water-tightness of the canal should be repaired during the remedial action. The Canal Corporation should be consulted during the design and remedial construction to ensure the canal bed and embankments are not adversely affected.

RESPONSE 48: The language in the ROD reflects that the hydraulic integrity of the canal must be maintained, i.e. the canal must transmit water and the canal must retain water. The DEC will work with the Canal Corporation to ensure that the hydraulic integrity of the canal is maintained.

COMMENT 49: Implementing the remedy will have a beneficial effect on operation of the modern barge canal, as this location is part of a surge pool between Locks E-2 and E-3 on the Erie Canal. For this reason, it is important that no backfill be placed in the canal above the original design depth. Any placement of backfill other than restoring or ensuring the water-tightness of the original canal bed and embankment would constitute the filling of a hydraulic control structure and

must be avoided.

RESPONSE 49: Text has been added to the ROD to clarify that no backfill should be placed above the original design depth, other than if necessary to restore or ensure the water-tightness of the canal.

APPENDIX B

Administrative Record

Administrative Record

Friedrichsohn Cooperage
Operable Unit No. 3
State Superfund Project
Waterford, Saratoga County, New York
Site No. 546045

Proposed Remedial Action Plan for the Friedrichsohn Cooperage site, Operable Unit No. 3, dated February 2011, prepared by the Department.

Referral Memorandum dated January 2, 2011 for implementation of a State funded Remedial Program including a Remedial Investigation/Feasibility Study and if necessary, Interim Remedial Measures or Remedial Actions.

Report.hw546045.2008-10-27. Preliminary Site Assessment Volume I

Report.hw546045.2040-04-16. Focused Remedial Investigation Feasibility Study

February 2011 Sediment Data Submission

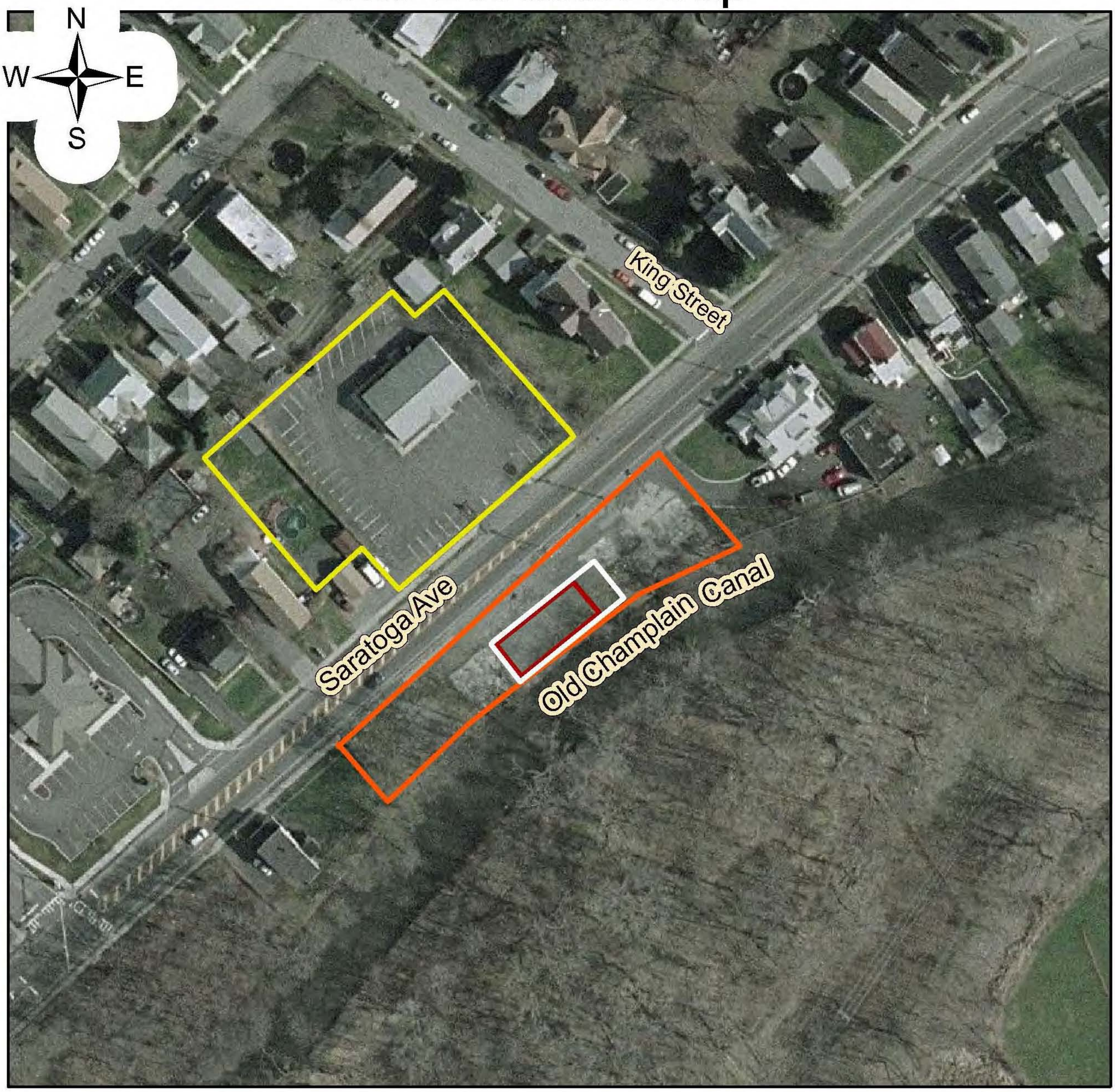
February 2011 Subsurface Soil Data Submission

Letter dated March 28, 2011 from John Uruskyj, General Electric Company

Letter dated March 28, 2011 from Keith Cowan, Clough Harbor Associates

Letter dated March 30, 2011 from Joseph Moloughney, NYS Canal Corporation

Site Location Map



Site Address: 153 - 155 Saratoga Ave

Site Size: 0.45 Acres

Site ID: 546045

Orange Line = Site Boundary

Yellow Line = Barrell Yard

White Line = Cooperage Building #3

Red Line = Excavation by the USEPA

0 30 60 120 180 240 300 Feet

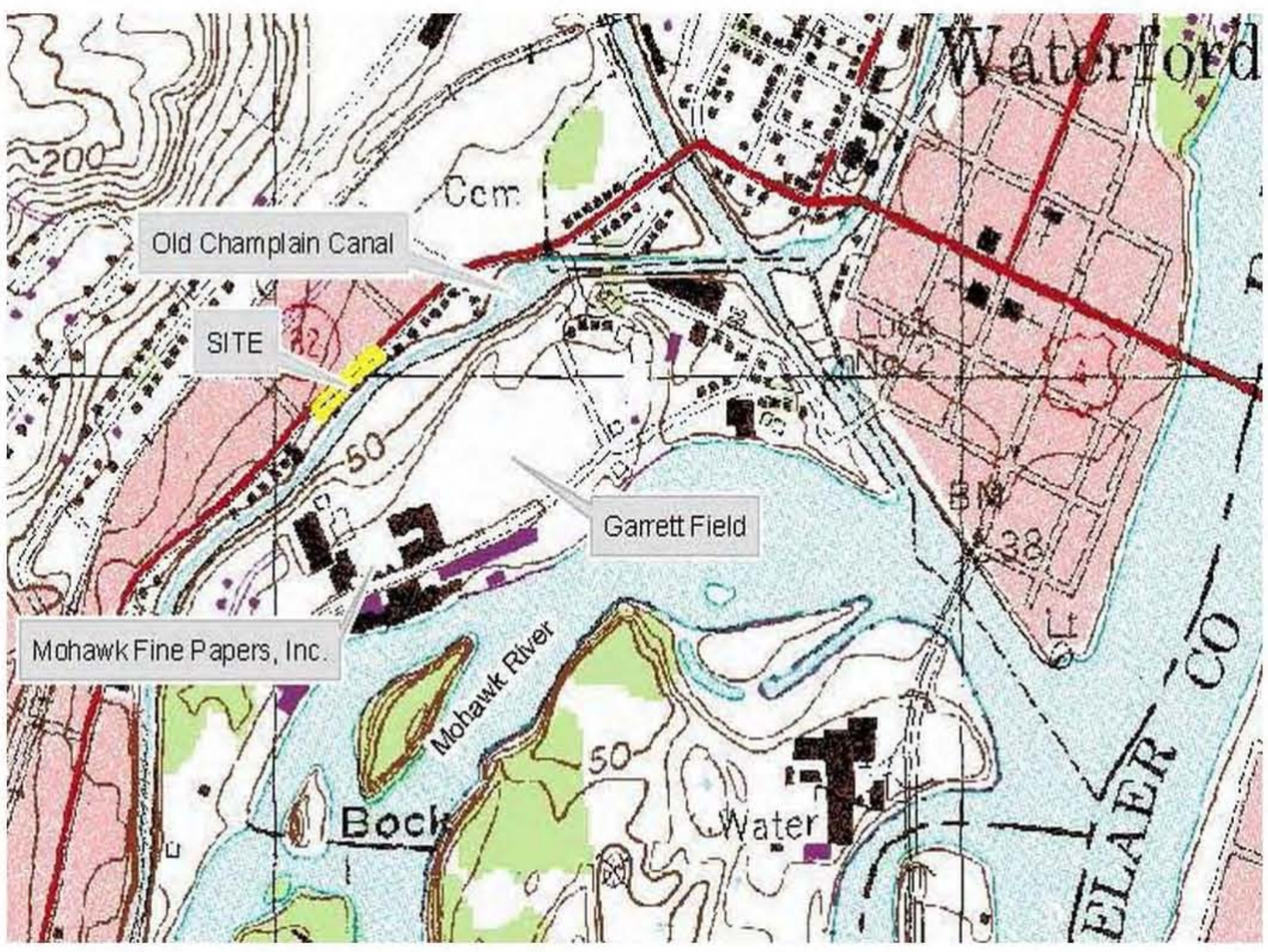


Figure 1

Basemap Source: High Resolution Orthoimagery, 2007, GIS Clearinghouse

MALCOLM PIRNIE

NYS Department of Environmental Conservation

FRIEDRICHSOHN COOPERAGE SITE #5-46-045
TOWN OF WATERFORD, SARATOGA COUNTY, NEW YORK

OU-3 IMPACTED SEDIMENTS IN THE CANAL AND SOURCE AREA ON-SITE

FEBRUARY 2011

FIGURE 2

\\Albany\m\GIS\MOD\0266382\0266382\Canal_Extent_Bridge_to_Bridge.mxd

Basemap Source: High Resolution Orthoimagery, 2007, Orthoimagery

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NYS Department of Environmental Conservation
FRIEDRICHSOHN COOPERAGE SITE # 5-46-045
TOWN OF WATERFORD, SARATOGA COUNTY, NY

DIRECT-PUSH SOIL BORING SAMPLING LOCATIONS

FEBRUARY 2011

FIGURE 3

\\Albany\m\GISMOD\0266382\0266382\SoilBorings_onsite.mxd

Basemap Source: High Resolution Orthoimagery, 2007, GIS Clearinghouse.

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FRIEDRICHSOHN COOPERAGE SITE # 5-46-045
APPROXIMATE WELL LOCATIONS

FEBRUARY 2011

FIGURE 4

\\Albany\m\GISMOD\0266382\0266382\Wells.mxd

Basemap Source: High Resolution Orthoimagery, 2007, GIS Clearinghouse

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FRIEDRICHSOHN COOPERAGE SITE #5-46-045
TOWN OF WATERFORD, SARATOGA COUNTY, NEW YORK

SURFACE WATER AND SEDIMENT SAMPLING LOCATIONS

FEBRUARY 2011

FIGURE 5

\\Albany\m\GIS\MOD\0266382\0266382\Sediment&SW_Samples.mxd

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FRIEDRICHSOHN COOPERAGE SITE #5-46-045
TOWN OF WATERFORD, SARATOGA COUNTY, NY

SEDIMENT SAMPLE LOCATIONS

FEBRUARY 2011

FIGURE 6

H:\PROJECT\0266382\FILE\Field Activities\Sediment\Near-site Sediment Data.ppt

Basemap Source: High Resolution Orthoimagery, 2007, GIS Clearinghouse

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FRIEDRICHSOHN COOPERAGE SITE #5-46-045
TOWN OF WATERFORD, SARATOGA COUNTY, NEW YORK

ALTERNATIVE #4, AREA OF THE SELECTED REMEDY

FEBRUARY 2011

FIGURE 7

\\Albany\m\GIS\MOD\0266382\0266382\Alternative 4 Area of the selected Remedy.mxd