RECORD OF DECISION

Lower Ley Creek Subsite
of the Onondaga Lake Superfund Site
City of Syracuse/Town of Salina, Onondaga County, New York

United States Environmental Protection Agency
Region II
New York, New York
September 2014

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Lower Ley Creek Subsite of the Onondaga Lake Superfund Site
Syracuse/Salina, Onondaga County, New York

Superfund Site Identification Number: NYD986913580
Operable Unit: 25

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) documents the U.S. Environmental Protection Agency's selection of a remedy for the Lower Ley Creek subsite (Subsite) of the Onondaga Lake Superfund site, chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 9601-9675, and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300 (NCP). This decision document explains the factual and legal basis for selecting a remedy to address the contaminated soil and sediment associated with the Subsite. The attached index (see Appendix III) identifies the items that comprise the Administrative Record upon which the selected remedy is based.

The New York State Department of Environmental Conservation (NYSDEC) was consulted on the proposed remedy in accordance with CERCLA § 121(f), 42 U.S.C. § 9621(f), and it concurs with the selected remedy (see Appendix IV).

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances at the Subsite, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The selected remedy, which addresses contaminated soil and sediment, includes the following components:

- Excavation of PCB-contaminated soils located along the upland areas adjacent to the Creek to meet the soil cleanup objectives (SCOs);
- Excavation of PCB-contaminated sediment within the Creek exceeding the sediment criteria;
- Excavation of PCB-contaminated sediment from the adjacent wetlands to meet the

sediment criteria;

- Transport of the excavated contaminated soils and sediments containing greater than 50 milligrams per kilogram (mg/kg) of PCBs to a Toxic Substances Control Act (TSCA)-compliant facility;
- Transport of those soils and sediments which fail Toxic Characteristic Leaching Procedure testing[1] and are determined to be characteristic hazardous waste and are non-TSCA waste (*i.e.,* less than 50 mg/kg PCBs) to an off-site at a RCRA-compliant facility;
- Transport of those soils and sediments that are not TSCA-regulated (less than 50 mg/kg of PCBs) and are not characteristic hazardous waste to a local disposal facility, if available;[2]
- The excavated wetland areas will be backfilled with soil that meets the unrestricted SCOs;
- Excavated soil areas will be restored with clean substrate and vegetation consistent with an approved habitat restoration plan developed as part of the design;
- Habitat restoration of Ley Creek will include the placement of at least one foot of substrate similar to the existing sediments over disturbed areas and restoration of vegetation;
- Institutional controls in the form of an environmental easement/restrictive covenant will be filed in the property records of Onondaga County that will, at a minimum, restrict the use of the properties within the Lower Ley Creek Subsite to commercial and industrial uses, restrict intrusive activities in areas where residual contamination remains unless the activities are in accordance with an EPA-approved Site Management Plan (SMP) (see below);[3] and

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[1]TCLP testing is a soil sample extraction method for chemical analysis employed as an analytical method to simulate contaminant leaching. The testing methodology is used to determine if a waste is a characteristic hazardous waste under the Resource Conservation and Recovery Act (RCRA).

[2] Local disposal options currently under consideration include consolidation under the cap of the Town of Salina Landfill within the area controlled by the leachate collection system or in a newly constructed cell with a liner and leachate collection system on the yet-to-be capped Cooper Crouse-Hinds North Landfill (which is scheduled to be properly closed under the State Superfund program in the near future). The specific local disposal location will be determined during the remedial design phase. Should local disposal options be determined not to be viable, these materials will be sent to an appropriate nonlocal facility for disposal.

[2] Local disposal options currently under consideration include consolidation under the cap of the Town of Salina Landfill within the area controlled by the leachate collection system or in a newly constructed cell with a liner and leachate collection system on the yet-to-be capped Cooper Crouse-Hinds North Landfill (which is scheduled to be properly closed under the State Superfund program in the near future). The specific local disposal location will be determined during the remedial design phase. Should local disposal options be determined not to be viable, these materials will be sent to an appropriate nonlocal facility for disposal.

[3] Each property owner will be responsible for implementing and maintaining said controls and NYSDEC will be responsible for enforcing them.

- Development of an SMP that will provide for the proper management of all post-construction remedy components.[4]

During the remedial design, a Phase 1 Cultural Resources Survey will be performed to document the Subsite's historic resources.

During that design, samples will be collected to refine the limits of the soil and sediment contamination and the volume to be excavated.

The environmental benefits of the selected remedy may be enhanced by consideration, during the design, of technologies and practices that are sustainable in accordance with the EPA Region 2's Clean and Green Energy Policy and NYSDEC's Green Remediation Policy.[5] This will include consideration of green remediation technologies and practices.

DECLARATION OF STATUTORY DETERMINATIONS

Part 1- Statutory Requirements

The selected remedy meets the requirements for remedial actions set forth in CERCLA in Section 121, 42 U.S.C. § 9621, because as implemented : 1) it is protective of human health and the environment; 2) it meets a level of standard of control of the hazardous substances, pollutants and contaminants which at least attains the legally applicable or relevant and appropriate requirements under the federal and State laws; 3) it is cost-effective; and 4) it utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

Part 2- Statutory Preference for Treatment

CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity or mobility of hazardous substances as a principal element (or justify not satisfying the preference). For the Lower Ley Creek Subsite, the EPA does not believe that treatment of the sediments and soil is practicable or cost effective given the widespread nature of the sediment and soil contamination and the high

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[4] The SMP will describe procedures to confirm that the requisite engineering (*e.g.*, subsurface demarcation layer) and institutional controls (*e.g.,* environmental easement/restrictive covenant) are in place and that nothing has occurred that will impair the ability of said controls to protect public health or the environment. The SMP will also include: a soil management plan; an inventory of any use restrictions; the necessary provisions for the implementation of the requirements of the above-noted environmental easement and/or restrictive covenant; a provision for the performance of the operation, maintenance, and monitoring required by the remedy and a provision that the property owner or party implementing the remedy submit periodic certifications that the institutional and engineering controls are in place.

[5] See http://epa.gov/region2/superfund/green_remediation and http://www.dec.ny.gov/docs/re-mediation_hudson_pdf/der31.pdf.

volume of sediment and soils that are being addressed.

Part 3- Five-Year Review Requirements

Because this remedy is anticipated to result in hazardous substances, pollutants or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

ROD DATA CERTIFICATION CHECKLIST

The ROD contains the remedy selection information noted below. More details may be found in the Administrative Record file for the Lower Ley Creek Subsite.

- Contaminants of concern and their respective concentrations (see ROD, pages 7-12 and Appendix II, Tables 1, 2 and 4.1);
- Baseline risk represented by the contaminants of concern (see ROD, pages 13-19);
- Cleanup levels established for contaminants of concern and the basis for these levels (see ROD, Appendix II, Tables 1 and 2);
- Manner of addressing source materials constituting principal threats (see ROD, page 39);
- Potential land and groundwater use that will be available at the Subsite as a result of the selected remedy (see ROD, page 44);
- Estimated capital, annual operation and maintenance and present-worth costs; discount rate; and the number of years over which the remedy cost estimates are projected (see ROD, pages 44 and Appendix II, Tables 5.1, 5.2 and 5.3); and
- Key factors used in selecting the remedy (*i.e.*, how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision)(see ROD, pages 45-47).

AUTHORIZING SIGNATURE

Walter E. Mugdan, Director
Emergency and Remedial Response Division

Sept. 30, 2014
Date

RECORD OF DECISION FACT SHEET
EPA REGION II

Site

Site name:	Onondaga Lake Site, Lower Ley Creek Subsite
Subsite location:	Syracuse/Salina, Onondaga County, New York
Site HRS score:	50.00
Listed on the NPL:	December 16, 1994

Record of Decision

Date signed:	September 30, 2014
Selected remedy:	Excavation of PCB-contaminated creek sediments, wetland sediments and soils located in upland areas adjacent to the creek, local or nonlocal disposal of the excavated sediments and soils, and development of a Site Management Plan.
Capital cost:	$17,031,000 - $24,775,000*
Annual operation and maintenance cost:	$50,880
Present-worth cost:	$17,662,400 - $25,271,000*
Lead	EPA
Primary Contact:	Pamela Tames, Remedial Project Manager, (212) 637-4255
Secondary Contact:	Joel Singerman, Chief, Central New York Remediation Section, (212) 637-4258
Main PRPs	General Motors, Carrier Corp., Syracuse China, Cooper Crouse-Hinds, Town of Salina, Onondaga County, Oberdorfer Inc., National Grid

Waste

Waste type:	PCBs, metals and polyaromatic hydrocarbons
Waste origin:	Local waste disposal activities
Contaminated media:	Soil and sediments

* The lower cost in the cost range corresponds to local disposal and the upper cost corresponds to nonlocal disposal.

DECISION SUMMARY

Lower Ley Creek Subsite
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City of Syracuse/Town of Salina, Onondaga County, New York

United States Environmental Protection Agency
Region II
New York, New York
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SUBSITE NAME, LOCATION AND DESCRIPTION

The Lower Ley Creek subsite (Subsite) of the Onondaga Lake Superfund site[1] consists of the lower two miles of Ley Creek (including the Creek channel and adjacent floodplains) beginning at and including the Route 11 bridge (a.k.a. Brewerton Road) and ending downstream at Onondaga Lake (Lake). The Subsite also includes a 3.7-acre wetland situated on the southern bank of the Creek adjacent to the Cooper Crouse-Hinds North Landfill and "Old Ley Creek Channel" (hereinafter, referred to as "OLCC"), an original section of the Creek before Ley Creek was widened and reconfigured during a flood control project in the 1970s. In addition, the Subsite includes several sections along the banks of the Creek where dredged contaminated sediments were placed during that flood control project.

In addition to passing under the Route 11 bridge, the Creek flows under the 7th North Street and Interstate 81 bridges. Much of the Creek is shallow, but there are sections, particularly downstream of the 7th North Street bridge, where the water depth may be 14 feet deep. The bottom of the Creek is dominated by soft sediment with very little stone or other hard surfaces.

The Lower Ley Creek Subsite is located within an area zoned as an Industrial District. It is bordered by parking lots, the Town of Salina and Cooper Crouse-Hinds landfills, other landfilled areas, manufacturing operations, several undeveloped properties and a railroad line. Two large, buried natural gas and oil pipelines owned by National Grid and Buckeye Pipeline Co., respectively, run parallel to the northern bank of the Creek for much of this section.

Prior to the early 1970s, some wetlands located on either side of the Creek were filled with municipal refuse; there is a New York State regulated wetland (SYW-11) identified on both sides adjacent to Ley Creek downstream of the confluence with Bear Trap Creek which enters Ley Creek upstream of 7th North Street.

Onondaga County passed a resolution in 2011 in support of the transfer of Murphy's Island, also known as SW-12 to the Onondaga Nation. It is a 36-acre parcel along the Onondaga Lake shoreline located at the mouth of Ley Creek and the transfer is intended to provide members of the Onondaga Nation dedicated access to Onondaga Lake, which is culturally important to the Nation. The Onondaga Nation is a federally recognized tribe whose 9.3 square mile reservation is located a few miles away. Murphy's Island is being addressed as part of the Wastebed B/Harbor Brook subsite where a remedial

[1] The Onondaga Lake Superfund Site's Superfund Site Identification Number is NYD986913580. The U.S. Environmental Protection Agency (EPA) is the lead agency for the Lower Ley Creek Subsite; the New York State Department of Environmental Conservation (NYSDEC) is the support agency.

investigation and feasibility study (RI/FS)[2] is currently underway.

Figures 1 and 1A show the features noted above.

The Creek is not used for commercial transportation or as a public water supply, but is currently accessible for recreational uses, such as fishing, and is expected to remain so.

A fish consumption advisory, which is updated annually by the New York State Department of Health (NYSDOH), currently indicates that the consumption of fish from Onondaga Lake and its tributaries (including Ley Creek) and connected waters should be limited because of elevated levels of environmental contaminants which have been found to be present in the fish tissue.

SUBSITE HISTORY AND ENFORCEMENT ACTIVITIES

Industrialization of the area began soon after the completion of the Erie Canal in 1857 and the development of railroads in eastern Syracuse. Several industries have been located near Ley Creek and its branches since the late 19th and early 20th centuries. The industrial nature of this area, as well as the infrastructure and other development, influenced this Subsite and contributed to its current condition.

Assessments have been performed at many areas in the Onondaga Lake drainage basin to determine what sources have contributed to the contamination of Onondaga Lake. The Lake has a footprint of approximately 4.5 square miles and a drainage basin of approximately 250 square miles. The Onondaga Lake Superfund site, which includes the Lake itself, six major and minor tributaries and various upland sources of contamination, was placed on the EPA's National Priorities List (NPL) on December 16, 1994. NYSDEC and the EPA have, to date, organized the work for the Onondaga Lake NPL site into 11 subsites (see Figure 2). These subsites are also considered by the EPA to be operable units of the NPL site. The Lower Ley Creek Subsite was declared a subsite in mid-2009.

There are a number of upland sources that have contributed contamination to Ley Creek. The most significant of these sources are the General Motors Inland Fisher Guide (IFG) Facility/Ley Creek Deferred Media, Ley Creek PCB Dredgings and Salina Landfill subsites.

Prior to the early 1970s, poor channel conditions and large impermeable areas in the

[2] An RI determines the nature and extent of the contamination at a site and evaluates the associated human health and ecological risks and an FS identifies and evaluates remedial alternatives to address the contamination.

watershed caused extensive flooding of Ley Creek. These flooding events led to the creation of the Ley Creek Drainage District. Beginning in 1970, the Onondaga County Department of Drainage and Sanitation widened, deepened and rerouted the Creek through the Town of Salina Landfill. Dredged materials were spread along the banks of Ley Creek in addition to being disposed of at the Town of Salina Landfill.

Investigative fieldwork for the RI/FS at the Lower Ley Creek Subsite began in November 2009. Sediment, soil, groundwater and surface water samples were collected and analyzed. In addition, fish samples were collected as part of the human health and ecological risk assessments.

Three other subsites of the Onondaga Lake Superfund site are located in the vicinity of the Lower Ley Creek Subsite: the Town of Salina Landfill subsite ("Salina Landfill subsite"); the General Motors Inland Fisher Guide Facility and Ley Creek Deferred Media subsite ("IFG subsite") and the Ley Creek PCB Dredgings subsite ("PCB Dredgings subsite"). The current status of these three subsites is discussed below.

The Town of Salina Landfill, located near the Route 11 end of the Lower Ley Creek Subsite, accepted municipal and industrial wastes from the mid-20th century until it was closed in 1975 pursuant to an order issued by NYSDEC. The 55-acre landfill also accepted some of the contaminated dredge spoils during the 1970s Ley Creek flood control project. Soil samples taken from the landfill indicated that it was contaminated with elevated levels of PCBs, polyaromatic hydrocarbons (PAHs), mercury, lead and chromium. Groundwater sample results revealed elevated levels of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). In 1986, NYSDEC and the Onondaga County Department of Health collected soil and water samples on the north bank of the Creek adjacent to the Salina Landfill and in drainage ditches north and east of the landfill. PCBs were detected in the soils. NYSDEC performed additional sampling between 1987 and 1997. Elevated levels of heavy metals were found in addition to PCBs.

The EPA and NYSDEC selected a remedy for the remediation of the Salina Landfill subsite in 2007. That remedy called for the installation of caps on both landfills (the main 50-acre landfill located north of the Creek and the smaller five-acre landfill located on the south side of the Creek), storm water collection and groundwater/leachate collection and treatment. Based upon the results of samples collected from the five-acre landfill during the design of that remedy, it was determined that the quantity of hazardous substances located in this portion of the landfill was substantially less than was originally estimated. As a result, the remedial alternatives were re-evaluated and an amended ROD for that subsite was issued in 2010, which called for, among other things, the excavation of the five-acre landfill and consolidation of the excavated materials on the top of the 50-acre landfill. The consolidation of these materials and landfill cap over them was completed in 2013. A system to pre-treat the contaminated groundwater/leachate collected from the landfill is expected to be completed in late 2014. The pre-treated groundwater/leachate will be conveyed to the Metropolitan Syracuse Wastewater Treatment Plant (METRO).

The IFG facility, located just upstream of Route 11, began operations in 1952, initially as a plating facility and later manufacturing plastic automotive components. The facility ceased manufacturing operations in 1993. Throughout its period of operation, some of the wastes from the plant were discharged to Ley Creek. The Ley Creek Deferred Media portion of the IFG subsite includes groundwater underlying the Ley Creek PCB Dredgings subsite and surface water and sediment in and floodplains adjacent to, Ley Creek between Townline Road and Route 11. The principal hazardous substances at this subsite include PCBs, solvents, copper, nickel and chromium.

The following three significant response actions were performed at the IFG facility to prevent further migration of PCBs from that subsite to Ley Creek: 1) An industrial landfill at the IFG facility that contains chromium- and PCB-contaminated material was capped to prevent contaminants from leaching into the groundwater. 2) Highly-contaminated soil was removed from a former discharge swale. This swale had been used in the 1950s and 1960s as a conduit for the discharge of liquid process waste to Ley Creek. The swale was subsequently filled in, but the contaminated soil had remained until the performance of this action. Over 26,000 tons of soils containing PCBs were removed and properly disposed of. 3) A retention pond and associated water treatment system were constructed. This pond collects all water that accumulates on the IFG property in the former facility's storm sewers and abandoned process sewers. The pond water is then sent through the treatment plant in order to meet permitted discharge limits, prior to discharge to Ley Creek. The purpose of this response action was to stop the intermittent discharge of PCBs and other contaminants that occurred during storm events. An RI/FS for the IFG facility portion of the IFG subsite is currently underway. The RI/FS is investigating the facility property and groundwater.

An RI report for the Deferred Media portion of the IFG subsite was approved by NYSDEC in April 2013. An FS report and FS report addendum will be approved by NYSDEC after the Deferred Media ROD is finalized. A Proposed Plan[3] is currently under development.

The PCB Dredgings subsite includes certain areas along the banks of Ley Creek upstream of the Route 11 Bridge where PCB-contaminated dredge spoils that were removed from the Creek were placed. A response action was selected to address these spoils in 1997, and construction of the remedy was completed in 2001. The remedy included the removal and proper off-site disposal of PCB-contaminated material greater than 50 mg/kg and the placement of a soil cover over the remaining dredge spoils. Cover maintenance and five-year reviews continue because waste remains at the subsite.

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[3] A Proposed Plan describes the remedial alternatives considered for a site and identifies the preferred remedy with the rationale for this preference.

The EPA conducted field investigations at the Lower Ley Creek Subsite from 2009 through 2011, which culminated in the completion of an RI/FS report in January 2014.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI/FS report and a Proposed Plan supporting this remedy were released to the public for comment on July 15, 2014. These documents were made available to the public via the EPA's website and at information repositories maintained at the Salina Free Library, the Town of Salina offices, Atlantic States Legal Foundation, the Onondaga County Public Library, NYSDEC Region 7 office located in Syracuse, New York, NYSDEC Division of Environmental Remediation office located in Albany, New York and the EPA Region II Office in New York City. An NYSDEC listserv bulletin notifying the public of the availability for the above-referenced documents, the comment period start and completion dates and the date of the planned public meeting was issued on July 15, 2014. A notice providing the same information was published in *The Post-Standard* on July 17, 2014. The public comment period was initially scheduled to run from July 15, 2014 to August 14, 2014. In response to a request for an extension to the public comment period, the comment period was extended for an additional 30 days to September 13, 2014. An August 11, 2014, NYSDEC listserv bulletin and a notice published in *The Post-Standard* on August 12, 2014, notified the public of the extension of the public comment period.

On July 29, 2014, the EPA conducted a public meeting at the Town of Salina Town Hall to inform local officials and interested citizens about the Superfund process, to present the Proposed Plan for the Lower Ley Creek Subsite, including the preferred remedy, and to respond to questions and comments from the approximately 30 attendees. Comments received at this meeting primarily related to the need to treat the contaminated waste prior to disposal. Responses to the questions and comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary (see Appendix V).

The Onondaga Nation reviewed the draft RI and FS reports and draft Proposed Plan and the EPA communicated with representatives of the Onondaga Nation about these documents. The EPA intends to continue consultation discussions with the Onondaga Nation throughout the design and construction phases of the implementation of the remedy.

SCOPE AND ROLE OF THE OPERABLE UNIT

The NCP, at 40 Code of Federal Regulation Section 300.5, defines an operable unit as a discrete action that comprises an incremental step toward comprehensively addressing site problems. A discrete portion of a remedial response eliminates or mitigates a release, threat of a release or pathway of exposure. The cleanup of a site can be divided into a number of operable units, depending on the complexity of the problems associated with the site.

NYSDEC and the EPA have, to date, organized the work for the Onondaga Lake NPL site into 11 subsites (see Figure 2). These subsites are also considered by the EPA to be operable units of the NPL site.[4] This response action at the Lower Ley Creek Subsite applies a comprehensive approach to all media of concern at this Subsite, including contaminated soils and sediments, and is the only action anticipated for this Subsite.

SUMMARY OF SUBSITE CHARACTERISTICS

The RI activities that were conducted at the Lower Ley Creek Subsite included geological and hydrogeological investigations, an ecological assessment, wetlands delineation and the collection of samples from the surface soil (top two feet of soil), subsurface soil (below two feet), wetland sediments, surface water, sediment and fish from Lower Ley Creek.

Based upon the results of the RI, the EPA has concluded that PCBs are the primary contaminant of concern (COC) in the soils on the banks and in the sediments in the Creek. The other COCs identified for this Subsite are mercury, chromium and arsenic. Benzo(a)pyrene[5] and dioxin are considered contaminants of potential concern (COPCs). A review of the sampling results indicates that the PCBs are collocated with the vast majority of the other COCs. See Table 1 for the Soil Cleanup Objectives and Table 2 for the Sediment Criteria. The results of the RI are summarized below.

Subsite Hydrology

Ley Creek is classified as a 6 NYCRR § 701.7 New York State Class C stream from the mouth of the Creek to a point approximately 1.3 miles upstream of the mouth. Upstream of this point, Ley Creek is a Class B stream. The best usage of Class C waters is fishing. The best usages of Class B fresh surface waters are, "primary and secondary contact recreation and fishing. These waters shall be suitable for fish, shellfish and wildlife propagation and survival". The Creek is not used as a public water supply, although it is accessible for fishing or other recreation. While access to the Lower Ley Creek Subsite is unrestricted, it is difficult to reach in many areas because of thick vegetation. The fish species found during recent investigations include bluegill, pumpkinseed, shiners,

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[4] The terms "subsite" and "operable unit" are used interchangeably in this document and are meant to be defined as one and the same.

[5] It should be noted that all or some of the benzo(a)pyrene, a PAH, is likely from anthropogenic sources, such as urban runoff.

bullhead and carp. There is no commercial transportation use of the Creek. Lower Ley Creek flows through urban, developed East Syracuse, past landfills, several businesses, under several bridges, along a railroad track and near a shopping mall.

The bed of Lower Ley Creek is well channeled with steep sides and the Creek depth ranges from one to 14 feet deep, averaging three to five feet over much of its length. The deepest sections are closer to the Lake and the shallowest near the Route 11 Bridge. The bottom of the stream is mostly composed of soft sediment, with few areas of stone or riffle (rocky shoal).

Subsite Hydrogeology

The bedrock geology in the area of Lower Ley Creek generally consists of sedimentary rock units from the Paleozoic-age Salina Group which, in order of oldest to youngest, consists of the Vernon Formation, the Syracuse Formation, Camillus Shale and the Bertie Formation. Specifically, the bedrock underlying the Lower Ley Creek channel is made up of units of the Vernon Formation, which consists of upper Silurian shale and dolostone.

Onondaga Lake receives surface runoff from a drainage basin of approximately 250 square miles. Surface water flows into the Lake via six tributaries: Ninemile Creek, Onondaga Creek, Harbor Brook, Bloody Brook, Sawmill Creek and Ley Creek. Ley Creek accounts for approximately eight percent of the total water inflow to the Lake.

Groundwater discharge to surface water channels accounts for most of the stream flow in the Onondaga Lake Basin. Groundwater discharge accounts for an estimated 56 percent of stream flow in Ley Creek. The groundwater can be found from eight to 12 feet below ground surface (bgs) in the overburden of the Subsite.

Efforts since 1970 to alleviate the flooding of Ley Creek have been generally successful, though the Creek still floods beyond its banks periodically.

Soils

Soil samples were collected in floodplain soils on both sides of the Creek, a swale area and the OLCC area. See Figures 3 and 4 for the locations of the soil samples.

In 2010, 19 samples were collected from the swale, located south of Lower Ley Creek and east of the 7th North Street Bridge, to a depth of five feet bgs.

In OLCC, 31 soil locations were sampled in 2010. Each location was sampled at three intervals down to two feet bgs. In subsequent sampling, a total of 59 samples were collected from 22 soil borings throughout OLCC to a depth of 19 feet bgs.

A review of the 1970s flood control construction blueprints indicated several areas where dredge spoils were spread onto adjacent upland areas. As a result, in 2011, 53 locations within these areas were sampled down to two feet bgs (municipal refuse is located below this depth).

The highest levels of PCB contamination in the soils were found in the swale area, where levels as high as 500 mg/kg were found at the 6-12 inch bgs interval and as high as 350 mg/kg at the 0-6 inch bgs interval. PCB levels as high as 380 mg/kg were found on the banks of OLCC in the 12-24 inch bgs interval and as high as 320 mg/kg in the 0-6 inch bgs interval. See Table 3.1 for more PCB soil results.

The highest level of mercury in soils, which was found on the northern bank of the Creek in the 0-12 inch interval, was 4.1 mg/kg. Elevated levels of mercury were also found in the 30-36 inch interval in the swale on the southern bank of the Creek at levels as high as 3.5 mg/kg.

Benzo(a)pyrene was found on the northern bank of the Creek in the 0-12 inch interval at levels as high as 27.4 mg/kg. The next highest level was 12 mg/kg in the 12-24 inch interval on the banks of OLCC.

The highest level of total chromium in soils was found in the swale area at the 6-12 inch interval at 5,320 mg/kg. The next highest levels were found in the swale and on the banks of OLCC at 3,430 mg/kg at 0-6 inches and 3,320 mg/kg at 6-12 inches, respectively.

Elevated levels of cadmium were found in the soils on the northern bank of the Creek. The highest level was found east of 7th North Street at 337 mg/kg at the 0-12 inch interval. The next highest level was from the same location at 12-24 inches at 100 mg/kg. Similarly, another location on the northern bank west of 7th North Street had 23.7 mg/kg at 0-12 inches and 35 mg/kg at 12-24 inches. All of the remaining samples contained cadmium levels less than 14.5 mg/kg.

Pesticides, specifically dichlorodiphenyltrichloroethane (more commonly known as "DDT"), were found at elevated levels in the soil at the Subsite. The highest levels were found on the banks of OLCC (as high as 4 mg/kg in the 12-24 inch interval).[6]

Dioxins were found on the northern bank of the Creek at levels as high as 1,730 nanograms per kilogram (ng/kg) in the 0-12 inch interval.

Background soil samples were collected in 1998, 1999 and 2003 as part of the IFG subsite investigation and these samples also serve as background samples for the Lower Ley Creek Subsite. Two soil borings were collected from the southwest corner of the former IFG facility and one soil boring was collected from the southeastern corner of the

[6] It is likely that the DDT is an artifact of mosquito control, not disposal activities.

property for the purpose of collecting background soil quality data. Of the contaminants noted above, only PCBs were found and at a concentration of 0.04 mg/kg.

Sediments

Sediment samples were collected in November 2009 from 32 locations in the Creek at 0-6-, 6-12- and 18-24- inch depth intervals (see Figure 3). Samples were analyzed for pesticides, metals, PCBs, VOCs and SVOCs. Sample results indicate that there are elevated levels of PCBs at the deepest sampling interval at several locations during this sampling event. Several samples collected from a third of a mile section at the mouth of the Creek indicate that this section of the Creek did not contain contamination above the sediment criteria. Samples collected from two shorter sections of the Creek (1,000 feet and 300 feet), located in the middle and upstream portions of the Subsite also did not contain contamination above the sediment criteria.

In January 2010, 14 sediment samples were collected from eight locations within OLCC and analyzed for VOCs, SVOCs, metals, PCBs and pesticides.

In May 2010, seven additional locations within the Creek were sampled with the objective of better defining the depth of contamination in the Creek sediments. Samples were collected at several one-foot intervals down to a depth of 10 feet below the water-sediment interface. These sediment samples were analyzed for metals, cyanide, pesticides, PCBs and SVOCs. A selected subset of sediment samples was also analyzed for dioxin.

The highest level of PCBs in sediment reported was 315 mg/kg at the 0-6 inch interval near the Route 11 Bridge. The second highest level was 303 mg/kg, found in the 12-24 inch interval at a nearby location. In general, the upper portion of Lower Ley Creek had the highest levels of PCBs. Sediment in OLCC had levels of PCBs as high as 31 mg/kg in the 12-24 inch interval. The next highest detected level of PCBs in OLCC was 25 mg/kg also at the 12-24 inch interval. See Table 3.2 for more PCB sediment data.

The highest level of mercury found in Lower Ley Creek sediment, 2.1 mg/kg in the 6-12 inch interval, was found just upstream of the Interstate 81 overpass.

The highest concentration of benzo(a)pyrene was found between the 7th North Street bridge and the Interstate 81 overpass at 42 mg/kg at the 6-12 inch interval. Elevated levels of benzo(a)pyrene were also found in OLCC.

The highest level of arsenic detected was 23.6 mg/kg in the 0-12-inch interval in a sample collected just north of Interstate 81.

Cadmium was found in the sediment as high as 462 mg/kg at 18-24 inches west of the 7th North Street bridge and 287 mg/kg at 18-24 inches in the next downstream sample location. Most of the remaining sediment samples had cadmium levels less than 14.5 mg/kg.

The highest concentration of nickel in the sediment was found at 447 mg/kg at 0-6 inches just west of the Route 11 Bridge. The next highest level was found at the same location at 6-12 inches at 284 mg/kg. The next downstream sample location also had an elevated level at 272 mg/kg at 66-72 inches. Most of the remaining sediment samples had nickel levels closer to the New York State sediment criteria of 16 mg/kg.

Elevated levels of total chromium above the sediment criteria were found at many locations within Lower Ley Creek. The highest level of 1,090 mg/kg was found in a sample from the 0-6 inch interval collected near the Salina Landfill.

Eight of 10 locations which were sampled in the 0-6-inch interval and analyzed for dioxins had levels at or above the 50 ng/kg EPA Preliminary Remediation Goal for dioxins. Three sample results were at or just below 1,000 ng/kg and one was 18,000 ng/kg, which was downstream of the 7th North Street Bridge. The remaining sample results were less than 290 ng/kg for dioxin.

Background samples were collected in 2008 as part of the upstream IFG subsite investigation and these samples also serve as background samples for the Lower Ley Creek Subsite. Nine sediment samples were collected upstream of the IFG subsite; three in the north branch of Ley Creek, three in the south branch and three in the south creek. These samples were analyzed for SVOCs, PCBs and metals. Low-level PCBs were detected in four of the nine samples (0.174, 0.066, 0.074 and 0.109 mg/kg total PCBs). Some low levels of SVOCs and some naturally-occurring metals were found.

For comparison purposes, Table 2 provides sediment criteria which were used as screening criteria for the Subsite's metals found to be present at the Subsite based on the NYSDEC's "Technical Guidance for Screening Contaminated Sediments" (January 1999). It should be noted that PCBs are the primary risk driver for most pathways for the Subsite (see the "Subsite Risks" section, below).

Groundwater

Although groundwater contamination is not being addressed as part of this action, data related to the groundwater is being presented here.

Groundwater samples were obtained from monitoring wells installed along both sides of the Creek as part of the investigation of the Town of Salina Landfill subsite and the OLCC portion of the Lower Ley Creek Subsite to assess whether the leachate from the landfill was impacting the Creek. Twelve monitoring wells were sampled in 2010—three on the southern side of the Creek and nine on the northern, side of the Creek. No contaminants above the Maximum Contaminant Levels or risk-based levels were found in the groundwater, with the exception of VOCs. Groundwater is being addressed as part of the Town of Salina Landfill subsite. The VOCs will be captured by a leachate collection trench that was installed as part of the remediation of the Salina Landfill subsite at the edge of the Creek. The captured water will be pre-treated in an on-site treatment facility prior to discharge to METRO where it will be further treated prior to discharge to the Lake.

Surface Water

Surface water samples were collected at 10 locations within the Creek. Each sample was analyzed for SVOCs, metals and VOCs. Most of the sample results for these contaminants fell below the NYSDEC Water Quality Standard with the exception of three locations in the uppermost portion of Lower Ley Creek in which several SVOCs were slightly above the water quality standard set by NYSDEC.

Biweekly surface water samples were collected of several Onondaga Lake tributaries, including Lower Ley Creek at Park Street, between June and November of 2011. PCBs were detected in 10 of the 12 biweekly samples from Lower Ley Creek locations at concentrations ranging from 0.014 to 0.072 micrograms per liter (µg/L). In addition, six samples were collected at the same location during each of two stormwater events. During both storm events, PCBs were detected in all six samples at levels ranging from 0.11 to 0.17 µg/L and 0.048 to 0.23 µg/L, respectively. The NYSDEC water quality standard for PCBs for the protection of people who eat fish from the given water body is 0.000001 µg/L and the standard for the protection of fish-eating wildlife is 0.000120 µg/L. Therefore, there were exceedances of water quality standards for PCBs during routine and storm event monitoring.

Fish

Several species of fish were collected in November 2009 from the upper, middle and lower portion of Lower Ley Creek. Carp, sunfish, white suckers, creek chubs, pike, brown trout and minnows were collected and homogenized, either just fillet or whole body. The homogenized whole fish and fillets were analyzed for metals, organic compounds and PCBs. The fillet results were used in the human health risk assessment while the whole-body tissue samples of forage fish were used for the food chain models in the ecological risk assessment. The results were compared to tissue concentrations of PCBs and dioxin reported in the literature that were associated with an adverse biological response. The highest level of PCBs in whole-fish tissue was found near the Salina Landfill at 0.4 mg/kg. The highest level of PCBs found in fish fillets was 2.8 mg/kg and was found in the upstream portion of the Creek. The highest level of dioxin found in whole-body tissue was found in the downstream portion nearest to the Lake and was 0.048 µg/kg. The fillet with the highest level of dioxin was also found in the downstream portion and was 0.074 µg/kg. The highest level of arsenic was 1.9 mg/kg, also in the fillets.

In August 2013, six composite samples of whole-body prey fish were collected from within Onondaga Lake just north of the mouth of Ley Creek and analyzed for PCBs. The highest level of PCBs in these samples was 0.5 mg/kg.

Summary of Upstream Conditions

The immediate upstream section of Ley Creek between Townline Road and Route 11/Brewerton Road has been designated as part of the IFG subsite. Information regarding the sediment, soil, surface water and fish sampling analyses will be presented in the RI report for that subsite. PCBs and the other COCs found at the Lower Ley Creek Subsite are also found upstream within the IFG subsite.

CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

Land Use

The land surrounding Lower Ley Creek is mostly commercial/industrial and is not expected to change. The surrounding area has been urbanized for many decades and contains numerous industries, landfills, roads, businesses, homes and other infrastructure. Much of the area adjacent to the Creek is located within the 100-year floodplain and is undeveloped.

The Creek is not used for commercial navigation, although it is accessible for fishing and other recreation such as canoeing or kayaking. Although access to the Subsite is unrestricted and the Subsite is next to a public thoroughfare, the thick vegetation on the southern shoreline makes access to this upland area of the Subsite very difficult.

The Old Ley Creek Channel is the former channel of Ley Creek. Ley Creek was rerouted in the early-1970s, turning the channel into a tributary of the Creek. This portion of the Subsite is approximately 3.5 acres and, although it is zoned as commercial, it is also within the 100-year floodplain.

Ley Creek is classified as a 6 NYCRR § 701.7 New York State Class C stream from the mouth of the Creek to a point approximately 1.3 miles upstream of the mouth. Upstream of this point, Ley Creek is a Class B stream. The best usage of Class C waters is fishing. The best usages of Class B fresh surface waters are primary and secondary contact recreation and fishing. Pursuant to 6 NYCRR Part 701.8, these waters should be suitable for fish propagation and survival.

A wetland area is located immediately west of the Subsite and another wetland area is located approximately 800 feet southwest of the Subsite.

Groundwater Use

The groundwater underlying the Subsite adjacent to the Town of Salina Landfill is contaminated. The ROD for the Town of Salina Landfill is addressing this contamination. The residences and businesses in the area use a public supply well for their potable water supply.

SUMMARY OF SUBSITE RISKS

A baseline risk assessment is an analysis of the potential adverse human health effects caused by the release of hazardous substances from a site in the absence of any actions to control or mitigate these under current and anticipated future land uses. The EPA's baseline risk assessment for this Subsite, which is part of the RI/FS report, focused on contaminants in the soil, sediments, and fish that were likely to pose significant risks to human health and the environment. Potential indoor air vapor intrusion concerns were evaluated and found to not warrant further assessment. The risk assessment for this Subsite (see *Lower Ley Creek Subsite of the Onondaga Lake Superfund Site Remedial Investigation Report*, Chapter 6.1 and Appendix O, LATA, June 2013), is available in the information repositories discussed above in the “Highlights of Community Participation” section.

Human Health Risk Assessment

A Superfund baseline human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substance exposure at a site in the absence of any actions to control or mitigate these conditions under current- and future-land uses. A four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure scenarios.

Hazard Identification: In this step, the contaminants of concern at a site in various media (*i.e.*, soil, groundwater, surface water, sediment and air) are identified based on such factors as toxicity, frequency of occurrence and fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence and bioaccumulation.

Exposure Assessment: In this step, the different exposure pathways through which people might be exposed to the contaminants identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of, inhalation of and dermal contact with contaminated soil. Factors relating to the exposure assessment include, but are not limited to, the concentrations to which people may be exposed and the potential frequency and duration of exposure. Using these factors, a reasonable maximum exposure scenario that portrays the highest level of human exposure that could reasonably be expected to occur, is calculated.

Toxicity Assessment: In this step, the types of adverse health effects associated with contaminant exposures and the relationship between the magnitude of exposure and the severity of adverse health effects are determined. Potential health effects are contaminant-specific and may include the risk of developing cancer over a lifetime or other noncancer health effects, such as changes in the normal functions of organs within the body (*e.g.*, changes in the effectiveness of the liver or kidney). Some contaminants are capable of causing both cancer and noncancer health effects.

Risk Characterization: This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks. Exposures are evaluated based on the potential risk of developing cancer and the potential for noncancer health hazards. The likelihood of an individual developing cancer is expressed as a probability. For example, a 10^{-4} cancer risk means a one-in-ten-thousand excess cancer risk; or, stated another way, one additional cancer may be seen in a population of 10,000 people as a result of exposure to site contaminants under the conditions explained in the Exposure Assessment. Current Superfund guidelines for acceptable exposures are an individual lifetime site-related excess cancer risk in the range of 10^{-4} to 10^{-6} (corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk) with 10^{-6} being the point of departure. For noncancer health effects, a hazard index (HI) is calculated. An HI represents the sum of the individual exposure levels compared to their corresponding reference doses. The key concept for a noncancer HI is that a threshold level (measured as an HI of less than or equal to 1) exists below which noncancer health effects are not expected to occur.

Although the areas surrounding the Creek are mainly commercial/industrial in nature, the Creek is not used for commercial/industrial purposes. The Creek is currently accessible for recreational uses, such as fishing, and is expected to remain so.

The baseline risk assessment and the addendum to the baseline risk assessment identified the current and potential future receptors that may be affected by contamination at the Subsite, the pathways by which these receptors may be exposed to Subsite contaminants in various environmental media, and the parameters by which these exposures and risks were quantified. Recreational users (adults, older children aged 6-16 and younger children under the age of 6) were the receptors evaluated under the current scenario. Future scenarios considered a hypothetical future construction worker working on the pipelines and/or the bridges which cross the Creek. All populations are evaluated under a reasonable maximum exposure scenario ("RME," the highest and most intense exposure reasonably anticipated) as well as a central tendency exposure ("CTE," an exposure under average conditions).

The EPA evaluated the risks associated with potential exposures to Lower Ley Creek and OLCC sediments, soils and surface water via dermal contact and incidental ingestion as well as potential consumption of contaminated fish and wildlife. Based on both current and anticipated future use of the Subsite, two risks to human health are evaluated: 1) the excess lifetime cancer risk above the EPA's acceptable cancer risk range, and 2) non-cancer health effects greater than the EPA's threshold value, or HI, relative to any foreseeable current or potential future receptor exposed to Subsite-related COCs in soil, fish tissue, surface water and sediment.

As mentioned above, the HI acceptable threshold is a number less than or equal to one. While an HI of one is exceeded for all receptors, it is greatest for a recreational visitor who is less than six years old. The total HI for this receptor exposed to Lower Ley Creek sediment under the RME scenario would be 3. Non-cancer risks from direct contact exposure to sediment are primarily driven by PCBs. The total HI for this receptor for exposure to Lower Ley Creek Subsite soils (rather than sediments) under the RME scenario would be 2. Exposure to contaminants through ingestion of fish tissue is associated with an HI value of 50, with PCBs and chromium as the most significant risk drivers.

Cancer risk was evaluated for all receptors based on exposure to sediment, soils and fish. The highest cancer risk was 2×10^{-3} (or an unacceptable two in one thousand excess cancer risk) for the RME scenario via exposure of a young child (less than six years old) to contaminated soils. The primary cancer risk driver for this exposure is benzo(a)pyrene via ingestion and dermal exposure to the soils. The next highest cancer risk was 8×10^{-4} (or an unacceptable one in one thousand excess cancer risk) for the RME scenario via exposure of an older child (six to 16 years old). The cancer risk drivers for this exposure are PCBs, total chromium and arsenic via fish ingestion and benzo(a)pyrene via dermal sediment exposure. PCBs are the primary risk driver for most pathways.

The results of the baseline risk assessment indicate that the contaminated soils on the upland areas adjacent to the Creek and the Creek sediments at the Subsite pose an unacceptable risk to human health because, primarily, of the presence of PCBs, PAHs and metals.

Ecological Risk Assessment

Potential risks to environmental receptors associated with the Subsite were identified in the ecological risk assessment (see *Lower Ley Creek Subsite of the Onondaga Lake Superfund Site Remedial Investigation Report*, Chapter 6.2 and Appendix Q, LATA, Inc., December 2, 2011). This document is also available in the information repositories discussed above in Highlights of Community Participation.

Five assessment endpoints were selected to evaluate risk to ecological receptors at this Subsite. They are survival, growth and reproduction of aquatic plants, benthic invertebrates, fish and piscivorous birds and mammals. A Screening Level Ecological Risk Assessment (SLERA) was prepared to compare measured concentrations in abiotic media to conservative screening benchmarks. The measured (maximum detected) concentration of several inorganics in surface water and numerous COPCs measured in sediment samples, exceeded their screening benchmarks, indicating the potential for adverse effects to the aquatic community in Lower Ley Creek.

For the Baseline Ecological Risk Assessment (BERA), measured concentrations of selected COPCs in fish tissue were compared with concentrations reported in the literature that are associated with adverse effects in fish. Dietary exposure of piscivorous birds and mammals feeding on prey captured from Lower Ley Creek was also evaluated. Solid-phase toxicity tests were conducted using two invertebrate species. Risk to the aquatic plant community in Lower Ley Creek was assessed by comparing measured concentrations of COPCs in surface water with selected surface water quality benchmarks and by comparing measured concentration of COPCs in sediment with soil benchmarks for plants.

Exceedances of surface water quality benchmarks and sediment benchmarks suggest potential risk to aquatic plants, benthic invertebrates and fish. In sediment, inorganics (particularly cadmium, total chromium and nickel), PAHs, PCBs and some pesticides resulted in exceedances of screening values, indicating potential risk to aquatic plants and benthic invertebrates. Maximum and average soil values for contaminants and inorganics were compared to the EPA's 2003 Ecological Soil Screening Levels (EcoSSLs) for plants, soil invertebrates and avian and mammalian wildlife. The resulting Hazard Quotients (HQ) above 1 were considered to be ecological risk drivers[7]. The highest HQ was 936.7 for mammalian wildlife exposed to cadmium in the soils. There are no EcoSSL benchmarks for PCBs, mercury or dioxin. Reduced growth was observed in invertebrates exposed to sediment samples collected from several locations in Lower Ley Creek; significant mortality was observed in one sample.

Total equivalent concentrations of dioxin in fish tissue collected from Lower Ley Creek exceeded concentrations reported to be associated with adverse effects in fish.

Piscivorous mammals, such as minks and river otters, are at risk from dietary exposure to measured total PCB concentrations in fish from Lower Ley Creek.

Site-specific bioaccumulation factors for PCBs were calculated for forage fish in the upper, middle and lower sections of Lower Ley Creek. Lowest observed adverse effect level (LOAEL)-based and no observed adverse effect level (NOAEL)-based sediment concentrations were calculated to identify a range of sediment PCB concentrations

[7] An HQ is the ratio of the potential exposure to a substance and the level at which no adverse effects are expected. If the HQ is calculated to be less than 1, then no adverse health effects are expected as a result of exposure.

below which adverse effects on wildlife receptors would not be expected. Sediment concentrations that would result in calculated HQs less than 1.0 for mink (the most sensitive receptor at this Subsite based on the food chain models) were calculated. The LOAEL-based sediment PCB concentrations protective of ecological receptors ranged from 0.08 to 2.28 mg/kg. The NOAEL-based concentration for PCBs in sediments to be protective of ecological receptors ranged from 0.01 to 0.23 mg/kg. Based upon the results, risk characterization and interpretation, ecological risks exist at the Subsite from contaminants in sediments.

A SLERA was prepared to compare measured concentrations in soils to conservative screening benchmarks. It was determined that because of the proximity of the IFG subsite to the Lower Ley Creek Subsite, the BERA for the PCB contaminated soils at the IFG subsite could also be used to address the Lower Ley Creek Subsite soils. Ecological risks to burrowing mammals were determined to exist at the Lower Ley Creek Subsite from contaminants in soils.

Uncertainties

The procedures and inputs used to assess risks in this evaluation, as in all such assessments, are subject to a wide variety of uncertainties. In general, the main sources of uncertainty include the following: environmental chemistry sampling and analysis; environmental parameter measurement; fate and transport modeling; exposure parameter estimation; and toxicological data. Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there can be significant uncertainty as to the actual levels present. Environmental chemistry-analysis error can stem from several sources, including the errors inherent in the analytical methods and characteristics of the matrix being sampled.

Uncertainties in the exposure assessment are related to estimates of how often an individual will actually come in contact with the chemicals of concern, the period of time over which such exposure will occur and the fate and transport models used to estimate the concentrations of the chemicals of concern at the point of exposure.

Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the risk assessment provides upper-bound estimates of the risks to populations near the Subsite, and it is highly unlikely to underestimate actual risks related to the Subsite.

For the baseline risk assessment, soil and sediment data collected from various sampling events were evaluated. The most recent soil and sediment data were collected less than three years ago (*i.e.*, November 2011).

The analytical data used in the baseline risk assessment included estimated concentrations ("J" qualified), from a dilution analysis ("D" qualified) or validated as presumptive evidence for the presence of the compound ("N" qualified). All of the data qualified with these codes were used in the calculation of Exposure Point Concentrations (EPCs) for the media assessed. The data with these qualifiers do not have a systematic high or low bias relative to the estimation of risk.

A conservative screening was used to select COPCs for each exposure medium. Highly conservative screening levels were used to select which COPCs would be carried through the risk assessment. The screening levels used for soil, sediment and groundwater were criteria developed for a residential soil and drinking water exposure scenario, which is an unlikely land use for this Subsite in the reasonably foreseeable future.

Background levels were not used to eliminate any chemicals from the quantitative risk assessment. This was, in part, due to the relatively small number of background samples collected for both soil and groundwater. The COPC screening process resulted in the conservative inclusion of a relatively broad set of constituents for assessment and the projection of some amount of risk that may be attributable to local or regional background levels of certain constituents (especially for soil).

A small number of chemicals were retained as COPCs because they did not have screening toxicity values to apply during the COPC screening and selection process. Typically, the risk associated with the intakes of these particular COPCs could not be quantified because of a lack of appropriate carcinogenic or non-carcinogenic health effect endpoint toxicity values. No surrogate values were used to calculate risks for these cases in the baseline risk assessment. The inability to estimate the contribution to risk from these specific COPCs in the baseline risk assessment may represent a small potential to underestimate the risks present.

Considerable uncertainty can be associated with qualitative (hazard assessment) and quantitative (dose-response) evaluations. Hazard assessment characterizes the nature and strength of the evidence of causation or the likelihood a chemical that induces adverse effects in animals will induce adverse effects in humans. Hazard assessment of carcinogenicity is currently evaluated as a weight-of-evidence determination, using EPA classifications (EPA, 1989).[8] Positive results in animal cancer tests suggest humans may also manifest a carcinogenic response, but animal data cannot necessarily be used to predict target tissues in humans. In the hazard assessment of noncarcinogenic effects,

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[8] *Risk Assessment Guidance for Superfund (RAGS), Volume 1, Human Health Evaluation Manual, Part A.* US Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, DC. 1989. EPA/540/1-89/002.

positive animal test results may suggest the nature of possible human effects (*i.e.*, target tissues and type of effects) (EPA, 1989).

These uncertainties are addressed using the uncertainty and modifying factors and assessment procedures prescribed by the EPA in its guidance, and they are reflected in the toxicity values recommended by the EPA (*i.e.*, Integrated Risk Information System).

Summary of Human Health Risks and Ecological Risks

The results of the human health risk assessment indicate that the contaminated sediments and soils present an unacceptable human exposure risk and the ecological risk assessment indicates that the contaminated soils and sediments pose an unacceptable ecological exposure risk. The risk assessment tables are located in Table 4.

Based upon the results of the RI and the risk assessments, the EPA has determined that actual or threatened releases of hazardous substances present at this Subsite, if not addressed by the selected remedy or one of the other active measures considered, may present a current or potential threat to human health and the environment.

Basis for Action

Based upon the quantitative human-health risk assessment and ecological evaluation, the EPA has determined that actual or threatened releases of hazardous substances from the Subsite, if not addressed by the response action selected in this ROD, may present a current or potential threat to human health and the environment.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards, such as applicable or relevant and appropriate requirements (ARARs), to-be-considered (TBC) guidance and site-specific risk-based levels.

The following RAOs were established for the Subsite:

- Reduce or eliminate any direct contact and ingestion threat associated with contaminated soils and sediments.
- Minimize exposure of ecological receptors to contaminated soils and sediments.
- Reduce the cancer risks and non-cancer health hazards associated with eating fish from Lower Ley Creek by reducing the concentration of contaminants in fish.

The EPA has adopted NYSDEC's soil cleanup objectives (SCOs) as the cleanup levels for this action based upon the assumed future usage of the Subsite (see Table 1 for the SCOs for the Subsite)[9] and to satisfy the direct contact RAO for soils. SCOs are based on the lowest concentration for the protection of human health, ecological exposure or groundwater depending upon the anticipated future use of a site. While the land use of the Subsite has historically been industrial/commercial, several areas along the Creek are considered ecologically sensitive. Therefore, based upon the most recent active use of the Subsite, the Subsite will be cleaned up to "ecological" standards for the top two feet of soils (surface soils) and "commercial" standards for soils deeper than two feet. Because PCBs are collocated with the majority of the other COCs and are the primary risk driver for all pathways for this Subsite (see the "Subsite Risks" section, below), they will be used as an indicator compound (1 mg/kg PCBs in surface soil[10] and 10 mg/kg PCBs in soil at depth[11]) to ensure that the soil cleanup goals are achieved.. Therefore, the SCOs identified in Table 1 will be protective for ecological exposure to Subsite soils. For sediments, a 1 mg/kg PCB[12] cleanup objective will be applied. The application of the 1 mg/kg cleanup level will require that cleanup alternatives address most of the creek bed; areas that do not have concentrations of PCBs above 1 mg/kg are limited to the last 0.3 miles of the creek where concentrations were all below 0.2 mg/kg and two additional sections, 1,000 feet and 300 feet, of the creek in the middle and upstream section where concentrations of PCBs were below 0.2 and 0.6 mg/kg, respectively. PCBs are the primary ecological risk driver and are collocated with the majority of the other sediment COCs. Addressing PCBs above 1 mg/kg in the sediments and 1 mg/kg at the surface and 10 mg/kg at depth in the soil is expected to address risks associated with other soil and sediment COCs.

SUMMARY OF REMEDIAL ALTERNATIVES

CERCLA Section 121(b)(1), 42 U.S.C. § 9621(b)(1), mandates that remedial actions must be protective of human health and the environment, be cost-effective, comply with ARARs and utilize permanent solutions, alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. CERCLA Section 121(b)(1) also establishes a preference for remedial actions which employ, as a principal element,

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[9] See 6 NYCRR PART 375, Environmental Remediation Programs, Subpart 375-6, New York State Department of Environmental Conservation, December 14, 2006.
[10] See 6 NYCRR PART 375, Environmental Remediation Programs, Subpart 375-6, New York State Department of Environmental Conservation, December 14, 2006.
[11] See New York State Department of Environmental Conservation CP-51 / Soil Cleanup Guidance, October 21, 2010.
[12] The 1 mg/kg PCB sediment cleanup objective is consistently evaluated and often applied at contaminated sediment sites in New York State. This value is also supported by NYSDEC's "Technical Guidance for Screening Contaminated Sediments" (January 1999).

treatment to permanently and significantly reduce the volume, toxicity or mobility of the hazardous substances, pollutants and contaminants at a site. CERCLA Section 121(d), 42 U.S.C. § 9621(d), further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants and contaminants that at least attains federal and state ARARs, unless a waiver can be justified pursuant to CERCLA Section 121(d)(4), 42 U.S.C. § 9621(d)(4).

Both local and nonlocal disposal of the excavated contaminated sediments and soils with PCB concentrations above 1 mg/kg but less than 50 mg/kg[13] were considered in the FS for each action alternative. Technical (capacity, ability to comply with New York State landfill closure regulations, waste stream compatibility, proximity and constructability) and administrative feasibility screenings were performed on 22 sites considered for local disposal of soils and sediments containing less than 50 mg/kg PCBs. These sites were located within a 10 mile radius of the Subsite. The two local disposal options which were determined to be most feasible for soils and sediments containing PCBs at concentrations less than 50 mg/kg were: (1) consolidation under the cap of the Town of Salina Landfill within the area controlled by the leachate collection system and (2) disposal what would be a newly constructed disposal cell[14] with a liner and leachate collection system at the yet-to-be capped Cooper Crouse-Hinds North Landfill (which will be closed in the near future under a New York State administrative consent order). Both of these disposal options are located adjacent to the Creek and are areas to be dredged and have contributed to contamination in Lower Ley Creek. If one of the local disposal options is utilized, local disposal would be accomplished by the construction of on-site temporary roads to transport the excavated materials from the work area to that designated disposal area.

The estimated capital costs for local disposal (Cooper-Crouse Hinds North Landfill and Salina Landfill) range between $1.8 and $2.3 million and the estimated annual operation and maintenance (O&M) costs range between $10,875 and $31,440.

A range of capital and present-worth costs are presented for each alternative, below. The lower cost in the cost range corresponds to local disposal and the upper cost corresponds to nonlocal disposal. A cost savings is realized by the reduction in travel costs to distant landfills per each truck.

Detailed descriptions of the remedial alternatives for addressing the contamination associated with the Subsite can be found in the FS report. The FS report presents four soil alternatives and five sediment alternatives. It should be noted that an additional capping alternative was considered in the FS report, but it was screened out because of

[13] Soil and sediment with PCB concentrations less than 50 mg/kg are non-Toxic Substances Control Act (TSCA) waste and can be disposed of in a Resource Conservation and Recovery Act (RCRA)-compliant facility.

[14] The cell would be located on top of existing or reconsolidated wastes.

questions about its long-term effectiveness related to upwelling from groundwater seeps within the Creek and the difficulties of maintaining a cap under those circumstances. To facilitate the presentation and evaluation of the alternatives, the FS report alternatives were reorganized in this Proposed Plan to formulate the remedial alternatives discussed below.

The construction time for each alternative reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy, negotiate the performance of the remedy with any potentially responsible parties or procure contracts for design and construction.

The remedial alternatives are:

Soil Alternatives

Alternative S-1: No Action

Capital Cost:	$0
Annual O&M Cost:	$0
Present-Worth Cost:	$0
Construction Time:	0 months

The Superfund program requires that the "no-action" alternative be considered as a baseline for comparison with the other alternatives. The no-action remedial alternative for soil does not include any physical remedial measures that address the problem of soil contamination at the property.

Because this alternative would result in contaminants remaining on-site above levels that allow for unrestricted use and unlimited exposure, CERCLA would require that the remedy be reviewed at least once every five years. If justified by the review, remedial actions may be required in the future to remove, treat or contain the contaminated soils and wetland sediments.

Alternative S-2: Excavation of Contaminated Soils on Northern and Southern Creek Banks and Wetland Area and Local or Nonlocal Disposal

Capital Cost:	$9,620,500-$13,575,000
Annual O&M Cost:	$20,440
Present-Worth Cost:	$9,874,000-$13,759,000
Construction Time:	9 months

This alternative consists of the excavation of an estimated 75,000 cubic yards (CY) of contaminated materials which includes soils on the northern and southern banks of the Creek that exceed the cleanup levels identified in Table 1 and include an estimated 12,000 CY of contaminated sediments from the wetland area that exceed 1 mg/kg for PCBs as well as NYSDEC's sediment criteria for metals. The depth of the excavation on the banks of the Creek and in the wetland would, generally, be to two feet, although in some limited areas such as the swale or the OLCC area, the excavation could range in depth from three to 14 feet. Contaminated areas on or near the buried pipelines which cannot be safely excavated would be capped with at least one foot of soil.

Following excavation, the excavated soils would be subjected to Toxic Characteristic Leaching Procedure (TCLP) testing.[15] Those soils that are determined to be characteristic hazardous waste and/or contain dioxin at levels above 1 µg/kg and are non-TSCA waste (*i.e.,* less than 50 mg/kg PCBs) would be disposed of at an appropriate RCRA-compliant facility. Those soils that contain PCBs greater than 50 mg/kg would be disposed of at an off-site TSCA-compliant facility. Those soils that are not TSCA-regulated and are not characteristic hazardous waste would be properly disposed of either locally or at an appropriate nonlocal facility.

Under this alternative, it is estimated that 71,000 CY of the excavated soils would not be TSCA-regulated and would not be characteristic hazardous waste. Therefore, these soils could be disposed of either locally or at an appropriate nonlocal Subtitle D disposal facility. It is estimated that an additional 3,800 CY of excavated soil would require disposal at a nonlocal RCRA- and/or TSCA-compliant facility.

Any contaminated soil located on the northern bank of the Creek that cannot be safely excavated because of the presence of the two large buried natural gas and oil pipelines which run parallel to a portion of the northern bank of the Creek would be covered with one foot of soil. Prior to placing the soil cover, soil samples would be collected to document the contaminant concentrations and a readily-visible and permeable subsurface demarcation layer delineating the interface between the contaminated soils and the clean soil cover would be installed.

Cleared vegetation would be disposed of locally at a nonhazardous waste landfill or could be mulched and used on-site.

The excavated areas would be backfilled with at least two feet of soil that would meet NYSDEC Program Policy Division of Environmental Remediation (DER)-10, Appendix

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[15]TCLP testing is a soil sample extraction method for chemical analysis employed as an analytical method to simulate contaminant leaching. The testing methodology is used to determine if a waste is a characteristic hazardous waste under RCRA.

5.[16] The excavated wetland area would be backfilled with soil that meets unrestricted SCOs since this area is considered ecologically sensitive. In excavated areas where there is underlying municipal refuse, a readily-visible and permeable subsurface demarcation layer delineating the interface between the refuse and the clean soil cover would be required.

The restoration of the excavated areas would be performed following the placement of clean backfill. This would include the planting of appropriate species of wetland and upland vegetation. The details of the restoration would be developed during remedial design.

This alternative includes institutional controls in the form of environmental easements and/or restrictive covenants to ensure that any intrusive activities such as pipeline or infrastructure repair in areas where contamination remains (including the areas where municipal refuse was disposed are in accordance with an EPA-approved Site Management Plan (SMP).

The SMP would provide for the proper management of all post-construction remedy components. Specifically, the SMP would describe procedures to confirm that the requisite engineering (e.g., demarcation layer) and institutional controls are in place and that such controls continue to protect public health or the environment. The SMP would also detail the following: the provision for the management of future excavations in areas where contamination remains (including the areas where municipal refuse was disposed); an inventory of any use restrictions; the necessary provisions for the implementation of the requirements of any above-noted environmental easements and/or restrictive covenants; a provision for the performance of the O&M required for the remedy; and a provision that a property owner or party implementing the remedy submit periodic certifications that the institutional and engineering controls are in place.

Because this alternative would result in contaminants remaining on-site above levels that allow for unrestricted use and unlimited exposure, CERCLA would require that the remedy be reviewed at least once every five years.

[16] The limited hotspot excavation areas of the southern bank would not be backfilled to grade. Reducing the elevation of this area would increase the flood storage capacity of the floodplain. The extent of backfilling in these areas would be determined during the remedial design (RD) based on the consideration of various factors, including flooding potential and desired habitat conditions.

Alternative S-3: Excavation of Wetland Area and Capping of Contaminated Soils on Southern and Northern Creek Banks and Local or Nonlocal Disposal

Capital Cost:	$8,562,500-$11,623,000
Annual O&M Cost:	$24,440
Present-Worth Cost:	$8,866,000-$11,859,000
Construction Time:	9 months

This alternative is similar to Alternative S-2, except instead of excavating the soils on the northern and southern banks of the Creek, the contaminated soils would be capped. Contaminated areas that are located within the floodplain on the southern bank of the Creek would require limited excavation prior to capping so that the surface elevation would not be raised, thus avoiding the loss of flood storage capacity. Placement of a readily-visible and permeable subsurface demarcation layer delineating the interface between the residually-contaminated native and/or previously backfilled soils and the clean soil cover layer would also be required.

Under this alternative, an estimated 63,865 CY of contaminated soils would be excavated over a 20.5-acre area. Following the excavation, approximately three acres containing residual contamination would require a two-foot cover for the protection of burrowing animals, while the remaining 17.5 acres would be covered with a one-foot cover for habitat restoration.

Under this alternative, it is estimated that 60,770 CY of the excavated soils would not be TSCA-regulated and would not be characteristic hazardous waste. Therefore, these soils could be disposed of either locally or at an appropriate nonlocal Subtitle D disposal facility. It is estimated that an additional 3,193 CY of excavated soil would require disposal at a RCRA- and/or TSCA-compliant facility.

Under this alternative, institutional controls in the form of environmental easements and/or restrictive covenants would be used to restrict intrusive activities in areas of where contamination remains (including the areas where municipal refuse was disposed) unless the activities are in accordance with an EPA-approved SMP.

The SMP would provide for the proper management of all post-construction remedy components. Specifically, the SMP would describe procedures to confirm that the requisite engineering (e.g., demarcation layer) and institutional controls are in place and that such controls continue to protect public health or the environment. The SMP would also detail the following: the provision for the management of future excavations in areas where contamination remains (including the areas where municipal refuse was disposed); an inventory of any use restrictions; the necessary provisions for the implementation of the requirements of any above-noted environmental easement and/or restrictive covenant; a provision for the performance of the O&M required for the remedy; and a provision that a property owner or party implementing the remedy submit periodic certifications that the institutional and engineering controls are in place.

Because this alternative would result in contaminants remaining on-site above levels that allow for unrestricted use and unlimited exposure, CERCLA would require that the remedy be reviewed at least once every five years.

Sediment Alternatives

Alternative SED-1: No Action

Capital Cost:	$0
Annual O&M Cost:	$0
Present-Worth Cost:	$0
Construction Time:	0 months

The Superfund program requires that the "no-action" alternative be considered as a baseline for comparison with the other alternatives. The no-action remedial alternative would not include any physical remedial measures to address the sediment contamination at the Subsite.

Because this alternative would result in contaminants remaining on-site above levels that allow for unrestricted use and unlimited exposure, CERCLA would require that the remedy be reviewed at least once every five years. If justified by the review, remedial actions may be required in the future to remove or treat the wastes.

Alternative SED-2: Monitored Natural Recovery

Capital Cost:	$0
Annual O&M Cost:	$159,000
Present-Worth Cost:	$1,973,000
Construction Time:	0 months

This alternative would rely upon natural processes for the recovery of contaminated sediments, such as chemical transformation, reduction in contaminant mobility/bioavailability, physical isolation and dispersion.

This alternative would include monitoring and modeling to determine whether the human health and ecological risks are being reduced.

Because this alternative would result in contaminants remaining on-site above levels that allow for unrestricted use and unlimited exposure, CERCLA would require that the remedy be reviewed at least once every five years.

Alternative SED-3: Excavation of Contaminated Sediments with Local or Nonlocal Disposal

Capital Cost:	$7,550,500-$11,202,000
Annual O&M Cost:	$35,875
Present-Worth Cost:	$8,005,000-$11,512,000
Construction Time:	12 months

Under this alternative, all sediments containing PCB contamination above 1 mg/kg would be excavated from one bank of the Creek to the other. In addition, an approximate 1,200 foot reach of the creek bottom, just upstream of Interstate 81 would be excavated to a depth of 1 foot to remove sediments contaminated with PCB and elevated metals. Turbidity control measures would be developed during the design and implemented during construction. A detailed hydrologic analysis would be performed during the design phase to determine the effect of the alternative on stream flow, flooding and dynamics and to identify the appropriate materials and bathymetry for restoration and long-term sustainability. At least one-foot of clean fill would be placed over the excavated areas to stabilize the sediment bed and support habitat replacement/reconstruction. Shoreline stabilization and waterfront restoration would be conducted after the excavation activities were completed within a given area.

An estimated 73,000 CY of sediment would be excavated. Using the sampling data as a guide, the excavation would range in depth from 8 feet in the upstream section of the Creek to one foot in downstream sections of the Creek. It is anticipated that the farthest downstream section of the Creek, between I-81 and Onondaga Lake, would not require any sediment excavation. The sediment would be transported to a nearby staging area where it would be dewatered. If the water that drains from the sediments during dewatering is to be discharged to surface water, it would be treated using specialized equipment such as carbon or sand filters to meet NYSDEC’s discharge requirements. The sediments would then be subjected to TCLP testing. Those sediments that are determined to be characteristic hazardous waste and/or contain dioxin at levels above 1 µg/kg and are non-TSCA waste (less than 50 mg/kg PCBs) would be disposed of at a RCRA-compliant facility. Likewise, those sediments that contain PCBs greater than 50 mg/kg would be disposed of at a TSCA-compliant facility. Those sediments that are not subject to TSCA and are not characteristic hazardous waste would be disposed of at a proper local or nonlocal facility.

Because PCBs are collocated with the majority of the other COCs, they will be used as an indicator compound (1 mg/kg of PCBs) to ensure that the sediment cleanup levels are achieved.

Under this alternative, it is estimated that 69,100 of the 73,000 CY of the excavated sediment would not be TSCA-regulated and would not be characteristic hazardous waste. Therefore, these sediments could be disposed of locally or at a nonlocal Subtitle D disposal facility. It is estimated that 3,900 CY of the excavated sediment would require disposal at a nonlocal RCRA- and/or TSCA-compliant facility.

During construction, there would be monitoring of water, sediments, air quality, odor, noise, lighting and the water discharged at the sediment dewatering area. Post-excavation confirmation sampling would be conducted prior to backfilling to ensure that sediments above the cleanup levels have been removed. While long-term monitoring of the sediment would not be required because all the contaminated sediment above cleanup levels would be excavated, fish monitoring would be conducted to determine the remaining levels of contamination in the fish and the rate of decline.

In order to protect the structural integrity of the Route 11 bridge, it may not be possible to remove all of the contaminated sediment at the base of the bridge. Therefore, some combination of dredging and capping of sediments under the bridge may be necessary to protect the bridge and maintain the effective cross section of flow for flood protection.

Under this alternative, institutional controls in the form of environmental easements and/or restrictive covenants would be sought to restrict intrusive activities in the capped areas unless the activities are in accordance with an EPA-approved SMP.

The SMP would provide for the proper management of all post-construction remedy components. Specifically, the SMP would describe procedures to confirm that the requisite institutional controls are in place and that nothing has occurred that would impair the ability of such controls to protect public health or the environment. The SMP would also detail the following: the provision for the management of future intrusive activities in the capped areas; an inventory of any use restrictions; the necessary provisions for the implementation of the requirements of any above-noted environmental easement and/or restrictive covenant; a provision for the performance of O&M for the remedy; and a provision that a property owner or party implementing the remedy submit periodic certifications that the institutional controls are in place.

Because this alternative would result in contaminants remaining on-site above levels that allow for unrestricted use and unlimited exposure, CERCLA would requires that the remedy be reviewed at least once every five years.

Alternative SED-4: Excavation and Placement of Granular Material Sediment Cap with Local or Nonlocal Disposal

Capital Cost:	$8,664,500-$11,260,000
Annual OM&M Cost:	$194,440
Present-Worth Cost:	$11,077,000-$13,605,000
Construction Time:	12 months

This alternative includes excavation of shallow sediments and the installation of a granular material (sand) sediment cap over the upstream and middle sections of Lower Ley Creek that exceed 1 mg/kg PCB.

Because PCBs are collocated with the majority of the other COCs and are the primary risk driver for all pathways for this Subsite (see the "Subsite Risks" section, above), they will be used as an indicator compound (1 mg/kg of PCBs) to ensure that the sediment cleanup goals are achieved.

So that the capping would be completed in a manner that would maintain the bathymetry of the Creek, at least four feet of sediment would need to be excavated before placing the sand cap and habitat layer. In areas of high erosion potential, a slightly deeper excavation (6 feet) would be required to accommodate the placement of a 1.5 to two-foot sand cap overlain by a two-foot thick armor layer followed by a two-foot habitat layer. The downstream section of the Creek would not require a cap because the sediment contamination in this section is shallower than the four-foot depth required for the cap; all contaminated sediment in the approximate 1,200-foot reach above Interstate 81 would be removed to a depth of one foot, obviating the need for a cap.

Similar to Alternative Sed-3, the excavated sediment would be transported to a staging area for dewatering and conditioning. If the water that drains from the sediments during dewatering is to be discharged to surface water, it would be treated using specialized equipment such as carbon or sand filters to meet NYSDEC's discharge requirements. The sediments would then be subjected to TCLP testing. Those sediments that are determined to be characteristic hazardous and/or contain dioxin at levels above one mg/kg and are non-TSCA materials would be disposed of at a RCRA-compliant facility. Under Alternative Sed-4, those sediments that contain PCBs greater than 50 mg/kg would also be disposed of at a TSCA-compliant facility. Those sediments that are not subject to TSCA and are not characteristic hazardous waste would be disposed of either locally or nonlocally.

Turbidity measures would be developed during the design and implemented during construction. Shoreline stabilization and waterfront restoration would be conducted after the excavation activities are completed within a given area.

Under this alternative, an estimated 56,600 CY of sediment would be excavated prior to the placement of the sand cap. It is estimated that 54,000 CY of the excavated sediment would not be TSCA-regulated and would not be characteristic hazardous waste. Therefore, these sediments could be disposed of either locally or at an appropriate nonlocal Subtitle D disposal facility. An estimated 2,600 CY of the excavated sediment would require disposal at a nonlocal RCRA- and/or TSCA-compliant facility.

The capped areas would require maintenance, as necessary and annual monitoring to assure that the caps are performing as designed.

During construction, there would be monitoring of water, sediments, air quality, odor, noise, lighting and water discharged at the sediment dewatering area. Post-excavation confirmation sampling would be conducted prior to backfilling to ensure that sediments above the cleanup levels have been removed. Fish monitoring would be conducted to determine the remaining levels of contamination in the fish and the rate of decline.

Under these alternatives, institutional controls in the form of environmental easements and/or restrictive covenants would be sought to restrict intrusive activities in the capped areas unless the activities are in accordance with an EPA-approved SMP.

The SMP would provide for the proper management of all post-construction remedy components. Specifically, the SMP would describe procedures to confirm that the requisite institutional controls are in place and that nothing has occurred that would impair the ability of such controls to protect public health or the environment. The SMP would also detail the following: the provision for the management of future intrusive activities in the capped areas; an inventory of any use restrictions; the necessary provisions for the implementation of the requirements of any above-noted environmental easement and/or restrictive covenant; a provision for the performance of O&M for the remedy; and a provision that any property owner or party implementing the remedy submit periodic certifications that the institutional controls are in place.

Because this alternative would result in contaminants remaining on-site above levels that allow for unrestricted use and unlimited exposure, CERCLA would require that the remedy be reviewed at least once every five years.

COMPARATIVE ANALYSIS OF ALTERNATIVES

During the detailed evaluation of remedial alternatives, each alternative is assessed against nine evaluation criteria, namely, overall protection of human health and the environment, compliance with ARARs, long-term effectiveness and permanence, reduction of toxicity, mobility or volume through treatment, short-term effectiveness, implementability, cost and state and community acceptance.

The evaluation criteria are described below.

- Overall protection of human health and the environment addresses whether a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced or controlled through treatment, engineering controls or institutional controls.
- Compliance with ARARs addresses whether a remedy will meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes and requirements or provide grounds for invoking a waiver.
- Long-term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup levels have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.
- Reduction of toxicity, mobility or volume through treatment is the anticipated performance of the treatment technologies, with respect to these parameters, which a remedy may employ.
- Short-term effectiveness addresses the period needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup levels are achieved.
- Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.
- Cost includes estimated capital and operation and, maintenance (O&M) costs and net present-worth costs.
- State acceptance indicates if the State concurs with the selected remedy.
- Community acceptance refers to the public's general response to the alternatives described in the FS report and Proposed Plan.

A comparative analysis of these alternatives based upon the evaluation criteria noted above follows.

Overall Protection of Human Health and the Environment

Alternatives S-1, Sed-1 and Sed-2 would not be protective of the environment because they would not address the contaminated soils and sediments, which present human health and ecological risks. Alternatives S-2, S-3, Sed-3 and Sed-4 would be protective of human health and the environment because each of these alternatives relies upon a remedial strategy or treatment technology capable of eliminating human and ecological exposure to contaminated soils or sediments.

Compliance with ARARS

SCOs are identified in 6 NYCRR Part 375, Environmental Remediation Programs, Subpart 375-6, effective December 14, 2006. There are currently no federal or state promulgated standards for contaminant levels in sediments. There are, however, other federal or state advisories, criteria or guidance (which are used as TBC criteria). Specifically, NYSDEC's "Technical Guidance for Screening Contaminated Sediments" (January 1999) sediment screening values are a TBC criteria.

The federal chemical-specific ARARs for PCBs in the water column are 0.001 μg/L under the federal Clean Water Act (CWA) ambient water quality criterion for navigable waters, and 0.014 μg/L under the federal CWA criterion continuous concentration (CCC) [chronic] for freshwater aquatic life. The NYS surface water quality standards for PCBs are 0.00012 μg/L for protection of wildlife and 0.000001 μg/L for protection of human consumers of fish.

Because the contaminated soils and sediments would not be actively addressed under Alternatives S-1, Sed-1 and Sed-2, these alternatives would not achieve the SCOs or sediment cleanup levels.

Alternatives S-2, S-3, Sed-3 and Sed-4 would attain the cleanup objective levels for soils and sediments. Alternatives Sed-3 and Sed-4 may result in short-term localized exceedances of surface water standards because of suspension of impacted sediment during excavation. It should be noted that three chemical-specific ARARs pertaining to water column concentrations (1 ng/l of total PCBs federal Ambient Water Quality Criterion; 0.12 ng/l total PCBs New York State standard for protection of wildlife; and 0.001 ng/l total PCBs New York State standard for protection of human consumers of fish) will require a waiver because of technical impracticability as the PCB contamination entering the Lower Ley Creek Subsite from upstream will likely exceed these ARARs. However, the water quality impacts would meet the substantive water quality requirements imposed by New York State on entities seeking a dredged material discharge permit under Section 404 of the Clean Water Act (CWA). For Alternatives Sed-3 and Sed-4, other action-specific ARARs include the following CWA Sections 401 and 402; the Rivers and Harbors Act Section 10; the Endangered Species Act[17]; the New York Environmental Conservation Law (ECL) Article 15 Water Resources, Article 11 Fish and Wildlife, Article 17 Water Pollution Control, Article 24 Freshwater Wetlands and Article 27 Collection, Treatment and Disposal of Refuse and Other Solid Waste; and their associated implementing regulations.

Because Alternatives S-2 and S-3 would involve the excavation of contaminated soils and Alternatives Sed-3 and Sed-4 would require dewatering and processing of sediments, compliance with fugitive dust regulations e.g. air monitoring would be necessary. In addition, all of these soil and sediment alternatives would need to meet the requirements of New York State and federal regulations related to the transportation and treatment/disposal of wastes. RCRA is the federal law addressing the storage, transportation and disposal of solid and hazardous waste. NYSDEC implements RCRA in New York under ECL Article 27. Depending upon the results of the TCLP testing of the excavated soils and sediments, RCRA requirements may be applicable.

As is noted above, the availability of local disposal options could result in some of the sediments and soils being disposed of at the Town of Salina Landfill (where similar PCB-contaminated materials are already present[18] under a NYCRR Part 360-compliant cap) or the Cooper Crouse-Hinds North Landfill (which will be closed under the State Superfund program in the near future). Disposal at the Salina Landfill would require that the soils and sediment be consolidated under the cap within the area controlled by the leachate collection system; disposal at Cooper Crouse-Hinds property would require that the soils and sediments be placed in a new cell (located on top of existing or reconsolidated wastes) that would also meet the substantive requirements of NYCRR Part 360.

The CWA Section 401 Water Quality Certification (WQC) is implemented by NYSDEC through ECL Article 15 and the associated regulations in 6 NYCRR Part 608 Use and Protection of Waters. The WQC may establish conditions such as preventive measures to minimize re-suspension of sediment and water quality monitoring during excavation of sediments under Alternatives Sed-3 and Sed-4 so that any exceedance of water quality standards, if it occurs, is short-lived and resuspension is controlled. Placement of fill (such as a cap) and temporary discharges of decanted waters would also be addressed through a WQC. The substantive requirements of ECL Article 15 and corresponding regulations would be met by Alternatives Sed-3 and Sed-4.

CWA Section 402 is implemented by NYSDEC through the ECL Article 17 State Permit Discharge Elimination System requirements, which regulate the discharge of pollutants into waters of the state. Pre-treatment or monitoring of decanted water resulting from

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[17] Portions of Ley Creek contain Indiana bat and potentially bald eagle habitat.
[18] As is noted in the "Subsite History" section, above, the landfill accepted some of the contaminated dredge spoils during the 1970s Ley Creek flood control project.

sediment dewatering may be necessary. If discharged to surface water, the decanted water would be treated to meet NYSDEC's State Pollutant Discharge Elimination System discharge requirements.

All of the action alternatives (i.e., excluding the Alternatives S-1, Sed-1 and Sed-2) would comply with TSCA's PCB cleanup and disposal regulations (40 CFR Part 761).

Long-Term Effectiveness and Permanence

Alternatives S-1, Sed-1 and Sed-2 would involve no active remedial measures, therefore, it would not be effective in eliminating the potential exposure to contaminants in the soil and sediment, and it would allow the continued migration of contaminants from the soil to the Creek and from the sediment to the water column in the Creek. Alternatives S-2 and Sed-3 would both be effective in the long term and would provide permanent remediation by removing the contaminated source area soils and sediments and securely disposing of them in a RCRA- and/or TSCA-compliant facility or possibly a local facility, as appropriate. Disposal of excavated soils and sediments at landfills with appropriate caps and leachate collection systems as proposed under the action alternatives would effectively control the contaminants over the long-term. The contaminated soil and sediments that may be targeted for consolidation at the Town of Salina landfill are similar to contaminated dredge spoils that are already present in the landfill.

Under Alternative S-3, 85 percent of the contaminated soils would be removed permanently, while the remainder would be covered with soil. The covered areas would require the development of an SMP, long-term O&M and appropriate institutional controls to protect the cover and prevent exposure. Alternative S-2 would also require long-term O&M, institutional controls and an SMP but for a smaller area than Alternative S-3.

Alternative Sed-4 would permanently remove enough of the contaminated sediment to accommodate a granular material cap. Exposure to the remaining contaminated sediments would be eliminated via the use of caps. Consistent with the EPA design guidance for caps, the cap would need to be designed to withstand erosional forces resulting from a 100-year storm event.

Similar to Alternatives S-2 and S-3, Alternative Sed-4 would require O&M to maintain the integrity of the soil cover/cap and the development of an SMP. Because contaminants would remain in-situ, albeit beneath the cap, five-year reviews would be required.

For all of the soil action alternatives, institutional controls would be needed to restrict intrusive activities in areas of where contamination remains. For the sediment action alternatives, institutional controls would be needed to restrict intrusive activities in the capped areas.

All of the soil and sediment alternatives that rely on active measures would provide reliable protection of human health and the environment over time.

Reduction in Toxicity, Mobility or Volume Through Treatment

Alternatives S-1, Sed-1 and Sed-2 would provide no reduction in toxicity, mobility or volume. Under the active soil and sediment alternatives, the mobility of contaminants would be eliminated via the excavation (with local or nonlocal disposal) and/or capping of contaminated soils and sediments. The contaminated soils and sediments will not be treated as part of this remedy.

Short-Term Effectiveness

Alternatives S-1, Sed-1 and Sed-2 do not include any physical construction measures in any areas of contamination and, therefore, would not present any potentially adverse impacts to remediation workers or the community as a result of its implementation. Alternatives S-2, S-3, Sed-3 and Sed-4 could present some limited adverse impacts to remediation workers through dermal contact and inhalation related to the sampling excavation and/or capping activities. Noise from the excavation and capping work associated with Alternatives S-2, S-3, Sed-3 and Sed-4 could present some limited adverse impacts to remediation workers and nearby residents. In addition, interim and post-remediation soil and sediment sampling activities would pose some risk. The short-term impacts to remediation workers and nearby residents under all of the alternatives could, however, be mitigated by following appropriate health and safety protocols, by exercising sound engineering practices and by utilizing proper protective equipment.

Alternatives S-2, S-3, Sed-3 and Sed-4 would require the transport of contaminated soils and sediments for proper disposal. Temporary roadways could be utilized to move the soils and sediments that would be disposed of locally, thereby reducing potential impacts on local traffic. If local disposal cannot be implemented, under Alternatives S-2, S-3, Sed-3 and Sed-4, it is estimated that up to 150,000 CY of contaminated soils and sediments would be transported over local roadways to a nonlocal disposal facility. This volume of material would require transporting an estimated 10,000 truckloads of material, which could have a greater adverse impact on local traffic and roadways than the local disposal option.

The use of the Town of Salina landfill as a potential location for the disposal of the excavated soils and sediments might increase the amount of leachate collected at this facility during the temporary partial removal of the landfill cap. In addition, the partial cap removal might result in odors. Appropriate mitigation measures might also need to be taken to reduce these temporary impacts. Construction-related noise would also need to be mitigated. Similar short-term impacts were effectively addressed during the excavation of the five-acre landfill and consolidation of the excavated materials on the top of the 50-acre landfill which was completed in 2013. The use of Cooper Crouse-Hinds Landfill as a potential location for the disposal of excavated soils and sediments would also require that mitigation plans be in place to address potential odor and noise issues.

For Alternatives S-2 and S-3, there is a potential for increased storm water runoff and erosion during construction and excavation activities that would have to be properly managed to prevent or minimize any adverse impacts. For these alternatives, appropriate measures would have to be taken during excavation activities to prevent transport of fugitive dust and exposure of workers and downgradient receptors to PCBs.

Sediment removal in Alternatives Sed-3 and Sed-4 may result in short-term adverse impacts to the Creek. These impacts include exposure of contaminated sediments to the water column, fish and biota because of the resuspension of sediments during removal and temporary loss of benthos and habitat for the ecological community in the excavated areas. Risks caused by resuspension can be minimized through the use of engineering controls and appropriate operation of excavation equipment. Replacement of the benthic habitat would be implemented through the addition of a layer of appropriate backfill material in excavated areas after sediment removal. Excavation, contaminated media handling and dewatering might create air emissions and odors through the release of SVOCs and VOCs from the excavated materials. However, because of the low levels of VOCs in Lower Ley Creek, significant odors and air emissions are not expected. However, odor controls would be employed, if necessary during remedial activities.

Because no action would be performed under Alternative S-1, there would be no implementation time. It is estimated that Alternatives S-2 and S-3 would require nine months to complete the excavation and/or capping and restoration. It is estimated that physical construction of Alternatives Sed-3 and Sed-4 could likely be completed in two construction seasons.

Implementability

Alternatives S-1, Sed-1 and Sed-2 would be the easiest alternatives to implement, as there are no construction activities to undertake.

Alternatives S-2, S-3, Sed-3 and Sed-4 would employ technologies known to be reliable and that can be readily implemented. Equipment, services and materials needed for Alternatives S-2 and S-3, are readily available. Land-based excavation equipment and dewatering systems similar to that which may be used under Alternatives Sed-3 and

Sed-4 have been implemented successfully at numerous sites. The actions under all of these alternatives would be administratively feasible.

Sufficient facilities exist for the local disposal of the excavated soils and sediments but appropriate arrangements with the current facility owner[s] for disposal on their properties would need to be made. While the Town of Salina Landfill currently has a means of pre-treating the collected contaminated groundwater/leachate prior to discharge to METRO, such treatment and discharge infrastructure does not exist at the Cooper Crouse-Hinds Landfill. Therefore, handling of the leachate would need to be addressed.

While soil excavation under Alternative S-2 is technically feasible, the existence of two large buried pipelines on the northern bank of Lower Ley Creek would require special excavation techniques so that these pipelines are not disturbed. In addition, one of the pipelines crosses the Creek just downstream of the Route 11 bridge. Special excavation techniques and/or adjustments to the depth of the excavation required in Alternatives Sed-3 and Sed-4 may have to be made because of the location of the gas pipeline. A sediment cap may be required in this area under Alternative Sed-3 if it is not possible to remove all the contamination down to the cleanup level.

In order to protect the structural integrity of the Route 11 bridge, it may not be possible to remove all of the contaminated sediment at the base of the bridge. Therefore, some capping of sediments under the bridge may be necessary to maintain a protective remedy.

The implementation of the above-described institutional controls would be feasible to implement under the sediment and soil alternatives.

Short-term and long-term monitoring for Alternative Sed-4 can be readily implemented to verify cap effectiveness.

Cost

The present-worth costs associated with the soil and sediment remedies are calculated using a discount rate of seven percent and a thirty-year time interval.

The estimated capital, O&M and present-worth costs for each of the alternatives utilizing local and nonlocal disposal are presented below. The local disposal option which utilizes the Crouse-Hinds Landfill is slightly less expensive than the Town of Salina Landfill option. Therefore, the Crouse-Hinds Landfill local disposal costs were used in the capital cost and annual O&M estimates.

Alternative	Capital Cost	Annual O&M	Total Present Worth
S-1	$0	$0	$0
S-2--local disposal	$9,620,500	$20,440	$9,874,000
S-2--nonlocal disposal	$13,573,000	$15,000	$13,759,000
S-3--local disposal	$8,401,000	$24,440	$8,704,000
S-3--nonlocal disposal	$11,623,000	$19,000	$11,859,000
Sed-1	$0	$0	$0
Sed-2	$0	$159,000	$1,973,000
Sed-3--local disposal	$7,411,000	$30,440	$7,788,000
Sed-3--nonlocal disposal	$11,202,000	$25,000	$11,512,000
Sed-4--local disposal	$8,664,500	$194,440	$11,077,000
Sed-4--nonlocal disposal	$11,260,000	$189,000	$13,605,000

Although Alternative S-2 is the most costly soil alternative, Alternative S-3 is not substantially less expensive. The capital costs to implement Alternatives Sed-3 and Sed-4 are quite close, with a difference of approximately $1.25 million between them if local disposal is utilized and $58,000 for nonlocal disposal. However, because of the much higher annual O&M costs associated with Alternative Sed-4, the present-worth cost for Alternative Sed-4 is approximately 39 percent greater than Sed-3, when comparing the cost of local disposal options, and it is approximately 18 percent greater when comparing the cost of nonlocal disposal. It should be noted that the estimated cost for nonlocal disposal was adjusted downward from the disposal cost presented in the FS report as a result of a comment received during the public comment period from a regulated disposal facility in Seneca Falls, New York indicating that the disposal cost-rate estimates used in the FS were considerably higher than this facility would charge.

State Acceptance

NYSDEC concurs with the selected remedy; a letter of concurrence is attached (see Appendix IV).

Community Acceptance

Comments received during the public comment period indicate that the public generally supports the selected remedy. These comments are summarized and addressed in the Responsiveness Summary, which is attached as Appendix V to this document.

The Onondaga Nation reviewed the draft RI and FS reports and draft Proposed Plan. The EPA communicated with representatives of the Onondaga Nation about these documents and intends to continue consultation discussions with the Onondaga Nation throughout the design and construction phases of the project.

PRINCIPAL THREAT WASTE

The NCP establishes an expectation that the EPA will use treatment to address the principal threats posed by a site, wherever practicable (NCP Section 300.430 (a)(1)(iii)(A)). The principal threat concept is applied to the characterization of source materials at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants or contaminants that act as a reservoir for the migration of contamination to groundwater, surface water or air or act as a source for direct exposure. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or will present a significant risk to human health or the environment should exposure occur. The decision to treat these wastes is made on a site-specific basis through a detailed analysis of alternatives, using those remedy-selection criteria that are described above. This analysis provides a basis for making a statutory finding that the remedy employs treatment as a principal element.

As is explained below, the concentrations of PCBs and other contaminants found in the soils and sediments at this Subsite do not constitute principal threat wastes. Elevated PCB soil concentrations were found in one location within the swale area at 500 mg/kg. There were seven other soil and sediment areas with PCB concentrations between 300 and 500 mg/kg, primarily in the swale and OLCC soil areas and in the Creek adjacent to the Town of Salina Landfill. These area soils and sediment are sources of contamination to the surface water and fish in the Creek and potential sources to Onondaga Lake. Based upon the EPA's guidance, PCBs above 500 mg/kg[19] in industrial areas that cannot be reliably contained and would present a significant risk to human health or the environment should exposure occur, are generally considered a principal threat waste.

Alternatives S-2, S-3, Sed-3 and Sed-4 address the PCB-contaminated soil and sediment through excavation or partial excavation and capping.

SELECTED REMEDY

Summary of the Rationale for the Selected Remedy

Based upon consideration of the requirements of CERCLA, the detailed analysis of the alternatives and public comments, the EPA has determined that Alternative S-2, excavation of soil with either local or nonlocal disposal, and Alternative Sed-3, excavation of sediments with either local or nonlocal disposal, best satisfy the requirements of CERCLA Section 121, 42 U.S.C. § 9621 and provides the best balance of tradeoffs

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[19] The 500 mg/kg concentration applies for industrial land use. OSWER Directive No. 9355.4-01, *Guidance on Remedial Actions for Superfund Sites with PCB Contamination* (August 1990), pg. 40.

among the remedial alternatives with respect to the NCP's nine evaluation criteria, set forth at 40 CFR § 300.430(e)(9).

Alternatives S-2 and S-3 would both effectively achieve the soil cleanup levels. While Alternative S-2 is slightly more expensive than Alternative S-3, Alternative S-2 would not require the monitoring and maintenance of large capped areas. Except in the areas of the OLCC and the swale, following excavation under Alternative S-2, soils deeper than 2 feet would also meet the ecological SCOs of 1 mg/kg for PCBs. Therefore, the EPA believes that Alternative S-2 would effectuate the soil cleanup while providing the best balance of tradeoffs with respect to the evaluation criteria.

Alternative Sed-3 would permanently remove the contaminated sediment from the Creek, thereby eliminating the potential for contaminated sediment to find its way into Onondaga Lake, a possibility which could occur under Alternative Sed-4 if the caps were to be breached because of storm events and/or ice scour.

The nonlocal disposal component of Alternatives S-2 and Sed-3 would require the transport of approximately 150,000 CY of contaminated soils and sediments over local roadways to a proper, nonlocal disposal facility. This volume of material would require transporting an estimated 10,000 truckloads of material, which could have a significant adverse impact on local traffic and roadways. In addition, nonlocal disposal would cost an estimated $7.6 million more than local disposal. While construction activities associated with disposal of the soils and sediments at these locations may increase the potential for additional short-term impacts, such as noise and odors, mitigation activities are available to limit such impacts and were successfully employed during the recent remediation at the Town of Salina Landfill.

The EPA has determined and NYSDEC agrees that the selected remedy is protective of human health and the environment; provides the greatest long-term effectiveness; is able to achieve ARARs more quickly than other alternatives; and is cost-effective. The selected remedy utilizes permanent solutions, alternative treatment technologies and resource-recovery technologies to the maximum extent practicable.

Description of the Selected Remedy

The selected remedy for the Lower Ley Creek Subsite to address the contaminated soil and sediment areas includes the following components:

- Excavation of an estimated 75,000 CY of contaminated soils on the northern and southern banks of the Creek that exceed the SCOs and an estimated 12,000 CY from the wetland area that exceeds the sediment criteria and an estimated 73,000

CY of sediments containing contamination above the sediment criteria[20]. The sediments will be excavated to depths ranging from 1 to 8 feet. The depth of the excavation on the banks of the Creek and in the wetland will, generally, be to 2 feet. The excavation in the swale and OLCC areas will range in depth from three to 14 feet. [21]

- Any contaminated soil located on the northern bank of the Creek that cannot be safely excavated because of the presence of the two large, buried natural gas and oil pipelines which run parallel to the north bank of the Creek will be covered with at least one foot of soil. Prior to placing the soil cover, a readily-visible and permeable subsurface demarcation layer delineating the interface between the contaminated soils and the clean soil cover will be installed.
- In order to protect the structural integrity of the Route 11 bridge, it may not be possible to remove all of the contaminated sediment at the base of the bridge. Therefore, some combination of dredging and capping of sediments under the bridge may be necessary in order to protect the bridge and not reduce the effective cross section of flow for flood protection.
- The excavated areas will be backfilled with at least two feet of soil meeting the criteria set forth at NYSDEC Program Policy DER-10, Appendix 5. The excavated ecologically sensitive wetland areas will be backfilled with soil that meets unrestricted SCOs. In excavated areas where there is underlying municipal refuse, a readily-visible and permeable subsurface demarcation layer delineating the interface between the refuse/“native” soil and the clean soil cover will be installed.
- The excavation of the southern bank soils will not be backfilled to grade. Reducing the elevation of this area will increase the flood storage capacity of this floodplain. The extent of backfilling in this area will be determined during the design phase based on the consideration of various factors, including flooding potential and desired habitat conditions.
- A detailed hydrologic analysis will be performed during the design phase to determine the effect of the remedy on stream flow, flooding and dynamics and to identify the appropriate materials and bathymetry for restoration and long-term sustainability.
- The excavated areas will be restored with clean substrate and vegetation consistent with an approved habitat restoration plan developed as part of the design. The main goal of the habitat restoration will be to restore the habitats affected by the remedy. The restoration will meet the substantive requirements of

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[20] The 1 mg/kg PCB sediment cleanup objective is consistently evaluated and often applied at contaminated sediment sites in New York State. This value is also supported by NYSDEC’s “Technical Guidance for Screening Contaminated Sediments” (January 1999). PCBs are the primary ecological risk driver at the Lower Ley Creek Subsite and are collocated with the majority of the other sediment contaminants of concern. Addressing PCBs above 1 mg/kg is expected to address risks associated with other sediment contaminants of concern (primarily, metals).

[21] See Figure 5 for the soil and sediment areas which will be addressed under this remedy.

6 NYCRR Part 608 and 663. A habitat assessment to characterize the habitats and organisms that will be affected by the remedy will be performed to support the development of the restoration plan and design.

- Habitat restoration of Ley Creek will include the placement of at least one foot of substrate similar to the existing sediments over disturbed areas and restoration of vegetation. Clean fill meeting the requirements of DER-10, Appendix 5 will replace the excavated soil and sediment or complete the backfilling of the excavation and establish the designed grades at the Subsite. The specific thickness and substrate material to be used for the backfill in these areas will be determined during the remedial design as part of the habitat restoration plan.
- The habitat restoration plan will also describe the specific design for areas impacted by the remediation of sediments and soils, actions (if any) needed for the protection of affected species and determine the appropriate plantings (including types and locations) necessary to restore habitats. The habitat restoration plan will also include the necessary requirements for monitoring restoration success and for restoration maintenance.
- Cleared vegetation will either be disposed of locally, stockpiled for habitat restoration or mulched and used on-Site.
- The excavated sediment will be transported to a staging area where it would be dewatered. If the water that drains from the sediments during dewatering is to be discharged to surface water, it would be treated to meet NYSDEC discharge requirements. The soils and sediments will be subjected to TCLP testing. Those soils and sediments which fail TCLP testing and are determined to be characteristic hazardous waste and are non-TSCA waste (*i.e.,* less than 50 mg/kg PCBs) will be disposed of off-site at a RCRA-compliant facility. Those soils and sediments that contain PCBs greater than 50 mg/kg will also be disposed of off-site, at a TSCA-compliant facility. Those soils and sediments that will not be TSCA-regulated (less than 50 mg/kg PCBs) and are not characteristic hazardous waste will be disposed of locally. Local disposal options under consideration include consolidation under the cap of the Town of Salina Landfill within the area which contains a leachate collection system or in a soon-to-be-constructed cell (located on top of existing or reconsolidated wastes) with a liner and leachate management system[22] at the yet-to-be capped Cooper Crouse-Hinds North Landfill (which will be closed under a New York State administrative consent order in the near future). The specific disposal location will be determined during the remedial design phase. Should local disposal be determined not to be viable, all excavated materials will be sent to an appropriate nonlocal facility for disposal.
- Appropriate controls and monitoring (*e.g.,* community air monitoring) will be utilized to ensure that during remediation activities, airborne particulate and

[22] The leachate management system would include leachate collection and pre-treatment and disposal at a local publicly-owned treatment works, treatment and discharge to surface water or some other form of management, such as temporary storage pending and shipment to a permitted facility for treatment/disposal.

volatile organic vapor concentrations surrounding the excavation area are acceptable.

- Institutional controls in the form of environmental easements and/or restrictive covenants will be used to restrict intrusive activities in areas of where contamination remains (including the areas where municipal refuse was disposed) unless the activities are in accordance with an EPA-approved SMP.
- The SMP will provide for the proper management of all post-construction remedy components. Specifically, the SMP will describe procedures to confirm that the requisite engineering (*e.g.,* demarcation layer) and institutional controls are in place and that nothing has occurred that will impair the ability of such controls to protect public health or the environment. The SMP will also detail the following: the provision for the management of future excavations in areas of where contamination remains (including the areas where municipal refuse was disposed); an inventory of any use restrictions; the necessary provisions for the implementation of the requirements of the above-noted environmental easement and/or restrictive covenant; a provision for the performance of the O&M for the remedy; and a provision that the property owner or party implementing the remedy submit periodic certifications that the institutional and engineering controls are in place.
- The SMP will also include fish monitoring to determine the remaining levels of contamination in the fish and the rate of decline, as well as the performance of the habitat maintenance and monitoring required by the remedy (including, but not limited to, long and short-term remedy effectiveness, habitat restoration success and the recovery of biota).

During the design, a Phase 1 Cultural Resources Survey will be performed to document the Site's historic resources. A Phase 1 Cultural Resources Survey is designed to determine the presence or absence of cultural resources in the project's potential impact area. The Phase I survey is divided into two progressive units of study--Phase IA, a literature search and sensitivity study and, if necessary based upon Phase 1A survey, a Phase IB, field investigation to search for resources.

The environmental benefits of the selected remedy may be enhanced by consideration, during the design, of technologies and practices that are sustainable in accordance with the EPA Region 2's Clean and Green Energy Policy and NYSDEC's Green Remediation Policy.[23] This will include consideration of green remediation technologies and practices.

[23] See http://epa.gov/region2/superfund/green_remediation and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf.

Because this remedy will result in contaminants remaining on-site that exceed acceptable health-based levels, CERCLA requires that the remedy be reviewed every five years. If justified by the review, additional response actions may be considered.

A decision must be made regarding whether remediation is necessary in the upstream portion of Ley Creek that is part of the IFG subsite (above Lower Ley Creek and the Route 11 bridge). If remediation is determined to be necessary, that remedy would need to be implemented prior to the implementation of this Lower Ley Creek remedy so as to prevent the potential for recontamination (if Lower Ley Creek were addressed first). While a remedy has not yet been selected for the upstream portion above Lower Ley Creek, should a selected remedy be selected that includes the excavation of upstream contaminated sediments, the EPA would need to coordinate the implementation of this remedy at Lower Ley Creek with any remedy which may be selected for the IFG subsite.

Summary of the Estimated Remedy Costs

The estimated capital, annual O&M and total present-worth costs (using a 7 percent discount rate) for the selected remedy, assuming local disposal is utilized, are $17,031,000, $61,750 and $17,797,000, respectively. Tables 5.1, 5.2 and 5.3 provide the basis for the cost estimates for Alternatives S-2 and SED-3.

It should be noted that these cost estimates are order-of-magnitude engineering cost estimates that are expected to be within +50 to -30 percent of the actual project cost. These cost estimates are based on the best available information regarding the anticipated scope of the selected remedy. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedy. In fact, the estimated costs for off-site disposal were adjusted as a result of a comment received from the operator of an off-site disposal areas.

Expected Outcomes of the Selected Remedy

The current land use at the Subsite is industrial/commercial. Land use associated with the property is not anticipated to change as a result of the implementation of the selected remedy.

The results of the risk assessment indicate that PCBs and the PAH, benzo(a)pyrene, pose an excess lifetime cancer risk above the EPA reference cancer risk range. Under the selected remedy, the removal of the PCB- and PAH-contaminated soils and sediment will eliminate the excess lifetime cancer risk.

Under the selected remedy, it is estimated that it will require nine months to achieve soil cleanup levels and 1 year to achieve cleanup levels in the sediment.

The application of the 1 mg/kg cleanup level for PCBs in sediments will result in the excavation of most of the Creek bed; areas that do not have concentrations of PCBs above 1 mg/kg are limited to the last 0.3 miles of the Creek where concentrations were all below 0.2 mg/kg ppm and two smaller sections, 1,000 feet and 300 feet, of the Creek located further upstream where concentrations of PCBs were below 0.6 mg/kg and 0.2 mg/kg, respectively. At least one foot of cover material that is suitable for habitat will be placed in all excavated sediment areas and the majority of the excavated area will receive two feet of this cover material. As a result, the sediment remedy is expected to result in a significant reduction in the concentration of PCBs and other Subsite-related contaminants in the surface sediment, thereby reducing exposure of human and ecological receptors to contaminated sediment and fish.

STATUTORY DETERMINATIONS

Under CERCLA Section 121 and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), are cost-effective and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ treatment to permanently and significantly reduce the volume, toxicity or mobility of the hazardous substances, pollutants or contaminants at a site.

For the reasons discussed below, the EPA has determined that the selected remedy meets these statutory requirements.

Protection of Human Health and the Environment

The results of the risk assessment indicate that, if no action is taken, the continued ingestion of fish caught at the Subsite poses an unacceptable increased future ecological and human health risk.

The selected remedy will reduce exposure levels to protective ARAR levels or to within the EPA's generally acceptable risk range of 10^{-4} to 10^{-6} for carcinogenic risk and below the HI of 1 for noncarcinogens in the soils and sediments. The implementation of the selected remedy will not pose unacceptable short-term risks or cross-media impacts that cannot be mitigated. The selected remedy will be protective of human health and the environment in that the excavation and disposal of the contaminated soil and sediment will eliminate a source of contamination to Onondaga Lake and to the local fisheries. Combined with institutional controls, the selected remedy will provide protectiveness of human health and the environment over both the short- and long-term.

Compliance with ARARs and Other Environmental Criteria

The selected remedy will comply with the location-specific and action-specific ARARs identified, as well as the two out of four chemical-specific ARARs. Because of technical impracticability, two chemical-specific ARARs pertaining to water column concentrations (0.001 ng/L NYS water quality PCB standards for the protection of human consumers of fish and 0.12 ng/L for the protection of wildlife) are hereby waived (see CERCLA Section 121(d)(4)(c) and 40 C.F.R. 300.430(f)(1)(ii)(C)(3)).

The ARARs, TBCs and other guidelines for the selected remedy are provided in Tables 6-1 through 6-3.

Cost-Effectiveness

A cost-effective remedy is one whose costs are proportional to its overall effectiveness (NCP Section 300.430(f)(1)(ii)(D)). Overall effectiveness is based on the evaluations of: the following: long-term effectiveness and permanence; reduction in toxicity, mobility and volume through treatment; and short-term effectiveness. Based on the comparison of overall effectiveness (discussed above) to cost, the selected remedy meets the statutory requirement that Superfund remedies be cost-effective in that it is the least-cost action alternative and will achieve the cleanup levels in the same amount of time in comparison to the more costly alternatives.

Each of the alternatives underwent a detailed cost analysis. In that analysis, capital and annual O&M costs were estimated and used to develop present-worth costs. In the present-worth cost analysis, annual O&M costs were calculated for the estimated life of the capping alternatives and fish and sediment monitoring using a 7 percent discount rate and a 30-year interval. The estimated capital, annual O&M and total present-worth costs for the selected remedy, assuming local disposal, are $17,031,000, $50,880 and $17,662,500, respectively.[24] If local disposal of the soils and sediments is not viable, the costs of the remedy will increase by $7,608,000. The estimated capital, annual O&M and total present-worth costs for off-site disposal of the selected remedy are $24,775,000, $40,000 and $25,271,000, respectively.[25]

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[24] These capital and present-worth costs assume that the contaminated soils and sediments will be disposed of locally.

[25] As mentioned above, during the public comment period, the operator of a disposal facility located approximately 50 miles from the Subsite indicated that it would charge $40/ton for the transportation and disposal of these non-TSCA regulated soils and sediments. The unit cost for the transportation and disposal of soils and sediments contaminated with less than 50 mg/kg of PCBs in a non-local landfill was estimated in the FS to be $75/ton. Because of this substantial reduction in unit cost, the estimated cost for the non-local disposal of these soils and sediments in the ROD was adjusted accordingly, which is not reflected in the estimates found in the FS.

Both soil Alternatives S-2 and S-3 would effectively achieve the soil cleanup objectives. Although Alternative S-2 is slightly more expensive than Alternative S-3, Alternative S-2 would not require cap maintenance and its O&M is therefore less expensive.

Both sediment Alternatives SED-3 and SED-4 would effectively achieve the sediment cleanup objectives. Although their capital costs are very close, the expense of maintaining the cap increases the present worth cost by an estimated 18 percent for the local disposal option and an estimated 39 percent for the nonlocal option.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

The selected remedy provides the best balance of tradeoffs among the alternatives with respect to the balancing criteria set forth in NCP Section 300.430(f)(1)(i)(B), such that it represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the Subsite.

The selected remedy will employ off-site treatment/disposal to reduce the toxicity, mobility and volume of the contaminated soils and sediments containing greater than 50 mg/kg of PCBs. The selected remedy will permanently address the soil and sediment contamination.

Preference for Treatment as a Principal Element

CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity or mobility of hazardous substances as a principal element (or justify not satisfying the preference). For the Lower Ley Creek Subsite, the EPA does not believe that treatment of the remaining sediments and soil is practicable or cost effective given the widespread nature of the sediment and soil contamination and the high volume of sediment and soils that are being addressed.

Five-Year Review Requirements

The selected remedy, once fully implemented, will result in hazardous substances, pollutants or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure. Consequently, a statutory review will be conducted within five years after initiation of remedial action and at five year intervals thereafter, to ensure that the remedy is, or will be, protective of human health and the environment.

DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan, released for public comment on July 15, 2014, identified Alternatives

S-2 and SED-3, excavation of contaminated soil and sediments and local disposal, as the preferred soil and sediment remedies. Based upon its review of the written and verbal comments submitted during the public comment period, the EPA determined that no significant changes to the remedy, as originally identified in the Proposed Plan, were necessary or appropriate.

As was mentioned above, during the public comment period, the operator of a disposal facility located approximately 50 miles from the Subsite indicated that it would charge \$40/ton for the transportation and disposal of these non-TSCA regulated soils and sediments. The unit cost for the transportation and disposal of soils and sediments contaminated with less than 50 mg/kg of PCBs in a non-local landfill was estimated in the FS to be \$75/ton. Because of this substantial reduction in unit cost, the estimated cost for the non-local disposal of these soils and sediments in the ROD was adjusted accordingly, which is not reflected in the estimates found in the FS.

In addition, during the public comment period, the owner of one of the local disposal sites indicated that it would assume responsibility for half of the O&M costs if waste from the Subsite was placed on top of its existing waste and capped. The O&M costs were adjusted accordingly.

LOWER LEY CREEK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX I

FIGURES

SUMMARY OF FIGURES

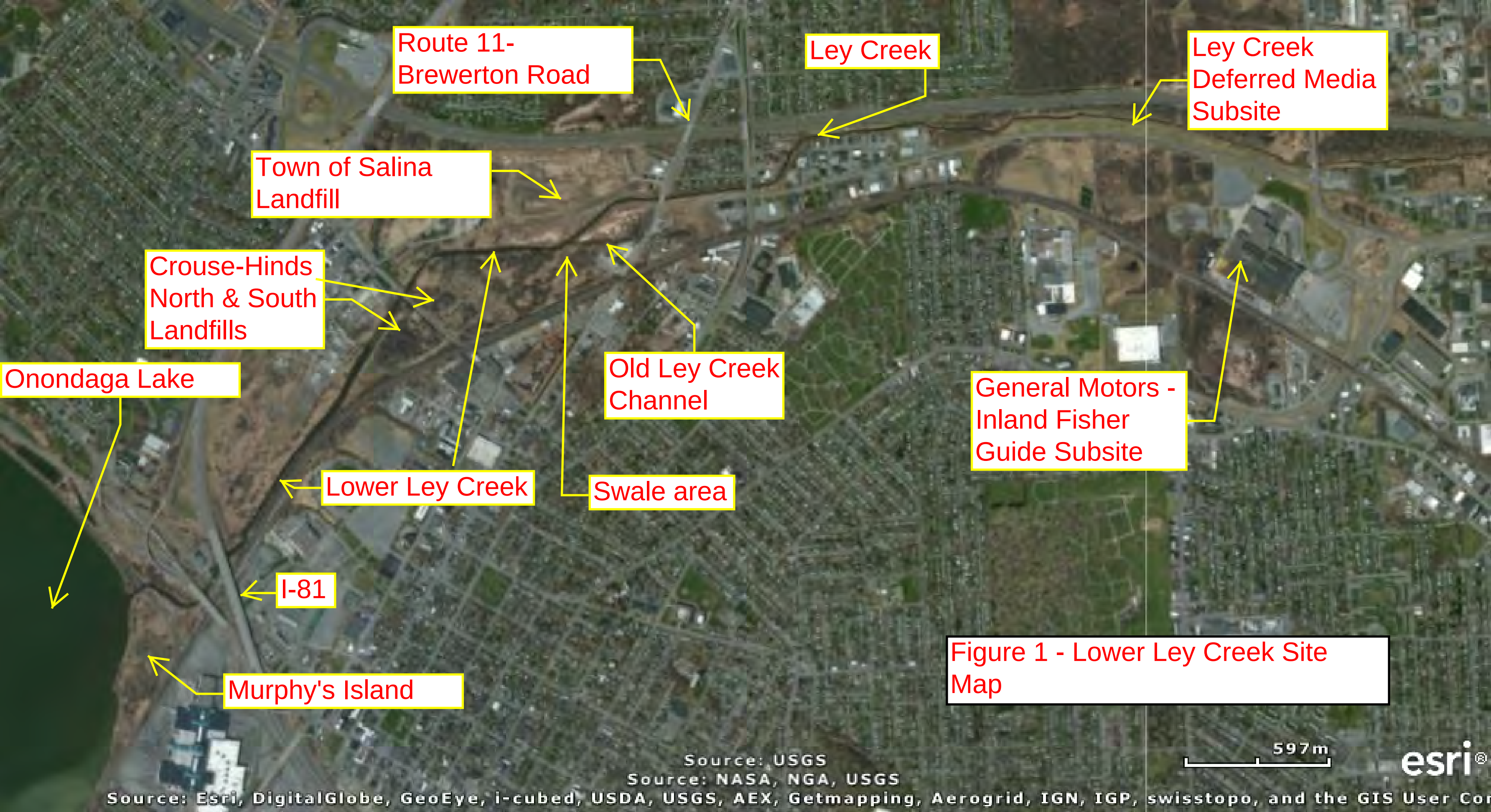
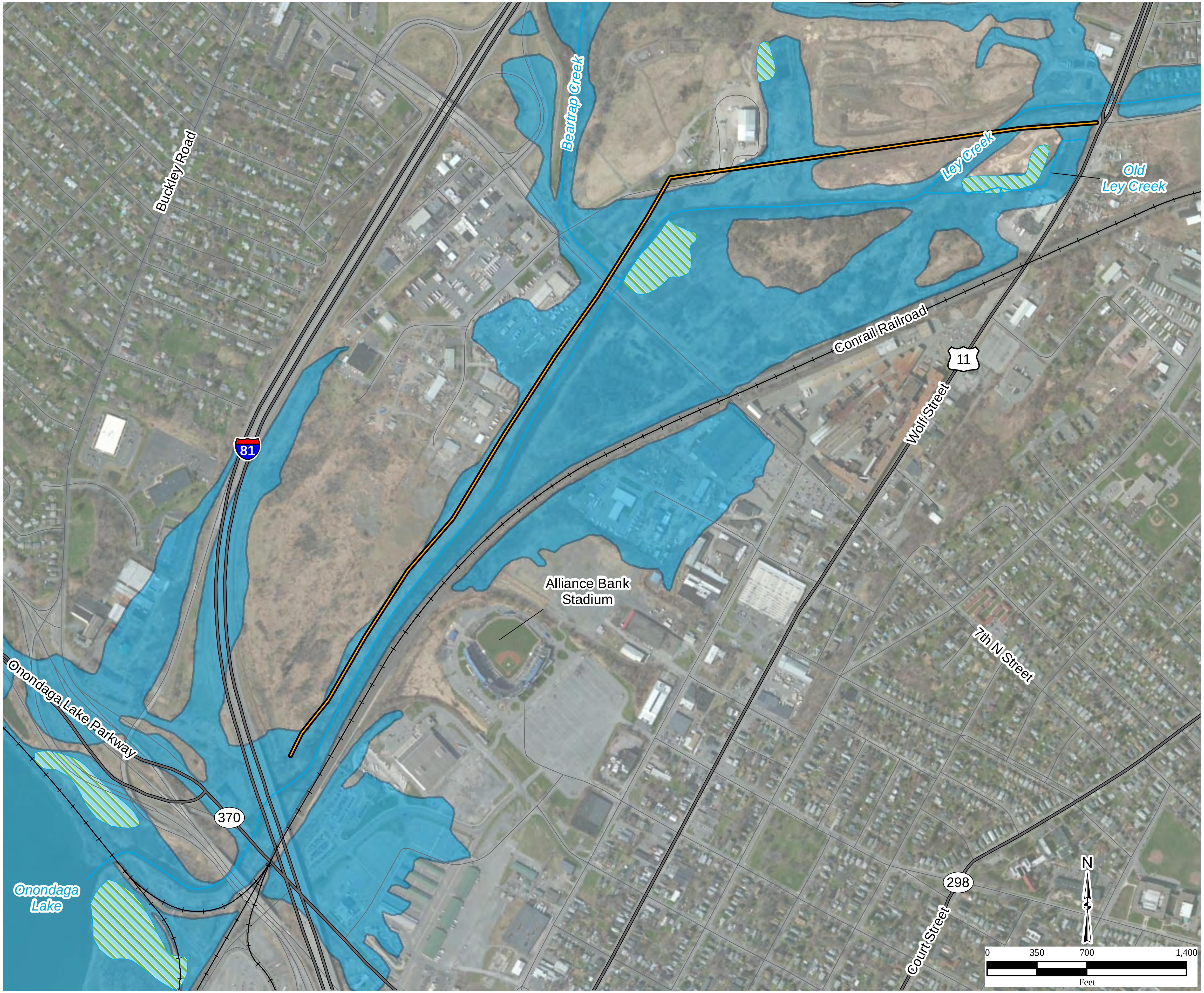


Figure 1 - Lower Ley Creek Site Map

HGL—FS Report
Lower Ley Creek Subsite of Onondaga Lake, Syracuse, NY

Figure 1A
Location of Pipelines, Floodplain, and Wetlands



Legend

- Natural Gas and Oil Pipelines within the Site Soil Boundary
- Surface Water Course
- Road
- Highway
- Railroad
- Wetlands
- Floodplain (100 year)

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7/3/2013 CNL
Source: HGL, AE Engineering, ESRI,
ArcGIS Online Imagery

HGL HydroGeoLogic, Inc

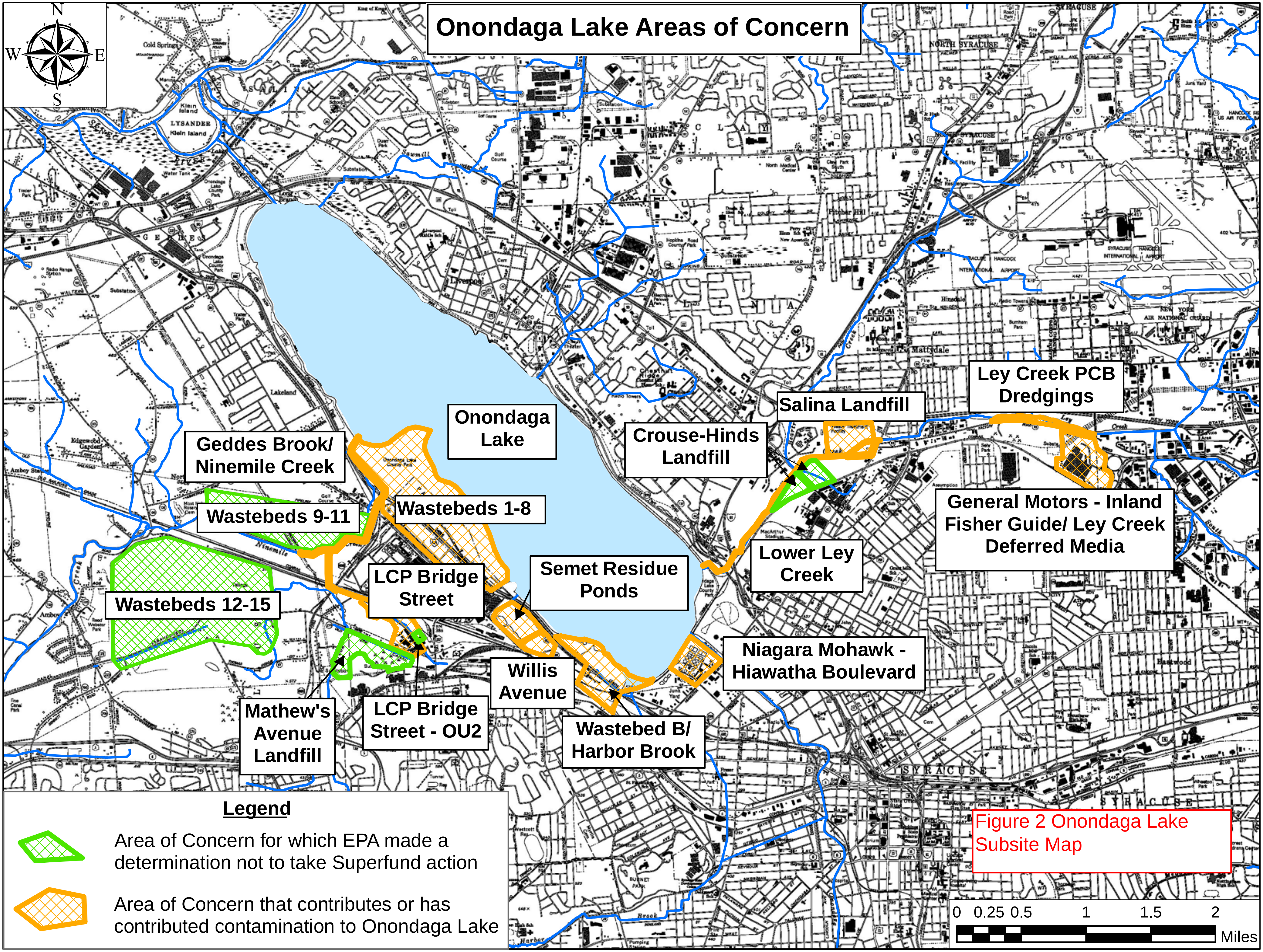
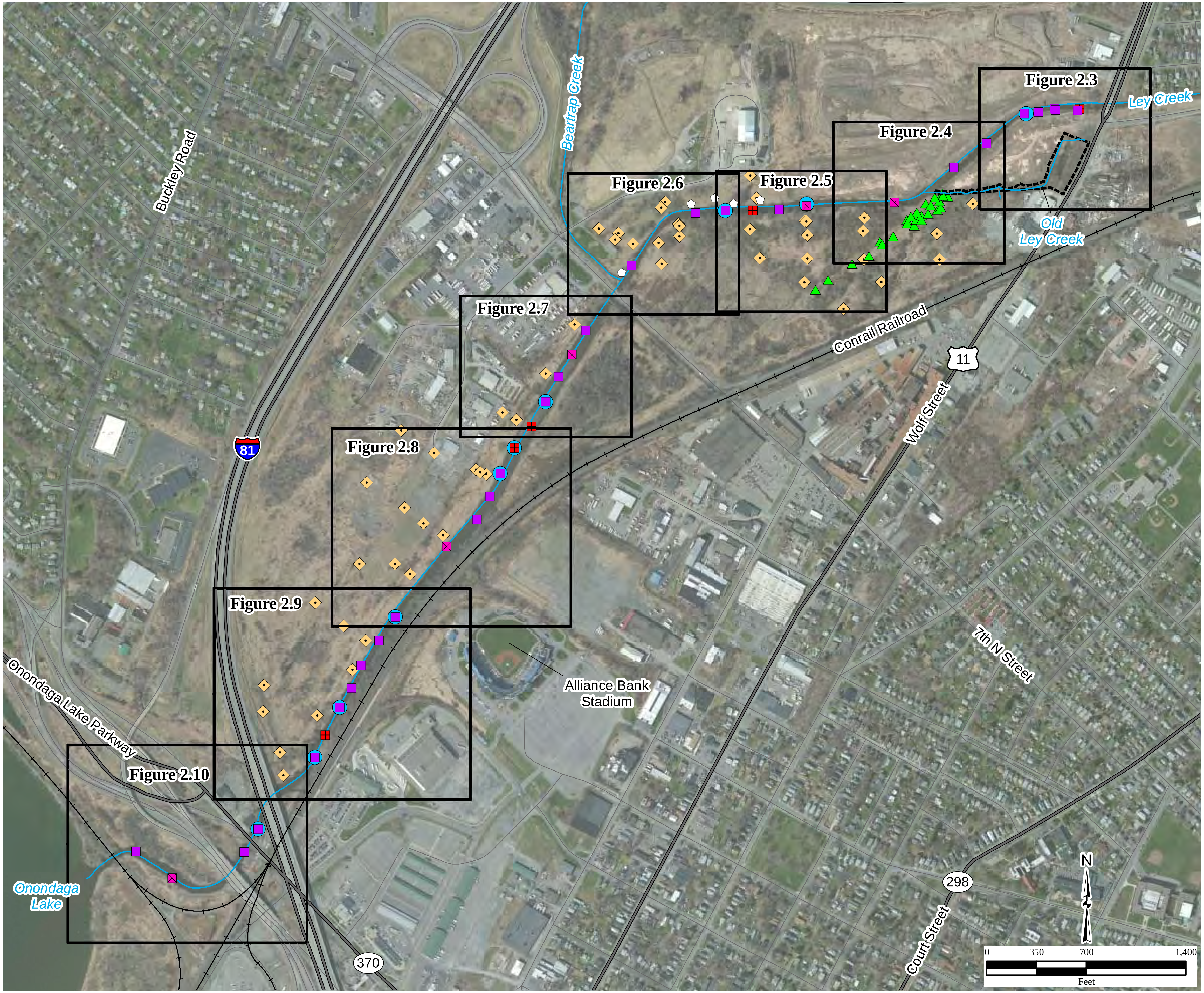


Figure 2 Onondaga Lake Subsite Map

Figure 3

Lower Ley Creek Soil and Sediment Sample Locations



Legend

Sample Locations (by medium):

- Sediment
- Surface Sediment (toxicity testing, 10-day chironomus)
- Surface Sediment (toxicity testing, 10-day chironomus and 28-day hyallela)
- Soil
- Swale (0–6", 6–12", 30–36", 54–60" bgs)
- Dredge Area
- Surface Water
- Old Ley Creek Site Boundary
- Surface Water Course
- Road
- Highway
- Railroad

Notes:
Inset maps indicate areas shown in corresponding sample location maps, figures 2.3 to 2.10.

bgs=below ground surface

More detailed sampling data is available in the RI Report.

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Source: HGL, AE Engineering, ESRI, ArcGIS Online Bing Maps Aerial

HGL HydroGeoLogic, Inc

Figure 4
OLCC Soil and Sediment Sample Locations

Legend

Lower Ley Creek Sample Locations (by medium):

- Sediment
- Surface Sediment (toxicity testing, 10-day chironomus)
- Surface Water
- Soil
- Monitoring Well
- Old Ley Creek Site Boundary

More detailed sampling data is available in the RI Report.

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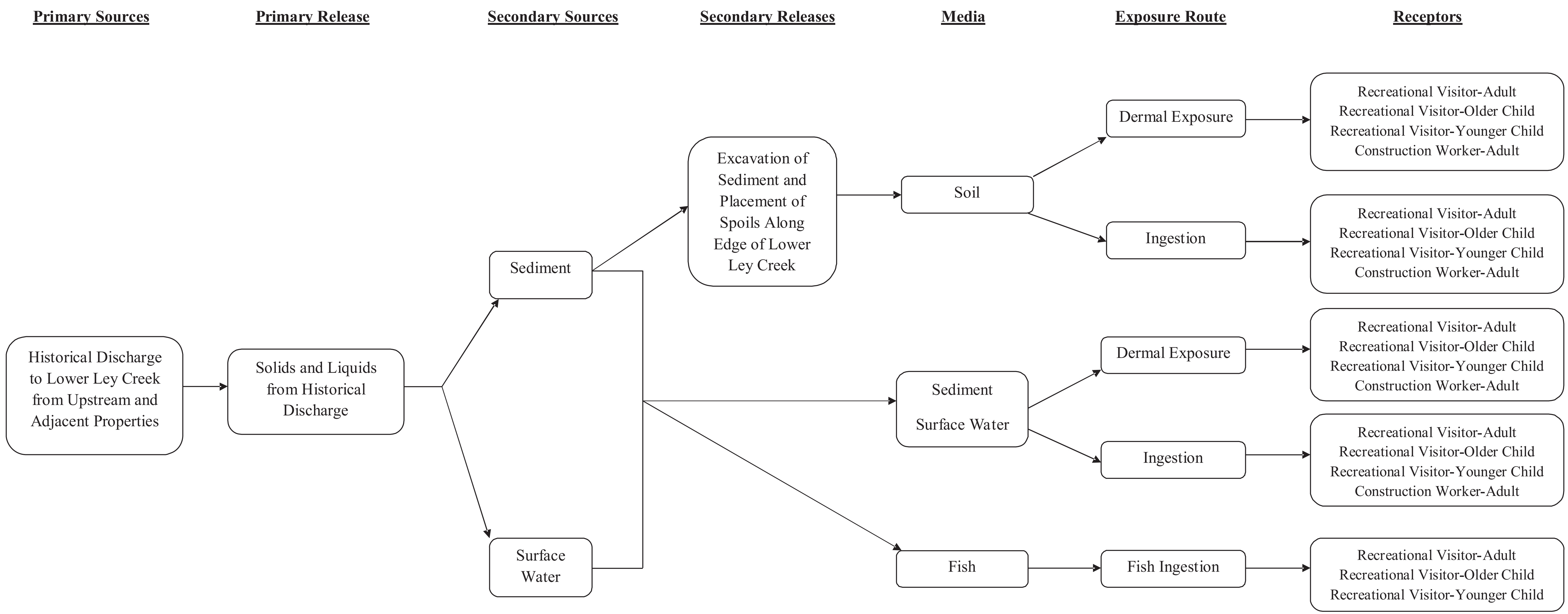
Source: HGL, AE Engineering, ESRI, ArcGIS Online Bing Maps Aerial

HGL HydroGeoLogic, Inc.

Figure 5

Lower Ley Creek Preferred Remedy



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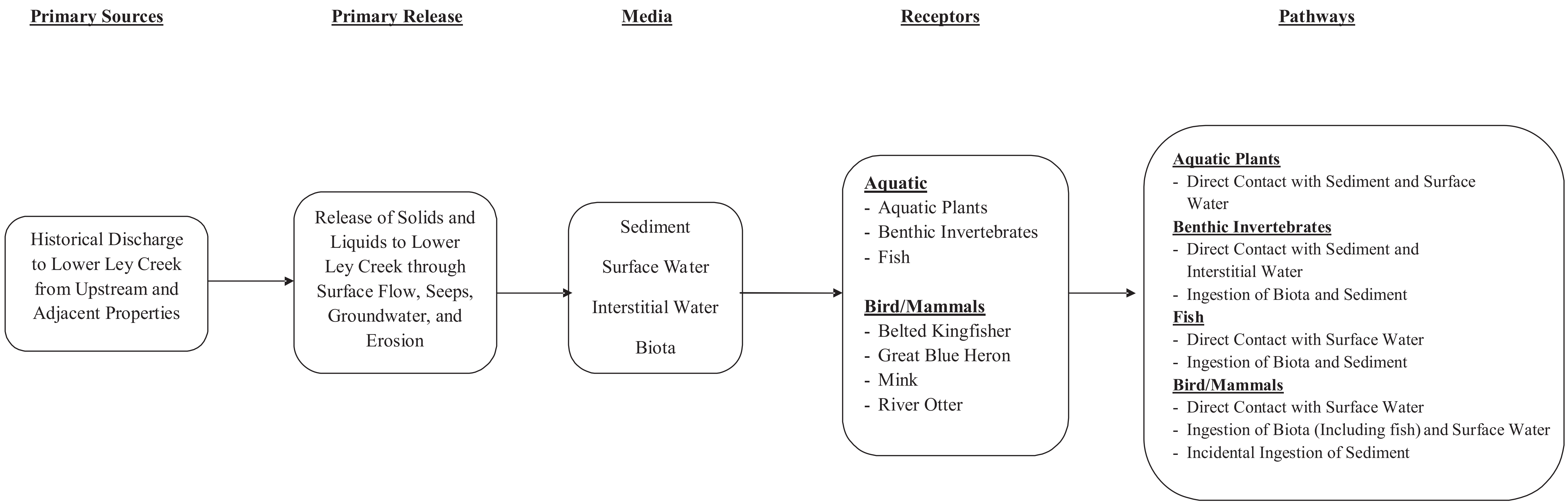
Source: HGL

Figure 6
Conceptual Site Model for Human Health Risks



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Source: HGL

Figure 7
Conceptual Site Model for Ecological Risks

LOWER LEY CREEK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX II

TABLES

SUMMARY OF TABLES

Table 1 – Soil Cleanup Objectives

Chemicals of Concern	Surface Soil – top 2 feet	Subsurface Soil – deeper than 2 feet	Highest Concentration Found in Site Soils
PCBs	1 mg/kg	10 mg/kg[1]	500 mg/kg
Arsenic	13 mg/kg	16 mg/kg	21.2 mg/kg
Cadmium	4 mg/kg	9.3 mg/kg	337 mg/kg
Trivalent Chromium	41 mg/kg	1,500 mg/kg	
Copper	50 mg/kg	270 mg/kg	1,130 mg/kg
Lead	63 mg/kg	1,000 mg/kg	487 mg/kg
Mercury	0.18 mg/kg	2.8 mg/kg	4.1 mg/kg
Nickel	30 mg/kg	310 mg/kg	1,230 mg/kg
Silver	2 mg/kg	1,500 mg/kg	136 mg/kg
Zinc	109 mg/kg	10,000 mg/kg	2,180 mg/kg

Source: 6 NYCRR PART 375, Environmental Remediation Programs, Subpart 375-6, New York State Department of Environmental Conservation, December 14, 2006 (protection of ecological resources for surface soil and protection of public health, commercial use, for subsurface soil).

Table 2 – Sediment Criteria for Site-Related Metals

Chemicals of Concern	Low Effect Level	Severe Effect Level	Highest Concentration found in Site Sediments
PCBs[2]			315 mg/kg
Arsenic	6.0 mg/kg	33.0 mg/kg	23.6 mg/kg
Cadmium	0.6 mg/kg	9.0 mg/kg	462 mg/kg
Total Chromium	26 mg/kg	110.0 mg/kg	1,090 mg/kg
Lead	31 mg/kg	110.0 mg/kg	856 mg/kg
Mercury	0.15 mg/kg	1.3 mg/kg	2.1 mg/kg
Nickel	16 mg/kg	50.0 mg/kg	447 mg/kg

Source: New York State Department of Environmental Conservation Technical Guidance for Screening Contaminated Sediments, January 1999

[1] New York State Department of Environmental Conservation CP-51 / Soil Cleanup Guidance, October 21, 2010.

[2] The 1 mg/kg PCB sediment cleanup objective is consistently evaluated and often applied at contaminated sediment sites in New York State. This value is also supported by NYSDEC's "Technical Guidance for Screening Contaminated Sediments" (January 1999). PCBs are the primary ecological risk driver at the Lower Ley Creek Subsite and are collocated with the majority of the other sediment contaminants of concern. Addressing PCBs above 1 mg/kg is expected to address risks associated with other sediment contaminants of concern (primarily, metals).

Table 3.1
PCB Maximum Soil Concentrations by Location

Location ID	Starting Depth (in)	Ending Depth (in)	Chemical Name	Result (µg/kg)	Unrestricted Use NYS Soil Criteria (µg/kg)
Aroclor-1242					
SP-04	18	24	Aroclor-1242	2,800	100
SP-05	18	24	Aroclor-1242	2,400	100
Aroclor-1248					
SW-6	6	12	Aroclor-1248	500,000	100
SB-1504	30	36	Aroclor-1248	450,000	100
SS-22	12	24	Aroclor-1248	380,000	100
SB-1506	0	6	Aroclor-1248	350,000	100
SS-29	0	6	Aroclor-1248	320,000	100
SS-23	12	24	Aroclor-1248	300,000	100
SB-1505	0	6	Aroclor-1248	280,000	100
SW-5	6	12	Aroclor-1248	260,000	100
SB-1511	0	6	Aroclor-1248	240,000	100
SS-16	6	12	Aroclor-1248	210,000	100
SS-13	0	6	Aroclor-1248	190,000	100
SS-24	6	12	Aroclor-1248	170,000	100
SB-1507	0	6	Aroclor-1248	160,000	100
SS-10	0	6	Aroclor-1248	140,000	100
SS-28	0	6	Aroclor-1248	130,000	100
SB-1503	30	36	Aroclor-1248	110,000	100
SS-08	0	6	Aroclor-1248	100,000	100
SS-20	6	12	Aroclor-1248	100,000	100
SS-17	6	12	Aroclor-1248	99,000	100
SS-18	0	6	Aroclor-1248	94,000	100
SS-25	0	6	Aroclor-1248	87,000	100
LLCD27	12	24	Aroclor-1248	86,100	100
SS-30	0	6	Aroclor-1248	76,000	100
LLCD35	0	12	Aroclor-1248	40,900	100
LLCD38	12	24	Aroclor-1248	40,200	100
SB-09	96	144	Aroclor-1248	39,000	100
SB-1508	30	36	Aroclor-1248	36,000	100
SS-12	0	6	Aroclor-1248	34,000	100
SS-19	0	6	Aroclor-1248	34,000	100
SS-26	12	24	Aroclor-1248	32,000	100
SB-04	48	96	Aroclor-1248	32,000	100
SB-1510	54	60	Aroclor-1248	29,000	100
SB-20	144	168	Aroclor-1248	28,000	100
SB-15	96	144	Aroclor-1248	23,000	100
SS-09	0	6	Aroclor-1248	15,000	100
LLCD29	12	24	Aroclor-1248	13,700	100
LLCD25	0	12	Aroclor-1248	8,880	100
SB-10	48	96	Aroclor-1248	7,600	100
SB-05C	24	48	Aroclor-1248	7,000	100
SW-3	6	12	Aroclor-1248	6,500	100
SS-04	12	24	Aroclor-1248	5,800	100
SB-07	48	96	Aroclor-1248	5,300	100
SB-19	0	48	Aroclor-1248	5,000	100
LLCD21	12	24	Aroclor-1248	4,960	100
SB-05B	24	48	Aroclor-1248	4,800	100
MW-03	24	72	Aroclor-1248	4,700	100

Table 3.1
PCB Maximum Soil Concentrations by Location

Location ID	Starting Depth (in)	Ending Depth (in)	Chemical Name	Result (µg/kg)	Unrestricted Use NYS Soil Criteria (µg/kg)
LLCD08	12	24	Aroclor-1248	4,100	100
SS-21	6	12	Aroclor-1248	3,700	100
SW-4	6	12	Aroclor-1248	3,600	100
LLCD32	0	12	Aroclor-1248	3,300	100
SS-02	6	12	Aroclor-1248	3,100	100
SB-05	0	48	Aroclor-1248	3,000	100
SB-03	48	96	Aroclor-1248	2,800	100
SB-08	48	96	Aroclor-1248	2,800	100
SB-11	48	96	Aroclor-1248	2,600	100
SS-07	0	6	Aroclor-1248	2,500	100
MW-01	24	72	Aroclor-1248	2,500	100
SS-31	12	24	Aroclor-1248	1,900	100
SP-01	6	12	Aroclor-1248	1,700	100
MW-02	24	72	Aroclor-1248	1,700	100
SP-03	6	12	Aroclor-1248	1,600	100
SS-27	0	6	Aroclor-1248	1,500	100
SB-17	48	96	Aroclor-1248	1,400	100
SS-05	12	24	Aroclor-1248	1,000	100
SS-11	0	6	Aroclor-1248	1,000	100
SS-03	12	24	Aroclor-1248	840	100
SP-02	6	12	Aroclor-1248	770	100
SB-05A	24	48	Aroclor-1248	750	100
SB-16	48	96	Aroclor-1248	540	100
SB-13	96	144	Aroclor-1248	520	100
SW-7	0	6	Aroclor-1248	390	100
LLCD40	12	24	Aroclor-1248	363	100
SW-1	6	12	Aroclor-1248	340	100
SW-2	0	6	Aroclor-1248	300	100
LLCD28	0	12	Aroclor-1248	265	100
SB-01	48	96	Aroclor-1248	170	100
SS-14	0	6	Aroclor-1248	160	100
LLCD14	0	12	Aroclor-1248	116	100
SS-06	0	6	Aroclor-1248	100	100
SS-15	0	6	Aroclor-1248	99	100
SB-12	48	96	Aroclor-1248	71	100
LLCD13	0	12	Aroclor-1248	69	100
SB-1501	54	60	Aroclor-1248	66	100
SB-1500	30	36	Aroclor-1248	62	100
SS-01	0	6	Aroclor-1248	47	100
SB-18	96	144	Aroclor-1248	44	100
SB-1502	0	6	Aroclor-1248	28	100
LLCD02	0	12	Aroclor-1248	26.3	100
Aroclor-1254					
SS-29	0	6	Aroclor-1254	100,000	100
SS-16	0	6	Aroclor-1254	83,000	100
SS-13	0	6	Aroclor-1254	76,000	100
SS-24	6	12	Aroclor-1254	76,000	100
SS-10	0	6	Aroclor-1254	57,000	100
SS-28	0	6	Aroclor-1254	55,000	100
SS-08	0	6	Aroclor-1254	48,000	100

Table 3.1
PCB Maximum Soil Concentrations by Location

Location ID	Starting Depth (in)	Ending Depth (in)	Chemical Name	Result (µg/kg)	Unrestricted Use NYS Soil Criteria (µg/kg)
SS-25	0	6	Aroclor-1254	36,000	100
SS-30	0	6	Aroclor-1254	35,000	100
SS-12	0	6	Aroclor-1254	14,000	100
SS-26	12	24	Aroclor-1254	12,000	100
SS-09	0	6	Aroclor-1254	5,600	100
SS-04	12	24	Aroclor-1254	2,900	100
SS-02	6	12	Aroclor-1254	1,500	100
SS-07	0	6	Aroclor-1254	1,500	100
SS-27	0	6	Aroclor-1254	1,300	100
SS-05	12	24	Aroclor-1254	600	100
SS-11	0	6	Aroclor-1254	550	100
SS-03	12	24	Aroclor-1254	450	100
SB-01	48	96	Aroclor-1254	140	100
SS-14	0	6	Aroclor-1254	92	100
SS-06	0	6	Aroclor-1254	79	100
SB-17	96	144	Aroclor-1254	68	100
SS-15	0	6	Aroclor-1254	52	100
Aroclor-1260					
R3-15	12	24	Aroclor-1260	5,180	100
LLCD38	12	24	Aroclor-1260	2,940	100
LLCD27	12	24	Aroclor-1260	2,910	100
LLCD35	0	12	Aroclor-1260	2,140	100
R3-13	0	6	Aroclor-1260	1,930	100
LLCD29	12	24	Aroclor-1260	1,670	100
SS-31	12	24	Aroclor-1260	1,100	100
LLCD28	0	12	Aroclor-1260	1,090	100
LLCD32	0	12	Aroclor-1260	930	100
LLCD25	0	12	Aroclor-1260	851	100
LLCD21	12	24	Aroclor-1260	711	100
LLCD08	12	24	Aroclor-1260	546	100
SB-1505	30	36	Aroclor-1260	510	100
SB-T4A	54	60	Aroclor-1260	380	100
R3-14	60	72	Aroclor-1260	299	100
LLCD13	0	12	Aroclor-1260	235	100
SB-1509	54	60	Aroclor-1260	110	100
LLCD01	12	24	Aroclor-1260	69.3	100
LLCD02	0	12	Aroclor-1260	55	100
LLCD34	12	24	Aroclor-1260	36.5	100
LLCD39	0	12	Aroclor-1260	34.9	100
LLCD14	0	12	Aroclor-1260	34.7	100

Notes:
Highlighted cells indicate results greater than the Unrestricted Use NYS Soil Criteria
NYS - New York State
in - inches
µg/kg - micrograms per kilogram

Table 3.2
PCB Maximum Sediment Concentrations by Location

Location ID	Starting Depth (in)	Ending Depth (in)	Chemical Name	Result (ug/kg)	NYS Sediment Criteria (µg/kg)	TSCA High Occupancy Area Minimum Criteria (µg/kg)
Aroclor-1242						
SED-04	12	24	Aroclor-1242	56,000	0.03	1,000
SED-03	0	6	Aroclor-1242	48,000	0.03	1,000
R3-11	6	12	Aroclor-1242	43,000	0.03	1,000
R3-9	0	6	Aroclor-1242	19,000	0.03	1,000
R2-11	18	24	Aroclor-1242	15,000	0.03	1,000
R3-3	18	24	Aroclor-1242	9,800	0.03	1,000
R3-8	18	24	Aroclor-1242	9,400	0.03	1,000
R3-6	6	12	Aroclor-1242	7,700	0.03	1,000
R3-7	18	24	Aroclor-1242	7,300	0.03	1,000
R2-12	18	24	Aroclor-1242	7,000	0.03	1,000
R3-5	18	24	Aroclor-1242	6,200	0.03	1,000
R2-9	18	24	Aroclor-1242	4,600	0.03	1,000
R3-2	18	24	Aroclor-1242	4,200	0.03	1,000
R2-10	18	24	Aroclor-1242	3,800	0.03	1,000
R3-4	6	12	Aroclor-1242	3,300	0.03	1,000
R2-8	18	24	Aroclor-1242	2,800	0.03	1,000
R3-1	0	6	Aroclor-1242	2,200	0.03	1,000
R2-14	18	24	Aroclor-1242	2,000	0.03	1,000
R2-15	6	12	Aroclor-1242	2,000	0.03	1,000
R2-16	18	24	Aroclor-1242	1,400	0.03	1,000
R2-4	0	6	Aroclor-1242	1,200	0.03	1,000
R2-13	0	6	Aroclor-1242	1,100	0.03	1,000
R3-10	6	12	Aroclor-1242	920	0.03	1,000
R1-2	0	6	Aroclor-1242	230	0.03	1,000
R2-17	0	6	Aroclor-1242	170	0.03	1,000
R2-7	0	6	Aroclor-1242	140	0.03	1,000
R2-1	18	24	Aroclor-1242	61	0.03	1,000
R1-4	0	6	Aroclor-1242	55	0.03	1,000
R1-1	0	6	Aroclor-1242	49	0.03	1,000
R1-3	0	6	Aroclor-1242	49	0.03	1,000
Aroclor-1248						
R3-13	0	6	Aroclor-1248	315,000	0.03	1,000
R3-15	12	24	Aroclor-1248	303,000	0.03	1,000
R3-8	78	84	Aroclor-1248	69,000	0.03	1,000
SED-01	12	24	Aroclor-1248	31,000	0.03	1,000
R2-11	18	24	Aroclor-1248	26,000	0.03	1,000
SED-02	12	24	Aroclor-1248	25,000	0.03	1,000
R3-3	42	48	Aroclor-1248	24,000	0.03	1,000
R3-12	18	24	Aroclor-1248	15,000	0.03	1,000
R3-14	60	72	Aroclor-1248	12,300	0.03	1,000
R3-11	6	12	Aroclor-1248	8,300	0.03	1,000
R2-15	30	36	Aroclor-1248	5,500	0.03	1,000
SED-12	0	6	Aroclor-1248	1,800	0.03	1,000
SED-11	0	6	Aroclor-1248	1,400	0.03	1,000
R2-7	6	12	Aroclor-1248	150	0.03	1,000
SED-06	0	6	Aroclor-1248	61	0.03	1,000

Table 3.2
PCB Maximum Sediment Concentrations by Location

Location ID	Starting Depth (in)	Ending Depth (in)	Chemical Name	Result (ug/kg)	NYS Sediment Criteria (µg/kg)	TSCA High Occupancy Area Minimum Criteria (µg/kg)
Aroclor-1254						
SED-01	12	24	Aroclor-1260	11,000	0.03	1,000
SED-02	12	24	Aroclor-1260	13,000	0.03	1,000
SED-03	0	6	Aroclor-1260	9,400	0.03	1,000
SED-04	12	24	Aroclor-1260	8,300	0.03	1,000
SED-11	0	6	Aroclor-1260	570	0.03	1,000
SED-12	0	6	Aroclor-1260	790	0.03	1,000
Aroclor-1260						
R2-15	0	6	Aroclor-1260	18,000	0.03	1,000

Notes:

Highlighted cells indicate results greater than the TSCA High Occupancy Area Minimum Criteria
PCB - polychlorinated biphenyl
NYS - New York State
TSCA - Toxic Substances Control Act
in - inches
µg/kg - micrograms per kilogram

Table 4.1
Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Upland soils to a depth of 8 feet

Exposure Point	Chemical of Concern	Concentration Detected		Concentration Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure
		Min	Max					
Lower Ley Creek	Benzo(a)anthracene	0.08	36.2	mg/kg	27/34	9.2	mg/kg	97.5% KM
	Benzo(a)pyrene	0.06	27.4	mg/kg	30/34	5.82	mg/kg	95% KM
	Benzo(b)fluoranthene	0.06	29.1	mg/kg	28/34	6.13	mg/kg	95% KM
	Dibenz(ah)-anathracene	0.08	6.4	mg/kg	22/34	0.96	mg/kg	95%KM
	Chromium	7.04	1320	mg/kg	52/52	275	mg/kg	95% Cheby
	Aroclor 1248	0.03	86.1	mg/kg	19/37	11.41	mg/kg	95% KM
	Aroclor 1260	0.03	2.94	mg/kg	22/37	0.68	mg/kg	95% KM

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Upland soils to a depth of 2 feet

Exposure Point	Chemical of Concern	Concentration Detected		Concentration Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure
		Min	Max					
Lower Ley Creek	Benzo(a)pyrene	0.0593	27.4	mg/kg	27/28	11	mg/kg	97.5% KM
	Chromium	8.1	1320	mg/kg	33/33	414	mg/kg	95% Cheby
	Aroclor 1248	0.0263	86.1	mg/kg	18/33	11.86	mg/kg	95% KM

Table 4.1
Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Lower Ley Creek

Exposure Point	Chemical of Concern	Concentration Min	Concentration Max	Concentration Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure
Lower Ley Creek	Benzo(a)anthracene	0.01	47	mg/kg	64/67	12.21	mg/kg	97.5% KM
	Benzo(a)pyrene	0.014	32	mg/kg	61/67	8.888	mg/kg	97.5% KM
	Benzo(b)fluoranthene	0.011	42	mg/kg	63/67	12.2	mg/kg	97.5% KM
	Dibenz(ah)-anathracene	0.0092	4.9	mg/kg	30/67	0.73	mg/kg	95% KM
	Indeno(123-cd)pyrene	0.012	23	mg/kg	62/67	5.397	mg/kg	95% KM
	Arsenic	0.95	23.6	mg/kg	68/68	8.331	mg/kg	95% gamma
	Chromium	2.2	1090	mg/kg	67/68	203.2	mg/kg	95% KM
	Aroclor 1242	0.061	43	mg/kg	47/67	5.508	mg/kg	95% KM
	Aroclor 1260	18	18	mg/kg	1/67	18	mg/kg	Max

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Dredge Spoils Area

Exposure Point	Chemical of Concern	Concentration Min	Concentration Max	Concentration Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure
Lower Ley Creek	Benzo(a)anthracene	0.13	2.8	mg/kg	12/12	1.132	mg/kg	95% gamma
	Benzo(a)pyrene	0.12	3.2	mg/kg	12/12	1.309	mg/kg	95% gamma
	Benzo(b)fluoranthene	0.2	4.5	mg/kg	12/12	1.893	mg/kg	95% gamma
	Dibenz(ah)-anathracene	0.024	0.14	mg/kg	5/12	0.126	mg/kg	95% KM
	Indeno(123-cd)pyrene	0.13	1.9	mg/kg	11/12	1.173	mg/kg	95% KM
	Aroclor 1248	0.23	1.7	mg/kg	7/12	1.011	mg/kg	95% KM

Table 4.1
Summary of Chemicals of Concern and
Medium-Specific Exposure Point Concentrations

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

Exposure Point	Chemical of Concern	Concentration Min	Concentration Max	Concentration Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure
Lower Ley Creek	Chromium	3.7	8.4	ug/l	2/22	4.422	ug/l	95% KM

Scenario Timeframe: Fish Tissue
Medium:
Exposure Medium: Surface Water

Exposure Point	Chemical of Concern	Concentration Min	Concentration Max	Concentration Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure
Lower Ley Creek	Arsenic	0.92J	1.9J	mg/kg	12/14	1.419	mg/kg	95% KM
	Chromium	5.5J	61.7	mg/kg	2/14	43.68	mg/kg	95% KM
	Mercury	0.24	0.74	mg/kg	7/14	0.478	mg/kg	95% KM
	Aroclor 1254	0.17	2	mg/kg	14/14	1.179	mg/kg	95% H
	Aroclor 1260	0.087	0.86	mg/kg	14/14	0.58	mg/kg	95% Cheby

95% KM: UCL based on the Kaplan-Meier Method
97.5% KM: UCL based on the Kaplan-Meier Method
95% gamma: UCL based on the gamma distribution
95% Cheby: UCL based on the Chebyshev Method
95% H: UCL based on Lands H-statistic
Max: Maximum detected concentration used

Table 4.2
Selection of Exposure Pathways

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Soil	Upland soils to a depth of 8 feet	Lower Ley Creek	Consturction worker (future)	Adult	Dermal	Quantitative	Dermal conact with contamined soils during construction activities is possible.
					Adult	Ingestion	Quantitative	Incidental ingetion of contaminated soils during construction activities is possible.
				Recreational Visitor	Adult	Dermal	Quantitative	Dermal contact with contaminated soils during hiking or other recreational activities is possible
						Ingestion	Quantitative	Incidental ingestion of contaminated soils during hiking or other recreational activities is possible
					Older child (6-16 yrs)	Dermal	Quantitative	Dermal contact with contaminated soils during hiking or other recreational activities is possible
						Ingestion	Quantitative	Incidental ingestion of contaminated soils during hiking or other recreational activities is possible
					Child (<6 yrs)	Dermal	Quantitative	Dermal contact with contaminated soils during hiking or other recreational activities is possible
						Ingestion	Quantitative	Incidental ingestion of contaminated soils during hiking or other recreational activities is possible
	Sediment	Sediment to a depth of 12 inches	Lower Ley Creek	Construction worker (future)	Adult	Dermal	Quantitative	Dermal conact with contamined sediments during construction activities is possible.
						Ingestion	Quantitative	Incidental ingetion of contaminated sediments during construction activities is possible.

Table 4.2
Selection of Exposure Pathways

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
		Sediment to a depth of 12 inches	Lower Ley Creek	Recreational Visitor	Adult	Dermal	Quantitative	Dermal contact with contaminated sediments during angling or other wading activities is possible
						Ingestion	Quantitative	Incidental ingestion of contaminated sediments during angling or other wading activities is possible
					Older child (6-16 yrs)	Dermal	Quantitative	Dermal contact with contaminated sediments during angling or other wading activities is possible
						Ingestion	Quantitative	Incidental ingestion of contaminated sediments during angling or other wading activities is possible
					Child (<6 yrs)	Dermal	Quantitative	Dermal contact with contaminated sediments during angling or other wading activities is possible
						Ingestion	Quantitative	Incidental ingestion of contaminated sediments during angling or other wading activities is possible
	Sediment	Sediment to a depth of 12 inches	Dredge Spoils Area	Recreational Visitor	Adult	Dermal	Quantitative	Dermal contact with contaminated sediments during angling or other wading activities is possible
						Ingestion	Quantitative	Incidental ingestion of contaminated sediments during angling or other wading activities is possible
					Older child (6-16 yrs)	Dermal	Quantitative	Dermal contact with contaminated sediments during angling or other wading activities is possible

						Ingestion	Quantitative	Incidental ingestion of contaminated sediments during angling or other wading activities is possible
					Child (<6 yrs)	Dermal	Quantitative	Dermal contact with contaminated sediments during angling or other wading activities is possible
						Ingestion	Quantitative	Incidental ingestion of contaminated sediments during angling or other wading activities is possible
	Surface Water	Surface Water	Lower Ley Creek	Recreational Visitor	Adult	Dermal	Quantitative	Dermal contact with contaminated surface water during angling or other wading activities is possible
						Ingestion	Quantitative	Incidental ingestion of contaminated surface water during angling or other wading activities is possible
					Older child (6-16 yrs)	Dermal	Quantitative	Dermal contact with contaminated surface water during angling or other wading activities is possible
						Ingestion	Quantitative	Incidental ingestion of contaminated surface water during angling or other wading activities is possible
					Child (<6 yrs)	Dermal	Quantitative	Dermal contact with contaminated surface water during angling or other wading activities is possible
						Ingestion	Quantitative	Incidental ingestion of contaminated surface water during angling or other wading activities is possible
	Edible Fish	Edible fish tissue	Lower Ley Creek	Recreational anglers and fish consumers	Adult	Ingestion	Quantitative	Edible fish with contaminated filets have been detected in Ley Creek. It is possible that nearby residents or other anglers would catch and eat these fish.

Table 4.2
Selection of Exposure Pathways

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
					Older child (6-16 yrs)	Ingestion	Qualitative	This scenario is possible due to the existence of a possible subsistence fishing community within the greater Onondaga Lake area
					Child (<6 yrs)	Ingestion	Qualitative	This scenario is possible due to the existence of a possible subsistence fishing community within the greater Onondaga Lake area
	Edible waterfowl and turgles	Edible tissue	Lower Ley Creek	Hunters and their families	Adult	Ingestion	Qualitative	Hunting is leagally permitted on nearby Onondaga Lake. There is a state-wide advisory recommending restricted consumption of water fowl and snapping turtles. The lack of ingestion rates for water fowl and turtles precludes quantitative analysis of this pathway.
					Older child (6-16 yrs)	Ingestion	Qualitative	Hunting is leagally permitted on nearby Onondaga Lake. There is a state-wide advisory recommending restricted consumption of water fowl and snapping turtles. The lack of ingestion rates for waterfowl and turtles precludes quantitative analysis of this pathway.
					Child (<6 yrs)	Ingestion	Qualitative	Hunting is leagally permitted on nearby Onondaga Lake. There is a state-wide advisory recommending restricted consumption of water fowl and snapping turtles. The lack of ingestion rates for waterfowl and turtles precludes quantitative analysis of this pathway.

Table 4.3
Non-Cancer Toxicity Data Summary

Pathway: Ingestion/Dermal

Chemicals of Concern	Chronic/ Subchronic	Oral RfD Value	Oral RfD Units	Absorp. Efficiency (Dermal)	Adjusted RfD (Dermal)	Adj. Dermal RfD Units	Primary Target Organ	Combined Uncertainty /Modifying Factors	Sources of RfD Target Organ	Dates of RfD
Benzo(a)-anthracene	--	--	--	1	--	--	--	--	--	--
Benzo(a)pyrene	--	--	--	1	--	--	--	--	--	--
Benzo(b)-fluoranthene	--	--	--	1	--	--	--	--	--	--
Dibenzo-(ah)anthracene	--	--	--	1	--	--	--	--	--	--
Indeno(123-cd)pyrene	--	--	--	1	--	--	--	--	--	--
Arsenic	Chronic	3.00E-04	mg/kg-day	1	3.00E-04	mg/kg-day	Skin	10/1	IRIS	2/1/1993
Chromium (VI)	Chronic	3.00E-03	mg/kg-day	0.025	7.50E-05	mg/kg-day	GI	300/3	IRIS	9/3/1998
Mercury (as Mercuric Chloride)	Chronic	3.00E-04	mg/kg-day	0.07	2.10E-05	mg/kg-day	Immune	1000/1	IRIS	5/1/1995
Aroclor 1248	Chronic	2.00E-05	mg/kg-day	1	2.00E-05	mg/kg-day	Systemic	300/1	IRIS	11/1/1996
Aroclor 1260	Chronic	2.00E-05	mg/kg-day	1	2.00E-05	mg/kg-day	Systemic	300/1	IRIS	11/1/1996

Toxicity values based on USEPA Reginal Screening Level (RSL) Table (Updated April 2012; accessed May 2012)

Table 4.4
Cancer Toxicity Data Summary

Pathway: Ingestion/ Dermal

Chemical of Concern	Oral Cancer Slope Factor	Units	Adjusted Cancer Slope Factor (for Dermal)	Slope Factor Units	Weight of Evidence/ Cancer Guideline	Source	Date
Benzo(a)-anthracene	7.30E-01	per mg/kd-day	1	per mg/kd-day	$B2^1$	E	3/1/1994
Benzo(a)pyrene	7.30E+00	per mg/kd-day	1	per mg/kd-day	$B2^1$	IRIS	11/1/1994
Benzo(b)-fluoranthene	7.30E-01	per mg/kd-day	1	per mg/kd-day	$B2^1$	E	3/1/1994
Dibenzo-(ah)anthracene	7.30E+00	per mg/kd-day	1	per mg/kd-day	$B2^1$	E	3/1/1994
Indeno(123-cd)pyrene	7.30E-01	per mg/kd-day	1	per mg/kd-day	$B2^1$	E	3/1/1994
Arsenic	1.50E+00	per mg/kd-day	1	per mg/kd-day	A	IRIS	4/10/1998
Chromium (VI)	5.00E-01	per mg/kd-day	0.025	per mg/kd-day	Likely	J	4/8/2009
Mercury (as Mercuric Chloride)	NA						
Aroclor 1248	2.00E+00	per mg/kd-day	1	per mg/kd-day	B2	IRIS	6/1/1997
Aroclor 1260	2.00E+00	per mg/kd-day	1	per mg/kd-day	B2	IRIS	6/1/1997

E = Evnironmental Criteria and Assessment Office
J = New Jersey
NA = Chemical is not classified as a carcinogen.

Weight of Evidence
A = Human carcinogen
B2 = Probably human carcinogen

$B2^1$ = These chemcials demonstrate a mutagenic mode of action (MOA) and will be evaluted in accordance with EPA's cancer guidelines.

Table 4.5
Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soils 0-2 Feet in Depth	Lower Ley Creek	Benzo(a)-anthracene	NA				
			Benzo(a)pyrene	NA				
			Benzo(b)-fluoranthene	NA				
			Dibenz(ah)-anathracene	NA				
			Chromium	GI	8.00E-02	NA	NA	8.00E-02
			Aroclor 1248	Systemic	3.00E-01	NA	8.00E-01	1.10E+00
			Aroclor 1260	Systemic	2.00E-02	NA	5.00E-02	7.00E-02
Exposure Medium Total								1.25E+00

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Older Child (6 to <16)

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soils 0-2 Feet in Depth	Lower Ley Creek	Benzo(a)-anthracene	NA				
			Benzo(a)pyrene	NA				
			Benzo(b)-fluoranthene	NA				
			Dibenz(ah)-anathracene	NA				
			Chromium	GI	2.00E-02	NA	NA	2.00E-02
			Aroclor 1248	Systemic	1.00E-01	NA	3.00E-01	4.00E-01
			Aroclor 1260	Systemic	6.00E-03	NA	2.00E-02	2.60E-02
Exposure Medium Total								4.46E-01

Table 4.5
Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Younger Child (less than 6)

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soils 0-2 Feet in Depth	Lower Ley Creek	Benzo(a)-anthracene	NA				
			Benzo(a)pyrene	NA				
			Benzo(b)-fluoranthene	NA				
			Dibenz(ah)-anathracene	NA				
			Chromium	GI	7.00E-01	NA	NA	7.00E-01
			Aroclor 1248	Systemic	3.00E+00	NA	2.00E+01	2.30E+01
			Aroclor 1260	Systemic	2.00E-01	NA	1.00E+00	1.20E+00
Exposure Medium Total								2.49E+01

Scenario Timeframe: Current/Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soils 0-8 Feet in Depth	Lower Ley Creek	Benzo(a)-anthracene	NA				
			Benzo(a)pyrene	NA				
			Benzo(b)-fluoranthene	NA				
			Dibenz(ah)-anathracene	NA				
			Chromium	GI	3.00E-01	NA	NA	3.00E-01
			Aroclor 1248	Systemic	2.00E+00	NA	4.00E+00	6.00E+00
			Aroclor 1260	Systemic	1.00E-01	NA	2.00E-01	3.00E-01
Exposure Medium Total								6.60E+00

Table 4.5
Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment to a depth of 12 inches	Lower Ley Creek	Benzo(a)-anthracene	NA				
			Benzo(a)pyrene	NA				
			Benzo(b)-fluoranthene	NA				
			Dibenz(ah)-anathracene	NA				
			Indeno(123-cd)pyrene	NA				
			Arsenic	Skin	4.00E-03	NA	2.00E-03	6.00E-03
			Chromium	GI	1.00E-02	NA	NA	1.00E-02
			Aroclor 1242	Systemic	1.00E-02	NA	3.00E-02	4.00E-02
			Aroclor 1260	Systemic	2.00E-01	NA	4.00E-01	6.00E-01
Exposure Medium Total								6.56E-01

Sediment	Sediment to a depth of 12 inches	Dredge Spoils Area	Benzo(a)-anthracene	NA				
			Benzo(a)pyrene	NA				
			Benzo(b)-fluoranthene	NA				
			Dibenz(ah)-anathracene	NA				
			Indeno(123-cd)pyrene	NA				
			Arsenic	Skin	1.00E-02	NA	7.00E-03	1.70E-02
			Chromium	GI	4.00E-02	NA	NA	4.00E-02
			Aroclor 1242	Systemic	4.00E-03	NA	9.00E-03	1.30E-02
			Aroclor 1248	Systemic	3.00E-02	NA	7.00E-02	1.00E-01
Exposure Medium Total								1.53E-01

Table 4.5
Risk Characterization Summary - Non-Carcinogens

Surface Water	Surface Water	Lower Ley Creek	Chromium	GI	3.00E-04	NA	1.00E-02	1.03E-02
Exposure Medium Total								1.03E-02

Fish Tissue	Fish Tissue	Lower Ley Creek	Arsenic	Skin	1.00E+01	NA	NA	1.00E+01
			Chromium	GI	5.00E+00	NA	NA	5.00E+00
			Mercury	Immune	2.00E+00	NA	NA	2.00E+00
			Aroclor 1242	Systemic	1.00E+01	NA	NA	1.00E+01
			Aroclor 1260	Systemic	7.00E+00	NA	NA	7.00E+00
Exposure Medium Total								3.40E+01

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Older Child (6 - <16)

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment to a depth of 12 inches	Lower Ley Creek	Benzo(a)-anthracene	NA				
			Benzo(a)pyrene	NA				
			Benzo(b)-fluoranthene	NA				
			Dibenz(ah)-anathracene	NA				
			Indeno(123-cd)pyrene	NA				
			Arsenic	Skin	5.00E-03	NA	2.00E-02	2.50E-02
			Chromium	GI	1.00E-02	NA	NA	1.00E-02
			Aroclor 1242	Systemic	2.00E-02	NA	4.00E-01	4.20E-01
			Aroclor 1260	Systemic	2.00E-01	NA	5.00E+00	5.20E+00
Exposure Medium Total								5.66E+00

Table 4.5
Risk Characterization Summary - Non-Carcinogens

Sediment	Sediment to a depth of 12 inches	Dredge Spoils Area	Benzo(a)-anthracene	NA				
			Benzo(a)pyrene	NA				
			Benzo(b)-fluoranthene	NA				
			Dibenz(ah)-anathracene	NA				
			Indeno(123-cd)pyrene	NA				
			Arsenic	Skin	2.00E-02	NA	9.00E-02	1.10E-01
			Chromium	GI	5.00E-02	NA	NA	5.00E-02
			Aroclor 1242	Systemic	4.00E-03	NA	1.00E-01	1.04E-01
			Aroclor 1248	Systemic	3.00E-02	NA	9.00E-01	9.30E-01
Exposure Medium Total								1.08E+00
Surface Water	Surface Water	Lower Ley Creek	Chromium	GI	4.00E-04	NA	8.00E-03	8.40E-03
Exposure Medium Total								8.40E-03
Fish Tissue	Fish Tissue	Lower Ley Creek	Arsenic	Skin	1.00E+00	NA	NA	1.00E+00
			Chromium	GI	4.00E+00	NA	NA	4.00E+00
			Mercury	Immune	1.00E+00	NA	NA	1.00E+00
			Aroclor 1242	Systemic	1.00E+01	NA	NA	1.00E+01
			Aroclor 1260	Systemic	6.00E+00	NA	NA	6.00E+00
Exposure Medium Total								2.20E+01

Table 4.5
Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Young Child (less than 6)

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment to a depth of 12 inches	Lower Ley Creek	Benzo(a)-anthracene	NA				
			Benzo(a)pyrene	NA				
			Benzo(b)-fluoranthene	NA				
			Dibenz(ah)-anathracene	NA				
			Indeno(123-cd)pyrene	NA				
			Arsenic	Skin	4.00E-02	NA	4.00E-02	8.00E-02
			Chromium	GI	1.00E-01	NA	NA	1.00E-01
			Aroclor 1242	Systemic	1.00E-01	NA	7.00E-01	8.00E-01
			Aroclor 1260	Systemic	1.00E+00	NA	8.00E+00	9.00E+00
Exposure Medium Total								9.98E+00

Sediment	Sediment to a depth of 12 inches	Dredge Spoils Area	Benzo(a)-anthracene	NA				
			Benzo(a)pyrene	NA				
			Benzo(b)-fluoranthene	NA				
			Dibenz(ah)-anathracene	NA				
			Indeno(123-cd)pyrene	NA				
			Arsenic	Skin	1.00E-01	NA	1.00E-01	2.00E-01
			Chromium	GI	4.00E-01	NA	NA	4.00E-01
			Aroclor 1242	Systemic	3.00E-02	NA	2.00E-01	2.30E-01
			Aroclor 1248	Systemic	3.00E-01	NA	1.00E+00	1.30E+00
Exposure Medium Total								1.93E+00

Table 4.5
Risk Characterization Summary - Non-Carcinogens

Surface Water	Surface Water	Lower Ley Creek	Chromium	GI	2.00E-03	NA	2.00E-02	2.20E-02
Exposure Medium Total								2.20E-02

Fish Tissue	Fish Tissue	Lower Ley Creek	Arsenic	Skin	2.00E+00	NA	NA	2.00E+00
			Chromium	GI	8.00E+00	NA	NA	8.00E+00
			Mercury	Immune	3.00E+00	NA	NA	3.00E+00
			Aroclor 1242	Systemic	2.00E+01	NA	NA	2.00E+01
			Aroclor 1260	Systemic	1.00E+01	NA	NA	1.00E+01
Exposure Medium Total								4.30E+01

Scenario Timeframe: Current/Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment to a depth of 12 inches	Lower Ley Creek	Benzo(a)-anthracene	NA				
			Benzo(a)pyrene	NA				
			Benzo(b)-fluoranthene	NA				
			Dibenz(ah)-anathracene	NA				
			Indeno(123-cd)pyrene	NA				
			Arsenic	Skin	7.00E-03	NA	3.00E-03	1.00E-02
			Chromium	GI	2.00E-02	NA	NA	2.00E-02
			Aroclor 1242	Systemic	3.00E-02	NA	6.00E-02	9.00E-02
			Aroclor 1260	Systemic	3.00E-01	NA	6.00E-01	9.00E-01
Exposure Medium Total								1.02E+00

Table 4.5
Risk Characterization Summary - Non-Carcinogens

Sediment	Sediment to a depth of 12 inches	Dredge Spoils Area	Benzo(a)-anthracene	NA				
			Benzo(a)pyrene	NA				
			Benzo(b)-fluoranthene	NA				
			Dibenz(ah)-anathracene	NA				
			Indeno(123-cd)pyrene	NA				
			Arsenic	Skin	8.00E-03	NA	4.00E-03	1.20E-02
			Chromium	GI	2.00E-02	NA	NA	2.00E-02
			Aroclor 1242	Systemic	2.00E-03	NA	4.00E-03	6.00E-03
			Aroclor 1248	Systemic	2.00E-02	NA	4.00E-02	6.00E-02
Exposure Medium Total								8.60E-02

Surface Water	Surface Water	Lower Ley Creek	Chromium	GI	2.00E-05	NA	7.00E-04	7.20E-04
Exposure Medium Total								7.20E-04

Table 4.6
Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil 0 - 2 feet depth	Lower Ley Creek	Benzo(a)anthracene	1.00E-07	NA	3.00E-07	4.00E-07
			Benzo(a)pyrene	9.00E-07	NA	2.00E-06	2.90E-06
			Benzo(b)-fluoranthene	1.00E-07	NA	3.00E-07	4.00E-07
			Dibenz(ah)-anathracene	2.00E-07	NA	5.00E-07	7.00E-07
			Chromium	4.00E-06	NA	NA	4.00E-06
			Aroclor 1248	4.00E-07	NA	1.00E-06	1.40E-06
			Aroclor 1260	3.00E-08	NA	6.00E-08	9.00E-08
Exposure Medium Total							9.89E-06

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Older Child (6 - <16)

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil 0 - 2 feet depth	Lower Ley Creek	Benzo(a)anthracene	4.00E-06	NA	6.00E-05	6.40E-05
			2.00E-05	2.00E-04	NA	4.00E-04	6.00E-04
			Benzo(b)-fluoranthene	3.00E-06	NA	4.00E-05	4.30E-05
			Dibenz(ah)-anathracene	6.00E-06	NA	1.00E-04	1.06E-04
			Chromium	2.00E-05	NA	NA	2.00E-05
			Aroclor 1248	2.00E-06	NA	6.00E-05	6.20E-05
			Aroclor 1260	1.00E-07	NA	4.00E-06	4.10E-06
Exposure Medium Total							8.99E-04

Table 4.6
Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Young Child (less than 6)

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil 0 - 2 feet depth	Lower Ley Creek	Benzo(a)anthracene	2.00E-05	NA	1.00E-04	1.20E-04
			Benzo(a)pyrene	2.00E-04	NA	9.00E-04	1.10E-03
			Benzo(b)-fluoranthene	2.00E-05	NA	9.00E-05	1.10E-04
			Dibenz(ah)-anathracene	4.00E-05	NA	2.00E-04	2.40E-04
			Chromium	9.00E-05	NA	NA	9.00E-05
			Aroclor 1248	1.00E-05	NA	6.00E-05	7.00E-05
			Aroclor 1260	7.00E-07	NA	4.00E-06	4.70E-06
Exposure Medium Total							1.73E-03

Scenario Timeframe: Current/Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil 0 - 8 feet depth	Lower Ley Creek	Benzo(a)anthracene	6.00E-07	NA	1.00E-06	1.60E-06
			Benzo(a)pyrene	4.00E-06	NA	8.00E-06	1.20E-05
			Benzo(b)-fluoranthene	4.00E-07	NA	8.00E-07	1.20E-06
			Dibenz(ah)-anathracene	6.00E-07	NA	1.00E-06	1.60E-06
			Chromium	1.00E-05	NA		1.00E-05
			Aroclor 1248	2.00E-06	NA	5.00E-06	7.00E-06
			Aroclor 1260	1.00E-07	NA	3.00E-07	4.00E-07
Exposure Medium Total							3.38E-05

Table 4.6
Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment to a depth of 12 inches	Lower Ley Creek	Benzo(a)anthracene	7.00E-07	NA	1.00E-06	1.70E-06
			Benzo(a)pyrene	5.00E-06	NA	1.00E-05	1.50E-05
			Benzo(b)-fluoranthene	7.00E-07	NA	1.00E-06	1.70E-06
			Dibenz(ah)-anathracene	4.00E-07	NA	9.00E-07	1.30E-06
			Indeno(123-cd)pyrene	3.00E-07	NA	6.00E-07	9.00E-07
			Arsenic	7.00E-07	NA	4.00E-07	1.10E-06
			Chromium	7.00E-06	NA	NA	7.00E-06
			Aroclor 1248	8.00E-07	NA	2.00E-06	2.80E-06
			Aroclor 1260	3.00E-06	NA	6.00E-06	9.00E-06
Exposure Medium Total							4.05E-05

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment to a depth of 12 inches	Dredge Spoils Area	Benzo(a)anthracene	2.00E-07	NA	4.00E-07	6.00E-07
			Benzo(a)pyrene	2.00E-06	NA	5.00E-06	7.00E-06
			Benzo(b)-fluoranthene	3.00E-07	NA	7.00E-07	1.00E-06
			Dibenz(ah)-anathracene	2.00E-07	NA	5.00E-07	7.00E-07
			Indeno(123-cd)pyrene	2.00E-07	NA	5.00E-07	7.00E-07
			Arsenic	3.00E-06	NA	1.00E-06	4.00E-06
			Chromium	3.00E-05	NA	NA	3.00E-05
			Aroclor 1248	2.00E-07	NA	5.00E-07	7.00E-07
			Aroclor 1248	5.00E-07	NA	1.00E-06	1.50E-06
Exposure Medium Total							4.62E-05

Table 4.6
Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Surface Water	Lower Ley Creek	Chromium	2.00E-07	NA	6.00E-06	6.20E-06
Exposure Medium Total							6.20E-06

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Fish Tissue	Lower Ley Creek	Arsenic	3.00E-04	NA	NA	3.00E-04
			Chromium	3.00E-03	NA	NA	3.00E-03
			Mercury	NA	NA	NA	
			Total Aroclors	3.00E-04	NA	NA	3.00E-04
Exposure Medium Total							3.60E-03

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Older Child (6 - <16)

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment to a depth of 12 inches	Lower Ley Creek	Benzo(a)anthracene	3.00E-07	NA	6.00E-06	6.30E-06
			Benzo(a)pyrene	9.00E-06	NA	2.00E-04	2.09E-04
			Benzo(b)-fluoranthene	3.00E-07	NA	6.00E-06	6.30E-06
			Dibenz(ah)-anathracene	8.00E-07	NA	1.00E-05	1.08E-05
			Indeno(123-cd)pyrene	1.00E-07	NA	3.00E-06	3.10E-06
			Arsenic	3.00E-07	NA	2.00E-06	2.30E-06
			Chromium	3.00E-06	NA	NA	3.00E-06
			Aroclor 1248	3.00E-07	NA	8.00E-06	8.30E-06
			Aroclor 1260	1.00E-06	NA	3.00E-05	3.10E-05
Exposure Medium Total							2.80E-04

Table 4.6
Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Older Child (6 - <16)

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment to a depth of 12 inches	Dredge Spoils Area	Benzo(a)anthracene	8.00E-08	NA	2.00E-06	2.08E-06
			Benzo(a)pyrene	5.00E-06	NA	7.00E-05	7.50E-05
			Benzo(b)-fluoranthene	1.00E-07	NA	2.00E-07	3.00E-07
			Dibenz(ah)-anathracene	4.00E-07	NA	7.00E-06	7.40E-06
			Indeno(123-cd)pyrene	8.00E-08	NA	2.00E-06	2.08E-06
			Arsenic	1.00E-06	NA	6.00E-06	7.00E-06
			Chromium	1.00E-05	NA	NA	1.00E-05
			Aroclor 1242	9.00E-08	NA	2.00E-06	2.09E-06
			Aroclor 1248	2.00E-07	NA	5.00E-06	5.20E-06
Exposure Medium Total							1.09E-04

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Older Child (6 - <16)

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Surface Water	Lower Ley Creek	Chromium	9.00E-08	NA	2.00E-06	2.09E-06
Exposure Medium Total							2.09E-06

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Older Child (6 - <16)

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Fish Tissue	Lower Ley Creek	Arsenic	7.00E-05	NA	NA	7.00E-05
			Chromium	9.00E-04	NA	NA	9.00E-04
			Mercury	NA	NA	NA	
			Total Aroclors	7.00E-05	NA	NA	7.00E-05
Exposure Medium Total							1.04E-03

Table 4.6
Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Young Child (less than 6)

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment to a depth of 12 inches	Lower Ley Creek	Benzo(a)anthracene	1.00E-06	NA	6.00E-06	7.00E-06
			Benzo(a)pyrene	6.00E-05	NA	4.00E-04	4.60E-04
			Benzo(b)-fluoranthene	1.00E-06	NA	6.00E-06	7.00E-06
			Dibenz(ah)-anathracene	5.00E-06	NA	3.00E-05	3.50E-05
			Indeno(123-cd)pyrene	5.00E-07	NA	3.00E-06	3.50E-06
			Arsenic	1.00E-06	NA	2.00E-06	3.00E-06
			Chromium	1.00E-05	NA	NA	1.00E-05
			Aroclor 1242	2.00E-06	NA	8.00E-06	1.00E-05
			Aroclor 1260	5.00E-06	NA	3.00E-05	3.50E-05
Exposure Medium Total							5.71E-04

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Young Child (less than 6)

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment to a depth of 12 inches	Dredge Spoils Area	Benzo(a)anthracene	4.00E-07	NA	2.00E-06	2.40E-06
			Benzo(a)pyrene	3.00E-05	NA	2.00E-04	2.30E-04
			Benzo(b)-fluoranthene	6.00E-07	NA	3.00E-06	3.60E-06
			Dibenz(ah)-anathracene	3.00E-06	NA	2.00E-05	2.30E-05
			Indeno(123-cd)pyrene	4.00E-07	NA	2.00E-06	2.40E-06
			Arsenic	5.00E-06	NA	6.00E-06	1.10E-05
			Chromium	5.00E-05	NA	NA	5.00E-05
			Aroclor 1242	4.00E-07	NA	2.00E-06	2.40E-06
			Aroclor 1248	9.00E-07	NA	5.00E-06	5.90E-06
Exposure Medium Total							3.31E-04

Table 4.6
Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Young Child (less than 6)

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Surface Water	Lower Ley Creek	Chromium	2.00E-07	NA	2.00E-06	2.20E-06
Exposure Medium Total							2.20E-06

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Young Child (less than 6)

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Fish Tissue	Lower Ley Creek	Arsenic	8.00E-05	NA	NA	8.00E-05
			Chromium	1.00E-03	NA	NA	1.00E-03
			Mercury	NA	NA	NA	
			Total Aroclors	9.00E-05	NA	NA	9.00E-05
Exposure Medium Total							1.17E-03

Scenario Timeframe: Current/Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment to a depth of 12 inches	Lower Ley Creek	Benzo(a)anthracene	8.00E-08	NA	2.00E-07	2.80E-07
			Benzo(a)pyrene	6.00E-07	NA	1.00E-06	1.60E-06
			Benzo(b)-fluoranthene	8.00E-08	NA	2.00E-07	2.80E-07
			Dibenz(ah)-anathracene	5.00E-08	NA	1.00E-07	1.50E-07
			Indeno(123-cd)pyrene	5.00E-08	NA	7.00E-08	1.20E-07
			Arsenic	9.00E-08	NA	4.00E-08	1.30E-07
			Chromium	9.00E-07	NA	NA	9.00E-07
			Aroclor 1242	1.00E-07	NA	2.00E-07	3.00E-07
			Aroclor 1260	3.00E-07	NA	7.00E-07	1.00E-06
Exposure Medium Total							4.76E-06

Table 4.6
Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment to a depth of 12 inches	Dredge Spoils Area	Benzo(a)anthracene	8.00E-09	NA	2.00E-08	2.80E-08
			Benzo(a)pyrene	9.00E-08	NA	2.00E-07	2.90E-07
			Benzo(b)-fluoranthene	1.00E-08	NA	3.00E-08	4.00E-08
			Dibenz(ah)-anathracene	8.00E-09	NA	2.00E-08	2.80E-08
			Indeno(123-cd)pyrene	8.00E-09	NA	2.00E-08	2.80E-08
			Arsenic	1.00E-07	NA	5.00E-08	1.50E-07
			Chromium	1.00E-06	NA	NA	1.00E-06
			Aroclor 1242	8.00E-09	NA	2.00E-08	2.80E-08
			Aroclor 1248	2.00E-08	NA	4.00E-08	6.00E-08
Exposure Medium Total							1.65E-06

Scenario Timeframe: Current/Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water	Surface Water	Lower Ley Creek	Chromium	7.00E-10	NA	3.00E-08	3.07E-08
Exposure Medium Total							3.07E-08

TABLE 5.1 Soil Remedial Alternative Cost Estimates

Description		Alternative Soil-2 (off-site disposal)				Alternative Soil-2 (local disposal)		
Cost Item	Units	Unit Cost	Units	Cost		Unit Cost	Units	Cost
General Site Mobilization	LS	$40,000	1	$40,000		$40,000	1	$40,000
Excavate Soils	CY	$15	75,239	$1,128,585		$15	75,239	$1,128,585
Transport and Dispose of Material Off-site (0-50 ppm)	TON	$40	85,772	$3,430,880		$5	85,772	$428,860
Transport and Dispose of Material Off-Site (50-500 ppm)	TON	$225	3,611	$812,475		$225	3,611	$812,475
Transport and Dispose of Material Off-site (500 ppm+)	TON	$369	903	$333,207		$369	903	$333,207
Cultural Study	hour	$100.00	500	$50,000		$100	500	$50,000
Wetland /Habitat Restoration	SF	$0.35	892,071	$312,225		$0.35	892,071	$312,225
1-foot capping	SF	$1	66,034	$66,034		$1	66,034	$66,034
Backfill Soil/Habitat Layer	CY	$30	75,239	$2,257,170		$30	75,239	$2,257,170
Sub-Total Construction Costs				$8,430,576				$5,428,556
Contingency	15%			$1,264,586				$814,283
Total Construction Cost				$9,695,162				$6,242,839
	Professional and Technical services							
Engineering	10%			$969,516				$624,284
Construction Management	20%			$1,939,032				$1,248,568
Project Management	10%			$969,516				$624,284
Sub-Total Professional and Technical Services				$3,878,065				$2,497,136
Local Landfill Construction				0				$880,500
Total Capital Costs (construction, Prof and Tech Services)				$13,573,227				$9,620,475
Total Annual Costs				15,000				20,440
Present Value (of Annual Costs-30 yr)				$186,136				$253,640
Total Project Net Present Value				$13,759,363				$9,874,115

TABLE 5.2 Sediment Alternative Cost Estimates
Lower Ley Creek

Description		Alternative SED-3 (off-site disposal)				Alternative SED-3 local disposal)		
Cost Item	Units	Unit Cost	Units	Cost		Unit Cost	Units	Cost
						0		
General Site Mobilization	LS	$40,000	1	$40,000		$40,000	1	$40,000
Sediment Conditioning Area Construction	LS	$60,000	1	$60,000		$60,000	1	$60,000
Excavation Equipment Mobiization	LS	$40,000	1	$40,000		$40,000	1	$40,000
Shallow Excavation from shore	CY	$15	72,724	$1,090,860		$15	72,724	$1,090,860
Backfill Sediment/Habitat Layer	CY	$30	19,192	$575,760		$30	19,192	$575,760
Dewater/ condition sediments	CY	$5	72,724	$363,620		$5	72,724	$363,620
Transport and Dispose of Material Off-site (0-50 ppm)	TON	$40	82,905	$3,316,200		$5	82,905	$414,525
Transport and Dispose of Material Off-Site (50-500 ppm)	TON	$225	3,491	$785,475		$225	3,491	$785,475
Transport and Dispose of Material Off-site (500 ppm+)	TON	$369	873	$322,137		$369	873	$322,137
Water Treatment Costs	gal	$1.00	363,620	$363,620		$1.00	363,620	$363,620
Sub-Total Construction Costs				$6,957,672				$4,055,997
Contingency	15%			$1,043,651				$608,400
Total Construction Cost				$8,001,323				$4,664,397
	Professional and Technical services							
Engineering	10%			$800,132				$466,440
Construction Management	20%			$1,600,265				$932,879
Project Management	10%			$800,132				$466,440
Sub-Total Professional and Technical Services				$3,200,529				$1,865,759
Local Landfill Construction								$880,500
Total Capital Costs (construction, Prof and Tech Services)				$11,201,852				$7,410,655
Total Annual Costs				$25,000				$30,440
Present Value (of Annual Costs)				$310,226				$377,730
Total Project Net Present Value				$11,512,078				$7,788,385

Table 5.3 Summary of Present-Worth Analysis (off-site and local disposal) - Lower Ley Creek

Year	Capital Cost (off-site disposal)	Annual O&M Cost	Total Cost	Discount Factor (7%)	Present Worth (off-site disposal)	
0	$24,775,079		$24,775,079	1.000	$24,775,079	
1		$40,000	$40,000	0.935	$37,400	
2		$40,000	$40,000	0.873	$34,920	
3		$40,000	$40,000	0.816	$32,640	
4		$40,000	$40,000	0.763	$30,520	
5		$40,000	$40,000	0.713	$28,520	
6		$40,000	$40,000	0.666	$26,640	
7		$40,000	$40,000	0.623	$24,920	
8		$40,000	$40,000	0.582	$23,280	
9		$40,000	$40,000	0.544	$21,760	
10		$40,000	$40,000	0.508	$20,320	
11		$40,000	$40,000	0.475	$19,000	
12		$40,000	$40,000	0.444	$17,760	
13		$40,000	$40,000	0.415	$16,600	
14		$40,000	$40,000	0.388	$15,520	
15		$40,000	$40,000	0.362	$14,480	
16		$40,000	$40,000	0.339	$13,560	
17		$40,000	$40,000	0.317	$12,680	
18		$40,000	$40,000	0.296	$11,840	
19		$40,000	$40,000	0.277	$11,080	
20		$40,000	$40,000	0.258	$10,320	
21		$40,000	$40,000	0.242	$9,680	
22		$40,000	$40,000	0.226	$9,040	
23		$40,000	$40,000	0.211	$8,440	
24		$40,000	$40,000	0.197	$7,880	
25		$40,000	$40,000	0.184	$7,360	
26		$40,000	$40,000	0.172	$6,880	
27		$40,000	$40,000	0.161	$6,440	
28		$40,000	$40,000	0.150	$6,000	
29		$40,000	$40,000	0.141	$5,640	
30		$40,000	$40,000	0.131	$5,240	
TOTALS	$24,775,079	$1,200,000	$25,975,079		$25,271,439	

Total Present Worth Cost of the Preferred Remedy with Off-Site Disposal = $25,271,000

Table 5.3 Summary of Present-Worth Analysis (off-site and local disposal) - Lower Ley Creek

Year	Capital Cost (local disposal)	Annual O&M Cost	Total Cost	Discount Factor (7%)	Present Worth (local disposal)	
0	$17,031,130		$17,031,130	1.000	$17,031,130	
1		$50,880	$50,880	0.935	$47,573	
2		$50,880	$50,880	0.873	$44,418	
3		$50,880	$50,880	0.816	$41,518	
4		$50,880	$50,880	0.763	$38,821	
5		$50,880	$50,880	0.713	$36,277	
6		$50,880	$50,880	0.666	$33,886	
7		$50,880	$50,880	0.623	$31,698	
8		$50,880	$50,880	0.582	$29,612	
9		$50,880	$50,880	0.544	$27,679	
10		$50,880	$50,880	0.508	$25,847	
11		$50,880	$50,880	0.475	$24,168	
12		$50,880	$50,880	0.444	$22,591	
13		$50,880	$50,880	0.415	$21,115	
14		$50,880	$50,880	0.388	$19,741	
15		$50,880	$50,880	0.362	$18,419	
16		$50,880	$50,880	0.339	$17,248	
17		$50,880	$50,880	0.317	$16,129	
18		$50,880	$50,880	0.296	$15,060	
19		$50,880	$50,880	0.277	$14,094	
20		$50,880	$50,880	0.258	$13,127	
21		$50,880	$50,880	0.242	$12,313	
22		$50,880	$50,880	0.226	$11,499	
23		$50,880	$50,880	0.211	$10,736	
24		$50,880	$50,880	0.197	$10,023	
25		$50,880	$50,880	0.184	$9,362	
26		$50,880	$50,880	0.172	$8,751	
27		$50,880	$50,880	0.161	$8,192	
28		$50,880	$50,880	0.150	$7,632	
29		$50,880	$50,880	0.141	$7,174	
30		$50,880	$50,880	0.131	$6,665	
TOTALS	$17,031,130	$1,526,400	$18,557,530		$17,662,500	
Total Present Worth Cost of the Preferred Remedy with Local Disposal = $17,663,000						

TABLE 6.1: Chemical-Specific ARARs, TBCs, and Other Guidelines

MEDIUM/REGULATION /AUTHORITY	CITATION	REQUIREMENT SYNOPSIS
SURFACE WATER		
Clean Water Act (Federal Water Pollution Control Act, as amended)	33 U.S.C. §§ 1251-1387; 40 C.F.R. §129.105(a)(4)	The ambient water quality criterion for navigable water is 0.001 µg/L total PCBs.
Clean Water Act (Federal Water Pollution Control Act)	33 U.S.C. §§ 1314(a); 63 Fed. Reg. 68354 (December 10, 1998)	Criterion for continuous concentration (chronic) for PCBs is 0.014 µg/L in freshwater.
New York State Surface Water and Groundwater Quality Standards	New York State Environmental Conservation Law (ECL) Article 15, Title 3 and Article 17, Titles 3 and 8, 6 NYCRR § 703.5	Establishes New York State Water Quality Standards for almost 200 contaminants. For PCBs in surface water, the values are (a) $1x10^{-6}$ ug/L for protection of health of human consumers of fish; and (b) $1.2x10^{-4}$ ug/L for protection of wildlife.
AIR		
No promulgated chemical-specific ARARs identified for air.		
SEDIMENT		
No promulgated chemical-specific ARARs identified for sediment.		
BIOTA		
No promulgated chemical-specific ARARs identified for fish (biota). The FDA limits (e.g., 1 ppm mercury, 2 ppm PCBs) are not based on federal or state environmental law.		

TABLE 6.2: Location-Specific ARARs, TBCs, and Other Guidelines

REGULATION/ AUTHORITY	CITATION	REQUIREMENT SYNOPSIS
FEDERAL ARARS		
Bald and Golden Eagle Protection Act	16 U.S.C. § 668	Prohibits anyone, without a permit issued by the Secretary of the Interior, from knowingly taking and disturbing any bald eagle commonly known as the American eagle), any golden eagle, or associated nest and/or egg.
Fish and Wildlife Coordination Act	16 U.S.C. § 622	Whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose, by any department or agency of the United States, such department or agency first shall consult with the US Fish and Wildlife Service, Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular State in which the impoundment, diversion, or other control facility is to be constructed, with a view to the conservation of wildlife resources by prevention loss or and damage to such resources.
Endangered Species Act 1973, as amended	16 U.S.C. §§ 1531-1544; 15 C.F.R. Part17, Subpart I; 50 C.F.R. Part 402	Federal agencies are required to verify that any action authorized, funded, or carried out by them is not likely to jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of a critical habitat of such species, unless such agency has been granted an appropriate exemption by the Endangered Species committee
National Historic Preservation Act	16 U.S.C. §§ 470-470x-6; 36 C.F.R. Part 800	Establishes that response actions must take into account effect on properties currently listed or eligible for inclusion on the National Registry of Historic Places. Requires federal agencies to take into account the effects of their undertakings on historic properties and afford the council a reasonable opportunity to comment on such undertakings. This will include consultation with state and local governments, Indian tribes, and private organizations as necessary.
Endangered Species Act 1973, as amended	16 U.S.C. §§ 1531-1544; 15 C.F.R. Part17, Subpart I; 50 C.F.R. Part 402	Federal agencies are required to verify that any action authorized, funded, or carried out by them is not likely to jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of a critical habitat of such species, unless such agency has been granted an appropriate exemption by the Endangered Species committee
Statement of Procedures on Floodplain Management and Wetlands Protections	40 C.F.R. Part 6, Appendix A	Sets forth USEPA's policy and guidance for carrying out Executive Orders 11990 and 11988. Executive Order 11988: Floodplain management requires federal agencies to evaluate the potential effects of actions they may take in a floodplain to avoid, to the extent possible, adverse effects associated with direct and indirect development of a floodplain. Federal agencies are required to avoid adverse impacts or minimize them if no practicable alternative exists.

TABLE 6.2: Location-Specific ARARs, TBCs, and Other Guidelines

FEDERAL ARARs (cont'd)		
Statement of Procedures on Floodplain Management and Wetlands Protections (cont'd)	40 C.F.R. Part 6, Appendix A	Executive Order 11990: Protection of wetlands requires federal agencies conducting certain activities to avoid, to the extent possible, adverse impacts associated with the destruction or loss of wetlands if a practicable alternative exists. Federal agencies are required to avoid adverse impacts or minimize them if no practicable alternative exists.
STATE ARARs		
New York State Freshwater Wetlands Act	New York State ECL Article 24; 6 NYCRR Parts 662-665	Defines procedural requirements for undertaking different activities in and adjacent to freshwater wetlands, and establishes standards governing the issuance of permits to alter or fill freshwater wetlands. In accordance with CERCLA Section 121(e), a permit is not required for on-site CERCLA response actions, although such response actions must comply with substantive provisions of these regulations.
New York Endangered Species Act	New York State ECL Article 11, Title 5; 6 NYCRR Part 182	Lists endangered, threatened species and species of special concern. The taking of any endangered or threatened species is prohibited, except under a permit or license issued by NYSDEC. In accordance with CERCLA Section 121(e), a permit is not required for on-site CERCLA response actions. If it is determined that response actions may destroy or degrade the habitat of a New York State-listed endangered or threatened species or cause a "taking" of any endangered or threatened species, such response actions will comply with substantive provisions of these regulations.
New York State Protected Native Plants	New York State ECL Article 9, Title 16, 6 NYCRR Part 193	Lists endangered, threatened, rare, and exploitable vulnerable native plants. All listed species are "protected plants" and may not be removed or damaged without consent. If it is determined that response actions may destroy or degrade New York State-listed protected native plants or cause a "taking" of any protected native plants, USEPA will consult with NYSDEC with respect to substantive requirements that NYSDEC would consider in determining whether to issue a permit in such a case.
New York State Waterfront Revitalization of Coastal Areas and Inland Waterways	New York State Law: Executive Article 42; Sections 910-923	Defines policy on designation of use of coastal and inland waterway resources while preventing the loss of living marine resources and wildlife, diminution of open space area or public access to the waterfront, shoreline erosion, and impairment of scenic beauty or permanent adverse changes to ecological systems.
FEDERAL and STATE TBCs		
USEPA Office of Solid Waste and Emergency Response – Policy on Floodplains and Wetland Assessments for CERCLA Actions, August 1985	OSWER Directive No. 9280.0-2	Superfund actions must meet the substantive requirements of the Floodplain Management Executive Order (E.O. 11988) and the Protection of Wetlands Executive Order (E.O. 11990). This memorandum discusses situations that require preparation of a floodplains or wetlands assessment, and the factors that should be considered in preparing an assessment, for response actions taken pursuant to Section 104 or 106 of CERCLA. For remedial actions, a floodplain/ wetlands assessment must be incorporated into the analysis conducted during the planning of the remedial action. USACE, the federal natural resource trustees, and NYSDEC will be consulted during remedial design and remedial action in order to develop measures to mitigate or avoid impacts to floodplains or wetlands from implementation of the selected remedy.

TABLE 6.3: Action-Specific ARARs, TBCs, and Other Guidelines

REGULATION /AUTHORITY	CITATION	REQUIREMENT SYNOPSIS
FEDERAL ARARs		
Clean Water Act [Federal Water Pollution Control Act, as amended]	Section 404(b) of the Clean Water Act, 33 U.S.C. § 1344(b); 40 C.F.R. Part 230	Guidelines for Specification of Disposal Sites for Dredged or Fill Material. Except as otherwise provided under Clean Water Act Section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge with would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. If there is no other practical alternative, impacts must be minimized. Includes criteria for evaluating whether a particular discharge site may be specified.
	Section 404(c) of the Clean Water Act, 33 U.S.C. § 1344(c); 40 C.F.R. Part 231; 33 C.F.R. Parts 320-329	These regulations apply to all existing, proposed, or potential disposal sites for discharges of dredged or fill materials into US waters, including wetlands. Includes special policies, practices, and procedures to be followed by the US Army Corps of Engineers in connection with the review of applications for permits to authorize the discharge of dredged or fill material into waters of the US pursuant to Section 404 of the Clean Water Act. In accordance with CERCLA Section 121(e), a permit is not required for on-site CERCLA response actions, although such activities must comply with substantive requirements of these regulations.
Clean Air Act	42 U.S.C. §§ 7401-7671q; 40 C.F.R. Parts 50, 51, and 52; NAAQs	Identifies emissions requirements for “major” sources of lead, NOx, CO, PM10, and SO2 in attainment and non-attainment areas.
Solid Waste Disposal Act, as amended – Regulated Levels for TCLP Constituents	42 U.S.C. §§ 6901-6992k; 40 C.F.R. Part 261	Specifies TCLP constituent levels for identifying wastes that exhibit toxicity characteristics.
Solid Waste Disposal Act, as amended – Standards Applicable to Generators of Hazardous Waste	42 U.S.C. §§ 6901-6992k; 40 C.F.R. Part 262	Includes manifest, record keeping and other requirement applicable to generators of hazardous wastes.
Solid Waste Disposal Act, as amended – Standards Applicable to Transporters of Hazardous Waste	40 C.F.R. Part 263	Sets forth standard for transporters of hazardous wastes, including the receipt of an USEPA identification number and manifesting requirements.
Solid Waste Disposal Act, as amended – Land Disposal Restrictions	40 C.F.R. Part 268	Places land disposal restrictions, including treatment standards and related testing, tracking and record keeping requirements, on hazardous waste(s).

TABLE 6.3: Action-Specific ARARs, TBCs, and Other Guidelines

REGULATION/ AUTHORITY	CITATION	REQUIREMENT SYNOPSIS
FEDERAL ARARs (cont'd)		
Solid Waste Disposal Act, as amended –Standards for Owners and Operators of Hazardous Wastes, treatment and Storage Facilities	40 C.F.R. Parts 264 and 265	Provides management standards including record keeping, requirements for particular units such as tanks or containers, and other requirements applicable to owners and operators of hazardous waste treatment, storage, and disposal facilities
Toxic Substances Controls Act (TSCA)	15 U.S.C. § 2605; 40 C.F.R. Part 761	Provides regulations for storage, handling, and disposal of sediment containing PCBs greater than 50 mg/kg.
Hazardous Materials Transportation Law	49 U.S.C. §§ 5101-5127; 49 C.F.R. Part 171	Provides transportation and handling requirements for materials containing PCBs.
Rivers and Harbors Act (Section 10)	33 U.S.C. § 403; 33 C.F.R. Parts 320, 321, and 322	Prohibits unauthorized obstruction or alteration of any navigable water in the US (dredging, fill, cofferdams, piers, etc.). USACE approval is generally required to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of the channel of any navigable water of the US. On-site CERCLA response actions are exempt from permit requirements pursuant to CERCLA Section 121(e), although such activities must comply with substantive requirements of these regulations.
STATE ARARs		
Solid Waste Mgmt Facilities	New York State ECL Article 27, Title 7 6 NYCRR Part 360	New York State regulations for design, construction, operation, and closure requirements for solid waste management facilities.
Standards for Waste Transportation	New York State ECL Article 27, Title 3 6 NYCRR Part 364	Regulations governing the collection, transport and delivery of regulated wastes, including hazardous wastes
Identification and Listing of Hazardous Wastes	New York State ECL Article 27, Title 9 6 NYCRR Part 371	Establishes procedures for identifying solid wastes which are subject to regulation as hazardous wastes.
Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities	New York State ECL Article 3, Title 3; Article 27, Title 7 and 9; 6 NYCRR Part 372	Hazardous Wastes Manifest System requirements for generators, transporters, and treatment, storage or disposal facilities, and other requirements applicable to generators and transporters of hazardous waste.
Hazardous Waste Treatment, Storage, and Disposal Facility Permitting Requirements	New York State ECL Article 3, Title 3; Article 27, Title 7 and 9; 6 NYCRR Part 373	Establishes requirements for treatment, storage, and disposal of hazardous waste; permit requirements (from which on-site response actions are exempt, although substantive requirements would be met); and construction and operation standards for hazardous waste management facilities.
Land Disposal Restrictions	New York State ECL Article 27, Title 9 6 NYCRR Part 376	Identifies hazardous wastes that are restricted from land disposal and defines those circumstances under which an otherwise prohibited waste may be land disposed.

TABLE 6-3: Action-Specific ARARs, TBCs, and Other Guidelines

REGULATION/ AUTHORITY	CITATION	REQUIREMENT SYNOPSIS
STATE ARARs (cont'd)		
Use and Protection of Waters	New York State ECL Article 15, Title 5; Article 17, Title 3; 6 NYCRR Part 608	A permit is required to change, modify, or disturb any protected stream, its bed or banks, or remove from its bed or banks sand or gravel or any other material; or to excavate or place fill in any of the navigable waters of the state. Any applicant for a federal license or permit to conduct any activity which may result in any discharge into navigable waters must obtain a State Water Quality Certification under Section 401 of the Federal Water Pollution Control Act, 33 U.S.C. §1341. In accordance with CERCLA Sections 121(d)(2) and 121(e), neither a permit nor a water quality certification is required for on-site CERCLA response actions, although such actions must comply with substantive requirements of these regulations.
New York State Pollution Discharge Elimination System (SPDES)	6 NYCRR Part 608	Details the specific permit requirements for the discharge of chemicals to the waters of New York State. In general, no person shall discharge or cause a discharge to New York State waters of any pollutant without a permit under the SPDES program. In accordance with CERCLA Section 121(e), a permit is not required for on-site CERCLA response actions, although such actions must comply with substantive requirements of these regulations.
Surface Water Regulations	New York State ECL §17-0501 and 17-0301; 6 NYCRR Parts 701 and 703	Establishes that it shall be unlawful for any person directly or indirectly, to throw, drain, run or otherwise discharge into such waters organic or inorganic matter that shall cause or contribute to a condition in contravention of applicable standards adopted by NYSDEC pursuant to §ECL 17-0301[1].
Air Pollution Control Law	New York State ECL Article 19, Title 3, Promulgated pursuant to the federal clean Air Act, 42 U.S.C. § 7401	Establishes that the emission of air contaminants to the outside atmosphere that jeopardize human, plant, or animal life, or are ruinous to property, or which unreasonably interfere with the comfortable enjoyment of life or property, is prohibited (6 NYCRR 211.2), New York State Air Quality Standards are promulgated at 6 NYCRR Part 257.
Fish and Wildlife Management Practices Cooperative Program–Polluting Streams Prohibited	New York State ECL § 11-0503	Establishes that no deleterious or poisonous substances shall be thrown or allowed to run into any public or private waters in quantities injurious to fish life, protected wildlife or waterfowl inhabiting those waters, or injurious to the propagation of fish, protected wildlife or waterfowl therein.

[1] 6 NYCRR Part 703.2: When applied to the superfund cleanups, EPA and DEC have developed projects specific numeric turbidity and or TSS criteria during design.

LOWER LEY CREEK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX III

ADMINISTRATIVE RECORD INDEX

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

09/24/2014

REGION ID: 02

Site Name: ONONDAGA LAKE
CERCLIS ID: NYD986913580
OUID: 25
SSID: 024Q
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Beginning Bates:	Ending Bates:	Addressee Name:	Addressee Organization:	Author Name:	Author Organization:
708234	09/24/2014	ADMINISTRATIVE RECORD INDEX FOR OU25 - LOWER LEY CREEK FOR THE ONONDAGA LAKE SITE	2	[AR INDEX]			[]	[]	[]	[US ENVIRONMENTAL PROTECTION AGENCY]
708231	08/15/2012	REMEDIAL INVESTIGATION / FEASIBILITY STUDY REVISED WORK PLAN FOR OU25 - LOWER LEY CREEK - REVISION 1 FOR THE ONONDAGA LAKE SITE	22	[PLAN]			[,]	[US ENVIRONMENTAL PROTECTION AGENCY]	[,]	[LOS ALAMOS TECHNICAL ASSOCIATES, INC.(LATA)]
255821	06/01/2013	FINAL REMEDIAL INVESTIGATION REPORT FOR OU25 - LOWER LEY CREEK FOR THE ONONDAGA LAKE SITE	568	[REPORT]			[,]	[US ENVIRONMENTAL PROTECTION AGENCY REGION 2]	[,]	[LOS ALAMOS TECHNICAL ASSOCIATES, INC.(LATA)]
255822	06/01/2013	FINAL REMEDIAL INVESTIGATION REPORT - APPENDIX A THROUGH C FOR OU25 - LOWER LEY CREEK FOR THE ONONDAGA LAKE SITE	69	[REPORT]			[,]	[US ENVIRONMENTAL PROTECTION AGENCY REGION 2]	[,]	[LOS ALAMOS TECHNICAL ASSOCIATES, INC.(LATA)]
255823	06/01/2013	FINAL REMEDIAL INVESTIGATION REPORT - APPENDIX D - OLD LEY CREEK RI REPORT FOR OU25 - LOWER LEY CREEK FOR THE ONONDAGA LAKE SITE	486	[REPORT]			[,]	[US ENVIRONMENTAL PROTECTION AGENCY REGION 2]	[,]	[LOS ALAMOS TECHNICAL ASSOCIATES, INC.(LATA)]
255824	06/01/2013	FINAL REMEDIAL INVESTIGATION REPORT - APPENDIX E - REGION 2 EPA ELECTRONIC DATA DELIVERABLE FOR OU25 - LOWER LEY CREEK FOR THE ONONDAGA LAKE SITE	1	[REPORT]			[,]	[US ENVIRONMENTAL PROTECTION AGENCY REGION 2]	[,]	[LOS ALAMOS TECHNICAL ASSOCIATES, INC.(LATA)]
255825	06/01/2013	FINAL REMEDIAL INVESTIGATION REPORT - APPENDIX F - DATABASE OF RESULTS FOR OU25 - LOWER LEY CREEK FOR THE ONONDAGA LAKE SITE	1	[REPORT]			[,]	[US ENVIRONMENTAL PROTECTION AGENCY REGION 2]	[,]	[LOS ALAMOS TECHNICAL ASSOCIATES, INC.(LATA)]
255826	06/01/2013	FINAL REMEDIAL INVESTIGATION REPORT - APPENDIX G - HUMAN HEALTH RISK ASSSESSMENT FOR OU25 - LOWER LEY CREEK FOR THE ONONDAGA LAKE SITE	423	[REPORT]			[,]	[US ENVIRONMENTAL PROTECTION AGENCY REGION 2]	[,]	[LOS ALAMOS TECHNICAL ASSOCIATES, INC.(LATA)]
255827	06/01/2013	FINAL REMEDIAL INVESTIGATION REPORT - APPENDIX H - BASELINE ECOLOGICAL RISK ASSESSMENT FOR OU25 - LOWER LEY CREEK FOR THE ONONDAGA LAKE SITE	210	[REPORT]			[,]	[US ENVIRONMENTAL PROTECTION AGENCY REGION 2]	[,]	[LOS ALAMOS TECHNICAL ASSOCIATES, INC.(LATA)]
255820	03/01/2014	FINAL FEASIBILITY STUDY REPORT FOR THE LOWER LEY CREEK SUBSITE OF THE ONONDAGA LAKE SITE	318	[REPORT]			[,]	[US ENVIRONMENTAL PROTECTION AGENCY REGION 2]	[,]	[LOS ALAMOS TECHNICAL ASSOCIATES, INC.(LATA)]

712034

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

09/24/2014 **REGION ID: 02**

Site Name: ONONDAGA LAKE
CERCLIS ID: NYD986913580
OUID: 25
SSID: 024Q
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Beginning Bates:	Ending Bates:	Addressee Name:	Addressee Organization:	Author Name:	Author Organization:
708232	07/14/2014	FEASIBILITY STUDY SUPPLEMENT - LOCAL DISPOSAL COST BREAKDOWN FOR OU25 - LOWER LEY CREEK FOR THE ONONDAGA LAKE SITE	7	[REPORT]			[]	[]	[,]	[US ENVIRONMENTAL PROTECTION AGENCY]
708230	07/11/2014	NEW YORK STATE CONCURRENCE WITH THE PROPOSED PLAN FOR OU25 - LOWER LEY CREEK FOR THE ONONDAGA LAKE SITE	3	[LETTER]			[MUGDAN, WALTER]	[US ENVIRONMENTAL PROTECTION AGENCY]	[SCHICK, ROBERT]	[NY STATE DEPT OF ENVIRONMENTAL CONSERVATION (NYSDEC)]
708229	07/14/2014	PROPOSED PLAN FOR OU25 - LOWER LEY CREEK FOR THE ONONDAGA LAKE SITE	27	[PLAN]			[]	[]	[,]	[US ENVIRONMENTAL PROTECTION AGENCY]
712165	12/10/2013	TIER 1 SEDIMENT SITE CONSIDERATION MEMORANDUM REGARDING OU25 - LOWER LEY CREEK FOR THE ONONDAGA LAKE SITE	8	[MEMORANDUM]			[ELLS, STEPHEN J, KELLER, MELANIE C]	[US ENVIRONMENTAL PROTECTION AGENCY]	[TAMES, PAMELA]	[EPA]

LOWER LEY CREEK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX IV

STATE LETTER OF CONCURRENCE

New York State Department of Environmental Conservation
Division of Environmental Remediation
Office of the Director, 12th Floor
625 Broadway, Albany, New York 12233-7011
Phone: (518) 402-9706 • **Fax:** (518) 402-9020
Website: www.dec.ny.gov

Joe Martens
Commissioner

SENT VIA EMAIL ONLY

September 30, 2014

Walter Mugdan, Director
Emergency and Remedial Response
Division USEPA Region II
290 Broadway
New York, NY 10007-1866

Re: Record of Decision
Site Name: Lower Ley Creek Site
NYSDEC Site No. 734123
Township of Salina, Onondaga County

Dear Mr. Mugdan:

The New York State Department of Environmental Conservation (DEC) and the New York State Department of Health (DOH), collectively referred to as the State, have reviewed the United States Environmental Protection Agency's (EPA) September 2014 Superfund Record of Decision (ROD) for remediation of the Lower Ley Creek Site, a subsite of the Onondaga Lake Superfund site, located in the township of Salina, Onondaga County.

The EPA's ROD selected Alternative S-2 (excavation and local or non-local disposal of soil) and Alternative Sed-3 (excavation and local or non-local disposal of sediment) as the remedy for the site.

This remedy consists of the excavation of an estimated 75,000 cubic yards (cy) of contaminated materials (which includes soils on the northern and southern banks of the Creek that exceed the specified soil cleanup objectives and an estimated 12,000 cy of sediment from the wetland area that exceed the specified 1 mg/kg of PCB sediment cleanup objective); and an estimated 73,000 cy of sediment from the creek channel that exceed 1 mg/kg PCB. This remedy also includes excavation of sediments from an approximate 1200 foot reach of the creek channel directly upstream of Interstate-81 to a depth of 1 foot that exhibit PCB and significant metals contamination. Excavated areas would be restored with clean substrate and vegetation consistent with an approved habitat restoration plan developed as part of the design.

Excavated soils and sediments greater than 50 mg/kg PCB, or that are determined to be characteristic hazardous waste, would be disposed of off-site at an appropriately permitted facility. The majority of excavated soils and sediments not meeting these criteria (an estimated

140,000 cy) would be disposed locally. The specific local disposal location will be determined during the remedial design phase. Should local disposal not be determined to be viable, all excavated materials would be sent to an appropriately permitted non-local disposal facility.

Appropriate controls and monitoring (*e.g.*, community air monitoring) would be utilized to ensure that during remediation activities, airborne particulate and volatile organic vapor concentrations surrounding the excavation area are acceptable.

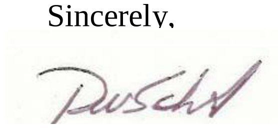
Institutional controls in the form of environmental easements would be required to restrict intrusive activities in areas where contamination remains (including the areas where municipal refuse was disposed) unless the activities are in accordance with an EPA-approved Site Management Plan.

The remedy also requires a Site Management Plan that would provide for the proper management of all post-construction remedy components. Specifically, the Site Management Plan will describe procedures to confirm that the requisite engineering (*e.g.*, site covers and any underlying demarcation layers) and institutional controls are in place and that nothing has occurred that would impair the ability of such controls to protect public health or the environment.

Because this remedy would result in contaminants remaining on-site above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the site be reviewed by EPA at least once every five years to ensure that the remedy remains protective.

Accordingly, the State hereby concurs with the EPA's September 2014 ROD for remediation of the Lower Ley Creek Site, a subsite of the Onondaga Lake Superfund site, located in the township of Salina, Onondaga County.

Sincerely,



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

ec: Douglas Garbarini, USEPA (Garbarini.Doug@epamail.epa.gov)
Joel Singerman,USEPA (singerman.joel@epa.gov)
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Maureen Schuck, NYSDOH (maureen.schuck@health.ny.gov)
Mark Sergott, NYSDOH (mark.sergott@health.ny.gov)
Robert Schick
William Daigle
Donald Hesler
Richard Mustico
Harry Warner

LOWER LEY CREEK SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX V

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY
FOR THE
RECORD OF DECISION
LOWER LEY CREEK
SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE
TOWN OF SALINA, ONONDAGA COUNTY, NEW YORK

INTRODUCTION

This Responsiveness Summary provides a summary of the public's comments and concerns received during the public comment period related to the Lower Ley Creek subsite (Subsite) of the Onondaga Lake Superfund site Proposed Plan and provides the U.S. Environmental Protection Agency (EPA) responses to those comments and concerns. All comments summarized in this document have been considered in the EPA's final decision in the selection of a remedy to address the contamination at the Subsite.

SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

The EPA conducted field investigations at the Subsite from 2009 through 2011, which culminated in the completion of a remedial investigation report in June 2013 and a feasibility study (RI/FS)[1] report in July 2014. The EPA's preferred remedy and the basis for that preference were identified in a Proposed Plan.[2] The RI/FS reports and a Proposed Plan were released to the public for comment on July 15, 2014. These documents were made available to the public on its website, http://www.epa.gov/r02earth/superfund/npl/onondagalake/index.html, and at information repositories maintained at the Salina Free Library, 100 Belmont Street, Mattydale, New York 13211; Town of Salina, 201 School Road, Liverpool, NY; Atlantic States Legal Foundation, 658 West Onondaga Street, Syracuse, NY; Onondaga County Public Library, 447 South Salina Street, Syracuse, NY; NYSDEC, Division of Environmental Remediation, 625 Broadway, Albany, NY; NYSDEC Region 7, 615 Erie Boulevard West, Syracuse, NY and the EPA Region II Office in New York City. An NYSDEC listserv bulletin notifying the public of the availability for the above-referenced documents, the comment period start and completion dates and the date of the planned public meeting was issued on July 15, 2014 and a notice providing the same information was published in *The Post Standard* on July 17, 2014. The public comment period initially ran from July 15, 2014 to August 14, 2014. In response to a request for an extension to the public comment period, the completion date was extended to September 13, 2014. An August 11, 2014 NYSDEC

[1] An RI determines the nature and extent of the contamination at a site and evaluates the associated human health and ecological risks and an FS identifies and evaluates remedial alternatives to address the contamination.

[2] A Proposed Plan describes the remedial alternatives considered for a site and identifies the preferred remedy with the rationale for this preference.

listserv bulletin and a notice published in *the Post Standard* on August 12, 2014 notified the public of the extension to the public comment period.

On July 29, 2014, the EPA held a public meeting at the Town of Salina Town Hall, 201 School Road, Liverpool, NY to inform local officials and interested citizens about the Superfund process, to present the Proposed Plan for the Subsite, including the preferred remedy and to respond to questions and comments from the public. Approximately 30 people, including residents, the media, local business people, and local government officials, attended the public meeting. An analysis of comments received during the public comment period indicates that the public generally supports the selected remedy.

SUMMARY OF COMMENTS AND RESPONSES

Comments were received at the public meeting and in writing. Written comments were received from:

- James Murphy, Account Executive, Pace Analytical Services, Inc., via an August 5, 2014 e-mail;
- Brendan Pilawski, Landfill Sales Representative, Progressive Waste Solutions, via an August 5, 2014 e-mail;
- Samuel Sage on behalf of the Atlantic States Legal Foundation, Inc. via an August 11, 2014 e-mail.
- Gary P. Gengel, Latham & Watkins LLP, on behalf of Cooper Crouse-Hinds, LLC, via a September 11, 2014 letter.
- Robert A. Papworth, Trustee, The Nature Conservancy, CWNY, via a September 11, 2014 e-mail.
- David W. Nunn, Eastman and Smith, LTD, Attorneys at Law, on behalf of Carrier Corporation, Cooper Crouse-Hinds, LLC, Syracuse China Company, and Niagara Mohawk Power Company d/b/a National Grid via a September 11, letter.
- Caleb Laieski via an August 12, 2014 e-mail.
- Jeffrey W. Davis, Partner, Hiscock and Barklay, on behalf of National Grid, via a September 12, 2014 letter.
- Kevin C. Murphy, The Wladis Law Firm P.C., on behalf of Onondaga County, via a September 12, 2014 letter.
- David Palmerton, Palmerton Group on behalf of Carrier Corporation, Cooper Crouse-Hinds, LLC, Syracuse China Company, and Niagara Mohawk Power Company d/b/a National Grid, transmitted via a September 12, 2014 e-mail from Julia Braunmueller, Assistant Project Manager, Palmerton Group, LLC.
- Mark A. Nicotra, Supervisor, Town of Salina, via a September 13, 2014 letter.

The transcript from the public meeting can be found in Appendix V-d.

The request for an extension to the public comment period can be found in Appendix V-e.

The written comments submitted during the public comment period can be found in Appendix V-f.

Fifty-six people signed an on-line petition at www.change.org, expressing support for the proposed remedy. The petition can be found in Appendix V-g.

A summary of the comments provided at the public meeting and in writing, as well as EPA's responses to them, are provided below.

Availability of Documents

Comment #1: A commenter opined that the public was excluded from viewing the technical studies and reports for this Subsite because documents were provided on the EPA Onondaga Lake site website and on CDs at the local repositories. The commenter urged that paper copies of all reports be made available.

Response #1: If a document repository has appropriate facilities for the public to review documents electronically, then it is the EPA's practice to provide documents in electronic format only. Upon request, a hard copy of the administrative record will be provided to a repository. The commenter was provided with a hard copy of the administrative record.

Coordination of Ley Creek Watershed Cluster

Comment #2: A commenter noted that this Subsite is one of a number of subsites that could be called the "Ley Creek watershed cluster." The commenter acknowledged that although different teams are working on the different subsites, the public needs to better understand how these efforts are being coordinated.

Response #2: Three other subsites of the Onondaga Lake Superfund site are located in the vicinity of the Lower Ley Creek subsite--the Ley Creek PCB Dredgings subsite; the Town of Salina Landfill subsite and the General Motors (GM) Inland Fisher Guide Facility and Ley Creek Deferred Media (GM-IFG) subsite. The status of these three subsites is discussed below.

The Ley Creek PCB Dredgings subsite includes certain areas along the banks of Ley Creek upstream of the Route 11 Bridge where PCB-contaminated dredge spoils removed from the Creek were placed. NYSDEC issued a Record of Decision (ROD) addressing these spoils in 1997 and construction of the remedy was completed in 2001. The remedy included the removal and proper off-site disposal of PCB-contaminated material greater than 50 milligrams per kilogram (mg/kg) and the placement of a soil cover over the remaining dredge spoils. Cover maintenance and five-year reviews continue because waste remains at the subsite.

The EPA and NYSDEC selected a remedy for the remediation of the Salina Landfill subsite in 2007. That remedy called for the installation of caps on both landfills (the main 50-acre landfill located north of the Creek and the smaller five- acre landfill located on the south side of the Creek), storm water collection and groundwater/leachate collection and treatment. Based upon the results of samples collected from the five-acre landfill during the design of the selected remedy, it was determined that the quantity of hazardous substances located in this landfill was substantially less than was originally estimated. As a result, the remedial alternatives were reevaluated and an amended ROD for the subsite was issued in 2010, which called for, among other things, the excavation of the five-acre landfill and consolidation of the excavated materials on the top of the 50-acre landfill. The consolidation of these materials and landfill cap over them was completed in 2013. A system to pre-treat the contaminated groundwater/leachate collected from the landfill is expected to be completed in late 2014. The pre-treated groundwater/leachate will be conveyed to the Metropolitan Syracuse Wastewater Treatment Plant.

Three significant response actions were performed at the GM-IFG facility to prevent further migration of PCBs from the subsite to Ley Creek. An industrial landfill at the GM-IFG facility that contains chromium- and PCB-contaminated material was capped to prevent contaminants from leaching into the groundwater. A second response action involved the removal of highly-contaminated soil from a former discharge swale. This swale was used in the 1950s and 1960s as a conduit for the discharge of liquid process waste to Ley Creek. The swale was subsequently filled in, but the contaminated soil remained until the performance of this second action. Over 26,000 tons of soils containing PCBs were removed from the subsite. The third response action involved the construction of a retention pond and associated water treatment system. This pond collects all water that accumulates on the GM-IFG property in any of the storm sewers or abandoned process sewers. The pond water is then sent through the treatment plant in order to meet permitted discharge limits, prior to discharge to Ley Creek. The purpose of this response action was to stop the intermittent discharge of PCBs and other contaminants that occurred during storm events. It is anticipated that a Proposed Plan for the upper Ley Creek portion of this Subsite will be released to the public in fall 2014.

For the Ley Creek PCB Dredgings and Town of Salina Landfill subsites, NYSDEC and the EPA have carefully coordinated efforts related to design and construction of the remedies. For the upper Ley Creek portion of the GM-IFG subsite, NYSDEC and the EPA have discussed the remedial alternatives under consideration, have tentatively agreed on a preferred alternative, and will have further discussions in the future related how to coordinate and optimize the design and implementation of the remedies for this subsite and the Lower Ley Creek Subsite.

Splitting Ley Creek into Two Subsites

Comment #3: Two commenters opined that the EPA's definition of the Lower Ley Creek Subsite has led to an inefficient administrative process and inconsistent project management decisions, as well as substantial avoidable costs. One of the commenters states further that it appears the bankruptcy of GM was the reason that the Lower Ley Creek Subsite was separated from the upper Ley Creek portion of the GM-IFG subsite.

Response #3: NYSDEC and GM entered into an Administrative Order on Consent in 1997 requiring GM to conduct an RI/FS for the GM-IFG subsite, which included Ley Creek adjacent to the GM facility to the Route 11 bridge. Subsequently, NYSDEC and GM commenced negotiations to conduct an RI/FS for the portion of Ley Creek from the Route 11 bridge to the mouth of Onondaga Lake and Old Ley Creek Channel. When GM entered bankruptcy, the negotiations between NYSDEC and GM were terminated and NYSDEC subsequently asked the EPA to take the lead on the Lower Ley Creek Subsite.

Coordination of the Efforts at the Lower and General Motors Inland Fisher Guide Facility and Ley Creek Deferred Media Subsites

Comment #4: Two commenters note that the Proposed Plan for Lower Ley Creek states that the remediation of the upper Ley Creek portion of the GM-IFG subsite would need to occur prior to the remediation at Lower Ley Creek to prevent the potential for recontamination of Lower Ley Creek. One of the commenters also notes that proper coordination of the implementation of the two remedies would increase the efficiency and reduce the overall environmental footprint related to the cleanup of Ley Creek. In light of the fact that there is currently no publicly-available information related to what steps the EPA and NYSDEC would take to coordinate the remedies for both Lower Ley Creek and upper Ley Creek portion of the GM-IFG subsites, the commenters suggest that the public be afforded the opportunity to review the proposed remedy for upper Ley Creek portion of the GM-IFG subsite before a remedy is selected for Lower Ley Creek.

Response #4: The remedies for both Lower Ley Creek and the upper Ley Creek portion of the GM-IFG subsite have to comply with applicable or relevant and appropriate requirements of federal and state environmental statutes and requirements. Therefore, the cleanup objectives for the soils and sediments for both subsites will have to be consistent. There are a limited number of remedies available to address contaminated soils and sediments—excavation; capping; natural recovery and treatment. The remedial alternatives for both subsites were developed under the joint review of the EPA and NYSDEC. In addition, the Proposed Plan for the Lower Ley Creek Subsite and the Proposed Plan that is under development for upper Ley Creek portion of the GM-IFG subsite were developed through the cooperative effort of both agencies. The EPA and NYSDEC have discussed with the potentially responsible parties (PRPs) for the Lower Ley Creek Subsite and the Revitalizing Auto Communities Environmental Response (RACER) Trust[3] the importance of coordinating the design and the implementation of the two remedies for efficiency and potential cost-savings reasons

For the GM-IFG subsite, NYSDEC already has an agreement in place with the RACER Trust to perform the design and construction of the remedy immediately upon selection of a remedy. At this time, there is no such agreement for the PRPs to perform the

[3] The RACER Trust was created as part of the General Motors bankruptcy proceedings.

remedial design or remedial action for Lower Ley Creek. Therefore, delaying the selection of the remedy for Lower Ley Creek will only delay the implementation of the design and construction of the remedy for Lower Ley Creek.

The EPA does not believe that delaying the selection of a remedy for Lower Ley Creek until a Proposed Plan is released for the upper Ley Creek portion of the GM-IFG subsite is necessary or appropriate.

Sufficiency of Sampling

Comment #5: A commenter opines that the application of a statistical approach to the data where one or more soil sampling locations has levels of contamination above the cleanup objectives necessitates additional sampling to define the full extent of the contamination. Because this sampling was not performed the commenter opines that the RI did not fully quantify the contamination and that the estimated remedial costs are based upon insufficient field data.

Response #5: The soils and sediments were sampled iteratively over several years to generally define the vertical and lateral extent of the contamination in both the soil and sediment. The sampling that was performed is sufficient to estimate soil and sediment removal volumes and to develop cost estimates consistent with the EPA's goal of +50 percent/-30 percent accuracy. During the design, more comprehensive sampling will be performed to fully define the boundaries of the contamination. These data will allow the refinement of the cost estimate to a goal of +15 percent/-10 percent.

Feasibility Study

Comment #6: A commenter noted that the remedial alternatives described in the feasibility study (FS) report do not completely correspond to those described in the Proposed Plan.

Response #6: The FS report presented four soil alternatives and five sediment alternatives. To facilitate the presentation and evaluation of the alternatives in the Proposed Plan and ROD, the FS report alternatives were reorganized into three soil alternatives and four sediment alternatives. The Proposed Plan remedial alternatives were derived from, and use the same cost assumptions as the FS remedial alternatives.

Cleanup Objectives

Comment #7: A commenter inquired as to whether or not the sediment cleanup objective complies with New York State standards. The commenter also inquired as to whether or not the same cleanup objective will be used for the upper Ley Creek portion of the GM-IFG subsite.

Response #7: The 1 mg/kg PCB sediment cleanup objective is consistently evaluated and often applied at contaminated sediment sites in New York State. This value is also supported by NYSDEC's "Technical Guidance for Screening Contaminated Sediments" (January 1999). PCBs are the primary ecological risk driver at the Lower Ley Creek Subsite and are collocated with the majority of the other sediment contaminants of concern. Addressing PCBs above 1 mg/kg is expected to address risks associated with other sediment contaminants of concern (primarily, metals).

Comment #8: A commenter notes that because the Proposed Plan relies on a January 1999 NYSDEC guidance document for sediment criteria for site-related metals, the document should have identified the cited values as guidance values as they are not promulgated criteria.

Response #8: The Proposed Plan states that in the absence of federal or state promulgated standards for contaminant levels in sediments, NYSDEC's sediment screening values are being used as "To-Be-Considered" (TBC) criteria.

Cleanup Levels

Comment #9: A commenter opined that the remedial action levels for PCB-contaminated soils and sediments should have been based on the Subsite-specific baseline risk assessments instead of soil cleanup objectives (SCOs) and sediment criteria, respectively.

Response #9: A Superfund baseline human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substance exposure from a site in the absence of any actions to control or mitigate these hazardous substances under current- and future-land uses, not to define cleanup objectives. SCOs are identified in 6 NYCRR Part 375, Environmental Remediation Programs, Subpart 375-6, effective December 14, 2006. Also, see Response #8.

Remedial Action Objectives

Comment #10: A commenter expresses concern that two of the remedial action objectives (RAOs) in the FS report promote more remediation than is necessary to appropriately manage risk.

Response #10: In developing the Proposed Plan, the EPA adopted the following RAOs for the Subsite:

- Reduce or eliminate any direct contact and ingestion threat associated with contaminated soils and sediments.
- Minimize exposure of ecological receptors to contaminated soils and sediments.

- Reduce the cancer risks and non-cancer health hazards associated with eating fish from Lower Ley Creek by reducing the concentration of contaminants in fish.

These RAOs can be met by implementing the remedial activities, contained in the remedial alternatives which were developed for the site. The EPA believes that the RAOs are appropriate for this site and the selected remedy. Based upon consideration of the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the detailed analysis of the alternatives and public comments, the EPA has determined that Alternative S-2, excavation of soil, and either local or off-site disposal and Alternative Sed-3, excavation of sediments, and either local or off-site disposal, best satisfy the requirements of CERCLA Section 121, 42 U.S.C. §9621, and provides the best balance of tradeoffs among the remedial alternatives with respect to the National Oil and Hazardous Substances Pollution Contingency Plan's (NCP's) nine evaluation criteria, 40 CFR § 300.430(e)(9). The *Summary of the Rationale for the Selected Remedy* section in the Decision Summary of the ROD provides a detailed explanation of the EPA's selection of Alternative S-2 and Alternative Sed-3.

Comment #11: A commenter inquired as to the rationale for the RAOs relative to reasonably anticipated future land use.

Response #11: RAOs are specific goals to protect human health and the environment. While the land use of the subsite has historically been industrial/commercial, people trespass, fish and otherwise recreate in and along the banks of the Creek.

Conceptual Site Model

Comment #12: A commenter opines that the Conceptual Site Model (CSM) in the FS report failed to address sources of contamination from upstream or other inputs to Lower Ley Creek.

Response #12: A preliminary CSM was developed during the RI based on previous data and information. The CSM was used as the basis for the RI study design. The CSM was refined in the RI based on the newly-collected data, and was further refined in the FS and used as the basis for the remedial alternatives. The CSM addressed sediment stability, as well as other contaminant fate and transport mechanisms. The CSM considered the following inputs to Lower Ley Creek.

The GM-IFG facility discharged thousands of gallons of PCB-contaminated waste into Ley Creek from 1952 to 1994. Other facilities upstream of the Subsite, as well as the Salina Landfill, which is located immediately adjacent to the Subsite, also discharged contamination into the Creek. As a result of these discharges and releases from the dredge spoils placed on the banks of the Creek, the Creek sediment was contaminated. Contaminants that did not settle out in the Creek sediment made its way into Onondaga Lake. The Creek is normally quiescent, except during storms and springtime thaws. In addition, the Creek channel was prone to frequent flooding during storm events. In the early 1970s, Onondaga County undertook a flood control project to limit storm damage. The creek was widened and dredged and a ninety degree turn was redirected through the Salina Landfill, a receiver of industrial waste including industrial waste from the GM-IFG facility. The dredged materials, now known to be contaminated, were spread along the banks of the Creek.

Soil and Sediment Treatment

Comment #13: A commenter noted that the remedy would not treat the excavated contaminated sediments and soil—it would dispose of them locally. The commenter proposes to thermally treat the sediments and soil and subsequently use the material as backfill in the excavated areas. The commenter provided a proposal from a vendor experienced in serving the mining industry. The vendor proposes to treat the excavated contaminated sediments and soil with thermal desorption, supplemented by mechanical removal techniques to extract the heavy metals. The commenter suggests that following the completion of the Lower Ley Creek remediation work, the equipment could be utilized for other Onondaga Lake subsites.

Response #13: The EPA and NYSDEC routinely consider treatment of wastes at National Priorities List sites. With regard to PCBs, the EPA has generally followed the expectations with regard to treatment that are included in the Toxic Substances and Control Act (TSCA), which would not expect treatment of the lower-level PCB concentrations found at this Subsite. While the vendor's proposed remediation strategy would satisfy the preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity or mobility of hazardous substances, the estimated cost of treating the excavated soils and sediments would be in the range of $7 to $10 million. In comparison, the estimated capital costs for local disposal (Cooper-Crouse Hinds North Landfill and Salina Landfill) would be much less, ranging between $1.8 and $2.3 million and the estimated annual operation and maintenance costs range between $21,750 and $31,440.

Fish Consumption

Comment #14: Two commenters expressed concern about the potential exposure of subsistence anglers to contamination in fish and inquired as to whether the proposed remedy addresses this risk. One of the commenters noted that the New York State Department of Health (NYSDOH) is beginning a study to determine fish consumption from the overall Onondaga Lake basin and suggests that its input be sought before the EPA attempts to quantify risk in determining remediation strategies for this Subsite.

Response #14: Currently, the NYSDOH has a specific health advisory for Onondaga Lake which recommends that women under 50 and children under 15 not eat fish from the Lake, and men over 15 and women over 50 not eat certain species and limit the consumption of other species. This advisory also applies to the Lake's tributaries and connected waters (including Ley Creek). The fish consumption study referenced in the comment is associated with a federal grant that the NYSDOH received from the Centers for Disease Control and Prevention, Agency for Toxic Substances and Disease Registry, as part of the Biomonitoring of Great Lakes Populations Program. NYSDOH will measure a variety of metals and chemicals in blood and urine of up to 300 Burmese and Bhutanese refugees and up to 100 people from an urban population who rely on fish from Onondaga Lake and nearby water bodies as a source of food. The baseline biomonitoring data that will result from this study will not impact the remedy for the Subsite; therefore, no further input from NYSDOH is needed at this time. Based on the investigations completed to date, sufficient environmental data is available to choose and implement a remedial decision for the Subsite.

A baseline human health risk assessment (HHRA) is an analysis of the potential adverse human health effects caused by the release of hazardous substances from a site in the absence of any actions to control or mitigate these under current and anticipated future land uses. During the remedial investigation (RI), the EPA evaluated the risks associated with the consumption of contaminated fish and concluded that fish consumption by an older child (six to 16 years old) poses an unacceptable risk. Because the selected remedy removes contaminated sediments above 1 mg/kg, the risk attributable to remaining sediment PCB sources will be significantly reduced.

The remediation of the contaminated sediments in Ley Creek and Onondaga Lake will reduce the future accumulation of contaminants in fish.

Costs

Comment #15: A commenter noted that the NCP mandates that the capital and full life cycle costs for the various remedial alternatives be compared. The commenter opines that in addition to the cost comparison, it would be useful if the different remedial alternatives also compared the energy costs--especially due to concerns about carbon emissions.

Response #15: While the energy costs of the remedial alternatives that were considered were not specifically evaluated in the FS report, the ROD recognizes that nonlocal disposal of the approximately 150,000 cubic yards of excavated soils and sediments would require that an estimated 10,000 trucks drive a much greater distance to nonlocal disposal sites, which would result in a substantially greater carbon footprint than local disposal.

It should also be noted that the ROD calls for consideration, during the design, of technologies and practices that are sustainable. This would include consideration of the following green remediation technologies and practices:

- Use of 100 percent of electricity from renewable sources;
- Clean diesel fuels and technologies;
- Methane capture at landfill sites;

- Industrial materials reuse or recycling within regulatory requirements;
- Concrete made with coal combustion products;
- Construction and Demolition materials;
- Recycling and reuse of organic materials generated on site; and
- Capture geothermal energy with pump and treat remediation systems to heat/cool structures.

Comment #16: A commenter inquired as to the estimated cost to dewater the sediments, the method of dewatering and the location of the disposal of the sludge from the wastewater.

Response #16: During the design, the specific details related to the dewatering of the sediments, such as the method and the location of dewatering facilities, will be developed. Water that drains from the sediments during dewatering would be treated to meet NYSDEC's surface water discharge requirements before being discharged. The estimated cost to dewater/condition sediments is $364,000. The dewatered sediments and any other solids resulting from treatment of the water (referred to as "sludge" in the comment) would be disposed in one of the two local disposal sites or a nonlocal disposal site.

Comment #17: A commenter inquired as to the basis for the $5/ton estimate for local disposal.

Response #17: The $5/ton estimate is related only to transporting the excavated soils and dewatered sediments to a local disposal facility (*i.e.,* 1 mile) and placement of the soils and sediments at the facility. A separate budget line item identifies an estimated cost for disposal.

Comment #18: A commenter opines that the $1.3 million liner, leachate collection and leachate treatment capital and operation and maintenance (O&M) cost projections for the Cooper Crouse Hinds landfill appeared to be underestimated.

Response #18: In its cost proposal, Eaton estimated that the cost for the liner and leachate collection system is $1,261,000. The estimated cost for the leachate treatment system is $100,000 (as is noted in Response #39, because the sediments will be dewatered and mixed with the soil prior to disposal, it is not anticipated that the material will have a significant moisture content, which would result in the generation of very little leachate). The capital, O&M and present-worth costs associated with constructing a cell at its Cooper Crouse-Hinds North Landfill for the disposal of the excavated soils and sediments in this landfill are $1,761,000, $21,750 and $2,049,800, respectively.[4]

[4] See *Lower Ley Creek, Subsite of the Onondaga Lake Superfund Site, Town of Salina, Onondaga County, New York, Feasibility Study Supplement, Local Disposal Cost Breakdown*, EPA, July 2014.

Comment #19: The operator of a disposal facility located approximately 50 miles from the Subsite suggested that based on the company's knowledge of the market and options available for disposal, it appears that the EPA overestimated the cost of nonlocal disposal of the soils and sediments contaminated with less than 50 mg/kg of PCBs. The commenter indicated that his facility would charge $40/ton for the disposal of these soils and sediments (in comparison to the EPA's estimate of $75/ton).

Response #19: The unit cost for the disposal of soils and sediments contaminated with less than 50 mg/kg of PCBs in a nonlocal landfill was an estimate. In the ROD, the EPA has modified the estimate and utilized the $40/ton unit cost estimate to calculate the cost for nonlocal transportation and disposal of the soils and sediments contaminated with less than 50 mg/kg of PCBs.

Comment #20: A commenter opines that the FS report does not include common costs associated with implementing the remedy that are applicable to both soil and sediment remediation, such as infrastructure, layout of office and equipment, staging areas, temporary utilities, public and private utility location services, surface water/runoff controls, dewatering or water treatment for excavations confirmatory sampling and analysis, engineering studies, design, sediment conditioning area, post-treatment sampling and analysis for dewatered sediment, and implementing institutional controls.

Response #20: Many of the specific items noted in the comment are included in the general category headings in Appendix C of the FS report. A 15 percent contingency has also been added to the construction cost. The cost estimates are consistent with the EPA's goal of +50 percent/-30 percent accuracy.

Comment #21: A commenter requested that the EPA provide an itemized financial update to the public of the RI/FS costs incurred by the EPA and NYSDEC and an accounting of the funds in escrow (including the accumulated interest) from the General Motors bankruptcy settlement.

Response #21: While this comment seeks information that is outside the scope of the Proposed Plan, the EPA's cost information is provided below.

Through July 25, 2014, the EPA spent $1,163,016.80 in contractor-related costs in performing the RI/FS. The costs consist of $59,320.31 for Alion Science and Technology Corporation (Data Validation), $426,356.59 for Lockheed Martin Services (sampling and ecological risk assessment), $273,415.74 for laboratory services and $403,924.16 for Los Alamos Technical Associates, Inc. (RI and FS reports).

The EPA received $20,884,448.31 for the Lower Ley Creek Subsite from the GM bankruptcy settlement. With interest, that amount was $21,112,139.73 on August 31, 2014.

EPA does not have information on costs incurred by NYSDEC.

Preference for Treatment

Comment #22: A commenter opined that the EPA neglected consideration of the Congressional intent that Superfund sites are not meant to be permanent repositories of hazardous waste, but should be cleaned up and made available for reuse. The commenter expresses support for remedies that involve treatment and reuse of sites. The commenter opines that the proposed local disposal sites are valuable real estate that should be available for redevelopment.

Response #22: Under CERCLA, Section 121, and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with applicable or relevant and appropriate requirements, are cost-effective and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, or contaminants at a site.

The selected remedy includes the transport for treatment/disposal contaminated soils and sediments containing greater than 50 mg/kg of PCBs at a nonlocal facility. Technical feasibility screenings (capacity, ability to comply with New York State landfill closure regulations, waste stream compatibility, proximity and constructability) and administrative feasibility screenings were performed on 22 sites considered for local disposal of soils and sediments containing less than 50 mg/kg PCBs. These sites were located within a 10 mile radius of the Subsite. The most favorable local disposal options for soils and sediments containing less than 50 mg/kg PCBs were consolidation under the cap of the Town of Salina Landfill within the area controlled by the leachate collection system and disposal in a newly constructed cell with a liner and leachate collection system at the yet-to-be capped Cooper Crouse-Hinds North Landfill (which will be closed under a New York State administrative consent order in the near future). Both of these sites are located adjacent to areas to be dredged and have contributed to contamination in Lower Ley Creek. In addition, both of these disposal sites are existing landfills with limited options for redevelopment that would not be significantly altered by the addition of waste material from the selected remedy.

Comment #23: A commenter expressed concern that remedial alternatives to treat the contaminated soils and sediments were not considered.

Response #23: The selected remedy employs off-site treatment (as necessary) and disposal of the contaminated soils and sediments containing greater than 50 mg/kg of PCBs. The EPA does not believe that treatment of the remaining sediments and soil is practicable or cost effective given the widespread nature of the sediment and soil contamination (primarily, PCBs, polycyclic aromatic hydrocarbons and metals) and the high volume of sediment and soils that are being addressed.

Wetlands Restoration

Comment #24: A commenter notes that most of the area adjacent to Lower Ley Creek was wetlands that were filled in by municipal refuse. In that the successful restoration of native fish species (and lower organisms) requires spawning habitat, which requires better and littoral (close to the bank) habitats and restored wetlands, the commenter recommends restoration of the wetlands as a way to countering the adverse effects of filling in the wetlands.

Response #24: While the EPA acknowledges the environmental benefits that would result from the removal of the municipal wastes that were deposited in the wetlands located adjacent to Lower Ley Creek, under CERCLA, the EPA can only address releases of "hazardous substances" from a "facility," which are defined terms in the statute. Because the municipal refuse located beneath the dredge spoils does not meet this criteria, the remediation of the Lower Ley Creek Subsite can only address the contaminated sediments and the dredge spoils on the banks of the creek.

Contaminated sediments in a wetland located adjacent to the Creek near the Crouse-Hinds North landfill will be excavated and restored.

Contracting

Comment #25: A commenter representing a provider of analytical services inquired as to what entity will be performing the remedial work at the site.

Response #25: After the selection of a remedy for a site which has viable PRPs, the EPA negotiates the performance of the design and construction of the remedy with the PRPs. If the PRPs do not agree to perform the necessary work, EPA can order the PRPs to perform the work. In either of these cases the PRP will be responsible for the procurement of the necessary design, construction and analytical services. At some sites, the EPA uses the Superfund to implement the work, in which case the federal government would be responsible for procurement.[5] The EPA intends to have the PRPs at this site perform the necessary work.

[5] If the EPA implements a remedy, the Agency's contracting methods are publicly available. See http://www2.epa.gov/home/contracting-epa.

Support for Remedy

Comment #26: A commenter expressed support for the proposed remedy and asked that the remedial plan be implemented as soon as possible.

Response #26: The EPA intends to utilize its authorities to implement the remedy as soon as possible. While a remedy for the upper portion of Ley Creek has not yet been selected (it is anticipated that a Proposed Plan will be released in the very near future), there will be a need to coordinate the design and construction of both portions of Ley Creek.

Treatment of the Soils and Sediments

Comment #27: A commenter notes that plasma gasification, a process that utilizes a plasma torch at temperatures ranging from 4,000 to 25,000 °F to ionize gas and catalyze organic matter into synthetic gas and solid waste, has not been investigated or considered for any aspect of the overall remedial program at the Onondaga Lake site. The commenter suggests that this technology be considered for the Lower Ley Creek Subsite.

Response #27: As described in the *Rationale for the Selected Remedy* section of the Decision Summary of the ROD, the EPA believes that the selected remedy is fully protective of human health and the environment. In addition, because there are no plasma gasification facilities in close proximity to Onondaga Lake, such a facility would need to be either constructed and permitted locally or the contaminated sediments would need to be transported a considerable distance to an existing facility. Both of these options would increase the cost of the remedy substantially.

Sediment Excavation

Comment #28: Two commenters expressed concern that the removal of the contaminated sediments would disperse them, posing a potential threat to the public.

Response #28: During the design, the specifics of how the contaminated sediments will be removed will be determined. Whether the sediments are excavated in the wet or the dry[6] will determine what sediment controls are necessary. The Creek is normally quiescent, except during storms and springtime thaws. If the sediments are excavated in the wet, measures to prevent the dispersion of sediments during their removal, such as silt curtains, will be utilized to prevent the migration of contaminated sediments. If

[6] Contaminated sediments can be removed by excavating from the banks or dredging (both are commonly referred to "in the wet") or excavating in the dry (closing off the water body or diverting the surface water so that soil excavation equipment can be used in a dry environment).

excavated in the wet, work would be expected to proceed from upstream to downstream, which would also address resuspended sediments that may be deposited in downstream areas. In addition, a community health and safety plan will be developed during remedial design and implemented during construction to ensure that the remedy is protective of the public. Dredging operations could be modified if monitoring results indicate unexpected concentrations of contaminants.

Gas Pipeline, Electrical Transmission Line, Sewer System

Comment #29: A commenter (National Grid) noted that its buried natural gas pipeline and overhead electric transmission facilities and ancillary structures are located on the northern and southern banks of the Creek where contaminated soil is to be covered with clean soil and a demarcation layer (northern bank) and excavated (southern bank). The commenter expressed concern about the potential for interference with the operation of these facilities and, by adding a cover and demarcation layer over the pipeline, the potential for interference with future pipeline maintenance or replacement and the potential for fire and explosion. The commenter also identified a number of concerns related to clearance requirements and its access to its facilities during and after the remediation work.

Response #29: During the RI, the EPA collected soil samples down to several feet on the southern bank of the Creek and a portion of the northern bank. Due to safety concerns, the EPA did not sample the soil overlying the two large buried natural gas and oil pipelines which run parallel to a portion of the northern bank of the Creek. During the design, the EPA intends to work with National Grid and Buckeye Pipeline Company (the owner of an oil pipeline that runs adjacent to the gas pipeline) to facilitate the collection of soil samples along the gas and oil pipelines. Should these soils be found to be contaminated, the EPA will work with National Grid and Buckeye Pipeline Company to develop a means for preventing exposure to these soils. The EPA will also work with National Grid so that contaminated soils located in the vicinity of its overhead electric transmission facilities and ancillary structures can be addressed without interfering with them or employees of National Grid's access to the facilities and structures. In addition, during the design, all equipment transit and excavations in the vicinity of the gas pipeline will be developed in consultation with National Grid. Protocols for National Grid to access its facilities during and after the remediation work will need to be worked out during the design.

Comment #30: A commenter noted that while the FS report and Proposed Plan identified the natural gas and oil pipelines on the north side of Ley Creek and the Route 11 bridge as infrastructure that needs to be considered in the implementation of the remedy, Onondaga County's trunk sewers, force mains and related infrastructure that must be maintained, repaired and upgraded from time-to-time are not identified.

Response #30: During the remedial design, the County sewerage authorities will be consulted to insure that the implemented remedy does not prevent maintenance personnel from accessing the sewerage infrastructure.

Flooding

Comment #31: A commenter noted that the Creek channel is very flat and is impacted significantly by the relative elevation of Onondaga Lake. The commenter inquired as to how the properties that abut or are near the Creek will be protected from flooding.

Response #31: The excavation areas of the southern bank of the Creek would not be backfilled to grade. Reducing the elevation of this area would increase the flood storage capacity of the floodplain. The extent of backfilling in these areas would be determined during the remedial design based on the consideration of various factors, including flooding potential and desired habitat conditions.

Comment #32: A commenter inquired as to whether there are any flood control, flood mitigation or flooding impacts that would present a potential impediment to either disposal option.

Response #32: The EPA is not aware of any flood-related impediments to either disposal option.

Post-Excavation Confirmatory Sampling

Comment #33: A commenter inquired about the field processes that will be employed to insure that all of the sediment that exceeds the cleanup objectives have been addressed.

Response #33: Post-excavation sampling will be performed to confirm that the soil cleanup objectives and sediment criteria have been met.

Comment #34: A commenter notes a discrepancy in the volume of contaminated sediments in the RI report (110,000 cubic yards [CY]) and FS report and Proposed Plan (73,000 CY).

Response #34: The sediment volume noted in the RI report was a rough initial estimate. The sediment volume presented in the FS report and Proposed Plan represents a more refined, calculated volume.

Local Disposal

Comment #35: A commenter states that the proposed use of local disposal is reasonable, appropriate, and consistent with green remediation principles. The commenter suggests that the EPA facilitate the development of a viable local disposal option.

Response #35: The comment is noted. The EPA intends to pursue the local disposal option.

Comment #36: A commenter inquired as to whether any of the local disposal options were eliminated from consideration.

Response #36: The Palmerton Group on behalf of Carrier Corporation, Cooper Crouse-Hinds, LLC, Syracuse China Company, and Niagara Mohawk Power Company performed technical feasibility (capacity, ability to comply with New York State landfill closure regulations, waste stream compatibility, proximity and constructability) and administrative feasibility screenings on 22 sites located within a 10-mile radius of the Subsite considered for local disposal of soils and sediments containing less than 50 mg/kg PCBs and submitted a report to the EPA. The Palmerton Group concluded that local disposal at the Town of Salina Landfill and the Cooper Crouse Hinds North Landfill were the only two viable options for local disposal. The EPA reviewed this report and agrees with the Palmerton Group's conclusion.

Comment #37: Two commenters inquired as to whether or not there are any legal (e.g., statutory, regulatory or policy), engineering (*e.g.,* location, volume, compatibility, constructability) or cost issues associated with local disposal. One of the commenters inquired as to whether additional disposal at the Town of Salina landfill is a permitted activity, since the landfill is closed.

Response #37: No statutory, regulatory or policy issues have been identified.

Comment #38: A commenter inquired as to when the EPA anticipates making a determination as to the local disposal option.

Response #38: During the remedial design, the engineering and cost considerations will be evaluated to facilitate the identification of the specific disposal location. Not only will this evaluation consider the Cooper-Crouse Hinds North Landfill and Salina Landfill, but it will also consider nonlocal facilities, such as the disposal facility located approximately 50 miles from the site (see Comment #19).

Local Disposal Leachate Management

Comment #39: A commenter inquired as to whether leachate management is a potential impediment to either local disposal option. The commenter noted that the Onondaga County Sanitary District, generally, will not accept leachate from a hazardous waste site absent a compelling public need and only if the resulting discharges meet all applicable legal requirements. The commenter inquired as to what alternative disposal options would be employed if the leachate could not be disposed of at the Metropolitan Syracuse Wastewater Treatment Plant (METRO). The commenter also inquired as to the potential volume of leachate that would be generated, whether pretreatment would be necessary and what provisions would be made to discontinue pumping during peak flows would be made.

Response #39: The remedy calls for the excavation of an estimated 75,000 CY of contaminated soils including 12,000 CY of contaminated soils from the wetland area, as well as 73,000 CY of sediments from the Creek. Because the sediments will be dewatered and mixed with the soil prior to disposal, it is not anticipated that the material will have a significant moisture content, and, therefore, would generate very little leachate. It is possible, however, that leachate could be generated as a result of precipitation that occurs while the material is being placed in the landfill before the final cap is constructed. The specific volume of leachate that will be generated could be estimated based upon the presumed moisture content of the soils and sediments and precipitation rates. Leachate management is necessary for both local disposal options. For the Town of Salina Landfill, there is already a leachate collection system in place; after pretreatment, this leachate will be conveyed to METRO. Leachate generated from the disposal of Creek sediments and soils would be addressed by this system. For the Cooper Crouse-Hinds North Landfill, a leachate collection system would need to be constructed. The disposition of the leachate would have to be determined during the design.

Institutional Controls

Comment #40: A commenter inquired as to how the proposed institutional controls will impact the Ley Creek Drainage District. The commenter also inquired as to whether or not the controls will preclude or restrict wastewater infrastructure upgrades or the installation of new infrastructure.

Response #40: The purpose of institutional controls is to protect the integrity of a remedy and to prevent exposure to contamination that remains after the remediation is completed. It is anticipated that environmental easements/restrictive covenants will be filed that will restrict intrusive activities in areas where residual contamination remains unless the activities are in accordance with an EPA-approved Site Management Plan (SMP).

Supplemental Remedy Based Upon Fish Monitoring

Comment #41: A commenter inquired about the need for additional or supplemental remedial actions should the post-remediation monitoring of the fish indicate that contaminant levels are not diminishing.

Response #41: It is expected that concentrations of contaminants in fish will be reduced following the completion of remedial activities in Onondaga Lake. Five-year reviews will be conducted by the EPA to ascertain whether or not the implemented remedy is protective of public health and the environment. Monitoring of fish tissue samples will continue both during and after the lake remediation efforts and NYSDOH will continue to evaluate the fish data and the fish advisories on an annual basis.

Floodplain

Comment #42: A commenter notes that for the soil capping alternative, contaminated areas that are located within the floodplain on the southern bank of the Creek would require limited excavation prior to capping so that the surface elevation would not be raised, thus, avoiding the loss of flood storage capacity. The commenter opines that the conceptual design of the capping alternatives is improperly constrained by the presumption that unacceptable flood impacts would result from a simple covering approach. The commenter notes further that information provided in a 2012 Federal Emergency Management Agency flood insurance study of Ley Creek indicates no or little impact of hypothetical loss of the entire overbank floodway along the length containing the dredge spoils.

Response #42: In its comments on the Proposed Plan, Onondaga County notes there have been increased incidents of flooding in the area since 2000. Under the selected remedy, the excavation areas of the southern bank will not be backfilled to grade, thereby increasing the floodplain's flood storage capacity.

Soil Cap

Comment #43: A commenter opines that the one foot of soil used to contain PCBs at the Ley Creek PCB Dredge Spoils subsite should be sufficient for covering the dredge spoils areas along Lower Ley Creek.

Response #43: Under the selected remedy, any contaminated soil located on the northern bank of the Creek that cannot be safely excavated because of the presence of the two large, buried natural gas and oil pipelines which run parallel to the north bank of the Creek will be covered with at least one foot of soil.

Sediment Caps

Comment #44: A commenter suggests that sediment cap designs should not be limited to those considered in the FS report. Better information than that which was relied upon in the FS is available or can be developed during the design phase to determine the appropriate composition of sediment caps and the need for and type of armor layer.

Response #44: The composition of the sediment caps and, if necessary, the armor layers will be developed during the design phase.

Comment #45: A commenter opines that the EPA has, similarly, improperly ruled out the use of sediment caps to address areas that contain elevated levels of PCB contamination. The commenter opines that the removal of all of the sediment exceeding action levels from the deep sediment areas (up to and possibly exceeding 8 feet into the sediment bed) may not be practicable or warranted from an exposure/risk perspective. The commenter also expressed concern about slope-stability impacts of deep excavation at or near the edge of the Creek bank.

Response #45: Sediment capping was appropriately evaluated utilizing the evaluation criteria. With the exception of areas that may not be able to be fully remediated (*e.g.,* near bridges), capping was determined not to be as good an alternative as the selected remedy. So as to not affect the bathymetry of the Creek, capping would require sediment excavation to a depth equivalent to the thickness of the cap. The EPA believes that excavating deeper pockets of PCB-contaminated sediments is appropriate. The sediment excavation alternative would permanently remove the contaminated sediment from the Creek, thereby eliminating the potential for contaminated sediment to find its way into Onondaga Lake which could occur under the sediment capping alternative if the caps were to be breached because of storm events and/or ice scour.

Issues related to slope-stability will be addressed as part of the design.

Sediment Principles

Comment #46: A commenter opines that considering the scale and volume of sediment addressed by the remedy, the administrative process does not comply with the National Oil and Hazardous Substances Pollution Contingency Plan or EPA's 2002 guidance "Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites" in that the Region should have submitted the Proposed Plan to the Office of Emergency and Remedial Response's Office of Superfund Remediation and Technology Innovation (OSRTI) Regional Coordinator along with a written discussion of application of the principles for contaminated sediment management enunciated in the guidance document.[7]

[7] For Tier 1 sites (greater than 10,000 CY of contaminated sediment), the noted guidance requires

Response #46: As required by the guidance cited by the commenter, the EPA's regional office prepared a *Tier 1 Sediment Site Consideration Memo* and, consistent with EPA policy, consulted with EPA-headquarters prior to issuing the Proposed Plan. Please refer to the Administrative Record.

Comment #47: Consistent with the first principle of the guidance which recommends that continuing sources of contamination, recontamination potential, and source control be clearly addressed, a commenter notes that neither the Proposed Plan nor the FS report discusses the potential for sediment recontamination after implementation of the remedy or the nature of continuing sources of contamination to Ley Creek.

Response #47: The ROD notes that there are a number of prior and current upland and adjacent sources of contamination to Ley Creek. The most significant of these sources are the former GM IFG Facility/Ley Creek Deferred Media and Town of Salina Landfill subsites (the Ley Creek PCB Dredgings subsite was a significant source of contamination to Ley Creek; the remediation of this subsite was completed in 2001). The control of the remaining upland and upstream sources of contamination is an integral part of the overall remediation of Lower Ley Creek. The Creek will continue to be subject to external contaminant contributions until these sources of contaminants are eliminated. Remedial activities at Lower Ley Creek will not be initiated until current upstream sources are adequately controlled. The contaminated soils on the banks of Lower Ley Creek also contribute to the contamination of the sediment through runoff during rain and snow events. These areas will be remediated concurrent with the Lower Ley Creek remediation.

Comment #48: A commenter notes that the sediment guidance highlights the importance of clearly defined site-specific risk-based cleanup objectives, whereas for the Lower Ley Creek Subsite, generic (default) cleanup levels were, instead, selected for use without meaningful evaluation of site-specific risk-based cleanup objectives. The absence of analysis regarding the extent to which the proposed remedy will achieve cleanup objectives also suggests that the Region did not consider or comply with EPA's own guidance document in development of the remedy.

Response #48: The risks associated with potential exposures to the Lower Ley Creek sediments, soils and surface water via dermal contact and incidental ingestion, as well as potential consumption of contaminated fish and wildlife, were evaluated. Risks from the ingestion of sediment and fish are primarily driven by PCBs which were found at levels as high as 315 mg/kg in the sediment and 500 mg/kg in the soil. Site-specific bioaccumulation factors for PCBs were calculated for forage fish in the upper, middle and lower sections of Lower Ley Creek. The lowest observed adverse effect level (LOAEL)[8]-

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the preparation of a memorandum describing how 11 principles described in the guidance were considered.

[8] The LOAEL is the lowest concentration or amount of a substance found by experiment or

based sediment PCB concentrations which were protective of ecological receptors ranged from 0.08 to 2.28 mg/kg. A sediment cleanup goal of 1 mg/kg was chosen for PCBs which is consistently evaluated and often applied at contaminated sediment sites in New York State. This value is also supported by NYSDEC's "Technical Guidance for Screening Contaminated Sediments" (January 1999).

Comment #49: A commenter notes that the sediment guidance expressly recognizes that a combination of remedial options will be the most effective way to manage risk at many sites. Using multiple options in a coordinated fashion, such as excavation, capping, monitored natural attenuation and institutional controls, is in many situations the best remedial approach when considering and balancing all of the NCP's remedial criteria. This accepted approach in the guidance is particularly appropriate at the Lower Ley Creek Subsite and supports the development of a more flexible remedy which combines excavation, capping, and institutional controls in a tailored fashion, because doing so is more consistent with existing site conditions, land uses and remedy implementation challenges. However, opines the commenter, the remedy does not effectively combine the array of available remedial options in a flexible fashion so as to achieve an efficient, implementable, cost-effective, and NCP-compliant cleanup as promoted by the guidance.

Response #49: The selected remedy is consistent with the sediment guidance; the remedy utilizes a combination of excavation, capping and institutional controls.

Anthropogenic Sources

Comment #50: A commenter suggests that the EPA should not require remediation of soils located on the northern bank of the Creek in the vicinity of the I-81 overpass. The commenter opines that the constituents identified in this area are likely attributable to sources unrelated to Ley Creek, such as the I-81 overpass.

Response #50: The intent of the remedy is to address contamination attributable to releases from the hazardous waste sources along Ley Creek, not urban runoff. Delineation sampling will be performed during the design. Unless it is commingled with contaminated soil attributable to releases from the hazardous waste sources along Ley Creek, contaminated soil that is attributable to other sources will not be addressed by this remedy.

Comment #51: A commenter notes that with the exception of PCBs, the other contaminants of concern (COCs), such as polycyclic aromatic hydrocarbons (PAHs), have a significant anthropogenic component. It is not clear whether site-specific soil background concentrations were compared to the remediation goal criteria. It is also

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observation that causes an adverse alteration of morphology, function, capacity, growth, development, or lifespan of a target organism distinguished from normal organisms of the same species under defined conditions of exposure.

unclear how site-specific background concentrations of metals compare to NYSDEC's sediment criteria. Additional background characterization and statistical comparisons to remedial action levels should be performed, if chemicals other than PCBs will determine the extent of cleanup in any fashion.

Response #51: Background soil samples were collected in 1998, 1999 and 2003 as part of the GM-IFG subsite investigation and these samples also serve as background samples for the Lower Ley Creek Subsite. Two soil borings were collected from the southwest corner of the former GM-IFG facility and one soil boring was collected from the southeastern corner of the property for the purpose of collecting background soil quality data. The only COC that was found was PCBs.

Background sediment samples were collected in 2008 as part of the upstream GM-IFG subsite investigation and these samples also serve as background samples for the Lower Ley Creek Subsite. Nine sediment samples were collected upstream of the IFG subsite; three in the north branch of Ley Creek, three in the south branch and three in the south creek. These samples were analyzed for SVOCs, PCBs and metals. Low-level PCBs were detected in four of the nine samples (0.174, 0.066, 0.074 and 0.109 mg/kg total PCBs). Some low levels of SVOCs and some naturally-occurring metals were found.

Because PCBs are collocated with the majority of the other COCs and are the primary risk driver for all pathways for this Subsite, they will be used as an indicator compound to ensure that the soil and sediment cleanup goals are achieved.

Limiting Sediment Excavation

Comment #52: A commenter suggests that the sediments located immediately downstream of the I-81 overpass should be excluded from the remedy because of the low levels of PCBs that are present and because the effectiveness of excavation in this area would be limited relative to the adverse environmental impacts, implementability challenges, and associated costs.

Response #52: Additional sediment sampling will be conducted during the design to delineate the areas in the Creek that will require excavation consistent with the ROD.

Operation and Maintenance

Comment #53: A commenter suggests that adaptive management in the long-term O&M be allowed to facilitate appropriate modifications of the O&M activities over the long-term.

Response #53: An SMP will be developed to provide for the proper management of all post-construction remedy components. The SMP will allow flexibility to facilitate O&M modifications, as may be appropriate, over the long-term.

Comment #54: A commenter suggests that the inspections and maintenance of covers used to reduce exposure to PCBs in the soil and sediment may not be warranted in certain circumstances (such as where low-levels of PCBs are covered and the effect of mixing the cover and the underlying soil or sediment may result in the PCB concentration meeting the cleanup objective).

Response #54: Appropriate inspections, including, specific locations and frequency of inspections, will be developed during the remedial design and/or remedial construction. Relevant factors, such as anticipated uses of given areas, will be considered in this process.

Waste Materials Handling

Comment #55: A commenter suggests that the plan for characterization of the excavated waste materials for local or nonlocal disposal should consider the unavoidable mixing that occurs. PCB sampling should include either waste pile sampling or in-situ sampling based on a vertical averaging of in-place soil and sediment PCB data.

Response #55: Consistent with the requirements of TSCA, PCB-contaminated soil and sediment characterization sampling must be performed in-situ.

Remedy Implementation

Comment #56: A commenter suggests that flexibility related to the methods of treatment of the water that is removed from the excavated sediments should be allowed. Because NYSDEC's surface water discharge standards are stringent, the commenter notes that a significant capital investment in wastewater treatment equipment might be required if treatment is performed on-site. The commenter suggests that the decanted water could be addressed either locally or at an off-site facility.

Response #56: During the design, the disposition of the water that drains from the sediments during dewatering will be determined. If the decanted water is to be discharged to surface water, it will need to meet NYSDEC discharge requirements; appropriate treatment and location of treatment will be determined during the design.

Remedial Design

Comment #57: A commenter notes that the FS report provides little detail regarding how the project would be laid out.

Response #57: The level of detail provided is typical of an FS, which is meant to provide a conceptual level of engineering detail on a variety of remedial alternatives for comparison. The details related to how the project would be laid out will be developed during the design.

Value Engineering

Comment #58: A commenter suggests that value engineering[9] should be allowed to accomplish the same level of overall protectiveness at a lower cost.

Response #58: The contractor that will prepare the design of the remedy will perform value engineering. If the design is performed by an EPA contractor, value engineering will need to be performed consistent with OSWER Directive 9335.5-24, "Value Engineering for Fund Financed Remedial Design and Remedial Action Projects" April 14, 2006.

Sediment Processing

Comment #59: A commenter suggests that sufficient flexibility be provided in the remedial design to allow mixing of wet sediment and soils with dry soils to reduce the amount of dewatering and water treatment that might be necessary. In addition, the commenter suggests stockpiling the non-TSCA soils and sediment for potential use as final grading material at the local disposal landfill should be allowed.

Response #59: The processing of the excavated contaminated soils and sediments will be developed during the design; mixing of wet sediment with dry soils is expected to be considered.

The excavated contaminated soils and sediments containing greater than 50 mg/kg PCBs are considered TSCA waste and will be transported to an off-site TSCA-compliant facility. All of the excavated contaminated soils and sediments containing less than 50 mg/kg PCBs are not considered TSCA waste and can be disposed of at a local or nonlocal disposal facility. This material could be used for grading as long as it is located under the final cover.

Performance Specifications

Comment #60: A commenter suggests that consideration should be given to the use of performance specifications rather than detailed design for certain aspects of the remedial

[9] Value engineering is a highly beneficial technique used to reduce nonessential procurement and program costs. It uses systematic and creative methods to reduce costs without sacrificing the reliability, efficiency, or original objectives of the project.

design (e.g., layout and design of temporary roads, bridges, support facilities; mitigation of construction-related releases) to reduce design costs and improve constructability.

Response #60: Performance-based specifications are allowable under CERCLA. It is not possible to say at this time whether it would be appropriate for this site. The EPA will, however, consider any design contractor efforts to optimize the implementation of the remedy and reduce costs, including the use of performance specifications for certain aspects of the remedy.

Comment #61: A commenter states that the FS report does not consider use of onsite or adjacent non-impacted soils as a borrow source. This should be considered, as it would lower the backfill cost, reduce greenhouse gas impacts, and, depending upon the location of the borrow source, could be used to offset floodway impacts.

Response #61: The design will consider the viability of local sources of borrow material.

Comment #62: A commenter opines that the extent of backfill in the remedy is unnecessary. Backfill accounts for approximately $4.5 million of the construction cost.

Response #62: The estimates for the extent of backfilling are FS level estimates. Details related to backfilling will be refined as part of the design.

Beneficial Reuse

Comment #63: A commenter suggests that excavated clean soils or sediment should be considered for beneficial reuse and the reuse of imported materials initially used for support facility and road construction as cover or cap materials as well as for final grade material at the local disposal landfill.

Response #63: The disposition of clean soils or sediment and imported materials will not be restricted. Optimization of on-site processes will be considered during the design.

Other Potential Sources of Contamination

Comment #64: A commenter suggests that other potential sources of contamination to Lower Ley Creek, including combined sewer overflows, storm sewers outfalls, other outfalls, the Plaza East Landfill, Bear Trap Creek and the former City of Syracuse abandoned landfill, should be evaluated and addressed by appropriate parties.

Response #64: Available information indicates that there are no significant ongoing sources of contamination to Lower Ley Creek that require investigation or remediation prior to advancing the site cleanup.

Contaminant Collocation

Comment #65: A commenter opines that better data analysis should have been developed and/or provided to support the conclusion that PCBs in soils and sediment are collocated with other contaminants. In addition, the commenter asks how the specific areas and volumes of soil and sediment to be removed were defined.

Response #65: Based upon the results of the RI, the EPA has concluded that PCBs are the primary contaminant in the soils on the banks and in the sediments in the Creek. The other COCs identified for this subsite are benzo(a)pyrene,[10] mercury, chromium, arsenic and dioxin. The data were reviewed to determine the extent, and, thus, the areas and volumes of contamination.

Solid Waste

Comment #66: A commenter notes that the presence of solid waste underlying soils at the site would likely complicate soil removal and should be considered in the assessment of the implementability of alternatives entailing removal.

Response #66: During the design, the interface between the refuse and the soil to be excavated will be determined. Measures can be employed that will enable excavation to the appropriate depth.

Risk Reduction

Comment #67: A commenter opines that no analysis of the extent to which remedial alternatives reduce risk is presented.

Response #67: With the exception of the no action alternative, all of the remedial alternatives that were developed and evaluated include a combination of technologies and options that reduce risk. A detailed quantitative analysis of risk reduction is not required.

The area delineated for the remedial action is based upon the presence of elevated levels of contamination in the sediments, which pose an unacceptable human health and ecological risk and the contaminated sediments' potential to contaminate Onondaga Lake. As such, the purpose of the cleanup effort is to remove the material to a chemistry-based value.

[10] It should be noted that all or some of the benzo(a)pyrene, a PAH, is likely from urban runoff.

Green Remediation

Comment #68: A commenter states that there is no indication that either NYSDEC or EPA Green Remediation Guidance documents were considered in the development of the FS or Proposed Plan.

Response #68: The environmental benefits of the selected remedy may be enhanced by consideration, during the design, of technologies and practices that are sustainable in accordance with the EPA Region 2's Clean and Green Energy Policy and NYSDEC's Green Remediation Policy.[11] This will include consideration of green remediation technologies and practices.

Human Health Risk Assessment

Comment #69: A commenter noted that the fish Regional Screening Levels (RSL) listed in Table 2.1 of the HHRA could not be verified. It is assumed that the data was from an outdated RSL table (2009). The commenter opines that the EPA should reevaluate and revise the RSL, accordingly.

Response #69: The purpose of using a risk-based screen is to reduce the number of chemicals that are quantitatively evaluated in the HHRA, to focus on those most likely to be of concern for adverse health effects. The RSL table that was used in the HHRA was developed in 2009 and used to identify a discreet list of chemicals for further evaluation of fish tissue, which ultimately concluded that unacceptable risk from exposure to various site media exists at the Subsite, and this is primarily due to Aroclor 1254, Aroclor 1260, chromium and mercury. The toxicity of these chemicals has not been significantly revised since the HHRA was conducted. Therefore, the conclusions of the HHRA remain valid and no further review of the 2009 RSL table is necessary.

Comment #70: A commenter noted that the HHRA indicates that "the factors EF, ED, and AT[12] combine to yield a factor between zero and one. Values near 1.0 indicate that exposure occurs nearly continuously over the specified averaging period, while values near zero indicate that exposure occurs infrequently." For cancer risks, opines the commenter, the combination of EF, ED, AT would normally be less than 1 due to the fact that the life span normally is greater than exposure duration.

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[11] See http://epa.gov/region2/superfund/green_remediation and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf.

[12] "EF," "ED" and "AT" are acronyms for "exposure frequency," "exposure duration" and "average time," respectively.

Response #70: The comment is correct. The statement in the HHRA is true only for noncarcinogenic chemicals and the calculation of a hazard quotient. However, this edit does not change the conclusions of the HHRA.

Comment #71: A commenter opines that it is not clear in the HHRA which chemicals were identified with mutagenic models of action and, therefore, adjusted by "age-dependent adjustment factors."

Response #71: The HHRA cites the reference for the mutagenic mode of action approach, "Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens" (EPA/630/R-03/003F), which includes a list of the chemicals for which a mutagenic mode of action has been identified and to which the default age-dependent adjustment factors should be applied.

Comment #72: A commenter noted that soil RSLs were used for sediment COC screening in Table 2.2 of the HHRA. The EPA, opines the commenter, should address the uncertainty associated with this approach.

Response #72: EPA guidance for risk assessment (RAGS, Part A) suggests that applying risk-based screening is a way to reduce the number of chemicals retained for quantitative analysis and focus that quantitative analysis on a smaller list of chemicals that are likely to be present at concentrations of concern for adverse health effects. The use of soil RSLs for sediment concentrations is conservative and likely results in additional chemicals being retained for quantitative analysis. However, the only implication that this has on the risk assessment is that additional chemicals are quantitatively evaluated; if these additional chemicals are not risk drivers, then retaining them is not going to influence the outcome of the risk assessment. Alternatively, the number of chemicals is not required to be reduced, and the EPA could evaluate all chemicals identified at the Subsite quantitatively. The EPA chose to reduce the number of chemicals by using this screening process, which is consistent with EPA guidance.

Comment #73: A commenter noted that in Table 4.1 of the HHRA, EPA 1997 guidance is referenced. That guidance has been updated, with the most recent version issued in 2011. The commenter opines that the EPA should update the HHRA to be based on the most recent guidance.

Response #73: The 2011 version of the Exposure Factors Handbook is not a Superfund-specific document; rather, it provides a summary of the latest developments in exposure science and provides recommendations for a broad range of EPA programs. The EPA's Office of Solid Waste and Emergency Response (OSWER) issued a directive in 2014, "Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors" OSWER Directive 9200.1-120, that provided recommendations for exposure factors that are protective of the reasonable maximum exposure consistent with

CERCLA. A sensitivity analysis of these recommendations, compared to the previously recommended exposure parameters, was conducted and concluded that the updated values are generally expected to result in a slight decrease in calculated time-weighted exposures and risk estimates for most chemicals. The results of the HHRA and the addendum to the HHRA demonstrate levels of risk as high as an order of magnitude over acceptable levels. Therefore, it is expected that unacceptable risks would be present, even if the updated exposure information was included, and the results of the HHRA and the addendum to the HHRA remain valid.

Comment #74: A commenter noted that the fish ingestion rates presented in Tables 4.1 and 4.3 of the HHRA for adults and those from 6-16 years old were higher than those listed in EPA (2011) Exposure Hand Book, Table 10.3 (25 grams (g) fish/day versus 18 g fish/day for adults and 16.7 g/day versus 8.6-13 g/day).

Response #74: The fish ingestion rates used in the Lower Ley Creek HHRA are consistent with those used for the HHRA conducted for the Onondaga Lake Bottom subsite of the Onondaga Lake Superfund site. The use of these ingestion rates at the Onondaga Lake Bottom subsite has been reviewed and accepted as appropriate for a reasonable maximum exposure scenario.

Comment #75: A commenter notes that an exposure frequency of 143 events per year was identified in Table 4.4 of the HHRA for recreational visitors for exposure to soil in dredge spoils area. The commenter notes that this would be equivalent to an exposure frequency of almost five events per week during non-winter months, April through October. Considering the nature of the land use, this assumption unreasonably overestimates exposure and should be revised opines the commenter.

Response #75: The EPA assumed an EF of 143 days per year for the recreational visitor to the soil/dredge spoils. This value was developed assuming three times per week during the 39 weeks of spring, summer and autumn, and two times per week during the 13 weeks of winter. The EPA believes this EF appropriately represents a reasonable maximum exposure scenario for this population at this site.

Comment #76: A commenter noted that the same adherence factor was used in the HHRA for sediment exposure and dredge spoil area soil exposure (Tables 4.1 and 4.8). The commenter opines that soil would typically have a lower adherence factor due to the high water content of sediment. Therefore, opines the commenter, the HHRA calculations should be revised to reflect a more appropriate adherence factor.

Response #76: When evaluating dermal contact, the EPA references “Risk Assessment Guidance for Superfund Volume I; Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)” (EPA/540/R/99/005). This guidance suggests one way to select a soil-to-skin adherence factor (SSAF) from the many values and activities presented in the guidance is to consider using a geometric mean value of a high-end activity, which is the process that was followed in the Lower Ley Creek HHRA. The SSAF used for exposure to soil is 0.3 micrograms per square centimeter (mg/cm^2), which is the geometric mean value for archeologists, a population with high exposure to soil, while the SSAF used for exposure to sediment is 0.3 mg/cm^2, which is the geometric mean value for reed gathers, a population with high contact with sediment. The sources of these two values are very different and unique to the medium; it is a coincidence that these values are the same.

Comment #77: A commenter opines that the exposure assumptions used in the HHRA to represent construction workers (Table 4.11; *e.g.,* exposure frequency of 25 days/year) are not consistent with EPA (2002) default assumptions for construction workers.

Response #77: The exposure frequency used for the construction worker is 25 days per year. This is not the generic default value of 250 days per year. It is referenced in the table as "BPJ," best professional judgment. A 25-day construction period was determined to be an appropriate length of time for a construction project, with construction workers being exposed to sediments in the Creek during that time.

Comment #78: A commenter noted that the HHRA presents chromium as one of the predominant cancer risk contributors for adult recreational ingestion of sediment exposure pathway. The commenter points out that Table 6.1 did not list the Slope Factor (SF) for chromium and that the SF for hexavalent chromium was used for the risk evaluation. An evaluation of chromium speciation is warranted, opines the commenter. The commenter opines further that due to the anticipated anaerobic conditions in sediment, the presence of hexavalent chromium is unlikely. Therefore, chromium is unlikely a risk contributor for the Subsite.

Response #78: Risk in the sediments is driven primarily by Aroclor 1254, Aroclor 1260 and PAHs, including benzo(a)pyrene, with cancer risks above 10-4. Although chromium has also been identified as a risk driver, its contribution to the cumulative risk is less than the chemicals identified. A slope factor of 5.0E-01 per mg/kg-day was used to estimate the cancer risks associated with hexavalent chromium, and this was erroneously omitted from Table 6.1 of the HHRA, although it was included in Table 6.1 of the HHRA addendum. Chromium was not speciated, and so the health-protective assumption was made to evaluate chromium as hexavalent, the more toxic form. Sampling conducted during the pre-design investigation will include speciation of chromium to refine any areas that require remediation. However, it should be noted that the conclusion that exposure to the sediments results in unacceptable cancer risks remains valid, primarily due to Aroclors and PAHs.

Comment #79: A commenter noted that Table 5.1 of the HHRA uses a Reference Dose (RFD) more stringent than the RSL listed FRFD ($7x10^{-5}$ versus $5x10^{-3}$; see RSL guide, section 5) for vanadium. Risks associated with vanadium are likely overstated as a result, opines the commenter.

Response #79: Vanadium is only a risk driver for sediments in the “Dredge Spoils Area,” and only for a young child under the age of 6. There are other risk drivers in the sediments of the Dredge Spoils Area, including PAHs, Aroclor 1254, Aroclor 1260, chromium and mercury. The conclusion of the risk assessment that there is unacceptable risk from exposure to Subsite-related contamination in the sediments in the Dredge Spoils Area remains valid.

Comment #80: A commenter noted that there is no background data discussion in the HHRA. Background data and a corresponding risk management approach should be included in the HHRA opines the commenter.

Response #80: Lower Ley Creek is one subsite of the Onondaga Lake Superfund site. Various reaches of Ley Creek have been sampled as part of other subsite investigations, and background has been characterized. The levels of risk-driving contaminants have been reviewed and characterized in the remedial investigation.

Errata

Comment #81: A commenter notes a stream classification error in the Proposed Plan and points out that the color-coded concentrations on a figure in the Proposed Plan do not agree with the presented data. Another commenter opines that the RI/FS reports misstate the site history.

Response #81: The stream classification and Subsite history were obtained from existing documents. The identified inaccuracies will be corrected in the appropriate sections in the ROD. With regard to the noted figure, the EPA verified the information and revised the noted figure in the ROD.

Comment #82: A commenter notes that under “Site History” section in the Proposed Plan, the text states that “Ley Creek was widened, deepened and rerouted…through the Town of Salina Landfill. Dredged materials were spread along the banks and were disposed of at the landfill.” The commenter questions the veracity of the statement regarding the placement of dredged materials in the landfill.

Response #82: The EPA’s conclusion that dredged materials were placed in the landfill is based upon information contained in Onondaga County field notes related to the dredging. Excerpts from these field notes are included in the Administrative Record.

Comment #83: A commenter questions the validity of the statement in the Proposed Plan that the Cooper North Landfill “contributed to the contamination of Lower Ley Creek" when the EPA concluded in its June 28, 2012 "Determination to Not Take Superfund Action" that the landfills are not a source of contaminants to Onondaga Lake.

Response #83: Because contaminants present at the Cooper Crouse-Hinds site are not contaminants of concern in Onondaga Lake, the Cooper Crouse-Hinds site was determined not to be a subsite. Because contaminants present at the Cooper Crouse-Hinds site are contaminants of concern in Lower Ley Creek, the Cooper Crouse-Hinds site was determined to be a source of contamination to Lower Ley Creek.

Comment #84: A commenter opines that the excavation volumes and disposal weights provided in the FS report indicate a total disposal of 92,000 to 127,000 tons. The EPA should reevaluate its disposal estimates and adjust its cost projections accordingly.

Response #84: FS report Table 5.5, Estimated Area and Volumes for All Chemicals Above Cleanup Goals in Soil, provides the basis for the contaminated soil volume. This table indicates that the total volume of soils above the cleanup goals is 80,130 CY. FS report Table 5.6, Estimated Area and Volumes for All Chemicals Above Cleanup Goals in Sediment, provides the basis for the contaminated sediment volume. This table indicates that the total volume of sediments above cleanup goals is 72,724 CY. The combined volume of soil and sediment above the cleanup goads is 152,854 CY. Considering the density of the soil/sediment mixture, a 1.2 CY/ton factor was used in the FS report. Therefore, the volume is equivalent to 127,379 tons.

SUMMARY OF DOCUMENTS

RESPONSIVENESS SUMMARY

APPENDIX V-a

JULY 2014 PROPOSED PLAN

Lower Ley Creek

Subsite of the Onondaga Lake Superfund Site
Town of Salina, Onondaga County, New York

EPA

July 2014

PURPOSE OF THIS DOCUMENT

This Proposed Plan describes the remedial alternatives considered to address contamination at the Lower Ley Creek subsite, which is an operable unit of the Onondaga Lake Superfund Site, and identifies the preferred remedy with the rationale for this preference. This Proposed Plan was developed by the U.S. Environmental Protection Agency (EPA) in consultation with the New York State Department of Environmental Conservation (NYSDEC). The EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended, 42 U.S.C § 9617(a), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. §§ 300.430(f) and 300.435(c). The nature and extent of the contamination at the subsite and the remedial alternatives summarized in this Proposed Plan are described in the June 2013 remedial investigation (RI) report and January 2014 feasibility study (FS) report, respectively. The EPA and NYSDEC encourage the public to review these documents to gain a more comprehensive understanding of the Lower Ley Creek subsite and the Superfund activities that have been conducted at this subsite.

The purpose of this Proposed Plan is to inform the public of the EPA's preferred remedy and to solicit public comments pertaining to all of the remedial alternatives evaluated, including the preferred remedy. The preferred remedy consists of excavation of contaminated Creek sediments, excavation of contaminated soils located on the southern bank of the Creek, excavation and capping of contaminated soils located on the northern bank of the Creek,[1] local disposal of the excavated soils and sediments with polychlorinated biphenyl (PCB) concentrations less than 50 milligrams per kilogram (mg/kg),[2] non-local disposal of excavated sediments with PCB concentrations greater than or equal to 50 mg/kg, restoration of all of the remediated areas, development of a Site Management Plan, institutional controls and long-term monitoring.

The remedy described in this Proposed Plan is the preferred remedy for the subsite. Changes to the preferred remedy, or a change from the preferred remedy to another remedy, may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The final decision regarding the selected remedy will be made after the EPA has taken into consideration all public comments. The EPA is soliciting public comment on all of the alternatives considered in the Proposed Plan and in the detailed analysis section of the FS report because the EPA may select a remedy other than the preferred remedy.

[1] Complete excavation of the contaminated soil may not be feasible because of the presence of two large, buried natural gas and oil pipelines which run the length of the Creek.

[2] Local disposal options under consideration include consolidation under the cap of the Town of Salina Landfill within the area controlled by the leachate collection system or in a newly constructed cell with a liner and leachate collection system on the yet-to-be capped Cooper Crouse-Hinds North Landfill (which will be closed under the State Superfund program in the near future). The specific local disposal location would be determined during the remedial design phase. Should local disposal options be determined not to be viable, all excavated materials would be sent to an appropriate non-local facility for disposal.

MARK YOUR CALENDAR

July 15, 2014 – August 14, 2014*: Public comment period related to this Proposed Plan.*

July 29, 2014 at 7:00 P.M.: *Public meeting at the Town of Salina Town Hall, 201 School Road, Liverpool, NY.*

Copies of supporting documentation are available at the following information repositories:

Salina Free Library
100 Belmont Street
Mattydale, New York 13211
315-454-4524

Town of Salina
201 School Road
Liverpool, New York 13088
315-457-2710

Atlantic States Legal Foundation
658 West Onondaga Street
Syracuse, New York 13204-3757
315-475-1170

Onondaga County Public Library
447 South Salina Street
Syracuse, New York 13202

NYSDEC
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-7016
518-402-9775
Please call for an appointment.

NYSDEC Region 7
615 Erie Boulevard West
Syracuse, New York 13204-2400
315-426-7400
Please call for an appointment.

EPA-Region II
Superfund Records Center
290 Broadway, 18th Floor
New York, New York 10007-1866
212-637-4308
Please call for an appointment.

The EPA and NYSDEC rely on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each Superfund site. To this end, the RI and FS reports and this Proposed Plan have been made available to the public for a public comment period that begins on July 15, 2014 and concludes on August 14, 2014.

A public meeting will be held during the public comment period at the Town of Salina Town Hall on July 29, 2014, at 7:00 P.M. to present the conclusions of the RI/FS, elaborate further on the reasons for recommending the preferred remedy and receive public comments.

Comments received at the public meeting, as well as written comments, will be documented in the Responsiveness Summary Section of the Record of Decision (ROD), the document that formalizes the selection of the remedy.

COMMUNITY ROLE IN SELECTION PROCESS

Written comments on the Proposed Plan should be addressed to:

Pamela Tames, P.E.
Remedial Project Manager
Central New York Remediation Section
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, New York 10007-1866

Telefax: (212) 637-3966
Email: Tames.pam@epa.gov

SCOPE AND ROLE OF ACTION

The primary objectives of this action are to remediate the soil and sediment contamination, minimize the migration of contaminants and minimize any potential future health and environmental impacts.

SITE BACKGROUND

Site Description

The Lower Ley Creek subsite of the Onondaga Lake site consists of the lower two miles of Ley Creek (including the Creek channel and adjacent floodplains) beginning at and including the Route 11 bridge (a.k.a. Brewerton Road) and ending downstream at Onondaga Lake (Lake). The subsite also includes a 3.7-acre wetland situated on the southern bank of the Creek adjacent to the Cooper Crouse-Hinds North Landfill and "Old Ley Creek Channel" (hereinafter, referred to as "OLCC"), an original section of the Creek before Ley Creek was widened and reconfigured during a flood control project in the 1970s.[3] In addition, the subsite includes several sections along the banks of the Creek where dredged contaminated sediments were placed during the flood control project.

In addition to passing under the Route 11 bridge, the Creek passes under the 7th North Street and Interstate 81 bridges. Much of the Creek is shallow, but there are sections where the water depth may be 14 feet deep, particularly downstream of the 7th North Street bridge. The bottom of the Creek is dominated by soft sediment with very little stone or other hard surfaces.

The Lower Ley Creek subsite is located within an area zoned as an Industrial District. It is surrounded by parking lots, the Town of Salina and Cooper Crouse-Hinds landfills, other landfilled areas, manufacturing operations, several undeveloped properties and a railroad line. Two large, buried natural gas and oil pipelines owned by National Grid run parallel to the northern bank of the Creek for much of this section.

Prior to the early 1970s, some wetlands located on either side of the Creek were filled with municipal refuse, although there is a NYS regulated wetland (SYW-11) mapped on both sides adjacent to Ley Creek downstream of the confluence with Bear Trap Creek which enters Ley Creek upstream of 7th North Street.

A resolution in support of the transfer of Murphy's Island, also known as SW-12, a 36-acre parcel along the Onondaga Lake shoreline that is located at the mouth of Ley Creek to the Onondaga Nation was passed by Onondaga County in 2011 in order to provide dedicated access to Onondaga Lake, which is culturally important to the Nation. The Onondaga Nation is a federally recognized tribe whose 9.3 square mile reservation is located nearby. Murphy's Island is being addressed by the RI/FS that is being performed for the Wastebed B/Harbor Brook subsite.

Figure 1 shows the features noted above.

The Creek is not used for commercial transportation or as a public water supply, but is currently accessible for

[3] The flood control project rerouted Ley Creek through the Salina Landfill, creating two separate landfills on the northern and southern banks of the creek (which are 50 acres and 5 acres, respectively).

recreational uses, such as fishing, and is expected to remain so.

A fish consumption advisory, which is updated annually by the New York State Department of Health (NYSDOH), currently indicates that the consumption of fish from Onondaga Lake and its tributaries (including Ley Creek) and connected waters should be limited because of the levels of environmental contaminants which have been found to be present in the fish tissue.

Site History

Industrialization of the area began soon after the building of the Erie Canal in 1857 and the development of railroads in eastern Syracuse. Several industries have been located near Ley Creek and its branches since the late 19th and early 20th centuries. The industrial nature of this area, as well as the infrastructure and other development, influenced this subsite and contributed to its current condition.

Assessments have been performed at many areas in the Onondaga Lake drainage basin to determine what sources have contributed to the contamination of Onondaga Lake. The Lake has a footprint of approximately 4.5 square miles and a drainage basin of approximately 250 square miles. The Onondaga Lake Superfund site, which includes the Lake itself, six major and minor tributaries and various upland sources of contamination, was placed on the EPA's National Priorities List on December 16, 1994. NYSDEC and EPA have, to date, organized the work for the Onondaga Lake NPL site into 11 subsites (see Figure 2). These subsites, which are also considered by EPA to be operable units of the NPL site.

Prior to the early 1970s, poor channel conditions and large impermeable areas in the watershed caused extensive flooding of Ley Creek. These flooding events led to the creation of the Ley Creek Drainage District. Beginning in 1970, the Onondaga County Department of Drainage and Sanitation widened, deepened and rerouted the Creek through the Town of Salina Landfill. Dredged materials were spread along the banks of Ley Creek in addition to being disposed of at the Town of Salina Landfill.

Investigative fieldwork for the RI/FS at the Lower Ley Creek subsite began in November 2009. Sediment, soil, groundwater and surface water samples were collected and analyzed. In addition, fish samples were collected as part of the human health and ecological risk assessments.

Three other subsites of the Onondaga Lake Superfund site are located in the vicinity of the Lower Ley Creek subsite: the Town of Salina Landfill subsite ("Salina Landfill subsite"); the General Motors Inland Fisher Guide Facility and Ley Creek Deferred Media subsite ("IFG subsite") and the Ley Creek PCB Dredgings subsite ("PCB Dredgings subsite"). The current status of these three subsites is discussed below.

The Town of Salina Landfill, located near the Route 11 end of the Lower Ley Creek subsite, accepted municipal and industrial wastes from the mid-20th century until it was closed in 1975 pursuant to an order by NYSDEC. The 55-acre landfill also accepted some of the contaminated dredge spoils during the 1970s Ley Creek flood control project. Soil samples taken from the landfill indicated that it was contaminated with elevated levels of PCBs, polyaromatic hydrocarbons (PAHs), mercury, lead and chromium. Groundwater samples showed elevated levels of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). In 1986, NYSDEC and the Onondaga County Department of Health collected soil and water samples on the north bank of the Creek adjacent to the Salina Landfill and in drainage ditches north and east of the landfill. PCBs were detected in the soils. NYSDEC performed additional sampling between 1987 and 1997. Elevated levels of heavy metals were found in addition to PCBs.

The EPA and NYSDEC selected a remedy for the remediation of the Salina Landfill subsite in 2007. That remedy called for the installation of caps on both landfills (the main 50-acre landfill located north of the Creek and the smaller five- acre landfill located on the south side of the Creek), storm water collection and groundwater/leachate collection and treatment. Based upon the results of samples collected from the five-acre landfill during the design of the selected remedy, it was determined that the quantity of hazardous substances located in this landfill was substantially less than was originally estimated. As a result, the remedial alternatives were reevaluated and an amended ROD for the site was issued in 2010, which called for, among other things, the excavation of the five-acre landfill and consolidation of the excavated materials on the top of the 50-acre landfill. The consolidation of these materials and landfill cap over them was completed in 2013. A system to pre-treat the contaminated groundwater/leachate collected from the landfill is expected to be completed in late 2014. The pre-treated groundwater/leachate will be conveyed to the Metropolitan Syracuse Wastewater Treatment Plant (METRO).

The IFG facility, located just upstream of Route 11, began operations in 1952, operating initially as a plating facility and later manufacturing plastic automotive components. The facility ceased manufacturing operations in 1993. Throughout its period of operation, some of the wastes from the plant were discharged to Ley Creek. The Ley

Creek Deferred Media portion of the IFG subsite includes groundwater underlying the Ley Creek PCB Dredgings subsite and surface water and sediment in and floodplains adjacent to, Ley Creek between Townline Road and Route 11. The principal hazardous substances at this subsite include PCBs, solvents, copper, nickel and chromium.

Three significant response actions were performed at the IFG facility to prevent further migration of PCBs from the subsite to Ley Creek. An industrial landfill at the IFG facility that contains chromium- and PCB-contaminated material was capped to prevent contaminants from leaching into the groundwater. A second response action involved the removal of highly-contaminated soil from a former discharge swale. This swale was used in the 1950s and 1960s as a conduit for the discharge of liquid process waste to Ley Creek. The swale was subsequently filled in, but the contaminated soil remained until the performance of this action. Over 26,000 tons of soils containing PCBs were removed from the subsite. The third response action involved the construction of a retention pond and associated water treatment system. This pond collects all water that accumulates on the IFG property in any of the storm sewers or abandoned process sewers. The pond water is then sent through the treatment plant in order to meet permitted discharge limits, prior to discharge to Ley Creek. The purpose of this response action was to stop the intermittent discharge of PCBs and other contaminants that occurred during storm events. An RI/FS for the IFG facility portion of the IFG subsite is currently underway.

The RI report for the Deferred Media portion of the IFG subsite was approved by NYSDEC in April 2013. An FS report is currently under review.

The PCB Dredgings subsite includes certain areas along the banks of Ley Creek upstream of the Route 11 Bridge where PCB-contaminated dredge spoils that were removed from the Creek were placed. NYSDEC issued a ROD addressing these spoils in 1997 and construction of the remedy was completed in 2001. The remedy included the removal and proper off-site disposal of PCB-contaminated material greater than 50 mg/kg and the placement of a soil cover over the remaining dredge spoils. Cover maintenance and five-year reviews continue because waste remains at the site.

SITE HYDROLOGY/HYDROGEOLOGY

Site Hydrology

For most of the Lower Ley Creek subsite, Ley Creek is a New York State Class B fresh surface water, which, pursuant to 6 NYCRR § 701.7, means the best usages for the Creek are “primary and secondary contact recreation and fishing. These waters shall be suitable for fish, shellfish and wildlife propagation and survival”. The Creek itself is not used commercially, although it is accessible for fishing or other recreation. While access to the Lower Ley Creek subsite is unrestricted, it is difficult to reach in many areas because of thick vegetation. The fish species found during recent investigations include bluegill, pumpkinseed, shiners, bullhead and carp.

Ley Creek is not currently used as a public water supply. The creek is, however, currently used for recreational purposes, such as fishing. There is no commercial transportation use of the Creek. Lower Ley Creek flows through urban, developed East Syracuse, past landfills, several businesses, under several bridges, along a railroad track and near a shopping mall.

The bed of Lower Ley Creek is well channeled with steep sides and the Creek depth ranges from one to 14 feet deep, averaging three to five feet over much of its length. The deepest sections are closer to the Lake and the shallowest near the Route 11 Bridge. The bottom of the stream is mostly composed of soft sediment, with very little areas of stone or riffle (rocky shoal).

Site Hydrogeology

The bedrock geology in the area of Lower Ley Creek generally consists of sedimentary rock units from the Paleozoic-age Salina Group which, in order of oldest to youngest, consists of the Vernon Formation, the Syracuse Formation, Camillus Shale and the Bertie Formation. Specifically, the bedrock underlying the Lower Ley Creek Channel subsite is made up of units of the Vernon Formation, which consists of upper Silurian shale and dolostone.

Onondaga Lake receives surface runoff from a drainage basin of approximately 250 square miles. Surface water flows into the Lake via six tributaries: Ninemile Creek, Onondaga Creek, Harbor Brook, Bloody Brook, Sawmill Creek and Ley Creek. Ley Creek accounts for approximately eight percent of the total water inflow to the Lake.

Groundwater discharge to surface water channels accounts for most of the stream flow in the Onondaga Lake Basin. Groundwater discharge accounts for an estimated 56 percent of stream flow in Ley Creek. The groundwater can be found from eight to 12 feet below ground surface (bgs) in the overburden of the subsite.

Efforts since 1970 to alleviate the flooding of Ley Creek have been generally successful, though the Creek still floods beyond its banks periodically.

RESULTS OF THE REMEDIAL INVESTIGATION

Based upon the results of the RI, the EPA has concluded that PCBs are the predominant contaminant in the soils on the banks and in the sediments in the Creek. The primary contaminants of concern (COCs) identified for this subsite are PCBs, benzo(a)pyrene,[4] mercury, chromium, arsenic and dioxin. A review of the sampling results indicate that the PCBs are collocated with the vast majority of the other COCs.

Soils

Soil samples were collected in floodplain soils on both sides of the Creek, a swale area and the OLCC area. See Figure 3 for the locations of the soil samples.

In 2010, 19 samples were collected from the swale, located south of Lower Ley Creek and east of the 7th North Street Bridge to a depth of five feet bgs.

In OLCC, 31 soil locations were sampled in 2010. Each location was sampled at three intervals down to two feet bgs. In subsequent sampling, a total of 59 samples were collected from 22 soil borings throughout OLCC to a depth of 19 feet bgs.

A review of the 1970s flood control construction blueprints indicated several areas where dredge spoils were spread onto upland areas. As a result, in 2011, 53 locations within these areas were sampled down to two feet bgs (municipal refuse is located below this depth).

The highest levels of PCB contamination in the soils were found in the swale area, where levels as high as 500 mg/kg were found at the 6-12 inch bgs interval. PCB levels as high as 380 mg/kg were found on the banks of OLCC in the 12-24 inch interval.

The highest level of mercury, which was found on the northern bank of the Creek in the 0-12 inch interval, was 4.1 mg/kg. Elevated levels of mercury were also found in the 30-36 inch interval in the swale on the southern bank of the Creek at levels as high as 3.5 mg/kg.

Benzo(a)pyrene was found on the northern bank of the Creek in the 0-12 inch interval at levels as high as 27.4 mg/kg. The next highest level was 12 mg/kg in the 12-24 inch interval on the banks of OLCC.

What are PCBs?

The predominant contaminant at the Lower Ley Creek subsite is PCBs. Due to its non-flammability, chemical stability, high boiling point and electrical insulating properties, PCBs were widely used in many industrial and commercial applications including electrical, heat transfer and hydraulic equipment; as plasticizers in paints, plastics and rubber products; in pigments, dyes and carbonless copy paper; and many other industrial applications.

PCBs are a group of chemicals consisting of 209 individual compounds, known as congeners. PCBs were sold in mixtures containing dozens of congeners. These commercial mixtures were known as Aroclors.

Although manufacturing of PCBs was banned in 1979, they can still be released into the environment from poorly maintained contaminated sites that contain PCBs, leaks or releases from electrical transformers containing PCBs, and disposal of PCB-containing consumer products into landfills not designed to handle PCBs. PCBs may also be released into the environment by the burning of some wastes in municipal and industrial incinerators. At the subsite, the ongoing source of PCBs is the PCB-contaminated sediment in the creek and soils on its banks. PCBs are classified by the EPA as probable human carcinogens and are linked to other adverse health effects such as a reduced ability to fight infection.

The highest level of total chromium was found in the swale area at the 6-12 inch interval at 5,320 mg/kg. The next highest levels were found in the swale and on the banks of OLCC at 3,430 mg/kg at 0-6 inches and 3,320 mg/kg at 6-12 inches, respectively.

Elevated levels of cadmium were found in the soils on the northern bank of the Creek. The highest level was found east of 7th North Street at 337 mg/kg at 0-12 inch. The next highest level was from the same location at 12-24 inches at 100 mg/kg. Similarly, another location on the northern bank west of 7th North Street had 23.7 mg/kg at 0-12 inches and 35 mg/kg at 12-24 inches. All of the remaining samples contained cadmium levels less than 14.5 mg/kg.

Pesticides, specifically dichlorodiphenyltrichloroethane (more commonly known as "DDT"), were found at elevated levels in the soil at the subsite. The highest levels were found on the banks of OLCC (as high as 4 mg/kg in the 12-24 inch interval).[5]

[4] It should be noted that all or some of the benzo(a)pyrene, a PAH, is likely from anthropogenic sources, such as urban runoff.

[5] It is likely that the DDT is an artifact of mosquito control, not disposal activities.

Dioxins were found on the northern bank of the Creek at levels as high as 1,730 nanograms per kilogram (ng/kg) in the 0-12 inch interval.

Background soil samples were collected in 1998, 1999 and 2003 as part of the IFG subsite investigation and these samples also serve as background samples for the Lower Ley Creek subsite. Two soil borings were collected from the southwest corner of the former IFG facility and one soil boring was collected from the southeastern corner of the property for the purpose of collecting background soil quality data. Of the contaminants noted above, PCBs were found at 0.04 mg/kg.

The EPA has adopted NYSDEC's soil cleanup objectives (SCOs) as the remediation goals for this action. Because PCBs are collocated with the majority of the other COCs and are the primary risk driver for all pathways for this subsite (see the "Site Risks" section, below), they will be used as an indicator compound (1 mg/kg PCBs in surface soil[6] and 10 mg/kg PCBs in soil at depth[7]) to ensure that the soil cleanup goals are achieved.

Sediments

Sediment samples were collected in November 2009 from 32 locations in the Creek at 0-6-, 6-12- and 18-24- inch depth intervals (see Figure 4). Samples were analyzed for pesticides, metals, PCBs, VOCs and SVOCs. Sample results indicated that there were elevated levels of PCBs at the deepest sampling interval during this sampling event.

In January 2010, 14 sediment samples were collected from eight locations within OLCC and analyzed for VOCs, SVOCs, metals, PCBs and pesticides.

In May 2010, seven additional locations within the Creek were sampled with the objective of better defining the depth of contamination in the Creek sediments. Samples were collected at several one-foot intervals down to a depth of 10 feet below the water-sediment interface. This round of sediment samples was analyzed for metals, cyanide, pesticides, PCBs and SVOCs. A selected subset of sediment samples was also analyzed for dioxin.

The highest level of PCBs in sediment reported was 315 mg/kg at the 0-6 inch interval near the Route 11 Bridge. The second highest level was 303 mg/kg, found in the 12-24 inch interval at a nearby location. In general, the upper portion of Lower Ley Creek had the highest levels of PCBs. Sediment in OLCC had levels of PCBs as high as 69 mg/kg in the 78-84 inch interval. The next highest detected level of PCBs was 69 mg/kg at the 12-24 inch interval.

The highest level of mercury found in Lower Ley Creek sediment was found just upstream of the Interstate 81 overpass and was 2.1 mg/kg in the 6-12 inch interval.

The highest concentration of benzo(a)pyrene was found between the 7th North Street bridge and the Interstate 81 overpass at 42 mg/kg at the 6-12 inch interval. Elevated levels of benzo(a)pyrene were also found in OLCC.

The highest level of arsenic detected was 23.6 mg/kg in the 0-12-inch interval in a sample collected just north of Interstate 81.

Cadmium was found in the sediment as high as 462 mg/kg at 18-24 inches west of 7th North Street and 287 mg/kg at 18-24 inches in the next downstream sample location. Most of the remaining sediment samples had cadmium levels less than 14.5 mg/kg.

The highest concentration of nickel in the sediment was found at 447 mg/kg at 0-6 inches just west of the Route 11 Bridge. The next highest level was found at the same location at 6-12 inches at 284 mg/kg. The next downstream sample location also had an elevated level at 272 mg/kg at 66-72 inches. Most of the remaining sediment samples had nickel levels closer to the New York State sediment criteria of 16 mg/kg.

Elevated levels of total chromium above the sediment criteria were found at many locations within Lower Ley Creek. The highest level of 1,090 mg/kg was found in a sample from the 0-6 inch interval collected near the Salina Landfill.

Eight of 10 locations which were sampled in the 0-6-inch interval and analyzed for dioxins had levels at or above the 50 ng/kg EPA Preliminary Remediation Goal for dioxins. Three sample results were at or just below 1,000 ng/kg and one was 18,000 ng/kg, which was downstream of the 7th North Street Bridge. The remaining sample results were less than 290 ng/kg for dioxin.

Background samples were collected in 2008 as part of the upstream IFG subsite investigation and these samples also serve as background samples for the Lower Ley Creek subsite. Nine sediment samples were collected upstream of the IFG subsite; three in the north branch of Ley Creek, three in the south branch and three in the south creek. These samples were analyzed for SVOCs, PCBs

[6] See 6 NYCRR PART 375, Environmental Remediation Programs, Subpart 375-6, New York State Department of Environmental Conservation, December 14, 2006.

[7] See New York State Department of Environmental Conservation CP-51 / Soil Cleanup Guidance, October 21, 2010.

and metals. Low-level PCBs were detected in four of the nine samples (0.174, 0.0665, 0.0744 and 0.109 mg/kg total PCBs). Some low levels of SVOCs and some naturally-occurring metals were found.

For comparison purposes, Table 1, below, provides sediment criteria for the subsite's metals from the NYSDEC's "Technical Guidance for Screening Contaminated Sediments" (January 1999). It should be noted that PCBs are the primary risk driver for all pathways for this subsite (see the "Site Risks" section, below).

Table 1 – Sediment Criteria for Site-Related Metals

Chemicals of Concern	Low Effect Level	Severe Effect Level
Arsenic	6.0 mg/kg	33.0 mg/kg
Cadmium	0.6 mg/kg	9.0 mg/kg
Total Chromium	26 mg/kg	110.0 mg/kg
Lead	31 mg/kg	110.0 mg/kg
Mercury	0.15 mg/kg	1.3 mg/kg
Nickel	16 mg/kg	50.0 mg/kg

Source: New York State Department of Environmental Conservation Technical Guidance for Screening Contaminated Sediments, January 1999

Groundwater

Groundwater samples were obtained from monitoring wells installed along both sides of the Creek as part of the investigation of the Town of Salina Landfill subsite and the OLCC portion of the Lower Ley Creek subsite. Twelve monitoring wells were sampled in 2010--three on the southern side of the Creek and nine on the northern, side of the Creek. No contaminants above the Ambient Water Quality Standards were found in the groundwater, with the exception of volatile organic compounds (VOCs). The VOCs will be captured by a leachate collection trench that will be installed as part of the remediation of the Salina Landfill subsite at the edge of the Creek and will be treated.

Surface Water

Surface water samples were collected at 10 locations within the Creek. Each sample was analyzed for SVOCs, metals and VOCs. All of the sample results for these contaminants were within the NYSDEC Water Quality Standard with the exception of three locations in the uppermost portion of Lower Ley Creek in which several SVOCs were slightly above the water quality standard set by NYSDEC.

Honeywell collected biweekly surface water samples of several Onondaga Lake tributaries including Lower Ley Creek at Park Street between June and November 2011. PCBs were detected in 10 of the 12 biweekly samples from Lower Ley Creek locations at concentrations ranging from 0.014 to 0.072 µg/L. In addition, six samples were collected at the same location during each of two stormwater events. During both storm events, PCBs were detected in all six samples at levels ranging from 0.11 to 0.17 µg/L and 0.048 to 0.23 µg/L, respectively. The NYSDEC water quality standard for PCBs for the protection of people who eat fish from the given water body is 0.000001 µg/L and the standard for the protection of fish-eating wildlife is 0.000120 µg/L. Therefore, water quality standards for PCBs were exceeded under both calm and storm conditions.

Fish

Several species of fish were collected in November 2009 from the upper, middle and lower portion of Lower Ley Creek. Carp, sunfish, white suckers, creek chubs, pike, brown trout and minnows were collected and homogenized, either just fillet or whole body. The homogenized whole fish and fillets were analyzed for metals, organic compounds and PCBs. The fillet results were used in the human health risk assessment while the whole-body tissue samples of forage fish were used for the food chain models in the ecological risk assessment. The results were compared to tissue concentrations of PCBs and dioxin reported in the literature that were associated with an adverse biological response. The highest level of PCBs in whole-fish tissue was found near the Salina Landfill at 0.4 mg/kg. The highest level of PCBs found in fish fillets was 2.8 mg/kg and was found in the upstream portion of the Creek. The highest level of dioxin found in whole-body tissue was found in the downstream portion nearest to the Lake and was 0.048 µg/kg. The fillet with the highest level of dioxin was also found in the downstream portion and was 0.074 µg/kg. The highest level of arsenic was 1.9 mg/kg, also in the fillets.

In August 2013, six composite samples of whole-body prey fish were collected from within Onondaga Lake just north of Ley Creek and analyzed for PCBs. The highest level of PCBs in these samples was 0.5 mg/kg.

Summary of Upstream Conditions

The immediate upstream section of Ley Creek between Townline Road and Route 11/Brewerton Road has been designated as part of the IFG subsite. Information regarding the sediment, soil, surface water and fish sampling analyses will be presented in the RI report for this subsite.

Further upstream of Townline Road, Ley Creek divides into a north fork and a south fork.

SITE RISKS

Based upon the results of the RI, a baseline human health risk assessment was conducted to estimate the risks associated with current and anticipated future property conditions. A baseline human health risk assessment is an analysis of the potential adverse human health effects caused by exposure to hazardous substances in the absence of any actions to control or mitigate these under current and reasonably anticipated future land uses.

The human health estimates summarized below are based on reasonable maximum exposure scenarios and were developed by taking into account various conservative estimates about the frequency and duration of an individual's exposure to the COCs, as well as the toxicity of these contaminants.

A screening level ecological risk assessment (SLERA) was conducted to assess the risk posed to ecological receptors as a result of subsite-related contamination. A baseline ecological risk assessment (BERA) was subsequently, performed.

Human Health Risk Assessment

Although the areas surrounding the Creek are mainly commercial/industrial in nature, the Creek is not used for commercial/industrial purposes. The Creek is currently accessible for recreational uses, such as fishing, and is expected to remain so.

The baseline human health risk assessment identified the current and potential future receptors that may be affected by contamination at the subsite, the pathways by which these receptors may be exposed to subsite contaminants in various environmental media and the parameters by which these exposures and risks were quantified. Recreational users (adults, older children aged 6-16, and younger children under the age of 6) were the receptors evaluated under the current scenario. Future scenarios considered a hypothetical future construction worker working on the pipelines and/or the bridges which cross the Creek. All populations are evaluated under a reasonable maximum exposure scenario ("RME," the highest and most intense exposure reasonably anticipated) as well as a central tendency exposure ("CTE," an exposure under average conditions).

EPA evaluated the risks associated with potential exposures to Lower Ley Creek and OLCC sediments, soils and surface water via dermal contact and incidental ingestion as well as potential consumption of

WHAT IS RISK AND HOW IS IT CALCULATED?

A Superfund baseline human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these under current- and future-land uses. A four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure scenarios.

Hazard Identification: In this step, the chemicals of potential concern (COPCs) at the subsite in various media (*i.e.*, soil, groundwater, surface water and air) are identified based on such factors as toxicity, frequency of occurrence and fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence and bioaccumulation.

Exposure Assessment: In this step, the different exposure pathways through which people might be exposed to the contaminants in air, water, soil, etc. identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated soil and ingestion of and dermal contact with contaminated groundwater. Factors relating to the exposure assessment include, but are not limited to, the concentrations in specific media that people might be exposed to and the frequency and duration of that exposure. Using these factors, a "reasonable maximum exposure" scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated.

Toxicity Assessment: In this step, the types of adverse health effects associated with chemical exposures and the relationship between magnitude of exposure and severity of adverse effects are determined. Potential health effects are chemical-specific and may include the risk of developing cancer over a lifetime or other non-cancer health hazards, such as changes in the normal functions of organs within the body (*e.g.*, changes in the effectiveness of the immune system). Some chemicals are capable of causing both cancer and non-cancer health hazards.

Risk Characterization: This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks for all COPCs. Exposures are evaluated based on the potential risk of developing cancer and the potential for non-cancer health hazards. The likelihood of an individual developing cancer is expressed as a probability. For example, a 10^{-4} cancer risk means a "one-in-ten-thousand excess cancer risk"; or one additional cancer may be seen in a population of 10,000 people as a result of exposure to subsite contaminants under the conditions identified in the Exposure Assessment. Current Superfund regulations for exposures identify the range for determining whether remedial action is necessary as an individual excess lifetime cancer risk of 10^{-4} to 10^{-6}, corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk. For non-cancer health effects, a "hazard index" (HI) is calculated. The key concept for a non-cancer HI is that a threshold (measured as an HI of less than or equal to 1) exists below which non-cancer health hazards are not expected to occur. The goal of protection is 10^{-6} for cancer risk and an HI of 1 for a non-cancer health hazard. Chemicals that exceed a 10^{-4} cancer risk or an HI of 1 are typically those that will require remedial action at the subsite and are referred to as COCs.

contaminated fish and wildlife. The adjacent box titled "What is Risk and How is it Calculated?" explains what levels of risk and hazard typically require remedial action. Based on both current and anticipated future use of the subsite, two risks to human health are evaluated: (1) the excess lifetime cancer risk above the EPA reference cancer risk range, and (2) non-cancer health effects greater than the EPA threshold value, or Hazard Index (HI), relative to any foreseeable current or potential future receptor exposed to subsite-related COCs in soil, fish and sediment.

The HI acceptable threshold is a number less than or equal to one. While an HI of one is exceeded for all receptors, it is greatest for a recreational visitor who is less than six years old. The total HI for this receptor exposed to Lower Ley Creek sediment under the RME scenario would be 65. Non-cancer risks from direct contact exposure to sediment are primarily driven by PCBs. The total HI for this receptor for exposure to Lower Ley Creek soils (rather than sediments) under the RME scenario would be 24.

Cancer risk was evaluated for all receptors based on exposure to sediment, soils and fish. The highest cancer risk was $2x10^{-3}$ (or an unacceptable two in one thousand excess cancer risk) for the RME scenario via exposure of a young child (less than 6 years old) to contaminated soils. The primary cancer risk driver for this exposure is benzo(a)pyrene via ingestion and dermal exposure to the soils. The next highest cancer risk was $1x10^{-3}$ (or an unacceptable one in one thousand excess cancer risk) for the RME scenario via exposure of an older child (six to 16 years old). The cancer risk drivers for this exposure are PCBs, total chromium and arsenic via fish ingestion and benzo(a)pyrene via dermal sediment exposure. PCBs are the primary risk driver for all pathways.

Ecological Risk Assessment

Five assessment endpoints were selected to evaluate risk to ecological receptors at this subsite. They are survival, growth and reproduction of aquatic plants, benthic invertebrates, fish and piscivorous birds and mammals. A SLERA was prepared to compare measured concentrations in abiotic media to conservative screening benchmarks. The measured (maximum detected) concentration of several inorganics in surface water and numerous Chemicals of Potential Concern (COPCs) measured in sediment samples, exceeded their screening benchmarks, indicating the potential for adverse effects to the aquatic community in Lower Ley Creek.

For the Baseline Ecological Risk Assessment (BERA), measured concentrations of selected COPCs in fish tissue were compared with concentrations reported in the literature that are associated with adverse effects in fish. Dietary exposure of piscivorous birds and mammals feeding on prey captured from Lower Ley Creek was also evaluated. Solid-phase toxicity tests were conducted using two invertebrate species. Risk to the aquatic plant community in Lower Ley Creek was assessed by comparing measured concentrations of COPCs in surface water with selected surface water quality benchmarks and by comparing measured concentration of COPCs in sediment with soil benchmarks for plants.

Exceedances of surface water quality benchmarks and sediment benchmarks suggest potential risk to aquatic plants, benthic invertebrates and fish. In sediment, inorganics (particularly cadmium, total chromium and nickel), PAHs, PCBs and some pesticides resulted in exceedances of screening values, indicating potential risk to aquatic plants and benthic invertebrates. Maximum and average soil values for contaminants and inorganics were compared to the EPA's 2003 Ecological Soil Screening Levels (EcoSSLs) for plants, soil invertebrates, avian and mammalian wildlife. The resulting Hazard Quotients (HQ) above 1 were considered to be ecological risk drivers.[8] The highest HQ was 936.7 for mammalian wildlife exposed to cadmium in the soils. There are no EcoSSL benchmarks for PCBs, mercury and dioxin. Reduced growth was observed in invertebrates exposed to sediment samples collected from several locations in Lower Ley Creek; significant mortality was observed in one sample.

Total equivalent concentrations of dioxin in fish tissue collected from Lower Ley Creek exceeded concentrations reported to be associated with adverse effects in fish.

Piscivorous mammals, such as minks and river otters, are at risk from dietary exposure to measured total PCB concentrations in fish from Lower Ley Creek.

Site-specific bioaccumulation factors for PCBs were calculated for forage fish in the upper, middle and lower sections of Lower Ley Creek. Lowest observed adverse effect level (LOAEL)-based and no observed adverse effect level (NOAEL)-based sediment concentrations were calculated to identify a range of sediment PCB concentrations below which adverse effects on wildlife receptors would not be expected. Sediment concentrations that would result in calculated HQs less than 1.0 for mink (the most sensitive receptor at this subsite based on the food chain models) were calculated. The LOAEL-based sediment PCB concentrations

[8] An HQ is the ratio of the potential exposure to a substance and the level at which no adverse effects are expected. If the HQ is calculated to be less than 1, then no adverse health effects are expected as a result of exposure.

protective of ecological receptors ranged from 0.08 to 2.28 mg/kg. The NOAEL-based sediment PCB concentrations protective of ecological receptors ranged from 0.01 to 0.23 mg/kg. Based upon the results, risk characterization and interpretation, ecological risks exist at the subsite from contaminants in sediments.

A SLERA was prepared to compare measured concentrations in soils to conservative screening benchmarks. It was determined that because of the proximity of the IFG subsite to the Lower Ley Creek subsite, the BERA for the PCB contaminated soils at IFG could also be used to address the Lower Ley Creek subsite soils. Ecological risks to burrowing mammals were determined to exist at the Lower Ley Creek subsite from contaminants in soils.

<u>Summary of Human Health and Ecological Risks</u>

The results of the human health risk assessment indicate that the contaminated sediments and soils present an unacceptable human exposure risk and the ecological risk assessment indicates that the contaminated soils and sediments pose an unacceptable ecological exposure risk.

Based upon the results of the RI and the risk assessments, the EPA has determined that actual or threatened releases of hazardous substances present at this subsite, if not addressed by the preferred remedy or one of the other active measures considered, may present a current or potential threat to human health and the environment.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards, such as applicable or relevant and appropriate requirements (ARARs), to-be-considered (TBC) guidance and site-specific risk-based levels.

The following RAOs were established for the subsite:

- Reduce or eliminate any direct contact and ingestion threat associated with contaminated soils and sediments.
- Minimize exposure of ecological receptors to contaminated soils and sediments.
- Reduce the cancer risks and non-cancer health hazards associated with eating fish from Lower Ley Creek by reducing the concentration of contaminants in fish.

To satisfy the direct-contact RAO for soils, as was noted in the "Results of the Remedial Investigation" section, above, the EPA has adopted NYSDEC's SCOs as the remediation goals for this action. SCOs are based on the lowest concentration for the protection of human health, ecological exposure or groundwater depending upon the anticipated future use of a site. While the land use of the subsite has historically been industrial/commercial, several areas along the Creek are considered ecologically sensitive. Therefore, the SCOs identified in Table 2, below, will be protective for ecological exposure to subsite soils. For sediments, a 1 mg/kg PCB remedial action objective will be applied. PCBs are the primary ecological risk driver and are collocated with the majority of the other sediment COCs.

Table 2 – Soil Cleanup Objectives

Chemicals of Concern	**Surface Soil – top 2 feet**	**Subsurface Soil – deeper than 2 feet**
PCBs	1 mg/kg	10 mg/kg[9]
Arsenic	13 mg/kg	16 mg/kg
Cadmium	4 mg/kg	9.3 mg/kg
Trivalent Chromium	41 mg/kg	1,500 mg/kg
Copper	50 mg/kg	270 mg/kg
Lead	63 mg/kg	1,000 mg/kg
Mercury	0.18 mg/kg	2.8 mg/kg
Nickel	30 mg/kg	310 mg/kg
Silver	2 mg/kg	1,500 mg/kg
Zinc	109 mg/kg	10,000 mg/kg

Source: 6 NYCRR PART 375, Environmental Remediation Programs, Subpart 375-6, New York State Department of Environmental Conservation, December 14, 2006 (protection of ecological resources for surface soil and protection of public health, commercial use, for subsurface soil).

SUMMARY OF REMEDIAL ALTERNATIVES

CERCLA §121(b)(1), 42 U.S.C. §9621(b)(1), mandates that remedial actions must be protective of human health and the environment, cost-effective, comply with ARARs and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which

[9] New York State Department of Environmental Conservation CP-51 / Soil Cleanup Guidance, October 21, 2010.

employ, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants and contaminants at a site. CERCLA §121(d), 42 U.S.C. §9621(d), further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants and contaminants, which at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA §121(d)(4), 42 U.S.C. §9621(d)(4).

Both local and non-local disposal of the excavated contaminated sediments and soils with PCB concentrations less than 50 mg/kg[10] were considered in the FS for each action alternative. Technical (capacity, ability to comply with New York State landfill closure regulations, waste stream compatibility, proximity and constructability) and administrative feasibility screenings were performed on 22 sites considered for local disposal of soils and sediments containing less than 50 mg/kg PCBs. These sites were located within a 10 mile radius of the subsite. The highest screened local disposal options for soils and sediments containing less than 50 mg/kg PCBs were consolidation under the cap of the Town of Salina Landfill within the area controlled by the leachate collection system and disposal in a newly constructed cell with a liner and leachate collection system at the yet-to-be capped Cooper Crouse-Hinds North Landfill (which will be closed under a New York State administrative consent order in the near future). Both of these sites are located adjacent to areas to be dredged and have contributed to contamination in Lower Ley Creek. Local disposal would be accomplished by the construction of on-site temporary roads to transport the excavated materials from the work area to the disposal area.

The estimated capital costs for local disposal (Cooper-Crouse Hinds North Landfill and Salina Landfill) range between \$1.8 and \$2.3 million and the estimated annual O&M costs range between \$21,750 and \$31,440.

A range of capital and present-worth costs are presented for each alternative, below. The lower cost in the cost range corresponds to local disposal and the upper cost corresponds to non-local disposal. This cost savings is realized by the reduction in travel costs to distant landfills by each truck.

More detailed descriptions of the remedial alternatives for addressing the contaminated soils and sediments associated with the subsite can be found in the FS report.

The construction time for each alternative reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy, negotiate the performance of the remedy with any potentially responsible parties, or procure contracts for design and construction.

The remedial alternatives are:

<u>Soil Alternatives</u>

Alternative S-1: No Action

Capital Cost:	\$0
Annual Operation and Maintenance (O&M) Cost:	\$0
Present-Worth Cost:	\$0
Construction Time:	0 months

The Superfund program requires that the "no-action" alternative be considered as a baseline for comparison with the other alternatives. The no-action remedial alternative for soil does not include any physical remedial measures that address the problem of soil contamination at the subsite.

Because this alternative would result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the subsite be reviewed at least once every five years. If justified by the review, remedial actions may be implemented to remove, treat or contain the contaminated soils.

Alternative S-2: Excavation of Contaminated Soils on Northern and Southern Creek Banks and Wetland Area and Local or Non-Local Disposal

Capital Cost:	\$9,807,500-\$18,801,000
Annual O&M Cost:	\$25,875
Present-Worth Cost:	\$10,139,000-\$18,987,000
Construction Time:	9 months

This alternative consists of the excavation of an estimated 75,000 CY of contaminated materials which includes soils on the northern and southern banks of the Creek that exceed the cleanup goals identified in Table 2 and an estimated 12,000 CY of contaminated sediments from the

[10] Soil and sediment with PCB concentrations less than 50 mg/kg are non-Toxic Substances Control Act (TSCA) waste and can be disposed of in a Resource Conservation and Recovery Act (RCRA)-compliant facility.

wetland area that exceed the sediment criteria. The depth of the excavation on the banks of the Creek and in the wetland would, generally, be to two feet, although in some areas such as the swale or the OLCC area, the excavation could range in depth from three to 14 feet. Contaminated areas on or near the buried pipelines which cannot be excavated would be capped.

Following excavation, the soils would be subjected to Toxic Characteristic Leaching Procedure (TCLP) testing.[11] Those soils that are determined to be characteristic hazardous waste and/or contain dioxin at levels above 1 µg/kg and are non-TSCA waste (*i.e.,* less than 50 mg/kg PCBs) would be disposed of at the nearest available RCRA-compliant facility. Those soils that contain PCBs greater than 50 mg/kg would be disposed of at an off-site TSCA-compliant facility. Those soils that are not TSCA-regulated and are not characteristic hazardous waste would either be disposed of locally or at an appropriate non-local facility.

Under this alternative, it is estimated that 71,000 CY of the excavated soils would not be TSCA-regulated and would not be characteristic hazardous waste. Therefore, these soils could be disposed of either locally or at an appropriate non-local disposal facility. It is estimated that an additional 3,800 CY of excavated soil would require disposal at a non-local RCRA- and/or TSCA-compliant facility.

Any contaminated soil located on the northern bank of the Creek that cannot be safely excavated because of the presence of the two large buried natural gas and oil pipelines which run parallel to a portion of the northern bank of the Creek would be covered with one foot of soil. Prior to placing the soil cover, soil samples would be collected to document the contaminant concentrations and a readily-visible and permeable subsurface demarcation layer delineating the interface between the contaminated soils and the clean soil cover would be installed.

Cleared vegetation would be disposed of locally at a nonhazardous waste landfill or could be mulched and used elsewhere on-site.

The excavated areas would be backfilled with at least two feet of soil meeting NYSDEC Program Policy DER-10, Appendix 5.[12] The excavated wetland area would be backfilled with soil that meets unrestricted SCOs. In excavated areas where there is underlying municipal refuse, a readily-visible and permeable subsurface demarcation layer delineating the interface between the refuse and the clean soil cover would be required.

The restoration of the excavated areas would be performed following the placement of clean backfill. This would include the planting of appropriate species of wetland and upland vegetation. The details of the restoration would be developed during remedial design.

Under this alternative, institutional controls in the form of environmental easements and/or restrictive covenants would be used to ensure that any intrusive activities in areas where contamination remains (including the areas where municipal refuse was disposed are in accordance with an EPA-approved Site Management Plan.

The Site Management Plan would provide for the proper management of all post-construction remedy components. Specifically, the Site Management Plan would describe procedures to confirm that the requisite engineering (*e.g.,* demarcation layer) and institutional controls are in place and that such controls continue to protect public health or the environment. The Site Management Plan would also detail the following: the provision for the management of future excavations in areas where contamination remains (including the areas where municipal refuse was disposed); an inventory of any use restrictions; the necessary provisions for the implementation of the requirements of any above-noted environmental easements and/or restrictive covenants; a provision for the performance of the O&M required for the remedy; and a provision that a property owner or party implementing the remedy submit periodic certifications that the institutional and engineering controls are in place.

Because this alternative would result in contaminants remaining on-site above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the subsite be reviewed at least once every five years.

Alternative S-3: Excavation of Wetland Area and Capping of Contaminated Soils on Southern and Northern Creek Banks and Local or Non-Local Disposal

Capital Cost: $8,562,500-$16,063,000

[11] TCLP testing is a soil sample extraction method for chemical analysis employed as an analytical method to simulate contaminant leaching. The testing methodology is used to determine if a waste is a characteristic hazardous waste under RCRA.

[6] The hotspot excavation areas of the southern bank would not be backfilled to grade. Reducing the elevation of this area would increase the flood storage capacity of the floodplain. The extent of backfilling in these areas would be determined during the RD based on the consideration of various factors, including flooding potential and desired habitat conditions.

Annual O&M Cost:	$29,875
Present-Worth Cost:	$8,942,000- $16,299,000
Construction Time:	9 months

This alternative is similar to Alternative S-2, except instead of excavating the soils on the northern and southern banks of the Creek, the contaminated soils would be capped. Contaminated areas that are located within the floodplain on the southern bank of the Creek would require limited excavation prior to capping so that the surface elevation would not be raised, thus avoiding the loss of flood storage capacity. Placement of a readily-visible and permeable subsurface demarcation layer delineating the interface between the residually-contaminated native and/or backfilled soils and the clean soil cover layer would also be required.

Under this alternative, an estimated 63,865 CY of contaminated soils would be excavated over a 20.5-acre area. Following the excavation, approximately three acres containing residual contamination would require a two-foot cover for the protection of burrowing animals, while the remaining 17.5 acres would be covered with a one-foot cover for habitat restoration.

Under this alternative, it is estimated that 60,770 CY of the excavated soils would not be TSCA-regulated and would not be characteristic hazardous waste. Therefore, these soils could be disposed of either locally or at an appropriate non-local disposal facility. It is estimated that an additional 3,193 CY of excavated soil would require disposal at a non-local RCRA- and/or TSCA-compliant facility.

Under this alternative, institutional controls in the form of environmental easements and/or restrictive covenants would be used to restrict intrusive activities in areas of where contamination remains (including the areas where municipal refuse was disposed) unless the activities are in accordance with an EPA-approved Site Management Plan.

The Site Management Plan would provide for the proper management of all post-construction remedy components. Specifically, the Site Management Plan would describe procedures to confirm that the requisite engineering (*e.g.,* demarcation layer) and institutional controls are in place and that such controls continue to protect public health or the environment. The Site Management Plan would also detail the following: the provision for the management of future excavations in areas where contamination remains (including the areas where municipal refuse was disposed); an inventory of any use restrictions; the necessary provisions for the implementation of the requirements of any above-noted environmental easement and/or restrictive covenant; a provision for the performance of the O&M required for the remedy; and a provision that a property owner or party implementing the remedy submit periodic certifications that the institutional and engineering controls are in place.

Because this alternative would result in contaminants remaining on-site above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the subsite be reviewed at least once every five years.

<u>Sediment Alternatives</u>

Alternative Sed-1: No Action

Capital Cost:	$0
Annual O&M Cost:	$0
Present-Worth Cost:	$0
Construction Time:	0 months

The Superfund program requires that the "no-action" alternative be considered as a baseline for comparison with the other alternatives. The no-action remedial alternative would not include any physical remedial measures to address the sediment contamination at the subsite.

Because this alternative would result in contaminants remaining on-site above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the subsite be reviewed at least once every five years. If justified by the review, remedial actions may be implemented to remove, treat or contain the wastes.

Alternative Sed-2: Monitored Natural Recovery

Capital Cost:	$0
Annual O&M Cost:	$159,000
Present-Worth Cost:	$1,973,000
Construction Time:	0 months

This alternative would rely upon natural processes for the recovery of contaminated sediments, such as chemical transformation, reduction in contaminant mobility/bioavailability, physical isolation and dispersion.

This alternative would include monitoring and modeling to determine whether the human health and ecological risks are being reduced.

Because this alternative would result in contaminants remaining on-site above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the subsite be reviewed at least once every five years.

Alternative Sed-3: Excavation of Contaminated Sediments with Local or Non-Local Disposal

Capital Cost:	$7,550,500-$16,213,000
Annual O&M Cost:	$35,875
Present-Worth Cost:	$8,005,00- $16,524,000
Construction Time:	1 year

Under this alternative, all sediments containing PCB contamination above 1 mg/kg would be excavated from one bank to the other bank of the Creek. In addition, an approximate 1,200 foot reach of the creek bottom, just upstream of Interstate 81 would be excavated to a depth of 1 foot to remove sediments contaminated with PCB and elevated metals. Turbidity control measures would be developed during the design and implemented during construction. A detailed hydrologic analysis would be performed during the design phase to determine the effect of the alternative on stream flow, flooding, and dynamics, and to identify the appropriate materials and bathymetry for restoration and long-term sustainability. At least one-foot of clean fill would be placed over the excavated areas to stabilize the sediment bed and support habitat replacement/reconstruction. Shoreline stabilization and waterfront restoration would be conducted after the excavation activities were completed within a given area.

An estimated 73,000 CY of sediment would require excavation. The excavation would range in depth from 8 feet in the upstream section of the Creek to 1 foot in downstream sections of the Creek. It is estimated that the farthest downstream section of the Creek, between I-81 and Onondaga Lake, would not require any sediment excavation. The sediment would be transported to a nearby staging area where it would be dewatered. Water that drains from the sediments during dewatering would be treated to meet NYSDEC's discharge requirements. The sediments would then be subjected to TCLP testing. Those sediments that are determined to be characteristic hazardous waste and/or contain dioxin at levels above 1 µg/kg and are non-TSCA waste (less than 50 mg/kg PCBs) would be disposed of off-site at a RCRA-compliant facility. Likewise, those sediments that contain PCBs greater than 50 mg/kg would be disposed of at an off-site TSCA-compliant facility. Those sediments that are not subject to TSCA and are not characteristic hazardous waste would be disposed of either locally or at an appropriate non-local facility.

Because PCBs are collocated with the majority of the other COCs and are the primary risk driver for all pathways for this subsite (see the "Site Risks" section, above), they will be used as an indicator compound (1 mg/kg PCBs) to ensure that the sediment cleanup goals are achieved.

Under this alternative, it is estimated 69,100 CY that of the excavated sediment would not be TSCA-regulated and would not be characteristic hazardous waste. Therefore, these sediments could be disposed of either locally or at an appropriate non-local disposal facility. It is estimated that 3,600 CY of the excavated sediment would require disposal at a non-local RCRA- and/or TSCA-compliant facility.

During construction, monitoring of water, sediments, air quality and odor, noise, lighting and water discharged at the sediment dewatering area would be conducted. Post-excavation confirmation sampling would be conducted prior to backfilling to ensure that sediments above the cleanup goals have been removed. While long-term monitoring of the sediment would not be required because all the contaminated sediment would be excavated, fish monitoring would be conducted to determine the remaining levels of contamination in the fish and the rate of decline.

In order to protect the structural integrity of the Route 11 bridge, it may not be possible to remove all of the contaminated sediment at the base of the bridge. Therefore, some combination of dredging and capping of sediments under the bridge may be necessary in order to protect the bridge and not reduce the effective cross section of flow for flood protection.

Under this alternative, institutional controls in the form of environmental easements and/or restrictive covenants would be used to restrict intrusive activities in the capped areas unless the activities are in accordance with an EPA-approved Site Management Plan.

The Site Management Plan would provide for the proper management of all post-construction remedy components. Specifically, the Site Management Plan would describe procedures to confirm that the requisite institutional controls are in place and that nothing has occurred that would impair the ability of such controls to protect public health or the environment. The Site Management Plan would also detail the following: the provision for the management of future intrusive activities in the capped areas; an inventory of any use restrictions; the necessary provisions for the implementation of the requirements of any above-noted environmental easement and/or restrictive covenant; a provision for the performance of O&M for the remedy; and a provision that a property owner or party implementing the remedy submit periodic certifications that the institutional controls are in place.

Alternative Sed-4: Excavation and Placement of Granular Material Sediment Cap with Local or Non-Local Disposal

Capital Cost:	$8,664,500-$15,218,000
Annual OM&M Cost:	$199,875
Present-Worth Cost:	$11,154,000- $17,563,000
Construction Time:	1 year

This alternative includes excavation of shallow sediments and the installation of a granular material (sand) sediment cap over the upstream and middle sections of Lower Ley Creek that exceed 1 mg/kg PCB.

Because PCBs are collocated with the majority of the other COCs and are the primary risk driver for all pathways for this subsite (see the “Site Risks” section, above), they will be used as an indicator compound (1 mg/kg PCBs) to ensure that the sediment cleanup goals are achieved.

So that the capping would be completed in a manner that would maintain the bathymetry of the Creek, at least four feet of sediment would need to be excavated before placing the sand cap and habitat layer. In areas of high erosion potential, a slightly deeper excavation (6 feet) would be required to accommodate the placement of a 1.5 to two-foot sand cap overlain by a two-foot thick armor layer followed by a two-foot habitat layer. The downstream section of the Creek would not require a cap because the sediment contamination in this section is shallower than the four-foot depth required for the cap; all contaminated sediment in the approximate 1,200-foot reach above Interstate 81 would be removed to a depth of one foot, obviating the need for a cap.

Similar to Alternative Sed-3, the excavated sediment would be transported to a staging area for dewatering and conditioning. Water that drains from the sediments during dewatering would be treated to meet NYSDEC’s discharge requirements. The sediments would then be subjected to TCLP testing. Those sediments that are determined to be characteristic hazardous and/or contain dioxin at levels above one mg/kg and are non-TSCA materials would be disposed of off-site at a RCRA-compliant facility. Under Alternative Sed-4, those sediments that contain PCBs greater than 50 mg/kg would also be disposed of off-site, at a TSCA-compliant facility. Those sediments that are not subject to TSCA and are not characteristic hazardous waste would be disposed of either locally or non-locally.

Turbidity measures would be developed during the design and implemented during construction. Shoreline stabilization and waterfront restoration would be conducted after the excavation activities were completed within a given area.

Under this alternative, an estimated 56,600 CY of sediment would require excavation prior to the placement of the sand cap. An estimated 54,000 CY of the excavated sediment would not be TSCA-regulated and would not be characteristic hazardous waste. Therefore, these sediments could be disposed of either locally or at an appropriate non-local disposal facility. An estimated 2,600 CY of the excavated sediment would require disposal at a non-local RCRA- and/or TSCA-compliant facility.

The capped areas would require maintenance, as necessary and annual monitoring to assure that the caps are performing as designed.

During construction, monitoring of water, sediments, air quality and odor, noise, lighting and water discharged at the sediment dewatering area would be conducted. Post-excavation confirmation sampling would be conducted prior to backfilling to ensure that sediments above the cleanup goals have been removed. Fish monitoring would be conducted to determine the remaining levels of contamination in the fish and the rate of decline.

Under these alternatives, institutional controls in the form of environmental easements and/or restrictive covenants would be used to restrict intrusive activities in the capped areas unless the activities are in accordance with an EPA-approved Site Management Plan.

The Site Management Plan would provide for the proper management of all post-construction remedy components. Specifically, the Site Management Plan would describe procedures to confirm that the requisite institutional controls are in place and that nothing has occurred that would impair the ability of such controls to protect public health or the environment. The Site Management Plan would also detail the following: the provision for the management of future intrusive activities in the capped areas; an inventory of any use restrictions; the necessary provisions for the implementation of the requirements of any above-noted environmental easement and/or restrictive covenant; a provision for the performance of O&M for the remedy; and a provision that any property owner or party implementing the remedy submit periodic certifications that the institutional controls are in place.

Because this alternative would result in contaminants remaining on-site above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the subsite be reviewed at least once every five years.

COMPARATIVE ANALYSIS OF ALTERNATIVES

During the detailed evaluation of remedial alternatives, each alternative is assessed against nine evaluation criteria, namely, overall protection of human health and the environment, compliance with applicable or relevant and appropriate requirements, long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness, implementability, cost and state and community acceptance.

The evaluation criteria are described below.

- Overall protection of human health and the environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.
- Compliance with ARARs addresses whether or not a remedy would meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes and requirements or provide grounds for invoking a waiver.
- Long-term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.
- Reduction of toxicity, mobility or volume through treatment is the anticipated performance of the treatment technologies, with respect to these parameters, that a remedy may employ.
- Short-term effectiveness addresses the period needed to achieve protection, as well as any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup goals are achieved.
- Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.
- Cost includes estimated capital, annual O&M and present-worth costs.
- State acceptance indicates if, based on its review of the RI/FS and Proposed Plan, the state concurs with the preferred remedy.
- Community acceptance will be assessed in the ROD and refers to the public's general response to the alternatives described in the Proposed Plan and the RI/FS reports.

A comparative analysis of these alternatives based upon the evaluation criteria noted above follows.

Overall Protection of Human Health and the Environment

Alternatives S-1 and Sed-1 would not be protective of the environment because they would not address the contaminated soils and sediments, which present human health and ecological risks. Alternatives S-2, S-3, Sed-3, and Sed-4 would be protective of human health and the environment because each of these alternatives relies upon a remedial strategy or treatment technology capable of eliminating human and ecological exposure to contaminated soils or sediments.

Compliance with ARARS

SCOs are identified in 6 NYCRR Part 375, Environmental Remediation Programs, Subpart 375-6, effective December 14, 2006. There are currently no federal or state promulgated standards for contaminant levels in sediments. There are, however, other federal or state advisories, criteria, or guidance (which are used as TBC criteria). Specifically, NYSDEC's sediment screening values are a TBC criteria.

Because the contaminated soils and sediments would not be actively addressed under Alternatives S-1, Sed-1 and Sed-2, these alternatives would not achieve the SCOs or sediment remediation goals.

Alternatives S-2, S-3, Sed-3 and Sed-4 would attain the cleanup levels for soils and the sediment cleanup objective, respectively. Alternatives Sed-3 and Sed-4 may result in short-term localized exceedances of surface water standards because of suspension of impacted sediment during excavation. It should be noted that three chemical-specific ARARs pertaining to water column concentrations (1 ng/l total PCBs federal Ambient Water Quality Criterion; 0.12 ng/l total PCBs New York State standard for protection of wildlife; and 0.001 ng/l total PCBs New York State standard for protection of human consumers of fish) will require a waiver due to technical impracticability because the PCB contamination entering the Lower Ley Creek subsite from upstream will likely exceed these ARARs. However, the water quality impacts would meet the substantive water quality requirements imposed by New York State on entities seeking a dredged material discharge permit under Section 404 of the Clean Water Act (CWA). For Alternatives Sed-3, and Sed-4, other action-specific ARARs include CWA Sections 401 and 402; the Rivers and Harbors Act Section 10; the

Endangered Species Act;[13] the New York Environmental Conservation Law (ECL) Article 15 Water Resources, Article 11 Fish and Wildlife, Article 17 Water Pollution Control, Article 24 Freshwater Wetlands and Article 27 Collection, Treatment and Disposal of Refuse and Other Solid Waste; and associated implementing regulations.

Because Alternatives S-2 and S-3 would involve the excavation of contaminated soils and Alternatives Sed-3 and Sed-4 would require dewatering and processing of sediments, compliance with fugitive dust regulations would be necessary. In addition, all of these soil and sediment alternatives would meet the requirements of New York State and federal regulations related to the transportation and treatment/disposal of wastes. As is noted above, local disposal would result in some of the sediments and soils being disposed of at either the Town of Salina Landfill (where similar PCB-contaminated materials are already present[14] under a NYCRR Part 360-compliant cap) or the Cooper Crouse-Hinds North Landfill (which will be closed under the State Superfund program in the near future). Disposal at the Salina Landfill would require that the soils and sediment be consolidated under the cap within the area controlled by the leachate collection system; disposal at Cooper Crouse-Hinds property would require that the soils and sediments be placed in a new cell that would also meet the substantive requirements of NYCRR Part 360.

The CWA Section 401 Water Quality Certification (WQC) is implemented by NYSDEC through ECL Article 15 and the associated regulations in 6 NYCRR Part 608 Use and Protection of Waters. The WQC may establish conditions such as preventive measures to minimize re-suspension of sediment and water quality monitoring during excavation of sediments under Alternatives Sed-3 and Sed-4 so that the exceedance of water quality standards, if it occurs, is short-lived and resuspension if controlled. Placement of fill (such as a cap) and temporary discharges of decanted waters would also be addressed through a WQC. The substantive requirements of ECL Article 15 and corresponding regulations would be met by Alternatives Sed-3 and Sed-4.

CWA Section 402 is implemented by NYSDEC through the ECL Article 17 State Permit Discharge Elimination System requirements, which regulate the discharge of pollutants into waters of the state. Pre-treatment or monitoring of decanted water resulting from sediment dewatering may be necessary. The decanted water would be treated to meet NYSDEC's State Pollutant Discharge Elimination System discharge requirements.

RCRA is the federal law addressing the storage, transportation and disposal of solid and hazardous waste. NYSDEC implements RCRA in New York under ECL Article 27. Depending upon the results of the TCLP testing of the excavated soils and sediments, RCRA requirements may be applicable.

All of the action alternatives (*i.e.,* excluding the "no action" soil and sediment alternatives and the Monitored Natural Recovery sediment alternative) would comply with TSCA's PCB cleanup and disposal regulations (40 CFR Part 761).

Long-Term Effectiveness and Permanence

Alternatives S-1, Sed-1 and Sed-2 would involve no active remedial measures and, therefore, would not be effective in eliminating the potential exposure to contaminants in the soil and sediment and would allow the continued migration of contaminants from the soil to the Creek and from the sediment to the water column in the Creek. Alternatives S-2 and Sed-3 would both be effective in the long term and would provide permanent remediation by removing the contaminated source area soils and sediments and securely disposing of them in a RCRA- and/or TSCA-compliant non-local facility or a local facility, as required. Disposal of excavated soils and sediments at non-local and local landfills with appropriate caps and leachate collection systems as proposed under the action alternatives would effectively control the contaminants over the long-term. The contaminated soil and sediments that would be targeted for consolidation at the Town of Salina are similar to contaminated dredge spoils that are already present in the landfill.

Under Alternative S-3, 85% of the contaminated soils would be removed permanently, while the remainder would be covered. The covered areas would require the development of a Site Management Plan, long-term O&M and appropriate institutional controls to protect the cover and prevent exposure. Alternative S-2 would also require long-term O&M, institutional controls and a Site Management Plan but for a smaller area than Alternative S-3 .

Alternative Sed-4 would permanently remove enough of the contaminated sediment to accommodate a granular material cap. Exposure to the remaining contaminated sediments would be eliminated via the use of caps. Consistent with the EPA design guidance for caps, the cap would need to be designed to withstand erosional forces resulting from a 100-year storm event.

[13] Portions of Ley Creek contain Indiana bat and potentially bald eagle habitat.

[14] As is noted in the "Site History" section, above, the landfill accepted some of the contaminated dredge spoils during the 1970s Ley Creek flood control project.

Similar to Alternatives S-2 and S-3, Alternative Sed-4 would require O&M to maintain the integrity of the soil cover/cap and the development of a Site Management Plan. Because contaminants would remain *in-situ,* albeit beneath the cap, five-year reviews would be required.

For all of the soil action alternatives, institutional controls would be needed to restrict intrusive activities in areas of where contamination remains. For the sediment action alternatives, institutional controls would be needed to restrict intrusive activities in the capped areas.

All of the soil and sediment alternatives that rely on active measures would provide reliable protection of human health and the environment over time.

Reduction in Toxicity, Mobility, or Volume Through Treatment

Alternatives S-1, Sed-1 and Sed-2 would provide no reduction in toxicity, mobility or volume. Under the active soil and sediment alternatives, the mobility of contaminants would be eliminated via the excavation (with local or non-local disposal) and/or capping of contaminated soils and sediments.

Short-Term Effectiveness

Alternatives S-1, Sed-1 and Sed-2 do not include any physical construction measures in any areas of contamination and, therefore, would not present any potentially adverse impacts to remediation workers or the community as a result of its implementation. Alternatives S-2, S-3, Sed-3, and Sed-4 could present some limited adverse impacts to remediation workers through dermal contact and inhalation related to the sampling excavation and/or capping activities. Noise from the excavation and capping work associated with Alternatives S-2, S-3, Sed-3 and Sed-4 could present some limited adverse impacts to remediation workers and nearby residents. In addition, interim and post-remediation soil and sediment sampling activities would pose some risk. The short-term impacts to remediation workers and nearby residents under all of the alternatives could, however, be mitigated by following appropriate health and safety protocols, by exercising sound engineering practices and by utilizing proper protective equipment.

Alternatives S-2, S-3, Sed-3 and Sed-4 would require the off-site transport of contaminated soils and sediments. Temporary roadways could be utilized to move the soils and sediments that would be disposed of locally, thereby reducing potential impacts on local traffic. The non-local disposal option of Alternatives S-2, S-3, Sed-3 and Sed-4 would require the transport of approximately 150,000 CY of contaminated soils and sediments over local roadways to the non-local disposal facility. This volume of material would require transporting an estimated 10,000 truckloads of material, which could have a greater adverse impact on local traffic and roadways than the local disposal option. It would also increase the potential for traffic accidents compared to the local disposal option.

The use of the Town of Salina landfill for the disposal of the excavated soils and sediments might increase the amount of leachate collected at this facility during the temporary partial removal of the landfill cap. In addition, the partial cap removal might cause odors. Appropriate mitigation measures would be taken to reduce these temporary impacts. Construction-related noise would also need to be mitigated. Similar short-term impacts were effectively addressed during the excavation of the five-acre landfill and consolidation of the excavated materials on the top of the 50-acre landfill which was completed in 2013. The use of Cooper Crouse-Hinds Landfill for the disposal of excavated soils and sediments would also require that mitigation plans be in place to address potential odor and noise issues.

For Alternatives S-2 and S-3, there is a potential for increased storm water runoff and erosion during construction and excavation activities that would have to be properly managed to prevent or minimize any adverse impacts. For these alternatives, appropriate measures would have to be taken during excavation activities to prevent transport of fugitive dust and exposure of workers and downgradient receptors to PCBs.

Because no action would be performed under Alternative S-1, there would be no implementation time. It is estimated that Alternatives S-2 and S-3 would require nine months to complete the excavation and/or capping and restoration. Sediment removal in Alternatives Sed-3 and Sed-4 may result in short-term adverse impacts to the Creek. These impacts include exposure of contaminated sediments to the water column, fish and biota because of the resuspension of sediments during removal, and temporary loss of benthos and habitat for the ecological community in the excavated areas. Risks caused by resuspension can be minimized through the use of engineering controls and appropriate operation of excavation equipment.. Replacement of the benthic habitat would be implemented through the addition of a layer of appropriate backfill material in excavated areas after sediment removal. Physical construction of Alternative Sed-3 could likely be completed in two construction seasons. Excavation, contaminated media handling and dewatering might create air emissions and odors through the release of SVOCs and VOCs from the excavated materials. However, because of the low levels of VOCs in Lower Ley Creek, significant odors and air emissions are not expected. However, odor controls would be employed, if necessary during remedial activities.

Alternative Sed-4 would cause short-term adverse effects to the Creek similar to those caused by Alternative Sed-3. Physical construction of Alternative Sed-4 is expected to be completed within two construction seasons.

Implementability

Alternatives S-1, Sed-1 and Sed-2 would be the easiest alternatives to implement, as there are no construction activities to undertake.

Alternatives S-2, S-3, Sed-3 and Sed-4 would employ technologies known to be reliable and that can be readily implemented. Equipment, services and materials needed for Alternatives S-2 and S-3, are readily available. Land-based excavation equipment and dewatering systems similar to that which may be used under Alternatives Sed-3 and Sed-4 have been implemented successfully at numerous sites. The actions under all of these alternatives would be administratively feasible.

Sufficient facilities exist for the local disposal of the excavated soils and sediments but appropriate arrangements with the current facility owner[s] for disposal on their properties would need to be made. While the Town of Salina Landfill currently has a means of pre-treating the collected contaminated groundwater/leachate prior to discharge to METRO, such treatment and discharge infrastructure does not exist at the Cooper Crouse-Hinds Landfill. Therefore, handling of the leachate would need to be addressed.

While soil excavation under Alternative S-2 is technically feasible, the existence of two large buried pipelines on the northern bank of Lower Ley Creek would require special excavation techniques so that these pipelines are not disturbed. In addition, one of the pipelines crosses the Creek just downstream of the Route 11 bridge. Special excavation techniques and/or adjustments to the depth of the excavation required in Alternatives Sed-3 and Sed-4 may have to be made because of the location of the gas pipeline. A sediment cap may be required in this area under Alternative Sed-3 if it is not possible to remove all the contamination down to the cleanup goal.

In order to protect the structural integrity of the Route 11 bridge, it may not be possible to remove all of the contaminated sediment at the base of the bridge. Therefore, some capping of sediments under the bridge may be necessary to maintain a protective remedy.

The implementation of institutional controls would be feasible to implement under the sediment alternatives.

Short-term and long-term monitoring for Alternative Sed-4 can be readily implemented to verify cap effectiveness.

Cost

The present-worth costs associated with the soil and sediment remedies are calculated using a discount rate of seven percent and a thirty-year time interval.

The estimated capital, O&M and present-worth costs for each of the alternatives utilizing local and non-local disposal are presented below.

Alternative	Capital	Annual O&M	Total Present Worth
S-1	$0	$0	$0
S-2--local disposal	$9,807,500	$25,875	$10,139,000
S-2--non-local disposal	18,801,000	$15,000	$18,987,000
S-3--local disposal	$8,562,500	$29,875	$8,942,000
S-3--non-local disposal	$16,063,000	$19,000	$16,299,000
Sed-1	$0	$0	$0
Sed-2	$0	$159,000	$1,973,000
Sed-3--local disposal	$7,550,500	$35,875	$8,005,000
Sed-3--non-local disposal	$16,213,000	$25,000	$16,524,000
Sed-4--local disposal	$8,664,500	$199,875	$11,154,000
Sed-4--non-local disposal	$15,218,000	$189,000	$17,563,000

As can be seen by the table, although Alternative S-2 is the most costly soil alternative, the costs of Alternative S-3 are very similar. The capital cost to implement Alternatives Sed-3 and Sed-4 are very similar, with approximately $1 million between them. However, because of the much higher annual O&M costs associated with Alternative Sed-4, the present-worth cost for Alternative Sed-4 is approximately 45% greater than Sed-3, when comparing the local disposal options, and approximately 6% greater when comparing non-local disposal.

State Acceptance

NYSDEC concurs with the preferred remedy.

Community Acceptance

Community acceptance of the preferred remedy will be addressed in the ROD following review of the public comments received on the Proposed Plan.

PREFERRED REMEDY

Based upon an evaluation of the various alternatives, EPA, in consultation with NYSDEC, recommends Alternative S-2 (excavation and local or non-local disposal of soil) as the preferred alternative to address the contaminated soil and Alternative Sed-3 (excavation and local or non-local disposal of sediment) as the preferred alternative for the sediment. See Figure 5 to see the soil and sediment areas which would be addressed under this remedy.

This alternative consists of the excavation of an estimated 75,000 CY of contaminated soils on the northern and southern banks of the Creek that exceed the SCOs and an estimated 12,000 CY from the wetland area that exceeds the sediment cleanup objectives and an estimated 73,000 CY of sediments containing contamination above the sediment cleanup objectives. The sediments would be excavated to depths ranging from 1 to 8 feet. The depth of the excavation on the banks of the Creek and in the wetland would, generally, be to 2 feet. The excavation in the swale and OLCC areas would range in depth from three to 14 feet.

Any contaminated soil located on the northern bank of the Creek that cannot be safely excavated because of the presence of the two large, buried natural gas and oil pipelines which run parallel to the north bank of the Creek would be covered with one foot of soil. Prior to placing the soil cover, a readily-visible and permeable subsurface demarcation layer delineating the interface between the contaminated soils and the clean soil cover would be installed.

The excavated areas would be backfilled with at least two feet of soil meeting the criteria set forth at NYSDEC Program Policy DER-10, Appendix 5. The excavated wetland area would be backfilled with soil that meets unrestricted SCOs. In excavated areas where there is underlying municipal refuse, a readily-visible and permeable subsurface demarcation layer delineating the interface between the refuse/"native" soil and the clean soil cover would be installed.

In addition, the excavation of the southern bank soils in Alternative S-2 would not be backfilled to grade. Reducing the elevation of this area would increase the flood storage capacity of this floodplain. The extent of backfilling in this area would be determined during the design phase based on the consideration of various factors, including flooding potential and desired habitat conditions.

A detailed hydrologic analysis would be performed during the design phase to determine the effect of the remedy on stream flow, flooding and dynamics, and to identify the appropriate materials and bathymetry for restoration and long-term sustainability.

Excavated areas would be restored with clean substrate and vegetation consistent with an approved habitat restoration plan developed as part of the design. The main goal of the habitat restoration would be to restore the habitats affected by the remedy. The restoration would meet the substantive requirements of 6 NYCRR Part 608 and 663. A habitat assessment to characterize the habitats and organisms that would be affected by the remedy would be performed to support the development of the restoration plan and design.

Habitat restoration of Ley Creek would include the placement of at least one foot of substrate similar to the existing sediments over disturbed areas and restoration of vegetation. Clean fill meeting the requirements of DER-10, Appendix 5 would replace the excavated soil and sediment or complete the backfilling of the excavation and establish the designed grades at the subsite. The specific thickness and substrate material to be used for the backfill in these areas would be determined during the remedial design as part of the habitat restoration plan.

The habitat restoration plan would also describe the specific design for areas impacted by the remediation of sediments and soils, actions (if any) needed for the protection of affected species and determine the appropriate plantings (including types and locations) necessary to restore habitats. The habitat restoration plan would also include the necessary requirements for monitoring restoration success and for restoration maintenance.

Cleared vegetation would either be disposed of locally, stockpiled for habitat restoration or mulched and used elsewhere on-site.

The excavated sediment would be transported to a staging area where it would be dewatered. Water that drains from the sediments during dewatering would be treated to meet NYSDEC discharge requirements. The soils and sediments would be subjected to TCLP testing. Those soils and sediments which fail TCLP testing and are determined to be characteristic hazardous waste and are non-TSCA waste (*i.e.,* less than 50 mg/kg PCBs) would be disposed of off-site at a RCRA-compliant facility. Those soils and sediments that contain PCBs greater than 50 mg/kg would also be disposed of off-site, at a

TSCA-compliant facility. Those soils and sediments that would not be TSCA-regulated (less than 50 mg/kg PCBs) and are not characteristic hazardous waste would be disposed of locally. Local disposal options under consideration include consolidation under the cap of the Town of Salina Landfill within the area controlled by the leachate collection system or in a newly constructed cell with a liner and leachate management system[15] at the yet-to-be capped Cooper Crouse-Hinds North Landfill (which will be closed under a New York State administrative consent order in the near future). The specific local disposal location would be determined during the remedial design phase. Should local disposal be determined not to be viable, all excavated materials would be sent to an appropriate non-local facility for disposal.

Appropriate controls and monitoring (*e.g.,* community air monitoring) would be utilized to ensure that during remediation activities, airborne particulate and volatile organic vapor concentrations surrounding the excavation area are acceptable.

Under this alternative, institutional controls in the form of environmental easements and/or restrictive covenants would be used to restrict intrusive activities in areas of where contamination remains (including the areas where municipal refuse was disposed) unless the activities are in accordance with an EPA-approved Site Management Plan.

The Site Management Plan would provide for the proper management of all post-construction remedy components. Specifically, the Site Management Plan would describe procedures to confirm that the requisite engineering (*e.g.,* demarcation layer) and institutional controls are in place and that nothing has occurred that would impair the ability of such controls to protect public health or the environment. The Site Management Plan would also detail the following: the provision for the management of future excavations in areas of where contamination remains (including the areas where municipal refuse was disposed); an inventory of any use restrictions; the necessary provisions for the implementation of the requirements of the above-noted environmental easement and/or restrictive covenant; a provision for the performance of the O&M for the remedy; and a provision that the property owner or party implementing the remedy submit periodic certifications that the institutional and engineering controls are in place.

The Site Management Plan would also include fish monitoring to determine the remaining levels of contamination in the fish and the rate of decline, as well as the performance of the habitat maintenance and monitoring required by the remedy (including, but not limited to, long and short-term remedy effectiveness, habitat restoration success and the recovery of biota).

The environmental benefits of the preferred remedy may be enhanced by consideration, during the design, of technologies and practices that are sustainable in accordance with the EPA Region 2's Clean and Green Energy Policy and NYSDEC's Green Remediation Policy.[16] This would include consideration of green remediation technologies and practices.

Remediation of the upstream portion of Ley Creek that is part of the IFG subsite would need to be performed prior to the performance of any remedial activities in the Lower Ley Creek subsite to prevent the potential for recontamination. While a remedy has not yet been selected for the upstream portion of Ley Creek, should the selected remedy include the excavation of upstream contaminated sediments, the EPA would coordinate the construction of the preferred remedy at Lower Ley Creek with the sediment excavation work at the IFG subsite.

During the design, a Phase 1A Cultural Resources Survey would be performed to document the subsite's historic resources.

Because this remedy would result in contaminants remaining on-site above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the subsite be reviewed at least once every five years.

<u>Basis for the Remedy Preference</u>

Alternatives S-2 and S-3 would both effectively achieve the soil cleanup levels. While Alternative S-2 is slightly more expensive than Alternative S-3, Alternative S-2 would not require the monitoring and maintenance of large capped areas. Although not called for in the remedy, generally speaking, deeper soils would meet the ecological SCOs following the excavation except in the areas of the OLCC and the swale. Therefore, the EPA believes that Alternative S-2 would effectuate the soil cleanup while providing the best balance of tradeoffs with respect to the evaluating criteria.

[15] The leachate management system would include leachate collection and pre-treatment and disposal at a local publicly-owned treatment works, treatment and disposal to surface water or some other form of management, such as temporary storage pending and shipment to a permitted facility for treatment/disposal.

[16] See http://epa.gov/region2/superfund/green_remediation and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf.

The capital cost to implement Alternative Sed-3 is approximately $1.1 million less than Alternative Sed-4. However, because Alternative Sed-3 would not require annual monitoring and maintenance of caps with the exception of limited areas that cannot be excavated because of potential impacts to pipeline/bridge structures, the present-worth cost differential between Alternatives Sed-3 and Sed-4 with the local disposal option represents an increase of just over $3 million.

Alternative Sed-3 would permanently remove the contaminated sediment from the Creek, thereby eliminating the potential for contaminated sediment to find its way into Onondaga Lake which could occur under Alternative Sed-4 if the caps were to be breached because of storm events and/or ice scour.

For these reasons, the EPA has identified Alternative Sed-3 as its preferred sediment alternative, because it would effectuate the sediment cleanup while providing the best balance of tradeoffs among the alternatives with respect to the evaluating criteria.

The non-local disposal component of Alternatives S-2 and Sed-3, the preferred soil and sediment alternatives, respectively, would require the transport of approximately 150,000 CY of contaminated soils and sediments over local roadways to the non-local disposal facility. This volume of material would require transporting an estimated 10,000 truckloads of material, which could have a significant adverse impact on local traffic and roadways. It would also increase the potential for traffic accidents, which could result in releases of hazardous substances. In addition, non-local disposal would cost an estimated $17.4 million more than local disposal. Both the Town of Salina Landfill and the Cooper Crouse-Hinds North Landfill are located adjacent to areas to be dredged and have contributed to the contamination of Lower Ley Creek. Local disposal at either of these locations would also have a smaller carbon footprint than non-local disposal. While construction activities associated with disposal of the soils and sediments at these locations may increase the potential for additional short-term impacts, such as noise and odors, mitigation activities are available to limit such impacts and were successfully employed during the recent remediation at the Town of Salina Landfill. Therefore, the preferred disposal option is local disposal.

The preferred remedy is believed to provide protection of human health and the environment, provide the greatest long-term effectiveness, be able to achieve the ARARs more quickly, or as quickly, as the other alternatives and is cost effective. Therefore, the preferred remedy would provide the best balance of tradeoffs among alternatives with respect to the evaluating criteria. The EPA and NYSDEC believe that the preferred remedy would be protective of human health and the environment, comply with ARARs, be cost-effective and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

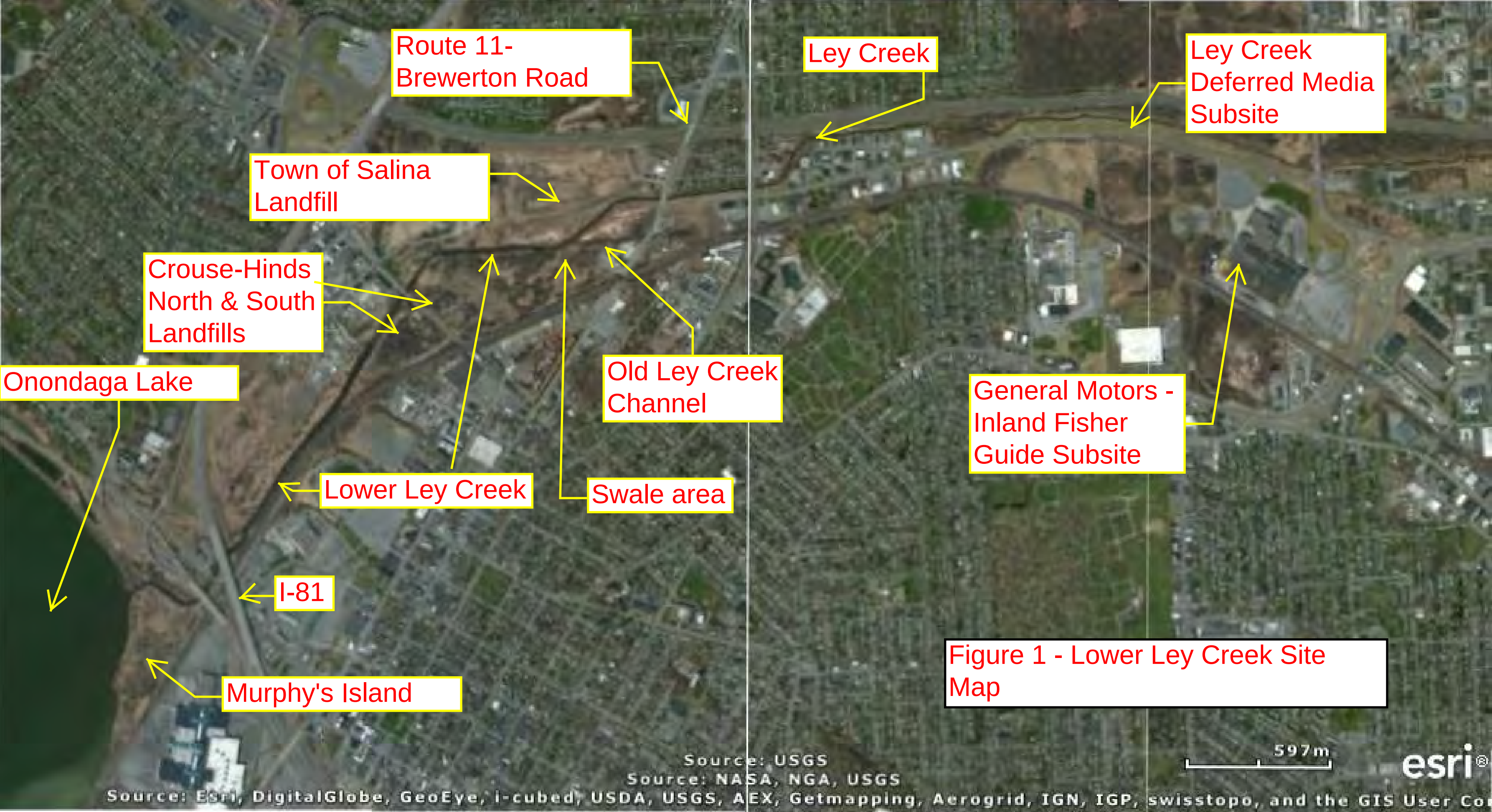

Figure 1 - Lower Ley Creek Site Map

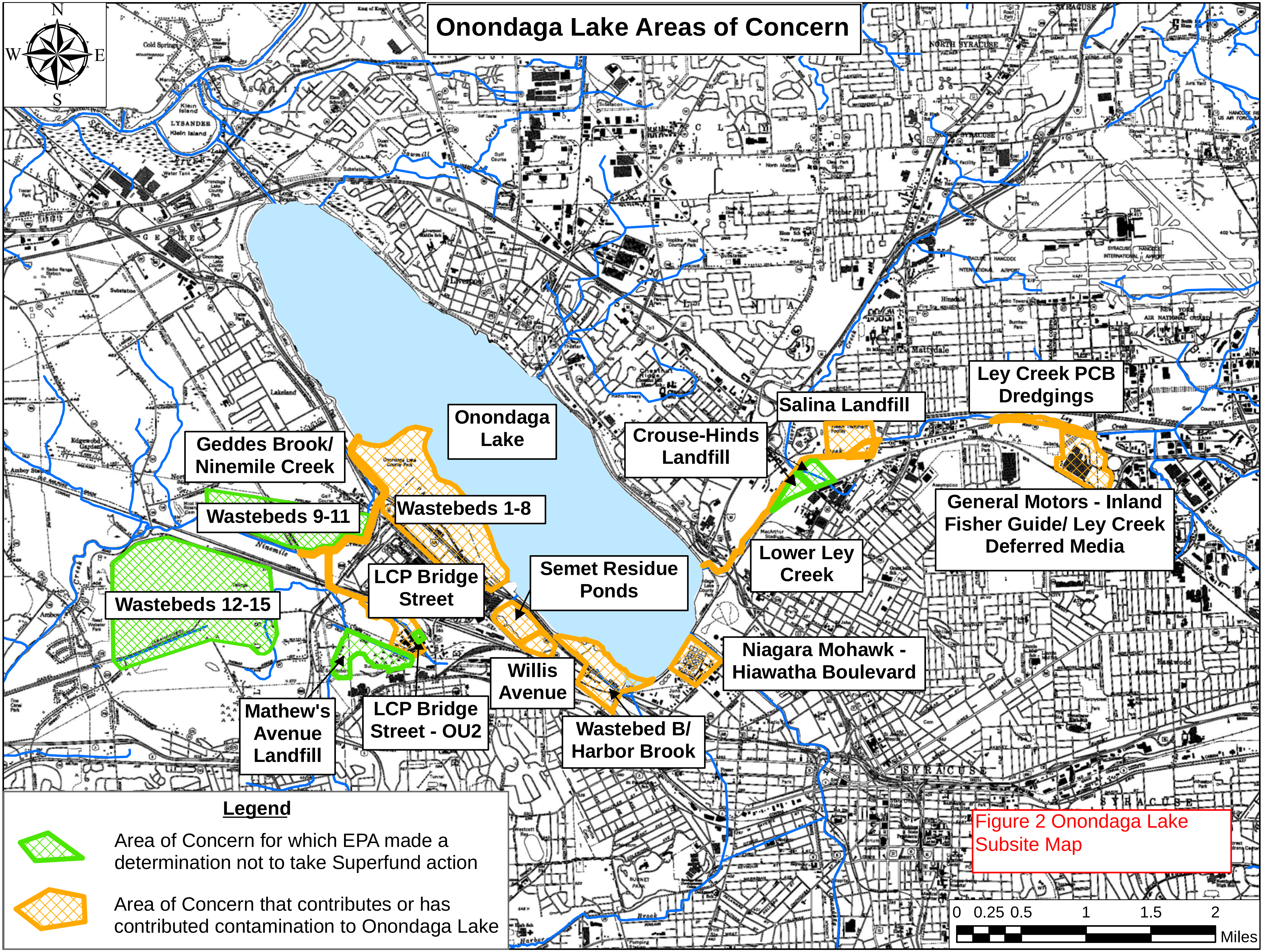

Figure 2 Onondaga Lake Subsite Map

HGL—Final RI Report
Lower Ley Creek Subsite of Onondaga Lake, Syracuse, NY

FIGURE 3
LOCATIONS OF SOIL SAMPLING AREAS

Legend

- Surface Water Course
- Road
- Highway
- Railroad
- Lower Ley Creek and Old Ley Creek Site Boundary
- Soil Site Boundary

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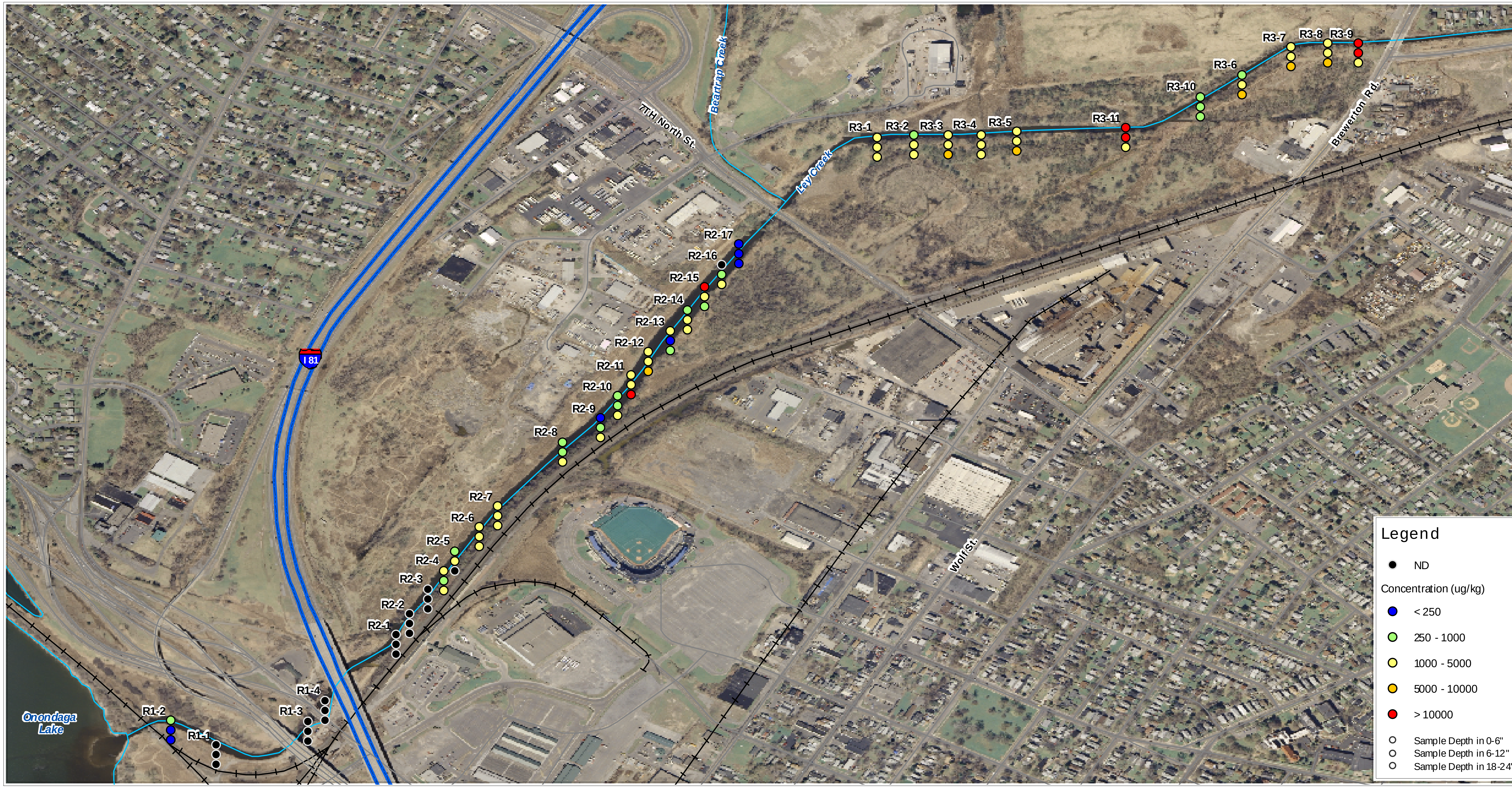
6/5/2013 TB
Source: HGL, AE Engineering, ESRI, ArcGIS Online Bing Maps Aerial

HGL HydroGeoLogic, Inc.



Base map created using color digital orthoimagery of New York state, site survey GPS data, and sample results data.

Map Creation Date: 16 March 2010

Coordinate system: New York State Plane
FIPS: 3102
Datum: NAD83
Units: Feet

W E
S
Magnetic North

750 0 750 Feet

U.S EPA Environmental Response Team
Scientific Engineering Response and Analytical Services
EP-W-09-031
W.A.# 0-007

FIGURE 4
SEDIMENT SAMPLE LOCATIONS
LOWER LEY CREEK

Data: g:\arcviewprojects\SERAS01\00-007
MXD file: g:\arcinfoprojects\rSERAS01\SER00007_Lower_Ley_Creek\007_Sample_TotalPCBssed_Result_fXrev001
Revision Number: 001

Figure 5

Lower Ley Creek Preferred Remedy

RESPONSIVENESS SUMMARY

APPENDIX V-b

PUBLIC NOTICES PUBLISHED IN THE
SYRACUSE POST-STANDARD
ON JULY 17, 2014 AND AUGUST 12, 2014

WORLD

In Honduras: HOME AGAIN

US immigration officials send first chartered flight carrying mothers and children back

By Cindy Carcamo
Los Angeles Times

The first lady and her entourage were waiting. So were politicians, camera crews and aid workers in blue vests, ready to hand out suckers and balloons to toddlers pulled along by their frazzled mothers.

A chartered flight that landed in San Pedro Sula, Honduras, Monday was the first carrying only mothers and children deported by the U.S. as it tries to stem a wave of migration from Central America that has overwhelmed U.S. border officials. U.S. officials said there would be many more.

While Honduran officials were trying to put the best face on the process, one human rights worker termed the exodus of thousands in search of a job or safety from rampant violence, and their forced return by the United States "a great tragedy."

Critics said government inaction was largely responsible, and that the welcome in San Pedro Sula, a city sometimes called the murder capital of the world, was mostly a show. Despite the government's promise of job leads, a $500 stipend, psychological counseling and schooling, returning mother Angelica Galvez said she wasn't expecting much.

"They haven't helped me before," said Galvez, 31, who was traveling with her 6-year-old daughter Abigail. "Why should I believe them now?"

Galvez and her daughter were among the 38 Hondurans on the flight, who had been held at a U.S. detention center in Artesia, N.M. Forty people — 18 mothers, 13 girls and nine boys — had been scheduled to be on the flight, but two fell ill and didn't travel.

U.S. officials said the flight reflected their determination to stem the tide of migration. The number of women and children arriving in the U.S. from El Salvador, Guatemala and Honduras has skyrocketed in recent months, with more than 57,000 people seeking permission to remain.

U.S. officials have long been sending back adults and some children; Monday's flight was the first to carry only mothers and children. Many of those who have by headed north in recent months said that although poverty and violence pushed them to act, they had moved now because they heard that there was a new U.S. policy that made it easier for children or single women with at least one child to remain in the country.

In fact, U.S. law establishing a full legal review applies only to unaccompanied minors. But when single mothers started appearing with their children, border officials had no place to house them and released many with a "notice to appear" later.

"This is just the initial wave," said an official with the Department of Homeland Security, who added that the group was deported at the direction of President Barack Obama. "Our border is not open to illegal migration, and we will send recent illegal migrants back."

Honduras first lady Ana Garcia de Hernandez, who was at the processing center when the group arrived, has been at the forefront of the crisis, spearheading the new governmental programs that she says are aimed at improving the lives of those who are sent back and giving others a reason to stay.

"They are very sad, of course," she said of the women who arrived back in Honduras on Monday. "But we want to give them opportunities."

At the processing center about half a mile from the airport, women and children received food, medical screenings and money. Officials kept a close watch on them, cordoning them off and away from media as they boarded yet another bus for stops at a child welfare office, shelter and bus terminal.

Galvez, a single mother, said she left Honduras because she couldn't find a job.

Despite all the attention they received upon their arrival, Galvez said she didn't even receive enough money at the processing center to get her all the way home to La Ceiba — about a three-hour drive northeast of San Pedro Sula. Instead, she planned to stay the night with a family member in San Pedro Sula.

She and her daughter started their trek north on May 27 after family members told her there was a new U.S. law that gave people like her permission to enter the country. She walked, took a series of buses and paid criminals about $25 dollars to ride with her daughter on top of the infamous northbound freight train known as "La Bestia," or "the Beast."

She had no intentions of sneaking into the U.S., instead giving herself up to Border Patrol officials near McAllen, Texas, she said. She never made it to her brother's home in Dallas.

"It was a dangerous trip," she said of her journey. "I wouldn't recommend it to anyone."

But others were still trying. More Central American migrants were crossing the Suchiate River from Guatemala into Mexico on Monday, sheltering at relief centers in southern Mexico or waiting alongside railroad tracks hoping to climb aboard a train and head to the U.S.

"La Bestia" had stopped running for several days while workers repaired tracks that had been vandalized. It was expected to resume late Monday or Tuesday.

"I want to keep going," Jessica Sandoval, 30, said as she waited at a refugee shelter in Arriaga, Mexico, with her three daughters ages 2, 8 and 11. They left La Cieba, Honduras, 17 days ago and had been at the shelter for nearly a week.

She said her region of Honduras had become a living hell because of gangs, drug traffickers, political violence and a lack of jobs after numerous factories shut down.

San Pedro Sula is the second-largest city in a country with the highest homicide rate in the world. An assassin can be easily hired for $100 and people don't answer phone calls from unknown cellphone numbers, fearing it may be an extortion demand.

Some of the city's roughest neighborhoods resemble tropical ghost towns because scores of Hondurans have fled their homes and abandoned their houses because they've had enough of the violence at the hands of two of the country's most notorious gangs — Mara Salvatrucha and Barrio 18.

So far this year in San Pedro Sula, there were 594 homicides in the region in and around the city, according to the city's morgue statistics. Last year, there were a total of 778 homicides.

Hugo Ramon Maldonado, vice president for the Committee for the Protection of Human Rights in Honduras, estimates that 80 percent of the people emigrating from Honduras are fleeing some sort of criminality or violence, such as extortion threats from gangs or drug traffickers.

The government is largely to blame because it rarely goes after criminals, he said.

"Giving them 10,000 Limpiras ($500 dollars) and sending them on their way? That's not an alternative. That doesn't help," Maldonado said of the new programs.

"What I believe they are doing now is just making a political show with our returned migrants. What is happening in this country is a great tragedy."

Families arrive by bus back to San Pedro Sula, Honduras, after being deported from the United States in May. This week, others returned on the first chartered flight, as the U.S. deals with the influx of illegal immigrants. (Meridith Kohut / The New York Times)

THE U.S. ENVIRONMENTAL PROTECTION AGENCY INVITES PUBLIC COMMENT ON THE LOWER LEY CREEK SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE TOWN OF SALINA, ONONDAGA COUNTY, NEW YORK

The U.S. Environmental Protection Agency has issued a Proposed Plan for addressing contamination at the Lower Ley Creek subsite of the Onondaga Lake Superfund site and has opened a **30-day comment period** on the Proposed Plan which **ends on August 14, 2014.** As part of the public comment period, the EPA will hold a public meeting on the Proposed Plan on **July 29, 2014 at 7:00 p.m. at the Town of Salina Town Hall, 201 School Road, Liverpool, New York.**

The preferred cleanup plan outlined in the Proposed Plan for cleanup of the Lower Ley Creek site consists of excavation of contaminated creek sediment, excavation of contaminated soil located on the southern bank of the creek, excavation and capping of contaminated soil located on the northern bank of the creek, local disposal of the excavated soil and sediment with polychlorinated biphenyl (PCB) concentrations less than 50 milligrams per kilogram (mg/kg), non-local disposal of excavated sediment with PCB concentrations greater than or equal to 50 mg/kg, restoration of all of the remediated areas, development of a Site Management Plan, institutional controls and long-term monitoring.

Local disposal options under consideration include consolidation under the cap of the Town of Salina Landfill within the area controlled by the leachate collection system or in a newly constructed cell with a liner and leachate collection system on the yet-to-be capped Cooper Crouse-Hinds North Landfill (which will be closed under the State Superfund program in the near future). The specific local disposal location would be determined during the design of the cleanup. Should local disposal options be determined not to be viable, all excavated materials would be sent to an appropriate non-local facility for disposal.

The Proposed Plan and other site-related documents are available for public review at the following locations:

Salina Free Library
100 Belmont Street
Mattydale, New York 13211
315-454-4524

Town of Salina
201 School Road
Liverpool, New York 13088
315-457-2710

Atlantic States Legal Foundation
658 West Onondaga Street
Syracuse, New York 13204-3757
315-475-1170

EPA-Region II
Superfund Records Center
290 Broadway, 18th Floor
New York, New York 10007-1866
212-637-4308
Please call for an appointment

NYSDEC
Division of Env. Remediation
625 Broadway, 12th Floor
Albany, New York 12233-7016
518-402-9775
Please call for an appointment.

NYSDEC Region 7
615 Erie Boulevard West
Syracuse, New York 13204-2400
315-426-7400
Please call for an appointment.

Onondaga County Public Library
447 South Salina Street
Syracuse, New York 13202

The Proposed Plan is also available online:
http://www.epa.gov/r02earth/superfund/npl/onondagalake/index.html.

Written comments on the Proposed Plan for the Lower Ley Creek subsite should be sent (e-mailed or postmarked) no later than August 14, 2014 to: Pamela Tames, P.E., Remedial Project Manager, U.S. Environmental Protection Agency, 290 Broadway, 20th Floor, New York, New York 10007-1866, faxed to: (212) 637-3966, or e-mailed to: tames.pam@epa.gov.

0000514250-01

Miner eyeing a plan for municipal broadband

By Tim Knauss
tknauss@syracuse.com

Mayor Stephanie Miner said she is researching the possibility of building a city-owned fiber-optic network to improve access to high-speed Internet service in Syracuse.

Miner, who has expressed frustration at the lack of local broadband options, said a public network might be the best way to ensure that Syracuse has affordable, high-speed service.

"I'm putting together a plan that we can do it ourselves, as a community," Miner said.

Cities such as Chattanooga, Tenn., and Wilson, N.C., have established public networks that provide download speeds of up to 1 gigabit per second, 50 times faster than the average U.S. connection. Miner said that's the standard she is eyeing for Syracuse.

But the mayor said her administration is just beginning to research the idea, and many details would have to be worked out before a proposal could be brought forward.

"Would we have to do that in phases? What would that look like? How would we pay for it? What would the model be? Those are all things that we are currently looking at," Miner said.

Monday, Miner participated in a New York City meeting hosted by the U.S. Conference of Mayors, which has established a task force to address income inequality and to promote economic mobility and job creation in America's cities. The task force, which includes Miner and roughly 30 other mayors, has targeted broadband access as a critical factor in overcoming economic barriers facing low-income or unemployed city residents.

Chaired by New York City Mayor Bill de Blasio, the task force has pledged to promote access to high-quality pre-kindergarten education and an increase in the minimum wage. The U.S. Conference of Mayors released a report Monday saying that income inequality has grown worse since 2008, and is expected to continue.

Dozens of communities across the country have established public networks that bypass commercial Internet providers such as Time Warner Cable and Verizon, but the practice is increasingly controversial. Some states have passed laws restricting municipal broadband, on the grounds that it interferes with private commerce, and federal regulators are currently weighing whether to overturn such limits.

Contact Tim Knauss at 470-3023.

Syracuse Mayor Stephanie Miner signs the Cities Of Opportunity task force's Commitment to Action on Monday in New York City. For more on the task force's meeting, turn to Page A-13. (Provided photo)

EPA gives more time for comments on Ley Creek cleanup

The EPA will give the public another month to comment on the plan to clean up polluted Ley Creek near Onondaga Lake.

The comment period was to end Thursday, but it will be extended to Sept. 13.

Contaminated soil in and around the creek poses an "unacceptable risk" to humans and the environment, the EPA plan says. The plan calls for a combination of excavation and capping, similar to the cleanup of Onondaga Lake.

Written comments may be sent to:

Pamela Tames, P.E., Remedial Project Manager
U.S. Environmental Protection Agency, Region 2
290 Broadway, 20th Floor
New York, N.Y. 10007-1866
Fax: (212) 637-3966
Email: tames.pam@epa.gov

— Glenn Coin

No one was charged at the scene of a huge house party in Pompey on July 2, even though police called in a helicopter to help break it up. One person, the son of the homeowner, was later charged. (Provided photo, faces obscured)

Liverpool man accuses police of racial profiling

LIVERPOOL, FROM PAGE A-3

should be fired," the complaint filed with the CRB reads. "These officers should be prosecuted in criminal court."

CRB Administrator Joseph Lipari said he could not comment on individual cases. He said he investigates each complaint submitted and presents the cases to the board at an executive session. From there, complaints can ultimately result in a letter to the police chief, recommending policy changes or disciplinary action.

In the complaint, Johnson writes that he believes he was racially profiled. He said all the officers who arrested him were white, while he and the 10 others arrested after the party were all black.

Johnson compares the incident to a massive house party in Pompey, also held early in July, in which a sheriff's helicopter was used to break up the party with 500 to 700 people. In that case, the partygoers were mostly white and authorities just sent them home. (Police later charged one person.)

Connellan said that before the July 6 arrest, police had been following a large group having "flash mob" parties in the University Hill area. Connellan said the parties were a drain on police resources and a quality of life issue. He said that as time went on, partygoers had become more aggressive and there had been evidence of drug use. People also had thrown things at officers, he said.

Johnson was charged with four misdemeanors: inciting to riot, resisting arrest, second-degree riot and second-degree reckless endangerment, as well as the violation of trespassing.

Court papers state that earlier the night he was arrested, Johnson incited a riot at a party on Comstock Avenue.

"Johnson was observed picking up a rock and throwing it at a group of officers, nearly striking them," police said. Police said Johnson then fled, running north on Comstock Avenue.

Meanwhile, the group continued to stand in the middle of the road, dancing and climbing on vehicles, police said.

A neighbor of the Comstock Avenue party, who is not familiar with the men arrested, did not recall the party being excessively loud or out of control.

Ben Erwin, 32, who lives at 108 Comstock Ave., said his neighbor notified him of the party before it started.

"I've lived in this house for two or three years," Erwin said. "It wasn't the craziest party I've ever seen. No one was doing keg stands in my driveway."

An hour after police broke up the party on Comstock, some of the partygoers gathered about a mile away on Miles Avenue.

Davon Bullock Sr., who lives at 221 Miles Ave., was awakened by loud music. Police presence was warranted, he said.

"It sounded like the officers were trying to control the situation as best as they could," Bullock said.

Police said that at 2:35 a.m., Johnson and the 10 other men trespassed onto 223 Miles Avenue. (In Johnson's complaint to the CRB, he states he was on a property at 219 Miles Avenue.)

According to court papers, police said Johnson immediately resisted arrest.

Court papers, police reports and arrest records from the July 6 incident list eight police officers by their last names. Those officers' full names, found in the city's most recently available payroll, are Joel Dorchester, John Gunsalus, Shawn Kelley, William Lashomb, Joseph Mauro, Ahmad Mims, Gordon Quonce and Mark Techmanski.

Johnson said four officers used excessive force in his arrest.

In court papers, one of the officers, Joseph Mauro, provided the following account:

As the officer began to guide Johnson's left wrist behind his back, Mauro wrote, he told him he was under arrest. Johnson then said, "I didn't do anything," and pulled his left arm away, Mauro said in court papers.

Police forced Johnson to the ground to handcuff him, Mauro said in court papers. Johnson continued to pull his arm away, placing his right arm under his torso and moving his body around to free himself, the officer said. Johnson tensed his upper body and torso and kept his hands away from the officers, Mauro said in court papers.

After a brief struggle, officers forced Johnson's hands behind his back and handcuffed him, Mauro said in court papers.

In the account Johnson gives to the CRB, he writes officers used racial slurs and threatened him not to mess with city police. In all, 11 young black men between the ages of 16 and 20 were arrested early that Sunday morning.

Charged with tresspass and second-degree riot were Kenneth McFadden, 20, of Liverpool; Patrick Johnson, 20, of Liverpool; Preston Fagan, 16, of Camillus; Michael Henry, 29, of Syracuse; Jafonta Johnson, 17, of Syracuse; and Mario Franco, 20, of Syracuse.

According to Elijah Johnson, who is not related to the Patrick or Jafonta Johnson, those were the six men in the Cadillac with him.

Also facing charges were Jordan Stenson, 20, of Liverpool; Corey Gary, 18, of Syracuse; Anija-Khallil Robinson, 18, of Syracuse; and Christian Kailer, 19, of Syracuse.

Johnson said they were not with him when police approached the car.

The Post-Standard interviewed four of the men, who corroborated Johnson's claims of excessive force. They also said they believe they were arrested because of racial profiling.

Most of the men's next city court appearances, including Elijah Johnson's, are scheduled for Aug. 19.

Contact Julie McMahon at 412-1992 or by email.

RESPONSIVENESS SUMMARY

APPENDIX V-c

JULY 29, 2014 PUBLIC MEETING SIGN-IN SHEET

Lower Ley Creek Subsite,
Onondaga Lake Superfund Site

Public Meeting
7 pm, Tuesday, July 29, 2014

SIGN IN SHEET

Salina Town Hall
Liverpool, NY

First Name	Last Name	Suffix
Brendan	Pilawski	

☑ I PREFER TO GET INFORMATION VIA EMAIL

Address: Number and Street	Apartment/Unit

City	State	Zip code

Email Address: brendan.pilawski ~~@progress~~ @ progressivewaste.com

First Name	Last Name	Suffix
STEVE	MOONEY	

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Address: Number and Street	Apartment/Unit

City	State	Zip code

Email Address: STEVE.MOONEY @ OBG.COM

First Name	Last Name	Suffix
Cody	Love	

☑ I PREFER TO GET INFORMATION VIA EMAIL

Address: Number and Street	Apartment/Unit

City	State	Zip code

Email Address: Calove @ Syr.edu

First Name	Last Name	Suffix
JEFF	DAVIS	

☐ I PREFER TO GET INFORMATION VIA EMAIL

Address: Number and Street	Apartment/Unit

City	State	Zip code

Email Address: jdavis @ hblaw.com

First Name	Last Name	Suffix
Mark	Gravelding	

☐ I PREFER TO GET INFORMATION VIA EMAIL

Address: Number and Street	Apartment/Unit
6723 Towpath Rd	

City	State	Zip code
Syracuse	NY	13214

Email Address: mark.gravelding @ arcadis-us.com

Lower Ley Creek Subsite,
Onondaga Lake Superfund Site

Public Meeting
7 pm, Tuesday, July 29, 2014

SIGN IN SHEET

Salina Town Hall
Liverpool, NY

First Name	Last Name	Suffix
CHADD	GENERAL	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit	City	State	Zip code
☒	1260 SCOTTSVILLE Rd		ROCHESTER,	NY	14624

Email Address: ~~CHADDGENERAL~~ CGENERAL @ NRCC.COM

First Name	Last Name	Suffix
Ross	Getman	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit	City	State	Zip code
☒	204 Edna Rd		Syracuse	NY	13205

Email Address: @

First Name	Last Name	Suffix
Aimee	Clinkhammer	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit	City	State	Zip code
☐	202 E Yates St		East Syracuse,	NY	13035

Email Address: aimee.clinkhammer @ dec.ny.gov

First Name	Last Name	Suffix
Brittany	Hamilton	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit	City	State	Zip code
☐	443 N Franklin Rd.		Syracuse	NY	

Email Address: bhamilton @intell-group.com

First Name	Last Name	Suffix

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit	City	State	Zip code
☐					

Email Address: @

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Lower Ley Creek Subsite,
Onondaga Lake Superfund Site

Public Meeting
7 pm, Tuesday, July 29, 2014

SIGN IN SHEET

Salina Town Hall
Liverpool, NY

First Name	Last Name	Suffix
Dick	Jones	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit
☐	217 S. Salina St.	

City	State	Zip code
Syracuse	NY	13202

Email Address: richard.Jones. @ health.gov.

First Name	Last Name	Suffix
Laura ~~Mona~~	Mona	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit
☐	80 State St.	

City	State	Zip code
Albany	NY	12207

Email Address: LMona @ HBlaw.com

First Name	Last Name	Suffix
JACK	RAMSDEN	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit
☑		

City	State	Zip code

Email Address: RamsKids2go @ aol.com

First Name	Last Name	Suffix
Mark	Sergott	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit
☐	NYSDOH	

City	State	Zip code
Albany	NY	

Email Address: @

First Name	Last Name	Suffix
Mike ~~Toper~~	Toper	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit
☐		

City	State	Zip code

Email Address: @

Lower Ley Creek Subsite,
Onondaga Lake Superfund Site

Public Meeting
7 pm, Tuesday, July 29, 2014

SIGN IN SHEET

Salina Town Hall
Liverpool, NY

First Name	Last Name	Suffix
Clare	Leary	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit	City	State	Zip code
☐					

Email Address: clare.leary @ obg.com

First Name	Last Name	Suffix
Joe	Durand	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit	City	State	Zip code
☑	19 Genesee St		Camillus NU	NY	13031

Email Address: JDURAND@TDKENGINEERING@com

First Name	Last Name	Suffix
Julia	Braunmueller	Ms.

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit	City	State	Zip code
☒	6296 Fly Road		East Syracuse	NY	13057

Email Address: j.braunmueller~~@palmertongroup.com~~ @ palmertongroup.com

First Name	Last Name	Suffix
Tara	Blum	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit	City	State	Zip code
☑	7637 Stonehedge Ln.		Manlius	NY	13104

Email Address: Tara.Blum @ dec.ny.gov

First Name	Last Name	Suffix
David	Coburn	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit	City	State	Zip code
☐	Civic Center		Syracuse	NY	13202

Email Address: @

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Lower Ley Creek Subsite,
Onondaga Lake Superfund Site

Public Meeting
7 pm, Tuesday, July 29, 2014

SIGN IN SHEET

Salina Town Hall
Liverpool, NY

First Name	Last Name	Suffix
Scott	Smith	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit	City	State	Zip code
☒	5040 Clear Meadow Drive		Camillus	NY	13031

Email Address: Ssmith1201 @ twcny.rr.com

First Name	Last Name	Suffix
Michelle	Meyer	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit	City	State	Zip code
☒	658 W. Onondaga St.		Syracuse, NY		13204

Email Address: mmeyer02 @ aslf.org

First Name	Last Name	Suffix
Mike	Marrone	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit	City	State	Zip code
☑	1230 Garrett Ave		Niagara Falls	NY	14305

Email Address: MMARRONE @ SEVENSON.com

First Name	Last Name	Suffix
MARK	Nicotra	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit	City	State	Zip code
☑	201 School Rd		Liverpool	NY	13088

Email Address: MNICOTRA @ SALINA.NY.US

First Name	Last Name	Suffix
JAMES	Murphy	

I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit	City	State	Zip code
☑	10 ADLER DR		SYRACUSE	NY	13057

Email Address: JAMES.MURPHY @ PACELABS.COM

Lower Ley Creek Subsite, Onondaga Lake Superfund Site

Public Meeting
7 pm, Tuesday, July 29, 2014

SIGN IN SHEET

Salina Town Hall
Liverpool, NY

First Name	Last Name	Suffix
☐ I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit
	City / State / Zip code	
Email Address	@	

First Name	Last Name	Suffix
☐ I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit
	City / State / Zip code	
Email Address	@	

First Name	Last Name	Suffix
☐ I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit
	City / State / Zip code	
Email Address	@	

First Name	Last Name	Suffix
☐ I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit
	City / State / Zip code	
Email Address	@	

First Name	Last Name	Suffix
☐ I PREFER TO GET INFORMATION VIA EMAIL	Address: Number and Street	Apartment/Unit
	City / State / Zip code	
Email Address	@	

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Lower Ley Creek Subsite, Onondaga Lake Superfund Site

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Public Meeting
7 pm, Tuesday, July 29, 2014

Salina Town Hall
Liverpool, NY

First Name: ROBERT **Last Name:** PAANARTH **Suffix:**

☐ I PREFER TO GET INFORMATION VIA EMAIL

Address: Number and Street: 228 HAMPTON RD **Apartment/Unit:**

City: SYRACUSE **State:** NY **Zip code:** 13203

Email Address: @

First Name: WHITNEY **Last Name:** WAGNER TIME WARNER CABLE NEWS 10 **Suffix:**

☑ I PREFER TO GET INFORMATION VIA EMAIL

Address: Number and Street: 815 ERIE BLVD E. **Apartment/Unit:**

City: SYRACUSE **State:** NY **Zip code:**

Email Address: ASSIGNMENTDESK @ TWCNEWS.COM ~~[illegible]~~

First Name: **Last Name:** **Suffix:**

☐ I PREFER TO GET INFORMATION VIA EMAIL

Address: Number and Street: **Apartment/Unit:**

City: **State:** **Zip code:**

Email Address: @

First Name: **Last Name:** **Suffix:**

☐ I PREFER TO GET INFORMATION VIA EMAIL

Address: Number and Street: **Apartment/Unit:**

City: **State:** **Zip code:**

Email Address: @

First Name: **Last Name:** **Suffix:**

☐ I PREFER TO GET INFORMATION VIA EMAIL

Address: Number and Street: **Apartment/Unit:**

City: **State:** **Zip code:**

Email Address: @

Lower Ley Creek Subsite, Onondaga Lake Superfund Site

Public Meeting
7 pm, Tuesday, July 29, 2014

SIGN IN SHEET

Salina Town Hall
Liverpool, NY

First Name	Last Name	Suffix
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Lower Ley Creek Subsite, Onondaga Lake Superfund Site

SIGN IN SHEET

Public Meeting
7 pm, Tuesday, July 29, 2014

Salina Town Hall
Liverpool, NY

First Name	Last Name	Suffix
Kevin	Murphy	

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Lower Ley Creek Subsite,
Onondaga Lake Superfund Site

Public Meeting
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RESPONSIVENESS SUMMARY

APPENDIX V-d

JULY 29, 2014 PUBLIC MEETING TRANSCRIPT

0001

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

LOWER LEY CREEK SUBSITE
of
ONONDAGA LAKE SUPERFUND SITE,

PUBLIC HEARING in the above matter, conducted at the Salina Town Hall office, 201 School Road, Liverpool, New York before, JOHN F. DRURY, CSR, RPR, Notary Public in and for the State of New York, on July 29, 2014 at 7:00 p.m.

APPEARANCES FROM EPA:

PAMELA TAMES   Remedial Project Manager
EPA 290 Broadway 20th Floor
New York, New York 10007-1866
tames.pam@epa.gov.

JOEL SINGERMAN,   Chief CNY Remedial Section
singerman.joel@epa.gov

LARISA ROMANOWSKI   Citizen Affairs Involvement Coordinator

ALSO PRESENT:

ROBERT NUNES   EPA Remedial Project Manager
RICK MUSTICO   DEC Project Manager
MARK SERGOTT   NYS Dept of Health

0002

INDEX TO PRESENTERS

INDEX TO PUBLIC SPEAKERS

0003

Romanowski

MS. ROMANOWSKI: I think we're going to go ahead and get started. First I'd just like to welcome everyone for coming out tonight. My name is Larisa Romanowski, I'm a Public Affairs Specialist with the US Environmental Protection Agency. I'm joined tonight by a couple of my colleagues from EPA. Pam Tames, who is our Remedial Project Manager for the Lower Ley Creek website is here tonight. In addition, we have Joel Singerman, who is Chief of our Special New York Remediation Section.

The purpose of the meeting tonight is really for us to have an opportunity to present to you the EPA's proposed cleanup plan for the Lower Ley Creek area of the Onondaga Lake Superfund site.

The proposed plan, the actual document some of you actually picked up earlier, the plan itself was released to the public earlier in the month. And there is a public comment period that's underway, and that comment period

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Romanowski

actually goes until August 14th of 2014. So there are a couple more weeks of the public comment period. Public input is a really important component of EPA's decision-making process at a Superfund site, so we really appreciate your presence here and participation.

First a couple things I want to make note of as far as public comments. I do have an Information Sheet at the front of the room, it does give you an opportunity of the various ways you can submit a comment. The perfect opportunity is actually here tonight. At the end of the meeting after our presentation there is going to be an opportunity for you to either ask a question or present a comment right after the meeting. So certainly that's one opportunity.

In addition if you don't, if you prefer not to speak you always have the opportunity to submit something in writing. And again, like I said, you

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Romanowski

have until August 14th to do that. We do have comment sheets at the back of the room, so if you would prefer just to write down a comment or a question and submit it to us at the end of the meeting that's perfectly fine too. We have a lot of ways to do that, and again our information is all written down at the back of the room, such as contact information by e-mail, mail or also by fax. Those are different ways that you

can submit comments to us.
Just want to mention that John here, he is our stenographer (court reporter), and he's going to be transcribing the meeting tonight. It's really important for us to be able to capture your comments so that those comments can be considered before a final decision is made on the project. So he'll be making note of everything that we're discussing tonight. And again, there is an opportunity to speak at the end of the night and he'll be capturing those
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Romanowski
comments.
I do want to also just mention that in the final decision document when EPA makes our decision about what is going to happen there is a document that's prepared called a Record Of Decision. In that Record of Decision there will be a section that's called the responsiveness summary. So even if you do not present a comment or question tonight all of the comments that are received are going to be captured in that responsiveness summary that's included in that final decision document. So those will all be summarized there as well.
So what I'd like to do next is just briefly go over the agenda for our presentation tonight. Okay, so first Joel is going that start us off by talking a little bit about the Superfund process for site investigation and cleanup. That will give you an overview of the Superfund process and some of the
0007
Romanowski
various steps that are involved.
Next, Pam will take us through site background and history, kind of bring everyone up to speed on where we are, how we arrived here, and what the issues are with the contamination of the site. Next she'll discuss the site investigation results, the development of cleanup options and then the proposed cleanup plan. Exactly what EPA is proposing to address the contamination of the site.
And lastly we'll have an opportunity for questions and answers at the end. So I would just ask that everyone hold any questions that you have until that time. So without further adieu I'm going to go ahead and pass things over to Joel who will get us started.
MR. SINGERMAN: Several well publicized toxic waste disposal disasters in the late 1970s shocked the

nation and highlighted the fact that past waste disposal practices were not

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Singerman

safe.

In 1980, Congress responded with the creation of the Comprehensive Environmental Response, Compensation and Liability Act, more commonly known as Superfund. The Superfund law provided a federal fund to be used in the cleanup of uncontrolled and abandoned hazardous waste sites, and for responding to emergencies involving hazardous substances.

In addition, EPA was empowered to compel those parties that are responsible for these sites to pay for or to conduct the necessary response actions. The work to remediate a site is usually very complex and takes place in a number of stages. Once a site is discovered, an inspection further identifies the hazards and contaminants.

A determination is then made whether to include the site on the Superfund National Priorities List, a list of the nation's worst hazardous sites. Sites

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Singerman

are placed on the National Priorities List primarily on the basis of their scores obtained from the hazard ranking system, which evaluates the threat posed by a site. Only sites on the National Priorities List are eligible for remedial work financed by Superfund.

The selection of a remedy for a Superfund site is based on two studies: A remedial investigation and a feasibility study. The purpose of the remedial investigation is to determine the nature and extent of the contamination at and emanating from the site and the associated risks to public health and the environment.

The purpose of the feasibility study is to identify and evaluate ways to clean up the site. However, participation is a key feature of the Superfund process. The public is invited to participate in the decisions that will be made at a site through the Community relations Program. Public

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Singerman

meetings such as this one are held, as necessary, to keep the public informed about what has happened and what is planned for the site. The public is also given the opportunity to ask questions about the results of the investigations and studies conducted at the site and to comment on the proposed remedy.

After considering public comments on the proposed remedy a Record of Decision is signed. A Record Of Decision, documents why a particular remedy was chosen. The site then enters the design phase, where the plans associated with the implementation of the selected remedy are developed.

The remedial action is the actual hands-on work associated with cleaning up the site. Following the completion of the remedial action, the site is monitored, if necessary. Once the site no lodger poses a threat to public health or the environment it can be

0011

Tames

deleted from the Superfund National Priorities List.

I will now ask Pam to come up to talk about the site.

MS. TAMES: Thank you all for joining us today. The Onondaga Lake Superfund site, and it has 11 sub-sites. Lower Ley Creek right over here is one of the sites. The other 10, if you have any questions about them we'll be able to answer at the very end.

Next slide, please. All right, this slide is a little dark but let me point out some of the features of Lower Ley Creek. It's the lower two miles of Ley Creek starting from Route 11 over here heading all the way down to the lake. Here's I-81, the lake, here's Crouse Hinds landfill, Town of Salina landfill, and we have another sub-site right next door, which is Inland Fisher Guide, this is the old GM plant right here, which was the start of much of the contamination that we're finding at

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Tames

Lower Ley Creek.

So it's surrounded by landfills, floodplains over here and on both sides, and industrial areas. And the creek flows into the lake. And the sediment in the creek varies in depth from a half a foot down to 8 feet. And the water depth at Route 11 is about 2 feet and it gets deeper towards the lake to about 10 feet.

Next slide, please. Here one view from 7th North Street. And this is from Park Street. Next, here is a little bit of a site history. The waste disposal practices at several industries located near the creek and its branches contributed to the current condition. I mentioned GM, which was a major contributor of PCBs.

Poor channel conditions caused extensive flooding of Ley Creek back in the '60s. I don't know if, some of you might have been living around here then. And so therefore in the 1970s Onondaga

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Tames

widened and deepened the creek and the creek was also rerouted through the Salina landfill. Dredge materials from that widening and deepening were then spread on undeveloped areas adjacent to the creek.

Here we have on the left, we have the original configuration of Ley Creek. And this area, these are residential homes over here. This area had extensive flooding and the creek went down into the dog legs before it went across to the lake. On the right you can see the realignment of the creek. This now goes through Salina landfill instead of going around.

This area over here is what we're now calling old Ley Creek channel. It's not connected to this part of the creek anymore, but it is connected over this side and it was never widened or deepened or touched, so it remained contaminated.

The blue areas are the floodplains.

0014

Tames

So when you have a big storm, when you have your spring thaws, these are the areas that flood. This is the wetland area that's right next to the creek. And here is another wetland area.

So starting in 2009 right after the site became a sub-site we started our investigative work. We sampled the sediment, the soil, the surface water and we also collected fish all along the 2 mile length of the creek. What we found were that the primary contaminants were PCBs. We also found polycyclic aromatic hydrocarbons, also known as PAHs, and a number of metals.

We then looked at the risk to people and to the environment, to wildlife. We took the levels of contaminants that we found and we plugged it into different, to adults, to children, we analyzed how they could possibly be exposed.

So the first thing we did was we took a number of samples. So first, this is the sediment, we took 32 samples

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Tames

at 32 locations all along the creek. We sampled to 2 feet deep. Any samples that were contaminated at the bottom of the 2 feet we went back and we took deeper samples down to 10 feet. So the first round was 32 locations, then we went back and we did an additional 7 locations down to 10 feet. The highest levels of PCBs in the sediment were 315 milligrams/kilograms. And that was found up here by the Salina landfill. We also found metals, we found mercury, cadmium, nickel, chromium and we also found some PAHs.

This is, we did diver assisted sampling where necessary in the creek. That's the picture on the left. And we did our sample processing outdoors. Every sample that was collected we looked to see if it was sediment, if it was clay, what we found. And then the sample was taken and sent to the lab.

Then we also did the soil. We weren't exactly sure where the sediment

0016

Tames

had been spread back in the '70s, we had a good idea. So we instituted a grid, a sampling plan. And all those yellow dots that you see are all our soil sample locations. There were 53 locations all along, south and on the northern bank.

Areas, you know, the Salina landfill we didn't sample because it's been sampled as part of the Salina sub-site. Same with Crouse Hinds landfill, that's already been sampled. And places that were, where a building had been standing back in the '70s, we knew they weren't going to spread contaminated -- or spread the soil, the sediment next to the building.

Next slide please. These are the locations where the soil was sampled for old Ley Creek. So here is the rerouted section of Ley Creek. And Ley Creek, old Ley Creek channel goes down this way, this blue line; and then we sampled on both sides. This area over here is

0017

Tames

part of the Salina landfill, it has since been excavated and consolidated with the other half, with the rest of the landfill.

So as I said we did a risk assessment. We looked at the potential exposures to children and adults to the soil, to the sediment and the surface water. We looked at how they could become in contact with these materials, by skin contact, if they drink the water, you know, with sediment in it or eat contaminated fish and wildlife. And we found that PCBs were the primary risk agent for these pathways. Other risks. There were other risks because of total chromium and arsenic exposure due to fish ingestion and PAHs due to the skin exposure.

We also looked at risk to wildlife. There are certain mammals that eat a lot of fish. And they are a lot smaller so that when they eat fish it doesn't take as much of a contaminant level to

0018

Tames

contaminate or affect the wildlife. We found there was also a risk to burrowing mammals from contaminants in the soil.

So we came up with a number of different cleanup options. With every plan that we do there is also a No Action option. The next alternative we looked at was the excavation of contaminated soils on both the northern and southern creek banks and the wetland area with either local disposal or non-local disposal.

Possible locations for local disposal that we have looked at are the Town of Salina landfill and the Crouse Hinds northern landfill. So at the Salina landfill, if we put our materials there, it would be where the leachate collection system is operational. And at the Crouse Hinds landfill, if we put our materials there, we would be building a cell with a leachate collection system.

The third alternative is excavation

0019

Tames

of the wetland area and capping of contaminated soils on the northern and southern creek banks, also with local or non-local disposal. The capping on the southern creek bank would also include some excavation, because if we just put material over everything we would lose floodplains in the area, and we wanted to keep the floodplains capacity the same.

Then we looked at the sediment, possible sediment options. Just like with the soils we have a No Action alternative where we don't do anything.

Our Sed-2 alternative is monitored natural recovery where there is no actual construction but we monitor, we see what is happening in the system, if clean sedimenting is covering over the contaminated sediment that is there.

Sed-3, we excavate all the contaminated soil and -- sediment rather with local or non-local disposal. And alternative Sed-4 is excavation and

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Tames

placement of a granular material sediment cap with local or non-local disposal.

Now, for the fourth alternative, because the creek is so shallow, if we just went in and placed the cap over the contaminated materials you wouldn't have a creek anymore. It would be just land, it would fill in the creek because the creek is very shallow. So in order to keep the creek flowing we would have to excavate to the depth of our cap and then put the cap back in to maintain at least 2 feet of water in the creek.

Each of the alternatives that we have are evaluated. There are nine different criteria. The first criteria is overall protection of human health and the environment. The second one is compliance with applicable or relevant and appropriate requirements at federal laws, state laws. The third, long term effectiveness and permanence. We want to make sure that whatever we're

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Tames

spending our money on will last.

Reduction of toxicity, mobility and volume we want to reduce and if possible eliminate the contamination that we find. Short term effectiveness. We would like to see everything cleaned up quickly.

Implementability. We have to be able to do the plan that we come up with. Sometimes things, you know, certain different alternatives fell out in our screening just because it would not work at this site. We look at cost. We look at state acceptance and community acceptance and that's why you're here tonight.

So we came up with our proposal, and New York State concurs with us. So we are looking at alternative S-2 for soil cleanup and Sed-3 for sediment cleanup. Which means we will excavate the PCB contaminated soils on the northern and southern creek banks in the wetland areas. The wetlands will be restored.

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Tames

We will also excavate the PCB contaminated sediment. We will use either local or non-local disposal. And there will be long term monitoring.

So you can see on this slide, this is old Ley Creek channel and the southern banks. Here is the old Ley Creek area and these are the excavation areas. So in some of these there are a couple of hot spots, some of these areas are deeper than others. Most of the areas will be excavated at least 2 feet. Here on this, this area is this blown up. Here we have some other areas that also require some excavation.

Next slide. These are the areas on the northern bank that will require excavation. This is by I-81. Here's another area up here, and up on this side.

The sediment excavation areas vary depending on how much contamination we found in the creek. The excavation will be as deep as 8 feet, which is over in

0023

Tames

this area over here, down to, this is one foot of excavation. It's much cleaner down at this end than up at this end.

The cost. So we estimated the cost, we have a range based on whether the materials will be disposed of locally or at an off-site distant landfill. So for soil cleanup it's 9.8 to 18.8 million. Sediment cleanup 7 and-a-half to 16 million. And the annual operations, maintenance and monitoring for local disposal it's about $61,000, $62,000 a year. And for off-site disposal it's $40,000 a year. It goes down for off-site because the tipping fee for off-site landfills includes their long term maintenance and monitoring of their landfill. So when you add everything up, the present worth is between 18 and 35 and-a-half million.

I noticed that a lot of you picked up a copy of the proposed plan. We also have the remedial investigation, so you

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Tames

can see details of the samples, the sample analysis. And all our maps are in our remedial investigation feasibility study. And we have, we put them online for you. We also have a number of local information repositories that you can view. Everyone was sent a disc so you can go to the libraries and look at your leisure.

As Larisa said earlier, the public comment period will end on August 14th. You can write me a letter with your comments, you can send me an e-mail, you can fax me your comments or you can give your comments here tonight.

Now we have questions. We have other people available to answer questions about other parts of the Onondaga Lake site also.

MR. SINGERMAN: Just note a couple things. The remedy that Pam described is the preferred remedy. We won't make a decision until after the comment period closes. And as I mentioned

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Tames

earlier it will be documented in the document called Record Of Decision. We hope to make that decision probably before the end of September.

MS. ROMANOWSKI: Thank you, Pam. So again, in just a minute here what we're going to do is open it up for comments and questions. What I'm going to ask is that if everybody could just, I'll ask everybody to come up one at a time. If you can indicate your interest in coming up here to say something just by raising your hand I'll call people up individually.

What I am going to ask for the purposes of our stenographer (court reporter) is that when you do come up before you make a statement if you could just say your name, state your name, and if you wouldn't mind also spelling your last name out for us so that we make sure he captures your name and comments accurately. So without further adieu I think if anyone has a comment or

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Papworth

question, just go ahead and raise your hand and let me know and we'll start bringing people up.

ROBERT PAPWORTH: My name is Bob Papworth. I'm a trustee for the Nature Conservancy in Central and Western New York, and I've been watching this unfold with a great deal of interest. If you look at the record of the Onondaga Lake Superfund site going back about 20 years you will not find any evidence that plastic gasification technology has been investigated or considered for any aspect of the overall program; all 12 sites. And this particular site with all the water involved is a particular challenging topic because of mixture and sand and chemicals.

If you did plasma gasification, you want to try to avoid vitrifying the sand you would have a huge mass of gasified sand. So the trick is to try to clean the sand without destroying it. And that requires treatment in the lower

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Papworth

temperature probably less than a thousand degrees Farenheit. I do not know whether that type of temperature would be able to destroy the particular items that you've identified here.

However, it's not difficult to get

on the Internet and develop a list of a dozen plasma gasification vendors working here in North America. I might mention that along side the whole Onondaga Lake issue there is the county incinerator issue producing toxic ash. That toxic ash is eminently treatable with plasma gasification as well. So it's a dual need here, more than a dual need if going forward with the capacity of county OCRRA operation, which now includes Cortland County and the Ley Creek site, the site on the other side of the lake as well as wast beds 1 through 8, which is the core of the whole problem. And the new waste beds that have been created to receive the bottom material from the lake.

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Papworth

This is not intended as criticism by the way, I think Honeywell has done a lot of good work and it's been very expensive. The tasks they have done has been necessary to do. They cleaned up the bottom of the lake or in the process of it and they've driven a wall down the western side to stop the water from percolating in the lake. So those are all good steps to be taken.

Within the last thirty days the city of Hamilton Ontario, a city of about 550,000 people committed to a plasma gasification system to treat their entire municipal solid waste problem. I think the cost of that system is about $34 million, and coming from a company in Britain.

There are a number of American companies in the business in Europe and in Asia. The reason for that for example, in Japan toxic landfills are not permitted, so they have to find ways to clean things up. Britain has levied

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Papworth

a tax on landfills to discourage landfills, and landfills are prohibited in a number of European countries. So plasma gasification has taken off in Europe and Asia much more than here in the United States. There are a number of sites in the United States however, so it is growing in usage.

Now I realize that investigating a plasma gasification alternative here will throw a monkey wrench into the time schedule that you've outlined, which is pretty tight. I've been working on it for a number of years. I don't know what can be done to explore this option at this point. But I would be one personally to contribute my time and effort to put into it to help the EPA and the state Brownfields program.

By the way I do not know of a single instance in which New York State Brownfields program has ever employed the plasma gasification anywhere in the state. So if we bring it off here in

0030

Braunmueller

Onondaga County we would be the first in the state and set a precedent throughout the state and the country. Thank you.

MS. ROMANOWSKI: Anyone else like an opportunity to ask a question or make a comment? Okay.

JULIA BRAUNMUELLER: Good evening, my name is Julia BraunMueller. Just like to read a quick statement. The proposed plan for Lower Ley Creek states that the remediation of Upper Ley Creek would need to occur before Lower Ley Creek to prevent the potential for recontamination. The consistency of the cleanup approaches for Upper Ley Creek and Lower Ley Creek is a really important issue.

Currently no information is publically available on what steps the EPA and the DEC may be taking to coordinate the remedies for both Lower Ley Creek and Upper Ley Creek. Interested parties should be provided with this information before asked to

0031

Turner

make judgments about the remediation plan now being proposed by the EPA for this site. Furthermore, this knowledge of both remediation plans will allow interested parties to make better informed comments which would tend to increase the efficiency and reduce the overall environmental footprint with both sites and the cleanup of Ley Creek.

As a result the public comment period should, for the Lower Ley Creek should be extended until the proposed plan for Upper Ley Creek is relieved to allow this side by side review. Thanks.

MS. ROMANOWSKI: Thank you. Is there anyone else?

JESSIE TURNER: My name is Jes Turner, I'm a student at SUNY Environmental Engineering. I actually agree with the two people before me. I think that there does need to be more research on this topic. Because as the woman before me said, we're not really sure exactly what the plan is to move

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Singerman

the sediment from the Lower Ley Creek. It sounds like there is a lot of contaminated sediment. And if it's 10 feet below the surface that would require removal of a lot of material.

And then moving it around would create more contaminants that are in highly populated areas. So I think that there should be also an extended period of time for people to respond and come up with more ideas on what they want to happen to their home town. Thank you.

MR. SINGERMAN: Just to respond to a couple things. Regarding the plasma gasification, we didn't look into that because we had a problem with metals. We didn't really think that plasma would really work with metals.

Regarding the issue regarding the fact there is two independent investigations underway, EPA and DEC have been coordinating both efforts. And just because the Lower Ley Creek is moving a little more quickly than the

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Singerman

Upper Ley Creek doesn't mean that you have to wait to see what, you know, to coordinate the two, because we're both coordinating. There is certain regulations, as Pam mentioned earlier, there are certain regulations that apply, we have to comply with, and that regulation applies to both Upper and Lower. So the cleanup levels that would be applied to both would be the same. Just how you do it.

We had some discussion and we realize that the Upper part has to be done first because basically you do things upstream first before you do downstream. But the thing is that we believe that this is a better way to do it because of the fact that first of all, we have the work that's been done in the Upper Ley Creek, that would most likely, the decision perhaps would be made in the very near future. But that has, that enforcement agreement is already in place to cover all that work.

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Singerman

Whereas in our situation we have to negotiate with the parties responsible, which may take several months. So ultimately all the work will be performed in a consistent manner, you know, basically probably starting, maybe even perhaps make sense to use the same contractor to do all the work.

But again, we don't see it as, and also there is only certain things that can be done. Capping, natural recovery, as Pam mentioned, dredging, excavation. So really the options are basically essentially the same range of options for both the Upper and Lower. So we don't really see, you know, no real advantage gained by delaying the selection remedy here, because this way we select the remedy and we can start the negotiation process and hopefully have a design in place so that when the design for the Upper is completed basically all can be done at one time.

ROBERT PAPWORTH: Have you actually

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Romanowski

talked to plasma vendors who actually told you they couldn't handle the metal?

MR. SINGERMAN: No, we haven't.

ROBERT PAPWORTH: I'm not an expert on it but I would certainly investigate it.

MS. ROMANOWSKI: Anyone else comment or question? No. All right, well again I certainly would like to thank everyone for coming out tonight. Again, you know your feedback is very valuable to us for this process. Reminder, if anyone has a thought after this meeting, something that comes to mind, again that comment period is open until August 14th. So there are comment sheets at the back of the room if you would like to write something down and give it to us before you leave, that's great. If not you'll have other opportunities to go ahead and submit that to Pam either by fax, e-mail or by postal mail. So thank you again for coming out tonight, have a great evening.

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Romanowski

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C E R T I F I C A T E

This is to certify that I am a Certified Shorthand Reporter and Notary Public in and for the State of New York, that I attended and reported the above entitled proceedings, that I have compared the foregoing with my original minutes taken therein and that it is a true and correct transcript thereof and all of the proceedings had therein.

____
John F. Drury, CSR, RPR

Dated: July 30, 2014

RESPONSIVENESS SUMMARY

APPENDIX V-e

LETTER REQUESTING AN EXTENSION TO THE COMMENT PERIOD

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July 28, 2014

VIA FEDERAL EXPRESS

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Assistant Regional Counsel
New York/Caribbean Superfund Branch
Office of Regional Counsel, EPA Region 2
290 Broadway, 17th Floor
New York, New York 10007-1866

Pamela Tames, P.E.
Remedial Project Manager
Central New York Remediation Section
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, New York 10007-1866

Re: Lower Ley Creek Subsite, Onondaga Lake Superfund Site, Onondaga County, New York

Dear Ms. Charney and Ms. Tames:

We are writing on behalf of four companies (Carrier Corporation; Cooper Crouse-Hinds LLC; Syracuse China Company; and Niagara Mohawk Power Company, d/b/a National Grid, collectively referred to as the "Companies") who along with certain other parties have thus far received notice of potential liability letters from U.S. EPA relating to the captioned Superfund Subsite. This letter is in regard to the Proposed Plan which EPA issued earlier this month for the Lower Ley Creek Subsite.

The Companies intend to submit written comments to EPA regarding the Proposed Plan for the Lower Ley Creek Subsite. However, because the manner in which the upstream source of contamination to Lower Ley Creek (i.e., the Upper Ley Creek Subsite) is proposed to be remediated will have a direct impact on the manner of Lower Ley Creek's remediation, the comment period for the Proposed Plan for Lower Ley Creek should only close after the Proposed Plan for the Upper Ley Creek Subsite is released by the New York State Department of Environmental Conservation. Moreover, given that the Remedial Investigation/ Feasibility Study and related documents supporting the Proposed Plan for the Lower Ley Creek Subsite were just publicly released by EPA, it is not feasible for the Companies to prepare written comments by the August 14, 2014 deadline set by EPA.

For these reasons, the Companies request, pursuant to 40 C.F.R. 300.430(f)(3)(C), that EPA extend the public comment period for responding to the Proposed Plan for Lower Ley Creek for ninety (90) days, provided that the Proposed Plan for Upper Ley Creek is released within the next sixty (60) days. In the event the Proposed Plan for Upper Ley Creek is not released within the next sixty (60) days, the EPA should extend the public comment period for the Lower Ley Creek Subsite accordingly. This will allow the Companies to have a reasonable opportunity to provide comments to the Proposed Plan, as required under the National Contingency Plan. Thank you for your consideration of this request.

Very truly yours,

EASTMAN & SMITH LTD.

David W. Nunn

David W. Nunn

DWN/sk
cc: Counsel for Companies

RESPONSIVENESS SUMMARY

APPENDIX V-f

LETTERS RECEIVED DURING THE COMMENT PERIOD

Gary P. Gengel
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September 11, 2014

VIA FEDEX & E-MAIL

Pamela Tames, P.E.
Remedial Project Manager
Central New York Remediation Section
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

File No. 042990-0034

Re: Cooper Crouse-Hinds, LLC Technical Comments on Proposed Plan for Lower Ley Creek

Dear Ms. Tames:

Solely on behalf of Cooper Crouse-Hinds, LLC ("Cooper"), we submit these comments to the U.S. Environmental Protection Agency's ("USEPA") Proposed Plan, issued on July 15, 2014, for the Lower Ley Creek Subsite of the Onondaga Lake Superfund Site ("Site"). In addition to our comments below, we also join the comments of the *De Minimis* Companies (Cooper, Carrier Corporation, Syracuse China Company, and Niagara Mohawk Company d/b/a National Grid), submitted on September 11, 2014. Cooper reserves the right to rely on and use the public comments submitted on the Proposed Plan by any other person.

First, the Proposed Plan states on page 22 that the Cooper North Landfill has "contributed to the contamination of Lower Ley Creek." However, USEPA has previously concluded that Cooper's North and South Landfills are *not* a source of contaminants to Lower Ley Creek. Indeed, on page 2 of its June 28, 2012 "Determination to Not Take Superfund Action" (Exhibit 1), USEPA stated that "there is no identified pathway for Site-related contamination to migrate from either the Crouse-Hinds North and South Landfills or the Mathews Avenue Landfill areas of concern to Onondaga Lake." Given that Ley Creek is a direct tributary to Onondaga Lake, we conclude that EPA's determination that there is no identified pathway between the Cooper landfills and Onondaga Lake extends to Ley Creek as well. Therefore, we believe the statement on page 22 is inaccurate and request that EPA remove any statements indicating that either of the Cooper landfills is a source of contaminants to Ley Creek.

Second, with respect to the discussion of local disposal options where the Cooper North Landfill option is referred to as a "newly constructed cell" (p. 11), we would like to clarify that any newly constructed cell at the North Landfill would be on top of existing or reconsolidated wastes and sediments that was authorized and approved as part of Cooper's August 29, 2011 RD/RA Consent Order with the New York State Department of Environmental Conservation ("NYSDEC") (Index No. R7-0666-05-11, Site No. 7-34-004), not a new cell in an area with no underlying waste.

Third, we request that USEPA provide an itemized financial update to the public as to the RI/FS costs incurred to date by USEPA and the NYSDEC, and an itemized accounting of the remaining funds in escrow (including any accumulated interest) from the General Motors bankruptcy settlement. This should include all of the regulatory and administrative oversight costs for this project.

Fourth, with respect to the cost estimates we provided to USEPA on July 3, 2014 for use of the Cooper North Landfill as the local disposal site, we would like to attach an updated table of capital and O&M costs for the North Landfill reflecting the dredge volume estimates provided in the Proposed Plan (Exhibit 2).

Finally, we request that USEPA correct an error in the GPS coordinates for USEPA sample points LLCD-27 and LLCD-31, which appear on certain USEPA figures as being located on Cooper's North Landfill. See, for example, Figure 2.6 from the Lower Ley Creek Remedial Investigation Report (attached as Exhibit 3). Because USEPA has never conducted any sampling on Cooper property, we believe LLCD-27 and LLCD-31 were, in fact, taken on the neighboring Plaza East property and therefore the sample location indicators on the North Landfill must be the result of an error in the GPS coordinates on file.

Please include this letter in the administrative record for the Proposed Plan. Thank you for your consideration.

Sincerely,

Gary P. Gengel

Gary P. Gengel
LATHAM & WATKINS LLP

Enclosures

cc: Davon M. Collins, Esq. (Latham) (via email)
William V. Shaklee, Esq. (Eaton/CC-H) (via email)
Nelson M. Olavarria (Eaton/CC-H) (via email)

EXHIBIT 1

NYSDEC DETERMINATION NOT TO TAKE SUPERFUND ACTION

DETERMINATION TO NOT TAKE SUPERFUND ACTION

Crouse-Hinds Landfills
and Mathews Avenue Landfill
Onondaga Lake Areas of Concern

United States Environmental Protection Agency
Region II
New York, New York
June 2012

DETERMINATION TO NOT TAKE SUPERFUND ACTION

Introduction

Following the development of the Hazard Ranking System[1] scoring package and the listing of the Onondaga Lake Superfund Site on the National Priorities List, investigations at areas of concern determined the boundaries of the Onondaga Lake Superfund Site to be Onondaga Lake and any tributaries or upland areas that contribute or have contributed contamination to Onondaga Lake. These boundaries of the Superfund Site were memorialized through the decision and enforcement documents subsequently issued for the Onondaga Lake Superfund Site.

Currently, twelve areas of concern have been determined to be part of the Onondaga Lake Superfund Site. By this document, the Environmental Protection Agency (EPA) is documenting its determination to not take federal Superfund action at two other areas, which were evaluated, but are not included in the twelve areas of concern noted above. These two areas of concern are the Crouse-Hinds North and South Landfills and the Mathews Avenue Landfill (see Appendix I, Figure, attached hereto, for the location of the areas of concern).

Because there is no identified pathway for Site-related contamination to migrate from either the Crouse-Hinds North and South Landfills or the Mathews Avenue Landfill areas of concern to Onondaga Lake, no action is required under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C.§9601, *et seq.* The fact that no Superfund response action is anticipated regarding these areas of concern does not in any way affect any future potential Natural Resource Damages (NRD) claims. In addition, this determination does not preclude New York State or the NRD Trustee Council from taking actions at these areas under their authorities, as appropriate.

Crouse-Hinds North and South Landfills

The Crouse-Hinds North and South Landfills area of concern consists of two adjacent, uncovered, inactive landfills—the 21.5-acre North Landfill and the 19.4-acre South Landfill. The North Landfill is located in the Town of Salina and the South Landfill is located in the City of Syracuse. The landfills are separated by Seventh North Street and are located in an area that includes light industrial and commercial usage. Ley Creek, a tributary of Onondaga Lake, flows from north to south, west of the area of concern. The North Landfill is separated from Ley Creek by undeveloped property owned by Plaza East, LLC. The western boundary of the South Landfill is adjacent to Ley Creek.

---

1 The Hazard Ranking System, a numerically-based screening system that uses information from initial, limited investigations to assess the relative potential of sites to pose a threat to human health or the environment, is the principal mechanism EPA uses to place uncontrolled hazardous waste sites on the National Priorities List.

South Landfill will be submitted for review by Fall 2012 and that the design for the North Landfill will be submitted by mid-2013. The hot spot excavation work in the North Landfill is planned for fall 2012.

Mathews Avenue Landfill

The unlined Mathew's Avenue Landfill was formerly a construction/demolition debris disposal area used by AlliedSignal (predecessor to Honeywell International Inc. or Honeywell). The area of concern consists of the landfill and an adjacent ponded/wetland area located north of the landfill and south of the Erie Canal.

Limited investigations by Blasland and Bouck involving the excavation of test pits were completed in 1989 and 1990. Mercury and chlorinated benzene compounds were detected in soil samples collected from the test pits. Mercury and other contaminants, including chlorinated benzenes, other volatile organic compounds, PCBs, and lead, were also detected in sediment samples collected by NYSDEC in 1996 and 1997. A PSA was performed at the area of concern in 2002 and 2003. Results of the PSA demonstrate elevated levels of volatile organic compounds (*e.g.*, chlorobenzene), semi-volatile organic compounds (*e.g.*, naphthalene, dichlorobenzenes, phenols, and polyaromatic hydrocarbons), PCBs, and metals (*e.g.*, chromium, copper, lead, mercury, nickel, and zinc). During the PSA investigation, Allen-Moore diaphragm cells (and possibly mercury cells), which are associated with the Chlor-Alkali process (which was employed at AlliedSignal's LCP/Bridge Street and Willis Avenue plants), were detected in the landfill. Honeywell-related contaminants (mercury and chlorinated benzenes) have been detected in landfill soils, surface water, and sediments located in the ponded/wetland area and a swale that is immediately adjacent to the landfill. Sampling results show that there is sediment and surface water contamination at the site, but there are no off-site impacts. Specifically, mercury concentrations in sediment and surface water are elevated in the drainage swale adjacent to the area of concern and south of the Erie Canal that discharges to Geddes Brook; however, contaminant concentrations in the swale decrease as the distance from the landfill increases. In the groundwater, vinyl chloride, trichloroethylene, and tetrachloroethylene have been detected in some deep wells located in the vicinity of and downgradient of the landfill, however, the contamination is limited in areal extent and dissipates to levels that are below groundwater standards or to non-detect levels. Mercury concentrations in Geddes Brook downstream of the landfill (and upstream of where the West Flume, a man-made stream, discharges to Geddes Brook) are below NYSDEC's Lowest Effect Levels[2] for sediment. In addition, mercury was not detected in surface water samples in this portion of the brook.

Although the landfill is located upgradient of Geddes Brook, the results of sediment samples from the brook indicate that contaminants have not migrated to it. Specifically,

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2 Lowest Effect Level is a level of sediment contamination that can be tolerated by the majority of benthic organisms.

An unknown quantity of foundry sand from the adjacent Crouse-Hinds manufacturing facility was disposed of in the North Landfill from the mid-1950s through 1972. From 1972 through approximately 1979, the North Landfill was used for the disposal of approximately 85 cubic yards per day of industrial wastes, including foundry sand, floor sweepings, metal buffing, polishing residue, scrap lumber, plastic wastes, and paint scrapings from the Crouse-Hinds facility. Zinc hydroxide sludge was deposited in the landfill between 1972 and 1980. From 1980 to 1983, approximately 40 cubic yards per day of industrial waste, including foundry sand and core butts were disposed of in the landfill from the facility. The North Landfill has been inactive since 1989. From 1960 to 1969, the South Landfill accepted a combination of municipal solid waste from the City of Syracuse and industrial waste from the Crouse-Hinds facility. The industrial waste consisted of foundry molds, core sand, scrap steel drums, fly ash, paint scrapings, garbage, and construction and demolition debris. Approximately 2,000 cubic yards per week of municipal solid waste from the City of Syracuse were accepted at the landfill from 1960 to 1963. The South Landfill has been inactive since 1969. In 1984, the two landfills were listed as a "Class 3" New York State Inactive Hazardous Waste Disposal Site (Site No. 7-34-004) pursuant to New York State Environmental Conservation Law.

Investigations at the landfills conducted in the 1980s by the New York State Department of Environmental Conservation (NYSDEC) indicated that site-related contaminants had migrated to Ley Creek. Specifically, cyanide and phenol were detected in the surface water of Ley Creek adjacent to and downstream of the landfills at concentrations exceeding their respective surface water standards. In addition, cyanide was detected in Ley Creek sediments near the landfills at that time. A 2004 Preliminary Site Assessment (PSA) and a 2006 Supplemental Site Assessment (SSA) were conducted by Crouse-Hinds under NYSDEC oversight. The PSA/SSA, which consisted of test pit excavations to aid in the determination of the horizontal and vertical extent of fill in the landfills, collection and analysis of soil/waste samples from the test pits, surface soil sampling and analysis, groundwater and leachate sampling and analysis, drainage channel and Ley Creek sediment and surface water sampling and analysis, and wetlands delineation indicated that landfill-related contaminants were either not detected or were not detected above upstream concentrations in Ley Creek. While there may be a minor threat of release to the tributary, the PSA and SSA indicate that the landfills do not appear to be a threat to Onondaga Lake.

A remedial investigation was completed in August 2009 and a feasibility study was completed in April 2010. On February 4, 2011, NYSDEC released a Proposed Remedial Action Plan, proposing a remedy for the landfills. A public meeting was held on February 17, 2011. A remedy was selected by NYSDEC on March 31, 2011. The major features of the selected remedy include excavation and off-site disposal of three hot spots in the North Landfill, consolidation of waste within both the North and South Landfills to protect surface water and wetlands, excavation and proper disposal of PCB-contaminated wetland sediments, and placement of engineered caps over both landfills. A work plan outlining the tasks that need to be performed to design and construct the selected remedy was approved by NYSDEC on April 26, 2012. It is anticipated that the design for the contaminants detected in the landfill and an adjacent swale which discharges to Geddes Brook were not elevated in the portion of Geddes Brook located between where the swale discharges to Geddes Brook and the West Flume. While surface soil may be eroded as a result of surface water runoff, and could potentially migrate off-site, surface soil migration through the drainage swales is unlikely due to the presence of dense vegetation in the swales.

Currently, the site is being used only for limited activities. The Village of Solvay Public Works uses a small portion of the site south of the landfilled area for the storage of equipment and yard waste (mulch). Solvay Electric utilizes the property to access the electric substation situated in the south-central portion of the property. A remediation plan to support the redevelopment of the property is currently being prepared by 301 Belle Isle Road LLC, a developer, under NYSDEC's Brownfield Cleanup Program[3].

Supporting Documentation

Documentation in support of this determination includes the following:

Crouse-Hinds North and South Landfills

- *Hydrogeologic Investigation*, Empire, 1983
- *Phase I Report, Engineering Investigations and Evaluations at Inactive Hazardous Waste Disposal Sites, Crouse-Hinds*, Dames & Moore, 1983
- *Site Summary Report*, TAMS Consultants, Inc., 1998
- *Preliminary Site Assessment*, InteGreyted, 2004
- *Supplemental Site Assessment Report*, Delta, 2006

Mathews Avenue Landfill

- *Mathews Avenue Preliminary Site Assessment Report*, O'Brien & Gere, April 2007
- *Remedial Action Work Plan, Parcel A, Mathews Avenue Site Development*, O'Brien & Gere, October 2010
- *Joint Application for Permit, Mathews Avenue Site Development*, O'Brien & Gere, October 2010
- *Stormwater Pollution Prevention Plan, Mathews Avenue Site Development*, O'Brien & Gere, October 2010
- *Stormwater Management Plan, Mathews Avenue Site Development*, O'Brien & Gere, October 2010

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3 The Brownfield Cleanup Program spurs private-sector cleanup, redevelopment, and reuse of contaminated properties.

Highlights of Community Participation

On March 15, 2012, EPA published a notice in the *Syracuse Post-Standard* announcing the commencement of a 30-day public comment period on its March 2012 *Notice of U.S. Environmental Protection Agency's Determination to Not Take Superfund Action at Crouse-Hinds Landfills and Mathews Avenue Landfill Areas of Concern.* The Notice of Determination provided the basis for EPA's decision to not take Superfund action at the Crouse-Hinds North and South Landfills and the Mathews Avenue Landfill areas of concern. The Notice of Determination, as well as documents in support of this document, was made available to the public in five local repositories and on EPA's website for a 30-day comment period which concluded on April 14, 2012.

As part of the consultation process, a draft *Notice of U.S. Environmental Protection Agency's Determination to Not Take Superfund Action at Crouse-Hinds Landfills and Mathews Avenue Landfill Onondaga Lake Areas of Concern* was provided to the Onondaga Nation. In response to comments on the draft document from the Onondaga Nation, a modification was made to the Notice and a written response was provided to the Nation on March 5, 2012. The Onondaga Nation reissued its comment letter on May 3, 2012. See Appendix II, attached hereto, for the Onondaga Nation's comment letters and EPA's response.

Authorizing Signature

Based on the foregoing, EPA, with NYSDEC's concurrence, has concluded that no federal Superfund response actions are required relating to the Onondaga Lake Superfund Site at the Crouse-Hinds Landfills and Mathews Avenue Landfill areas of concern. Both areas of concern are being or will be addressed under state authorities. The fact that no federal Superfund response action is anticipated regarding these areas of concern does not in any way affect what is considered to be the Onondaga Lake Superfund Site for the purpose of future potential NRD actions, nor does it affect Superfund action taken or to be taken in other areas of concern at the Onondaga Lake Superfund Site.

Pursuant to CERCLA requirements, the Onondaga Lake Bottom Site remedy will be reviewed not less than once every five years (beginning August 2015) to ensure that it remains protective of human health and the environment. This review, which will be summarized in a "Five-Year Review Report," will be based upon an evaluation of the results from monitoring of the remedy.

[signature] June 28, 2012

Walter E. Mugdan, Director — Date
Emergency and Remedial Response Division

APPENDIX I
FIGURE

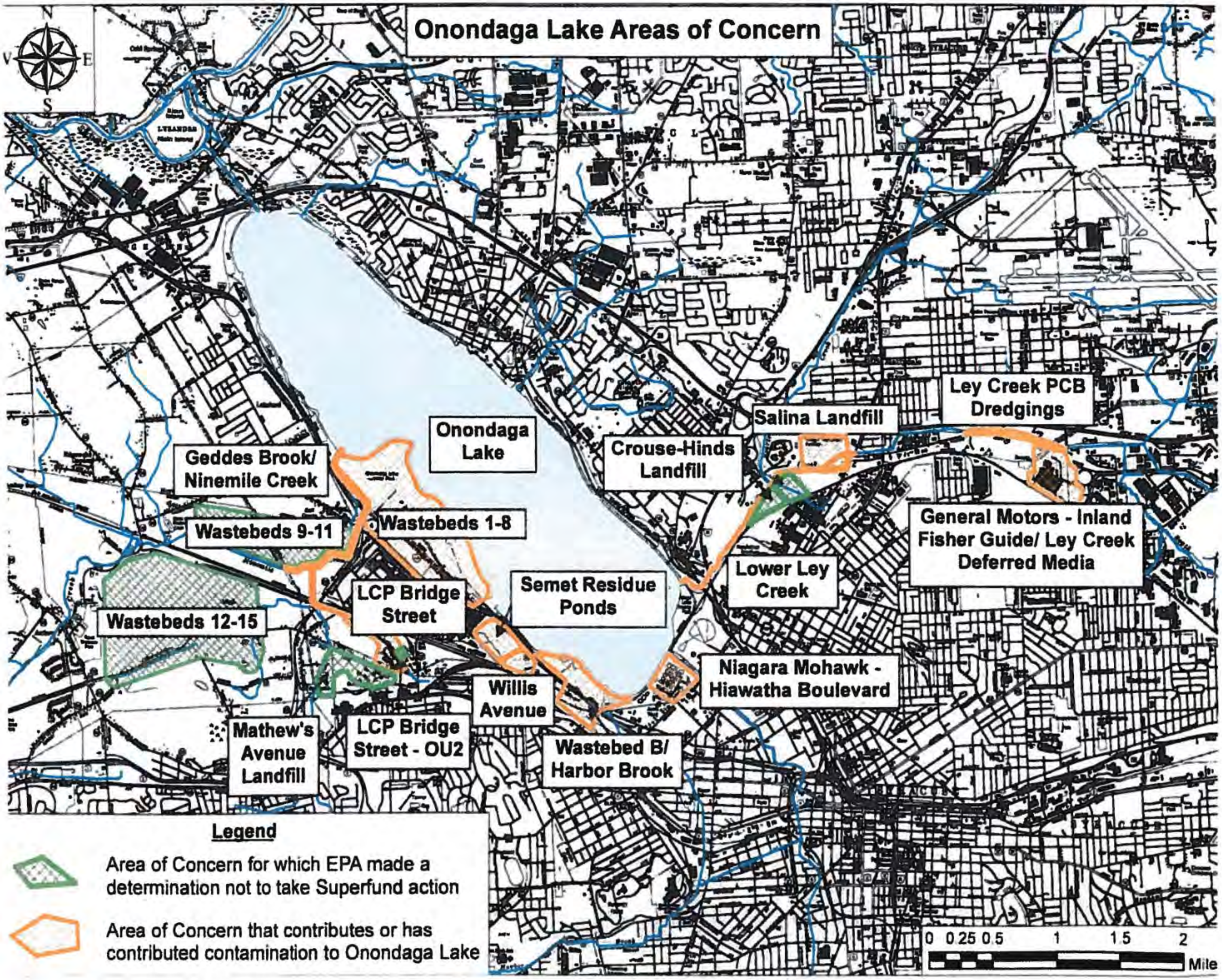

Onondaga Lake Areas of Concern
Onondaga Lake
Geddes Brook/ Ninemile Creek
Wastebeds 9-11
Wastebeds 1-8
Wastebeds 12-15
LCP Bridge Street
Semet Residue Ponds
Crouse-Hinds Landfill
Salina Landfill
Ley Creek PCB Dredgings
General Motors - Inland Fisher Guide/ Ley Creek Deferred Media
Lower Ley Creek
Niagara Mohawk - Hiawatha Boulevard
Willis Avenue
Wastebed B/ Harbor Brook
Mathew's Avenue Landfill
LCP Bridge Street - OU2
Legend
Area of Concern for which EPA made a determination not to take Superfund action
Area of Concern that contributes or has contributed contamination to Onondaga Lake
0 0.25 0.5 1 1.5 2 Miles

EXHIBIT 2

ADDENDUM TO COOPER LOCAL DISPOSAL COST ESTIMATES

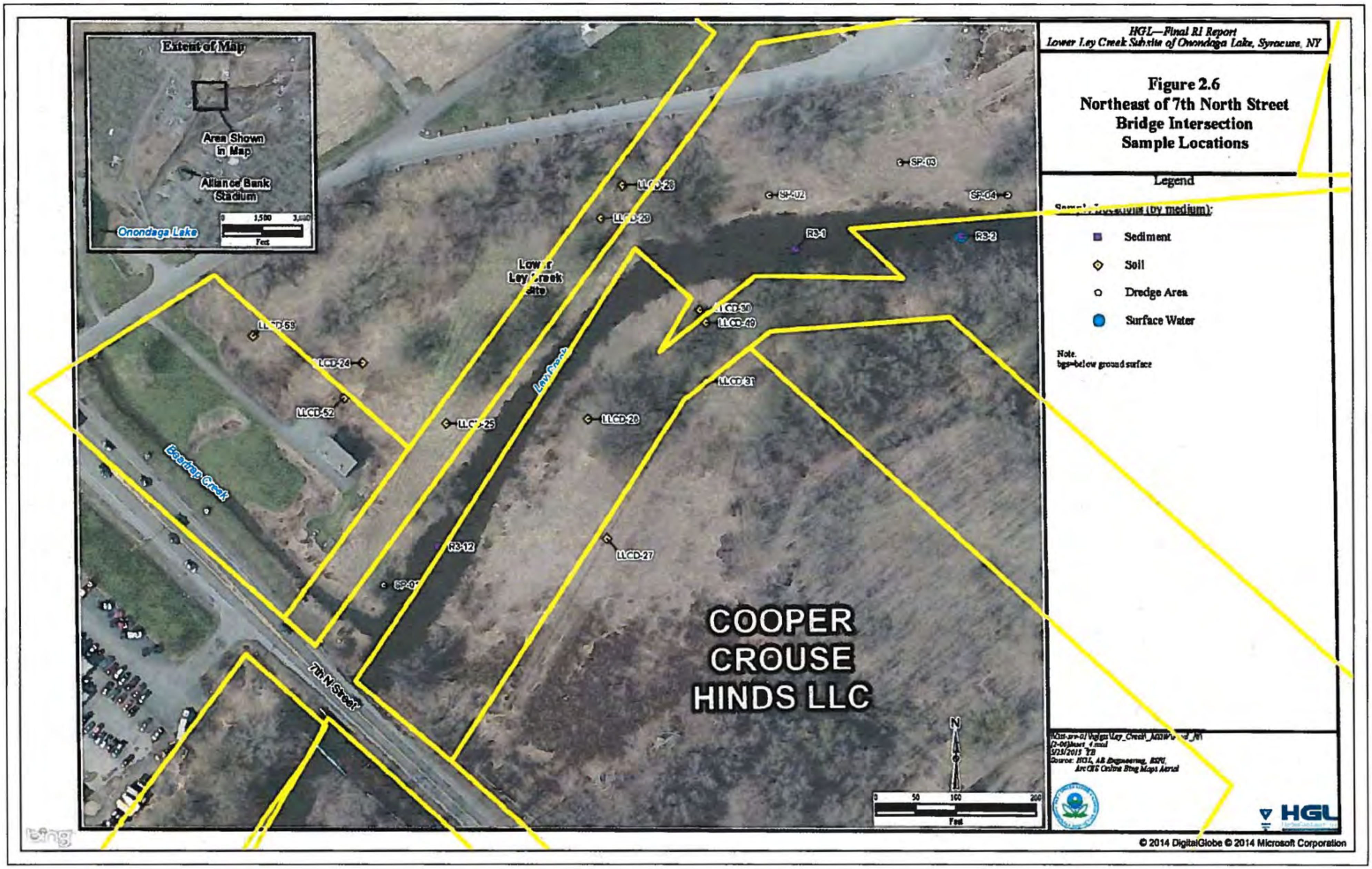
CC-H North Landfill Ley Creek O&MM Cost Estimate

ANNUAL OM&M COSTS - NORTH CC-H LANDFILL	Rate	Units	Quantity	Extension
Groundwater Sampling	$1,000	Event	4	$4,000
Surface Water Sampling	$750	Event	4	$3,000
Methane Gas Monitoring	$500	Event	4	$2,000
Cap & Fence Repairs	$4,000	Annual	1	$4,000
Mowing	$2,500	Lot	1	$2,500
Wetlands Replanting	$1,250	Annual	1	$1,250
Annual Progress Report	$5,000	Annual	1	$5,000
Annual Cost Total				$21,750
Net Present Worth (30 Years and 1.68% Discount Rate[1])				$509,255
Leachate collection, sampling, disposal	$25,000	Lot	2	$50,000
Total OM&M Costs				$559,255
50% for C-H and 50% for Lower Ley Creek				**$279,628**

[1] Average of 2008 - 2014 Superfund Interest Rates

EXHIBIT 3

FIGURE 2.6 FROM LOWER LEY CREEK REMEDIAL INVESTIGATION REPORT



HGL—Final RI Report
Lower Ley Creek Subsite of Onondaga Lake, Syracuse, NY
Figure 2.6
Northeast of 7th North Street
Bridge Intersection
Sample Locations
Legend
Sediment
Soil
Dredge Area
Surface Water
Note.
bgs=below ground surface
Extent of Map
Area Shown in Map
Alliance Bank Stadium
Onondaga Lake
1,500
Feet
Lower Ley Creek Site
Ley Creek
Beartrap Creek
7th N Street
COOPER CROUSE HINDS LLC
LLCD-28
LLCD-29
LLCD-30
LLCD-49
LLCD-31
LLCD-26
LLCD-27
LLCD-53
LLCD-24
LLCD-52
RS-1
RS-2
RS-12
SP-02
SP-03
SP-04
N
0
50
100
200
Feet
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Tames, Pam

From: Caleb Laieski <caleb_m_laieski@yahoo.com>
Sent: Tuesday, August 12, 2014 3:27 PM
To: Tames, Pam
Cc: gov.cuomo@chamber.state.ny.us; mayor@ci.syracuse.ny.us; R2 Web Inquiry; Enck, Judith; Matthews, Joan; LaPosta, Dore
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Ms. Tames,

I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water.

Thank you for your time and all you do,

Caleb Laieski

ATLANTIC STATES
LEGAL FOUNDATION, INC.

Lower Ley Creek
Subsite of the Onondaga Lake Superfund Site
Town of Salina, Onondaga County, New York

Atlantic States Legal Foundation, Inc., PRAP comments
11 August 2014

Atlantic States Legal Foundation, Inc. appreciates this opportunity to comment on the proposed PRAP for the Lower Ley Creek subsite of the Onondaga Lake Superfund Site. Our comments, which follow, should be incorporated into the record being prepared for the agency to draft a final ROD for this site. Do not hesitate to contact us if further clarification of our comments is needed.

Before giving our suggestions for the final action, we wish to put on record a number of more general comments that pertain to this site and to the process.

<u>Availability of documents</u>

For all practical purposes the public has been excluded from viewing any of the important technical studies and reports for this site. We at ASLF are a repository library, but only received a CD with said documents shortly before the public hearing held on 29 July 2014. We also realize that the documents are on-line on the US EPA website. For all previous subsites of the Onondaga Lake Superfund Site we have received hard copies of reports when they were issued. We were able to read and assimilate the detailed materials and the public was likewise able to come to our office. The current approach of dumping all materials into repositories and onto the web in one operation effectively eliminates any possibility of their being read. We urge, despite the extra trees that might have to be sacrificed, that paper copies of all reports be made available as previously.

The Congressional mandate to US EPA requires that different alternative remedies be compared as to their initial capital cost and their full life cycle costs. However, in addition to a monetary comparison, it would be extremely useful if the different remedies also stated the energy costs (in BTUs or other appropriate units of measurement). This is especially true today when we are deeply concerned with overall carbon emissions.

This subsite is one of a number of subsites that could be called the Ley Creek Watershed cluster. Although we realize that different teams are working on the different subsites, the public needs to better understand how these are being coordinated. Perhaps they are technically independent of one another and thus can be so evaluated, but we are skeptical and would appreciate a further discussion of how they all are being considered beyond what appears in the site history part of the PRAP.

658 West Onondaga St. Syracuse, NY 13204-3711 (315) 475-1170 FAX (315) 475-6719 Atlantic.States@aslf.org

Finally, we are concerned that US EPA has apparently completely neglected the Congressional intent upon reauthorizing the Comprehensive Environmental Response, Compensation and Liability Act that superfund sites are not meant to be permanent repositories of hazardous waste, but that sites should be cleaned up and made available for re-use. Perhaps there are materials that cannot be destroyed or otherwise made harmless to people and the environment. If that is the case then such an analysis should be included in the PRAP. Bear in mind that we are not asking for, nor do we want, transport of the wastes to another location for permanent storage. We are looking at remedies that involve treatment and re-use of the site. Finally, these sites located close to or in a city are valuable real estate that should be available for re-development. That ultimate value should be considered in looking at remedial options.

<u>Site specific comments</u>

We are skeptical of the analysis of risk for those eating fish from Ley Creek. We realize that much of the land in question is "private" and therefore officially off-limits to fisher people. However, we know both anecdotally and from discussion at other subsite meetings that people still fish this creek. In addition, the analysis does not look at the highest risk consumer, namely those immigrants and refugees, particularly those from Southeast Asia, who depend on fish for a significant part of their diet and who might be fishing in Ley Creek. ASLF with funding from various sources including US EPA has been trying to: evaluate who is eating the fish, communicate better with non-English language fish eaters, and supply better advisories and warnings. Currently, the New York State Department of Health is beginning another study (funded by ATSDR) to determine fish consumption from the overall Onondaga Lake Basin and their input should be sought before US EPA attempts to quantify risk in determining remediation strategies for this subsite.

We agree with Congress that the end point of remediation should not be permanent storage piles, or landfills, containing hazardous contaminants. Enough work and practical experience has shown that PCBs can be bio-remediated. This can be through active means or just through attenuation. The physical arrangements of the materials can influence half-lives. Also, studies have shown that the mycorrhizal associations with the native Black mulberry (*Morus nigra)* include bacteria that breaks down PCBs. And of course there are other methods being used around the world to destroy PCBs in soil. None of these alternatives seems to even have been considered and therefore it is impossible to evaluate their feasibility in this situation. Methods also exist to deal with soil metal contaminants either by treatment and removal or else by immobilization techniques. Again this is neither mentioned nor discussed.

Much of lower Ley Creek was once wetland. Public money through the enforcement of *Atlantic States Legal Foundation and New York State vs. Onondaga County* as well as the clean-up being undertaken by Honeywell (and volunteer clean-up by Lockheed Martin) will result in an Onondaga Lake that will be swimmable and with time, fishable. Through the assessment of natural resource damages and implementing restoration-like projects, habitat in the Onondaga Lake Basin should be "improved." The successful restoration of native fish species (and associated lower organisms) requires spawning habitat and that requires better and littoral habitats and restored wetlands. Most of the lower Ley Creek acreage was wetlands that were subsequently filled by various dumping programs. We have previously been ignored in recommending wetland restoration, but that aside, it should be a significant part of removing current adverse effects of these contaminants to human health and the environment.

HISCOCK & BARCLAY LLP

Jeffrey W. Davis
Partner

September 12, 2014

VIA ELECTRONIC MAIL
&VIA UPS OVERNIGHT MAIL

Pamela Tames, P.E.
Remedial Project Manager
Central New York Remediation Section
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, New York 10007-1866

Re: Lower Ley Creek Subsite, Onondaga Lake Superfund Site, Town of Salina, Onondaga County, New York

Dear Ms. Tames:

Niagara Mohawk Power Corporation d/b/a National Grid ("National Grid") submits the enclosed comments regarding the U.S. Environmental Protection Agency's ("EPA") Proposed Plan for Lower Ley Creek, Subsite of the Onondaga Lake Superfund Site, dated July 2014. The purpose of National Grid's comments is to correct factual errors and to ensure that EPA's remedy accommodates the continued safe, uninterrupted operation of National Grid's electric and natural gas facilities located in the Lower Ley Creek Subsite project boundary.

These comments are submitted solely on behalf of National Grid, and are in addition to comments submitted by the "De Minimis Companies" Group, of which National Grid is a member. National Grid reserves the right to rely on and use the public comments submitted by any other person on the Proposed Plan and supporting documents.

National Grid is available to meet with EPA and its technical consultants to discuss its concerns and enclosed comments in further detail.

Very truly yours,

Jeffrey W. Davis
Counsel for National Grid

JWD:lm
Enclosure

NIAGARA MOHAWK POWER CORPORATION D/B/A NATIONAL GRID'S ("NATIONAL GRID") COMMENTS REGARDING THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY'S PROPOSED PLAN FOR THE REMEDIATION OF LOWER LEY CREEK, SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE

September 12, 2014

<u>SITE DESCRIPTION – PAGE 2, ¶3</u>

1. The U.S. Environmental Protection Agency's ("EPA") July 2014 Proposed Plan for the Lower Ley Creek Subsite (the "Site") of the Onondaga Lake Superfund Site ("Proposed Plan") incorrectly states that "[t]wo large, buried natural gas and oil pipelines owned by National Grid run parallel to the northern bank of the Creek . . . ." *Proposed Plan* at 2, ¶3. National Grid does not own or operate oil pipelines within the Site boundary. National Grid's ownership is limited to a subsurface natural gas pipeline ("Natural Gas Pipeline 50") and overhead electric transmission, subtransmission and distribution lines which it operates on fee-owned parcels within the Site boundary, as illustrated on the attached Drawings at **<u>Exhibit A</u>**.

National Grid respectfully requests that all references to National Grid's ownership of "oil pipelines" be deleted from the Proposed Plan.

<u>PREFERRED REMEDY – PAGE 20; FIGURES 3 AND 5</u>

2. National Grid's Natural Gas Pipeline 50, overhead electric transmission facilities and ancillary structures are located within the Proposed Plan's "Soil Site Boundary," the areas designated for soil excavation. *Proposed Plan* at 20, Figures 3 and 5. The Proposed Plan,

remedial design and remedial action should address and accommodate National Grid's continued safe, reliable, and uninterrupted operation of these facilities.

3. EPA's Proposed Plan contemplates installation of a permeable subsurface demarcation layer and a one-foot soil cap for areas on the northern bank of the Creek in proximity to the subsurface natural gas pipeline. *Proposed Plan* at 20. However, installation of a cap and demarcation layer over Natural Gas Pipeline 50 presents safety concerns, including the potential for migration of natural gas and an increased risk for fire and explosion. Installation of a cap and demarcation layer also presents long-term technical and feasibility issues in the event of pipeline replacement or repair. As such, National Grid cannot permit capping within the Natural Gas Pipeline 50 corridor. National Grid expects that surface soils located within the Natural Gas Pipeline 50 corridor that do not meet the Soil Cleanup Objectives will be excavated and immediately backfilled, thereby obviating the need for a cap over the Pipeline. National Grid supports the use of a soil cap in all other areas of the upland floodplains, but cannot allow a cap over the Natural Gas Pipeline 50 corridor. See National Grid's Comments #4, #5, and #6 for specific requirements for Natural Gas Pipeline 50.

4. Data from the Remedial Investigation Report indicates that within the Natural Gas Pipeline 50 corridor, contamination is present only in surface soils in the zero (0) to two (2) foot interval. Soil at depths below the two (2) foot interval meets the subsurface Soil Cleanup Objectives listed in the Proposed Plan. In light of this information, the remedy should include excavation of soils to a depth of two (2) feet in areas designated for soil removal within the Pipeline 50 corridor. Lateral excavation should extend to a twenty (20) foot clean zone around

the pipeline, as discussed below. Excavated areas should be immediately backfilled to maintain pipeline protection. Backfill material must meet National Grid specifications. Backfill elevations within the Natural Gas Pipeline 50 corridor should match that of abutting areas to maintain a consistent grade.

5. The following ***minimum*** requirements must be met with regard to any field activities to be performed within National Grid's Natural Gas Pipeline 50 corridor. Field activities must be approved by National Grid prior to commencement.

a. Final construction drawings must be submitted and approved by National Grid one hundred and twenty (120) days in advance of any field activities.

b. Extreme caution must be taken when working in the general vicinity of the Natural Gas Pipeline 50 corridor. When excavating within two (2) feet of the pipeline, the pipeline shall be physically located by hand in order to protect the pipe and its coating.

c. Random travel across the pipeline in grass areas with heavy equipment and loaded trucks is not permitted. Travel across the pipeline shall be confined to designated crossing areas designed and stamped by a New York State certified Professional Engineer.

d. Extreme care shall be taken to avoid damage to natural gas witness posts, test stations, and other related natural gas facilities. Any damage of such facilities shall be reported to National Grid immediately.

e. Blasting, if any, will not be permitted near or on the Natural Gas Pipeline 50 corridor without the advanced, written approval of the Regional Gas Superintendent or the Manager of System Gas Engineering at National Grid.

f. Notice must be provided to National Grid, via Dig Safely NY, a minimum of two (2) weeks prior to the scheduled activity date for any subsurface activities within the Natural Gas Pipeline 50 corridor.

6. The remedial design should require that a clean zone (*i.e.* soil meets Soil Cleanup Objectives) be maintained around Natural Gas Pipeline 50. To ensure a clean zone is established, the lateral extent of excavation should be a minimum of twenty (20) feet within the Natural Gas Pipeline 50 corridor (at least ten (10) feet on either side of the pipeline).

7. National Grid recommends incorporating hand-driven test holes during the pre-design investigation to verify depths of the Natural Gas Pipeline 50, determine whether contaminated soil abuts the pipeline, and compile data necessary to determine the minimum requirements for a clean zone around the pipeline.

8. National Grid requests that it be given the opportunity to review and comment on (i) the removal of abutting, subsurface contaminated soil within the Natural Gas Pipeline 50 corridor, (ii) any Natural Gas Pipeline 50 crossing locations, (iii) specifications for replacement fill material and, (iv) compaction requirements for backfilling adjacent to, around, and over the gas pipeline.

9. In the event that relocation of any of National Grid's electric or natural gas facilities is necessary to accommodate any aspect of the Site remedy, all costs associated with

such relocation will be reimbursable to National Grid by the party(ies) performing the remedy. Any relocation design costs must be pre-paid by the party(ies) performing the remedy to National Grid. National Grid will provide relocation cost estimates (including design costs) prior to any relocation work. Following the completion of any relocation work, a reconciliation will be completed by National Grid based on actual costs.

10. As previously stated, National Grid must be fully compensated should any of its facilities require relocation because of the Site remedy.

11. An access agreement with National Grid will be required prior to performing any field activities around National Grid's facilities.

12. During the Site's remedial design and construction field work, National Grid must have uninhibited ingress and egress at all times to its gas and electric facilities for operation, maintenance and emergency purposes.

13. After the Site's remedial construction has been implemented, National Grid must have uninhibited ingress and egress to access its gas and electric facilities to ensure safe, uninterrupted operation and service to its customers. This would include, at a minimum, the ability to excavate around the gas pipeline, and below and around the electric transmission and subtransmission facilities, and the ability to operate equipment. Accordingly, to avoid damage to any soil capped areas, heavy duty access roads must be incorporated into the remedial design to allow access for the equipment necessary for operation, maintenance, repair and/or replacement of gas and/or electric facility components.

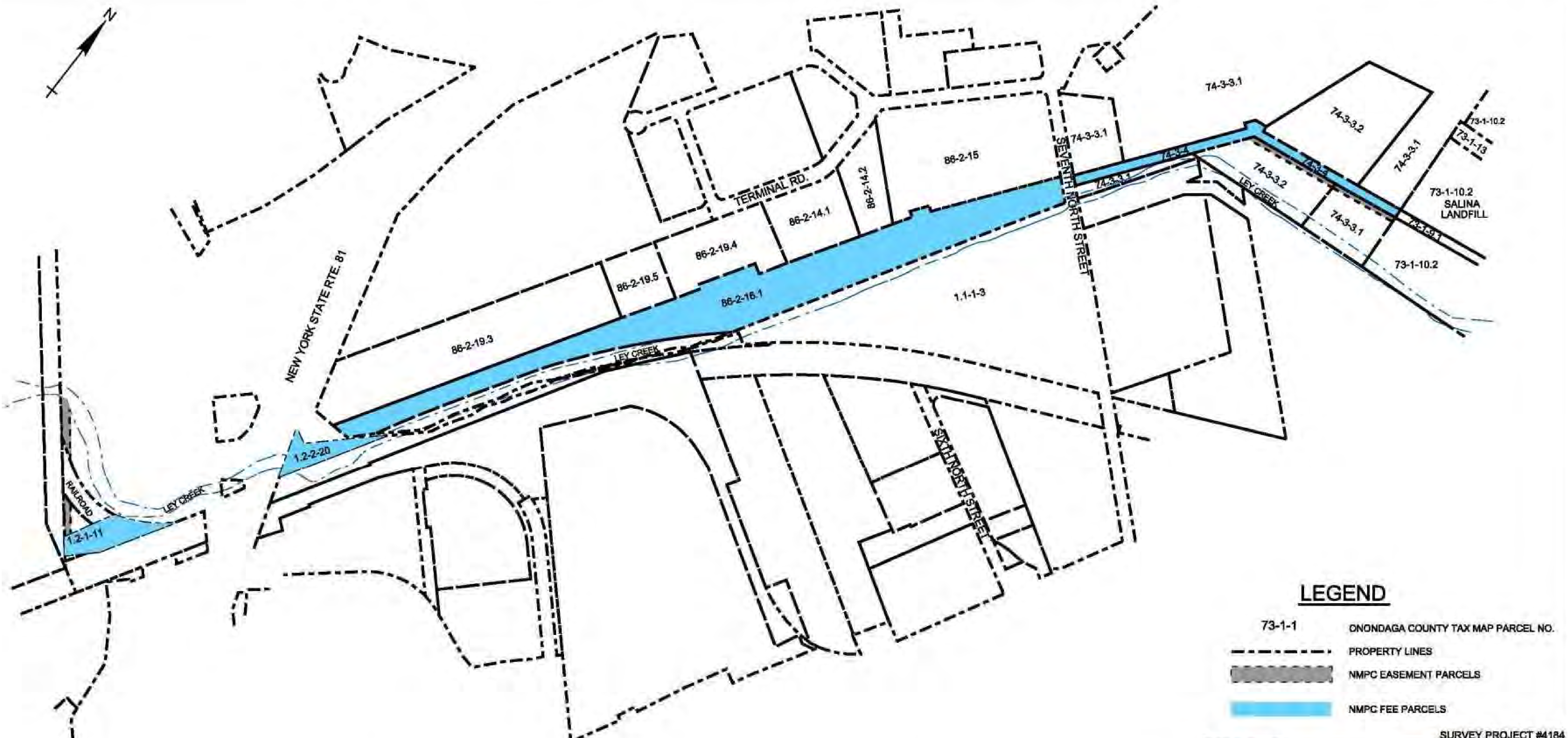
14. All remedial work within the vicinity of the National Grid transmission, subtransmission and distribution lines, must comply with the attached **Exhibit B** "Engineering Document, Conditions for Proposed Activities Within Transmission Line Rights-of-Way."

15. Any capping to be performed under the National Grid transmission, subtransmission and distribution lines cannot result in a violation of minimum clearance requirements between the ground and the electrical line(s) taking into account current line sag and potential future line sag resulting from upgrades to the National Grid transmission system.

16. These comments are submitted solely on behalf of National Grid. Additional comments on the EPA Proposed Plan and supporting documents are being submitted on behalf of the "De Minimis Companies" Group, of which National Grid is a member.

Exhibit A

Property Drawings



NOTE

THE INFORMATION SHOWN HEREON WAS COMPILED FROM HISTORICAL INFORMATION AND REAL PROPERTY TAX MAPS, IT WAS NOT DERIVED FROM AN ACTUAL GROUND SURVEY, THEREFORE, PARCEL ACREAGES AND LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY.

ACREAGE

TOTAL NMPC ACREAGE FOR FEE PARCELS=18.62± ACRES

TOTAL NMPC ACREAGE FOR EASEMENT PARCELS=0.86± ACRES

PREPARED BY

nationalgrid

SKETCH MAP SHOWING
NATIONAL GRID PROPERTY INTERESTS
BETWEEN THE SALINA LANDFILL AREA
AND ONONDAGA LAKE

DES.	DR. EWH	CK. EWD	DATE: 06/29/10	SCALE: 1"=500'
REV. 2				INDEX: 8.2-W4-M5
REV. 1	ADDED NOTES AND EXPANDED MAP		07/28/10	NO. B-59587-C

SHEET 1 OF 1

PROFILE

Scale: Horiz.: 1" = 50'
Vert.: 1" = 5'

REVISIONS
6-1-72
8-20-71

ONONDAGA COUNTY DEPARTMENT OF PUBLIC WORKS
DIVISION OF DRAINAGE & SANITATION

CONTRACT NO. 2

BEAR TRAP – LEY CREEK DRAINAGE DISTRICT

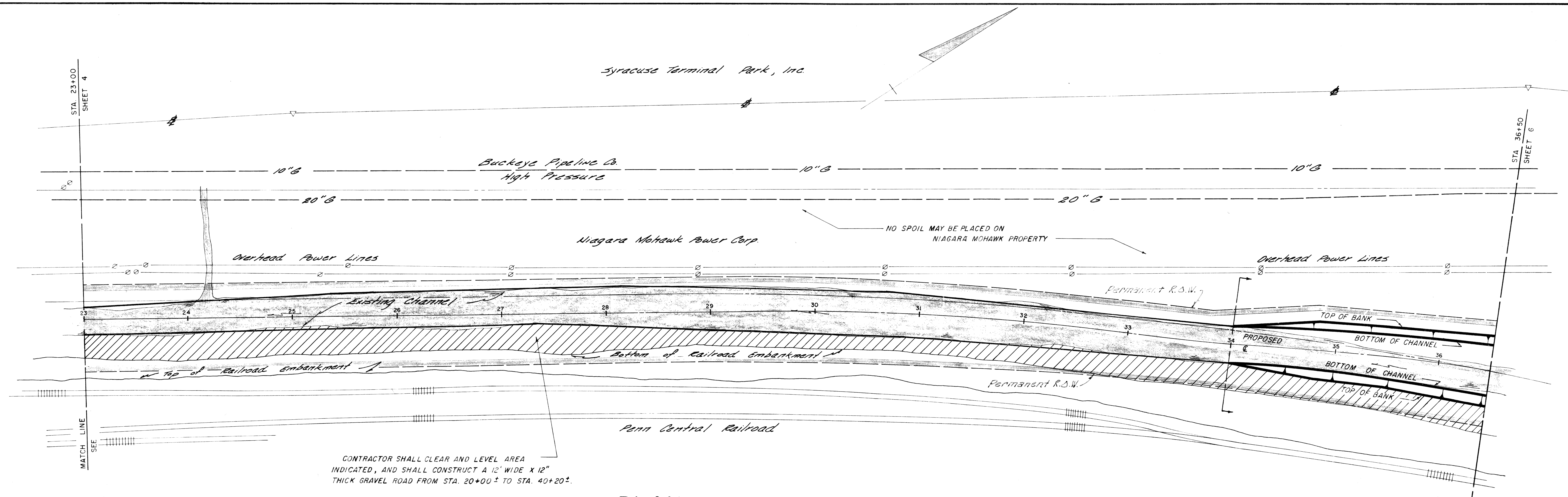
PLAN & PROFILE

CALOCERINOS & SPINA
CONSULTING ENGINEERS
SYRACUSE, NEW YORK

DATE: MAY 18, 1970
SCALE: AS SHOWN
FILE NO. 125.102-12

SHEET NO. 4

IN CHARGE OF: DMF
MADE BY: LFK
CHECKED BY: DMF

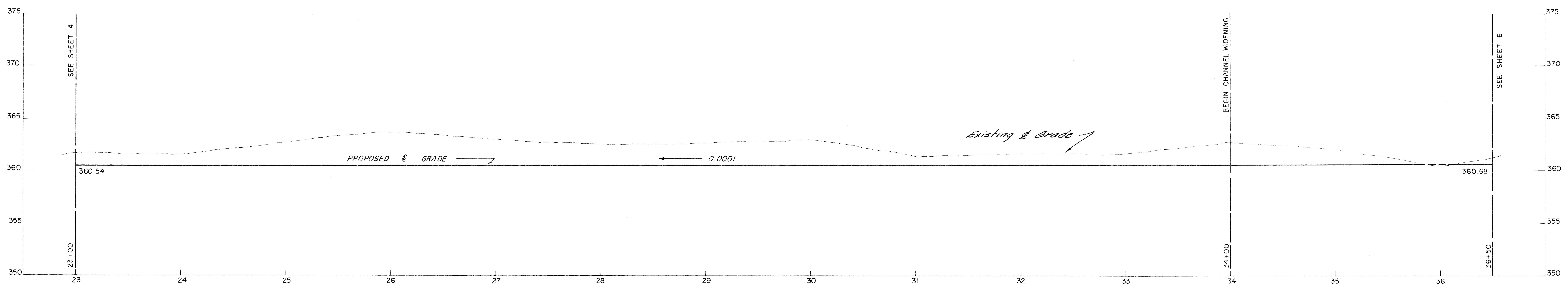


PLAN

Scale: 1" = 50'

NOTE: WORK IN THE AREA OF THE OVERHEAD POWER LINES TO BE COORDINATED WITH NIAGARA MOHAWK.

EXISTING CREEK TO BE EXCAVATED TO PROPOSED GRADE FROM STA. 23+00 TO STA. 34+00. BEGIN PROPOSED WIDENING AT STA. 34+00.



PROFILE

Scale: Horiz.: 1" = 50' Vert.: 1" = 5'

REVISIONS	
	ONONDAGA COUNTY DEPARTMENT OF PUBLIC WORKS DIVISION OF DRAINAGE & SANITATION CONTRACT NO. 2 BEAR TRAP - LEY CREEK DRAINAGE DISTRICT PLAN & PROFILE
8-20-71	CALOCERINOS & SPINA CONSULTING ENGINEERS SYRACUSE, NEW YORK

DATE: AUGUST 20, 1971

SCALE: AS SHOWN

FILE NO. 125.102-13

SHEET NO. 5

IN CHARGE OF:
MADE BY:
CHECKED BY:

Exhibit B

Engineering Document, Conditions for Proposed Activities Within Transmission Line Rights-of-Way

Conditions for Proposed Activities Within Transmission Line Rights-of-Way

Table of Contents

1.0 Scope

1.1 This document presents minimum conditions for work within National Grid electric transmission line rights-of-way, whether owned in fee or by easement. Activities that are not fully in conformance with this document may sometimes be allowed provided they are specifically shown on plans or described in specifications or other documents that have been reviewed and approved by National Grid.

1.2 "Requestor" as used in this document refers to any person, organization, corporation or other entity requesting permission to conduct activities within a transmission line right-of-way or anyone acting on the Requestor's behalf.

2.0 Compliance/Safety

2.1 All activities conducted by the Requestor shall comply with all applicable Federal, state, and local laws, statutes, rules, regulations, and codes. In particular, the requirements of the following statutes, regulations, and safety codes and guidelines, appropriate for the voltage(s) of the transmission line(s) within the right-of-way, must be met:

2.1.1 National Electrical Safety Code

2.1.2 In Massachusetts:

a 220 CMR 125.00, "Installation and Maintenance of Electric Transmission Lines,"

b MGL Chapter 166 Section 21A "Coming into Close Proximity to High Voltage Lines" except that the required clearance of six feet is insufficient. The minimum clearance allowed by OSHA shall be maintained.

2.1.3 In New York, Part 57 of the New York State Industrial Codes Rules (also known as the "High-Voltage Proximity Act") (http://www.labor.ny.gov/workerprotection/safetyhealth/sh57.shtm)

2.1.4 All OSHA regulations governing working clearances to electric distribution and transmission lines shall be followed. Although regulations 29 CFR 1926 Subpart CC and 29 CFR 1926.1501 may be specific to equipment that can hoist, lower, and horizontally move a suspended load, all equipment operating within a right-of-way shall maintain the clearances specified in these regulations, including but not limited to cranes, backhoes, excavators, forklifts, pile drivers, and drill-rigs.

a In accordance with 1926.1408, if the Requestor asks to encroach upon the 20 foot clearance requirement and requests voltages of electric lines near the proposed work or activity, the Requestor shall provide an aerial photograph or detailed survey plan delineating the area of work or activity in proximity to electric lines and structures. Requests may be emailed to TransmissionEngineering@NationalGrid.com or mailed to

National Grid c/o Transmission Engineering, 40 Sylvan Road, Waltham, MA 02451.

2.2 The Requestor shall not place or store any items within the right-of-way, including construction materials or debris, excavated soil, trailers, or storage containers.

2.3 The Requestor shall not unload or load vehicles or equipment within the right-of-way.

2.4 The Requestor shall adequately ground vehicles, equipment, fences and gates, at all times and in accordance with applicable Federal, state, and local laws, statutes, rules, regulations, and design codes, including, but not limited to, those listed in paragraph A above and IEEE Standard 80.

3.0 Protection of Transmission Line Facilities

3.1 The Requestor shall, at all times, protect transmission line facilities from damage. In addition to compliance with safety codes as described in paragraph 1 above, protection of transmission facilities shall, as a minimum, include the following:

3.1.1 The Requestor shall operate equipment and vehicles at least 50 feet horizontally away from any transmission line pole, tower, guy wire, or guy anchor.

3.1.2 When making a rough cut during excavation, the Requestor shall disturb no earth within an area bounded by a line drawn 25 feet plus 2.5 times the depth of the cut from the nearest transmission line pole, tower leg, guy wire, or guy anchor, but not less than 50 feet. Upon completion of the rough cut, the slopes of the bank shall be graded on a slope no steeper than one vertical to five horizontal and stabilized with vegetation or rip-rap. The top of the slope shall be at least 50 feet from the nearest pole, tower leg, guy wire, or guy anchor.

3.1.3 The Requestor shall not store or use explosives within the right-of-way.

3.1.4 The Requestor shall locate all ground wires buried in areas to be excavated and shall protect them against damage. If a buried ground wire is broken, the Requestor shall prevent anyone from touching it and shall notify National Grid.

4.0 Access to Right-of-way

4.1 The Requestor shall not at any time block or impede access to or along the right-of-way.

4.2 The Requestor shall not damage roads or trails used to gain access to or along the right-of-way.

4.3 All underground utilities and all proposed bituminous and/or concrete drive surfaces and underground utilities shall be designed to withstand and meet AASHTO *Standard Specifications for Bridges and Highways* H-20 highway class design criteria for vehicular loading.

5.0 Preservation of Rights and Future Use

5.1 National Grid retains all rights granted in the original right-of-way deed. Specifically, National Grid reserves the right to place future structures or relocate existing structures anywhere within the right-of-way, and reserve the right to control any vegetation within the right-of-way.

5.2 The Requestor shall place no above or below ground structures within the right-of-way, including streetlights, signs, sheds, fences, septic systems, and swimming pools.

5.3 Improvements shall not continuously occupy more than 100 feet along any line drawn longitudinally along the right-of-way.

5.4 Improvements shall not occupy expected future locations of transmission structures. This includes the bisector of angles in the right-of-way and generally includes areas adjacent to existing structures.

6.0 Protection of Interests

6.1 National Grid shall not be held liable for any damage to the Requestor's activities within the right-of-way when such damage is the result of construction, maintenance, or operation or other use of existing or future transmission line facilities.

6.1.1 For any proposed underground pipe or conduit the Requestor shall provide warning tape in the trench for all and tracer cable for non-metallic pipes or conduits when located within a transmission corridor. Plans provided for review shall identify such warning tape and tracer cable.

6.1.2 All newly installed pipes and conduits shall be marked in the field using three sided markers. A specification will be provided the Requestor as needed.

6.2 The Requestor shall pay all costs associated with modifications or repairs made necessary to National Grid's facilities as a result of activities by the Requestor, including the cost of repairs or modifications to buried ground wires. Repairs and/or modifications shall be performed by National Grid. The Requestor shall notify National Grid's Manager of Transmission Engineering Services when a buried wire is damaged.

6.3 The Requestor shall notify National Grid in writing at least 24 hours before the start of the work. In New York the notification shall also be made in accordance with the requirements of the High Voltage Proximity Act (Section 57.7).

6.4 Electrostatic currents may occur in proximity to electric transmission lines under certain circumstances. Although people may experience annoying shocks due to these currents when touching conductive objects, National Grid is not able to eliminate the currents. The steady-state current due to these electrostatic effects is within the limits established by the National Electrical Safety Code.

7.0 Deliverables

7.1 Full-sized paper copies of plans prepared to an appropriate scale shall be provided by the Requestor. Plans shall be certified by an appropriate professional licensed in the state in which the project is located. Digital signatures of a licensed professional will not be accepted. If plans are acceptable and an agreement can be achieved, the Requestor shall provide final plans in both paper and pdf versions.

7.2 Upon completion of any development located within a transmission corridor, Requestor shall provide upon request by Transmission Engineering, a certified As-Built Plan. Plan shall be certified by a licensed professional.

Appendix A

Procedure for Determining Wire Heights

- Elevations of conductors (wires) should be taken* at the point of attachments at bottom insulator on transmission structure.
- Elevations should be taken* at mid-span and quarter-span.
- Elevations should be taken* at any obvious low points (other than mid-point) which may occur due to grade changes below.
- Elevations should be taken directly above any proposed improvements or areas of proposed activity(s) as applicable.
- Existing grade elevations corresponding to aerial shots cited above should also be recorded. Any proposed finish grades different from existing grades, should also be recorded.
- As measurements are recorded, the following information must be recorded: date, time, ambient air temperature, wind direction and velocity, and weather conditions (e.g.: sunny, rain, snow, etc).

* WARNING: Conductors are electrically energized and are to be considered dangerous to approach. All measurements to conductors shall be made by remote measurement techniques which shall in no case cause measuring devices or personnel to come within safety parameters established by OSHA 1926.550 or New York State's High Voltage Proximity Act.

c = clearance from grade

H = measured horizontal offset distance (perpendicular to conductor at point of crossing)

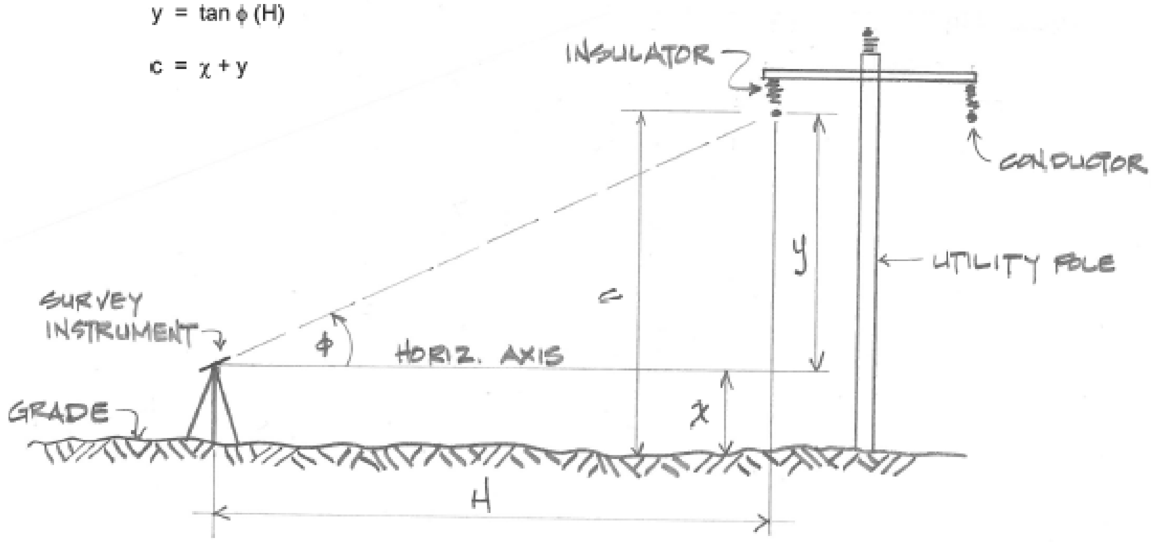
χ = measured vertical distance from horizontal axis of instrument eye piece to grade at a point

ϕ = measured vertical angle from horizontal axis of instrument eye piece to conductor

y = calculated vertical distance from horizontal axis to conductor

$y = \tan\phi\,(H)$

$c = \chi + y$



Revision History

Version	Date	Revision	Author	Reviewer	Approver
1.2	07/12/2007	Revised wording relative to electrostatic currents in paragraph 6.D.to clarify the issue. Previous wording: “Mild shocks due to electrostatic currents may be felt when touching conductive objects, such as vehicles, located within the right-of-way. Although these shocks may be annoying, National Grid will not be able to eliminate them.”	Mark Browne		Mark Browne
1.3	11/29/2010	Clarify that guideline applies to electric transmission rights of way Clarify that activities must comply with requirements for the voltages of lines within the right of way Add requirement to comply with MGL Chapter 166 Section 21A	Mark Browne		Mark Browne
1.4	07/11/2012	Added AASHTO H-20 load criteria requirement for proposed drive surfaces and u/g utilities.	Keith Tornifoglio		Mark Browne
1.5	03/17/2014	Added Appendix A, full-sized hardcopies to-scale, and warning tape and tracer cable for buried utilities	Keith Tornifoglio		Mark Browne
1.6	07/18/2014	OSHA clearances	Keith Tornifoglio		Mark Browne

WLADIS LAW FIRM
THE NEW STANDARD IN CLIENT SERVICE

Kevin C. Murphy, Esq.
kmurphy@wladislawfirm.com

September 12, 2014

Via U.S. Mail and E-Mail (Tames.pam@epa.gov)

Pamela Tames, P.E.
Remedial Project Manager
Central New York Remediation Section
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, New York 10007-1866

RE: July, 2014 Proposed Plan for the Lower Ley Creek Sub-Site of the Onondaga Lake Superfund Site, Town of Salina, Onondaga County, New York

Onondaga County, NY Comments on the Proposed Plan

Dear Project Manager Tames:

Onondaga County welcomes the opportunity to comment on the Proposed Plan for the Lower Ley Creek Sub-Site of the Onondaga Lake Superfund Site, Town of Salina, Onondaga County, New York.

To do so, the County submits it is necessary to place the County's comments in the full context of the history of the subsite, as designated, and the site as a whole.

I. Overall Site History

It is known and recognized by USEPA and the New York State Department of Environmental Conservation (NYSDEC) that General Motors Corporation (GM) was unquestionably the largest source of contaminants found in Ley Creek.

On August 12, 1985 GM executed a consent order with NYSDEC (Case #7-0383) intended to both (a) address the on-going discharge to Ley Creek of waste waters from GM's Salina, NY facility that the order described as contaminated with, among other pollutants, two types of PCB, Aroclor 1242 and Aroclor 1248, and (b) limit any such future discharges.

An evaluation of the extent of the resulting PCB contamination in and about Ley Creek was inexplicably delayed until 1997 when a subsequent order was entered between NYSDEC and GM. The 1997 order stated that the PCB contamination of Ley Creek dredge spoils was "the result of discharges of contaminated wastewater primarily from operations of" GM's Salina facility and determined it was necessary to "undertake additional investigation in Ley Creek sediments and surface water" downstream of the GM facility.

After 10 additional years passed, in 2007, NYSDEC stated it had "confirmed" GM's discharge of PCBs to Ley Creek and determined that the GM facility was a subsite of the Onondaga Lake NPL site.

Ultimately, NYSDEC and EPA jointly notified GM of their determination that the GM facility in Salina was a subsite of the Onondaga Lake NPL site, and subsequent investigations of Ley Creek confirmed the presence of PCB-contaminated surface water and sediment in Ley Creek downstream of the GM facility and corroborated the prior findings that GM was a source of PCBs to the creek and the lake.

Thereafter, the United States arbitrarily divided Ley Creek into two sites: upper Ley Creek, upstream of the Route 11 bridge, and lower Ley Creek, downstream of the Route 11 bridge. It did so despite having determined that the GM site was a subsite of the Onondaga Lake superfund site located at the terminus of Ley Creek, the absence of any physical barrier at the Route 11 bridge that would preclude the transport of GM waste beyond the Route 11 bridge, and an existing NYSDEC Order that, the County submits, required GM to investigate the length of Ley Creek. Unfortunately, that decision artificially limited GM's legal and financial responsibility to pay its proportionate share of the cost of remediation for the entirety of Ley Creek, including "Old Ley Creek."

As a result of the arbitrary and artificial creation of the Lower Ley Creek subsite, the full $32.8 million cost of response for the environmental contamination at the former GM Salina facility, upper Ley Creek, and the PCB dredging site was allocated to the RACER environmental response trust. With respect to lower Ley Creek, USEPA secured an allowed claim against the GM bankruptcy estate of $38.3 million claim. From that claim EPA realized and has available approximately $22 million to fund lower Ley Creek response costs. The estimated cost to implement the Proposed Plan is $18 to $35.5 million.

II. The Proposed Plan

A. General Concerns with the RI/FS and Proposed Plan

Onondaga County appreciates the extension of time that was granted to provide comments on the Proposed Plan, particularly because the County was troubled by the lack of notice that USEPA provided with respect to the availability of the Remedial Investigation and Feasibility Study reports. Despite on-going communications between the County and USEPA concerning this matter and repeated prior requests for the RI/FS reports, their availability was never disclosed to Onondaga County until the release of the Proposed Plan.

Regarding the Proposed Plan itself, Onondaga County submits it suffers from a number of critical deficiencies, as follows:

- It is based on a Remedial Investigation Report and Feasibility Study that grossly misstate the history of the Site;

- It is based on an investigation that failed to adequately investigate and quantify the extent of contamination; and

- Given the above deficiencies, the projected cost options are based on poorly defined remedial endpoints and insufficient field data and thus, the Proposed Plan comparison of remedies and the related cost estimates are of limited utility.

Despite the overall passage of time and effort, the history of this site suggests the publication of a Proposed Plan at this time is premature. The latest evidence that raises that concern for the County is the lack of any apparent plan by USEPA and NYSDEC to fully and comprehensively coordinate the review and assessment of potential local disposal options, including coordination between the upper and lower Ley Creek remediation processes.

At the USEPA public hearing on July 29, 2014, Mr. Singerman of the USEPA suggested there was no need to be concerned about the coordination of the upper and lower Ley Creek investigations and remedies as eventually the two would catch-up and could possibly retain a single contractor who would properly coordinate the two separately determined remedies. Mr. Singerman also suggested that selecting a remedy for Lower Ley Creek today would allow USEPA and the potentially responsible parties to negotiate issues related to the implementation of the selected plan.

Onondaga County rejects both of the above contentions. First, as the history above establishes, the upper and lower Ley Creek boundary is an artificial and arbitrary construct that never should have occurred. Now is the time to correct that critical error and address the two as a single site, either with a single lead agency or better transparent and public coordination.

For example, earlier this year the PCB-contaminated holding pond on the RACER Trust property overflowed and flooded into Ley Creek. Where did those contaminants go and how are those events being factored into the selection and implementation of a proposed remedy for both upper and lower Ley Creek?

Second, the level of uncertainty as to waste volumes, remedy endpoints and projected costs will hinder cooperation and negotiation between the parties whereas a more robust and defensible RI/FS process would assist to foster cooperation. As presented, the Proposed Plan is likely to make any settlement more difficult and more contentious. In that regard, Onondaga County submits the potential shortfalls in funding are, at least in part, the responsibility of the regulators, while at the same time the RACER Trust may also be a potentially responsible party.

1. The Site History and Site Investigation

The underlying investigation of what has arbitrarily and artificially been identified as "Lower Ley Creek," both from an historical use and human management perspective, is, as reported in the June, 2013 Lower Ley Creek Remedial Investigation Report and the March 14, 2014 Lower Ley Creek Feasibility Study, so replete with errors that the validity of both reports must be called into question.[1]

2. Technical RI/FS Issues

The County understands that the statistical method used to determine data adequacy was based on an approach for determining "hotspots" using preexisting soil and sediment data, but with no apparent knowledge of historic practices that actually caused contaminant distribution patterns. One example of the deficiency of this statistical approach is the existence of one or more soil sampling locations at which contaminant concentrations are above action levels but there was no additional sampling done to confirm the extent of contamination.

---

[1] For example, page 2-6 of the March 14, 2014 Lower Ley Creek Feasibility Study erroneously states:

> During the early 1970s, in an effort to limit flooding in the area, the U.S. Army Corps of Engineers (USACE) re-routed Ley Creek through the landfill area (NYSDEC, 2009a).

If, on the other hand, that statement is correct the U.S. Army Corps of Engineers must be named a potentially responsible party.

Second, the June, 2013 Lower Ley Creek Remedial Investigation Report contradicts the Feasibility Study and is replete with errors of irrelevance, inaccurate dates, misnamed parties and misstated reasons for the regular flooding of Ley Creek, for example:

> The development of railroads and the Erie Canal System allowed industry and settlement to quickly grow in Eastern Syracuse, New York.
>
> * * *
>
> Prior to the early 1970s, poor channel conditions and large impermeable areas in the watershed caused extensive flooding of Ley Creek.
>
> * * *
>
> Dredging of Ley Creek was performed by the Onondaga County Department of Drainage and Sanitation. In 1970, the section of the creek between the 7th North Street Bridge and Route 11 was dredged. In 1971, portions of Ley Creek between the 7th North Street Bridge and Onondaga Lake were dredged. In 1975, Ley Creek was dredged from Townline Road (approximately 1.5 miles north of the Site) to Onondaga Lake. In 1983, a section of Ley Creek north of the Site (Townline Road to Route 11) was dredged.

An example of the uncertainty that has resulted from the RI/FS is the extent of contamination to be removed. The approved RI estimates the volume of the contaminated sediment to be 110,000 cubic yards while the FS and Proposed Plan estimates the volume as 73,000 cubic yards, a difference of 50%. What is the basis for that material difference in volume estimates?

Also, the County is concerned that the $5/ton cost estimate for the local disposal option is overly optimistic. Please provide the back-up and support for this cost estimate.

III. Specific Comments and Concerns

Notwithstanding the above generic concerns with the Proposed Plan and the County contends, a need for further investigation and quantification of site conditions, Onondaga County submits the following significant issues must be considered and addressed prior to USEPA issuing a record of decision for this site, including any potential need to modify the scope of the remedy so as to be fully protective of human health and the environment.

A. The Local Disposal Option

Onondaga County has participated in an on-going dialogue concerning possible local disposal options between and among USEPA and NYSDEC and alleged potentially responsible parties and other interested parties. The County is not opposed to the use of a viable local disposal option, but as has been stated in the on-going dialogue, the County continues to seek a full and complete understanding of the issues and concerns that are raised by the local disposal option and the trade-offs that may exist between a local and non-local disposal option.

Given the above, the County has the following questions and concerns:

1. Has any potential local option been eliminated from consideration?

2. Are there any flood control, flood mitigation or flooding impacts that present a potential impediment to either local disposal option?

3. Is leachate management a potential impediment to either local disposal option?

4. Is the viability of a local disposal option dependent upon legal (e.g., federal or state statutory, regulatory or policy issues), engineering (e.g., location, volume, compatibility, constructability) and/or cost issues?

5. When does USEPA expect a determination will be made as to whether there is one or more viable local disposal options?

B. Flood Control and Infrastructure

Ley Creek and its branches have a history of flooding, including major floods in March, 1950, 1960 and 1964; May, 1969; June, 1972; July, 1974; and September, 1976. *See e.g.* attached Plate 1 from *Flood of June 1972: Onondaga Lake and Ley Creek at Syracuse, New York 1972*, Shindel, H. L. USGS Open-File Report: 72-346. See http://pubs.er.usgs.gov/publication/ofr72346

More recently, the town of DeWitt, which is upstream of the Town of Salina, has been beset with flooding from Ley Creek. Before the year 2000, DeWitt reportedly never received more than four inches of rain in a 24-hour period. Since 2000, the town has had rainfalls totaling more than four inches five or six times in a 24-hour period. The creek flows through the northern neighborhoods of the town, and as explained by the Town Supervisor, "Ley Creek is very flat – it's not your typical watershed ... because it's very flat, a lot of water tends to flood." See http://www.eaglebulletin.com/news/2014/may/07/dewitt-encouraging-residents-save-rain-rain-barrel/

The flooding risk that Ley Creek presents and the need to manage the Creek are highlighted in the FEMA Flood Insurance Study for Onondaga County. Attachment A contains excerpts from the Flood Insurance Study. See https://www.rampp-team.com/county_maps/new_york/onondaga/36067CV001A_vol1.pdf. In addition, the Town of Salina Hazard Mitigation Plan highlights the risk of future flooding and the need for on-going channel inspection, debris removal and maintenance. See http://www.ongov.net/planning/haz/documents/Section9.28-TownofSalina.pdf

The Feasibility Study and the Proposed Plan both identified a natural gas pipeline and an oil pipeline on the north side of Ley Creek, as well as the Route 11 bridge, as infrastructure that must be accounted for in the implementation of any remedy and which may require that contaminated sediment or soils remain in place and be capped to prevent human or environmental exposure.

Neither the FS nor the Proposed Plan discussed other existing infrastructure such as Onondaga County trunk sewers, force mains and related infrastructure that must be maintained, repaired and upgraded from time to time. The County is concerned that this project -- either as proposed or ultimately, as implemented -- may create very challenging conditions (i.e., financial, construction and legal) that will restrict, limit or impede future access to County infrastructure. Attachment B is a map depicting the relevant infrastructure. It is critical that the force main remain accessible for purposes of inspection, maintenance, repair, upgrading or other necessary improvement projects.

Regarding infrastructure, the following excerpts are from pages 14 and 20 of the Proposed Plan:

> In order to protect the structural integrity of the Route 11 bridge, it may not be possible to remove all of the

> contaminated sediment at the base of the bridge. Therefore, some combination of dredging and capping of sediments under the bridge may be necessary in order to protect the bridge and not reduce the effective cross section of flow for flood protection.
>
> * * *
>
> In addition, the excavation of the southern bank soils in Alternative S-2 would not be backfilled to grade. Reducing the elevation of this area would increase the flood storage capacity of this floodplain. The extent of backfilling in this area would be determined during the design phase based on the consideration of various factors, including flooding potential and desired habitat conditions.
>
> A detailed hydrologic analysis would be performed during the design phase to determine the effect of the remedy on stream flow, flooding and dynamics, and to identify the appropriate materials and bathymetry for restoration and long-term sustainability.

While the above excerpts indicate some consideration has been given to the above issues, the County has the following concerns and questions:

- As the remedial development process proceeds, how will the Proposed Plan address the potential impacts on the Bear Trap-Ley Creek Drainage District and the 42 inch diameter wastewater conveyance pipeline?

  The final design needs to confirm whether the remedy will impact this facility, and if so, incorporate provisions to allow for future utility maintenance and the increased cost of any such work in locations where contaminants remain.

- The maintenance of existing utilities and the future need to inspect, maintain and improve existing utility infrastructure is significantly impacted by the existence of remaining contaminants. The Remedial Investigation Report appears to have data gaps when it comes to defining the actual need for and volume of soil and sediment to be removed and neither the Proposed Plan nor the FS discuss in any detail what steps and processes will be implemented to fully identify and secure the removal of contaminated materials (e.g., confirmatory sampling, etc.). What is the degree of certainty as to the volume of soil and sediment that must be removed? How does that degree of certainty reflect the estimated volumes and costs of the proposed soil and sediment removals? What processes will be used in the field to establish the removal of all soil or sediment that is proposed to be removed has, in fact, been removed?

- The Ley Creek channel is very flat and has little fall from the upper drainage areas to the mouth of Onondaga Lake and is impacted significantly by the relative elevation of Onondaga Lake. How will the Proposed Plan assure that property owners and residents with properties that abut or are near the Creek are protected from flooding and the environment is protected from the mobilization of pollutants during implementation of the remedy, especially given the proposal to dredge in the wet?

- Did the Feasibility Study of the Proposed Plan investigate the cost to divert or channel the Creek to eliminate the need to dredge in the wet? If not, why not? If yes, what were the estimated costs and why was that option not included in the Feasibility Study of the Proposed Plan?

- As the design and implementation of the proposed and/or selected remedies proceed what effort will the Agency make to assure that future flood mitigation meets or exceeds the current channel capacity? What steps will be taken to coordinate the design and plan with FEMA, local municipalities, utilities, residents, etc.?

- What opportunities does the USEPA envision to expand the floodway to offer greater flood protection as either a necessary aspect of the proposed remedy or an added/modified design feature (e.g., less capping material)?

- How will proposed institutional controls impact the Ley Creek Drainage District? What restrictions or limitations will be placed on the properties that are incorporated into the district by virtue of their proximity to Ley Creek? For example, will the institutional restrictions preclude further upgrades to, or installation of, additional drainage and/or wastewater facilities? And how will those controls be supervised and managed post-remedy implementation?

C. Additional Issues and Concerns

1. To what extent, if any, do the Proposed Plans differ from the discussion and detail set out in the Feasibility Study (e.g., the options discussed in the FS do not correspond to the designations assigned to the options identified in the Proposed Plan)?

2. The County submits the selection of a remedy for lower Ley Creek should await the outcome of the remedy selection process for upper Ley Creek or at a minimum the disclosure by NYSDEC of the Proposed Plan for Upper Ley Creek. As noted above, in reality, there should be a single RI/FS and remedy selection process for the entire Creek. Indeed, the County submits the reality that work is being done by USEPA and the RACER Trust with oversight by NYSDEC is not a valid basis for the work to proceed on separate and marginally integrated tracks.

3. What steps are and will be taken to coordinate the implementation of the upper and lower Ley Creek remedies?

4. What steps will be taken to insure that the upper Ley Creek remedy does not increase the cost of implementing the lower Ley Creek remedy?

5. Does the Proposed Plan comply with the New York State standard for maximum PCBs (and all other detected contaminants) in sediment? Will the standard applied to any upper Ley Creek sediment removal be as strict as the standard proposed for lower Ley Creek?

6. What is the anticipated cost to dewater sediment proposed to be excavated? What method and location of disposal did the Proposed Plan assume for sludge dewatering wastewaters?

7. As USEPA may be aware, the Onondaga County Sanitary District generally will not accept leachate from a Class 2 New York hazardous waste site absent a compelling public need, and only if the resulting discharges meet all applicable legal requirements.

   With this in mind, assuming that the contemplated remedy includes discharge of leachate to the METRO WWTP:

   a. What is the potential volume of leachate or contaminated water that is likely to be pumped to METRO?

   b. Will pretreatment of this leachate be necessary?

   c. What provisions will be made to cease pumping during periods of wet weather and/or peak periods of I&I?

8. If leachate cannot be disposed of at the METRO WWTP, what other disposal options exist? What is the cost of those alternative disposal options?

9. Page 14 of the Proposed Plan states: "While long-term monitoring of the sediment would not be required because all the contaminated sediment would be excavated, fish monitoring would be conducted to determine the remaining levels of contamination in the fish and the rate of decline." Given that fish in the Creek likely migrate into and from Onondaga Lake, is it anticipated that any additional or supplemental remedy will be required and/or based on future fish monitoring data?

10. The site history as detailed in the Proposed Plan, the FS and the Revised RI are rife with factual errors too numerous to detail in commenting on the July, 2014 Proposed Plan for Lower Ley Creek. The provision of these comments does not indicate the County's acceptance or agreement with any such recitations. Neither does this letter constitute an admission by the County or agreement by the County with any of the alleged facts set out in the RI, the FS and the Proposed Plan. By making these comments the County does not waive any defenses and/or claims it may have with respect to any issue related to or concerning the Site, Ley Creek and/or Onondaga Lake and its environs.

11. The comments concerning Murphy's Island are not material to the Proposed Plan. They should be stricken.

Should you have any questions or comments or require further clarification or information concerning the above comments please do not hesitate to contact David Coburn the Director of the Onondaga County Office of Environment at DavidCoburn@ongov.net or the undersigned.

Very truly yours
THE WLADIS LAW FIRM, P.C.

Kevin C. Murphy

KCM/cm
Enclosure

Cc: Luis A. Mendez, Esq.
David Coburn

ATTACHMENT A

Flood Insurance Study, vol. 1 of 2, ONONDAGA COUNTY, NEW YORK (ALL JURISDICTIONS), Federal Emergency Management Agency FLOOD INSURANCE STUDY NUMBER 36067CV001A

At page 14, Town of Dewitt:
In the Town of DeWitt, problems on the two major flooding sources, Ley Creek and Butternut Creek, occur primarily in the Erie-Ontario lowland portion of the town.

The channels of the North Branch Ley Creek and South Branch Ley Creek convey runoff to their confluence. At this point, the creek slope is generally insufficient to carry the flow within its channels, and the nearby area becomes flooded. The situation occurs during the annual spring snow-melt runoff, and on frequent occasions following long-duration rainstorms.

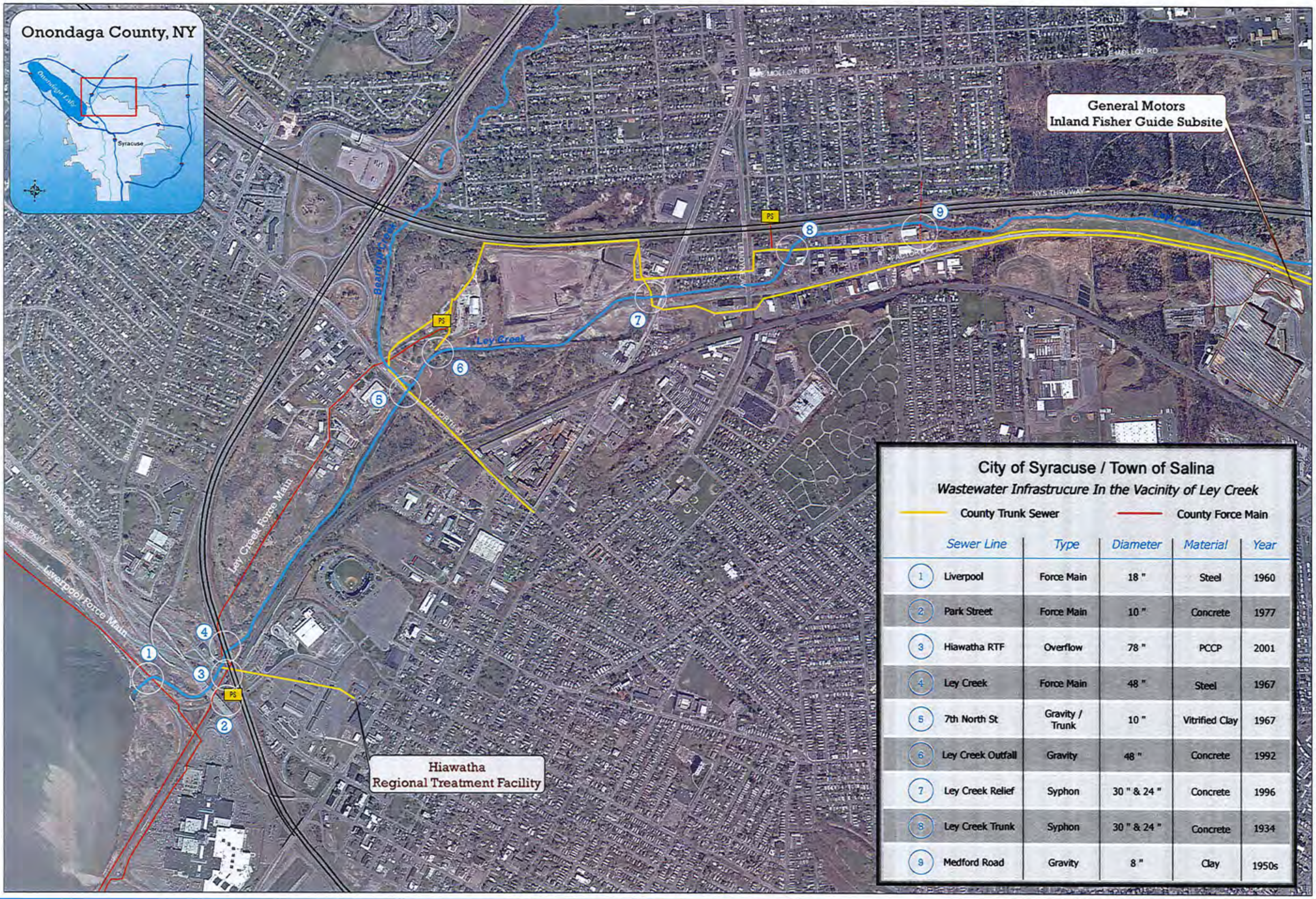
At page 19, Town of Salina:
In the Town of Salina, flooding problems occur along the floodplains of Bloody Brook, Ley Creek and Bear Trap Creek. Low-lying areas adjacent to Onondaga Lake are flooded whenever a rise in the water level of the lake occurs. Flooding in the lower portion of Ley Creek occurs due to a reduction in the channel slope downstream of the confluence of the north and south branches. Flooding is the most common in the spring when snowmelt runoff occurs, following long duration rainstorms, and is further aggravated by frozen or previously saturated soil. During the spring snowmelt, widespread flooding and damages occurred in March 1950, March 1960 and March 1964. Flooding, which was the result of a rainstorm in May 1966 had an estimated 6-year recurrence interval and resulted in over $90,000 in damages. The flood of record occurred in June 1972 during Tropical Storm Agnes and resulted in widespread damages. The flood had a recorded discharge of 17,200 cfs at *gaging* (sic) station No. 4-22375, in Baldwinsville. The flood had an estimated recurrence interval of 20 years on the Seneca River.

At pages 20-2, City of Syracuse:
The principal flooding sources in the city are Harbor Brook, Meadow Brook, Ley Creek and Onondaga Lake. Heavy rains, especially those occurring in the spring which combined with snowmelt, have frequently caused high water and local flooding. Some of the more frequent flooding occurs in the area north of Rowland Street and west of Geddes Street, caused by Harbor Brook, and the areas west of MacArthur Stadium and southwest of the Seventh Street bridge, both caused by Ley Creek.

ATTACHMENT B

ONONDAGA COUNTY WASTEWATER INFRASTRUCTURE
SEWERS AND FORCE MAINS IN PROXIMITY TO LEY CREEK

Onondaga County Wastewater Infrastructure
Sewers and Force Mains in Proximity to Ley Creek



City of Syracuse / Town of Salina
Wastewater Infrastrucure In the Vacinity of Ley Creek

County Trunk Sewer — County Force Main

	Sewer Line	Type	Diameter	Material	Year
1	Liverpool	Force Main	18 "	Steel	1960
2	Park Street	Force Main	10 "	Concrete	1977
3	Hiawatha RTF	Overflow	78 "	PCCP	2001
4	Ley Creek	Force Main	48 "	Steel	1967
5	7th North St	Gravity / Trunk	10 "	Vitrified Clay	1967
6	Ley Creek Outfall	Gravity	48 "	Concrete	1992
7	Ley Creek Relief	Syphon	30 " & 24 "	Concrete	1996
8	Ley Creek Trunk	Syphon	30 " & 24 "	Concrete	1934
9	Medford Road	Gravity	8 "	Clay	1950s

Onondaga County, New York Geographic Information System

WATER ENVIRONMENT PROTECTION
7120 Henry Clay Boulevard, Liverpool NY 13088

THIS MAP IS INTENDED FOR GENERAL PLANNING PURPOSES ONLY.

Tames, Pam

From: James Murphy <James.Murphy@pacelabs.com>
Sent: Tuesday, August 05, 2014 10:54 AM
To: Tames, Pam
Subject: PACE Analytical / Lower Ley Creek Clean Up

Good Morning Ms. Tames,

My name is James Murphy and am the Account Executive for PACE Analytical here in Syracuse, NY and am contacting you in regards to the clean up program proposed for the Lower Ley Creek. I attended the meeting on July 29th and found it to be informative but must admit I thought there would be more people in attendance with many more questions. Did you feel the same? As I mentioned I work for PACE Analytical and would like to know if you could provide me with some information about this project.

Is this going to be managed by the EPA or contracted to an environmental engineering firm?

If it is going to be contracted out could you tell me who?

If the EPA is managing this will you be sending out an RFP for this ?

With the experience that PACE has on the Hudson River and Grasse River projects with PCB analysis in sediment I feel that we can provide the superior analytical services needed for this project and hope that you will consider PACE for any of the testing that will be required.

Please feel free to contact me with any questions as to the services PACE can provide in support of this project.

Thank you,

James Murphy
Account Executive-Syracuse,NY
Pace Analytical Services,Inc.
2190 Technology Dr,
Schenectady, NY 12308
email: james.murphy@pacelabs.com
Mobile: (518)860-9724

Tames, Pam

From: Brendan Pilawski <brendan.pilawski@progressivewaste.com>
Sent: Tuesday, August 05, 2014 10:30 AM
To: Tames, Pam
Subject: Onondaga Lake Site- 734030 Lower Ley Creek Portion

Pamela,

Hello. I wanted to reach out to you with a few comments and questions. I represent Seneca Meadows Landfill (Progressive Waste Solutions) and attended the Public Meeting held on July 29, 2014 for the Lower Ley Creek proposed remedial action plan. It appears that as a result of the meeting and published remedial action plan, that the EPA has selected local disposal as the only practical alternative. It appears that the ROD has overestimated the cost of offsite disposal which has caused that option to be eliminated from consideration due to cost. The transportation and disposal costs estimated in the document are significantly overestimated based on our knowledge of the market and options available for disposal.

To demonstrate our commitment, we are willing to guarantee transportation and disposal of the contaminated soil meeting levels acceptable for disposal in a Part 360, Subtitle D landfill of $40/ton at the Seneca Meadows Landfill in Seneca Falls, NY. We are also willing to provide adequate transportation resources to allow the selected contractor to meet timeframes established for the completion of the project. The Seneca Meadows landfill contains the necessary double composite lined landfill and support infrastructure to manage and dispose of 100% of the non-hazardous soils from this project. We look forward to the opportunity to discuss our facility with you and believe that the costs for offsite disposal should be revised to more accurately reflect market conditions.

If you have any questions I can be reached at the 585-261-8913. We truly appreciate you taking the time to consider our facility.

Thanks,

Brendan Pilawski
Landfill Sales Representative

Progressive Waste Solutions
(Formerly IESI-BFC Ltd.)

E: brendan.pilawski@progressivewaste.com
T: 315 539 5624
F: 315 539 3097
C: 585 261 8913

1786 Salcman Road
Waterloo, NY, 13165
www.progressivewaste.com

NYSE, TSX: BIN

Progressive
Waste Solutions

Town of Salina
OFFICE OF THE TOWN SUPERVISOR

Salina Town Hall
201 School Road – Room 112
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(315) 457-6661
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FB: townofsalina

Mark A. Nicotra
Town Supervisor
Nancy A. O'Neil
Secretary to the Supervisor

Colleen Gunnip
Deputy Town Supervisor

September 13, 2014

Pamela Tames, P.E.
Remedial Project Manager
Central NY Remediation Section
US Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 1007-1866

Dear Ms. Tames:

RE: Town of Salina Comments on Proposed Plan for Lower Ley Creek

The Town of Salina offers the following comments on the Proposed Plan for Lower Ley Creek:

Page 3, 3rd paragraph under site history: text indicates that *"Ley Creek was widened, deepened and rerouted…through the Town of Salina Landfill. Dredged materials were spread along the banks and were disposed of at the landfill".* The 6th paragraph in that same section again indicates the landfill accepted some of the contaminated dredge spoils.

Note that historical aerial photographs indicate that the creek was widened both upstream and downstream of the landfill. A more accurate description of the scope of dredging is included in the RI Report. Also, CHA is not aware of the specific documentation that indicates dredged materials were placed in the landfill. There is a note on page 5 that references flood control blueprints showing where dredge spoils were spread on upland areas but these are not included in the Proposed Plan or RI Report.

Page 19, 3rd paragraph under Implementability: text indicates that *"…appropriate arrangements with the current facility owner(s) for disposal on their properties would need to be made".* The Town of Salina is neither advocating that the landfill be used as a local disposal option or opposed to the plan; they will consider it under the right circumstances.

The Town notes that the Proposed Plan does not specifically state whether additional disposal at the landfill is a permitted activity since the landfill is in fact closed.

The Proposed Plan discusses the Cooper Crouse Hinds Landfill as an option but concedes that the groundwater /leachate *"treatment and discharge infrastructure does not exist at the Cooper Crouse-Hinds Landfill".* The cost projections for capital costs and O&M costs at the Cooper Crouse Hinds landfill include an estimate of $1.3 million for the liner, leachate collection and leachate treatment work, which appears to underestimate the potential total costs.

USEPA may want to re-evaluate the cost of non-local disposal of soils and sediments. The current solid waste market may lead to a lower cost than estimated and existing local permitted facilities would have all the required infrastructure in place.

Sincerely,

Mark A. Nicotra
Supervisor
Town of Salina

Tames, Pam

From:	Bob Papworth <Rppwrth@verizon.net>
Sent:	Thursday, September 11, 2014 8:33 PM
To:	Romanowski, Larisa; Tames, Pam
Cc:	Joanne Mahoney; Brian F. May; Casey Jordan; Christopher Ryan; Danny Liedka; David Knapp; Derek Shepard, Jr.; J. Ryan McMahon, II; Jim Corl; John Dougherty; Judith Tassone; Kathleen Rapp; Kevin Holmquist; Linda Ervin; Michael Plochocki; Monica Williams; Patrick Kilmartin; Peggy Chase
Subject:	Lower Ley Creek Site of the Onondaga Lake Superfund Project: Public Comment for EPA
Attachments:	RFI 08.22.2014 Papworth Onondaga Lake.Letter.pdf

Dear Ms. Romanowski and Ms. Tames:

The following comments are submitted for the proposed plans within the comment period, which was extended until Sept. 13th.

The EPA's proposed plan would excavate and remove nearly 100,000 cubic yards of sand from Lower Ley Creek. The plan would not clean the sand, but would remove and dispose the sand in a toxic landfill in the Township of Salina, N.Y., where it would permanently remain.

The alternate plan, which I propose, will temporarily remove the sand, thermally treat the sand to remove all toxic elements, then return the cleaned sand to its original landscape locations.
There will be no disposal into a toxic landfill. This plan has been previously transmitted to the Onondaga County Executive Mahoney, and to the County Legislature.

Please note that the vendor which has provided this proposal (attached above) is experienced in serving the mining industry. The proposed treatment is based on the existing N.Y.S. D.E.C. Data Base, as well as the Lower Ley Creek Feasibility Study data. The vendor, Noble Metals Extraction, LLC., plans to treat the sand with thermal desorption, supplemented by mechanical removal techniques to extract heavy metals. This is a process commonly employed in the mining industry, and is appropriate to the Lower Ley Creek contaminant components.

In addition, please note the explanation of thermal desorption, which is provided on the EPA web-site. The most accessible document is titled: " A Citizen's Guide to Thermal Desorption". In addition, there is a Wikipedia page which explains Thermal Desorption.

The plan which is proposed by Noble Metals will thermally remove volatile toxics and light metals. Then, mechanical methods will remove heavy metals. All toxic components would be captured for subsequent destruction. The sand would be clean. And, the proposed process rate of approximately 1,000 cubic yards per day would complete sand cleaning at the Lower Ley Creek site in approximately 4 months of processing.

The budget for this new proposal for Lower Ley Creek remediation is within the budget which was presented at the public hearing at the Town of Salina this summer.

Moreover, following the completion of the Lower Ley Creek remediation work, the same process can be carried out for the Upper Ley Creek site. The capital investment need not be repeated. In addition, following the completion of the Upper Ley Creek site, the remediation plant could be moved to the opposite side of the lake, again without repeating the original capital investment. The polluted sands in the several sites on the west side of the lake would be remediated in the same manner, with no toxic landfilling, and returning the cleaned sand to its natural landscape locations.

The result would be actually to clean the sand, not create toxic landfills. And operate competitively, within the alternate budgets.

It is the only plan of remediation which will actually clean the sand. It is the only possibility to restore to natural and normal both Onondaga Lake and its watershed. And, it is the only plan which avoids permanent toxic landfills in our communities.

Respectfully,

Robert A. Papworth, Trustee
The Nature Conservancy, CWNY

533 E. Sherman Street
Marion, Indiana 46952
765-251-9015 Office
888-448-7649 Fax
www.noblemetalses.com
admin@noblemetalses.com

Noble Metals Extraction Systems, LLC

Dear Mr. Papworth:

As per our conversation in early August and as referenced in your letter of August 12, 2014 I have prepared a brief Statement Of Work (SOW) for the Lower Ley Creek Subsite of the Onondaga Lake Superfund Site, Syracuse, NY.

Materials identified for this SOW were obtained from the Final Feasibility Study Report Lower Ley Creek Subsite Of The Onondaga Lake Superfund Site, Syracuse NY. EPA Contract No: EP-W-10-007 and data obtained from the New York State Department Of Environmental Conservation.

Attached you will find a copy of any pages referenced form the Feasibility Study for your convenience.

Respectfully,

John Burns
Noble Metals Extraction Systems, LLC
775-846-9588 Cell

NOBLE METALS EXTRACTION SYSTEMS, LLC

Noble Metals Statement of Work
For Lower Ley Creek Sub Site and Wastbeds 9-15
At the Onondaga Lake Superfund Sites, Syracuse New York

August 21, 2014

1. PURPOSE

This Statement of Work (SOW) sets forth an alternative approach to remediate soils and sediments containing hazardous substances, pollutants or contaminants as defined in Appendix B of the FINAL FEASIBILITY REPORT LOWER LEY CREEK SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE, SYRACUSE NY. EPA Contract No:EP-w-10-007 (See Attachment). This SOW contains the following:

a. A brief description of the equipment required.
b. A description of its function.
c. An estimate of the total volume of material to be processed on a per weekly basis.
d. An estimate of operating cost per cubic yard.
e. A cost estimate to manufacture and assemble a complete remediation system with all site specific requirements in place.
f. A list of potential environmental and economic advantages and a time line of engineering, construction and on site assembly.

1.1 REMEDIAL ALTERNATIVE

While thermal treatment of soils or sediments to remove hazardous substances, pollutants or contaminants has been an accepted remedial alternative for organic analytes, it is typically not used where metals are the source of contamination. However, the metals extraction industry has had to deal with more complex ores over the past thirty years. As a result, thermal treatment of soils and sediments has become the method of choice in the industry. We combine the equipment and methodology used in thermal treatment of soils with highly efficient metal extraction equipment and methodology. As a result, we have an efficient system that can effectively deal with a variety of soil conditions.

1.2 SYSTEM OPERATION

Noble Metals remediation of soils or sediment containing hazardous substances, pollutants or contaminants is to first heat them (to a temperature typically used in mining applications to deal with sulfides) to approximately 800 degrees F. The organic analytes along with several of the metal analytes such as Mercury, Lead and Cadmium will be volatized and drawn off entering an oxidizer. The oxidizer operating at approximately 2000 degrees F breaks down the volatized analytes into toxicants and carcinogens which are then captured and stabilized. The soil or sediment then passes thru a heat exchanger which cools the material to a temperature of approximately 150 degrees F. The remaining metals are them removed using standard mining methods appropriate to the metal analytes.

1.2.1 DESCRIPTION OF DISCHARGED MATERIALS

There are three categories of material discharged from the integrated system
.

a. Stabilized Toxicants and Carcinogens.
b. Base Metal Concentrates
c. Sterile Soil Matrix

The stabilized toxicants and carcinogens are easily disposed, typically in land fills. The base metal concentrates and the soil matrix both have economic value and can be sold to offset a portion of the costs.
The generation of electricity using the heat exchanger as a power source is also available. This is often used in remote locations to augment valuable consumables such as fuel for generators and could provide an additional income stream to help offset project costs.

1.3 PRODUCTION RATE

System design is based on a production capacity of 1000 tons per 24 hour day. Maintenance, weather conditions and other typical operating challenges may reduce the actual rate somewhat.

1.4 OPERATING COST

Direct operating costs of integrated systems used in the mining industry range from $90.00.00 to $135.00.00 per cubic yard. Considering the analytes listed in Appendix B (See Attachment) operational cost should trend toward the lower side of this range.

1.5 ENGINEERING, SITE SPECIFIC MODIFICATIONS, CONSTRUCTION AND ON SITE ASSEMBLY

A commercial operation history of more than 20 years world wide has created a vast data base covering many different soil and sediment conditions. The list of analytes from Appendix B (See Attachment) would not indicate the need for extensive research and development. It should require little engineering other than that required for integration of site specific modifications to existing designs. The construction of specific equipment not commercially available will be done at our facility in Marion Indiana. While no specific site has yet been determined, several locations currently exist which will be good candidates.

1.6 ENGINEERING, SITE SPECIFIC MODIFICATIONS, CONSTRUCTION AND ON SITE ASSEMBLY COSTS

Total cost will be greatly affected by the availability of key components required to assemble a complete integrated system. Based on current availability of key components cost should fall in a range of $7,000,000.00 to $10,000,000.00 USD.

A site evaluation fee of $750,000 will be required to facilitate an on-site evaluation. The site evaluation will include laboratory testing of bulk samples(to establish the site specific engineering criteria), overall engineering for site specific modifications. Noble Metals will reserve key components where available, and establish a representative model. We will also provide support and attendance at all public comment hearings if required. This fee will be applied to the cost of the integrated system and applied as a partial prepaid deposit amount. Should no further actions beyond the scope described above be required Noble Metals shall retain the fee as payment in full for services rendered.

1.7 ENVIRONMENTAL AND ECONOMIC ADVANTAGES

An environmental advantage is obtained by the elimination of and or reduction of analyte levels to meet Human Health Risk Assessment as obtained from Table 2,C. of the FINAL FEASIBILITY STUDY REPORT (See Attachment). This will reduce or eliminate any potential for contamination in the future.

There will be positive economic advantages for the local economy by the creation of well-paid long term jobs, the supply of commercially viable by-products, and the potential to supply electricity to the power grid. This equipment has a production life regularly exceeding 20 years and could be used for remediating waste beds 9-15. This could provide an ongoing economic benefit for the community.

1.8 TIME LINE OF ACTION

a. Present to October 1, 2014. Site evaluation, sample acquisition

b. October 1, 2014 to November 30, 2014. Laboratory testing of bulk samples to establish minimum engineering criteria, engineering, reservation of available key components, and a model construction.

c. December 1, 2014 to December 15 2014. Provide a new SOW and scope of effort based upon tests results along with a follow-on contract.

d. December 16, 2014 to April 30, 2015. Acquisition, construction and site specific modifications competed and ready for shipment to site.

NOBLE METALS EXTRACTION SYSTEMS, LLC

e. May 1, 2015 to May 31, 2015. On site assembly.

f. June 1, 2015. Integrated system available to accept soils and sediments.

John Burns

John Burns, General Manager
Noble Metals Extraction Systems, LLC

765-25`-9007 Main Office
888-448-7649 Fax
775-846-9588 Cell

APPENDIX B

DEVELOPMENT OF SOIL AND SEDIMENT PRELIMINARY REMEDIATION GOALS

LOWER LEY CREEK SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE, SYRACUSE, NY

1.0 PRG CALCULATION SUMMARY

This appendix presents the information and rationale used in the identification of PRGs for the FS. PRGs were calculated following the assumptions and information (e.g., exposure assumptions, ingestion rates, etc.) presented in the HHRA and BERA. The Human Health and Ecological PRGs are presented in Table 1 and Table 2, respectively. The Human Health and Ecological PRG calculations are detailed in Tables 1.A through 1.J and Tables 2.A through 2.F, respectively.

1.1 HUMAN HEALTH PRGS

PRGs were calculated for exposure to all identified site COCs in site soil, sediment, and fish tissue. Site COCs were identified as contaminants contributing a cancer risk exceeding 1E-05 to a cumulative cancer risk greater than 1E-04, or a contaminant that contributed substantially to a non-cancer target organ hazard index (HI) greater than 1. Identification was based on the reasonable maximum exposure (RME) scenarios. To be consistent with the baseline HHRA, the inhalation exposure route was not considered in the PRG calculations. Because inhalation generally contributes negligibly to overall risk, this approach is appropriate.

1.1.1 Soil

The following COCs were identified for the site soil: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene, chromium, PCB-1248, and PCB-1260. The majority of the COCs were identified because of excessive contributions to cumulative cancer risks. PCB-1260 was identified solely because of contributions to non-cancer hazards.

For each of these COCs, PRGs were calculated for the following receptors: Adult Recreational Visitor, Older Child Recreational Visitor (6 to 16 years old), Younger Child Recreational Visitor (less than 6 years old), and Construction Worker. Calculated soil PRGs for these receptors are presented in Table 1, along with the New York Remedial Program Soil Cleanup Objectives. These values were compared to the calculated PRGs to identify the most conservative proposed cleanup level for each COC (most conservative PRG is shaded).

1.1.2 Sediment

The following COCs were identified in site sediment for at least one site receptor: 3-methylcholanthrene, benzo(a)pyrene, dibenzo(a,h)anthracene, PCB-1260, and vanadium. For each of these COCs (where applicable), PRGs were calculated for the following receptors: Adult Recreational Visitor, Older Child Recreational Visitor (6 to 16 years old), and Younger Child Recreational Visitor (less than 6 years old). PRGs were not calculated for the Construction Worker because no COCs were identified for this receptor. Calculated sediment PRGs for these receptors are presented in Table 1. New York sediment screening values (for sediment direct contact) are not available. Accordingly, the most conservative calculated PRG is identified as the proposed PRG for each COC (most conservative PRG is shaded).

1.1.3 Fish Tissue

The following COCs were identified for exposure to fish tissue: PCB-1254, PCB-1260, total PCBs, total dioxins/furans (as TEQ), dieldrin, arsenic, chromium, and mercury. For these COCs, PRGs were calculated for the Adult Recreational Visitor, Older Child Recreational Visitor (6 to 16 years old), and Younger Child Recreational Visitor (less than 6 years old). PRGs were not calculated for the Construction Worker because this exposure pathway was identified as incomplete.

After the calculation of fish tissue PRGs (mg/kg fish tissue), an associated sediment PRG concentration (mg/kg sediment) was calculated using site-specific biota-sediment accumulation factors (BSAFs). This sediment PRG concentration is protective of the fish ingestion pathway. Site-specific BSAFs were calculated by dividing the fish tissue exposure point concentration (EPC) for each contaminant by the sediment EPC. These EPCs (95% UCLs) were obtained from the Lower Ley Creek BERA. The calculation of fish tissue PRGs is detailed in Tables 1.H through 1.J.

Calculated fish tissue PRGs (in both mg/kg of fish tissue and mg/kg of sediment) are presented in Table 1. Also presented in Table 1 are the New York Sediment Screening Criteria for Human Health Bioaccumulation (mg/kg of sediment). These values were compared to the calculated PRGs to identify the most conservative proposed cleanup level for each COC (most conservative PRG is shaded).

1.2 ECOLOGICAL PRGS

Ecological PRGs were calculated or identified for the ecological receptors and sediment COCs identified in the BERA. These PRGs are summarized in Table 2. In addition, soil at Lower Ley Creek was evaluated with respect to ecological receptors to determine the extent of potential risk associated with exposure of ecological receptors to site surface soil. These evaluations are discussed below.

1.2.1 Sediment

Ecological receptors identified within the BERA as having potential risk from exposure to site sediment include upper level trophic receptors (piscivorous mammals and birds) and benthic invertebrates. For upper trophic level receptors, PRGs were calculated (using a food web) to be protective of the mink (piscivorous mammal) and belted kingfisher (piscivorous bird). These two receptors were the most conservative of the four evaluated in the BERA. The food web calculations (presented in Table 2.A) incorporated direct contact with sediment (ingestion of sediment), bioaccumulation of sediment in fish tissue (ingestion of fish tissue), and direct contact with surface water (ingestion of surface water). All exposure parameters for the food web calculations (e.g., sediment ingestion rates, diet composition, body weight, etc.) were obtained from the BERA. To provide risk management information, two PRGs were calculated for each COC: one based on the LOAEL and one based on the NOAEL. The BSAFs were calculated from the sediment and fish tissue concentrations presented in the BERA.

Several inorganics and total PAHs were identified within the BERA (benchmark screening) as posing a potential threat to benthic invertebrates via exposure to site sediment. These COCs include arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, zinc, and total PAHs. Within the BERA, "no effect" concentrations were identified via toxicity testing for each of the identified COCs. These concentrations are presented in detail in Table 2.B and are identified as the proposed PRGs for the benthic invertebrate receptor.

The food web and benthic invertebrate PRGs are summarized in Table 2. Also presented in Table 2 are the New York Sediment Screening Criteria for Metals, for Benthic Aquatic Life (Chronic Toxicity), and for Wildlife Bioaccumulation. These values were compared to the calculated PRGs to identify the most conservative proposed cleanup level for each COC (most conservative PRG is shaded).

1.2.2 Soil

Because soil was not evaluated in the BERA, this PRG evaluation also evaluated potential risk to ecological receptors from exposure to site soil. For this evaluation, maximum surface soil concentrations of all detected analytes (obtained from the Human Health Risk Assessment, Table 2s) were compared to benchmark values protective of ecological receptors. This evaluation is presented in Table 2.C. Benchmark values were obtained from U.S. EPA Eco-SSLs, New York Soil Cleanup Objectives for Protection of Ecological Resources, and U.S. EPA Region 5 Ecological Soil Screening Levels. Precedence was given to the Eco-SSLs in the screening process.

As shown in Table 2.C, the maximum detected soil concentration of the following analytes exceeded the associated benchmark screening level:

Metals
- Antimony
- Barium
- Cadmium
- Chromium
- Copper
- Lead
- Manganese
- Mercury

Organics
- Butylbenzylphthalate
- Di-n-butylphthalate
- Endrin
- DDT and Metabolites
- PCB-1248
- PCB-1260
- High molecular weight PAHs
- Low molecular weight PAHs

Metals	**Organics**
• Nickel	
• Selenium	
• Silver	
• Vanadium	
• Zinc	

The vanadium and manganese results may reflect natural soil conditions. In addition, maximum barium, selenium, and dibutyl phthalate concentrations only slightly exceeded their screening values. It is unlikely these analytes would pose a significant ecological threat.

6.0 GENERAL RESPONSE ACTIONS AND APPLICABLE SCREENING TECHNOLOGIES

This section includes identification and review of GRAs and potentially applicable remedial technologies and process options for the contaminated media of concern (sediment and soil). GRAs are initial broad response actions considered to address the preliminary RAOs for the contaminated media identified as a concern at the site. GRAs include several remedial categories, such as containment, removal, disposal, and treatment of contamination for each medium of concern. Site-specific GRAs are first developed to satisfy the preliminary RAOs for the contaminated media and then are evaluated as part of the identification and screening of remedial technologies and process options for the contaminated media.

6.1 GENERAL RESPONSE ACTIONS

The GRAs considered for remediation of the media of concern (sediment and soil) are listed below:

- No Action;
- Institutional Controls;
- Monitored Natural Restoration;
- Containment and Engineering Controls;
- Removal (dredging/excavating) and Disposal;
- In Situ Treatment; and
- Ex Situ Treatment.

These GRAs and their associated remedial technologies are presented in Table 6.1 and discussed below from the generally least active (e.g., no action) to the most active.

6.1.1 No Action

Under the no action alternative, no remedial action would be implemented. The no action alternative reflects Site conditions as described in the baseline risk assessments (SERAS, 2012). No action was retained as a GRA to serve as a baseline for comparison with other methods, technologies, and process options.

6.1.2 Institutional Controls

Institutional controls are activities that do not involve active remediation. In most cases, these are activities, documents, informational devices, or legal restrictions that minimize, limit, or prevent human exposures to COPCs. This GRA can include physical site activities such as installation of warning signs, fencing, and surveillance. It can also include purely legal documents and methods of public communication such as deed restrictions, new regulations, and fishing advisories.

Institutional controls are widely recognized as a potential remedial technology for sediment sites (EPA, 2002). However, these controls are often only suitable when used in combination with other, more active remedial technologies. Further, the NCP preamble states that institutional controls are not intended to be a substitute for active response measures unless such measures are not practicable. Thus, institutional controls should be viewed as a means to further reduce risks where other technologies are infeasible, partially effective, or require some period of time before they become effective.

EPA has placed institutional controls into four broad categories:

- Governmental Controls;
- Property Controls;
- Enforcement Tools; and
- Informational Devices.

The specific technologies or activities recognized by EPA as most applicable to sediment sites (EPA, 2002) are:

- Fish consumption advisories and commercial fishing bans;
- Waterway use restrictions; and
- Land use restriction/structure maintenance.

Based on these categories and general information on the creek, institutional controls that may be applicable to Lower Ley Creek include use restrictions preventing exposure to or disturbance of sediments or other impacted media, such as:

- Health advisories regarding specific activities; and
- Bans on, or permit requirements for, dredging and/or certain waterfront improvements or alterations.

As a tributary of Onondaga Lake, Lower Ley Creek is currently under a New York State Department of Health (NYSDOH) fish advisory. This advisory recommends that women under age 50 and children under the age of 15 eat no fish of any species. For older women and adult males, the advisory recommends the following:

- Eat no largemouth and smallmouth bass over 15 inches, carp, channel catfish, white perch, and walleye;
- Eat up to four meals per month of brown bullhead and pumpkinseed; and
- Eat up to one meal per month of all other fish.

6.1.3 Monitored Natural Recovery

Natural restoration involves allowing natural processes to decrease the concentration, mobility, bioavailability, toxicity, and/or exposure of chemicals. Generally, it is allowed to occur over a given time frame and is expected to achieve specified goals within that time frame. Natural restoration always includes a monitoring component to confirm that decreases in chemical concentrations or exposures are actually taking place as expected. It also includes contingency planning procedures if sufficient natural recovery is not observed. Such contingency planning might involve a range of activities from additional monitoring to implementing more active remedial technologies.

MNR can occur through a variety of physical, chemical, and biological processes that act alone or in combination to reduce chemical concentrations, exposure, and/or mobility in sediments. MNR usually includes the following primary mechanisms that affect the surface of the sediment bed:

- Mixing of incoming clean sediments from the water column with creek sediment chemicals, causing dilution of the chemical concentrations (often the first step before burial);
- Burial of creek sediments containing chemicals by incoming clean sediments from the water column;
- Degradation of organic compounds within sediments;
- Reduction of chemical mobility and/or toxicity by conversion to less toxic forms and/or forms that are more highly adsorbed to creek sediments;
- Diffusion/advection of chemicals to the water column (i.e., loss to the water column); and
- Transport of sediments containing chemicals and dispersion over wider areas at lower concentrations.

It is important to note that these processes are interrelated and do not always work synergistically. For example, if sediments from the water column containing high chemical concentrations are settling onto creek sediments, these chemical inputs may offset any decreases in sediment chemical concentrations caused by burial, diffusion/advection, and/or degradation. This is why source control is a necessary first step in any MNR scenario. The last two of these MNR mechanisms may not always be desirable. Clearly, dispersion of chemicals over wider adjacent areas or to other media that increases toxicity in those areas and media cannot be considered natural recovery. Thus, it is important that natural recovery evaluations considering these processes evaluate the potential impact of substantial reduction in one area or medium to toxicity and risks elsewhere in the system.

Reduction of chemical mobility and/or toxicity by conversion as well as degradation is highly dependent on a number of factors, including the type of chemicals present, concentrations of those chemicals, and the rates of any conversion or degradation processes. Consequently, MNR may not degrade or reduce the toxicity of contaminated sediments in many circumstances. In some cases (such as heavy metals), the primary mechanism of MNR is isolation by burial over time.

6.1.4 Containment and Engineering Controls

Sediment containment technologies can reduce potential exposure to human and ecological receptors by preventing direct contact with contaminated sediments/soils and reducing the flux of chemicals into the water column. The most common containment technology is capping. Variations of capping technology can include:

- Engineered sediment cap with erosion controls;
- Engineered capping with reactive materials; and
- Thin-layer capping (for sediments and soils).

6.1.4.1 Granular Material Sediment Cap

A granular material sediment cap includes the installation of a granular material (sand) sediment cap over contaminated sediments. In areas of high erosion potential, granular material sediment caps consist of an armor stone layer overlying a sand isolation layer. Finally, a 2 ft habitat layer is placed on top of the cap to facilitate the re-colonization of the stream bottom by native species. Before the placement of any capping material, excavation of sediment is usually conducted to maintain the current bathymetry of the water body.

6.1.4.2 Engineered Bentonite Cap

An engineered bentonite cap is designed to hydrate and form a continuous and highly impermeable isolation layer over contaminated sediments. Engineered bentonite caps are typically produced for application in relatively shallow, freshwater to brackish, generally nearshore environments and is comprised of bentonite clay with polymer additives covering a small aggregate core. The bentonite clay is comprised principally of montmorillonite, and the proprietary polymer is added to further promote the adhesion and coalescing of clay particles to the aggregate core. The aggregate core is used essentially for weighting to promote the sinking of the material to the sediment surface. An engineered bentonite cap functions by hydrating, swelling, and forming a continuous and highly impermeable isolation layer above contaminated sediments. After the placement of the bentonite, a 2 ft habitat layer is placed on top of the cap to facilitate the re-colonization of the stream bottom by native species. Before the placement of any capping material, excavation of sediment is usually conducted to maintain the current bathymetry of the water body.

6.1.5 Removal and Disposal

Removal includes dredging/excavating contaminated sediments/soils from their existing location and consolidating/disposing the sediments/soils in a new location that minimizes the mobility, exposure, or impacts to human health and the environment. It is one of the most commonly evaluated and implemented contaminated sediment remediation technologies (EPA, 2002). Removal and on-site consolidation or off-site disposal are presented in Table 6.1 as separate GRAs, but in reality, they can only occur in combination.

6.1.5.1 Dredging (Sediments)

Sediment may be removed from a water body using various dredging techniques (Herbich, 2000). Dredging involves mechanically penetrating, grabbing, raking, cutting, and/or hydraulically scouring the bottom of a water body to dislodge and remove sediment. After the sediment has been dislodged, it is lifted out of the water body either mechanically, as with a clamshell bucket, or hydraulically through a pipeline. Dredging at a site can also be based on a combination of mechanical and hydraulic methods. Hybrid dredges can remove sediments by either mechanical or hydraulic means, depending on site conditions. Pneumatic dredges, a subset of hydraulic dredges, use compressed air systems to remove sediments. Hybrid and pneumatic dredges are generally less available than purely mechanical or hydraulic systems. In addition, their historical use at contaminated sediment projects is relatively limited.

6.1.5.2 Excavation (Sediments and Soils)

Dry excavation of sediments involves isolating an area using a temporary dam, removing the enclosed surface water, and excavating the contaminated sediment with conventional earthwork equipment. Wet excavation of sediments can also be conducted by excavating the contaminated sediment while it is submerged in the water using conventional earthwork equipment. The equipment may need to be placed on support mats to avoid sinking in the soft sediments during construction. This technique allows a visual verification that the appropriate sediment is being removed. It also significantly reduces the amount of sediment dewatering required and eliminates the short-term problem of sediment resuspension in the water column during removal.

Impacted soil along the shores of Lower Ley Creek can also be removed by excavating soil with conventional earthwork equipment.

6.1.6 In Situ Treatment

In situ treatment can include a number of methods that alter sediments and soils in their existing environment to reduce chemical concentration, mobility, bioavailability, and/or toxicity. Table 6.1 lists the primary treatment categories. Agents added to the sediment can include energy, chemicals, microorganisms, or plants. In some cases, the treatment may involve physical mixing or other manipulation of the media. Some forms of in situ treatment require isolation (via berms or dams) of the area to be treated to prevent loss of chemicals or other agents to surrounding areas. In addition, as with any invasive remediation technology, any existing habitats or biological communities would be impacted in the short-term during in situ treatment implementation.

6.1.7 Ex Situ Treatment

Table 6.1 reviews the various ex situ treatment technologies in detail; this detailed review is only summarized in the following text. This technology is often considered separately from removal, but in reality, ex situ treatment and removal must occur in combination. Once removed and treated, the sediments/soils must be managed by placement in a suitable location. If the media have been rendered non-toxic, some form of beneficial reuse can also be considered. Because removal and placement technologies have been previously described, this subsection focuses on the treatment phase of such an application.

There is a vast array of different treatment types, and as with in situ treatment, they reduce the concentration, mobility, bioavailability, and/or toxicity of the chemicals present in the media of concern. Depending on the physical and chemical characteristics of the media after the treatment process, sediments and soils might have a variety of end uses or placement options.

6.2 INFORMATION SOURCES USED TO IDENTIFY REMEDIAL TECHNOLOGIES

Various databases, technical reports, and publications, were used to identify and evaluate remedial technologies for use at the Lower Ley Creek site including:

- Superfund Innovative Technology Evaluation (SITE) Program (EPA, 1999);
- Selecting Remediation Techniques for Contaminated Sediment (EPA, 1993);
- Assessment and Remediation of Contaminated Sediments (ARCS) Program Remediation Guidance Document (EPA, 1994);
- EPA Hazardous Waste Clean-up Information (CLU-IN) web site (EPA, 2000a);
- EPA Remediation and Characterization Innovative Technologies (EPA REACH IT) database (EPA, 2000b);
- Federal Remediation Technologies Roundtable (FRTR, 1999) web site; and
- Remediation Technologies Network (RTN) Remediation Information Management System (RIMS) (RIMS, 2000) Database.

The SITE Program was created by EPA to encourage the development and use of innovative treatment and monitoring technologies. Under the program, EPA works with and supports technology developers who research, refine, and demonstrate innovative technologies at hazardous waste sites. SITE demonstration project information is compiled and can be used as a reference guide on innovative treatment technologies.

The ARCS Program was initiated in 1987 by EPA's Great Lakes National Program Office (GLNPO) to address sediment contamination in the Great Lakes. The ARCS program consisted of a 5-year study and demonstration projects relating to the treatment of contaminated sediments. The ARCS remediation guidance document is a product of the ARCS Program, and was prepared by the Engineering/Technology Work Group (ETWG), a working committee under the ARCS Program. The guidance document provides information on the selection, design, and implementation of sediment remediation technologies, including feasibility evaluation, testing technologies, and effectiveness at past site projects.

The EPA CLU-IN web site provides information about innovative treatment technologies and includes descriptions of and contact information for relevant programs and organizations. It also provides access to publications (e.g., Tech Trends) and other tools useful in technology review and evaluation.

The EPA REACH IT database combines information from three established EPA databases, the Vendor Information System for Innovative Treatment Technologies (VISITT) database, the Vendor Field Analytical and Characterization Technologies System (Vendor FACTS) database, and the Innovative Treatment Technologies (ITT) database. This database combines vendor-supplied information with information from the EPA, the U.S. Department of Defense (DOD), the U.S. Department of Energy (DOE), and state project managers regarding sites at which innovative technologies have been implemented, and provides information on over 1,400 remediation technologies and 750 vendors.

The FRTR describes itself as an interagency group seeking to improve the collaborative atmosphere among federal agencies involved in hazardous waste site remediation. Member agencies include the DOD, DOE, U.S. Department of the Interior (DOI), U.S. Department of Commerce (DOC), U.S. Department of Agriculture (DOA), and the EPA. Its web site contains such information as cost and performance of remedial technologies, results of technology development and demonstration, and technology optimization and evaluation.

The RIMS 2000 database, owned and operated by the Research Technologies Network, L.L.C., contains remedial technology information on nearly 900 technologies. It includes technical paper abstracts, summaries, and components of remediation efforts undertaken since the inception of CERCLA in 1980. This information is verified and updated by RTN on a monthly basis to provide current and objective information on the status of innovative technologies.

These and other resources were used to identify a number of potentially applicable remedial technologies or process options for dealing with contaminated soils and sediments.

6.3 IDENTIFATION AND SCREENING OF APPLICABLE REMEDIAL TECHNOLOGIES

During this identification of remedial technologies, a wide range of potential remedial technologies and process options were reviewed. Based on this review, potential remedies unable to remediate the contaminated media due to site conditions or the lack of compatibility with the contaminated media were eliminated from further consideration. The initial identification and screening of remedial technologies for Lower Ley Creek is presented in Table 6.1. These technologies were developed based on the GRAs discussed above. These technologies were screened to ensure that only those technologies applicable to the contaminants present, the physical matrix, and other site characteristics were considered.

As an initial screening, each of the potentially applicable remedial technologies was evaluated in terms of effectiveness, implementability, and cost.

6.3.1 Effectiveness

Effectiveness focuses on the degree to which a remediation technology or alternative reduces the toxicity, mobility, or volume of hazardous substances through treatment and achieves long-term protection. The effectiveness criterion also considers the degree to which the option complies with the ARARs, minimizes short-term impacts, and also how quickly it achieves protection.

6.3.2 Implementability

Implementability includes both the technical and administrative feasibility of implementing a technology process or a remedial alternative. Consideration of implementability with respect to a remedial technology or a remedial alternative focuses on the administrative implementability of an option, including necessary permits for off-site actions; the availability of treatment, storage, and disposal facilities; and the availability of necessary equipment and skilled workers to implement a remedial technology or a remedial alternative.

6.3.3 Cost

Cost plays a limited role in the screening stage; only order-of-magnitude costs are developed. For remediation technologies, processing costs were assumed to include all the costs associated with the treatment other than capital and mobilization costs. Technologies or remediation alternatives that may be significantly more costly without any offsetting benefit over comparable options may be screened out.

Table 6.1 (continued)
Identification and Screening of Remedial Technologies for Lower Ley Creek

General Response Action (GRA)	Remedial Technology	Variations	Effectiveness	Implementability	Costs	Overall Screening Conclusion*
Ex Situ Treatment	Thermal Desorption (including thermal retort).		Effective for removal/volatilization of organic constituents and mercury. Not effective for removal of most inorganic compounds, but it has been used to remove mercury. Potential short-term impacts with rehandling steps.	Implementable for some chemicals, but mercury vapor control is complex. USEPA recommends against thermal treatment of mercury due to difficulties in controlling off gas. Requires numerous rehandling steps.	High	Not retained. Numerous handling and logistical steps. Limited chemical applicability.
	Incineration/ Vitrification		Effective for destruction and/or removal of organic constituents. Not effective for destruction of inorganic compounds. Potential short-term impacts with rehandling steps.	Potentially implementable. On-site incineration typically meets significant public resistance. Control of mercury vapors is a severe problem.	High	Not retained. Numerous handling and logistical steps. Limited chemical applicability.
	Dechlorination		Potentially effective in detoxifying specific types of aromatic organics, in particular dioxins and PCBs. Not effective for the heavy metal COCs. Potential short-term impacts with rehandling steps.	Very difficult to implement due to excessive amounts of reagent required for chlorinated compounds, lack of full-scale applications to date, and lack of commercial availability. Past applications have been in conjunction with thermal treatment.	High	Not retained. Numerous implementation issues and limited chemical applicability.
	Chemical Extraction		Potentially effective for extracting organics and metals, including chlorobenzenes and mercury. The extraction solution is then treated to remove and recover contaminants. Potential short-term impacts from chemicals and rehandling steps.	Can be difficult to implement due to complex treatment requirements for extraction fluid, lack of full-scale applications to date, and lack of commercial availability.	High	Not retained. Numerous implementation issues and limited chemical applicability.
	Sediment/Soil Washing		Potentially effective physical separation process for removing organics and metals through separation of fine fraction, where this fraction contains the majority of the contamination. Potential short-term impacts from rehandling steps.	Very difficult to implement due to complex treatment requirements for extraction fluid, lack of full-scale applications to date, and lack of commercial availability.	High	Not retained. Numerous implementation issues.
	Solidification/ Stabilization		Effective for improving material handling and for immobilizing and stabilizing heavy metals in a non-leachable matrix. Stabilizing mercury in soils and sediments, for example, has been tested based on sulfide precipitation. Potential short-term impacts from rehandling steps.	Difficult to implement. Addition of solidifying or stabilizing reagents may increase both volume and weight for disposal or containment.	High	Not retained. Too many implementation issues as compared to more proven technologies.
	Biological (includes land farming and slurry phase bioremediation)		Effective at biodegradation of simple organic chemicals. Not effective with transformation of mercury. May release large volumes of volatile chemicals. Potential short-term impacts from rehandling steps.	Difficult to implement on large scale.	High	Not retained. Too many implementation issues as compared to more proven technologies.

Notes:
Highlighted cells indicate remedial technologies that were not retained.
* The overall screening conclusion considers whether the remedial technology should be "retained" for use in developing remedial alternatives in Section 7 (the next step of the evaluation process) or "not retained" for further evaluation.

Table 5.5

Estimated Area and Volumes for All Chemicals Above Cleanup Goals in Soil

Southern Swale Soils (Old Ley Creek)

Depth of Contamination (ft bgs)	Thickness of Contaminated Interval (ft)	Areal Extent (ft^2)	Volume of Contaminated Soil in Depth Interval (CY)
0-2	2	81,894	6,066
0-6	6	25,977	5,773
2-8	6	12,755	2,834
2-14	12	4,333	1,926

Maximum Areal Extent (ft^2) **107,871**

Total Volume (CY) **16,599**

Southern Swale Soils (Lower Ley Creek)

Depth of Contamination (ft bgs)	Thickness of Contaminated Interval (ft)	Areal Extent (ft^2)	Volume of Contaminated Soil in Depth Interval (CY)
0-0.5	0.5	50,920	943
0-2	2	157,270	11,650
0-3	1	7,648	283
2-5	3	14,462	1,607

Maximum Areal Extent (ft^2) **208,190**

Total Volume (CY) **14,483**

Northwest Soils (Lower Ley Creek)

Depth of Contamination (ft bgs)	Thickness of Contaminated Interval (ft)	Areal Extent (ft^2)	Volume of Contaminated Soil in Depth Interval (CY)
0-2	2	642,044	47,559
2-8	6	6,702	1,489

Maximum Areal Extent (ft^2) **642,044**

Total Volume (CY) **49,048**

TOTAL AREAL EXTENT OF SOILS ABOVE CLEANUP GOALS (ft^2) **958,105**

TOTAL VOLUME OF SOILS ABOVE CLEANUP GOALS (CY) **80,130**

Notes:

Cleanup Goals for Soil are shown on Table 5.4

ft - feet

bgs - below ground surface

CY - cubic yards

Table 5.6

Estimated Area and Volumes for All Chemicals Above Cleanup Goals in Sediment

Upstream Section

Depth of Contamination (ft bwsi)	Thickness of Contaminated Interval (ft)	Areal Extent (ft^2)	Volume of Contaminated Sediment (CY)
0-2	2	93,066	6,894
0-4	4	33,973	5,033
0-8	8	119,482	35,402
		Total Areal Extent (ft^2)	**246,521**
		Total Volume (CY)	**47,329**

Middle Section

Depth of Contamination (ft bwsi)	Thickness of Contaminated Interval (ft)	Areal Extent (ft^2)	Volume of Contaminated Sediment (CY)
0-2	2	119,978	8,887
0-3	3	16,959	1,884
0-5	5	65,029	12,042
		Total Areal Extent (ft^2)	**201,966**
		Total Volume (CY)	**22,814**

Downstream Section

Depth of Contamination (ft bwsi)	Thickness of Contaminated Interval (ft)	Areal Extent (ft^2)	Volume of Contaminated Sediment (CY)
0-1	1	69,697	2,581
		Total Areal Extent (ft^2)	**69,697**
		Total Volume (CY)	**2,581**

TOTAL AREAL EXTENT OF SEDIMENTS ABOVE CLEANUP GOALS (ft^2) **518,184**

TOTAL VOLUME OF SEDIMENTS ABOVE CLEANUP GOALS (CY) **72,724**

Notes:

Cleanup Goals for Sediments were based on a 1 milligram per kilogram (mg/kg) PCB concentration

ft - feet

bwsi - below the water-sediment interface

CY - cubic yards

Table 2.C
Ecological Risk Benchmark Screening
Lower Ley Creek Soil
Benthic Invertebrates

Analyte	EPA Eco-SSL: Plants	EPA Eco-SSL: Terrestrial Invertebrates	EPA Eco-SSL: Birds	EPA Eco-SSL: Mammals	New York Soil Cleanup Objectives-Protection of Ecological Resources	EPA Region 5 Ecological Soil Screening Levels	Maximum Detected Value* (mg/kg)
2-Methylnaphthalene	Based on sum of low molecular weight PAHs				--	--	2.51
Acenaphthene					--	--	2.25
Acenaphthylene					--	--	7.84
Anthracene					--	--	14.9
Fluoranthene					--	--	61.4
Fluorene					--	--	3.76
Naphthalene					--	--	3.68
Phenanthrene					--	--	28.2
Sum Low Molecular Weight PAHs	NSV	29	NSV	100	--	--	124.54
Benzo(a)anthracene	Based on sum of high molecular weight PAHs				--	--	36.2
Benzo(a)pyrene					--	--	27.4
Benzo(b)fluoranthene					--	--	29.1
Benzo(g,h,i)perylene					--	--	16
Benzo(k)fluoranthene					--	--	20.9
Chrysene					--	--	36.7
Dibenzo(a,h)anthracene					--	--	6.4
Indeno(1,2,3-cd)pyrene					--	--	14.3
Pyrene					--	--	62.7
Sum High Molecular Weight PAHs	NSV	18	NSV	1.1	--	--	249.7
1,4-Dichlorobenzene	--	--	--	--	20	--	0.14
2-Butanone	--	--	--	--	100	--	0.38
4-Methylphenol	--	--	--	--	--	163	0.05
4-Nitroaniline	--	--	--	--	--	21.9	0.06
Acetone	--	--	--	--	2.2	2.5	2.03
Alpha-Chlordane	--	--	--	--	1.3	0.324	0.0493
Aluminum	--	--	--	--	--	--	15300
Antimony	NSV	78	NSV	0.27	--	--	19.6
Arsenic	18	NSV	43	46	--	--	17.4
Barium	NSV	330	NSV	2000	--	--	431
Benzene	--	--	--	--	70	0.255	0.06
Beryllium	NSV	40	NSV	21	--	--	3.61
Bis-(2-ethylhexyl)phthalate	--	--	--	--	--	0.925	0.71
Bromomethane	--	--	--	--	--	0.235	0.002
Butylbenzylphthalate	--	--	--	--	--	0.239	1.1
Cadmium	32	140	0.77	0.36	--	--	337
Carbazole	--	--	--	--	--	--	3.23
Carbon Disulfide	--	--	--	--	--	0.0941	0.05
Chromium	NSV	NSV	26	34	--	--	1320
cis-1,2-Dichloroethene	--	--	--	--	--	--	0.003
Cobalt	13	NSV	120	230	--	--	12.2
Copper	70	80	28	49	--	--	731
Cyanide	--	--	--	--	--	1.33	0.6
Dibenzofuran	--	--	--	--	--	--	2.24
Di-n-butylphthalate	--	--	--	--	--	0.15	0.157
Endrin	--	--	--	--	0.014	0.01	0.084
Gamma-Chlordane	--	--	--	--	--	0.224	0.035
Iron	--	--	--	--	--	--	31100
Isophorone	--	--	--	--	--	139	0.05
Lead	120	1700	11	56	--	--	375
Manganese	220	450	4300	4000	--	--	554
Mercury	--	--	--	--	--	0.1	4.11
Methoxychlor	--	--	--	--	--	0.0199	0.0085
Methylene chloride	--	--	--	--	12	--	0.004
Nickel	38	280	210	130	--	--	434
p,m Xylene	--	--	--	--	0.26	--	0.003
p,p'-DDD	DDT and metabolites				--	--	0.008
p,p'-DDE					--	--	0.492
p,p'-DDT					--	--	0.216
DDT and metabolites	NSV	NSV	0.093	0.021	--	--	0.716
PCB-1248	--	--	--	--	1	--	86.1
PCB-1260	--	--	--	--	1	--	2.94
Phenol	--	--	--	--	30	--	0.0476
Selenium	0.52	4.1	1.2	0.63	--	--	5.2
Silver	560	NSV	4.2	14	--	--	136
Tetrachloroethene	--	--	--	--	2	9.92	0.00384
Toluene	--	--	--	--	36	5.45	0.0183
Trichloroethene	--	--	--	--	2	12.4	0.00918
Vanadium	NSV	NSV	7.8	280	--	--	34.9
Zinc	160	120	46	79	--	--	2180

Notes

* = Maximum detected surface soil (0-2 feet) concentration obtained from the Lower Ley Creek Human Health Risk Assessment, Table 2a.

-- = not available or not applicable

[shaded] Indicates screening level is lower than the Maximum Detected Value.

NMES Page 16

RESPONSIVENESS SUMMARY

APPENDIX V-g

ON-LINE PETITION IN SUPPORT OF THE REMEDY

Tames, Pam

From: Caleb Laieski <mail@changemail.org>
Sent: Tuesday, August 12, 2014 5:16 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Caleb Laieski Alexandria, Virginia

There are now 2 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	Ashley Smith <mail@changemail.org>
Sent:	Tuesday, August 12, 2014 5:34 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Ashley Smith Washington, District Of Columbia

There are now 3 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	Benedicto Munoz <mail@changemail.org>
Sent:	Tuesday, August 12, 2014 6:54 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Benedicto Munoz Chandler, Arizona

There are now 4 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Micky Chance <mail@changemail.org>
Sent: Tuesday, August 12, 2014 7:36 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Micky Chance Phoenix, Arizona

There are now 5 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Carleen Fisher <mail@changemail.org>
Sent: Tuesday, August 12, 2014 7:39 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Carleen Fisher Fayetteville, North Carolina

There are now 6 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	Stephen Brittle <mail@changemail.org>
Sent:	Tuesday, August 12, 2014 7:39 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Stephen Brittle Phoenix, Arizona

There are now 7 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: adi altman <mail@changemail.org>
Sent: Tuesday, August 12, 2014 7:45 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
adi altman Philadelphia, Pennsylvania

There are now 8 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	Vinnie Merendino <mail@changemail.org>
Sent:	Tuesday, August 12, 2014 7:56 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Vinnie Merendino Phoenix, Arizona

There are now 9 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Evelyn Casanova <mail@changemail.org>
Sent: Tuesday, August 12, 2014 8:10 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Evelyn Casanova Ellsworth, Maine

There are now 9 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Briana cha <mail@changemail.org>
Sent: Tuesday, August 12, 2014 8:15 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Briana cha Youngtown, Arizona

There are now 10 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: M P <mail@changemail.org>
Sent: Tuesday, August 12, 2014 8:17 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
M P Teaneck, New Jersey

There are now 11 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	Casey Cameron <mail@changemail.org>
Sent:	Tuesday, August 12, 2014 8:25 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Casey Cameron Saint Elmo, Illinois

There are now 12 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: kristie johnson <mail@changemail.org>
Sent: Tuesday, August 12, 2014 8:32 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
kristie johnson Deltona, Florida

There are now 13 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	Cory Schaeffer <mail@changemail.org>
Sent:	Tuesday, August 12, 2014 8:32 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Cory Schaeffer Phoenix, Arizona

There are now 14 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	Anne Janeski <mail@changemail.org>
Sent:	Tuesday, August 12, 2014 8:40 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Anne Janeski Alexandria, Virginia

There are now 15 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Todd Augustus <mail@changemail.org>
Sent: Tuesday, August 12, 2014 9:07 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Todd Augustus Arlington, Virginia

There are now 16 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Roy wise <mail@changemail.org>
Sent: Tuesday, August 12, 2014 9:12 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Roy wise Waldorf, Maryland

There are now 17 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	Ashley Bowen <mail@changemail.org>
Sent:	Tuesday, August 12, 2014 10:16 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Ashley Bowen Washington, District Of Columbia

There are now 18 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Lisa Serafin <mail@changemail.org>
Sent: Tuesday, August 12, 2014 10:48 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Lisa Serafin Surprise, Arizona

There are now 19 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Shelley Ireland <mail@changemail.org>
Sent: Tuesday, August 12, 2014 11:18 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Shelley Ireland Phoenix, Arizona

There are now 20 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Christopher Pankratz <mail@changemail.org>
Sent: Tuesday, August 12, 2014 11:32 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Christopher Pankratz Tucson, Arizona

There are now 21 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Tricia Burlison <mail@changemail.org>
Sent: Tuesday, August 12, 2014 11:40 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Tricia Burlison Phoenix, Arizona

There are now 22 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	Yasiu Kruszynski <mail@changemail.org>
Sent:	Tuesday, August 12, 2014 11:44 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Yasiu Kruszynski Chicago, Illinois

There are now 23 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Chantal Buslot <mail@changemail.org>
Sent: Wednesday, August 13, 2014 6:29 AM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Chantal Buslot Hasselt, Texas

There are now 24 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	myrtilla laieski <mail@changemail.org>
Sent:	Wednesday, August 13, 2014 8:04 AM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
myrtilla laieski swanville, Maine

There are now 25 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	Concerned Citizen <mail@changemail.org>
Sent:	Wednesday, August 13, 2014 10:14 AM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Concerned Citizen New City, New York

There are now 26 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Michael Steele <mail@changemail.org>
Sent: Wednesday, August 13, 2014 11:38 AM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Michael Steele Morrice, Michigan

There are now 27 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	Dennis Kaplan <mail@changemail.org>
Sent:	Wednesday, August 13, 2014 1:26 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Dennis Kaplan Mayfield Heights, Ohio

There are now 28 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Kasey Carlson <mail@changemail.org>
Sent: Wednesday, August 13, 2014 4:52 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Kasey Carlson San Pedro, California

There are now 29 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Click here to unsubscribe from updates on this petition
Click here to unsubscribe from messages from Change.org

Tames, Pam

From:	Cherise Parrish <mail@changemail.org>
Sent:	Wednesday, August 13, 2014 10:20 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Cherise Parrish Gresham, Oregon

There are now 30 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: natalie naud <mail@changemail.org>
Sent: Thursday, August 14, 2014 2:38 AM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
natalie naud las vegas, Nevada

There are now 31 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Kristina Christopher <mail@changemail.org>
Sent: Thursday, August 14, 2014 8:01 AM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Kristina Christopher Darnestown, Maryland

There are now 32 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Mark Pedroza <mail@changemail.org>
Sent: Thursday, August 14, 2014 9:22 AM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Mark Pedroza Washington, District Of Columbia

There are now 33 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Becca Hee <mail@changemail.org>
Sent: Thursday, August 14, 2014 11:28 AM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Becca Hee Dahlonega, Georgia

There are now 34 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Click here to unsubscribe from updates on this petition
Click here to unsubscribe from messages from Change.org

Tames, Pam

From:	Audra Carlisle <mail@changemail.org>
Sent:	Thursday, August 14, 2014 4:54 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Audra Carlisle Tempe, Arizona

There are now 35 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	Todd Snyder <mail@changemail.org>
Sent:	Thursday, August 14, 2014 4:54 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "EPA: I Support the Clean-up Plan for Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Todd Snyder San Francisco, California

There are now 36 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/epa-i-support-the-clean-up-plan-for-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	William Dye <mail@changemail.org>
Sent:	Thursday, August 14, 2014 7:03 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "Tell the EPA to Clean-Up the Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
William Dye Peoria, Arizona

There are now 37 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/tell-the-epa-to-clean-up-the-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Edward Laurson <mail@changemail.org>
Sent: Thursday, August 14, 2014 11:13 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "Tell the EPA to Clean-Up the Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Edward Laurson Denver, Colorado

There are now 38 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/tell-the-epa-to-clean-up-the-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Steve Williams <mail@changemail.org>
Sent: Friday, August 15, 2014 9:20 AM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "Tell the EPA to Clean-Up the Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Steve Williams Round Rock, Texas

There are now 39 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/tell-the-epa-to-clean-up-the-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Click here to unsubscribe from updates on this petition
Click here to unsubscribe from messages from Change.org

Tames, Pam

From: Pam Boland <mail@changemail.org>
Sent: Friday, August 15, 2014 2:36 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "Tell the EPA to Clean-Up the Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Pam Boland Grovetown, Georgia

There are now 40 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/tell-the-epa-to-clean-up-the-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	James Mulcare <mail@changemail.org>
Sent:	Friday, August 15, 2014 2:37 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "Tell the EPA to Clean-Up the Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
James Mulcare Clarkston, Washington

There are now 41 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/tell-the-epa-to-clean-up-the-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From:	Brad Flatt <mail@changemail.org>
Sent:	Friday, August 15, 2014 11:08 PM
To:	Tames, Pam
Subject:	I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "Tell the EPA to Clean-Up the Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Brad Flatt Henderson, Tennessee

There are now 42 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/tell-the-epa-to-clean-up-the-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Shannon Cummings <mail@changemail.org>
Sent: Saturday, August 16, 2014 3:00 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "Tell the EPA to Clean-Up the Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Shannon Cummings La Mesa, California

There are now 43 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/tell-the-epa-to-clean-up-the-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Lacey Levitt <mail@changemail.org>
Sent: Sunday, August 17, 2014 12:21 AM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "Tell the EPA to Clean-Up the Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Lacey Levitt Baltimore, Maryland

There are now 44 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/tell-the-epa-to-clean-up-the-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Carole Russelle <mail@changemail.org>
Sent: Sunday, August 17, 2014 10:44 AM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "Tell the EPA to Clean-Up the Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Carole Russelle Portland, Oregon

There are now 45 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/tell-the-epa-to-clean-up-the-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Wil Bowen <mail@changemail.org>
Sent: Sunday, August 17, 2014 12:28 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "Tell the EPA to Clean-Up the Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Wil Bowen Phoenix, Arizona

There are now 46 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/tell-the-epa-to-clean-up-the-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Lynn Miller <mail@changemail.org>
Sent: Sunday, August 17, 2014 4:21 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "Tell the EPA to Clean-Up the Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Lynn Miller Ocala, Florida

There are now 47 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/tell-the-epa-to-clean-up-the-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Christine Jimenez <mail@changemail.org>
Sent: Monday, August 18, 2014 9:46 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "Tell the EPA to Clean-Up the Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Christine Jimenez Los Angeles, California

There are now 48 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/tell-the-epa-to-clean-up-the-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Britni Jackson <mail@changemail.org>
Sent: Tuesday, August 19, 2014 6:29 AM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "Tell the EPA to Clean-Up the Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Britni Jackson Woodside, New York

There are now 49 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/petitions/tell-the-epa-to-clean-up-the-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Tames, Pam

From: Angel Serafin <mail@changemail.org>
Sent: Tuesday, August 19, 2014 5:42 PM
To: Tames, Pam
Subject: I Support the Clean-up Plan for Onondaga Lake Superfund Site

Dear Pamela Tames, P.E.,

I just signed Caleb Laieski's petition "Tell the EPA to Clean-Up the Onondaga Lake Superfund Site" on Change.org.

> Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,
Angel Serafin Surprise, Arizona

There are now 50 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:

http://www.change.org/p/tell-the-epa-to-clean-up-the-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Click here to unsubscribe from updates on this petition
Click here to unsubscribe from messages from Change.org

Tames, Pam

From:	Carlton Smith <mail@changemail.org>
Sent:	Tuesday, August 26, 2014 7:13 AM
To:	Tames, Pam
Subject:	5 new petition signatures: Carlton Smith, Richard Noble...

5 new people recently signed Caleb Laieski's petition "Tell the EPA to Clean-Up the Onondaga Lake Superfund Site" on Change.org.

There are now 55 signatures on this petition. Read reasons why people are signing, and respond to Caleb Laieski by clicking here:
http://www.change.org/p/tell-the-epa-to-clean-up-the-onondaga-lake-superfund-site/responses/new?response=19a44d182750

Dear Pamela Tames, P.E.,

Ms. Tames, I support the EPA's Clean-up Plan for Onondaga Lake Superfund Site. I am very concerned about the Toxins, Sediment, Solvay Wastebeds, Mercury, Phosphorus and Ammonia and pollution that is in the lake. I am asking that you continue with your clean-up plan as soon as possible and do everything in your power to keep this lake CLEAN and PROTECTED. I ask that you also do frequent monitoring of the water, as well as make sure that anyone violating or dumping into the lake be addresses and disciplined immediately. We want clean water and are asking that you do all in your power to provide us with clean water. Thank you for your time and all you do.

Sincerely,

55. Carlton Smith Columbus, Ohio
54. Richard Noble Palm Springs, California
53. Tanya Baker Santa Cruz, California
52. Sean Heidrich Des Plaines, Illinois
51. Simone Weaver Caledonia, Ohio

LOWER LEY CREEK SUBSITE OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX VI

STATEMENT OF FINDINGS: FLOODPLAINS AND WETLANDS

RECORD OF DECISION

LOWER LEY CREEK SUBSITE

OF THE ONONDAGA LAKE SUPERFUND SITE

STATEMENT OF FINDINGS: FLOODPLAINS AND WETLANDS

Need to Affect Floodplains and Wetlands

The Lower Ley Creek subsite of the Onondaga Lake site consists of the lower two miles of Ley Creek (including the Creek channel and adjacent floodplains) beginning at and including the Route 11 bridge (a.k.a. Brewerton Road) and ending downstream at Onondaga Lake (Lake). The site also includes a 3.7-acre wetland situated on the southern bank of the Creek adjacent to the Cooper Crouse-Hinds North Landfill and "Old Ley Creek Channel," an original section of the Creek before Ley Creek was widened and reconfigured during a flood control project in the 1970s. Old Ley Creek Channel is now a tributary for the new channel. This portion of the site is approximately 3.5 acres. In addition, the subsite includes several sections along the banks of the Creek where dredged contaminated sediments were placed during a flood control project.

In addition to passing under the Route 11 bridge, the Creek passes under the 7th North Street and Interstate 81 bridges. Much of the Creek is shallow, but there are sections where the water depth may be 14 feet deep, particularly downstream of the 7th North Street bridge. The bottom of the Creek is dominated by soft sediment with very little stone or other hard surfaces.

Prior to the early 1970s, some wetlands located on either side of the Creek were filled with municipal refuse; there is a New York State regulated wetland (SYW-11) mapped on both sides adjacent to Ley Creek downstream of the confluence with Bear Trap Creek which enters Ley Creek upstream of 7th North Street.

Much of the area adjacent to the Creek is located within the 100-year floodplain. Old Ley Creek Channel is also located within the 100-year floodplain.

The wetlands and a portion of the floodplain soils are contaminated with PCBs, polycyclic aromatic hydrocarbons and heavy metals, in particular arsenic, cadmium, trivalent chromium, copper, lead, mercury, nickel, silver and zinc. The sediments are contaminated with PCBs, arsenic, cadmium, total chromium, lead, mercury and nickel.

The results of the human health risk assessment indicate that the contaminated sediments and soils present an unacceptable human exposure risk and the ecological risk assessment indicates that the contaminated soils and sediments pose an unacceptable ecological exposure risk. Accordingly, remedial action alternatives were developed in the feasibility study (FS) report to remediate the Creek sediments, wetland, and floodplain soils. The selected remedy includes the excavation of an estimated 75,000 CY of contaminated soils on the northern and southern banks of the Creek including 12,000 CY of sediment from the wetland area and 73,000 CY of sediments from the

Creek. Any contaminated soil located on the northern bank of the Creek that cannot be safely excavated because of the presence of the two large, buried natural gas and oil pipelines which run parallel to the north bank of the Creek will be covered with one foot of soil. In order to protect the structural integrity of the Route 11 bridge, it may not be possible to remove all of the contaminated sediment at the base of the bridge. Therefore, some combination of excavation and capping of sediments under the bridge may be necessary in order to protect the bridge and not reduce the effective cross section of flow for flood protection.

In addition to the selected remedy, the FS also considered no-action soil and sediment alternatives that do not entail excavation of contaminated floodplain soils or creek and wetland sediments. Under the no-action alternatives, the contaminated soils/sediments would remain in place, posing unacceptable human and ecological exposure risks and would remain as a potential source for contaminating downstream areas. Thus, the no-action alternatives would not be protective of ecological or human receptors. The implementation of any of the action alternatives developed in FS would be more protective of human health and the environment than the no-action alternative because they would meet the remedial action objectives and remediation goals for the site and would result in residual risks less than the no-action alternative.

The Environmental Protection Agency (EPA) and the New York State Department of Environmental Conservation have determined that there is no practicable alternative that is sufficiently protective of human health and the environment that would not result in the excavation of these soils/sediments. Consequently, since remedial action is necessary, any remedial action that might be taken would necessarily affect floodplains and wetlands.

Effects of Proposed Action on the Natural and Beneficial Values of Floodplains and Wetlands

Excavation of soils/sediments will result in temporary, localized disturbance to the wetlands, floodplains and creek bed. The total construction period is estimated at 12 months. The areas affected by the temporary clearing of flora and fauna include 3.7 acres of wetlands and 14 acres of floodplain. It is not anticipated that implementation of the selected remedy will result in any significant alteration of the existing site hydrology, which is critical for wetland restoration. Removing the contaminated sediments in the wetland and Creek, especially if they are excavated in the dry, will likely cause short-term adverse ecological impacts. Removing the contaminated sediments in the wetland and Creek in the wet may result in short-term localized exceedances of surface water standards because of suspension of impacted sediment during excavation.

The principal benefit of the EPA's selected remedy will be the removal of considerable sediment-bound contaminant mass from the wetlands and Creek sediments and soil-bound contaminant mass in floodplain soils. The contaminated sediments that will be removed will no longer function as a source of contamination for the downstream areas or pose risk to ecological receptors. The removal of the contaminated soils on the banks will eliminate a potential source of contamination to the wetland and Creek through erosion. In this context, the selected remedy will have a substantial positive impact on both the natural and beneficial values of the floodplain soils and wetlands and Creek sediments.

The primary location-specific ARARs applicable to the remediation are ECL Article 24 Freshwater Wetlands, ECL Article 15 Use and Protection of Waters, and Clean Water Act (CWA) Section 404. For freshwater wetlands, 6 NYCRR Part 663 regulates activities conducted in or adjacent to regulated wetlands. Article 15 is implemented by 6 NYCRR Part 608 which regulates alterations to beds and banks of streams such as excavation and filling.

The primary New York State standard for protection of freshwater wetlands applicable to the remediation is Environmental Conservation Law (ECL), Article 24, and Title 7. For freshwater wetlands, 6 NYCRR Parts 662 through 665 regulates activities conducted in or adjacent to regulated wetlands. The selected remedy will comply with this standard.

Although not applicable or relevant and appropriate requirements, the selected remedy will also comply with Executive Order 11988: Floodplain Management; Executive Order 11990: Protection of Wetlands, and EPA's Statement of Procedures on Floodplains Management & Wetlands Protection. Accordingly, floodplains and wetlands assessments will need to be developed during the remedial design process.

<u>Measures to Mitigate Potential Harm to the Floodplains and Wetlands</u>

Implementation of the selected remedy will entail removal and, where needed, capping, resulting in temporary physical disturbances to the wetlands, sediments and floodplains. Measures to minimize potential adverse impacts that cannot be avoided will be evaluated as part of and incorporated into the remedial design. Common practices include field demarcation of wetland/floodplain areas and implementation of soil/sediment erosion and/or resuspension control measures (e.g., installation of silt fencing, hay bales, hay/straw mulch, jute matting) to minimize impacts from construction activities.

Measures will also be employed during excavation activities to prevent sediments that are resuspended from being transported to downstream areas during flooding events (100-year and 500-year storms). For example, energy barriers such as sheet piles and/or silt curtains could be used during excavation activities to minimize the transport of resuspended sediments from the areas being excavated to downstream areas. Measures will be implemented, as needed, to ensure even placement of the cap (i.e., minimize mounding) and to limit resuspension and loss of impacted sediment into the water column or emerging cap layer. Monitoring will occur during both excavation and capping operations. Monitoring of surface water in the vicinity of the work zones will be conducted to measure potential exceedances of ambient water quality criteria due to resuspension as a result of excavation and capping operations. Should this monitoring indicate that elevated levels of suspended sediments are being generated by excavation or capping activities, operations will be modified so as to reduce those levels. Possible actions that could be taken in this regard include slowing down the rate of sediment removal, changing the depth of the excavation, modifications to movement of the excavation or capping equipment, and cessation of excavation/capping activities.

At least one-foot of clean fill will be placed over the excavated areas to stabilize the sediment bed and support habitat replacement/reconstruction. The habitat material will have a suitable amount of organic material. The negative ecological effects would be limited temporarily (it is expected that benthic recolonization would take less than three years) and be offset by the positive long-term effects of clean cover system materials for benthic habitat.

Shoreline stabilization and waterfront restoration will be conducted after the excavation activities were completed within a given area.