

**Five-Year Review Report
Ley Creek PCB Dredgings Subsite
Onondaga Lake Site
Onondaga County
Town of Salina, New York**

Prepared by:

**United States Environmental Protection Agency
Region 2
New York, New York**

January 2007

EXECUTIVE SUMMARY

This is the first five-year review for the Ley Creek PCB Dredgings Subsite of the Onondaga Lake Superfund site, located in the Town of Salina, Onondaga County, New York.

A five-year review is required when the remedy for an operable unit leaves hazardous substances, pollutants, or contaminants at a site above levels that allow for unlimited use and unrestricted exposure.

This review evaluated the results from monitoring programs established as part of this remedy to ensure that the remedy remains protective of human health and the environment. Based on this review, it has been concluded that the implemented actions at the Subsite protect human health and the environment in the short term; however, in order for the Subsite to be protective in the long term, institutional controls need to be implemented.

Five-Year Review Summary Form

SITE IDENTIFICATION

Site Name (from WasteLAN): Onondaga Lake site (Ley Creek PCB Dredgings subsite-OU 10)

EPA ID (from WasteLAN): NYD986913580

Region: 2

State: NY

City/County: Town of Salina/Onondaga County

SITE STATUS

NPL Status: Final Deleted Other (specify) _____

Remediation Status (choose all that apply): Under Construction Operating Complete

Multiple OUs? YES NO

Construction completion date: N/A

Are portions of the site in use or suitable for reuse? YES NO N/A

REVIEW STATUS

Lead agency: EPA State Tribe Other Federal Agency _____

Author name: Robert Nunes

Author title: Remedial Project Manager

Author affiliation: EPA

Review period: 12/15/1999 - 01/26/2007

Date(s) of site inspection:

Type of review:

- Post-SARA Pre-SARA NPL-Removal only
 Non-NPL Remedial Action Site NPL State/Tribe-lead
 Regional Discretion Policy Statutory

Review number: 1 (first) 2 (second) 3 (third) Other (specify) _____

Triggering action:

- Actual RA Onsite Construction at OU #10 Actual RA Start at OU #
 Construction Completion Previous Five-Year Review Report
 Other (specify) _____

Triggering action date (from WasteLAN): 12/15/1999

Due date (five years after triggering action date): 12/15/2004

Does the report include recommendation(s) and follow-up action(s)? yes no

Acres in use or suitable for use: 18

restricted: 18

unrestricted: 0

Five-Year Review Summary Form (continued)

Issues, Recommendations, and Follow-Up Actions

The selected remedy has not been fully implemented. Deed restrictions to preclude activities that could potentially expose contaminated materials and to ensure that the integrity of the cover is maintained need to be implemented.

This Subsite has ongoing operation, maintenance, and monitoring activities as part of the selected remedy. As was anticipated by the decision document, these activities are subject to routine modification and adjustment. This report includes suggestions for improving, modifying, and/or adjusting these activities.

This report did not identify any issue or make any recommendation for the protection of public health and/or the environment which was not included or anticipated by the Subsite's decision document.

Protectiveness Statement

The implemented actions at the Subsite protect human health and the environment in the short term; however, in order for the Subsite to be protective in the long term, institutional controls need to be implemented. Currently, there are no exposure pathways that could result in unacceptable risks and none are expected, as long as the Subsite use does not change and the engineered and access controls that are currently in place continue to be properly operated, monitored, and maintained. The groundwater is not currently being utilized at the Subsite nor is it anticipated that groundwater will be used.

I. Introduction

This is the first five-year review for the Ley Creek PCB Dredgings Subsite of the Onondaga Lake Superfund Site, located in the Town of Salina, Onondaga County, New York. The State-lead Onondaga Lake site currently includes eight subsites (subsites are defined as any site that is situated on Onondaga Lake's shores or tributaries that has contributed contamination to or threatens to contribute contamination to Onondaga Lake.) Each subsite is an operable unit.¹

A five-year review is required when the remedy for an operable unit leaves hazardous substances, pollutants, or contaminants at the site above levels that allow for unlimited use and unrestricted exposure.

This first five-year review for the Ley Creek PCB Dredgings Subsite of the Onondaga Lake Superfund Site was conducted by Environmental Protection Agency (EPA) Remedial Project Manager (RPM) Robert Nunes. The review was conducted pursuant to Section 121 (c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. §9601 *et seq.* and 40 CFR 300.430(f)(4)(ii) and in accordance with the Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P (June 2001).

This report will become part of the Onondaga Lake site file.

The trigger for this five-year review is the start of on-site construction associated with the remedy.

II. Site Chronology

Table 1 (attached) summarizes the Subsite-related events from discovery until the present.

III. Background

Site Location

The Ley Creek PCB Dredgings Subsite (Subsite) is located along the south bank of Ley Creek in the Town of Salina, Onondaga County, New York. A site location map and Site plans are included as

¹ This five-year review focuses only on the Ley Creek PCB Dredgings Subsite of the Onondaga Lake site. Construction is underway at one other subsite—LCP Bridge Street. Records of Decision (RODs) have been issued at two other subsites—Semet Residue Ponds and the Lake Bottom. At the Semet Residue Ponds Subsite, the remedial design related to the groundwater component of the remedy is underway. A proposed modification of the remedy, which would allow for the reuse of the Semet residue, is under evaluation. The Lake Bottom Subsite is in the preliminary remedial design phase. Remedial Investigation/Feasibility Studies (RI/FSs) are presently being conducted at five other Subsites—General Motors: Inland Fisher Guide and Ley Creek Deferred Media; Town of Salina Landfill; Wastebed B/Harbor Brook; Willis Avenue; and Geddes Brook/Nine Mile Creek. Assessments are currently being performed at a number of potential subsites to determine whether they contributed contamination to, or threaten to contribute contamination to, Onondaga Lake.

Figures 1 through 6. The Subsite is bounded by Factory Avenue on the south and Ley Creek to the north. The New York State Thruway is located immediately to the north of Ley Creek. The eastern limit of the Subsite is the General Motors Outfall 003, which is located just west of Townline Road. The western limit is located approximately 4,000 feet downstream near the Town of Salina Highway Department garage. A fence extends along the south side of the study area approximately 10 feet north of Factory Avenue and to the east and west; however, access along the bank of Ley Creek, which forms the northern site boundary, remains unrestricted.

Physical Characteristics

The 18-acre Subsite consists of dredged spoil materials located on the south bank of the creek. These materials have been covered with a one-foot thick soil cover.

In the vicinity of the Subsite, Ley Creek is generally less than 15 feet wide and less than 2 feet deep. Ley Creek drains an area of approximately 30 square miles and is part of the Onondaga County Ley Creek Drainage District. Portions of the cities and towns of Syracuse, North Syracuse, East Syracuse, Cicero, Clay, Dewitt, Manlius, and Salina are located in the Ley Creek drainage basin.

Site Geology/Hydrogeology

The study area geology is characterized by the dredged material at the surface, and natives soils consisting of silts, clays and fine-grained sand deposits. These fine-grained fluvial and lacustrine sediments overlie dense glacial till. The depths of fluvial and lacustrine sediments range from 4 feet to 12 feet below grade with a thickness ranging from 5 feet to 25 feet.

The glacial till unit underlying the fluvial and lacustrine deposits consists of dense reddish brown clayey silt with sand and imbedded gravel fragments. On-site, the till layer ranges in depth from approximately 11 feet to approximately 30 feet below grade. Shale bedrock was encountered at between approximately 30 and 35 feet below grade.

Groundwater elevation data were used to conclude that, in general, the direction of shallow groundwater flow is to the north toward Ley Creek. Groundwater elevations indicate an upward flow potential exists between the upper fluvial and lacustrine deposits and the underlying till.

Land and Resource Use

The Subsite is located in an urban area. It is fenced along the Factory Avenue boundary, limiting access by the general public. The Subsite is part of the flood plain for Ley Creek and is used as “open space” and as part of the floodplain drainage area. It is expected to be maintained as “open space” in the future. There is no recreational use of the area for fishing.

History of Contamination

Prior to the early 1970s, the combination of poor channel conditions and large impermeable areas in the Ley Creek watershed resulted in extensive flooding, some of the worst of which was near the General Motors Corporation (GM)-Inland Fisher Guide Facility in 1969. The formation of the Ley Creek Drainage District and clearing and dredging of the creek channel was initiated following the

1969 flooding event. Dredging of Ley Creek was performed by the Onondaga County Department of Drainage and Sanitation. In 1970, the section of the creek between Route 11 and Seventh North Street was dredged, and in 1971, additional portions of the creek between Seventh North Street and Onondaga Lake were dredged. Additional dredging of Ley Creek from Townline Road to Onondaga Lake took place in 1975, and in 1983, the section of the creek between Town line Road and Route 11 was dredged. Dredged materials generated during these activities were placed along the south bank of the creek or used for land restoration projects. It was subsequently determined that much of the dredged sediments were contaminated with PCBs, the result of industrial wastewater discharged primarily from the adjacent GM-Inland Fisher Guide Plant.

Initial Response

After investigations related to the deposited dredge materials conducted in 1985, 1987, and 1989, the New York State Department of Environmental Conservation (NYSDEC) determined that GM needed to perform an RI/FS at the Subsite to fully characterize the areal and vertical extent of contamination present. GM and NYSDEC entered into an Administrative Order on Consent for performance of the RI/FS, effective May 23, 1991. In 1993, the RI was completed. Also in 1993, the adjacent GM Inland Fisher Guide site was listed on the Registry of Inactive Hazardous Waste Disposal Sites, as a Class 2 site. In 1996, the FS report was accepted by NYSDEC.

Basis for Taking Action

The deposited dredge material/soils were determined to represent a threat to the environment as a contributing source of PCBs to the fish, sediments and groundwater in the vicinity of the Subsite. Ecological risk calculations indicated that the unremediated PCB-contaminated dredge material/soils posed an unacceptable risk to terrestrial species and their predators, such as the short-tailed shrew and the red-tailed hawk.

IV. Remedial Actions

Remedy Selection

NYSDEC issued a ROD for the Subsite in March 1997. EPA concurred on the ROD in February 1998. The major components of the remedy include²:

² Remedial action objectives are specific goals to protect human health and the environment. These objectives are based on available information, standards, and risk-based levels established in the risk assessment. The following remedial action objectives for the Subsite were identified in the ROD: 1) reduce, control, or eliminate the PCB contamination present within the dredge materials/soils on the Subsite; 2) eliminate the threat to surface waters and sediments by eliminating any future contaminated surface run-off from the contaminated dredge material/soils on site; 3) reduce short-term impacts to surface water and air expected as a result of remedial activities; 4) eliminate a source of PCBs for uptake by fish and other organisms in Ley Creek; 5) eliminate the potential for direct human or animal contact with

- Excavation and disposal of deposited dredge material/soils that contain PCBs at concentrations exceeding 50 milligrams per kilogram (mg/kg) at a permitted hazardous waste landfill;
- Consolidation and covering of the remaining PCB-contaminated dredge materials where concentrations are less than 50 mg/kg but exceed 1 mg/kg at the surface and 10 mg/kg in subsurface areas;
- Removal of deposited dredged materials, at a minimum, from the first twenty-five feet of the floodway area to restore the area to an appropriate elevation. After the restoration of the floodway elevations, covering of any remaining materials above the remedial level remaining in the floodway with a geomembrane or clay and 12 inches of soil or a gravel roadway. Grading and covering with a vegetated soil cover consisting of 12 inches of soil in areas outside of the floodway;
- Construction of a gravel access road adjacent to the southern bank of the Creek to allow for future maintenance and/or dredging;
- Grading and covering four drainage swales from Factory Avenue with a vegetated cover. Lining with a half pipe or formed concrete spillway where the swales pass through the area of covered dredge spoils. Provision of access pads and pathways, as well as gates in the fence, to allow access for maintenance of the County sewer line which is also located in the area to be covered;
- Completion during the remedial design of a hydraulic analysis and floodplain assessment to assure compliance with Executive Order 11988 (Floodplain Management) for the consolidated capped materials to ensure that the material to be left in the floodplain and floodway will not result in any significant change in flood elevations and that there will not be any adverse impact to the remedy from a 100-or 500-year flood;
- Installation of a chain-link fence around the area of the vegetative cover to limit access;
- Implementation of deed restrictions to preclude activities that could potentially expose contaminated materials and to ensure that the integrity of the cover is maintained; and
- Implementation of a long-term monitoring program.

the contaminated dredge materials/soils on site; and 6) prevent, to the extent possible, migration of contaminants into the groundwater.

Remedy Implementation

During the remedial design, flow velocities in the vicinity of the Subsite were calculated as part of the Design Conditions Model for the 100-year and 500-year floods. The maximum channel velocity in the vicinity of the Subsite during a 500-year flood is calculated to be approximately 5 feet per second (ft/s). Flow velocities outside the channel, particularly on the southern edge of Ley Creek extending across the Subsite to the northern edge of Factory Avenue ranged from approximately less than 1 ft/s to 4 ft/s. General erosion velocity capacity limits published by the New York State Department of Transportation indicate that bare soil, soil with excellent vegetation, and typical synthetic geomat materials with established vegetation can withstand flow velocities of up to 1 ft/s, 5 ft/s, and 14 ft/s, respectively, without erosion. Therefore, a cover consisting of 12 inches of well-maintained vegetative cover would provide adequate erosion protection for even a 500-year flood and could be used in lieu of a cover with geomembrane or clay in the floodway as specified in the ROD. However, as a measure of additional erosion protection (280% of the erosion protection required to address 500-year flood maximum channel velocity in the vicinity of the site), a cover which includes a synthetic geomat from the southern edge of Ley Creek to the northern edge of the access road was included in the remedial design. The synthetic geomat is a lightweight, porous material which strengthens the interface between soil and vegetation. The cover design also included the placement of a non-woven geotextile between the 6-inch vegetative soil layer and the 6-inch top soil layer from the southern edge of Ley Creek to a few feet south of the start of the slope increase south of the access road. The non-woven geotextile is a lightweight, porous fabric which would serve as an indicator that erosion has occurred and maintenance of the soil cover is required.

Excavation and staging of the deposited dredged material/soil that contained PCBs greater than or equal to 50 mg/kg was conducted between December 1999 and August 2000. Approximately 3,750 cubic yards (cy) of excavated material/soil was loaded into dump trailers and the trailers were transported to the Chemical Waste Management facility in Model City, New York. Approximately 920 cy of deposited dredged material/soil located on the north bank of Ley Creek was excavated from an area of approximately 6,200 square feet to a depth of 4 feet and was consolidated on-site. The excavated area on the north bank was backfilled and seeded with Reed Canary Grass (*Phalaris arundinacea*).

A vegetative cover was installed over the consolidated dredged material/soil to meet the remedial action objectives called for in the ROD. Due to constructability concerns with respect to installation of the geotextile between the vegetative soil and top soil layers, the design was modified with NYSDEC approval during remedial construction to allow for the geotextile to be placed beneath one 12-inch layer of soil suitable to support vegetation. With the exception of areas identified for wetland mitigation and the excavated area in the northern area of the north bank of Ley Creek, the vegetative cover system was hydroseeded with Lancer Flat Pea (*Lathyrus sylvestris*) and was fertilized to establish vegetation. On-site wetland mitigation consisted of planting Reed Canary Grass (*Phalaris arundinacea*) in approximately 1.5 acres of the Subsite to replace 1.4 acres of wetlands eliminated during remedial construction.

During remedial construction, six groundwater monitoring wells were decommissioned in accordance with NYSDEC-approved modified procedures because they were located in areas

designated for excavation. One additional well was decommissioned because it exhibited artesian conditions, with water flowing from the top of the casing. This would likely have eroded the vegetative cover. Three additional monitoring wells were also lost during excavation activities. Six groundwater monitoring wells did not need to be removed to accommodate construction, but were modified to an elevation flush with the final grade of the vegetative cover. The need to replace any of the wells that were eliminated as a result of remedial construction is being addressed under the GM Inland Fisher Guide Facility and Ley Creek Deferred Media Subsite RI/FS. Three groundwater monitoring wells were installed in July 2001 to assess groundwater quality in the deep overburden migrating from the GM Former Inland Guide Facility.

Institutional Controls Implementation and Other Measures

The selected remedy for the Subsite included the implementation of deed restrictions to preclude activities which could potentially expose contaminated materials and to ensure that the integrity of the cover is maintained. At the time the ROD was issued, four different entities were property owners of parcels at the Subsite. In order to facilitate the remediation, Remediation and Liability Management Company, Inc. (REALM)³ acquired title to these parcels. NYSDEC and REALM intend to finalize the form of the deed restriction to be recorded to protect the implemented remedy. The need for institutional controls to prevent exposure to any contaminated groundwater will be addressed under the GM Inland Fisher Guide Facility and Ley Creek Deferred Media Subsite RI/FS.

System Operations/Operation and Maintenance/Monitoring

Since the completion of the remedial action, site inspections have been conducted in accordance with the NYSDEC-approved OM&M Manual for the Subsite. Three OM&M inspections were performed within one year following submittal of the remedial action report and biannual inspections were performed during the period 2003 - 2005. Minor deficiencies, such as localized cover erosion, rutting of the stone access road, debris accumulation around catch basins, and holes made by burrowing animals, were noted during the inspections. To address all of the deficiencies, corrective measures have been or will be implemented.

To assess the mitigated wetland area, annual wetland inspections were conducted during the period following mitigation. In addition to identifying deficiencies such as bare spots, failed seed germination, and eroded areas, randomly chosen vegetative sample plots (each nine square feet in size) were evaluated for vegetation variety and density. A target restoration goal of 90% ground cover within the sample plots of seeded Reed Canary Grass (*Phalaris arundinacea*) and wetlands-dependent species was established for the restored wetlands. In the 2001 and 2002 evaluations, one of the four sample plots met or exceeded the target restoration goal of 90% ground cover for seeded and wetland species. In the 2003 and 2004 evaluations, two of the four sample plots met or exceeded the target restoration goal of 90% ground cover for seeded and wetland species. In the 2005 evaluation, three of the four sample plots met or exceeded the target restoration goal of 90%

³ REALM has contracted with General Motors, a potentially responsible party, to provide remediation services relating to the Ley Creek PCB Dredgings Subsite.

ground cover for seeded and wetland species. Therefore, the target ground cover percentages have been met for a majority of the Subsite restored wetlands.

V. Five Year Review Process

Administrative Components

The five-year review team consisted of Robert Nunes (RPM), Edward Modica (hydrogeologist), Michael Sivak (human health risk assessor), Mindy Pensak (ecological risk assessor), and Charles Merckel (ecological risk assessor).

Document Review

The documents, data and information reviewed in completing the five-year review are summarized in Table 2.

Community Involvement

The EPA Community Involvement Coordinator (CIC) for the Subsite, Michael Basile, published a notice in the *Syracuse Post-Standard* on July 5, 2006, notifying the community of the initiation of the five-year review process. The notice indicated that EPA would be conducting a five-year review of the Subsite to ensure that it is protective of public health and the environment and that the implemented components of the remedy are functioning as designed. It was also indicated that once the five-year review is completed, the results will be made available in the local site repository. In addition, the notice included the addresses and telephone numbers for the RPM and CIC for questions related to the five-year review process or the Subsite.

Data Review

No environmental quality sampling was required as part of OM&M activities for the Subsite. Groundwater beneath the Subsite is being evaluated as part of the Supplemental RI/FS for the GM Former Inland Guide Facility and Ley Creek Deferred Media Subsite. Three deep overburden groundwater monitoring wells were sampled for volatile organic compounds and PCBs in July 2001 to assess groundwater quality migrating from the GM Former Inland Guide Facility. Vinyl chloride and 1,2-dichloroethene were detected in one well at 5 µg/l and 2 µg/l, respectively. No PCBs were detected in the sampled wells. Following completion of the Supplemental RI/FS for the GM Former Inland Guide Facility and Ley Creek Deferred Media Subsite, it is likely that a long-term ground water monitoring program will be established under the ROD for that Subsite.

Site Inspection

On October 3, 2006, a five-year review-related site inspection was conducted by representatives from NYSDEC and EPA. The Subsite's wetland area appeared to be in good condition. While the soil and vegetative cover are largely intact, topsoil has eroded in a few locations, resulting in exposure

of erosion control fabric. In addition, there is evidence of burrowing animals. A grate at one of the catch basins was partially obstructed with debris. One monitoring well was observed to be covered with soil. Exposed soil was observed at the location of another monitoring well.

Interviews

No interviews were conducted for this review.

Institutional Controls Verification

The required institutional controls are not currently in place.

Other Comments on Operation, Maintenance, Monitoring, and Institutional Controls

Table 3 (attached) summarizes several observations and offers suggestions to resolve the issues.

VI. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

The results of the OM&M site inspections indicate that only minor deficiencies to the Subsite remedy have been observed in the semiannual inspections. With respect to the mitigated wetland area, there has been a positive trend toward meeting the target restoration goal of 90% ground cover with the sample plots of seeded and wetland dependent species. Based upon the above and review of the documents summarized in Table 2, it has been concluded that the remedy is functioning as intended by the ROD.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

The remediation levels for PCBs selected in the ROD to meet Subsite remedial goals were 1 mg/kg for surface soils and 10 mg/kg for subsurface soils. These levels conformed with New York State Technical and Administrative Guidance Memorandum No. 94-HWR-4046 objectives⁴ and were consistent with EPA's policy for remediation goals for PCBs at Superfund sites so that the residual risk meets the risk range identified in the National Oil and Hazardous Substances Pollution Contingency Plan.

Since the time the ROD was signed, NYSDEC promulgated soil standards for PCBs that can be used as remediation goals. Three standards are relevant to the Ley Creek PCB Dredgings subsite: 1) 1 mg/kg and 25 mg/kg for commercial and industrial land use, respectively, for the protection of

⁴ *Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels*, Division of Hazardous Waste Remediation, January 24, 1994.

human health through direct contact exposure; 2) 1 mg/kg for the protection of ecological receptors; and 3) 3.2 mg/kg to restrict the potential for migration to groundwater.

The cleanup goals identified in the ROD remain protective. For the first standard, typical exposures under a commercial or industrial scenario will likely be to the surface soils, and the 1 mg/kg remediation goal is consistent with current standards. Exposure to the subsurface soils at the cleanup goal will still result in risks within the acceptable risk range. Ecological receptors are likely to have contact only with surface soils, therefore, the remediation goal identified in the ROD is consistent with this standard. With respect to the protection of the groundwater, the presence of PCBs in the shallow aquifer will be investigated as part of the Supplemental RI/FS for the GM Former Inland Fisher Guide Facility and Ley Creek Deferred Media Subsite.

There are no changes in the physical conditions of the Subsite or its usage that would affect the protectiveness of the selected remedy, and there are no significant changes in site use expected over the next five years.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no information that calls into question the protectiveness of the remedy.

Technical Assessment Summary

Based upon the results of the five-year review, it has been concluded that:

- While the soil and vegetative cover are largely intact, topsoil has eroded in a few locations, resulting in exposure of erosion control fabric. In addition, there is evidence of burrowing animals;
- Common reed (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*), two highly invasive species, were observed in portions of the restored wetland and along Ley Creek;
- A portion of the wetland area was inadvertently mowed in 2004;
- Rutting of the stone access road was observed;
- Areas of the site security fence are damaged;
- Vegetation has been observed through pavement/cracks in asphalt;
- Significant vegetation was observed within the stone access road and the stone access road turnaround at the eastern end of the site;
- Tree establishment was observed along the fence line;

- Clogged catch basins were observed;
- Excessive bank scour was observed due to clogged catch basins;
- A pavement depression was observed; and
- There is no recreational use of the creek in this area for fishing.

To deter the establishment of the highly invasive species in portions of the restored wetland and along Ley Creek, additional seeding of Reed Canary Grass (*Phalaris arundinacea*) is recommended in the emergent portion of this wetland. It is recommended that signs be posted in the wetland area to prevent mowing of the area. It is recommended that the rutting of the stone access road be repaired by placing additional crushed stone and improving road drainage by constructing small drainage channels to convey ponded water from the road to Ley Creek. This could be performed by removal of less than 1 foot of vegetative cover material with subsequent replacement of crushed stone. Where the site security fence is damaged, it is recommended that it be repaired. It is recommended that an assessment of actions to control burrowing animals at the site (*e.g.*, removal of burrowing animals) be conducted. Where needed, topsoil should be placed in holes and seed and fertilizer applied. Where the erosion control fabric has been exposed due to erosion, it is recommended that topsoil be placed over the exposed fabric with subsequent seeding/fertilization. It is recommended that vegetation be removed where it is observed in the stone access road and stone access road turnaround at the eastern end of the site, as well as through pavement/cracks through the asphalt; the cracks should be repaired. To address tree establishment along the fence line, it is recommended that trees be removed. To minimize clogging of catch basins, it is recommended that catch basin grates be replaced with trash racks. Where bank scour has been observed due to clogged catch basins, it is recommended that topsoil be placed and seeded over scoured areas. Where the pavement depression has been observed, it is recommended that pavement be repaired with like asphalt.

VII. Issues, Recommendations, and Follow-Up Actions

The selected remedy has not been fully implemented. Specifically, the institutional controls deemed necessary to preclude activities that could potentially expose contaminated materials and to ensure that the integrity of the cover is maintained have not been put into place. This site cannot be deleted from the National Priorities List until the institutional controls are in place and the remedial action objectives are achieved.

This Subsite has ongoing operation, maintenance, and monitoring activities as part of the selected remedy. As was anticipated by the decision document, these activities are subject to routine modification and adjustment. This report includes suggestions for improving, modifying and/or adjusting these activities (see Table 3).

This report did not identify any issue or make any recommendation for the protection of public health and/or the environment which was not included or anticipated by the site decision documents.

VIII. Protectiveness Statement

The implemented actions at the Subsite protect human health and the environment in the short term; however, in order for the Subsite to be protective in the long term, institutional controls need to be implemented. Currently, there are no exposure pathways that could result in unacceptable risks and none are expected, as long as the Subsite use does not change and the engineered and access controls that are currently in place continue to be properly operated, monitored, and maintained. The groundwater is not currently being utilized at the Subsite nor is it anticipated that groundwater will be used.

IX. Next Review

Since hazardous substances, pollutants or contaminants remain at the Subsite which do not allow for unlimited use or unrestricted exposure, in accordance with 40 CFR 300.430 (f) (4) (ii), the remedial action for the Subsite shall be reviewed no less often than every five years. Another five-year review will be conducted on or before January 2012.

Approved:

Table 1: Chronology of Site Events	
1970 - 1983	Onondaga County Department of Drainage and Sanitation implements channel improvement programs for Ley Creek and places dredged sediments on the banks of the Creek
May 1991	An Administrative Order on Consent between GM and NYSDEC for performance of an RI/FS became effective
July 1992	RI field work commenced
March 1997	NYSDEC issues Record of Decision (ROD)
February 1998	EPA concurs on ROD
June 1999	Remedial Design approved
July 1999	REALM and NYSDEC signed Administrative Order on Consent for performance of a Remedial Action
December 1999	Remedial Action commenced
November 2001	Remedial Action substantially completed

Table 2: Documents, Data, and Information Reviewed in Completing the Five-Year Review	
Document Title, Author	Date
Record of Decision for the Ley Creek PCB Dredgings Subsite, Town of Salina, NY, NYSDEC	1997
Analytical Data Summary Report, GM Inland Fisher Guide Facility and Ley Creek Deferred Media Subsite, Syracuse, NY, Remediation and Liability Management Company, Inc., O'Brien & Gere Engineers, Inc.	2001
Remedial Action Engineering Report, Ley Creek PCB Dredgings Subsite, Town of Salina, NY, Remediation and Liability Management Company, Inc., O'Brien & Gere Engineers, Inc.	2001
Operation, Maintenance and Monitoring Manual, Ley Creek PCB Dredgings Subsite, Town of Salina, NY, Remediation and Liability Management Company, Inc., O'Brien & Gere Engineers, Inc.	2001
Operation, Maintenance and Monitoring Inspection Reports, Ley Creek PCB Dredgings Subsite, Town of Salina, NY, Remediation and Liability Management Company, Inc.	2002-2006
EPA guidance for conducting five-year reviews and other guidance and regulations to determine if any new Applicable or Relevant and Appropriate Requirements relating to the protectiveness of the remedy have been developed since EPA issued the ROD.	

Table 3: Other Comments on Operation, Maintenance, Monitoring, and Institutional Controls

Comment	Suggestion
Common reed (<i>Phragmites australis</i>) and purple loosestrife (<i>Lythrum salicaria</i>), two highly invasive species, were observed in portions of the restored wetland and along Ley Creek. Measures should be implemented to deter their establishment.	Additional seeding of a diverse selection of wetland plant species is recommended in the emergent portion of this wetland.
A portion of the wetland area was inadvertently mowed in 2004.	Post signs in the wetland area to prevent mowing of the area.
Rutting of the stone access road has been observed.	Implement repair by placing additional crushed stone and improve drainage of the stone access road by constructing small drainage channels to convey ponded water from the road to Ley Creek. This could be performed by removal of less than 1 foot of vegetative cover material with subsequent replacement of crushed stone.
Areas of the Subsite security fence were damaged.	Implement repairs to site security fence.
Burrowing animals have been observed.	Conduct an assessment of actions to control burrowing animals at the site (e.g., removal of burrowing animals). Where needed, topsoil should be placed in holes and seed and fertilizer applied.
Topsoil has eroded away resulting in exposure of erosion control fabric.	Place topsoil over exposed erosion control fabric with subsequent seeding/fertilization.
Vegetation has been observed through pavement/cracks in asphalt.	Remove vegetation from asphalt and repair cracks.
Significant vegetation observed within stone access road and stone access road turnaround at the eastern end of the Subsite.	Remove vegetation from stone access road and stone access road turnaround at the eastern end of the Subsite.
Tree establishment observed along the fence line.	Remove trees from fence line.
Clogged catch basins observed.	Unclog and replace grates in catch basins with trash racks to minimize clogging.
Excessive bank scour observed due to clogged catch basins.	Place topsoil and seed over scoured areas.
Pavement depression observed.	Repair pavement depression with like asphalt.
Some of the minor deficiencies observed in the site remedy have not been addressed in a timely fashion.	Future OM&M inspection reports should be immediately provided to the oversight agencies. The reports should note any previously reported deficiencies which have not been addressed as well as include a schedule for the implementation of all needed corrective measures.

Table 3: Other Comments on Operation, Maintenance, Monitoring, and Institutional Controls

Comment	Suggestion
Institutional controls to preclude activities that could potentially expose contaminated materials and to ensure that the integrity of the cover is maintained have not been put into place.	The potentially responsible party needs to put the deed restrictions in place.
New York State now requires annual certifications that institutional controls that are required by RODs are in place and that remedy-related operation, maintenance, and monitoring (OM&M) is being performed.	On an annual basis, the Subsite will need to be inspected to determine whether any intrusive activities have been performed at the Subsite and the building and property records will need to be reviewed to ascertain whether or not any filings had been made for such activities. The OM&M report that is currently submitted should include a summary of the findings of the above-noted activities, along with certifications that the institutional controls are in place (once they are put into place) and that remedy-related OM&M is being performed.

Table 4: Acronyms Used in this Document	
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIC	Community Involvement Coordinator
cy	Cubic yards
EPA	United States Environmental Protection Agency
ft/s	Feet per Second
GM	General Motors Corporation
mg/kg	Milligrams per Kilogram
µg/l	Micrograms per Liter
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Conservation
OM&M	Operation, Maintenance, and Monitoring
PCBs	Polychlorinated Biphenyls
REALM	Remediation and Liability Management Company, Inc.
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager