

# Onondaga Lake

## New York

EPA ID#: NYD986913580

### EPA REGION 2

#### Congressional District(s): 25

Onondaga

City of Syracuse and Towns of Salina, Geddes, and Camillus

#### NPL LISTING HISTORY

Proposed Date: 5/10/1993

Final Date: 12/16/1994

## Site Description

The Onondaga Lake site includes the Lake itself, seven major and other minor tributaries, and upland sources of contamination to the Lake (subsites). The Lake has an areal extent of about 4.5 square miles, with a drainage basin of approximately 285 square miles. Effluent from the Metropolitan Syracuse Sewage Treatment Plant discharges into the southeastern end of the Lake. The Lake flows to the northwest into the Seneca River. Historically, industrial processing plants and municipal wastewater treatment plants routinely discharged their wastes into the Lake. The availability of salt and limestone led to the location of the Solvay Process Company, the predecessor to AlliedSignal, Inc. (Honeywell International, Inc. is a successor corporation of the former AlliedSignal, Inc.), on the west shore of the Lake for the production of soda ash. Today, vast areas on the western shoreline are occupied by the "Solvay waste beds," which contain by-products of the company's soda ash production. In 1946, AlliedSignal initiated a mercury cell process which produced chlorine, sodium hydroxide, and potassium hydroxide at its facility on Willis Avenue, and later expanded to include a facility on Bridge Street. Waste streams containing mercury and other heavy metals were discharged by these facilities. Honeywell's Semet Residue Ponds, which contain volatile organic compounds (VOCs) from facilities associated with the production of benzene, toluene, naphthalene, xylene, and "motor benzol," are another source of contamination to the Lake. Other industrial and manufacturing facilities are also located along the shore or tributaries to the Lake and may be sources of contamination to the Lake. Onondaga Lake adjoins park lands owned by Onondaga County. Public fishing was banned from the Lake in 1970, but the Lake was opened to allow catch-and-release fishing in 1986.

#### Site Responsibility:

The site is being addressed through federal, state, and potentially responsible parties' actions.

## Threat and Contaminants

Surface water is contaminated with mercury. Sediments are contaminated with polychlorinated biphenyls (PCBs); pesticides; creosotes; heavy metals, including lead, cobalt, and mercury; polycyclic aromatic hydrocarbons; and VOCs. The groundwater at many of the upland subsites is also contaminated. Several species of fish native to the Lake have high concentrations of mercury. Contact with or ingestion of contaminated ground water, surface water, or sediments could pose a health threat.

## Cleanup Approach

This site is being addressed in two stages: interim remedial measures (IRMs) and long-term remedial actions focusing on the clean up of the subsites.

#### Response Action Status

#### Interim Remedial Measures:

Chlorobenzene is presently being removed from wells at the Willis Avenue subsite as an IRM. In March 2000, an IRM at the LCP-Bridge Street subsite to remove portions of the on-site sewers, which were releasing mercury-contaminated water into the West Flume and East Ditch, and to plug the downgradient ends of these sewers was completed. Also, at the LCP-Bridge Street subsite, IRMs involving the demolition of most of the on-site structures and the Diaphragm and Mercury Cell building were completed in September 2001. The Diaphragm and Mercury Cell building demolition IRM consisted, in part, of removing and recycling elemental mercury from cells inside the Mercury Cell building, followed by its decontamination and demolition. IRMs have also been undertaken to upgrade the collection of chlorobenzene present

underground from the Willis Avenue site, clean the I-690 storm drainage system located downgradient of the Semet Tar Ponds and Willis Avenues sites, identify and investigate seeps in and around the berms which enclose the Semet Tar Ponds, prevent human exposure to the seeps, and provide engineering details as to the structural integrity of the berms. Also, in April 2002, Honeywell signed orders to design and construct a Semet/Willis lakeshore barrier wall and groundwater collection and treatment system and to conduct an underdrain isolation pilot study for the I-690 storm drainage system. Construction of the groundwater collection and treatment system commenced in October 2007; the Semet portion of the wall was completed in the summer of 2007; construction on the Willis portion of the wall commenced in August 2008. The I-690 Storm Drain IRM was conducted in 2003. Additional work (rerouting connections and sampling) was performed in 2005. Additional work to modify the I-690 storm drains and construct a temporary trench for the Willis lakeshore area commenced in late 2007.

Entire Site: Much of the investigative and remedial work at the various subsites is being performed by the potentially responsible parties (PRPs), pursuant to enforcement agreements between the individual PRPs and the State. EPA provided approximately \$16.5 million to the State, through a cooperative agreement, for the performance of remedial investigation and feasibility study (RI/FS) activities, coordination and management of the independent subsite studies, oversight of PRP-conducted activities, implementation of a site-wide citizen participation program, creation and maintenance of a site-wide data base, and establishment of a comprehensive enforcement program.

In 1998, EPA concurred with the remedy selected in a Record of Decision (ROD) issued by New York State for the Ley Creek PCB Dredgings subsite. The remedy (excavation of PCB-contaminated soils, on-site disposal under a cap, and off-site treatment/disposal), which commenced in December 1999, was completed in November 2000. Five-year reviews are undertaken at sites to ensure that implemented remedies protect public health and the environment and that they function as intended by site decision documents. In January 2007, EPA issued a five-year review report, which concluded that the remedy was protective of human health and the environment. EPA will conduct another five-year review on or before January 2012.

In September 2000, a ROD was issued, selecting a remedy for the LCP Bridge Street subsite. The selected remedy includes a combination of excavation and on- and off-site treatment/disposal of contaminated soils and sediments, and the construction of a cap, slurry wall, and ground water extraction and on-site treatment system. In March 2002, New York State signed a Consent Order with Honeywell International, Inc. for the performance of the design and construction of the selected remedy. Accelerated remedial activities, including excavation and relocation of the brine mud piles, excavation and off-site disposal of PCB-contaminated soils, and overpacking and off-site disposal of 6 deteriorated drums, was conducted in November 2003. The design was completed in the summer of 2004. All remedial activities, with the exception of the construction of the final cap, were completed in 2007. A temporary cap has been placed on the landfill. Since some soil/sediment removed during the implementation of the Geddes Brook/Ninemile Creek site remedy is anticipated to be placed within the containment system at the LCP Bridge Street site, the final cap will not be installed until the Geddes Brook/Ninemile Creek site remedy has been completed. A five-year review, completed in October 2009, determined that the remedy was expected to be protective of human health and the environment upon completion; in the interim, exposure pathways that could result in unacceptable risks were being controlled. EPA will conduct another five-year review on or before October 2014.

In March 2002, a ROD was issued for the Semet Residue Ponds subsite. The selected remedy includes the excavation of the Semet pond residue and on-site processing of the residue into benzene, light oil, and a soft tar product to be used in manufacture of driveway sealer. It also includes groundwater collection and on-site treatment. The remedial design related to the groundwater component of the remedy is currently underway. A modification of the remedy, which would allow for the residue to be converted to a material to be used in energy recovery, is being evaluated under a focused FS performed by Honeywell pursuant to a Consent Order negotiated by New York State and the Honeywell International, Inc. A draft focused FS report was submitted in July 2006. In November 2006, NYSDEC approved a revised Beneficial Use Determination petition submitted in August 2006. Field activities conducted in 2009 to determine the thickness of the residue in the Semet Tar ponds indicate that the volume of material in the ponds is considerably less than previously estimated. As a result, other alternatives to address the pond material are being considered.

A Proposed Plan identifying a preferred remedy for the Salina Town Landfill sub-site was released for public comment in 2003. The preferred remedy called for the conveyance of the collected leachate and groundwater via the sanitary sewer system to METRO. During the public comment period, Onondaga County indicated that it had a policy not to accept wastewater from inactive hazardous waste sites. Since, after a long period of protracted negotiations, the Town of Salina and Onondaga County had not reached an agreement to accept collected leachate and groundwater from the site at the County's facility, New York State and EPA issued a revised Proposed Plan which called for on-site treatment of leachate and contaminated groundwater from the sub-site. After public review and comment, a ROD consistent with the Proposed Plan was issued in 2007. The ROD called for the capping of two individual landfilled areas. During the ongoing design, it was determined that one of the landfills does not contain significant hazardous waste. Therefore, NYSDEC released a Proposed Plan in late May 2010 calling for the excavation and consolidation of one of the landfilled areas on the other landfilled area prior to capping. An amended ROD was signed on September 30, 2010. The construction of the remedy is currently underway.

A ROD selecting a remedy for the Lake Bottom subsite was issued on July 1, 2005. The selected remedy includes dredging an estimated 2.65 million cubic yards of contaminated sediments and isolation capping of an estimated 425 acres in the littoral zone (water depths ranging from 0 to 30 feet), thin layer capping of an estimated 154 acres, oxygenation of the water near the lake bottom, and monitored natural recovery in the profundal zone (water depths exceeding 30 feet). It is anticipated that the most highly contaminated materials would be treated and/or disposed of off-site. The balance of the dredged sediment would be placed in an on-site Sediment Consolidation Area (SCA). Following the selection of the remedy through 2010, informal availability sessions, formal public meetings, numerous fact sheets, mailings and other methods of communication were used to inform the Onondaga Lake community of the project. Honeywell also conducted concurrent outreach efforts to keep the public informed. Many of these outreach efforts specifically focused on the SCA portion of the remedy, including the selection of Wastebed 13 as the preferred disposal site. Despite the concerted public outreach effort, a number of federal, state, and local elected officials, as well as residents of the Town of Camillus, recently voiced opposition to utilizing the SCA due to concerns about possible health impacts from the dewatering/disposal facility. Due to these concerns, in early June 2010, EPA completed a human health risk assessment that evaluated risks resulting from potential exposure to nearby residents while the remedy is being implemented and in the unlikely event of a catastrophic failure of the SCA. This assessment also evaluated potential impacts to residents living in existing homes and in areas where future homes are planned to be built. In the scenarios noted above, the risk assessment found no significant health risk.

Wastewater generated by the dredging/sediment handling processes as a result of dewatering of the sediments at the SCA would be treated prior to being discharged back to the lake. The estimated present-worth cost of the remedy is \$451 million. An ESD, which describes a change to a portion of the remedy required by the ROD in the southwest portion of the lake, was issued in December 2006. The change is necessary to ensure the stability of the adjacent causeway and the adjacent area which includes a portion of I-690, and is supported by recent, more extensive sampling of the area which indicates that the pure chemical contamination is significantly less extensive than estimated in the ROD. A Consent Decree related to the performed of the design and construction of the remedy by Honeywell under New York State oversight was entered in federal district court in January 2007. The design is currently underway.

RODs for two portions of the Geddes Brook/Ninemile Creek subsite were signed in April and October 2009. The selected remedies include the dredging/excavation and removal of an estimated 120,000 cubic yards of contaminated channel sediments and floodplain soils/sediments over approximately 30 acres. Depending on the location, clean materials, consisting of a habitat layer and, if needed, backfill, will be placed in the dredged/excavated areas. Contaminated sediments and soils removed from the stream and floodplains will be disposed of at either the LCP Bridge Street subsite containment system, which was designed and constructed pursuant to the requirements of a September 2000 ROD, or the Sediment Consolidation Area (SCA), which will be constructed at Wastebed 13 as part of the remediation of the Onondaga Lake Bottom subsite pursuant to the requirements of the July 2005 ROD. The designs are presently underway.

A ROD for the Niagara Mohawk – Hiawatha Boulevard – Syracuse Former MGP sub-site was signed on March 31, 2010. The selected remedy calls for contaminated soil in the northeastern portion of the site that could leach contaminants to groundwater to be solidified in place and groundwater along the northern perimeter of the site to be treated using enhanced bioremediation. The design of the remedy is presently underway.

RI/FSSs are presently being performed by the PRPs under state orders at three other sub-sites—General Motors: Inland Fisher Guide; Wastebed B/Harbor Brook; and Willis Avenue. EPA is performing an RI/FS at the Lower Ley Creek sub-site.

Administrative Consent Orders were signed in April 2002 between the Honeywell International, Inc. and New York State to perform several IRMs related to the investigation and cleanup of the Onondaga Lake site, including removal of sediments and floodplain soils from Geddes Brook (a tributary to Ninemile Creek which discharges into the Lake) and sediments from the East Flume (an excavated drainage way discharging into the Lake with the upper portion reconstructed to serve as a holding pond). Geddes Brook sediment and floodplain soil is contaminated with mercury, methylmercury, polyaromatic hydrocarbons (PAHs), and dioxins/furans. East Flume sediments contain metals, including mercury, semi-volatile organic compounds (including chlorinated benzenes, naphthalene and other PAH compounds), benzene, ethyl benzene, toluene, xylene, chlorobenzene, and dioxins/furans. Site Facts: In early 1992, AlliedSignal, Inc. (predecessor to Honeywell International, Inc.) entered into a Consent Decree with New York State, requiring the company to perform an RI/FS to investigate the nature, extent, and effect of the contaminants it contributed to the Lake and to evaluate remedial alternatives. The State has entered into a number of consent orders with Honeywell International, Inc. and other PRPs for the performance of investigations at various subsites. A comprehensive enforcement program has been initiated to identify other PRPs who may have played a role in the contamination of the Lake.

## Cleanup Progress

EPA and New York State have determined that the site poses no immediate threat to human health or the environment

while studies are being performed.

To date, approximately 40,000 gallons of chlorobenzene has been removed from wells at the Willis Avenue subsite.

## **Site Repositories**

Atlantic States Legal Foundation, 658 West Onondaga Street, Syracuse, NY 13204

Onondaga County Public Library, Syracuse Branch at the Galleries, 447 South Salina Street, Syracuse, NY 13204

Liverpool Public Library, 310 Tulip Street, Liverpool, NY 13088

Camillus Town Hall, 4600 West Genesee Street, Room 100, Syracuse, NY 13219

Moon Library, SUNY ESF, 1 Forestry Drive, Syracuse, NY 13210

New York State Department of Environmental Conservation, Region 7 Office, 615 Erie Blvd., West, Syracuse, NY 13204