Appendix B

DECEMBER 2006

EXPLANATION OF SIGNIFICANT DIFFERENCES

Onondaga Lake Bottom Subsite
of the Onondaga Lake Superfund Site
Towns of Geddes and Salina, Villages of Solvay and Liverpool, and City of Syracuse,
Onondaga County, New York

INTRODUCTION

In accordance with Section 117 (c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and Section 300.435(c)(2)(I) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), if the Environmental Protection Agency (EPA) or New York State Department of Environmental Conservation (NYSDEC) selects a remedial action and, thereafter, determines there is a significant change with respect to that action, an Explanation of Significant Differences (ESD) and the reason for such changes must be issued.

EPA and NYSDEC issued a Record of Decision (ROD) in July 2005 which selected a remedy for the Onondaga Lake Bottom Subsite of the Onondaga Lake Superfund Site (Site). A key element, among others, of the selected remedy is the dredging of as much as an estimated 2,653,000 cubic yards (cy) of contaminated sediments/waste from the littoral zone in Sediment Management Units (SMUs) 1 through 7 (see Figures 1 and 2 depicting the location of the Site and SMUs, respectively) to a depth that will prevent the loss of lake surface area, ensure cap effectiveness, remove non-aqueous-phase liquids (NAPLs), reduce contaminant mass, allow for erosion protection, and reestablish the littoral zone habitat. Most of the dredging would be performed in the in-lake waste deposit (ILWD) (which largely exists in SMU 1) and in SMU 2.

The remedy described in the ROD was selected based largely on data collected as part of the Remedial Investigation (RI) for the site. Specific to SMU 2, the selected remedy includes dredging NAPLs to an estimated 30-ft (9-m) depth in the vicinity of the causeway over an area of approximately 4.8 acres. Subsequent to the issuance of the ROD, additional data were generated in 2005 and 2006 in SMU 2 as part of the pre-design investigation to more accurately define the extent of NAPLs in this area. These new data show that the Site conditions and contaminant distribution are significantly different than were previously thought in SMU 2 along the causeway, and a small adjacent area in SMU 1. Based on the new information, a revision to the portion of the remedy that pertains to the SMU 2 causeway area and a small adjacent area in SMU 1 was evaluated as described herein.

This ESD addresses only dredging required to recover pooled NAPLs in the SMU 2 causeway area and a small adjacent area in SMU 1. This ESD does not affect any other dredging required in the ROD. The remedy modifications maintain the protectiveness of the selected remedy and comply with the federal and state requirements identified in the ROD.

This ESD will become part of the Administrative Record file for the Site. The complete Administrative Record file, which contains information (including the ESD, the Onondaga Lake Remedial Investigation/Feasibility Study (RI/FS), Human Health Risk Assessment, and the Baseline Biological Risk Assessment) upon which the selection of the response action has been based, is

available at the asterisked locations listed below. The other listed repositories contain key documents (e.g., the ESD, RI/FS reports, Proposed Plan, and Record of Decision), but do not contain the entire administrative record.

These documents are available for review at the following locations:

Atlantic States Legal Foundation *
658 West Onondaga Street
Syracuse, NY 13204
Phone: (315) 475-1170
Please call for hours of availability

NYSDEC, Region 7 *
615 Erie Blvd. West
Syracuse, NY 13204
Phone: (315) 426-7400
Hours: M - F, 8:30 a.m. - 4:45 p.m.
Please call for an appointment

Onondaga County Public Library Syracuse Branch at the Galleries
447 South Salina Street
Syracuse, NY 13204-2400
Phone: (315) 435-1800
Hours: M, Th, F, Sat, 9:00 a.m. - 5:00 p.m.; Tu, W, 9:00 a.m. - 8:30 p.m.

Liverpool Public Library
310 Tulip Street
Liverpool, NY 13088
Phone: (315) 457-0310
Hours: M - Th, 9:00 a.m. - 9:00 p.m.; F, 9:00 a.m. - 6:00 p.m.; Sat, 10:00 a.m. - 5:00 p.m.; Sun, 12:00 p.m. - 5:00 p.m.

Camillus Town Hall
4600 West Genesee Street, Room 100
Syracuse, New York 13219
Phone: (315) 488-1234
Hours: M-F, 8:30 a.m. - 4:30 p.m.

Moon Library
SUNY ESF
1 Forestry Drive
Syracuse, NY 13210
Phone: (315) 470-6712
Hours: check http://www.esf.edu/moonlib/

NYSDEC *
625 Broadway
Albany, NY 12233-7016
Phone: (518) 402-9767
Hours: M - F, 8:30 a.m. - 4:45 p.m.
Please call for an appointment

Detailed information on the ESD and other aspects of the Onondaga Lake cleanup is also available online at http://www.dec.state.ny.us/website/der/projects/ondlake/ on the DEC website.

EPA and NYSDEC have determined that the revision to the remedy does not constitute a fundamental alteration of the remedy selected in the 2005 ROD. The selected remedy, with the minor revisions to that portion of it that pertains to SMU 2, will be protective of human health and the environment and will comply with the federal and state requirements identified in the ROD.

SITE HISTORY, CONTAMINATION PROBLEMS, AND SELECTED REMEDY/IMPLEMENTATION

Site Description and History

On June 23, 1989, Onondaga Lake was added to the New York State Registry of Inactive Hazardous Waste disposal sites. On December 16, 1994, Onondaga Lake and areas upland that contribute or have contributed contamination to the lake system were added to the EPA's National Priorities List (NPL). This NPL listing means that the lake system is among the nation's highest priorities for remedial evaluation and response under the federal Superfund law for sites where there has been a release of hazardous substances, pollutants, or contaminants. In November 2004, Honeywell International, Inc. (Honeywell), a potentially responsible party at the Site, completed the Feasibility Study (FS) for the Site. On November 29, 2004, the Proposed Plan was released for public comment. Following an extensive public outreach program and the review of public comments, EPA and NYSDEC issued a ROD on July 1, 2005, documenting the selection of a remedy for the Site.

Selected Remedy

As mentioned above, based on the results of the RI/FS, EPA and NYSDEC issued a ROD in July 2005 which selected a remedy for the site. Among other actions, the ROD provides for dredging of as much as an estimated 2.65 million cubic yards (cy) of sediments and/or waste material. Specific to SMU 2, the selected remedy includes dredging of an estimated 403,000 cy of sediments and/or wastes prior to capping. This includes dredging to remove NAPLs to an estimated 30-ft (9-m) depth in the vicinity of the causeway (the assumed area of NAPLs is shown on Figure 4.26 of Honeywell's November 2004 FS). These NAPLs were thought to be present beneath the lake bottom due to subsurface migration from an upland source. To prevent ongoing migration of NAPLs and contaminated groundwater from upland sources to the lake, a subsurface barrier wall and groundwater containment system will be constructed in the vicinity of the SMU 2 lakeshore prior to remediation of the lake as part of the Willis/Semet Barrier Wall and Groundwater Collection and Treatment System Interim Remedial Measure (IRM).

The SMU 2 remedy also includes dredging to shallower depths in other areas to prevent loss of lake surface area, for erosion protection and to reestablish habitat, and to remove sediments and/or wastes from the portion of the ILWD which extends into SMU 2. The SMU 2 remedy includes

capping of sediments that exceed cleanup criteria. These other elements of the selected remedy (i.e., elements other than dredging for NAPLs) will not be affected by this ESD.

DESCRIPTION OF SIGNIFICANT DIFFERENCES AND THE REASONS FOR THOSE DIFFERENCES

Subsequent to the issuance of the ROD, an extensive pre-design investigation was conducted in SMU 2 in the Fall of 2005 and the Spring of 2006 to identify the extent of pooled NAPLs and to characterize the subsurface conditions. Based on these investigations, it was determined that NAPLs in the causeway area extend a short distance into the adjacent SMU 1, but the overall extent of pooled NAPLs beneath the lake bottom in SMU 2 is significantly smaller than was anticipated. The ROD assumed that the NAPLs were present beneath the lake bottom over an area of approximately 4.8 acres. The pre-design investigation results indicate, however, that the NAPLs extend over an area of approximately 2 acres which includes the causeway area in SMU 2, and an adjacent portion of SMU 1. (See Figure 3.)

The ROD assumed that the NAPLs extended to a depth of approximately 30 feet beneath the lake bottom. However, the pre-design investigation results indicate that the pooled NAPLs frequently exist as a single layer at a depth below the lake bottom that is typically in the 15- to 25 feet range. The average thickness of the NAPLs is less than 2 feet. As a result, there is significantly less volume of NAPLs-impacted material beneath the lake in SMU 2 than was assumed during the FS and ROD. While the ROD assumed that there were approximately 233,000 cy of NAPLs present within SMU 2, the pre-design investigation results indicate that the actual quantity of NAPLs present within SMU 2 (and the adjacent portion of SMU 1) is approximately 5,000 cy. This is a conservative estimate as it assumes that NAPLs are present across the entire area that would be contained by the barrier wall.

The ROD assumed that approximately 386,000 cy of sediments would need to be dredged from SMU 2 in order to remove the NAPLs. This value is larger than the NAPLs volume (which the ROD assumed to be approximately 233,000 cy) since it also includes the volume of materials which would slough into the excavation during dredging (sloughing volume) and the volume of materials associated with over dredging (over dredge volume).

In light of the pre-design results discussed above, the potential dredge removal volume associated with removing NAPLs in this area is significantly less than that assumed in the ROD. More specifically, approximately 157,000 cy of sediments would need to be dredged from SMU 2 (and the adjacent portion of SMU 1) in order to remove the NAPLs. This value includes the NAPLs volume, as well as the volume of materials that are present above the NAPLs, and the sloughing and over dredge volumes.

Dredging of the NAPLs in the causeway area would require dredging immediately adjacent to the shoreline barrier wall which will be installed as part of the Willis/Semet IRM. The ROD assumed that the barrier wall would be constructed adjacent to the lake. However, during design of the wall, it became evident that the presence of utilities beneath and adjacent to the causeway would preclude the installation of the barrier wall on the landward side of the causeway. Therefore, it was determined that the eastern portion (the causeway portion) of the barrier wall should instead be installed on the lakeside of the causeway, but as close as possible to the existing causeway (i.e., 15 to 20 feet into the lake). The data collected as part of the pre-design investigation in 2005 allowed

an evaluation of the stability of this wall during dredging. The stability of the wall and the adjacent upland area is particularly critical due to the presence of a major sewer pipeline, other utilities, and interstate highway, I-690, immediately adjacent to the shoreline. This stability evaluation indicated that the barrier wall and adjacent upland area would be potentially unstable and could collapse during dredging to the depth required to remove the NAPLs as called for in the ROD. The only reliable way to achieve a stable wall would be to install the barrier wall through the clay layer beneath the NAPLs. Installation of the wall through the clay layer, however, could provide a pathway for the NAPLs to migrate into deeper zones. Due to the risk of producing such a pathway, penetrating the clay with a barrier wall is not a preferable option.

Based on the new data and the stability evaluation, the most appropriate remedy to address NAPLs in the causeway area in SMU 2 and the adjacent area in SMU 1, is to locate the Willis/Semet IRM barrier wall off-shore immediately beyond the furthest extent of pooled NAPLs within the lake (See the Figure 3.) and to install additional NAPLs recovery wells (to supplement the existing NAPLs recovery system) between the barrier wall and the causeway. The wall will be tied into the underlying clay layer and clean fill will be placed behind the wall. This will eliminate the need for dredging to address pooled NAPLs within SMU 2 and in the adjacent area within SMU 1, and will address the geotechnical stability concerns while being protective of public health and the environment. The NAPLs will be completely isolated from the lake. The additional NAPLs recovery wells will be installed behind the wall as part of the Willis/Semet IRM and on the northwestern area of the Wastebed B/Harbor Brook subsite to enhance the recovery of NAPLs present in the subsurface. Recovered NAPLs will be treated and/or disposed of off-site.

Design of the barrier wall includes an evaluation of contaminant types (including NAPLs), wall construction materials, and compatibility testing to ensure the long term effectiveness of the barrier system. Following the construction of the barrier wall, a monitoring program will be employed to verify that the system is operating as designed. If appropriate based on monitoring results, additional monitoring will be incorporated into the program to evaluate the effectiveness of the barrier wall.

As compensatory mitigation for the loss of aquatic habitat resulting from placement of the barrier wall, existing upland area adjacent to Onondaga Lake will be converted to new aquatic habitat. The design document for remediation of SMU 2, and the adjacent area in SMU 1, will include specifications for the construction of a natural shoreline lakeward of the barrier wall that is consistent with the lakewide habitat restoration plan ("Remedial Design Elements for Habitat Restoration document"). The construction of the shoreline will be completed as the final step of the remediation in SMU 2, and the adjacent area of SMU 1, lakeside of the barrier wall.

Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbor Act apply to the above proposed change in the remedy. 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 which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. Section 10 of the Rivers and Harbors Act generally requires approval for the construction of any structure in or over any navigable water of the United States, the excavation/dredging or deposition of material in these water or any obstruction or alteration in a navigable water. The modified remedy will be performed in conformance with the substantive requirements of regulatory programs implemented by the U.S. Army Corps of Engineers under

Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act and will utilize best management practices to ensure utmost protection to the aquatic resource during construction operations and as part of the proposed reestablishment of habitat.

The other dredging and capping and related remedial activities required in the ROD in SMU 2, and elsewhere, (to prevent loss of lake surface area, for erosion protection and to reestablish habitat, and to remove sediments and/or wastes from the portion of the ILWD which extends into SMU 2), will be implemented as specified in the ROD.

AFFIRMATION OF STATUTORY DETERMINATIONS

This ESD modifies a remedy that leaves hazardous substances, pollutants or contaminants above levels that allow for unlimited use and unrestricted exposure. Pursuant to CERCLA Section 121 (c), NYSDEC and EPA shall review such remedies no less often than every five years after the initiation of remedial action to assure that human health and the environment are protected.

Considering the new information that has been developed, NYSDEC and EPA have both determined that the selected remedy, with the modifications described in this ESD, remains protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective. In addition, the remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this site.

PUBLIC PARTICIPATION ACTIVITIES

Public participation relating to this ESD was conducted pursuant to the public participation activities provided for in the context of the public notice of the lodging in the United States District Court for the Northern District of New York of a proposed Consent Decree concerning the Site between the State of New York and Honeywell.

Should there be any questions regarding this ESD, please contact:

Timothy Larson, P.E.
Onondaga Lake Superfund Site - Public Comments
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7016
(518) 402-9767
E-mail: tjlarson@gw.dec.state.ny.us

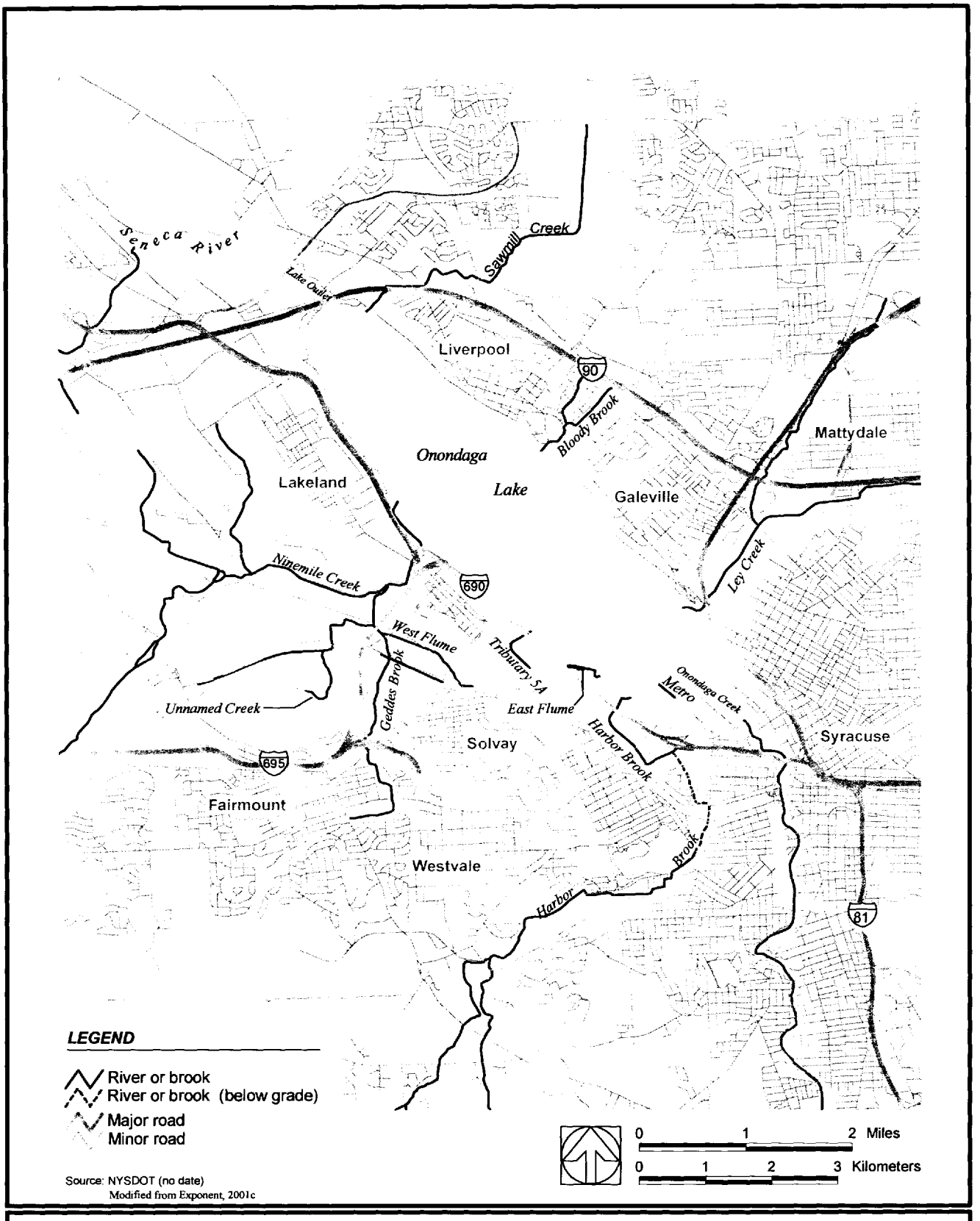
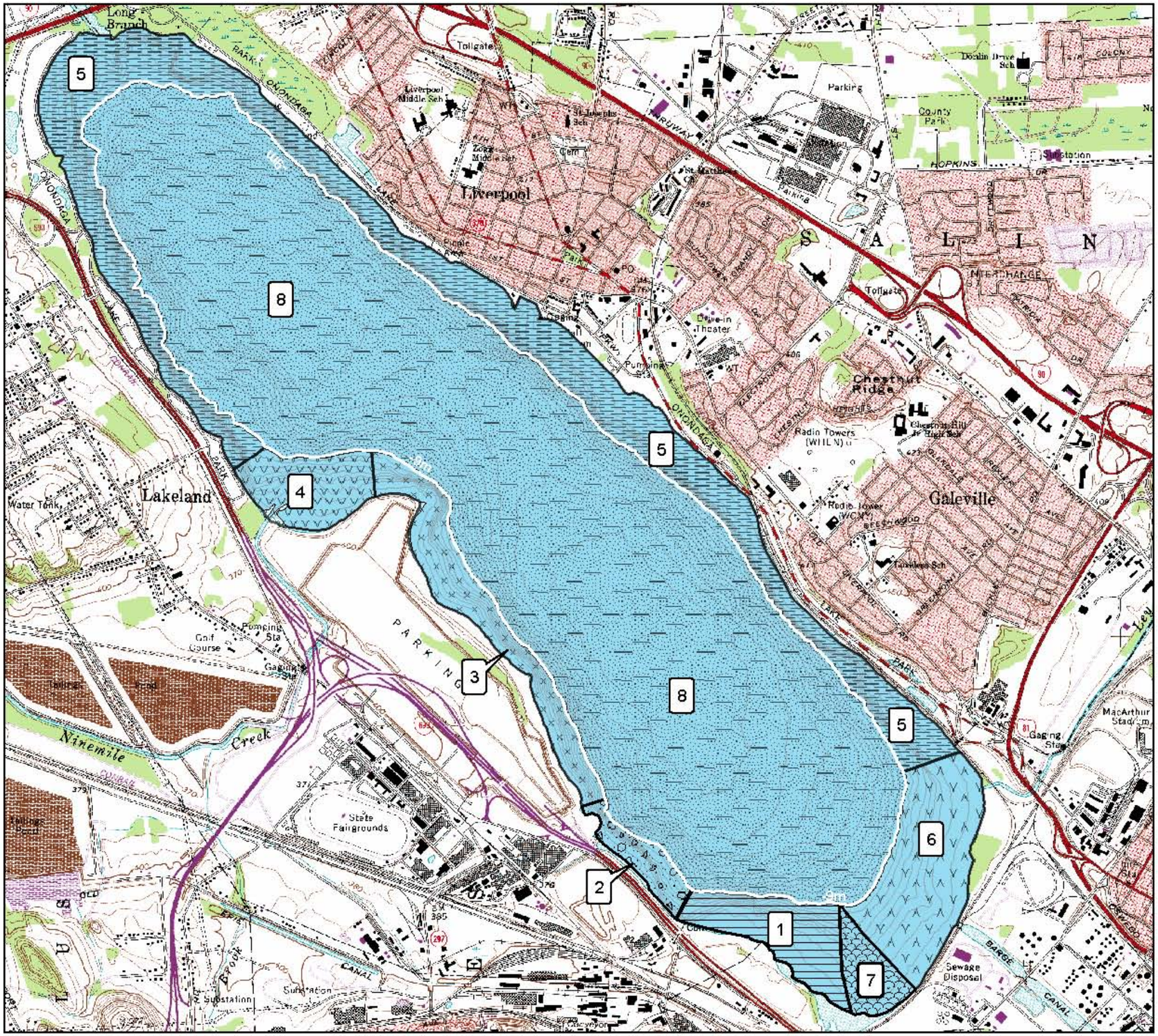


Figure 1 Onondaga Lake Area Tributaries and Roads



1 SMU 1 - In-Lake Waste Deposit (ILWD)

2 SMU 2 - Causeway

3 SMU 3 - Wastebeds 1 through 8

4 SMU 4 - Mouth of Ninemile Creek

5 SMU 5 - Northern Shore

6 SMU 6 - Ley Creek to 700 ft south of Onondaga Creek

7 SMU 7 - 700 ft south of Onondaga Creek to the ILWD

8 SMU 8 - Profundal Area

NOTES

1. Bathymetric contour (9 meter) highlighted in white
2. Boundary between littoral and profundal zone is the 9 meter contour.

0 1,500 3,000

Feet

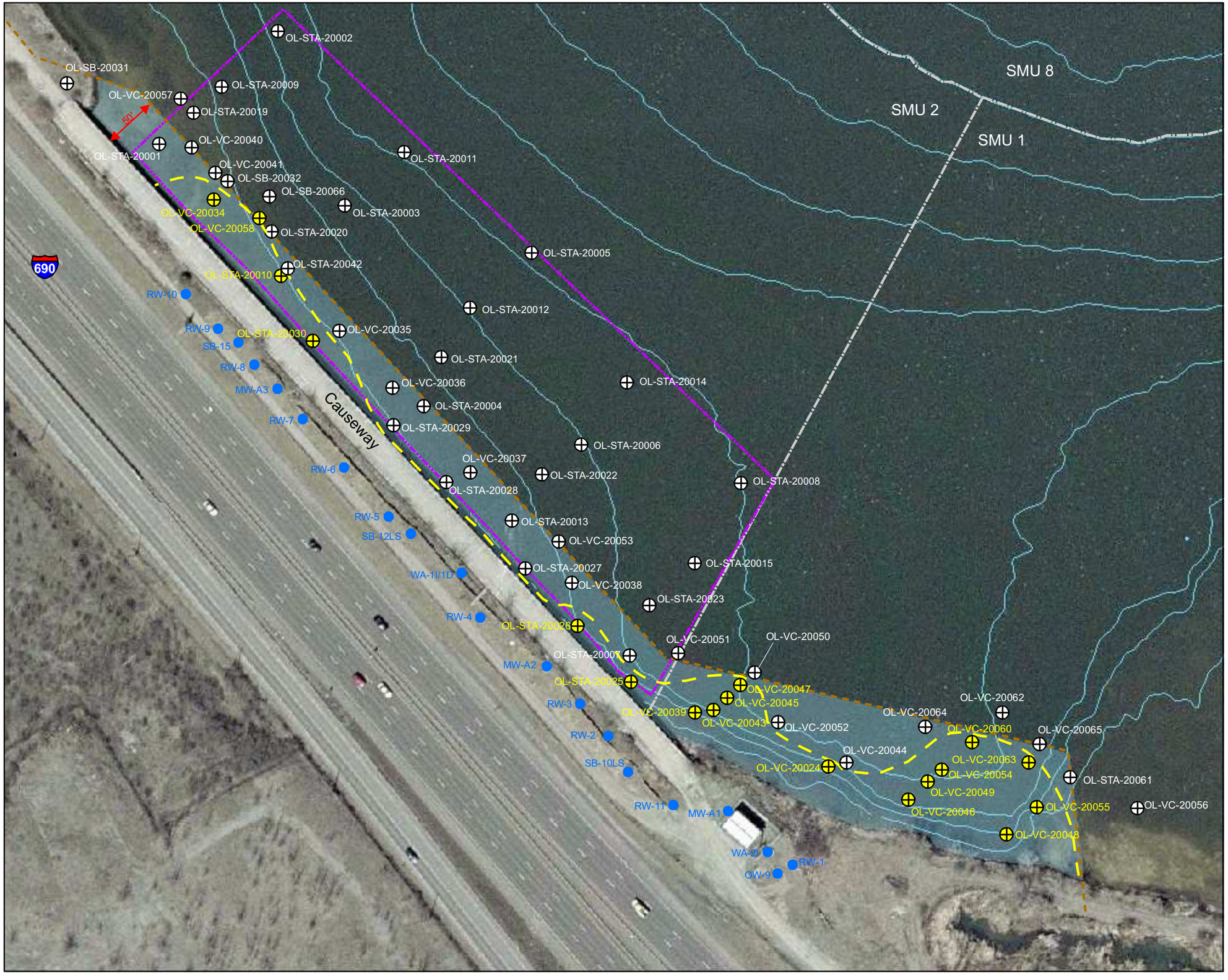
1:25,000

N

Figure 2

Sediment Management Units (SMUs)

C:\Projects\Onondaga Lake_SMUS\Figures\Fig 2-1 All SMU (10-1-04).mxd - 10/7/2004 @ 3:10:11 PM



Existing Onshore NAPL Recovery Well

2005/2006 Core does not contain pooled NAPL but may contain isolated NAPL stringers, seams and/or globules in Solvay Waste (see text in ESD)

2005/2006 Core Contains pooled NAPL (see text in ESD)

Barrier Wall Alignment (Approximate)

Extent of Pooled NAPL

Extent of Pooled NAPL Removal Area Assumed in the FS/ROD

Notes:

1. Bathymetry is shown in 4' intervals.

90 45 0 90

Feet

FIGURE 3

Honeywell

Onondaga Lake
Syracuse, New York

Pooled NAPL Extent
and Barrier Wall Alignment

PARSONS

290 ELWOOD DAVIS RD, SUITE 312, LIVERPOOL, NY 13088 Phone:(315)451-9560

Q:\GIS\GIS_Lake\dnapl_invest\pooled_napl_barr_wall_101306.mxd

12/14/2006
Date

Donald J. Hesler, Section Chief
Section A, Remedial Bureau B

12/14/06
Date

P. David Smith, Bureau Chief
Remedial Bureau B

12/19/06
Date

Salvatore Ervolina, Assistant Director
Division of Environmental Remediation

12/14/06
Date

Dale Desnoyers, Director
Division of Environmental Remediation

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

December 14, 2006

Denise M. Sheehan
Commissioner
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7016

Re: Onondaga Lake, Lake Bottom Subsite Explanation of Significant Differences

Dear Commissioner Sheehan:

The U.S. Environmental Protection Agency (EPA) has reviewed the public comments provided on the draft Explanation of Significant Differences (ESD) for the Lake Bottom Subsite of the Onondaga Lake site, which was released to the public by the New York State Department of Environmental Conservation on October 12, 2006 along with a proposed Consent Decree and draft Siting Evaluation for the Sediment Consolidation Area. EPA approves of the release of the draft ESD as a final document without any revisions. The ESD should be incorporated into the Administrative Record file for the Lake Bottom Subsite.

If you have any questions regarding this matter, please contact me at (212) 637-5000.

Sincerely,

Alan J. Steinberg
Regional Administrator

Sir:

Please take notice that the within is a true copy of
duly filed and entered in the office of the Clerk
of County, on
the day of , 20 .

Yours, etc.,
ELIOT SPITZER
Attorney General,

Attorney For

Office and Post Office Address
120 Broadway, New York, NY 10271
To , Esq.

Attorney for

Sir:
Please take notice that the within

will be presented for settlement and signature herein to the Hon.
one of the judges of the within named Court, at

in the Borough of
City of New York, on the day of
20 , at M.
Dated, NY, , 20
Yours, etc.
ELIOT SPITZER
Attorney General,
Attorney For

Office and Post Office Address
120 Broadway, New York, NY 10271
To Esq.

Attorney for

89-CV-815 Chief Judge Scullin
UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF NEW YORK

STATE OF NEW YORK and DENISE SHEEHAN as Trustee of the Natural Resources,

Plaintiffs,

-against-

HONEYWELL INTERNATIONAL INC.,

Defendant.

REQUEST FOR APPROVAL AND ENTRY OF PROPOSED CONSENT DECREE

ELIOT SPITZER
Attorney General
NORMAN SPIEGEL
Attorney for **Plaintiffs**

Office and Post Office Address
120 Broadway, New York, NY 10271
Tel. **212 416-8454**

Personal service of a copy of

within

is admitted this day of
20 .