RESPONSE ACTION DOCUMENT

Wastebed B/Harbor Brook Site
Subsite of the Onondaga Lake Site
Outboard Area Interim Remedial Measure
Onondaga County, New York

New York State Department of Environmental Conservation
and United States Environmental Protection Agency,
Region II

March 2012

I. PURPOSE

The purpose of this document is to authorize a response action[1] to minimize the release of contaminants into Lower Harbor Brook and/or Onondaga Lake under an Interim Remedial Measure (IRM)[2] for the Wastebed B/Harbor Brook (WBB/HB) Site (Subsite), located in the Town of Geddes and the City of Syracuse, Onondaga County, New York (see Figure 1 for a Site map)[3]. In September 2011, an Engineering Evaluation/Cost Analysis (EE/CA)[4] was prepared by Parsons on behalf of Honeywell International, Inc. (Honeywell) in support of the IRM for the Site *(Parsons, 2011)*. The EE/CA and a Proposed Response Action Document (PRAD) were made available for public comment from January 20, 2012 through February 20, 2012. The New York State Department of Environmental Conservation (NYSDEC) conducted a public meeting on February 1, 2012 in the Town of Geddes to discuss the proposed response action and to receive public comments on the EE/CA and the PRAD (as part of the citizen participation program for this IRM).

The WBB/HB Outboard Area IRM objectives are to:

- Eliminate, to the extent practicable, releases of contaminants from the Outboard Area; and
- Eliminate, to the extent practicable, potential impacts to human health and to the environment (*e.g.*, to fish and wildlife resources).

Conditions at the Site meet the criteria for a removal action under CERCLA, as documented in Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300 (NCP).

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1 This response action is a non-time-critical removal action under the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675 (CERCLA).

2 The use of the term "Interim Remedial Measure" (which is a term used in New York State environmental law parlance) throughout this document is not intended to mean that this removal action is a "remedial action" as that term is defined in the federal law CERCLA. An IRM is an activity that is necessary to address either emergency or non-emergency site conditions, which in the short-term, needs to be undertaken to prevent, mitigate or remedy environmental damage or the consequences of environmental damage attributable to a site. An IRM is a non-time critical removal under the CERCLA removal program pursuant to 40 C.F.R § 300. 415(b)(4).

3 Figures referenced in this document can be found in Appendix A, attached hereto.

4 An EE/CA is a study conducted as part of the removal action process to collect necessary data to determine the type and extent of contamination at a site and evaluate response actions to address this contamination.

The Site is a subsite of the Onondaga Lake Site, which is on the National Priorities List (NPL)[5]. There are no nationally significant or precedent-setting issues associated with this action.

The index in Appendix C, attached hereto, identifies the items that comprise the Administrative Record upon which the selection of the response action is based.

The New York State Department of Health was consulted on the planned response action and it concurs with the selected response action (see Appendix D, attached hereto).

II. SITE CONDITIONS AND BACKGROUND

This Response Action Document (RAD) identifies the selected response action for the Site.[6]

A. Site Description

1. Background

The WBB/HB Site is located to the north and south of Interstate Route I-690 in the City of Syracuse and Town of Geddes, Onondaga County. It consists of Harbor Brook, the Lakeshore Area (including Wastebed B and the East Flume), the Penn-Can Property, the Railroad Area, and areas of study (AOS #1 and AOS #2) east of Harbor Brook (see Figure 2). Wetland SYW-12, located north of Onondaga Creek, is being investigated under the WBB/HB Remedial Investigation/Feasibility Study (RI/FS).

Wastebed B is a former Solvay wastebed which received Solvay waste (generated by Allied Chemical Corporation operations) from approximately 1898 to 1926. Wastebed B covers approximately 28 acres and was engineered to receive waste by construction of a bulkhead into Onondaga Lake. The Penn-Can Property has historically been used for the production and storage of asphalt products. The Barrett Division of the Semet Solvay Company of Allied Chemical Corporation (the predecessor to Honeywell) operated at the property from 1919 until

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5 On December 16, 1994, Onondaga Lake and its tributaries and the upland hazardous waste sites which have contributed or are contributing contamination to the lake (subsites) were added to the U.S. Environmental Protection Agency's (EPA's) NPL. NYSDEC and EPA have, to date, organized the work for the Onondaga Lake site into 11 subsites. The Wastebed B/Harbor Brook Site is one of the subsites at the Onondaga Lake NPL site. NYSDEC is the lead agency for the Wastebed B/Harbor Brook Site.

6 The Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) ID number for the Onondaga Lake Site is NYD986913580. The Wastebed B/Harbor Brook Site is being tracked in EPA's CERCLIS data base as Operable Unit #18 of the Onondaga Lake NPL Site.

approximately 1978. Barrett produced various asphalt emulsions and some coal tar-based products used in road construction. The Railroad Area is situated to the south of the Penn-Can Property and is bounded to the north, south and east by railroad tracks.

In 2003, Honeywell and NYSDEC entered into an Order on Consent (Index #D7-0008-01-09) to conduct an IRM for WBB/HB. That IRM scope includes a vertical barrier to be installed along the Onondaga Lake shoreline perimeter of Wastebed B and upstream along the west bank of Harbor Brook with a groundwater collection system installed along the vertical barrier. The location of the barrier wall to the west of Harbor Brook (West Wall) is identified in the final design for the West Wall approved by NYSDEC on December 3, 2009. The remainder of the barrier wall, which is to extend from the eastern terminus of the West Wall, is referred to as the East Wall. The Outboard Area is a 16-acre strip of land that lies between the barrier walls that are being installed as part of the WBB/HB East and West Wall IRMs, and Onondaga Lake (including the mouth of Harbor Brook and areas of wetlands along the shoreline). This IRM, which is the subject of this RAD, addresses the Outboard Area, which includes contaminated soil and wetland sediments from the area between the barrier wall and Onondaga Lake (See Figures 1 and 3).

2. Release or Threatened Release into the Environment of a Hazardous Substance or Pollutant or Contaminant

Based on investigations conducted at the Site pursuant to Section 104 (a)(1)(A) or (B), 42 USC § 9604 (a)(1)(A) or (B), contaminants of concern identified for the Site include metals (antimony, arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, and zinc), benzene, toluene, ethylbenzene, and xylene (BTEX), chlorinated benzenes, naphthalene and other polycyclic aromatic hydrocarbons (PAHs), chlordane isomers, DDT and metabolites, dieldrin, and heptachlor/heptachlor epoxide, phenolic compounds, polychlorinated biphenyls (PCBs), and polychlorinated dibenzo-dioxins/polychlorinated dibenzo-furans.

Coal tar residues, including non-aqueous phase liquid (NAPL), were identified in the eastern central portion of the Penn-Can Property. The coal tar residues are associated with the historic operations of the former paving facilities that were located on the central and eastern portions of the Penn-Can Property. These residues are likely present because of releases from the former Barrett Paving facility previously located on the property. Residues from this source area migrated into the subsurface and then migrated through coarse lenses of marl and along the top of low-permeability (confining) geologic units (*i.e.*, silt/clay and till) to depths of at least 6.1 meters (m) (20 feet [ft]) below ground surface (bgs) in the area of lower Harbor Brook. As shown on Figure 4, these residues, including

NAPL, appear to have migrated to Wastebed B and Harbor Brook. Groundwater has also been impacted in areas associated with the NAPL. Soils, sediments and surface water have been impacted in areas where shallow and intermediate groundwater discharge to surface water bodies (Harbor Brook, I-690 drainage ditch, and other Site-related ditches). The primary constituents associated with the NAPL include BTEX, and naphthalene and other PAHs.

The sampling results for the media that are the subject of this IRM are further discussed in Section 1.4 of the EE/CA. This document can be found in the document repositories maintained in the NYSDEC Region 7 Syracuse, New York office, Onondaga County Public Library Syracuse Branch at the Galleries, Solvay Public Library, Atlantic States Legal Foundation, and the NYSDEC Albany, New York Central Office.

3. National Priorities List Status

This Site is part of the Onondaga Lake NPL site.

4. Maps, Pictures, and Other Graphic Representation

Figure 4 shows the area of the WBB/HB Site that is the subject of the Outboard Area IRM.

B. Other Actions to Date

1. Previous actions

Previous actions include sampling as part of the WBB/HB Preliminary Site Assessment, RI and IRM Pre-Design.

2. Current actions

An RI for the WBB/HB Site is currently underway. It is anticipated that an FS report and a Proposed Plan for the Site will be released to the public in 2014.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A Streamlined Risk Evaluation (SRE) was prepared for the Outboard Area of the WBB/HB Subsite. The objective of the SRE was to provide a concise evaluation of potential risks to human and ecological receptors, assuming no removal or clean-up actions would be taken at the Outboard Area. The SRE relates to exposure to the contaminated media being addressed by this IRM and the contribution that these media may have made to unacceptable risks in the Outboard

Area. A summary of the human health and ecological evaluations are provided below.

Human Health Evaluation

The intended future use of a portion of the Outboard Area is for habitat enhancements, including wetland improvements. In addition, the area will also likely be used for recreational activities (*e.g.*, biking, running, walking along a trail). Current and future exposure scenarios in the area which were considered in the SRE include trespassers, construction workers, surveillance workers, and recreational visitors. Although unlikely, potential future industrial/commercial workers and residents were also considered in the SRE.

A conservative screening process was applied to identify constituents of potential concern (COPCs) in the surface soil, subsurface soil, and sediment that may pose potential risk to current and future receptors. Some of these COPCs were also previously identified as risk drivers in the Lake based on consumption of fish. Specifically, the SRE identified arsenic, dioxins/furans (2,3,7,8-tetrachlorodibenzo-p-dioxin [2,3,7,8-TCDD] equivalents), mercury, and PCBs as being among the COPCs for surface soil and Harbor Brook sediment, with dioxins/furans exceeding its screening criterion by approximately two or more orders of magnitude. Arsenic, mercury, and PCBs were also identified as COPCs for subsurface soil, with arsenic exceeding its respective screening criterion by more than two orders of magnitude. PCBs were also identified as COPCs for subsurface soil. In the baseline Human Health Risk Assessment (HHRA) for the Lake Bottom Subsite, it was determined that arsenic, dioxins, mercury, and PCBs were the primary risk drivers associated with the consumption of fish from the Lake (TAMS, 2002a). EPA's acceptable risk thresholds were exceeded for both potential cancer and non-cancer risks (*i.e.*, potential cancer risks exceed the 10^{-4} to 10^{-6} risk range and potential non-cancer risks exceeded a hazard index of 1).

Ecological Evaluation

Constituents of potential ecological concern (COPECs) for surface soil and Harbor Brook sediment were identified by screening the maximum detected concentrations in Outboard Area media against recommended, conservative, ecologically-based screening-criteria and/or guidance values.

In surface soil, antimony, arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, selenium, silver, zinc, cyanide, dichlorobenzenes, trichlorobenzenes, xylenes, PAHs, DDT and metabolites, dieldrin, and PCBs exceeded screening criteria, with chromium, iron, lead, mercury, and 4,4'-DDT exceeding their respective criteria by approximately two or more orders of magnitude. These metals and compounds also were identified as surface soil contaminants of concern (COCs) in the Onondaga Lake Baseline Ecological Risk Assessment (BERA; TAMS, 2002b). In addition, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc were among the risk drivers associated with the potential for phytotoxic effects in soil.

Sediment COPECs included metals (antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc), benzene, ethylbenzene, toluene, xylenes, chlorobenzenes, PAHs, hexachlorobenzene, phenol, dieldrin, and heptachlor/heptachlor epoxide. These COPECs were also identified as sediment COCs in the Onondaga Lake BERA. Mercury, 2-methylnaphthalene, fluorene, naphthalene, phenol, and chlorobenzene exceeded their respective screening criteria by approximately 2 or more orders of magnitude. In addition, PCBs and dioxins/furans (2,3,7,8-TCDD equivalents) were detected in the Outboard Area sediment and have been identified as sediment COCs in the Onondaga Lake BERA (TAMS, 2002b).

Key results of the Onondaga Lake BERA indicate that comparisons of measured tissue concentrations and modeled doses of chemicals to toxicity reference values show exceedances of hazard quotients for site-related chemicals throughout the range of the point estimates of risk. Site-specific sediment toxicity data indicate that sediments are toxic to benthic macroinvertebrates on both an acute (short-term) and chronic (long-term) basis. Many of the contaminants in the Lake are persistent and, therefore, the risks associated with these contaminants are unlikely to decrease significantly in the absence of remediation. On the basis of these comparisons, it has been determined through the Onondaga Lake BERA that all receptors of concern are at risk. Contaminants and stressors in the Lake have either impacted or potentially impacted every trophic level examined in the Onondaga Lake BERA (NYSDEC and EPA, 2005).

Conclusions

The identification of constituents of potential concern to human health (*i.e.*, COPCs) and potential ecological concern (*i.e.*, COPECs) indicate that there is a potential threat to human health and the environment. Many of these COPCs and COPECs are also identified as COCs in the Onondaga Lake HHRA and BERA. Therefore, the SRE results indicate that there is a clear potential threat to human health from exposure to some constituents found in surface soil, subsurface soil, and sediment. Likewise, there is a potential threat posed to ecological receptors from exposure to surface soil and sediment. Response actions in the Outboard Area evaluated in the EE/CA are warranted based on the following factors acknowledged in 40 CFR Section 300.415 (b)(2):

• Potential threat of exposure to nearby human populations, animals, and the food chain from Site-related contaminants;
• Unacceptable potential risks due to elevated levels of Site-related contaminants in soils and sediment;
• Potential threat to public health, welfare, or the environment;
• High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate; and
• Actual or potential contamination of sensitive ecosystems.

IV. ENDANGERMENT DETERMINATION

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

V. SELECTED ACTIONS AND ESTIMATED COSTS

A. Selected Actions

1. Selected Action Description

The selected response action includes the removal of contaminated soil and sediments and the placement of an isolation cap, which achieves final grades lower than the existing grade elevations to facilitate habitat restoration. Based on the anticipated cap thicknesses and target final grades for the western and eastern Outboard Areas, the majority of the excavation will be conducted to depths ranging from 1.5 to 3 m (4.9 to 9.8 ft) with additional hot spot excavation/dredging to remove an additional 1 m (3.3 ft) (to a maximum depth of 4 m [13.1 ft]) of Outboard Area materials where concentrations of select contaminants exceed the hot-spot criteria developed for the Onondaga Lake remedy (NYSDEC and EPA, 2005)[7]. The cap will be designed to isolate contamination in remaining sediments and soils. The performance criteria for the cap will be the probable effects concentrations developed for the Onondaga Lake remedy for each of the contaminants that have been shown to exhibit acute toxicity on a lake-wide basis (NYSDEC and EPA, 2005), as well as the NYSDEC sediment screening criteria for benzene, toluene, and phenol (NYSDEC, 1999). Habitat restoration in the Outboard Area will create emergent wetland areas and a habitat that is more suitable for northern pike reproduction. The restoration design will consider deeper pools for nursery habitat that coincide with the hot spot removal areas as a means of creating variable topography. If appropriate, additional fill materials will be placed within the Outboard Area to achieve the final post-cap target grades.

It is estimated that 152,000 cubic meters (m^3) (199,000 cubic yards [CY]) of material will be removed under the selected response action. Approximately 27,000 m^3 (35,000 CY) of dry material will be excavated and relocated to an area

7 Based on the results of geotechnical analyses, limitations on the size and depth of the Outboard Area excavation were established to maintain the stability of the walls and nearby structures. Outboard Area excavation limitations are presented in the EE/CA and were considered during the development of potential response actions.

inboard of the barrier wall and groundwater collection system at the WBB/HB Subsite, and the remaining 125,000 m^3 (164,000 CY) will be managed with the dredged Onondaga Lake sediments at the Sediment Consolidation Area (SCA) at Wastebed 13.

This IRM will be coordinated with other remedial activities at the WBB/HB Subsite and the Onondaga Lake bottom remediation. The actual schedule of work will be dependent on how dredging and capping for this area is integrated into the schedule for the Onondaga Lake bottom remediation.

The environmental benefits of the selected response action may be enhanced by consideration, during the design, of technologies and practices that are sustainable in accordance with EPA Region 2's Clean and Green policy[8] and NYSDEC's Division of Environmental Remediation Program Policy *Green Remediation* (DER-31)[9].

2. Contribution to Remedial Performance

This IRM will be performed at the WBB/HB Site, which is part of the Onondaga Lake NPL site. Removing the contaminated soil and sediments and installing an isolation cap as part of this IRM will facilitate the cleanup of Onondaga Lake and Harbor Brook via elimination or control of WBB/HB contaminant sources. It is anticipated that the selected response action, along with the other Site IRMs (West Barrier Wall, East Barrier Wall, and Upper Harbor Brook), will be incorporated into a final remedy for the Site.

3. Description of Alternative Technologies

Not applicable.

4. Engineering Evaluation/Cost Analysis

The EE/CA was prepared to analyze different potential removal actions. The EE/CA was prepared in conformance with the guidelines in Guidance on Conducting Non-Time-Critical Removal Actions under CERCLA (EPA/450-R-93-057, August 1993).

A PRAD (NYSDEC and EPA, 2012), which identified EPA and NYSDEC's preferred response action and the basis for that preference, and the EE/CA were

8 See http://epa.gov/region2/superfund/green_remediation

9 See http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf

made available to the public in both the Administrative Record and information repositories maintained in the NYSDEC Syracuse and Albany, New York offices, the Onondaga County Public Library, 447 South Salina Street, Syracuse, New York, the Solvay Public Library, 615 Woods Road, Solvay, New York, and at the Atlantic States Legal Foundation, 658 West Onondaga Street, Syracuse, New York. The documents were also made available on NYSDEC's website at www.dec.ny.gov/chemical/37558.html. On January 20, 2012, a notice of availability for these documents was published in the Syracuse *Post Standard*, and a fact sheet was e-mailed to interested community members via NYSDEC's Onondaga Lake News Listserv. A public comment period was held from January 20, 2012 to February 20, 2012. On February 1, 2012, NYSDEC and EPA conducted a public meeting at the Martha Eddy Room in the Art and Home Center at the New York State Fairgrounds, to present the findings of the EE/CA and answer questions from the public about the Site and the response actions under consideration. Approximately forty people, consisting of residents, representatives of the media, representatives of Honeywell, and local government officials attended the public meeting. Public comments have been addressed in the Responsiveness Summary (see Appendix E, attached hereto).

5. Applicable or Relevant and Appropriate Requirements and Other Environmental Criteria

Applicable or Relevant and Appropriate Requirements (ARARs) and To-Be-Considered criteria (TBCs) related to this Selected Action will be complied with during implementation of the WBB/HB Outboard Area IRM to the extent practicable. The ARARs/TBCs include, but are not limited to those presented on Table 2.

6. Project Schedule

Implementation of this selected response action at the Outboard Area will be coordinated with the Onondaga Lake dredging which is expected to commence in the summer 2012.

B. Estimated Costs

The estimated capital cost, annual operation and maintenance (M&M)[10] cost, Site control costs, and present-worth cost for the WBB/HB Outboard Area IRM are presented below and in Table 1.

Capital Cost	Annual M&M Cost	Present-Worth M&M Cost	Total Present-Worth Cost
$23,840,000	$21,100	$160,600	$24,000,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If the IRM were to be delayed or not taken, the Site will continue to pose a potential health risk to human health or the environment.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

Pursuant to CERCLA, the current owner and operator of a facility from which there is a release of hazardous substances which causes the incurrence of response costs shall be liable for the costs incurred by the United States. CERCLA also provides that persons who previously owned or operated a facility at the time of disposal of hazardous substances are similarly liable. NYSDEC anticipates that the response action will be implemented and funded by Honeywell, a party which has been identified as potentially liable regarding the Site.

IX. AUTHORIZATION

Conditions at the Site meet the NCP Section 300.415(b)(4) criteria for a removal action.

This decision document, which selects a response action for the WBB/HB Outboard Area IRM, located in the Town of Geddes and City of Syracuse, Onondaga County, New York, was

10 The term "M&M" as used here is meant to be synonymous with the term Operation and Maintenance, which is cited in the NCP, since the response actions do not include facilities which will need operation.

developed in accordance with CERCLA and is not inconsistent with the NCP. The decision documented in this RAD is based on the Administrative Record for the response action.

NYSDEC and EPA's selected response action includes removal of contaminated soils and sediments between the Harbor Brook barrier walls (East and West Walls) and Onondaga Lake, placement of an isolation cap, and restoration of the area as wetlands. This response action will be protective of human health and the environment, both in the short- and long-term, and will meet federal and state ARARs/TBCs to the extent practicable. The volume of contaminants will be reduced through the removal of contaminated soils and sediments and is readily implementable. The response action includes an isolation cap, in conjunction with institutional controls and a long-term M&M program, to provide long-term chemical isolation of underlying impacted soil/sediments.

As discussed in the PRAD (see Appendix E-1), NYSDEC and EPA have determined that the selected response action provides the best balance of tradeoffs among the response actions considered in the PRAD with respect to the three evaluation criteria (effectiveness, implementability, and cost). NYSDEC and EPA also believe that the selected response action will be protective of human health and the environment, will comply with ARARs/TBCs to the extent practicable, will be cost-effective, and will utilize permanent solutions and response action treatment technologies or resource recovery technologies to the maximum extent practicable.

March 30, 2012
Date

Robert W. Schick, Acting Director
Division of Environmental Remediation
New York State Department of Environmental Conservation

March 29, 2012
Date

Walter E. Mugdan, Director
Emergency and Remedial Response Division
U.S. Environmental Protection Agency

References:

New York State Department of Environmental Conservation Division of Fish, Wildlife, and Marine Resources. 1999. *Technical Guidance for Screening Contaminated Sediments*. New York State Department of Environmental Conservation, Albany, New York. January.

New York State Department of Environmental Conservation and United States Environmental Protection Agency. 2005. *Onondaga Lake Bottom Subsite of the Onondaga Lake Superfund Site.* New York State Department of Environmental Conservation, Albany, New York and United States Environmental Protection Agency, New York, New York. July.

New York State Department of Environmental Conservation and United States Environmental Protection Agency. 2012. *Interim Remedial Measure Outboard Area of the Wastebed B/Harbor Brook Proposed Response Action Document*. New York State Department of Environmental Conservation, Albany, New York and United States Environmental Protection Agency, New York, New York. January.

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TAMS. 2002a. *Onondaga Lake Human Health Risk Assessment*. TAMS, New York, New York and YEC, Valley Cottage, New York. Prepared for NYSDEC. December.

TAMS. 2002b. *Onondaga Lake Baseline Ecological Risk Assessment*. TAMS, New York, New York and YEC, Valley Cottage, New York. Prepared for NYSDEC. December.

APPENDIX A

Figures

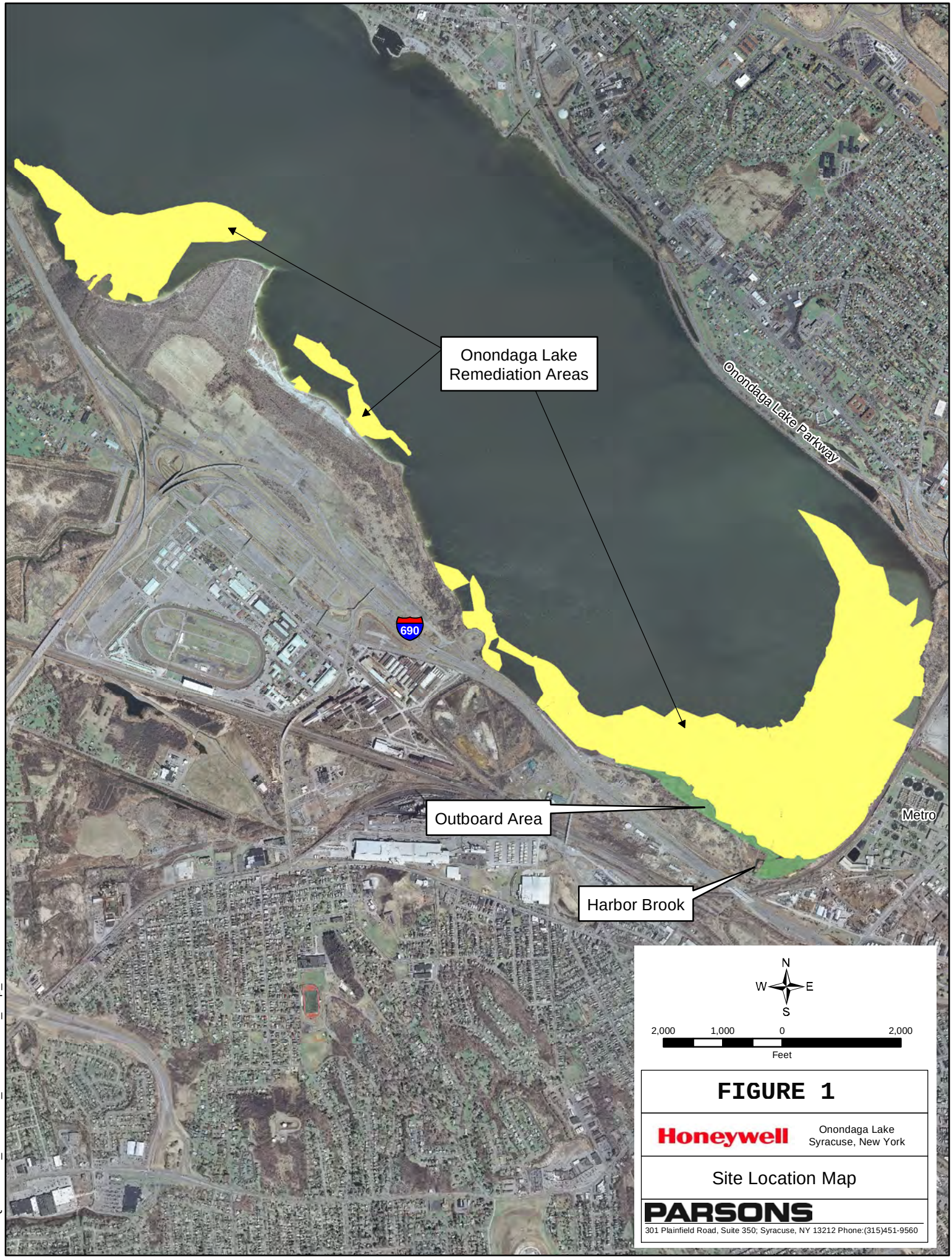

FIGURE 1

Honeywell

Onondaga Lake
Syracuse, New York

Site Location Map

PARSONS

301 Plainfield Road, Suite 350; Syracuse, NY 13212 Phone:(315)451-9560

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SMU 2

SMU 1

SMU 6

SMU 7

WL7

Upper East Flume

Spillway

Lower East Flume

DSA 1

DSA 2

WL4

WL3

Wastebed B

Western Portion of WBB/HB Wall

690

I-690 Drainage Ditch

WL2

Lower Harbor Brook

AOS-1

WL1

Penn-Can Property

Eastern Portion of WBB/HB Wall

Railroad Area

Upper Harbor Brook

Willis/Semet IRM Barrier Wall

West Wall Portion of the WBB/HB IRM

East Wall Portion of the WBB/HB IRM

NYSDEC/EPA Approved Wetland Boundaries

Sediment Management Unit (SMU) Boundary

Area Backfilled to Elevation 365 ft.

Dredge Spoils Area

N

Note: The East Flume has subsequently been filled in to elevation 365 (NAVD 88).

400 200 0 400

Feet

FIGURE 2

Honeywell

Onondaga Lake
Syracuse, New York

East Flume, DSA #2, AOS-1 and Wetland Areas

PARSONS

301 Plainfield Road, Suite 350; Syracuse, NY 13212 Phone:(315)451-9560

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SMU 1

SMU 6

SMU 7

Outboard Area

690

Wastebed B

Lower Harbor Brook

Upper Harbor Brook

Willis/Semet IRM Barrier Wall

West Wall Portion of the WBB/HB IRM

East Wall Portion of the WBB/HB IRM

Sediment Management Unit (SMU) Boundary

Wastebed B/Harbor Brook Site Boundary

N

Note: The East Flume has subsequently been filled in to elevation 365 (NAVD 88).

400 200 0 400

Feet

FIGURE 3

Honeywell

Onondaga Lake
Syracuse, New York

Wastebed B/Harbor Brook Site and Outboard Area

PARSONS
301 Plainfield Road, Suite 350; Syracuse, NY 13212 Phone:(315)451-9560

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Figure 4

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LEGEND

- MONITORING WELLS
- SOIL BORINGS
- RI 2006 Soil Borings (GPS)
- TEST PITS
- SEDIMENT IRM INVESTIGATION SEDIMENT PROBING TRANSECT
- SEDIMENT IRM INVESTIGATION SAMPLING TRANSECT
- SEDIMENT IRM INVESTIGATION SEDIMENT CORE
- APPROXIMATE EXTENT OF NAPL IN MARL

HONEYWELL
WASTEBED B/
HARBOR BROOK SITE
GEDDES AND SYRACUSE, NY

DISTRIBUTION OF NAPL

N
W E
S

0 25 50 100 150 200
Feet

Note: Original base map information obtained from O'Brien & Gere Remedial Investigation Report (November 2007), Figure 107.

PARSONS
290 Elwood Davis Road, Suite 312, Liverpool, NY 13088 315-451-9560