ONONDAGA LAKE PRE-DESIGN INVESTIGATION: PHASE III ADDENDUM 6 DATA SUMMARY REPORT

Prepared For:

Honeywell

5000 Brittonfield Parkway
East Syracuse, NY 13057

Prepared By:

PARSONS

290 Elwood Davis Road, Suite 312
Liverpool, New York 13088

Exponent

1086 Morningside Ave
Schenectady, NY 12309

ANCHOR ENVIRONMENTAL, LLC

Wenatchee, WA 98801

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LIST OF ACRONYMS

CPOI	Chemical Parameters of Interest
g/cc	grams per cubic centimeter
mg/kg	milligrams per kilogram
MNR	Monitored Natural Recovery
MS/MSD	Matrix Spike / Matrix Spike Duplicate
NYSDEC	New York State Department of Environmental Conservation
PAHs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
pCi/g	picocuries per gram
PDI	Pre-Design Investigation
PEC	Probable Effect Concentration
ppm	parts per million
QA/QC	Quality Assurance / Quality Control
RI	Remedial Investigation
ROD	Record of Decision
SMU	Sediment Management Unit
TALR	Test America Laboratories' Richland, WA Lab
*u*g/kg	micrograms per kilogram
USEPA	Environmental Protection Agency

EXECUTIVE SUMMARY

Sediment samples were collected for Honeywell during November 2007 from 26 different locations and four sediment depth intervals within Sediment Management Unit (SMU) 8 of Onondaga Lake. The purpose of this work was to further assess the extent of natural recovery ongoing within SMU 8. Monitored natural recovery (MNR) is part of the remedy for SMU 8 as specified in the Record of Decision (ROD) for the Onondaga Lake Bottom Subsite (NYSDEC and USEPA, 2005).

Sampling and analyses reported herein were conducted in accordance with the Onondaga Lake Phase III Pre-Design Investigation Addendum 6 Work Plan (Parsons, 2008) approved in advance by the State of New York Department of Environmental Conservation (NYSDEC). Each of the SMU 8 sediment samples collected during November 2007 was analyzed for mercury, percent solids, and specific gravity. Sediment samples from two of the 26 locations were also analyzed for methylmercury and for Onondaga Lake chemical parameters of interest (CPOIs) as defined in the ROD. Sediment samples from the top 0.5 centimeter (0.2 inch) were composited from multiple locations as needed to analyze for beryllium-7, a radioisotope. In addition to the work elements presented in the work plan, sediment samples from 11 locations were composited from the four depth intervals and analyzed for particle size, moisture content, and Atterberg limits.

Results from the 2005 and 2007 sampling efforts will be input to the natural recovery model developed previously for Honeywell. Following assessment of the modeling results, additional SMU 8 efforts will be planned to further monitor natural recovery. Further analysis of the 2005 and 2007 data will be discussed with the SMU8 Technical Work Group.

SECTION 1

INTRODUCTION

This report describes sediment sampling conducted throughout SMU 8 in Onondaga Lake during November 2007 and laboratory analyses conducted with the sediment samples from November 2007 through January 2008. This sampling and analysis work was conducted for Honeywell as Addendum 6 of the Phase III Pre-Design Investigation (PDI) work effort. Unless otherwise stated, the activities described in this report were conducted in accordance with the procedures outlined in the Phase I PDI Work Plan (Parsons, 2005a) and in accordance with the work scope and specific sample collection and sample processing procedures presented in the revised Phase III PDI Work Plan Addendum 6 (Parsons, 2008).

The purpose of the Phase III PDI was to collect information required to conduct remedial design activities specified in the Record of Decision for the Onondaga Lake Bottom Subsite (NYSDEC and USEPA, 2005). One of the Phase III PDI activities was an investigation to provide additional data to refine the application to SMU 8 of the model for monitored natural recovery (MNR). SMU 8 consists of the area of the lake where water depths exceed 9 meters (30 ft), which is also called the profundal zone. Waters in SMU 8 become stratified annually during the summer and early fall, and bottom waters in SMU 8 (called the hypolimnion) become anoxic during much of the stratified period.

1.1 PHASE III MNR SAMPLING OBJECTIVES

The approach to assess MNR as applied to SMU 8 includes regular surface sediment sampling as a key measure tracking the status of MNR. For the 2007 Phase III PDI effort throughout SMU 8, the sediment depth intervals that were sampled and analyzed were as follows as prescribed in the Addendum 6 of the Phase III PDI Work Plan:

- 0 to 2 centimeters – the most recently settled sediments;
- 2 to 4 centimeters – in combination with the 0 to 2 centimeter interval represents the mixed layer depth used in the MNR model presented initially in the Feasibility Study Report for Onondaga Lake (Parsons, 2004);
- 4 to 10 centimeters – in combination with the intervals above represents the assumed depth of bioturbation under potential future lake oxidation scenarios; and
- 10 to 15 centimeters – in combination with the intervals above represents the interval over which samples from other lake SMUs have been analyzed.

Sediment sampling, data management, and results are presented in this report.

1.2 REPORT ORGANIZATION

This report is organized into the following sections:

- Section 1: Introduction
- Section 2: Box Core Sediment Sampling and Analyses
- Section 3: Sample and Data Management and Validation
- Section 4: Laboratory Results
- Section 5: References

Appendix A is the data usability summary report. Appendix B is the core logs from the 26 locations where sediment was sampled. Appendix C is a photo log that illustrates the sediment sample collection effort. Appendix D is a photo log that illustrates the sediment sample processing effort conducted by Parsons onshore in conjunction with sediment sample collection.

SECTION 2

BOX CORE SEDIMENT SAMPLING AND ANALYSES

Shallow sample cores were collected from November 6 through November 9, 2007 at a total of 26 locations as shown on Figures 1A and 1B. These sample locations are the same as those presented in Addendum 6 of the Phase III PDI Work Plan, and they provide widespread distribution throughout SMU 8 with more locations near the sources of CPOIs in the southern half of the lake. Each of the sample locations was co-located with samples from previous sampling efforts conducted during 1992 and/or 2005. Global positioning system coordinates were established for each of the sample locations prior to mobilization, and the field team sampled from locations that were within 5 to 10 ft of the coordinates established prior to mobilization.

Sample management, equipment decontamination, and other field procedures not included in Addendum 6 of the Phase III PDI Work Plan were conducted in accordance with procedures provided in the Onondaga Lake PDI Standard Operating Procedures (Parsons, 2005b). Samples were analyzed in a laboratory and analytical data were validated in accordance with procedures specified in the Onondaga Lake PDI Quality Assurance Project Plan (Parsons, 2005a, Appendix B). Results from the data validation work are presented in Appendix A of this report.

2.1 BOX CORE SAMPLE COLLECTION

A box corer sampling device was used to collect shallow sediment samples from SMU 8. The box corer dimensions were 23 centimeters by 23 centimeters by 46 centimeters (i.e., 9 inches by 9 inches by 18 inches) in size. A box corer is the preferred method over smaller-diameter coring, because the need for relatively large sediment quantities for laboratory analyses dictated that multiple short push core tubes be used to collect sediment at each location.

Box corer penetration at each sampled location was to a depth of at least 20 to 30 centimeters (i.e., 8 to 12 inches) below the mudline. At all 26 locations, the top of the sediment line (mudline) was noticeable from the sampling boat (based on reduced tension in the cable line), and water depths measured on the boat were comparable to water depths measured previously as part of the Phase I PDI geophysical survey work (CR Environmental, 2007). Sediment was also observed to adhere to the outside of the box corer during sample collection and was used as another indicator for box core penetration. At no time was the box core completely submerged within the sediment. After the box corer was brought up and placed on the boat, polycarbonate tubes approximately three inches in diameter were inserted into the sediment within the box corer. The field crew inserted three polycarbonate tubes into the sediment to ensure that sufficient sample volume was collected for laboratory analyses. The tubes were then capped on both ends and stored vertically on the boat and kept on ice until brought to shore for sample processing.

The sediment sample collection procedure used for this effort was consistent with the procedure steps presented in Appendix A in Addendum 6 of the Phase III PDI Work Plan. The only change to the sample collection procedure was that the samples were processed in a trailer onshore instead of being packed and shipped by the field sampling crew for processing at the laboratory. Samples were maintained in a vertical position at all times until they were segmented into vertical intervals as part of the sample processing effort onshore. Core logs for each sediment sampling location are presented in Appendix B. A photo log illustrating the sample collection effort is presented in Appendix C.

Samples analyzed for beryllium-7 analysis were collected on the sampling boat from inside the box corer filled with sediment. These samples were collected from the top 0.5 centimeter by using a stainless steel ruler to gage appropriate sample collection depth and a plastic disposable scoop to scrape the top 0.5 centimeter (0.2 inch) of drained sediment from the box corer outside the sample area contained by the polycarbonate tubes. The field crew siphoned off all of the water that could be siphoned without removing sediment (*i.e.*, all but approximately 5 centimeters (i.e., 2 inches) of water), inserted the stainless steel ruler a second time, and then inserted the scoop into the box corer to collect samples for beryllium-7 analysis. The field crew recorded that the top 0.5 centimeter of sediment was very fluffy in texture.

2.2 BOX CORE SAMPLE PROCESSING

Sediment samples from each of the 26 SMU 8 locations collected from November 6 through 9, 2007 were processed onshore from November 7 through 12, 2007. Sediment lithology was described and all observations were recorded in the field book and/or in the electronic database. Box core logs for each of the 2007 SMU 8 sampling locations are provided in Appendix B of this report. The vertical intervals for segmenting each sample tube and for conducting laboratory analyses were 0 to 2 centimeters, 2 to 4 centimeters, 4 to 10 centimeters, and 10 to 15 centimeters consistent with Addendum 6 of the Phase III PDI Work Plan.

Sediment processing procedures used for this effort are consistent with those stated in Appendix A of the Onondaga Lake Phase III PDI Addendum 6 Work Plan except that samples were processed in a trailer onshore instead of being processed at the laboratory. A photo log illustrating the sample processing effort is presented in Appendix D.

2.3 SAMPLE ANALYSES

Sediment from each vertical interval was analyzed by Test America Laboratories for total mercury, solids content, and specific gravity. In accordance with the work plan, at sample locations OL-STA-80070 and OL-STA-80079, samples were analyzed for Target Compound List volatile organics, polynuclear aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) consistent with the Onondaga Lake CPOIs. Samples analyzed from these two locations for CPOIs were samples from each of the four sediment depth intervals. Sediment samples from these same two locations and depth intervals were also analyzed for methylmercury.

Samples from the top 0.5 centimeter of sediment were analyzed by Test America Laboratories in Richland, WA for beryllium-7, a radioisotope. The objective of beryllium-7 analyses was to provide a line of evidence that the top of the sediment in SMU 8 has been deposited very recently. The half-life of beryllium-7 is approximately 53 days.

In addition to the CPOIs, methyl mercury, specific gravity, and beryllium-7 analyses, samples from 11 of the 26 SMU 8 2007 sampling locations were composited over the 0 to 15-centimeter sediment depth and analyzed by GeoTesting Express for particle size, moisture content, calcium carbonate content, and Atterberg limits. These analyses were in addition to the work scope included in Addendum 6 of the Phase III PDI Work Plan and were conducted at the same time as Phase III PDI (Addendum 2) geotechnical analyses of sediment samples collected to further assess stability of the in-lake waste deposit.

SECTION 3

DATA MANAGEMENT AND VALIDATION

3.1 FIELD DATABASE

An electronic database for field data was developed to account for samples from each of the Phase III PDI (2007) efforts. The purpose of the database for field data is to ensure consistency in field sample ID assignment and compatibility with Honeywell's Locus Focus™ data management system that includes all of the validated data for Onondaga Lake. The data collection program prepared for the Phase III PDI field program for Onondaga Lake is similar to the one used during the Phase I and II PDI.

3.2 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

Sample names, QA/QC procedures, sample collection, data entry, and data validation for the 2007 work was conducted in accordance with the Phase I PDI Work Plan (Parsons, 2005a, Appendix A and Appendix B) and in accordance with Addendum 6 of the Phase III PDI Work Plan. There were no deviations from these procedures while conducting the Addendum 6 work. A NYSDEC representative inspected the sample processing procedure as the samples were being processed.

Test America conducted all of the laboratory analyses with two exceptions (1) methylmercury sediment analyses conducted by Brooks Rand; and (2) geotechnical testing conducted by GeoTesting Express. Test America, Brooks Rand, and GeoTesting Express have worked successfully for Honeywell on other Onondaga Lake Pre-Design efforts that had similar work scopes.

Chemical analytical data generated during this investigation were reviewed and validated for usability in accordance with pre-established data validation procedures summarized in the Phase I PDI Work Plan (Parsons, 2005a). The results were incorporated into the Honeywell Locus Focus™ database after they were validated.

3.3 SAMPLE CUSTODY

Samples were collected and managed using the field database as described above. Sample recordkeeping and database entry were conducted using Locus Focus™ in accordance with the Phase I PDI Sampling and Analysis Plan and Quality Assurance Project Plan (Parsons, 2005a).

3.4 DATA VALIDATION

Analytical data generated during the investigation activities was reviewed and validated by Parsons in accordance with the approved Phase I Sampling and Analysis Plan and Quality

Assurance Project Plan (Parsons, 2005a). Data validation was performed in accordance with guidance provided by the United States Environmental Protection Agency (USEPA) and adapted to the QA/QC criteria in the USEPA Contract Laboratory Protocol and the USEPA methods published as SW-846. Appendix A is the data usability summary report that resulted from the data validation work. Following validation, the results were incorporated into the Locus Focus™ database.

3.4.1 Data Validation Summary for Chemical and Specific Gravity Analyses

Laboratory analytical results were 100 percent complete (*i.e.,* usable) for each of the sediment samples and analyses. There were no sediment data qualifications resulting from the data validation review of laboratory analytical precision, accuracy, representativeness, completeness, and comparability. In accordance with the data validation protocol, a "J" qualifier was added to each of the chemical results, because the solids content was less than 50 percent by weight *(i.e.*, less than 0.5) in each of the sediment samples.

3.4.2 Data Validation Summary for Beryllium-7 (Radioisotope) Analysis

Beryllium-7 sediment data were reviewed and validated for sample custody, holding times, laboratory control sample recoveries, laboratory duplicate precision, laboratory blank contamination, calibrations, reporting limits, sample result verification, and data completeness. These items were considered compliant and acceptable in accordance with validation protocols. It was noted that minimum detectable activity results for each sample were higher than reporting limits due to limited sample volume for analysis (see Section 3.5.4). The reported laboratory data for these samples, which were non-detects, did not require qualification from data validation. Therefore, the beryllium-7 data presented by Test America Laboratories' Richland (TALR) were 100 percent complete (*i.e.,* usable).

SECTION 4

LABORATORY RESULTS

4.1 MERCURY AND SPECIFIC GRAVITY/BULK DENSITY RESULTS

Total mercury and specific gravity results for each of the 26 sampling locations and four SMU 8 sediment intervals sampled during 2007 (0 to 2, 2 to 4, 4 to 10, and 10 to 15 centimeters below the top of sediment) are presented in Table 1. Mercury results are also presented in Figures 2A and 2B. In accordance with the applicable data validation protocol, the low percent solids in each of the samples led to a "J" qualifier being added which indicates the measured concentrations are estimated.

Field duplicate results for mercury at a location and depth interval are also presented in Table 1 and on Figures 2A and 2B. The field duplicate results show variations from 0 to approximately 15 percent.

Specific gravity results range from 2.301 to 2.797 grams per cubic centimeter. Specific gravity results represent the specific gravity of dry solids which is the ratio of dry solids density to the density of water.

Bulk density calculations have also been made for each of the sample locations and depth intervals for which percent solids and specific gravity results are available. Results from these calculations are presented in Table 2.

4.2 METHYLMERCURY AND CPOI RESULTS

Table 3 presents results for the two SMU 8 locations from the Addendum 6 work where 2007 samples were analyzed for methylmercury and CPOIs in addition to mercury. Total PCB concentrations in these samples ranged from 210 to 3,800 *u*g/kg or 0.21 to 3.8 mg/kg (or ppm). Total PAH concentrations in these samples ranged from 3,190 to 15,060 *u*g/kg or 3.19 to 15.06 mg/kg.

Methylmercury results for these sediment samples from two locations ranged from 0.529 to 9.239 *u*g/kg.

4.3 CHEMICAL CONCENTRATIONS COMBINED ACROSS MULTIPLE SAMPLING INTERVALS

To quantify chemical concentrations combined across multiple sampled intervals, the following calculation of bulk density (from SEA Engineering, 2007) has been identified since the Phase III PDI Work Plan was prepared and is somewhat different from the calculation presented in Addendum 6 of the Phase III PDI Work Plan. The SEA Engineering procedure has been

implemented based on it being accepted by the USEPA and the US Army Corps of Engineers for use in association with the Willamette River, Oregon site. The calculation originally provided in the Phase III PDI Addendum 6 Work Plan is based on a series of equations from Boudreau, 1997 and is an equally valid estimate of bulk density. Results appear to not differ significantly regardless of which calculation is used.

The procedure from SEA Engineering for quantifying bulk density (in grams per cubic cm) is based on the following calculation:

$$(1*SG)/(1+((SG-1)*WC)) = \text{bulk density}$$

where SG is the specific gravity of the solids and WC is the portion of the sample that is water weight divided by the total weight of the sample.

The length and volume of each sediment sample has been included in the averaging of results across multiple sampled depth intervals. Chemical concentrations across multiple sampled intervals have been quantified as sums from each individual sampled interval of total chemical mass divided by total sediment mass. Total chemical mass for each sampled interval has been quantified as bulk density multiplied by sample volume and multiplied also by chemical concentration. Total sediment mass for each sampled interval has been quantified as bulk density multiplied by sample volume.

Table 4 presents results from applying the SEA Engineering equation and the procedure described in this section for combining results across multiple sample depth intervals.

4.4 BERYLLIUM-7 RESULTS

Samples for beryllium-7 radioisotope analyses were collected within the box core from the top 0.5 centimeter (or 0.2 inch) of sediment at each of the 26 sample locations. The laboratory that conducted the beryllium-7 analysis (TALR) provided percent solids results for each of these samples which ranged from less than one to 10 percent. It was inevitable to include some water with the top 0.5 centimeter of very fine-grained sediment. A fluid containing 5 to 10 percent solids has the consistency of a paint or very thin plaster. Values for percent solids of less than one to 10 percent from the top 0.5 centimeter are significantly lower than the percent solids measured for the top 2 centimeters of SMU 8 sediment.

With lower percent solids by weight in the top 0.5 centimeter, more sample volume was needed to provide a sufficiently large mass of sediment (or total sample weight) to conduct the beryllium-7 analysis. The sample volume that was provided totaled between 1 and 27 grams of dry solids per sample (total sample weights were 173 to 308 grams). The low percent solids in the samples provided to the lab was another factor demonstrating that the top of sediment was collected. However, the low percent solids also resulted in the lab not being able to achieve a sufficiently-low reporting limit for beryllium-7 to meet project requirements specified in the work plan. In order to provide sufficient sediment mass to analyze for beryllium-7, the ten

samples with the highest solids content were composited into three samples. One of the three composited samples consisted of sediment from three locations in the Ninemile Creek Outlet and Saddle portion of SMU 8; a second sample consisted of sediment from three locations in the southern portion of the South Basin, and the third sample consisted of sediment from four locations in the South Corner of SMU 8. Even with compositing, the reporting limit provided by the laboratory was 0.595 to 0.698 picocuries per gram compared to the reporting limit of 0.279 picocuries per gram included in the Addendum 6 work plan. Samples were analyzed for beryllium-7 on December 12, 2007 (35 days following sample collection). Beryllium-7 was not detected in any of the samples as indicated on Table 5. Beryllium-7 has a half life of approximately 53 days.

4.5 GEOTECHNICAL RESULTS

Results from analyzing samples from 11 of the locations for particle size, water content, calcium carbonate content, and Atterberg limits are summarized in Table 6. Each of the samples for geotechnical analyses was composited from the 0 to 15 centimeter depth below the top of sediment. Each of these 11 samples was identified as clay which is consistent with a low dry density of less than 20 pounds per cubic foot that can be calculated from the percent solids and specific gravity results (see Table 2).

SECTION 5

REFERENCES

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Honeywell, Parsons, and O'Brien & Gere (OBG), 2007. Honeywell Syracuse Portfolio Health and Safety Program. February 15, 2007.

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Appendix A *Phase I Sampling And Analysis Plan*

Appendix B *Quality Assurance Project Plan*

Appendix C *Project Safety Plan* Updated March 2007.

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TABLES

Table 1
Summary of 2007 SMU 8 Sediment
Mercury and Specific Gravity Laboratory Results

	Location	OL-STA-80067		OL-STA-80067		OL-STA-80067		OL-STA-80067		OL-STA-80068		OL-STA-80068		OL-STA-80068		OL-STA-80068	
	Sample Depth	0-2 cm		2-4 cm		4-10 cm		10-15 cm		0-2 cm		2-4 cm		4-10 cm		10-15 cm	
Parameter Name	Units																
SPECIFIC GRAVITY	g/cc	2.597		2.614		2.55		2.446		2.608		2.607		2.543		2.44	
MERCURY	mg/kg	1	J	1.4	J	2.2	J	46.6	J	1.1	J	1.8	J	9.2	J	46.9	J
	Location	OL-STA-80069		OL-STA-80069		OL-STA-80069		OL-STA-80069		OL-STA-80070		OL-STA-80070		OL-STA-80070		OL-STA-80070	
	Sample Depth	0-2 cm		2-4 cm		4-10 cm		10-15 cm		0-2 cm		2-4 cm		4-10 cm		10-15 cm	
Parameter Name	Units																
SPECIFIC GRAVITY	g/cc	2.593		2.569		2.563		2.482		2.58		2.578		2.532		2.593	
MERCURY	mg/kg	1.2	J	1.3	J	1.9	J	17.3	J	3.1	J	7.8	J	32.3	J	3.8	J
	Location	OL-STA-80071		OL-STA-80071		OL-STA-80071		OL-STA-80071		OL-STA-80072		OL-STA-80072		OL-STA-80072		OL-STA-80072	
	Sample Depth	0-2 cm		2-4 cm		4-10 cm		10-15 cm		0-2 cm		2-4 cm		4-10 cm		10-15 cm	
Parameter Name	Units																
SPECIFIC GRAVITY	g/cc	2.645		2.621		2.562		2.514		2.797		2.624		2.587		2.582	
MERCURY	mg/kg	1.3	J	2	J	2.2	J	34.5	J	1.1	J	1.5	J	2.3	J	1.8/1.8	J
	Location	OL-STA-80073		OL-STA-80073		OL-STA-80073		OL-STA-80073		OL-STA-80074		OL-STA-80074		OL-STA-80074		OL-STA-80074	
	Sample Depth	0-2 cm		2-4 cm		4-10 cm		10-15 cm		0-2 cm		2-4 cm		4-10 cm		10-15 cm	
Parameter Name	Units																
SPECIFIC GRAVITY	g/cc	2.616		2.63		2.626		2.62		2.644		2.639		2.637		2.648	
MERCURY	mg/kg	1.5	J	2	J	2.8	J	1.3	J	1.6	J	1.8	J	3.1	J	1.8	J
	Location	OL-STA-80075		OL-STA-80075		OL-STA-80075		OL-STA-80075		OL-STA-80076		OL-STA-80076		OL-STA-80076		OL-STA-80076	
	Sample Depth	0-2 cm		2-4 cm		4-10 cm		10-15 cm		0-2 cm		2-4 cm		4-10 cm		10-15 cm	
Parameter Name	Units																
SPECIFIC GRAVITY	g/cc	2.582		2.61		2.604		2.587		2.603		2.624		2.497		2.585	
MERCURY	mg/kg	1.6	J	1.9	J	2.1	J	1.8	J	1.4	J	1.5	J	2.2	J	6.2	J
	Location	OL-STA-80077		OL-STA-80077		OL-STA-80077		OL-STA-80077		OL-STA-80078		OL-STA-80078		OL-STA-80078		OL-STA-80078	
	Sample Depth	0-2 cm		2-4 cm		4-10 cm		10-15 cm		0-2 cm		2-4 cm		4-10 cm		10-15 cm	
Parameter Name	Units																
SPECIFIC GRAVITY	g/cc	2.608		2.617		2.602		2.597		2.589		2.602		2.609		2.584	
MERCURY	mg/kg	1.3	J	1.7	J	2	J	1.5/1.5	J	1.6	J	1.7	J	2.7	J	1.6	J
	Location	OL-STA-80079		OL-STA-80079		OL-STA-80079		OL-STA-80079		OL-STA-80080		OL-STA-80080		OL-STA-80080		OL-STA-80080	
	Sample Depth	0-2 cm		2-4 cm		4-10 cm		10-15 cm		0-2 cm		2-4 cm		4-10 cm		10-15 cm	
Parameter Name	Units																
SPECIFIC GRAVITY	g/cc	2.627		2.611		2.521		2.421		2.588		2.597		2.51		2.301	
MERCURY	mg/kg	1.8	J	1.8	J	6	J	57.1	J	1.4	J	1.6	J	4.1	J	61/58.9	J
	Location	OL-STA-80081		OL-STA-80081		OL-STA-80081		OL-STA-80081		OL-STA-80082		OL-STA-80082		OL-STA-80082		OL-STA-80082	
	Sample Depth	0-2 cm		2-4 cm		4-10 cm		10-15 cm		0-2 cm		2-4 cm		4-10 cm		10-15 cm	
Parameter Name	Units																
SPECIFIC GRAVITY	g/cc	2.597		2.601		2.551		2.403		2.597		2.612		2.611		2.558	
MERCURY	mg/kg	1.6	J	2.1	J	2.9/2.4	J	21/20.4	J	1.6	J	1.8	J	2.2	J	1.9	J

Table 1
Summary of 2007 SMU 8 Sediment
Mercury and Specific Gravity Laboratory Results

	Location	OL-STA-80083		OL-STA-80083		OL-STA-80083		OL-STA-80083		OL-STA-80084		OL-STA-80084		OL-STA-80084	
	Sample Depth	0-2 cm		2-4 cm		4-10 cm		10-15 cm		0-2 cm		2-4 cm		4-10 cm	
Parameter Name	Units														
SPECIFIC GRAVITY	g/cc	2.587		2.705		2.611		2.539		2.557		2.581		2.514	
MERCURY	mg/kg	1.6	J	2	J	1.9	J	2.2	J	1.7	J	2.2	J	4.6	J
	Location	OL-STA-80085		OL-STA-80085		OL-STA-80085		OL-STA-80085		OL-STA-80086		OL-STA-80086		OL-STA-80086	
	Sample Depth	0-2 cm		2-4 cm		4-10 cm		10-15 cm		0-2 cm		2-4 cm		4-10 cm	
Parameter Name	Units														
SPECIFIC GRAVITY	g/cc	2.572		2.606		2.582		2.554		2.591		2.585		2.61	
MERCURY	mg/kg	1.9	J	1.9	J	1.9	J	1.9/2.2	J	1.5	J	2.3	J	2	J
	Location	OL-STA-80087		OL-STA-80087		OL-STA-80087		OL-STA-80087		OL-STA-80088		OL-STA-80088		OL-STA-80088	
	Sample Depth	0-2 cm		2-4 cm		4-10 cm		10-15 cm		0-2 cm		2-4 cm		4-10 cm	
Parameter Name	Units														
SPECIFIC GRAVITY	g/cc	2.593		2.582		2.57		2.517		2.632		2.637		2.631	
MERCURY	mg/kg	1.6	J	2.3	J	2.4	J	2.5	J	2.3	J	2.3	J	2.4	J
	Location	OL-STA-80089		OL-STA-80089		OL-STA-80089		OL-STA-80089		OL-STA-80090		OL-STA-80090		OL-STA-80090	
	Sample Depth	0-2 cm		2-4 cm		4-10 cm		10-15 cm		0-2 cm		2-4 cm		4-10 cm	
Parameter Name	Units														
SPECIFIC GRAVITY	g/cc	2.573		2.589		2.548		2.606		2.579		2.588		2.598	
MERCURY	mg/kg	1.6	J	2.5	J	2.2	J	2.5	J	2.3	J	2.7	J	2.7	J
	Location	OL-STA-80091		OL-STA-80091		OL-STA-80091		OL-STA-80091		OL-STA-80092		OL-STA-80092		OL-STA-80092	
	Sample Depth	0-2 cm		2-4 cm		4-10 cm		10-15 cm		0-2 cm		2-4 cm		4-10 cm	
Parameter Name	Units														
SPECIFIC GRAVITY	g/cc	2.642		2.647		2.632		2.634		2.618		2.604		2.595	
MERCURY	mg/kg	1.7	J	1.9	J	4.3	J	3.1	J	1.8	J	2.7	J	2.6	J

TABLE 2
BULK DENSITIES CALCULATED
FROM SEDIMENT PERCENT SOLIDS AND
SPECIFIC GRAVITY LABORATORY RESULTS

		Laboratory Measurements		Calculations	
Sample Location	Sample Depth (cm)	Percent Solids[1] (by weight)	Specific Gravity of Solids[2] (g/cc)	Dry Bulk Density[3] (g/cc)	Wet (or Slurry) Bulk Density[4] (g/cc)
OL-STA-80067	0-2	20.6	2.597	0.24	1.15
	2-4	28.9	2.614	0.35	1.22
	4-10	31.7	2.55	0.39	1.24
	10-15	25.7	2.446	0.30	1.18
OL-STA-80068	0-2	17.4	2.608	0.19	1.12
	2-4	22.1	2.607	0.26	1.16
	4-10	30.3	2.543	0.37	1.23
	10-15	24.8	2.44	0.29	1.17
OL-STA-80069	0-2	18.2	2.593	0.20	1.13
	2-4	24.5	2.569	0.29	1.18
	4-10	33.4	2.563	0.42	1.26
	10-15	27.2	2.482	0.32	1.19
OL-STA-80070	0-2	17.4	2.58	0.19	1.12
	2-4	28.5	2.578	0.35	1.21
	4-10	29.3	2.532	0.36	1.22
	10-15	33.8	2.593	0.43	1.26
OL-STA-80071	0-2	18.7	2.645	0.21	1.13
	2-4	21.6	2.621	0.25	1.15
	4-10	28.0	2.562	0.34	1.21
	10-15	26.7	2.514	0.32	1.19
OL-STA-80072	0-2	17.4	2.797	0.20	1.13
	2-4	19.8	2.624	0.23	1.14
	4-10	27.3	2.587	0.33	1.20
	10-15	36.6	2.582	0.47	1.29
OL-STA-80073	0-2	20.7	2.616	0.24	1.15
	2-4	20.9	2.630	0.24	1.15
	4-10	31.2	2.626	0.39	1.24
	10-15	40.4	2.620	0.54	1.33
OL-STA-80074	0-2	23.0	2.644	0.27	1.17
	2-4	21.9	2.639	0.25	1.16
	4-10	34.1	2.637	0.43	1.27
	10-15	43.3	2.648	0.59	1.37
OL-STA-80075	0-2	24.4	2.582	0.29	1.18
	2-4	27.9	2.610	0.34	1.21
	4-10	35.4	2.604	0.45	1.28
	10-15	36.6	2.587	0.47	1.29
OL-STA-80076	0-2	21.6	2.603	0.25	1.15
	2-4	25.0	2.624	0.30	1.18
	4-10	32.7	2.497	0.41	1.24
	10-15	28.8	2.585	0.35	1.21

TABLE 2
BULK DENSITIES CALCULATED
FROM SEDIMENT PERCENT SOLIDS AND
SPECIFIC GRAVITY LABORATORY RESULTS

		Laboratory Measurements		Calculations	
Sample Location	Sample Depth (cm)	Percent Solids[1] (by weight)	Specific Gravity of Solids[2] (g/cc)	Dry Bulk Density[3] (g/cc)	Wet (or Slurry) Bulk Density[4] (g/cc)
OL-STA-80077	0-2	18.8	2.608	0.21	1.13
	2-4	23.4	2.617	0.27	1.17
	4-10	29.8	2.602	0.36	1.22
	10-15	36.5	2.597	0.47	1.29
OL-STA-80078	0-2	23.8	2.589	0.28	1.17
	2-4	26.0	2.602	0.31	1.19
	4-10	27.1	2.609	0.33	1.20
	10-15	28.7	2.584	0.35	1.21
OL-STA-80079	0-2	15.2	2.627	0.17	1.10
	2-4	23.0	2.611	0.27	1.17
	4-10	29.0	2.521	0.35	1.21
	10-15	24.7	2.421	0.29	1.17
OL-STA-80080	0-2	20.2	2.588	0.23	1.14
	2-4	25.6	2.597	0.30	1.19
	4-10	28.0	2.51	0.34	1.20
	10-15	20.3	2.301	0.23	1.13
OL-STA-80081	0-2	20.6	2.597	0.24	1.15
	2-4	23.8	2.601	0.28	1.17
	4-10	26.3	2.551	0.31	1.19
	10-15	32.1	2.403	0.40	1.23
OL-STA-80082	0-2	22.2	2.597	0.26	1.16
	2-4	27.5	2.612	0.33	1.20
	4-10	32.6	2.611	0.41	1.25
	10-15	35.4	2.558	0.45	1.27
OL-STA-80083	0-2	34.2	2.587	0.43	1.27
	2-4	19.1	2.705	0.22	1.14
	4-10	27.1	2.611	0.33	1.20
	10-15	32.5	2.539	0.40	1.25
OL-STA-80084	0-2	20.3	2.557	0.23	1.14
	2-4	27.1	2.581	0.32	1.20
	4-10	31.4	2.514	0.39	1.23
	10-15	23.5	2.359	0.27	1.16
OL-STA-80085	0-2	25.1	2.572	0.30	1.18
	2-4	28.1	2.606	0.34	1.21
	4-10	32.8	2.582	0.41	1.25
	10-15	33.6	2.554	0.42	1.26
OL-STA-80086	0-2	19.7	2.591	0.22	1.14
	2-4	24.3	2.585	0.29	1.18
	4-10	29.2	2.610	0.36	1.22
	10-15	35.7	2.583	0.46	1.28

TABLE 2
BULK DENSITIES CALCULATED FROM SEDIMENT PERCENT SOLIDS AND SPECIFIC GRAVITY LABORATORY RESULTS

		Laboratory Measurements		Calculations	
Sample Location	Sample Depth (cm)	Percent Solids[(1)] (by weight)	Specific Gravity of Solids[(2)] (g/cc)	Dry Bulk Density[(3)] (g/cc)	Wet (or Slurry) Bulk Density[(4)] (g/cc)
OL-STA-80087	0-2	20.8	2.593	0.24	1.15
	2-4	26.1	2.582	0.31	1.19
	4-10	33.3	2.570	0.42	1.26
	10-15	30.0	2.517	0.37	1.22
OL-STA-80088	0-2	31.4	2.632	0.39	1.24
	2-4	23.6	2.637	0.28	1.17
	4-10	27.9	2.631	0.34	1.21
	10-15	34.6	2.61	0.44	1.27
OL-STA-80089	0-2	20.1	2.573	0.23	1.14
	2-4	27.2	2.589	0.33	1.20
	4-10	31.7	2.548	0.39	1.24
	10-15	33.3	2.606	0.42	1.26
OL-STA-80090	0-2	21.9	2.579	0.25	1.15
	2-4	27.2	2.588	0.33	1.20
	4-10	33.4	2.598	0.42	1.26
	10-15	35.1	2.549	0.45	1.27
OL-STA-80091	0-2	30.1	2.642	0.37	1.23
	2-4	33.4	2.647	0.42	1.26
	4-10	29.5	2.632	0.36	1.22
	10-15	37.9	2.634	0.50	1.31
OL-STA-80092	0-2	27.5	2.618	0.33	1.20
	2-4	29.2	2.604	0.36	1.22
	4-10	33.7	2.595	0.43	1.26
	10-15	34.8	2.600	0.44	1.27

Notes:

(1) Percent solids by weight is the weight of dry solids divided by total weight times 100.

(2) Specific gravity of solids is defined as the density of solids divided by the density of water (1 g/cc or 62.4 pounds per cubic foot).

(3) Dry bulk density is defined as (specific gravity of solids) x (water density) x (solids fraction by volume). Solids fraction by volume is the volume of solids divided by the total volume. Solids fraction by volume is calculated based on percent solids by weight, specific gravity of solids, and water density.

(4) Wet (or slurry) bulk density is defined as dry density x (1+water content). Water content (also called moisture content) is calculated based on percent solids by weight and is defined as the weight of water divided by the weight of dry solids.

Table 3
Summary of 2007 SMU 8 Sediment
Methylmercury and CPOI Laboratory
Results

		Location	OL-STA-80070		OL-STA-80070		OL-STA-80070		OL-STA-80070		OL-STA-80079		OL-STA-80079		OL-STA-80079	
		Field Sample ID	OL-0462-09		OL-0462-10		OL-0462-11		OL-0462-12		OL-0462-13		OL-0462-14		OL-0462-15	
		Sample Depth	0-2 cm		2-4 cm		4-10 cm		10-15 cm		0-2 cm		2-4 cm		4-10 cm	
		Sample Date	11/12/2007		11/12/2007		11/12/2007		11/12/2007		11/12/2007		11/12/2007		11/12/2007	
		Sample Type	Sediment		Sediment		Sediment		Sediment		Sediment		Sediment		Sediment	
Analytical Method	Parameter Name	Units														
EPA 7471A	MERCURY	mg/kg	3.1	J	7.8	J	32.3	J	3.8	J	1.8	J	1.8	J	6	J
E1630	METHYL MERCURY	ug/kg	1.531	J	1.519	J	9.221	J	3.086	J	1.964	J	0.529	J	1.061	J
SW8082	AROCLOR-1016	ug/kg	160	J	62	UJ	390	J	55	J	120	J	79	J	490	J
SW8082	AROCLOR-1221	ug/kg	87	UJ	62	UJ	56	UJ	47	UJ	94	UJ	63	UJ	51	UJ
SW8082	AROCLOR-1232	ug/kg	87	UJ	62	UJ	56	UJ	47	UJ	94	UJ	63	UJ	51	UJ
SW8082	AROCLOR-1242	ug/kg	87	UJ	62	UJ	56	UJ	47	UJ	94	UJ	63	UJ	51	UJ
SW8082	AROCLOR-1248	ug/kg	87	UJ	1000	J	56	UJ	47	UJ	94	UJ	63	UJ	51	UJ
SW8082	AROCLOR-1254	ug/kg	220	J	450	J	610	J	130	J	89	J	99	J	500	J
SW8082	AROCLOR-1260	ug/kg	87	UJ	62	UJ	56	UJ	90	J	94	UJ	57	J	250	J
SW8082	AROCLOR-1268	ug/kg	87	UJ	62	UJ	56	UJ	47	UJ	94	UJ	63	UJ	51	UJ
	Total for PCB Aroclors	ug/kg	380	J	1400	J	1000	J	280	J	210	J	230	J	1200	J
SW8260	1,2,3-TRICHLOROBENZENE	ug/kg	27	UJ	19	UJ	17	UJ	14	UJ	29	UJ	19	UJ	16	UJ
SW8260	1,2,4-TRICHLOROBENZENE	ug/kg	27	UJ	19	UJ	17	UJ	14	UJ	29	UJ	19	UJ	16	UJ
SW8260	1,2-DICHLOROBENZENE	ug/kg	27	UJ	19	UJ	17	UJ	14	UJ	29	UJ	19	UJ	16	UJ
SW8260	1,3,5-TRICHLOROBENZENE	ug/kg	27	UJ	3.5	J	7.7	J	14	UJ	29	UJ	19	UJ	16	UJ
SW8260	1,3-DICHLOROBENZENE	ug/kg	27	UJ	19	UJ	4.5	J	14	UJ	29	UJ	19	UJ	16	UJ
SW8260	1,4-DICHLOROBENZENE	ug/kg	27	UJ	11	J	12	J	14	UJ	29	UJ	19	UJ	3.6	J
SW8260	BENZENE	ug/kg	27	UJ	19	UJ	17	UJ	14	UJ	29	UJ	19	UJ	16	UJ
SW8260	CHLOROBENZENE	ug/kg	27	UJ	9.3	J	7.5	J	14	UJ	29	UJ	19	UJ	6.7	J
SW8260	ETHYLBENZENE	ug/kg	27	UJ	19	UJ	17	UJ	14	UJ	29	UJ	19	UJ	16	UJ
SW8260	NAPHTHALENE	ug/kg	6.6	J	4.3	J	17	UJ	4.1	J	29	UJ	19	UJ	16	UJ
SW8260	TOLUENE	ug/kg	27	UJ	19	UJ	17	UJ	14	UJ	29	UJ	19	UJ	16	UJ
SW8260	XYLENES, TOTAL	ug/kg	80	UJ	56	UJ	51	UJ	43	UJ	87	UJ	57	UJ	47	UJ
SW8270	ACENAPHTHENE	ug/kg	890	UJ	630	UJ	570	UJ	140	J	390	UJ	630	UJ	520	UJ
SW8270	ACENAPHTHYLENE	ug/kg	890	UJ	630	UJ	280	J	450	J	390	UJ	630	UJ	520	UJ
SW8270	ANTHRACENE	ug/kg	890	UJ	630	UJ	330	J	450	J	390	UJ	220	J	150	J
SW8270	BENZO(A)ANTHRACENE	ug/kg	250	J	370	J	680	J	1100	J	270	J	540	J	340	J
SW8270	BENZO(A)PYRENE	ug/kg	310	J	410	J	640	J	1000	J	390	J	660	J	370	J
SW8270	BENZO(B)FLUORANTHENE	ug/kg	510	J	810	J	890	J	1500	J	550	J	930	J	560	J
SW8270	BENZO(G,H,I)PERYLENE	ug/kg	330	J	330	J	450	J	710	J	310	J	600	J	300	J
SW8270	BENZO(K)FLUORANTHENE	ug/kg	890	UJ	630	UJ	460	J	520	J	190	J	460	J	170	J
SW8270	CHRYSENE	ug/kg	330	J	480	J	890	J	1300	J	380	J	730	J	420	J
SW8270	DIBENZO(A,H)ANTHRACENE	ug/kg	890	UJ	630	UJ	570	UJ	210	J	390	UJ	630	UJ	520	UJ
SW8270	FLUORANTHENE	ug/kg	530	J	780	J	1500	J	2200	J	620	J	1100	J	710	J
SW8270	FLUORENE	ug/kg	890	UJ	330	J	690	J	420	J	390	UJ	180	J	250	J
SW8270	INDENO(1,2,3-CD)PYRENE	ug/kg	230	J	290	J	410	J	610	J	250	J	490	J	240	J
SW8270	PHENANTHRENE	ug/kg	210	J	430	J	970	J	1200	J	240	J	520	J	360	J
SW8270	PHENOL	ug/kg	890	UJ	630	UJ	570	UJ	480	UJ	390	UJ	630	UJ	520	UJ
SW8270	PYRENE	ug/kg	490	J	850	J	1800	J	2700	J	550	J	980	J	660	J
	Total for PAHs	ug/kg	3190	J	5080	J	9990	J	14510	J	3750	J	7410	J	4530	J

Table 3
Summary of 2007 SMU 8 Sediment
Methylmercury and CPOI Laboratory
Results

		Location	OL-STA-80079		OL-STA-80079	
		Field Sample ID	OL-0462-16		OL-0462-17	
		Sample Depth	4-10 cm		10-15 cm	
		Sample Date	11/12/2007		11/12/2007	
		Sample Type	Sediment		Sediment	
Analytical Method	Parameter Name	Units				
EPA 7471A	MERCURY	mg/kg	No result		57.1	J
E1630	METHYL MERCURY	ug/kg	No result		9.239	J
SW8082	AROCLOR-1016	ug/kg	300	J	1500	J
SW8082	AROCLOR-1221	ug/kg	50	UJ	64	UJ
SW8082	AROCLOR-1232	ug/kg	50	UJ	64	UJ
SW8082	AROCLOR-1242	ug/kg	50	UJ	64	UJ
SW8082	AROCLOR-1248	ug/kg	50	UJ	64	UJ
SW8082	AROCLOR-1254	ug/kg	350	J	1800	J
SW8082	AROCLOR-1260	ug/kg	130	J	530	J
SW8082	AROCLOR-1268	ug/kg	50	UJ	64	UJ
	Total for PCB Aroclors	ug/kg	780	J	3800	J
SW8260	1,2,3-TRICHLOROBENZENE	ug/kg	15	UJ	19	UJ
SW8260	1,2,4-TRICHLOROBENZENE	ug/kg	15	UJ	19	UJ
SW8260	1,2-DICHLOROBENZENE	ug/kg	15	UJ	9.8	J
SW8260	1,3,5-TRICHLOROBENZENE	ug/kg	15	UJ	14	J
SW8260	1,3-DICHLOROBENZENE	ug/kg	15	UJ	12	J
SW8260	1,4-DICHLOROBENZENE	ug/kg	4.1	J	34	J
SW8260	BENZENE	ug/kg	15	UJ	5.7	J
SW8260	CHLOROBENZENE	ug/kg	7.6	J	24	J
SW8260	ETHYLBENZENE	ug/kg	15	UJ	19	UJ
SW8260	NAPHTHALENE	ug/kg	15	UJ	19	UJ
SW8260	TOLUENE	ug/kg	15	UJ	19	UJ
SW8260	XYLENES, TOTAL	ug/kg	46	UJ	58	UJ
SW8270	ACENAPHTHENE	ug/kg	510	UJ	650	UJ
SW8270	ACENAPHTHYLENE	ug/kg	160	J	310	J
SW8270	ANTHRACENE	ug/kg	210	J	780	J
SW8270	BENZO(A)ANTHRACENE	ug/kg	380	J	770	J
SW8270	BENZO(A)PYRENE	ug/kg	460	J	620	J
SW8270	BENZO(B)FLUORANTHENE	ug/kg	740	J	910	J
SW8270	BENZO(G,H,I)PERYLENE	ug/kg	370	J	440	J
SW8270	BENZO(K)FLUORANTHENE	ug/kg	170	J	370	J
SW8270	CHRYSENE	ug/kg	530	J	900	J
SW8270	DIBENZO(A,H)ANTHRACENE	ug/kg	510	UJ	650	UJ
SW8270	FLUORANTHENE	ug/kg	780	J	1700	J
SW8270	FLUORENE	ug/kg	310	J	4600	J
SW8270	INDENO(1,2,3-CD)PYRENE	ug/kg	330	J	360	J
SW8270	PHENANTHRENE	ug/kg	440	J	1400	J
SW8270	PHENOL	ug/kg	510	UJ	650	UJ
SW8270	PYRENE	ug/kg	800	J	1900	J
	Total for PAHs	ug/kg	5680	J	15060	J

TABLE 4
2007 SEDIMENT MERCURY CONCENTRATIONS
COMBINED ACROSS MULTIPLE SAMPLED DEPTH INTERVALS
(All concentrations are in mg/Kg - parts per million)

	Measured Sediment Mercury Concs				Combined Sediment Mercury Concs		
Sample Location	0 to 2 cm	2 to 4 cm	4 to 10 cm	10 to 15 cm	0 to 4 cm	0 to 10 cm	0 to 15 cm
OL-STA-80067	1 J	1.4 J	2.2 J	46.6 J	1.2	1.8	16.4
OL-STA-80068	1.1 J	1.8 J	9.2 J	46.9 J	1.5	6.2	19.5
OL-STA-80069	1.2 J	1.3 J	1.9 J	17.3 J	1.3	1.7	6.8
OL-STA-80070	3.1 J	7.8 J	32.3 J	3.8 J	5.5	21.6	15.2
OL-STA-80071	1.3 J	2 J	2.2 J	34.5 J	1.7	2.0	12.8
OL-STA-80072	1.1 J	1.5 J	2.3 J	1.8/1.8 J	1.3	1.9	1.9
OL-STA-80073	1.5 J	2 J	2.8 J	1.3 J	1.8	2.4	2.0
OL-STA-80074	1.6 J	1.8 J	3.1 J	1.8 J	1.7	2.6	2.3
OL-STA-80075	1.6 J	1.9 J	2.1 J	1.8 J	1.8	2.0	1.9
OL-STA-80076	1.4 J	1.5 J	2.2 J	6.2 J	1.5	1.9	3.3
OL-STA-80077	1.3 J	1.7 J	2 J	1.5/1.5 J	1.5	1.8	1.7
OL-STA-80078	1.6 J	1.7 J	2.7 J	1.6 J	1.7	2.3	2.1
OL-STA-80079	1.8 J	1.8 J	6 J	57.1 J	1.8	4.3	21.4
OL-STA-80080	1.4 J	1.6 J	4.1 J	61/58.9 J	1.5	3.1	21.8
OL-STA-80081	1.6 J	2.1 J	2.9/2.4 J	21/20.4 J	1.9	2.5	8.5
OL-STA-80082	1.6 J	1.8 J	2.2 J	1.9 J	1.7	2.0	2.0
OL-STA-80083	1.6 J	2 J	1.9 J	2.2 J	1.8	1.9	2.0
OL-STA-80084	1.7 J	2.2 J	4.6 J	49 J	2.0	3.6	18.4
OL-STA-80085	1.9 J	1.9 J	1.9 J	1.9/2.2 J	1.9	1.9	2.0
OL-STA-80086	1.5 J	2.3 J	2 J	2 J	1.9	2.0	2.0
OL-STA-80087	1.6 J	2.3 J	2.4 J	2.5 J	2.0	2.2	2.3
OL-STA-80088	2.3 J	2.3 J	2.4 J	2.2 J	2.3	2.4	2.3
OL-STA-80089	1.6 J	2.5 J	2.2 J	2.5 J	2.1	2.2	2.3
OL-STA-80090	2.3 J	2.7 J	2.7 J	2.5 J	2.5	2.6	2.6
OL-STA-80091	1.7 J	1.9 J	4.3 J	3.1 J	1.8	3.3	3.3
OL-STA-80092	1.8 J	2.7 J	2.6 J	2.7 J	2.3	2.5	2.5

Note: Where duplicate mercury results are available, the higher of the two concentrations from that interval was used to combine concentrations across multiple depth intervals.

Table 5
Summary of 2007 SMU 8 Sediment
Beryllium-7 Laboratory Results

		Composited Locations	Ninemile Creek Outlet and Saddle	Southern Portion of South Basin	South Corner
		Sample Depth	0-0.5 cm	0-0.5 cm	0-0.5 cm
		Sample Date	11/8/2007	11/8/2007	11/8/2007
		Sample Type	Sediment	Sediment	Sediment
Analytical Method	**Parameter Name**	**Units**			
RICH-RC-5017	BERYLLIUM-7	pCi/g	-0.131 +/- 0.415 U	0.118 +/- 0.386 U	0.113 +/- 0.341 U

Notes:

Ten samples were designated for the radiochemical analysis beryllium-7 (Be-7) using the TALR gamma spectroscopy SOP RICH-RC-5017 analytical method. However, since sediment mass in each sample was limited to conduct this analysis on the ten samples (i.e., sediment samples contained mostly water), TALR was instructed to composite these ten samples into three samples.

A duplicate analysis was run for the Ninemile Creek outlet and Saddle locations. The duplicate result was -0.107 ± 0.396U.

U - not detected

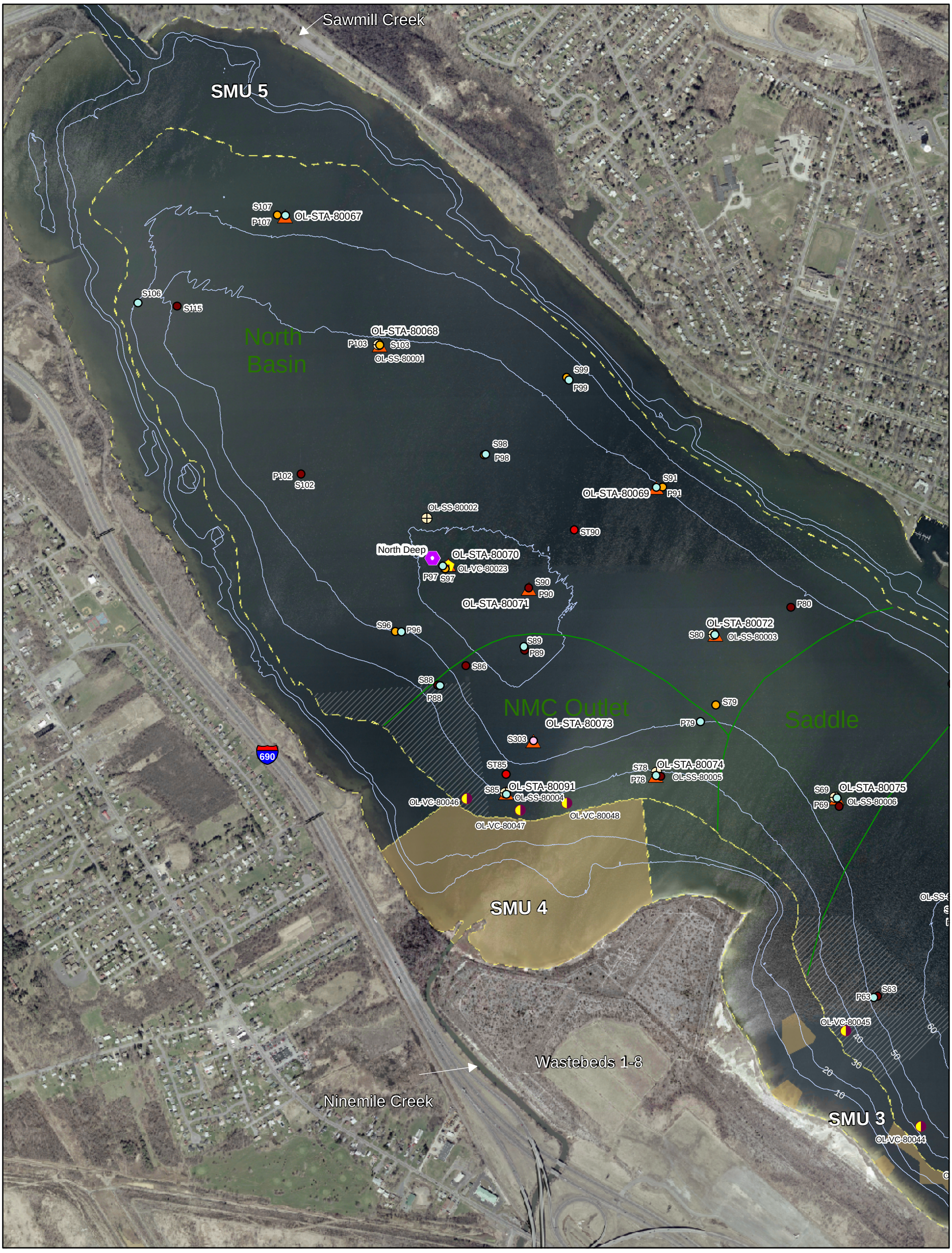
Table 6
Summary of 2007 SMU 8 Sediment
Geotechnical Laboratory Results

Location ID	Field Sample ID	Depth (cm)	Water Content (ASTM D2216) (%)	Atterberg Limits (ASTM D4318)			Grain Size (ASTM D422)			Percent Smaller than 0.005 mm (5 microns)	Carbonate Content (ASTM D4373) (%)	ASTM Soil Description[1]
				Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Percent Gravel (%)	Percent Sand (%)	Percent Fines (clay & silt) (%)			
OL-STA-80067	OL-0469-06	0-15	280.0	134	38	96	0.0	1.0	99.0	30	4	fat clay (CH)
OL-STA-80068	OL-0469-09	0-15	274.6	146	42	104	0.0	1.6	98.4	43	26	fat clay (CH)
OL-STA-80069	OL-0469-05	0-15	266.8	141	43	98	0.0	1.1	98.9	45	9	fat clay (CH)
OL-STA-80070	OL-0469-10	0-15	243.2	130	40	90	0.0	1.3	98.7	29	13	fat clay (CH)
OL-STA-80071	OL-0469-08	0-15	281.9	156	44	112	0.0	1.7	98.3	36	13	fat clay (CH)
OL-STA-80072	OL-0469-03	0-15	244.2	109	39	70	0.0	0.9	99.1	32	52	fat clay (CH)
OL-STA-80073	OL-0469-04	0-15	207.0	104	39	65	0.0	1.0	99.0	22	65	fat clay (CH)
OL-STA-80074	OL-0469-02	0-15	178.8	99	35	64	0.0	1.8	98.2	23	57	fat clay (CH)
OL-STA-80077	OL-0469-01	0-15	234.7	108	37	71	0.0	2.0	98.0	34	43	fat clay (CH)
OL-STA-80079	OL-0469-11	0-15	259.6	136	42	94	0.0	0.9	99.1	21	13	fat clay (CH)
OL-STA-80091	OL-0469-07	0-15	187.5	95	42	53	0.0	2.6	97.4	14	39	elastic Silt (MH)

Notes:

1. Description is based on Atterberg Limits results. Description in field logs is based on observations of the sediment as it was sampled in it's saturated state.

FIGURES



RI/FS Locations

- 0.07 - 0.16 ft. (0-5 cm)
- 0.17 - 0.50 ft. (5.2 - 15 cm)
- 0.5 - 1.0 ft. (15 - 30 cm)
- 1.0 - 3.3 ft. (10 - 100 cm)
- 3.3 - 7.0 ft. (1 - 2 m)
- 7 - 13 ft. (2 - 4 m)
- 13 - 17 ft. (4 - 5 m)
- 17 - 26 ft. (5 - 8 m)

Phase I PDI Sample Locations

- 0.05 ft. (0.02 m) Surficial Sediment Grab (For MNR)

Phase II PDI Sample Locations

- 3.3 ft. (1 m) Core (Sample 0-0.5 ft. and 0.5-3.3 ft.)
- 0.5 ft. Core

Phase III PDI Sample Locations

- Box Core for MNR

- NYSDEC Demarcation for SMU 8
- Upstate Freshwater Institute North Deep Sampling Location
- Thin-layer Capping Area
- Area to be Capped and/or dredged (From RI, Phase I PDI, and Phase II PDI)

NOTES

1. Bathymetry contour interval = 10 feet
2. Water depth based on average lake elevation of 362.82 feet.

0 250 500 1,000 1,500 2,000 2,500
Feet

FIGURE 1A

Honeywell

Onondaga Lake
Syracuse, New York

RI Through Phase III PDI
SMU 8 Sediment Sample Locations
(Northern Half of SMU 8)

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2/27/08

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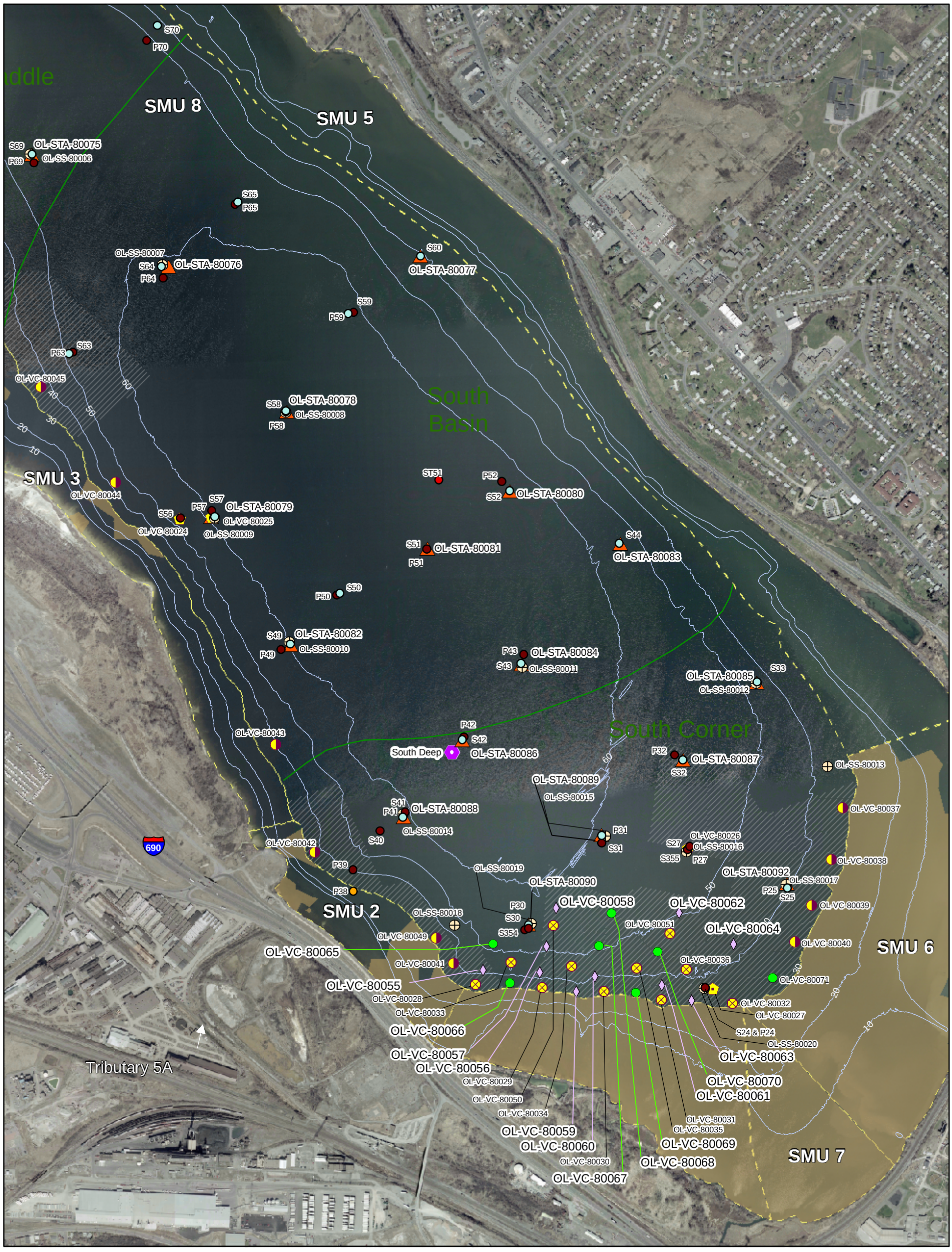

RI/FS Locations

- 0.07 - 0.16 ft. (0-5 cm)
- 0.17 - 0.50 ft. (5.2 - 15 cm)
- 0.5 - 1.0 ft. (15 - 30 cm)
- 1.0 - 3.3 ft. (10 - 100 cm)
- 3.3 - 7.0 ft. (1 - 2 m)
- 7 - 13 ft. (2 - 4 m)
- 13 - 17 ft. (4 - 5 m)
- 17 - 26 ft. (5 - 8 m)

Phase I PDI Sample Locations

- 0.05 ft. (0.02 m) Surficial Sediment Grab (For MNR)

Phase II PDI Sample Locations

- 3.3 ft. (1 m) Core (Sample 0-0.5 ft. and 0.5-3.3 ft.)
- 20 ft. (6 m) Core (Sample 0-0.5 ft., 0.5-3.3 ft. and 3.3 ft. intervals to 20 ft.)
- 0.5 ft. Core

Phase III PDI Sample Locations

- Box Core for MNR
- Shallow Vibracore (Sample 0-2.0 ft.)
- Shallow Vibracore (Sample 0-0.5 ft.)

- NYSDEC Demarcation for SMU 8
- Upstate Freshwater Institute South Deep Sampling Location
- Thin-layer Capping Area
- Area to be Capped and/or dredged (From RI, Phase I PDI, and Phase II PDI)

NOTES

1. Bathymetry contour interval = 10 feet
2. Water depth based on average lake elevation of 362.82 feet.

0 250 500 1,000 1,500 2,000 2,500
Feet

FIGURE 1B

Honeywell

Onondaga Lake
Syracuse, New York

RI Through Phase III PDI
SMU 8 Sediment Sample Locations
(Southern Half of SMU 8)

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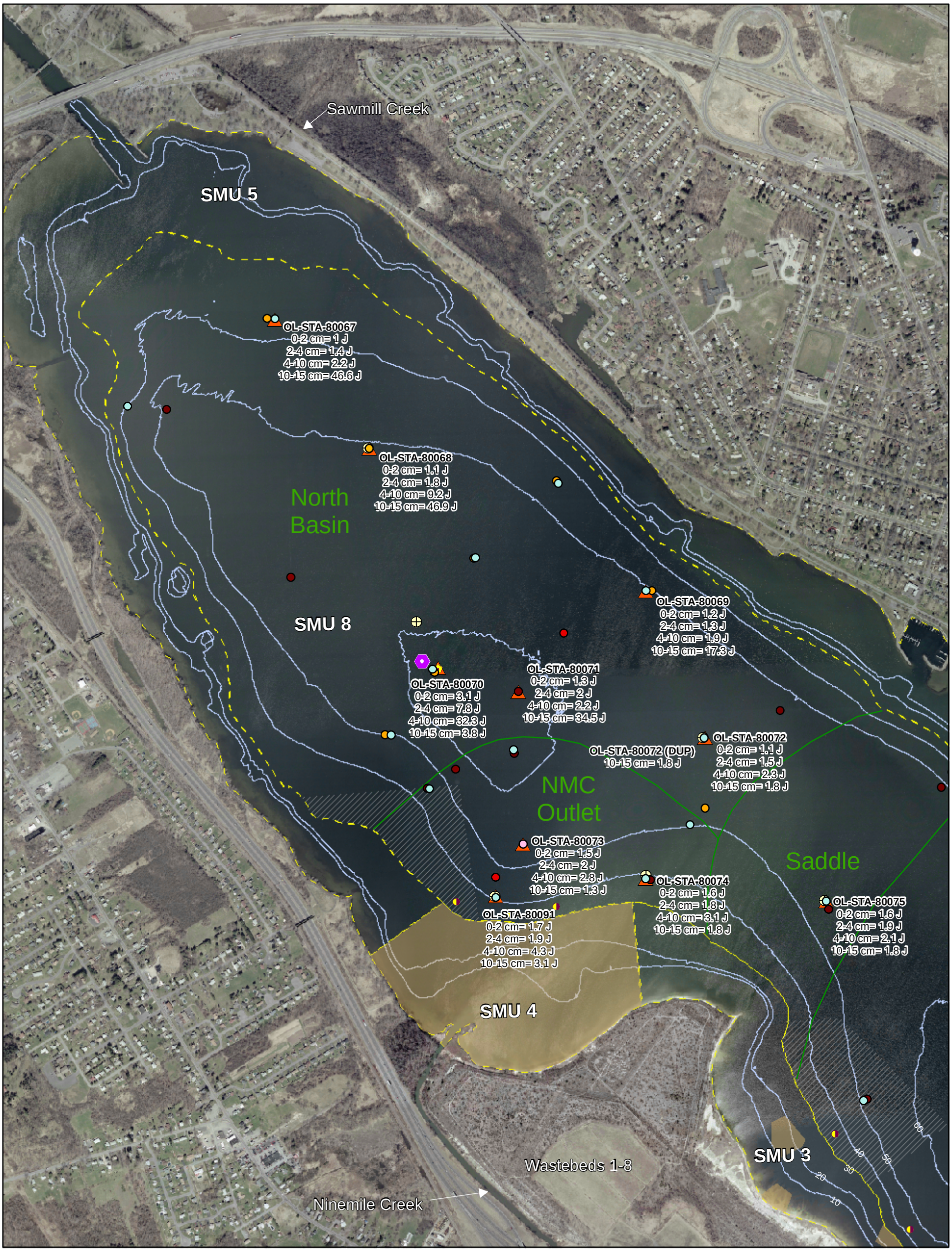

RI/FS Locations

- 0.07 - 0.16 Ft. (0-5 cm)
- 0.17 - 0.50 Ft. (5.2 - 15 cm)
- 0.5 - 1.0 Ft. (15 - 30 cm)
- 1.0 - 3.3 Ft. (10 - 100 cm)
- 3.3 - 7.0 Ft. (1 - 2 m)
- 7 - 13 Ft. (2 - 4 m)
- 13 - 17 Ft. (4 - 5 m)
- 17 - 26 Ft. (5 - 8 m)

Phase I PDI Sample Locations

- 0.05 Ft (0.02 m) Surficial Sediment Grab (For MNR)

Phase II PDI Sample Locations

- 3.3 Ft (1 m) Core (Sample 0-0.5 Ft and 0.5-3.3 Ft)
- 0.5 Ft Core

Phase III PDI Sample Locations

- Box Core Sediment Sample Location (mercury results in mg/kg measured below top of sediment)

- NYSDEC Demarcation for SMU 8
- Upstate Freshwater Institute North Deep Sampling Location
- Thin-layer Capping Area
- Area to be Capped and/or dredged (From RI, Phase I PDI, and Phase II PDI)

NOTES

1. Bathymetry contour interval = 10 feet
2. Water depth based on average lake elevation of 362.82 feet.

0 250 500 1,000 1,500 2,000 2,500
Feet

FIGURE 2A

Honeywell

Onondaga Lake
Syracuse, New York

Phase III PDI SMU 8
Sediment Mercury Results for 2007
(Northern Half of SMU 8)

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2/15/08

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SMU 8

Saddle

SMU 5

OL-STA-80075
0-2 cm= 1.6 J
2-4 cm= 1.9 J
4-10 cm= 2.1 J
10-15 cm= 1.8 J

OL-STA-80076
0-2 cm= 1.4 J
2-4 cm= 1.5 J
4-10 cm= 2.2 J
10-15 cm= 6.2 J

OL-STA-80077 (DUP)
10-15 cm= 1.5 J

OL-STA-80077
0-2 cm= 1.3 J
2-4 cm= 1.7 J
4-10 cm= 2 J
10-15 cm= 1.5 J

South Basin

OL-STA-80078
0-2 cm= 1.6 J
2-4 cm= 1.7 J
4-10 cm= 2.7 J
10-15 cm= 1.6 J

SMU 3

OL-STA-80080 (DUP)
10-15 cm= 58.9 J

OL-STA-80080
0-2 cm= 1.4 J
2-4 cm= 1.6 J
4-10 cm= 4.1 J
10-15 cm= 61 J

OL-STA-80079
0-2 cm= 1.8 J
2-4 cm= 1.8 J
4-10 cm= 6 J
10-15 cm= 57.1 J

OL-STA-80081 (DUP)
4-10 cm= 2.4 J
10-15 cm= 20.4 J

OL-STA-80081
0-2 cm= 1.6 J
2-4 cm= 2.1 J
4-10 cm= 2.9 J
10-15 cm= 21 J

OL-STA-80083
0-2 cm= 1.6 J
2-4 cm= 2 J
4-10 cm= 1.9 J
10-15 cm= 2.2 J

OL-STA-80082
0-2 cm= 1.6 J
2-4 cm= 1.8 J
4-10 cm= 2.2 J
10-15 cm= 1.9 J

OL-STA-80084
0-2 cm= 1.7 J
2-4 cm= 2.2 J
4-10 cm= 4.6 J
10-15 cm= 49 J

OL-STA-80085 (DUP)
10-15 cm= 2.2 J

OL-STA-80085
0-2 cm= 1.9 J
2-4 cm= 1.9 J
4-10 cm= 1.9 J
10-15 cm= 1.9 J

OL-STA-80086
0-2 cm= 1.5 J
2-4 cm= 2.3 J
4-10 cm= 2 J
10-15 cm= 2 J

South Corner

OL-STA-80087
0-2 cm= 1.6 J
2-4 cm= 2.3 J
4-10 cm= 2.4 J
10-15 cm= 2.5 J

OL-STA-80088
0-2 cm= 2.3 J
2-4 cm= 2.3 J
4-10 cm= 2.4 J
10-15 cm= 2.2 J

OL-STA-80089
0-2 cm= 1.6 J
2-4 cm= 2.5 J
4-10 cm= 2.2 J
10-15 cm= 2.5 J

OL-STA-80090
0-2 cm= 2.3 J
2-4 cm= 2.7 J
4-10 cm= 2.7 J
10-15 cm= 2.5 J

OL-STA-80092
0-2 cm= 1.8 J
2-4 cm= 2.7 J
4-10 cm= 2.6 J
10-15 cm= 2.7 J

SMU 2

Tributary 5A

RI/FS Locations

- 0.07 - 0.16 Ft. (0-5 cm)
- 0.17 - 0.50 Ft. (5.2 - 15 cm)
- 0.5 - 1.0 Ft. (15 - 30 cm)
- 1.0 - 3.3 Ft. (10 - 100 cm)
- 3.3 - 7.0 Ft. (1 - 2 m)
- 7 - 13 Ft. (2 - 4 m)
- 13 - 17 Ft. (4 - 5 m)
- 17 - 26 Ft. (5 - 8 m)

Phase I PDI Sample Locations

- 0.05 Ft (0.02 m) Surficial Sediment Grab (For MNR)

Phase II PDI Sample Locations

- 3.3 Ft (1 m) Core (Sample 0-0.5 Ft and 0.5-3.3 Ft)
- 20 Ft (6 m) Core (Sample 0-0.5 Ft, 0.5-3.3 Ft and 3.3 Ft intervals to 20 Ft)
- 0.5 Ft Core

Phase III PDI Sample Locations

- Box Core Sediment Sample Location (mercury results in mg/kg measured below top of sediment)
- 0-2 Ft. Vibracore

- NYSDEC Demarcation for SMU 8
- Upstate Freshwater Institute South Deep Sampling Location
- Thin-layer Capping Area
- Area to be Capped and/or dredged (From RI, Phase I PDI, and Phase II PDI)

NOTES

1. Bathymetry contour interval = 10 feet
2. Water depth based on average lake elevation of 362.82 feet.

0 250 500 1,000 1,500 2,000 2,500
Feet

FIGURE 2B

Honeywell

Onondaga Lake
Syracuse, New York

Phase III PDI SMU 8
Sediment Mercury Results for 2007
(Southern Half of SMU 8)

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2/15/08

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APPENDIX A

DATA USABILITY SUMMARY REPORT

APPENDIX A

DATA USABILITY SUMMARY REPORT

Sediment samples were collected from the SMU 8 Onondaga Lake site in Solvay, New York from November 6, 2007 through November 12, 2007. Analytical results from these samples were validated and reviewed by Parsons for usability with respect to the following requirements:

- Work Plan,
- NYSDEC Analytical Services Protocol (ASP), and
- USEPA Region II Standard Operating Procedures (SOPs).

The analytical laboratories for this project were Test America Laboratories (TAL) in Pittsburgh, Pennsylvania, TAL in Burlington, Vermont, and Brooks Rand, LLC (Brooks Rand). These laboratories are certified to conduct project analyses through the New York Department of Health (NYDOH) Environmental Laboratory Approval Program (ELAP).

A.1 LABORATORY DATA PACKAGES

The data packages received from TAL and Brooks Rand were paginated, complete, and overall were of good quality. Comments on specific quality control (QC) and other requirements are discussed in detail in the attached data validation report which is summarized in Section 2.

A.2 SAMPLING AND CHAIN-OF-CUSTODY

The sediment samples were collected, properly preserved, shipped under a COC record, and received at TAL and Brooks Rand within one day of sampling. All samples were received intact and in good condition at these laboratories.

A.3 LABORATORY ANALYTICAL METHODS

The sediment samples were collected from the site and analyzed for certain volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), mercury, methyl mercury, and/or specific gravity. Summaries of issues concerning these laboratory analyses are presented in Subsections 1.3.1 through 1.3.5. The data qualifications resulting from the data validation review and statements on the laboratory analytical precision, accuracy, representativeness, completeness, and comparability (PARCC) are discussed for each analytical method in Section 2. The laboratory data were reviewed and may be qualified with the following validation flags:

"U" - not detected at the value given,

"UJ" - estimated and not detected at the value given,

"J" - estimated at the value given,

"N" - presumptive evidence at the value given, and

"R" - unusable value.

The validated laboratory data were tabulated and are presented in Attachment A.

A.3.1 Volatile Organic Analysis

Certain sediment samples collected from the site were analyzed by TAL for certain VOCs using the USEPA SW-846 8260B analytical method. The reported results for the VOC samples were qualified as estimated due to solids content being less than 50 percent by weight. Therefore, the reported VOC analytical results were 100% complete (i.e., usable) for the sediment data presented by TAL. PARCC requirements were met.

A.3.2 Semivolatile Organic Analysis

Certain sediment samples collected from the site were analyzed by TAL for certain SVOCs using the USEPA SW-846 8270C analytical method. The reported results for the SVOC samples were qualified as estimated due to solids content being less than 50 percent by weight. Therefore, the reported SVOC analytical results were 100% complete (i.e., usable) for the sediment data presented by TAL. PARCC requirements were met.

A.3.3 PCB Organic Analysis

Certain sediment samples collected from the site were analyzed by TAL for PCBs using the USEPA SW-846 8082 analytical method. The reported results for the PCB samples were qualified as estimated due to solids content being less than 50 percent by weight. Therefore, the reported PCB analytical results were 100% complete (i.e., usable) for the sediment data presented by TAL. PARCC requirements were met.

A.3.4 Mercury and Methyl Mercury Analysis

Sediment samples collected from the site were analyzed by TAL for mercury using the USEPA SW-846 7471A analytical method. Certain sediment samples collected from the site were analyzed by Brooks Rand for methyl mercury using the USEPA 1630 analytical method. The reported results for the mercury and methyl mercury samples were qualified as estimated due to solids content being less than 50 percent by weight. Therefore, the reported mercury and methyl mercury data were considered 100% complete (i.e., usable) for the sediment data presented by TAL and Brooks Rand. PARCC requirements were met.

A.3.5 Specific Gravity Analysis

Sediment samples collected from the site were analyzed by TAL for specific gravity using the ASTM D854 method. All laboratory control samples and instrumentation were reviewed for compliance. The reported specific gravity results for these samples did not require qualification resulting from data validation. Therefore, the reported specific gravity analytical results were 100% complete (i.e. usable) for the sediment data presented by TAL. PARCC requirements were met.

A.3.6 Beryllum-7 Analysis

Beryllium-7 sediment data were reviewed and validated for sample custody, holding times, laboratory control sample recoveries, laboratory duplicate precision, laboratory blank contamination, calibrations, reporting limits, sample result verification, and data completeness. These items were considered compliant and acceptable in accordance with validation protocols. It was noted that minimum detectable activity results for each sample were higher than reporting limits due to limited sample volume for analysis (see Section 3.5.4). The reported laboratory data for these samples, which were non-detects, did not require qualification from data validation. Therefore, the beryllium-7 data presented by Test America Laboratories' Richland (TALR) were 100 percent complete (*i.e.*, usable).

A.4 DATA REVIEW

Data review has been completed for data packages generated by TAL and Brooks Rand containing sediment samples collected from the site. The specific samples contained in these data packages, the analyses performed, and a usability summary are presented in Table A-1. All of these samples were properly preserved, shipped under a COC record, and received intact by the analytical laboratories. The validated laboratory data are presented in Attachment A.

Data validation was performed for all samples in accordance with the most current editions of the USEPA Region II SOPs and the NYSDEC ASP for organic and inorganic data review. This data validation and usability report is presented by analysis type.

A.4.1 Volatiles

The following items were reviewed for compliancy in the volatile analysis:

- Custody documentation
- Holding times
- Surrogate recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) precision and accuracy
- Laboratory control sample (LCS) recoveries
- Laboratory method blank contamination
- GC/MS instrument performance
- Sample result verification and identification
- Initial and continuing calibrations
- Internal standard area counts and retention times
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols.

Usability

All volatile sample results were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness and comparability. The sediment volatile data presented by TAL were 100% complete (i.e., usable).

It was noted that all samples contained mostly water with a percent solids less than 50%. Therefore, all volatile sample results were considered estimated with positive results qualified "J" and nondetected results qualified "UJ".

A.4.2 Semivolatiles

The following items were reviewed for compliancy in the semivolatile analysis:

- Custody documentation
- Holding times
- Surrogate recoveries
- MS/MSD precision and accuracy
- LCS recoveries
- Laboratory method blank contamination
- GC/MS instrument performance
- Sample result verification and identification
- Initial and continuing calibrations
- Internal standard area counts and retention times
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of LCS recoveries.

LCS Recoveries

All LCS recoveries were compliant and within QC acceptance limits with the exception of the high LCS recovery for phenol (101%R; QC limit 44-100%R) associated with all samples. Validation qualification of the samples was not warranted since phenol was not detected in these samples.

Usability

All semivolatile sample results were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness and comparability. The sediment semivolatile data presented by TAL were 100% complete (i.e., usable).

It was noted that all samples contained mostly water with a percent solids less than 50%. Therefore, all semivolatile sample results were considered estimated with positive results qualified "J" and nondetected results qualified "UJ".

A.4.3 PCBs

The following items were reviewed for compliancy in the PCB analysis:

- Custody documentation
- Holding times
- Surrogate recoveries
- MS/MSD precision and accuracy
- LCS recoveries
- Laboratory method blank contamination
- GC instrument performance
- Sample result verification and identification
- Initial and continuing calibrations
- Chromatogram quality
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols.

Usability

All PCB sample results were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness and comparability. The sediment PCB data presented by TAL were 100% complete (i.e., usable).

It was noted that all samples contained mostly water with a percent solids less than 50%. Therefore, all PCB sample results were considered estimated with positive results qualified "J" and nondetected results qualified "UJ".

A.4.4 Mercury and Methyl Mercury

The following items were reviewed for compliancy in the mercury and methyl mercury analysis:

- Custody documentation
- Holding times
- Initial and continuing calibration verifications
- Initial and continuing calibration, and laboratory preparation blank contamination
- Matrix spike recoveries
- Laboratory duplicate precision
- LCS recoveries
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols.

Usability

All mercury and methyl mercury sample results were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The mercury and methyl mercury sediment data presented by TAL and Brooks Rand were 100% complete (i.e., usable).

It was noted that all samples contained mostly water with a percent solids less than 50%. Therefore, all results for these samples were considered estimated with positive results qualified "J" and nondetected results qualified "UJ".

TABLE A-1

SUMMARY OF SAMPLE ANALYSES AND USABILITY
PHASE III PDI ADDENDUM 6 (SEDIMENT SAMPLES)

SAMPLE ID	MATRIX	SAMPLE PROCESSING DATE	VOC	SVOC	PCB	Mercury	Methyl-Mercury	Specific Gravity
OL-0448-01	Soil	11/6/07				OK		
OL-0448-02	Soil	11/6/07				OK		
OL-0448-03	Soil	11/6/07				OK		
OL-0448-04	Soil	11/6/07				OK		
OL-0449-01	Soil	11/6/07						OK
OL-0449-02	Soil	11/6/07						OK
OL-0449-03	Soil	11/6/07						OK
OL-0449-04	Soil	11/6/07						OK
OL-0451-01	Soil	11/7/07						OK
OL-0451-02	Soil	11/7/07						OK
OL-0451-03	Soil	11/7/07						OK
OL-0451-04	Soil	11/7/07						OK
OL-0451-05	Soil	11/7/07						OK
OL-0451-06	Soil	11/7/07						OK
OL-0451-07	Soil	11/7/07						OK
OL-0451-08	Soil	11/7/07						OK
OL-0451-09	Soil	11/7/07						OK
OL-0451-10	Soil	11/7/07						OK
OL-0451-11	Soil	11/7/07						OK
OL-0451-12	Soil	11/7/07						OK
OL-0451-13	Soil	11/7/07						OK
OL-0451-14	Soil	11/7/07						OK
OL-0451-15	Soil	11/7/07						OK
OL-0451-16	Soil	11/7/07						OK
OL-0453-01	Soil	11/7/07						OK
OL-0453-02	Soil	11/7/07						OK
OL-0453-03	Soil	11/7/07						OK
OL-0453-04	Soil	11/7/07						OK
OL-0453-05	Soil	11/7/07						OK
OL-0453-06	Soil	11/7/07						OK
OL-0453-07	Soil	11/7/07						OK
OL-0453-08	Soil	11/7/07						OK
OL-0453-09	Soil	11/7/07						OK
OL-0453-10	Soil	11/7/07						OK
OL-0453-11	Soil	11/7/07						OK
OL-0453-12	Soil	11/7/07						OK
OL-0452-01	Soil	11/7/07				OK		
OL-0452-02	Soil	11/7/07				OK		
OL-0452-03	Soil	11/7/07				OK		
OL-0452-04	Soil	11/7/07				OK		
OL-0452-05	Soil	11/7/07				OK		
OL-0452-06	Soil	11/7/07				OK		
OL-0452-07	Soil	11/7/07				OK		
OL-0452-08	Soil	11/7/07				OK		

TABLE A-1 (CONTINUED)

SUMMARY OF SAMPLE ANALYSES AND USABILITY
ADDENDUM 6 - SEDIMENT

SAMPLE ID	MATRIX	SAMPLE PROCESSING DATE	VOC	SVOC	PCB	Mercury	Methyl Mercury	Specific Gravity
OL-0452-09	Soil	11/7/07				OK		
OL-0452-10	Soil	11/7/07				OK		
OL-0452-11	Soil	11/7/07				OK		
OL-0452-12	Soil	11/7/07				OK		
OL-0452-13	Soil	11/7/07				OK		
OL-0452-14	Soil	11/7/07				OK		
OL-0450-01	Soil	11/7/07				OK		
OL-0450-02	Soil	11/7/07				OK		
OL-0450-03	Soil	11/7/07				OK		
OL-0450-04	Soil	11/7/07				OK		
OL-0450-05	Soil	11/7/07				OK		
OL-0450-06	Soil	11/7/07				OK		
OL-0450-07	Soil	11/7/07				OK		
OL-0450-08	Soil	11/7/07				OK		
OL-0450-09	Soil	11/7/07				OK		
OL-0450-10	Soil	11/7/07				OK		
OL-0450-11	Soil	11/7/07				OK		
OL-0450-12	Soil	11/7/07				OK		
OL-0450-13	Soil	11/7/07				OK		
OL-0450-14	Soil	11/7/07				OK		
OL-0450-15	Soil	11/7/07				OK		
OL-0450-16	Soil	11/7/07				OK		
OL-0454-01	Soil	11/8/07				OK		
OL-0454-02	Soil	11/8/07				OK		
OL-0454-03	Soil	11/8/07				OK		
OL-0454-04	Soil	11/8/07				OK		
OL-0454-05	Soil	11/8/07				OK		
OL-0454-06	Soil	11/8/07				OK		
OL-0454-07	Soil	11/8/07				OK		
OL-0454-08	Soil	11/8/07				OK		
OL-0454-09	Soil	11/8/07				OK		
OL-0454-10	Soil	11/8/07				OK		
OL-0454-11	Soil	11/8/07				OK		
OL-0454-12	Soil	11/8/07				OK		
OL-0454-14	Soil	11/8/07				OK		
OL-0454-15	Soil	11/8/07				OK		
OL-0454-16	Soil	11/8/07				OK		
OL-0454-17	Soil	11/8/07				OK		
OL-0454-18	Soil	11/8/07				OK		
OL-0454-19	Soil	11/8/07				OK		
OL-0455-01	Soil	11/8/07						OK
OL-0455-02	Soil	11/8/07						OK
OL-0455-03	Soil	11/8/07						OK
OL-0455-04	Soil	11/8/07						OK
OL-0455-05	Soil	11/8/07						OK

TABLE A-1 (CONTINUED)

SUMMARY OF SAMPLE ANALYSES AND USABILITY
ADDENDUM 6 - SEDIMENT

SAMPLE ID	MATRIX	SAMPLE PROCESSING DATE	VOC	SVOC	PCB	Mercury	Methyl Mercury	Specific Gravity
OL-0455-06	Soil	11/8/07						OK
OL-0455-07	Soil	11/8/07						OK
OL-0455-08	Soil	11/8/07						OK
OL-0455-09	Soil	11/8/07						OK
OL-0455-10	Soil	11/8/07						OK
OL-0454-11	Soil	11/8/07						OK
OL-0455-12	Soil	11/8/07						OK
OL-0455-13	Soil	11/8/07						OK
OL-0455-14	Soil	11/8/07						OK
OL-0455-15	Soil	11/8/07						OK
OL-0455-16	Soil	11/8/07						OK
OL-0455-17	Soil	11/8/07						OK
OL-0455-18	Soil	11/8/07						OK
OL-0455-19	Soil	11/8/07						OK
OL-0455-20	Soil	11/8/07						OK
OL-0456-01	Soil	11/8/07				OK		
OL-0456-02	Soil	11/8/07				OK		
OL-0456-03	Soil	11/8/07				OK		
OL-0456-04	Soil	11/8/07				OK		
OL-0456-05	Soil	11/8/07				OK		
OL-0456-06	Soil	11/8/07				OK		
OL-0456-07	Soil	11/8/07				OK		
OL-0456-08	Soil	11/8/07				OK		
OL-0456-09	Soil	11/8/07				OK		
OL-0456-10	Soil	11/8/07				OK		
OL-0456-11	Soil	11/8/07				OK		
OL-0457-01	Soil	11/8/07						OK
OL-0457-02	Soil	11/8/07						OK
OL-0457-03	Soil	11/8/07						OK
OL-0457-04	Soil	11/8/07						OK
OL-0457-05	Soil	11/8/07						OK
OL-0457-06	Soil	11/8/07						OK
OL-0457-07	Soil	11/8/07						OK
OL-0457-08	Soil	11/8/07						OK
OL-0458-01	Soil	11/9/07				OK		
OL-0458-02	Soil	11/9/07				OK		
OL-0458-03	Soil	11/9/07				OK		
OL-0458-04	Soil	11/9/07				OK		
OL-0458-05	Soil	11/9/07				OK		
OL-0458-06	Soil	11/9/07				OK		
OL-0458-07	Soil	11/9/07				OK		
OL-0458-08	Soil	11/9/07				OK		
OL-0458-09	Soil	11/9/07				OK		
OL-0458-10	Soil	11/9/07				OK		
OL-0458-11	Soil	11/9/07				OK		

TABLE A-1 (CONTINUED)

SUMMARY OF SAMPLE ANALYSES AND USABILITY
ADDENDUM 6 - SEDIMENT

SAMPLE ID	MATRIX	SAMPLE PROCESSING DATE	VOC	SVOC	PCB	Mercury	Methyl Mercury	Specific Gravity
OL-0458-12	Soil	11/9/07				OK		
OL-0458-13	Soil	11/9/07				OK		
OL-0458-14	Soil	11/9/07				OK		
OL-0458-15	Soil	11/9/07				OK		
OL-0458-16	Soil	11/9/07				OK		
OL-0458-17	Soil	11/9/07				OK		
OL-0458-18	Soil	11/9/07				OK		
OL-0458-19	Soil	11/9/07				OK		
OL-0458-20	Soil	11/9/07				OK		
OL-0459-01	Soil	11/9/07						OK
OL-0459-02	Soil	11/9/07						OK
OL-0459-03	Soil	11/9/07						OK
OL-0459-04	Soil	11/9/07						OK
OL-0459-05	Soil	11/9/07						OK
OL-0459-06	Soil	11/9/07						OK
OL-0459-07	Soil	11/9/07						OK
OL-0459-08	Soil	11/9/07						OK
OL-0459-09	Soil	11/9/07						OK
OL-0459-10	Soil	11/9/07						OK
OL-0459-11	Soil	11/9/07						OK
OL-0459-12	Soil	11/9/07						OK
OL-0459-13	Soil	11/9/07						OK
OL-0459-14	Soil	11/9/07						OK
OL-0459-15	Soil	11/9/07						OK
OL-0459-16	Soil	11/9/07						OK
OL-0459-17	Soil	11/9/07						OK
OL-0459-18	Soil	11/9/07						OK
OL-0459-19	Soil	11/9/07						OK
OL-0459-20	Soil	11/9/07						OK
OL-0460-01	Soil	11/9/07				OK		
OL-0460-02	Soil	11/9/07				OK		
OL-0460-03	Soil	11/9/07				OK		
OL-0460-04	Soil	11/9/07				OK		
OL-0460-05	Soil	11/9/07				OK		
OL-0460-06	Soil	11/9/07				OK		
OL-0460-07	Soil	11/9/07				OK		
OL-0460-08	Soil	11/9/07				OK		
OL-0460-09	Soil	11/9/07				OK		
OL-0460-10	Soil	11/9/07				OK		
OL-0461-01	Soil	11/9/07						OK
OL-0461-02	Soil	11/9/07						OK
OL-0461-03	Soil	11/9/07						OK
OL-0461-04	Soil	11/9/07						OK
OL-0461-05	Soil	11/9/07						OK
OL-0461-06	Soil	11/9/07						OK

TABLE A-1 (CONTINUED)

SUMMARY OF SAMPLE ANALYSES AND USABILITY
ADDENDUM 6 - SEDIMENT

SAMPLE ID	MATRIX	SAMPLE PROCESSING DATE	VOC	SVOC	PCB	Mercury	Methyl Mercury	Specific Gravity
OL-0461-07	Soil	11/9/07						OK
OL-0461-08	Soil	11/9/07						OK
OL-0462-01	Soil	11/12/07				OK		
OL-0462-02	Soil	11/12/07				OK		
OL-0462-03	Soil	11/12/07				OK		
OL-0462-04	Soil	11/12/07				OK		
OL-0462-05	Soil	11/12/07				OK		
OL-0462-06	Soil	11/12/07				OK		
OL-0462-07	Soil	11/12/07				OK		
OL-0462-08	Soil	11/12/07				OK		
OL-0462-09	Soil	11/12/07	OK	OK	OK	OK		
OL-0462-10	Soil	11/12/07	OK	OK	OK	OK		
OL-0462-11	Soil	11/12/07	OK	OK	OK	OK		
OL-0462-12	Soil	11/12/07	OK	OK	OK	OK		
OL-0462-13	Soil	11/12/07	OK	OK	OK	OK		
OL-0462-14	Soil	11/12/07	OK	OK	OK	OK		
OL-0462-15	Soil	11/12/07	OK	OK	OK	OK		
OL-0462-16	Soil	11/12/07	OK	OK	OK			
OL-0462-17	Soil	11/12/07	OK	OK	OK	OK		
OL-0463-01	Soil	11/12/07						OK
OL-0463-02	Soil	11/12/07						OK
OL-0463-03	Soil	11/12/07						OK
OL-0463-04	Soil	11/12/07						OK
OL-0463-05	Soil	11/12/07						OK
OL-0463-06	Soil	11/12/07						OK
OL-0463-07	Soil	11/12/07						OK
OL-0463-08	Soil	11/12/07						OK
OL-0463-09	Soil	11/12/07						OK
OL-0463-10	Soil	11/12/07						OK
OL-0463-11	Soil	11/12/07						OK
OL-0463-12	Soil	11/12/07						OK
OL-0463-13	Soil	11/12/07						OK
OL-0463-14	Soil	11/12/07						OK
OL-0463-15	Soil	11/12/07						OK
OL-0463-16	Soil	11/12/07						OK
OL-0464-01	Soil	11/12/07					OK	
OL-0464-02	Soil	11/12/07					OK	
OL-0464-03	Soil	11/12/07					OK	
OL-0464-04	Soil	11/12/07					OK	
OL-0464-05	Soil	11/12/07					OK	
OL-0464-06	Soil	11/12/07					OK	
OL-0464-07	Soil	11/12/07					OK	
OL-0464-08	Soil	11/12/07					OK	
TOTAL SAMPLES			9	9	9	109	8	104

NOTES: OK - Sample analysis considered valid and usable.

APPENDIX B

BOX CORE / PUSH CORE LOGS

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80067
Date: 11/09/2007
Weather: Cloudy 40 deg f winds ESE 5-10 mph

Northing: 1133304.34	Drilling Company: Ocean Survey Inc	Water Elev: NA
Easting: 913031.2	Logging Company: Parsons	Attempts: 2
Mud Line: NA	Geologist: SARA CHMURA	Depth Units: Ft
Surface Water Depth: 38.2 Ft	Penetration Depth: 1.1 Core Recovery Depth: 1	

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0463-01/0462-01/4	0		ML	Wet, very soft, black grading to brown, SILT, slight petroleum-like odor.	PUSH CORE	SILT
	OL-0462-02/OL-0463-02	0		ML	Wet, very soft, black grading to brown, SILT,slight petroleum-like odor.	PUSH CORE	
	OL-0462-03/OL-0463-03	0		ML	Wet, very soft, black grading to brown, SILT, petroleum-like odor.	PUSH CORE	
	OL-0463-04/OL-0462-04	0		ML	Wet, very soft, black grading to brown ,SILT, petroleum-like odor.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temperature = 9.9 C, pH = 6.82

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80068
Date: 11/09/2007
Weather: Cloudy 40 deg f winds ESE 5-10 mph

Northing: 1131964.41
Easting: 914013.75
Mud Line: NA
Surface Water Depth: 50.6 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1.3 Core Recovery Depth: 0.9

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0458-05/OL-0459-05	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0459-06/OL-0458-06	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0458-07/OL-0459-07	0		ML	Wet, very soft, black, SILT.	PUSH CORE	SILT
	OL-0458-08/OL-0459-08	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temperature= 10.0 C, pH= 6.60

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80069
Date: 11/09/2007
Weather: Cloudy 40 deg f winds ESE 5-10 mph

Northing: 1130481.24
Easting: 916888.43
Mud Line: NA
Surface Water Depth: 52.1 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 0.9

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0458-01/OL-0459-01			ML	Wet, very soft, black, SILT.	PUSH CORE	SILT
	OL-0459-02/OL-0458-02			ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0459-03/OL-0458-03			ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0459-04/OL-0458-04			ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 12.1 C, pH= 6.80

BORING LOG Page 1 of 1

Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80070
Date: 11/12/2007
Weather: Cloudy 45 deg f winds ESE 5-10 mph

Northing: 1129681.24
Easting: 914728.28
Mud Line: NA
Surface Water Depth: 60.4 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 0.9

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0462-09/OL-0464-01	0		ML	Wet, very soft, black grading to brown, SILT.	PUSH CORE	SILT
	OL-0462-10/464-02/463-10	0		ML	Wet, very soft, black grading to brown, SILT.	PUSH CORE	
	OL-0462-11/464-03/463-11	0		ML	Wet, very soft, black grading to brown, SILT, petroleum-like odor.	PUSH CORE	
	OL-0464-04/463-12/0462-12	0		ML	Wet, very soft, black grading to brown, SILT, petroleum-like odor.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 9.1 C, pH= 6.43

BORING LOG Page 1 of 1

Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80071
Date: 11/09/2007
Weather: Cloudy 40 deg f winds ESE 5-10 mph

Northing: 1129431.5
Easting: 915564.79
Mud Line: NA
Surface Water Depth: 64.1 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 0.8

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0460-07/OL-0461-05	0		ML	Wet, very soft, black grading to brown, SILT, petroleum-like odor.	PUSH CORE	SILT
	OL-0460-08/OL-0461-06	0		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	
	OL-0461-07/OL-0460-09	0		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	
	OL-0461-08/OL-0460-10	0		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 9.1 C, pH= 6.79

BORING LOG Page 1 of 1

Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80072
Date: 11/08/2007
Weather: Overcast/snow 32 deg f Winds WSW 5-10 mph

Northing: 1128954.86
Easting: 917504.94
Mud Line: NA
Surface Water Depth: 55.8 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 1

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0460-02/OL-0461-01	0		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	SILT
	OL-0461-02/OL-0460-03	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0461-03/OL-0460-04	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0460-05/460-06/461-04	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 9.9 C, pH=6.74

BORING LOG Page 1 of 1

Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80073
Date: 11/08/2007
Weather: Overcast/snow 32 deg f winds WSW 5-10 mph

Northing: 1127850.3
Easting: 915613.51
Mud Line: NA
Surface Water Depth: 52.7 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 1

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0458-18/OL-0459-17	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0458-19/OL-0459-18	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0458-20/OL-0459-19	0		ML	Wet, very soft, black, SILT.	PUSH CORE	SILT
	OL-0459-20/OL-0460-01	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm) Null fields indicate reading was not taken. Temp= 9.9 C, pH=6.94. Oil-like sheen on surface water, petroleum-like odor, broken wax-like film on surface water.

BORING LOG Page 1 of 1

Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80074
Date: 11/08/2007
Weather: Overcast/snow 32 deg f winds WSW 5-10 mph

Northing: 1127488.66
Easting: 916887.3
Mud Line: NA
Surface Water Depth: 39 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1.2 Core Recovery Depth: 0.8

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0459-13/OL-0458-1	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0458-15/OL-0459-1	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0458-16/OL-459-15	0		ML	Wet, very soft, black, SILT.	PUSH CORE	SILT
	OL-0458-17/OL-0459-1	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 11.9 C, pH= 7.08

BORING LOG Page 1 of 1

Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80075
Date: 11/08/2007
Weather: Overcast/snow 32 deg f winds WSW 5-10 mph

Northing: 1127256.19
Easting: 918767.19
Mud Line: NA
Surface Water Depth: 53.2 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1.3 Core Recovery Depth: 0.8

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0457-01/OL-0456-04	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0456-05/OL-0457-02	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0456-06/OL-0457-03	0		ML	Wet, very soft, black, SILT.	PUSH CORE	SILT
	OL-0456-07/OL-0457-04	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 10.0 C, pH= 6.66

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80076
Date: 11/08/2007
Weather: Overcast/snow 32 deg f WSW 5-10 mph

Northing: 1126091
Easting: 920191.02
Mud Line: NA
Surface Water Depth: 60.4 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1.2 Core Recovery Depth: 0.8

Water Elev: NA
Attempts: 3
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0456-08/OL-0457-05	0		ML	Wet, very soft, black, SILT.	PUSH CORE	SILT
	OL-0456-09/OL-0457-06	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0457-07/OL-0456-10	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0457-08/OL-0456-11	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are:
(0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. pH= 6.71

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80077
Date: 11/08/2007
Weather: Overcast/snow 32 deg f winds WSW 5-10 mph

Northing: 1126199.59
Easting: 922810.99
Mud Line: NA
Surface Water Depth: NA

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 0.9

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0459-09/OL-0458-09	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0458-10/OL-0459-10	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0459-11/OL-0458-11	0		ML	Wet, very soft, black, SILT.	PUSH CORE	SILT
	OL-0458-13/OL-0459-12	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are:
(0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. pH= 6.78.
Oil-like sheen on surface water, broken wax-like film on surface water.

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80078
Date: 11/07/2007
Weather: Rain and snow 32 deg f wind WNW 10-20 mph

Northing: 1124580.85
Easting: 921419.87
Mud Line: NA
Surface Water Depth: 63.5 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 1

Water Elev: NA
Attempts: 1
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0453-05OL-0452-07	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0452-08/OL-0453-06	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0453-07/OL-0452-09	0		ML	Wet, very soft, black, SILT.	PUSH CORE	SILT
	OL-0452-10/OL-0453-08	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 8.8 C, pH= 6.54

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80079
Date: 11/12/2007
Weather: Cloudy 45 deg f winds SSE 5-10 mph

Northing: 1123487.96
Easting: 920635.79
Mud Line: NA
Surface Water Depth: 60.3 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 0.9

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0462-13/463-13/464-05	0		ML	Wet, very soft, black, SILT.	PUSH CORE	SILT
	OL-0464-06/462-14/463-14	0		ML	Wet, very soft, black grading to brown, SILT, slight petroleum-like odor.	PUSH CORE	
	46215/46407/46315/46216	0		ML	Wet, very soft, black grading to brown, SILT, slight petroleum-like odor.	PUSH CORE	
	0462-17/463-16/464-0	0		ML	Wet, very soft, black grading to brown, SILT, slight petroleum-like odor.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 8.9 C, pH=6.74

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80080
Date: 11/08/2007
Weather: Overcast/snow 32 deg f winds WSW 5-10 mph

Northing: 1123754.37
Easting: 923741.98
Mud Line: NA
Surface Water Depth: 62.9 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 1

Water Elev: NA
Attempts: 1
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0455-17/OL-0454-1	0		ML	Wet, very soft, black grading to brown, SILT, slight petroleum-like odor.	PUSH CORE	SILT
	OL-0454-20/OL-0455-1	0		ML	Wet, very soft, black grading to brown, SILT, slight petroleum-like odor.	PUSH CORE	
	OL-0455-19/OL-0456-0	0		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	
	OL-0456-02/456-03/45	0		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm) Null fields indicate reading was not taken. Temp= 9.9 C, pH=6.70. Bubbles were coming up to surface though sediment in box core.

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80081
Date: 11/07/2007
Weather: Rain and snow, 32 deg f, wind WNW 10-20 mph

Northing: 1123155.57
Easting: 922885.33
Mud Line: NA
Surface Water Depth: 65.1 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 1

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0453-01/OL-0452-01	0.5		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	
	OL-0453-02/OL-0452-02	0.5		ML	Wet, very soft, black, SILT, petroleumk-like odor.	PUSH CORE	
	OL-0453-03/452-03/452-05	0.5		ML	Wet, very soft, black, SILT.	PUSH CORE	SILT
	OL-0453-04/452-04/452-06	0.5		ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 6.6 C, pH= 6.52. Petroleum-like odor on surface water.

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80082
Date: 11/07/2007
Weather: Rain and snow, 32 deg f, wind WNW 10-20 mph

Northing: 1122151.6
Easting: 921461.71
Mud Line: NA
Surface Water Depth: 59.1 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 1

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0451-09/OL-0450-09	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0450-10/OL-0451-10	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0451-11/OL-0450-11	0		ML	Wet, very soft, black, SILT.	PUSH CORE	SILT
	OL-0450-12/OL-0451-12	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 6.6 C, pH=6.53

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80083
Date: 11/07/2007
Weather: Rain & snow, 32 deg f, winds W-NW 10-20 mph

Northing: 1123206.63
Easting: 924890.83
Mud Line: NA
Surface Water Depth: 55.7 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 1

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0453-09/OL-0452-11	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0452-12/OL-0453-10	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0452-13/OL-0453-11	0		ML	Wet, very soft, black, SILT.	PUSH CORE	SILT
	OL-0452-14/OL-0453-12	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 10.3 C, pH=6.64. Oil-like sheen on surface water, petroleum-like odor.

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80084
Date: 11/08/2007
Weather: Overcast/snow, 32 deg f, winds W-SW 5-10 mph

Northing: 1121953.26	Drilling Company: Ocean Survey Inc	Water Elev: NA
Easting: 923865.1	Logging Company: Parsons	Attempts: 2
Mud Line: NA	Geologist: SARA CHMURA	Depth Units: Ft
Surface Water Depth: 67.1 Ft	Penetration Depth: 1 Core Recovery Depth: 1	

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0455-01/OL-0454-01	0		ML	Wet, very soft, black with gray mottling, SILT.	PUSH CORE	SILT
	OL-0454-02/OL-0455-02	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0454-03/OL-0455-03	0		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	
	OL-0455-04/OL-0454-04	0		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 10.0 C, pH=6.65. Oil-like sheen on surface water, petroleum-like odor.

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80085
Date: 11/08/2007
Weather: Overcast/snow, 32 deg f, winds W-SW 5-10 mph

Northing: 1121762.84
Easting: 926310.62
Mud Line: NA
Surface Water Depth: 46.2 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 1

Water Elev: NA
Attempts: 1
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0454-09/OL-0455-09	0		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	SILT
	OL-0454-10/OL-0455-10	0		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	
	OL-0454-11/OL-0455-11	0		ML	Wet, very soft black, SILT.	PUSH CORE	
	OL-0454-12/455-12/454-14	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 6.0 C, pH= 6.44. Oil-like sheen on surface water, petroleum-like odor.

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80086
Date: 11/07/2007
Weather: Rain & snow, 32 deg f, winds W-NW 10-20 mph

Northing: 1121163.82
Easting: 923249.23
Mud Line: NA
Surface Water Depth: 63.1 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 1

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0450-05/OL-0451-05	0.9		ML	Wet, very soft, black, SILT.	PUSH CORE	SILT
	OL-0451-06/OL-0450-06	0.9		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0450-07/OL-0451-07	0.9		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	
	OL-0451-08/OL-0450-08	0.9		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 6.6 C, pH=6.64

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80087
Date: 11/08/2007
Weather: Overcast/snow, 32 deg f, winds W-SW 5-10 mph

Northing: 1120955.41
Easting: 925546.90
Mud Line: NA
Surface Water Depth: 55.7 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 1

Water Elev: NA
Attempts: 1
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0454-05/OL-0455-05	0		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	SILT
	OL-0455-06/OL-0454-06	0		ML	Wet, very soft, black, SILT, slight petroleum-like odor.	PUSH CORE	
	OL-0454-07/OL-0455-07	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0455-08/OL-0454-08	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 8.8 C, pH= 6.47. Oil-like sheen on surface water, broken wax-like film on surface water, petroleum-like odor.

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80088
Date: 11/06/2007
Weather: Cloudy, rain, 38 deg f, winds W-SW 15-25 mph

Northing: 1120363.01
Easting: 922638.21
Mud Line: NA
Surface Water Depth: 57.9 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: .83

Water Elev: NA
Attempts: 3
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0448-01/OL-0449-01	0		ML	Wet, very soft, black, SILT.	Vibracore	SILT
	OL-0448-02/OL-0449-02	0		ML	Wet, very soft, black, SILT.	Vibracore	
	OL-0448-03/OL-0449-03	0		ML	wet, very soft, black, SILT.	Vibracore	
	OL-0449-04/OL-0448-04	0		ML	Wet, soft, black, SILT.	Vibracore	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 6.6 C, pH=6.4

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80089
Date: 11/07/2007
Weather: Rain and snow, 32 deg f, wind W-NW 10-20 mph

Northing: 1120176.55
Easting: 924696.8
Mud Line: NA
Surface Water Depth: 58.4 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 1

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0450-13/OL-0451-13	0.2		ML	Wet, soft, black, SILT.	PUSH CORE	SILT
	OL-0451-14/OL-0450-14	0.2		ML	Wet, firm, black, SILT.	PUSH CORE	
	OL-0451-15/OL-0450-15	0.2		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0450-16/OL-0451-16	0.2		ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 6.6 C, pH=6.47. Oil-like sheen on surface water, petroleum-like odor.

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80090
Date: 11/07/2007
Weather: Rain & snow, 32 deg f, winds W-NW 10-20 mph

Northing: 1119244.52
Easting: 923935.09
Mud Line: NA
Surface Water Depth: 54.9 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 1

Water Elev: NA
Attempts: 2
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0450-01/OL-0451-01	0		ML	Wet, very soft, black, SILT.	PUSH CORE	SILT
	OL-0450-02/OL-0451-02	0		ML	Wet, very soft, black, SILT, some gray mottling.	PUSH CORE	
	OL-0450-03/OL-0451-03	0		ML	Wet, very soft, black, SILT, trace fine sand, slight petroleum-like odor.	PUSH CORE	
	OL-0451-04/OL-0450-04	0		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 9.7 C, pH= 6.73. Broken wax-like film on water surface.

BORING LOG Page 1 of 1

Click here to query for Lithological Data.

Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80091
Date: 11/09/2007
Weather: Cloudy, 40 deg f, winds E-SE 5-10 mph

Northing: 1127309.35
Easting: 915327.65
Mud Line: NA
Surface Water Depth: 44.9 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1.5 Core Recovery Depth: 0.9

Water Elev: NA
Attempts: 1
Depth Units: Ft

Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0463-05/OL-0462-05	0		ML	Wet, very soft, black, SILT, slight petroleum-like odor, slight organic odor.	PUSH CORE	
	OL-0462-06/OL-0463-06	0		ML	Wet, very soft, black, SILT, slight organic odor, slight petroleum-like odor.	PUSH CORE	
	OL-0463-07/OL-0462-07	0		ML	Wet, very soft, black, SILT.	PUSH CORE	SILT
	OL-0462-08/OL-0463-08	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 11.6 C, pH= 6.81

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Honeywell

Site: Onondaga Lake (Syracuse NY)
Boring No: OL-STA-80092
Date: 11/08/2007
Weather: Overcast/snow, 32 deg f, winds W-SW 5-10 mph

Northing: 1119668.21
Easting: 926626.98
Mud Line: NA
Surface Water Depth: 41.7 Ft

Drilling Company: Ocean Survey Inc
Logging Company: Parsons
Geologist: SARA CHMURA
Penetration Depth: 1 Core Recovery Depth: 0.8

Water Elev: NA
Attempts: 7
Depth Units: Ft

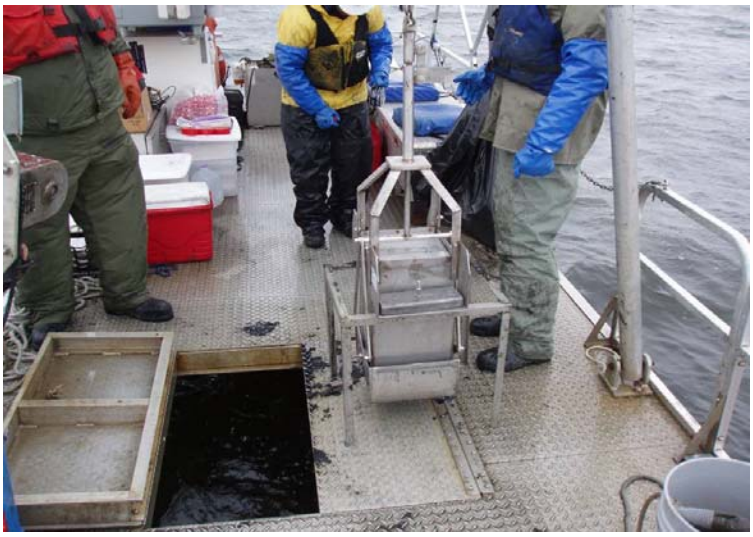
Depth Ft	Sample ID	PID (ppm)	Mercury (mg/m3)	USCS Code	Soil Description	Sample Method	Stratum
0	OL-0455-13/OL-0454-15	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0455-14/OL-0454-16	0		ML	Wet, very soft, black, SILT.	PUSH CORE	
	OL-0455-15/OL-0454-17	0		ML	Wet, very soft, black,SILT.	PUSH CORE	SILT
	OL-0454-18/OL-0455-16	0		ML	Wet, very soft, black, SILT, petroleum-like odor.	PUSH CORE	
0.492							

Samples were collected in centimeters; 0-0.492 Ft = 0-15 cm. Sample intervals are: (0-2 cm, 2-4 cm, 4-10 cm, and 10-15 cm). Null fields indicate reading was not taken. Temp= 6.0 C, pH= 6.44. Oil-like sheen on surface water.

APPENDIX C

SAMPLE COLLECTION PHOTO LOG

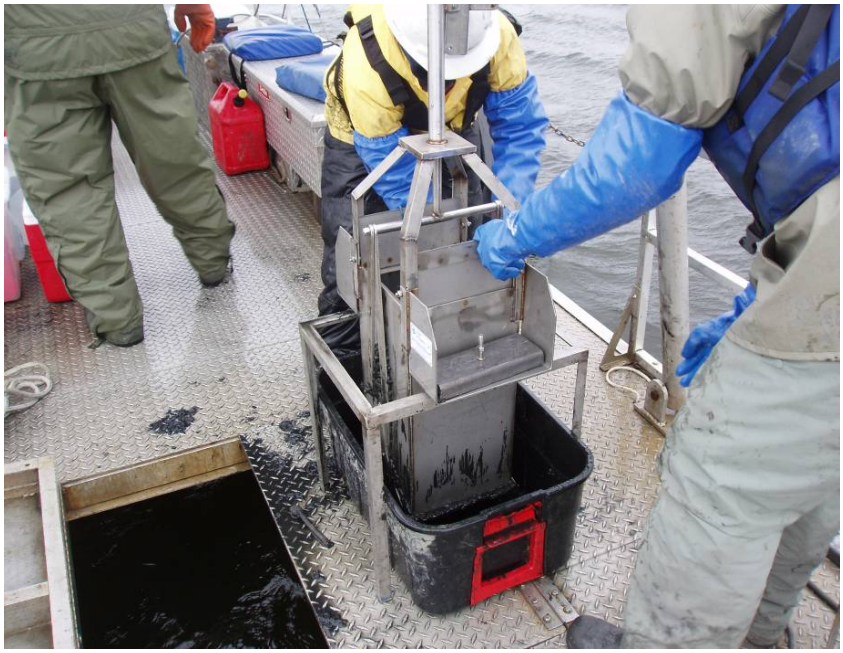
Collection Step 1: A 9-inches by 9-inches by 18-inches box corer was used to collect the top 0 to 15 centimeter portion of sediment from the lake bottom within SMU 8.



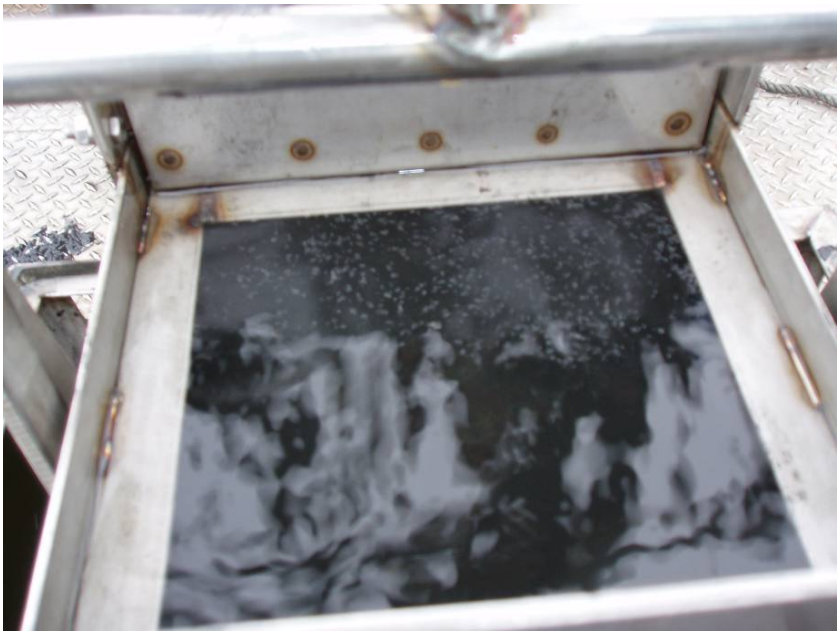
Collection Step 2: The box corer was slowly lowered through the center of the boat, using a winch and cathead, until the corer reached the sediment. A lessening of tension in the winch cable was observed at every location when the corer reached the sediment. The box corer with the sediment sample was then slowly raised causing the sample jaws to close.

Collection Step 3: Once the box core was brought to the boat deck, it was placed into a holding rack with a collection bucket beneath to collect excess sediment.

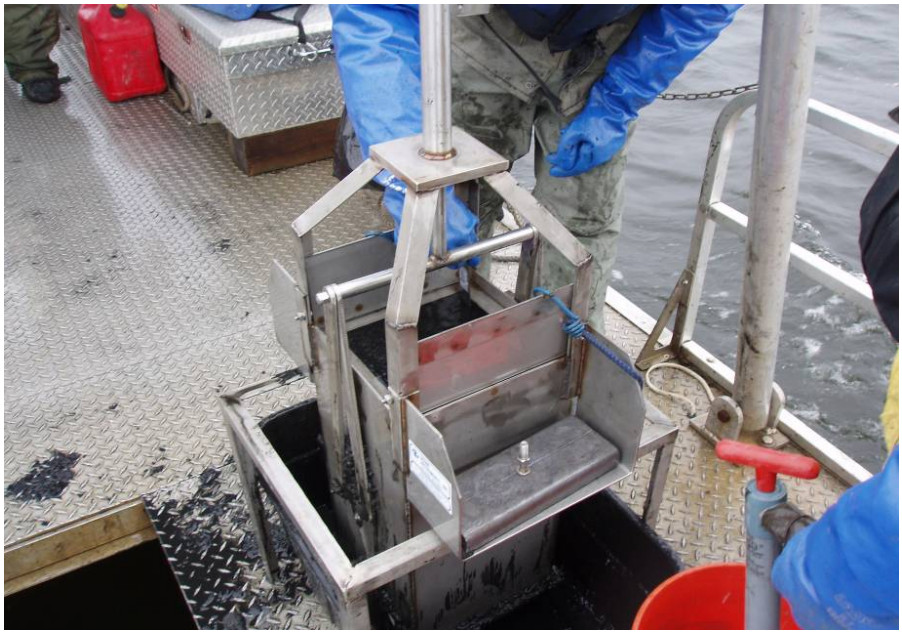
Collection Step 4: The top of the box corer opens by two overlapping flaps, which allow for a narrow space where samples are collected carefully through the top.



Collection Step 5: Approximately 8 to 15 inches (depending on the sample) of water was present above the sediment, filling the box core to the top. Observations such as water color, presence of wax-like film, are noted at this time in the field book.

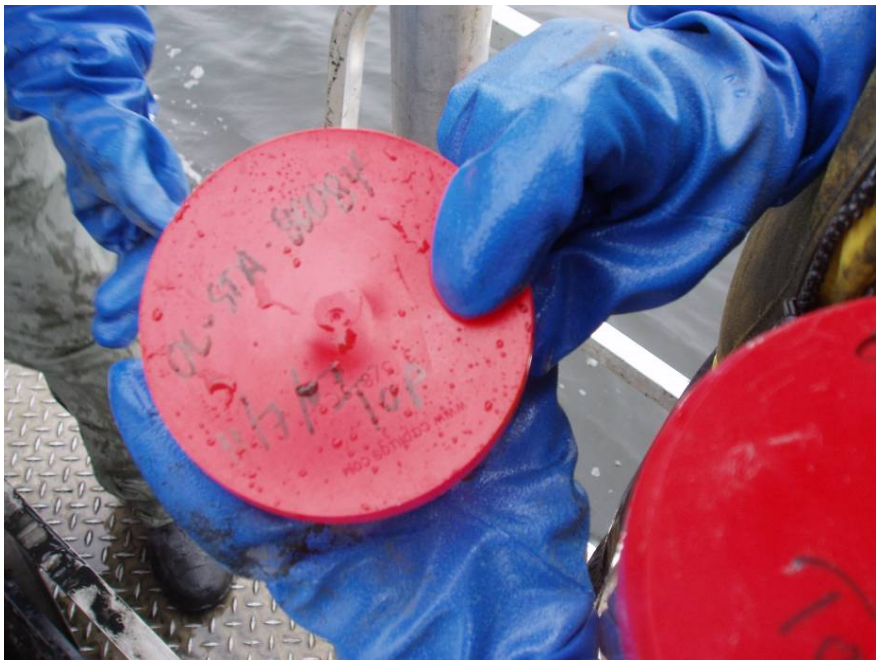


Collection Step 6: An 18-inch stainless steel ruler was used to measure the depth of the water above the water-sediment interface, which allowed the thickness of sediment recovery to be estimated. (The crew was able to insert the ruler slowly into the box corer and feel the difference in resistance when the water-sediment interface was reached.)



Collection Step 7: A hand operated bilge pump was used to slowly remove the excess water above the water-sediment interface, leaving approximately 3 to 4 inches of water above the sediment and with out visibly disturbing the to of the sediment. After water is removed, further observations such as color, odor, and material are noted in the field book.

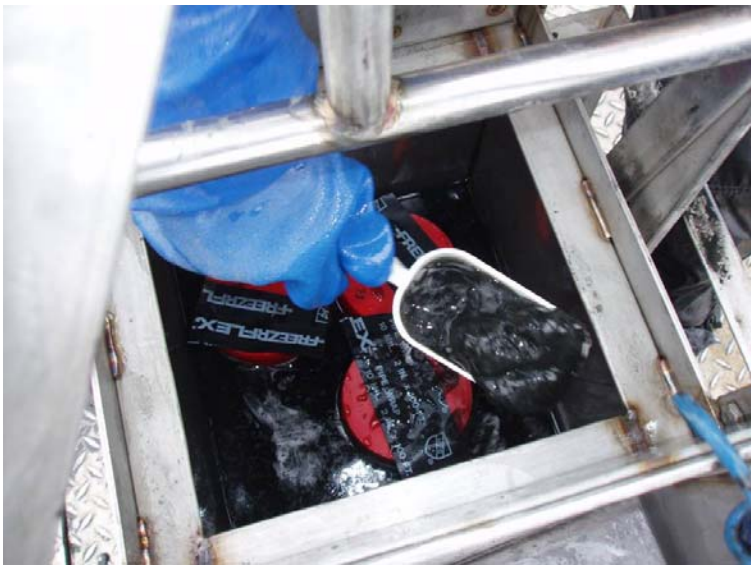
Collection Step 8: Pre-cut 12-inch (length) by 3-inch (diameter) Lexan tubes were then capped on one end, labeled, and a small slit was put through the cap in order to allow air to release from the tube as it was pushed into the sediment within the box corer.



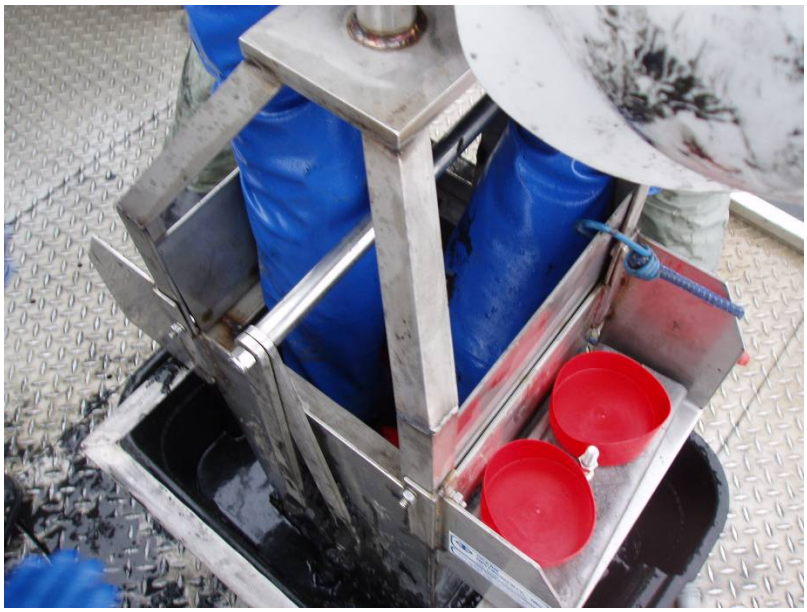
Collection Step 9: The tubes were pushed into the water/sediment allowing approximately 1 inch of the cap to remain above the water. The remaining water above the sediment was then slowly pumped to leave approximately one-half inch of water above the sediment. The tube was then pushed further into the sediment this time leaving about one-half inch of the tube above the water. (The reason for the two step water pumping and tube insertion was to: minimize any disturbance of the upper most sediment before obtaining the sample, and maximize the amount of sediment recovered by minimizing the water in each sample tube.)

Collection Step 10: Once all three tubes were inserted into the box corer as described above, a piece of pipe tape was placed over the slit on each of the caps, thus creating a suction allowing the tube with sediment to be lifted vertical from the box corer losing minimum sediment from the bottom.

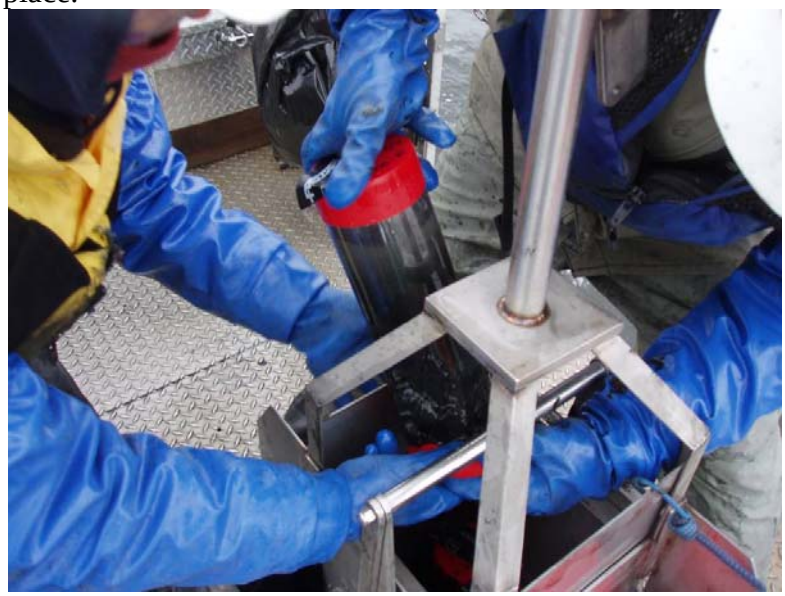
Collection Step 11: With the Lexan tubes in place, a plastic disposable scoop was used to carefully scrape off the top 0 to 0.5 cm of sediment, between the Lexan tubes to minimize the disturbance of the top sediment, and without completely stirring up the sediment. Two 4 ounce jars were filled for Beryllium-7 analysis. Note: A new scoop was used with each sample location.



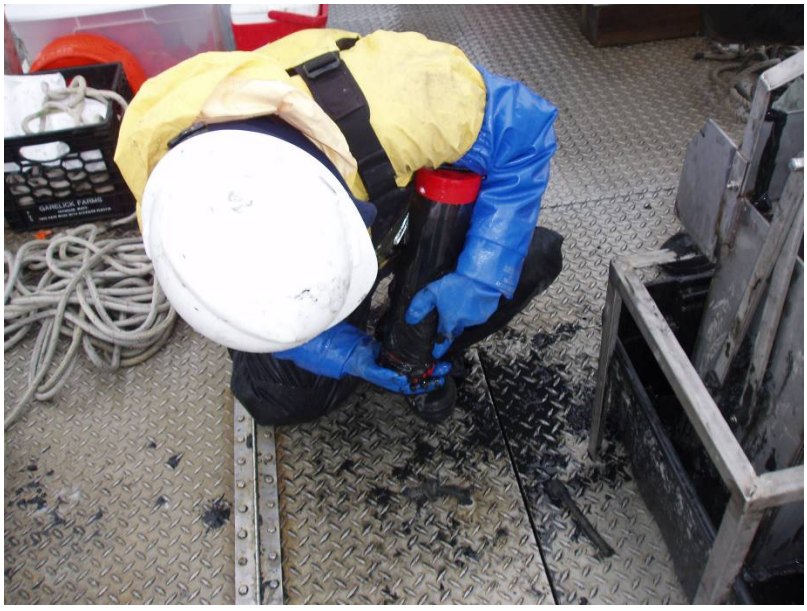
Cllection Step 12: The tubes were then carefully removed, vertically, from the box corer. One crew member reached into the box corer pulling the tubes up while reaching beneath the tube as it surfaced and placing a cap under the bottom of the tube.



Collection Step 13: Another crew member carefully took the tube, continuing to hold the bottom cap in place.



Collection Step 14: The bottom cap was secured to the Lexan tube, while keeping the tube in a vertical position and minimizing any sediment loss.



Collection Step 15: Once all three tubes were capped and removed from the box corer, excess sediment was wiped from the outside of the tube and caps, and the caps were secured onto the tubes with pipe tape. Tubes were labeled and stored in a vertical position at all times and kept on ice until brought to shore for sample processing.

Collection Step 16: A MiniRAE PID meter was used to take a reading of the VOCs within the sample.

Collection Step 17: Finally, a HANNA 9025, with temperature and pH probes was pushed into the remaining sediment for corresponding readings. Readings were recorded in the field book as well as in the electronic database.

Collection Step 18: The excess sediment was dumped from the box corer into a collection bucket where it was then emptied into 5-gallon buckets, then brought to shore where the contents were emptied into 55-gallon drums.

APPENDIX D

SAMPLE PROCESSING PHOTO LOG

Processing Step 1: Samples were brought to the sample processing staging area in 1-foot sections and kept in a vertical position at all times. Three sections represented the top 0 to 15 cm for one location. Note: degree of settling as shown in the photo below is not typical of each location. For most of the sample locations, some settling was observed but the degree of settling was small.

Processing Step 2: Without removing surface sediment, liquid was slowly siphoned away from the sediment using a sanitized, plastic syringe that was decontaminated in-between core sections.

Processing Step 3: Once the liquid was decanted, the bottom cap was removed using a retractable blade utility knife. A PVC plug was then inserted into the base of the tube to allow the tube and its contents to be placed on a pedestal. The tube was slowly pushed down on the pedestal forcing the sediment to be pushed up to extract the necessary intervals.

Processing Step 4: While on the pedestal, a pre-cut piece of tube measured to the appropriate sample thickness was used (i.e. 2 cm, 5 cm or 6 cm length to match the sample intervals 0 to 2 cm, 2 to 4 cm, 4 to 10 cm, and 10 to 15 cm). The pre-cut tube was placed on top of the one-foot tube, which was then pulled down to extract the sediment into the pre-cut piece. Next, a putty knife was inserted at the bottom of the pre-cut piece.
For two locations, VOC jars were filled with sediment for each interval. A small amount of sediment was collected from each of the three cores per location and placed into the appropriate VOC jar with zero headspace. Special care was taken not to collect any sediment that was touching the sides of the polycarbonate tube.

Processing Step 5: After the putty knife was inserted, the pre-cut piece was easily removed with little or no loss of sediment. This method of extraction ensured that the proper sample interval was being collected and analyzed.

Processing Step 6: The sample and putty knife were then placed into an aluminum pan.

Processing Step 7: To provide the lab with an uncompromised sample, the center portion of the sample was removed by inserting a sanitized plastic tube of a smaller diameter into the material.

Processing Step 8: The outer pre-cut tube was removed and the sediment on the perimeter was wiped clean from the inner piece of tube. During this step, as much of the compromised sediment was removed as possible.

Processing Step 9: The sample was then moved to a clean aluminum pan that was used to homogenize the sediment within a particular sampling interval from each of the three tubes collected from a single sampling location. For instance, there was one pan designated for the 0 to 2 cm interval, one for the 2 to 4 cm interval, etc. Each pan held three sample intervals mixed together as a means to collect a representative sample from each sampling interval at each location.

Processing Step 10: Once sample from all three tubes were processed, the sediment was homogenized using plastic spoons or nitrile gloved hands. Finally, the sediment was weighed and then placed into the appropriate jars for laboratory analysis. After all sample jars were filled, any remaining sediment was composited into a 1-pint sample jar and labeled for Geotechnical analysis for 0 to 15 cm.