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**ADDENDUM 1 (2013) TO ONONDAGA LAKE  
TISSUE MONITORING  
WORK PLAN FOR 2012**

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## LIST OF ACRONYMS

NYSDEC	New York State Department of Environmental Conservation
OLMMS	Onondaga Lake Maintenance and Monitoring Scoping Document
UFI	Upstate Freshwater Institute

## WORK PLAN ADDENDUM ONONDAGA LAKE TISSUE MONITORING FOR 2013

This is a work plan addendum for monitoring Onondaga Lake fish and zooplankton tissue in 2013 on behalf of Honeywell International consistent with the same type of work effort completed in Onondaga Lake on behalf of Honeywell in 2012. This work plan addendum for 2013 has been approved by New York State Department of Environmental Conservation (NYSDEC). Monitoring of fish populations and communities will also be conducted in 2013 consistent with 2012 efforts. Biota tissue concentrations and biota communities in Onondaga Lake have been monitored annually on behalf of Honeywell since 2008, while dredging and capping began adjacent to the western shoreline in Onondaga Lake in late July 2012.

As described in the draft Onondaga Lake Monitoring and Maintenance Scoping Document (OLMMS) (cited on page 2 as reference "a"), the primary objective for monitoring fish tissue is to provide basis for determining achievement of fish tissue performance criteria. Zooplankton tissue will continue to be monitored for mercury to help better understand bioaccumulation pathways.

The primary purpose of biota community monitoring is to provide data during and after habitat reestablishment to assist in determining overall effectiveness and biological response that is guided by the success criteria and decision making framework discussed in the draft OLMMS. Habitat reestablishment is not scheduled to be in place until late 2013 in any portion of the lake being dredged or capped, so biological monitoring work will again focus in 2013 on fish community and fish population assessments at the same level of effort completed in 2012.

Based on lake monitoring results, the objectives, equipment, and procedures for tissue and biological monitoring efforts will be the same in 2013 as they were in 2012 (cited on page 2 as reference "b"). Changes for the lake tissue and biological monitoring effort for 2013 are the following:

- Add collection of 25 adult pumpkinseed for tissue chemical analysis in 2013.
- Analyze the 25 adult pumpkinseed fillets to be collected in 2013 for total mercury as part of the effort to analyze the other 75 adult sport fish fillets.
- Analyze all 100 sport fish fillets and 40 prey fish samples to be collected in 2013 for PCB aroclors, DDT and metabolites, hexachlorobenzene and lipid content. No analyses of dioxins-furans will be conducted on the 2013 fish samples.
- Analyze a subset of smallmouth bass and walleye tissue and some samples of lake zooplankton and phytoplankton for carbon-13 (delC) and nitrogen-15 (delN) stable isotopes. As we explained during our meeting held on June 6, 2013, the purpose of this additional stable isotope work is to evaluate if changes in diet between smaller and larger adult sport smallmouth bass and walleye may explain the shift in fish

mercury concentrations based on adult fish length. Up to 20 samples each of adult smallmouth bass and walleye processed for mercury analysis will also be analyzed for carbon-13 and nitrogen-15 stable isotopes. Up to 10 samples each of zooplankton and phytoplankton also will be analyzed for carbon-13 and nitrogen-15 stable isotopes to provide isotope information on prey types. Additional processing of phytoplankton samples (in addition to concentrating) may need to be implemented by Upstate Freshwater Institute (UFI) prior to isotope analyses. Additional processing of phytoplankton samples could include a dilute acid rinse to reduce potential carbonate interferences.

The 2013 sampling scope and schedule are summarized in Tables 1 and 2 attached.

## References

- a Parsons, Anchor QEA and Exponent. 2012a. Draft Onondaga Lake Monitoring and Maintenance Scoping Document Parsons, Anchor QEA and Exponent. 2012b. Onondaga Lake Tissue Monitoring Work Plan for 2012. Prepared for Honeywell. June 2012.
- b Parsons and Anchor QEA, 2012. Onondaga Lake Habitat and Biological Monitoring Work Plan for 2012. Prepared for Honeywell. June 2012.

**TABLE 1**

**SUMMARY OF BIOTA SAMPLING LOCATIONS, NUMBER OF SAMPLES, SAMPLE PREPARATION, AND DURATION OF SAMPLING FOR 2013**

<b>Activity</b>	<b>Number of Locations</b>	<b>Number of field matrix samples per location</b>	<b>Number of species</b>	<b>Sample Preparation</b>	<b>Duration</b>
Adult Sport Fish Tissue Sampling <sup>1</sup>	8	3-4	4	Fillets	Approximately 10 days in early July
Prey Fish Tissue Sampling	8	5	Variable	Whole body composite	Approximately five days in August for prey fish
Zooplankton	1	18 (late May and every 2 weeks from late June to November 19 except weekly during September and October prior to lake turnover)	Variable	Entire sample	May-November

- Notes: 1. Target for adult sport fishing is 25 brown bullhead, 25 pumpkinseed, 25 smallmouth bass and 25 walleye evenly distributed among each of the sampling locations. However, if species are sparse at one location, additional individual will be collected from one of the other locations to achieve target sample numbers.
2. Analytical work scope summary for fish tissue: 100 adult fillets and 40 prey fish composite samples for total mercury; PCB aroclors, DDT + metabolites (and hexachlorobenzene), and lipid content.

**TABLE 2**

**SAMPLING SCHEDULE FOR ONONDAGA LAKE FISH AND  
ZOOPLANKTON TISSUE FOR 2013**

Activity	Month							
	April	May	June	July	Aug	Sept	Oct	Nov
Adult sport fish tissue			**					
Prey fish tissue <sup>1</sup>			*		*			
Zooplankton		*	*	* * *	* *	*****	*****	* *

Notes: 1. Most prey fish collection efforts are conducted in August; although, efforts to collect alewives will be included in June.

2. Each asterisk (\*) above represents one week.

3. Zooplankton will be collected at a frequency consistent with recent prior baseline years of sampling which is every other week from June through August, weekly during September and October to lake turnover, and every other week from lake turnover through November.