

**Table 2-1. Field and Laboratory Investigations Conducted for the
Onondaga Lake Remedial Investigation**

Investigation	Year(s)
Geophysical Investigation	1992
Precision Bathymetric Study	
Side-Scan Sonar Study	
Subbottom Profiling Study	
Substance Distribution Investigation	1992
Water Chemistry Study	
Sediment Chemistry Study	
Petroleum Hydrocarbon Study	
Groundwater Chemistry Study	
Mercury and Calcite Mass Balance Investigation	1992
External Loading and Flushing Study	
Water Column Processes Study	
Sediment Processes and Nutrient Study	
Ecological Effects Investigation	1992
Benthic Macroinvertebrate Study	
Sediment Toxicity Study	
Nearshore Fish Study	
Macrophyte Distribution Study	
Macrophyte Transplant Study	
Bioaccumulation Investigation	1992
Phytoplankton/Zooplankton Study	
Benthic Macroinvertebrate Study	
Fish Tissue Study	
Supplemental Sampling at Onondaga Lake – East Flume	1994
West Flume Mercury Investigation and Supplemental Sampling	1994–1995
Ninemile Creek Supplemental Sampling	1995
Supplemental Mercury Methylation and Remineralization Studies	1996
Supplemental Lake Water Sampling	1999
HHRA Surface Water Sampling	
Water Column Profile Study	
Turnover Monitoring	
Phase 2A Investigation	2000
Sediment Investigation	
Porewater Investigation	
Aquatic Ecological Investigation	
Phase 2B Supplemental Lake Water Sampling	2001
Supplemental Wetland SYW-6 Sediment Sampling	2002

Table 2-2. Summary of Sampling Specifications Achieved for the Substance Distribution Investigation

Investigation/Study	No. Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples	Analyses
Sediment Chemistry Study					
Full Characterization—Surface (0–2 cm) sediment samples only	19 Plus 5 in Cross Lake and 5 in Otisco Lake	1	7/92–8/92	29	Conventional analytes (acid-volatile sulfide, total chloride, calcium carbonate, total organic carbon, grain size, percent moisture) TAL metals Simultaneously extracted metals ^a TCL VOCs TCL SVOCs TCL pesticides and PCBs
Partial Characterization—Surface (0–2 cm) sediment samples only in lake	95	1	7/92–9/92	95	Conventional analytes (acid-volatile sulfide, total chloride, calcium carbonate, total organic carbon, grain size, percent moisture) Site metals ^b Simultaneously extracted metals ^a Site VOCs ^c Chlorinated benzenes ^a PAHs ^a PCBs
Partial Characterization—Surface (0–2 cm) sediment samples only in the West Flume	3	1	8/92	3	Total mercury
Full Characterization—Sediment cores to approximately 1.5 m (0- to 30-, 30- to 60-, and 60- to 90-cm intervals were sampled; at some stations, the 90- to 120- and 120- to 150-cm intervals were sampled)	18	3–5	5/92	60	Conventional analytes (acid-volatile sulfide [surface only], total chloride, calcium carbonate, total organic carbon, grain size, percent moisture) TAL metals TCL VOCs TCL SVOCs TCL pesticides and PCBs

Table 2-2. (cont.)

Investigation/Study	No. Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples	Analyses
Sediment Chemistry Study (cont.)					
Partial Characterization—Sediment cores to approximately 1.5 m or greater (0- to 30-, 30- to 60-, and 60- to 90-cm intervals were sampled; at some stations, the 90- to 120-, 120- to 150-, 150- to 180-, and 180- to 210-cm intervals were also sampled).	55	3–7	5/92 7/92 10/92	241	Conventional analytes (acid-volatile sulfide [surface only], total chloride, calcium carbonate, total organic carbon, grain size, percent moisture) Site metals Site VOCs ^d Chlorinated benzenes ^a PAHs ^a PCBs
Stratigraphy—Sediment cores to approximately 2.5 m (2.5-cm interval samples from 0–50 cm; 5-cm interval samples from 50–250 cm; not all intervals were sampled for all analytes and some samples were archived)	5	50–83	9/92	314	Conventional analytes (total sulfate, total chloride, calcium carbonate, total organic carbon, percent moisture) Site metals ²¹⁰ Pb ¹³⁷ Cs <i>Ambrosia</i> (ragweed) pollen
Lake Water Chemistry Study					
Onondaga Lake Water One unfiltered water sample from the epilimnion and 1 unfiltered water sample from the hypolimnion per station	2	2	9/92	4	Field measurements (pH, conductivity, dissolved oxygen, temperature) Conventional analytes (ammonia, total alkalinity, total sulfate, total sulfide, total chloride, total inorganic carbon, total organic carbon, total suspended solids) TAL metals and cyanide TCL VOCs TCL SVOCs TCL pesticides and PCBs
Groundwater Chemistry Study					
Water samples from selected monitoring wells upgradient and downgradient from Waste Beds 12–15	12	1	5/92, 9/92	24	Ammonia Total suspended solids Total mercury ^e

Table 2-2. (cont.)

Investigation/Study	No. Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples	Analyses
Water samples from minipiezometers and piezometers downgradient from the Semet residue ponds and the former Willis Avenue plant. (Sampling was preceded by a sediment-gas survey.)	16	1	5/92–6/92, 10/92	20	Dissolved mercury and total suspended solids ^a Total mercury ^a TAL metals ^a Site VOCs ^a TCL SVOCs ^a TCL pesticides and PCBs ^a
Petroleum Hydrocarbon Study					
Surface sediment (0–20 cm)	31	1	9/92	31	Field screening (PID) Hydrocarbon characterization (TPH)

Note: ¹³⁷Cs - cesium-137, a radioactive isotope of cesium
²¹⁰Pb - lead-210, a radioactive isotope of lead
 BTEX - benzene, toluene, ethylbenzene, and xylenes
 PAH - polycyclic aromatic hydrocarbon
 PCB - polychlorinated biphenyl
 PID - photoionization detector
 SVOC - semivolatile organic compound
 TAL - EPA's Target Analyte List for inorganic chemicals
 TCL - EPA's Target Compound List for organic chemicals (for the Onondaga Lake RI/FS, this list included all chlorinated benzenes that are substances of concern)
 TPH - total petroleum hydrocarbon
 VOC - volatile organic compound

^a At selected stations.

^b Site metals: cadmium, calcium, chromium, copper, lead, magnesium, mercury, nickel, and zinc.

^c Site VOCs: BTEX, and mono-, di-, and trichlorinated benzenes.

^d At selected stations, BTEX not analyzed.

^e Some samples filtered for dissolved mercury analysis.

Source: Exponent, 2001c

Table 2-3. Summary of Sampling Specifications Achieved for the Mercury and Calcite Mass Balance Investigations

Investigation/Study	No. Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples	Analyses
External Loading and Flushing Study (for both mercury and calcite)					
<p>Primary Tributary Water Samples</p> <p>Unfiltered water samples from each of the following primary tributaries: Ley Creek, Onondaga Creek, Harbor Brook, the East Flume, Tributary 5A, Ninemile Creek at the mouth and at an upstream background site (near Amboy), Geddes Brook, the lake outlet, Metro outfall, and Seneca River (low flow only)</p> <p>After September, BTEX and chlorinated benzenes were dropped from the analytical suite for low flow samples except at Harbor Brook, the East Flume, and Tributary 5A.</p>	11	1 during low flow, 2 during high flow (4 for the lake outlet during high flow)	2 times per month 4/92–12/92; targeting 1 base-flow and 1 high-flow event each month	195 Not all stations were sampled for all sampling events	<p>Field Measurements (pH, temperature, dissolved oxygen, conductivity, flow)</p> <p>Total suspended solids</p> <p>Total organic carbon</p> <p>Total inorganic carbon</p> <p>Alkalinity</p> <p>Ammonia</p> <p>Chloride</p> <p>Sulfate</p> <p>Site metals^a (excluding Mg), plus Na</p> <p>Methylmercury</p> <p>Site VOCs^b</p> <p>Hexachlorobenzene</p>
<p>Secondary Tributary Water Samples</p> <p>One unfiltered water sample from each of the following secondary tributaries: Sawmill Creek, and Bloody Brook</p>	2	1	2 times during 1992, 5/92 for low flow and 12/92 for high flow	4	<p>Field Measurements (pH, temperature, dissolved oxygen, conductivity, flow)</p> <p>Total suspended solids</p> <p>Total organic carbon</p> <p>Total inorganic carbon</p> <p>Alkalinity</p> <p>Ammonia</p> <p>Chloride</p> <p>Sulfate</p> <p>Site metals^a (excluding Mg), plus Na</p> <p>Methylmercury</p> <p>Site VOCs^b</p> <p>Hexachlorobenzene</p>
<p>Metro Connections Water Samples</p> <p>Unfiltered water samples from three sanitary sewer connections, one holding pond discharge, and the inlet to Metro</p>	5	1 during low flow, 2 during high flow	2 times per month 8/92–12/92 (9/92–12/92 for low flow); targeting 1 base-flow, and 1 high-flow event each month	83 Not all stations were sampled for all sampling events	Total mercury

Table 2-3. (cont.)

Investigation/Study	No. Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples	Analyses
Air Samples	1	1	10/92–11/92 (3 times)	3	Total mercury Elemental mercury Dimethylmercury
Water Column Processes Study (for both mercury and calcite)					
Onondaga Lake Water Unfiltered water samples from water depths of 0, 3, 6, 9, 12, 15, and 18 m during summer stratification (May–September) Unfiltered water samples from depths of 3, 9, and 15 m during turnover and winter stratification (April, October, November) After September, BTEX and chlorinated benzenes were dropped from the analytical suite.	2 (plus duplicates at south station through July)	7 for 5 months and 3 for 3 months	Monthly 4/92–11/92	112	Field Measurements (pH, temperature, dissolved oxygen, conductivity, Secchi disk depth) Site metals ^a , plus Fe, Na, Mn Site VOCs ^b Methylmercury Elemental mercury Dimethylmercury Ionic mercury Alkalinity Total inorganic carbon Total organic carbon Carbon dioxide Sulfate Sulfide Total suspended solids Ammonia Chloride
Onondaga Lake Water Filtered water from water depths of 0, 3, 6, 9, 12, 15, and 18 m during summer stratification (May–September). Filtered water from water depths of 3, 9, and 15 m during turnover and winter stratification (April, October, November)	2 (plus duplicates at south station through July)	7 for 5 months and 3 for 3 months	Monthly 4/92–/92	112	Total mercury Methylmercury Ionic mercury
Onondaga Lake Water Filtered water (duplicate samples of some of the unfiltered water samples) from water depths of 0, 3, 6, 9, 12, 15, and 18 m during summer stratification (May–September). Filtered water samples from 3, 9, and 15 m during turnover and winter stratification (April, October, November)	1 (south station)	7 for 5 months and 3 for 3 months	Monthly 4/92–11/92	44	Ca, Mg Alkalinity Dissolved inorganic carbon Dissolved organic carbon Sulfate Sulfide

Table 2-3. (cont.)

Investigation/Study	No. Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples	Analyses
Sediment from Sediment Trap Two stations near center of lake; one station offshore of Metro outfall and one station off mouth of Ninemile Creek	4	2 at 2 deep stations 1 at 2 shallow stations	Monthly 5/92–11/92 Sediment traps were deployed approximately 1 month prior to sample collection	32 Sediment traps sampled were not retrieved at every station every month	Calcium carbonate Total organic carbon Sulfate Sulfide Total mass in trap Ca, Mg Total mercury Methylmercury
Sediment Processes Study—Nutrients					
Sediment cores to 20 cm (Solid fraction analyzed in four to six 2-cm intervals)	6	4–6	8/92 11/92	53	Percent moisture Total P, Fe, Mn Total organic carbon Total inorganic P, C Acid-volatile sulfide Chromate-reducible sulfide Biogenic silica HCl-extractable Fe, Mn, Ca Oxalic-acid-extractable P, Fe, Mn
Sediment cores to 20 cm (Pore-water fraction analyzed in five to six 2-cm intervals plus the overlying water)	6	6–7	8/92 11/92	83	Ammonia Phosphate Hydrogen sulfide Total Ca, Fe, Mn Sulfate Chloride Alkalinity Dissolved inorganic carbon Dissolved organic carbon Nitrate and nitrite Silica Total Kjeldahl nitrogen
Sediment cores to 20 cm (Analyzed in five to eight 2-cm intervals)	6	5–8	8/92– 11/92	80	Density of solids

Table 2-3. (cont.)

Investigation/Study	No. Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples	Analyses
Sediment flux experiment—nutrients Water samples from three replicate chambers plus one control per station (sampled four to five times each)	6	16–20	8/92– 11/92	232	Temperature Oxygen Hydrogen sulfide Ammonia Phosphate Silica Nitrate and nitrite Chloride Sulfate Total Ca, Fe, Mn Total inorganic carbon Methane
Sediment Processes and Methylation Study— Mercury					
Sediment cores to 14 cm Solid fraction analyzed from four to six 2-cm intervals Field replicates collected at each station from a separate core over the 0- to 4-cm interval	4	7–9	8/92	34	Total mercury Methylmercury
Sediment cores to 14 cm Porewater fraction analyzed from four to six 2-cm intervals Field replicates collected at each station from a separate core over the 0- to 4-cm interval	4	7–9	8/92	34	Total mercury Methylmercury
Mercury flux chamber experiment Water samples from three replicate chambers and zero to two controls per station (sampled two to three times each)	3	8–15	8/92–10/92	37	Total mercury (dissolved) Methylmercury (dissolved) Dissolved organic carbon pH Sulfate Hydrogen sulfide Oxygen
Sediment from flux chambers—Sediment cores to 6 cm (analyzed in 1-cm intervals, plus two replicates of 0- to 4-cm intervals)	3	8	8/92–10/92	24	Total mercury Methylmercury

Table 2-3. (cont.)

Investigation/Study	No. Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples	Analyses
Water column methylation experiment Water samples from three replicate chambers from 3, 9, and 15 m plus one control (sampled four times each)	1	48	8/92–10/92	48	Total mercury Methylmercury Dissolved organic carbon pH Hydrogen sulfide Oxygen Sulfate
Sulfate depletion experiment Water samples from three replicate chambers per station (sampled four to six times each)	3	15–18	8/92–10/92	51	Sulfate

Notes:

BTEX - benzene, toluene, ethylbenzene, and xylenes
 Ca - calcium
 Fe - iron
 Mg - magnesium
 Mn - manganese
 Na - sodium
 P - phosphorus
 VOC - volatile organic compound

^a Site metals: cadmium, calcium, chromium, copper, lead, magnesium, mercury, nickel, zinc.

^b Site VOCs: BTEX and mono-, di-, and trichlorobenzenes.

Source: Exponent, 2001c

Table 2-4. Summary of Sampling Specifications Achieved for the Ecological Effects Investigation

Investigation/Study	No. Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples	Analyses
Sediment Toxicity Study					
Onondaga Lake	79 (triplicate samples were collected at 2 stations)	1	7/92–8/92	83	Amphipod test: survival and biomass Chironomid test: survival and biomass
Cross Lake and Otisco Lake	10 (5 in Cross Lake and 5 in Otisco Lake)	1	7/92–8/92	10	Amphipod test: survival and biomass Chironomid test: survival and biomass
Benthic Macroinvertebrate Study					
Onondaga Lake	66	5 replicates	7/92–8/92	330	Species abundance Biomass of major taxa
Tributaries (1 pool area in each of 8 tributaries)	8	5 replicates	8/92	40	Species abundance Biomass of major taxa
Cross Lake and Otisco Lake	10 (5 in Cross Lake and 5 in Otisco Lake)	5 replicates	7/92–8/92	50	Species abundance Biomass of major taxa
Nearshore Fish Study					
Onondaga Lake littoral zone 5 nonoverlapping beach-seine hauls at each station	8	5 replicates	6/92 8/92 11/92	120	Species abundance Individual length, biomass, and abnormalities
Tributaries Fish collected by electroshocking or minnow traps near the mouths of Ley Creek, Onondaga Creek, Harbor Brook, Sawmill Creek, Bloody Brook, Ninemile Creek, Tributary 5A, and East Flume	8	1	6/92–7/92 9/92 10/92–11/92	24	Species abundance Individual length, biomass, and abnormalities

Table 2-4. (cont.)

Investigation/Study	No. Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples	Analyses
Macrophyte Distribution Study					
Aerial survey and visual survey	Entire littoral zone for aerial survey; major macrophyte beds for visual survey	N/A	7/92–8/92	N/A	Species distribution
Macrophyte Transplant Study (Transplant of macrophytes into littoral zone)					
Onondaga Lake (3 macrophyte species, 3 sediment treatments, 2 depths, and 3–4 replicates at each station)	6	60	6/92–8/92	360	Survival Biomass
Cross Lake and Otisco Lake (3 macrophyte species, 1 sediment treatment, 2 depths, and 4 replicates at each station)	2 (1 in Cross Lake and 1 in Otisco Lake)	24	6/92–8/92	48	Survival Biomass

Table 2-5. Summary of Sampling Specifications Achieved for the Bioaccumulation Investigation

Investigation/Study	No. Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples	Analyses
Bioaccumulation Investigation					
Phytoplankton Study					
Composite samples at each station from 0, 3, 6, and 12 m	2	3 composites	5/92 8/92 11/92	18	Species abundance Biomass Methylmercury Total mercury
Zooplankton Study					
Three replicate vertical net tows at each station; composite samples of entire assemblage and the most abundant large zooplankton species (daphnids)	2	3 assemblages 0–3 daphnids	5/92 8/92 11/92	18 assemblages 12 daphnids	Species abundance Biomass (for assemblages) Methylmercury Ionic mercury Total mercury
Benthic Macroinvertebrate Study					
Composite samples of amphipods and chironomids at each station	8	1–2	8/92	15	Biomass Methylmercury Ionic mercury
Fish Tissue Study					
Analysis of fillets from individual adults					
Gizzard shad	2	10	8/92–9/92	20	Individual length, biomass, age, sex, reproductive condition, and abnormalities
Carp	2	10	8/92–9/92	20	
Channel catfish	2	10–11	8/92–10/92	21	Methylmercury
White perch	2	10	8/92–9/92	20	
Bluegill	3	10	8/92–9/92	30	Ionic mercury (in 3–4 individuals of each species only)
Smallmouth bass	3	10	8/92–9/92	30	
Walleye	2	9–11	8/92–10/92	20	PCBs Percent lipids
Composite samples of fillets from five adult individuals					
Channel catfish	1 (south end of lake)	1 composite	9/92–10/92	1	Individual length, biomass, age, sex, reproductive condition, and abnormalities
White perch	1 (south end of lake)	1 composite	9/92–10/92	1	
Smallmouth bass	1 (south end of lake)	1 composite	9/92–10/92	1	TAL metals TCL VOCs TCL SVOCs TCL pesticides/PCBs Percent lipids
Walleye	1 (south end of lake)	1 composite	9/92–10/92	1	

Table 2-5. (cont.)

Investigation/Study	No. Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples	Analyses
Sampling for mercury mass balance					
Adult fish – Whole fish samples, with each fish analyzed separately					
Gizzard shad	2	5	8/92	10	Individual length, biomass, age, and abnormalities
White perch	2	5	8/92	10	
Bluegill	2	5	8/92–9/92	10	Methylmercury
Smallmouth bass	2	5	8/92–9/92	10	Ionic mercury Percent lipids
Juvenile fish – Whole fish samples, with each sample representing a composite of 5–12 individuals					
Most abundant species in littoral zone of lake	8	1–2 composites	8/92	10	Individual length, biomass, age, and abnormalities
Most abundant species in tributaries	8	0–2 composites	9/92	7	Methylmercury Ionic mercury Percent lipids

- Notes:**
- PCB – polychlorinated biphenyl
 - SVOC – semivolatile organic compound
 - TAL – Target Analyte List for inorganic chemicals
 - TCL – Target Compound List for organic chemicals
 - VOC – volatile organic compound

Source: Exponent, 2001c

Table 2-6. Summary of Sampling Specifications Achieved for the Supplemental Studies

Investigation/Study	No. Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples	Analyses
Supplemental Sediment Sampling – East Flume					
Surface Sediment	5	3	8/93	15	Conventional analytes (calcium carbonate, chloride, total organic carbon, grain size)
Sediment samples (0–2 cm) from the south end, middle, and north end along a transect across the flume channel					Site metals ^a Site VOCs ^a Chlorinated benzenes ^a PCBs ^a TAL metals and cyanide ^b TCL organic compounds ^b
West Flume Mercury Investigation					
West Flume Surface Water					
Low-flow surface water grab samples (including three pipes and two seeps)	15	1	8/94	15	Total mercury (total and dissolved)
	18	1	8/95	16	Methylmercury (total and dissolved) TSS Metals (Ca, Mg, K, Na) ^c Conventional (total alkalinity, total chloride, sulfate, and dissolved organic carbon) ^c Field measurements (pH, conductivity, dissolved oxygen, temperature, flow rates)
Supplemental high-flow surface water grab samples during two high-flow events	2	2	9/95	4	Total mercury (total and dissolved) Methylmercury (total and dissolved) TSS
West Flume Groundwater					
Unfiltered groundwater samples were collected adjacent to West Flume	16	1	8/94	16	Total mercury (total and dissolved) Methylmercury (total and dissolved) TSS Metals (Ca, Mg, K, Na) Conventional (total alkalinity, total chloride, sulfate, and dissolved organic carbon) ^c Field measurements (pH, conductivity, dissolved oxygen, and temperature)
Second round of groundwater sampling	2	8	11/94	16	Total mercury
Sediment cores to 5 ft					
Sediment cores collected from the West Flume and the area of ponded water	8	2–4	9/94	24	Total solids
	2	1–5	11/94	6	Total mercury
Ninemile Creek					
Surface Water					
Three composite samples (rising, peak, and	3	15	9/95–10/95	45	Total mercury (total and dissolved)

Table 2-6. (cont.)

Investigation/Study	No. Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples	Analyses
falling limbs of hydrograph) collected during five rain events in Ninemile Creek and Geddes Brook					Methylmercury (total and dissolved) TSS Field measurements (pH, conductivity, dissolved oxygen, and temperature)
Mercury Methylation and Remineralization					
Water Column Mercury Methylation Study	2	1-9	7/96 9/96	34	Total mercury (total and dissolved) Methylmercury (total and dissolved) Net methylmercury production rates Field measurements (dissolved oxygen and temperature) Sulfide/sulfate Dissolved oxygen (lab study)
Mercury Remineralization Study					
Three sediment traps were deployed in the south basin for a duration of 2-16 weeks; solid material and overlying water in trap and sample of bottom water collected	1	16	6/96-10/96	16	Total mercury ^d Methylmercury ^d Total solids
Sediment core sample to 85 cm sectioned into 1-cm intervals between 0- to 10-cm core depth and 2.5-cm intervals between 10- to 60-cm core depth	1	30	9/96	30	Total mercury Methylmercury (0-10 cm samples only) Total solids Lead (10-60 cm samples only) ¹³⁷ Cs (12.5-37.5 cm samples only)
Surface sediment (0-5 cm) collected from two stations in south basin sectioned into 1-cm intervals	2	5	10/96	10	Total mercury Methylmercury Total solids

- Notes:**
- ¹³⁷Cs – cesium-137, a radioactive isotope of cesium
 - PCB – polychlorinated biphenyl
 - Site metals – cadmium, calcium, chromium, copper, lead, magnesium, mercury, nickel, zinc
 - Site VOCs – benzene, toluene, ethylbenzene, and xylenes (BTEX) and mono-, di-, and trichlorinated benzenes
 - TAL – Target Analyte List for inorganic compounds
 - TCL – Target Compound List for organic compounds (for this remedial investigation and feasibility study, list will include all chlorinated benzenes that are substances of potential concern)
 - VOC – volatile organic compound

^a Analyses performed on two of the three samples along each transect.

^b Analyses performed on one of the three samples along each transect.

^c Analyses performed on samples collected in August 1994 only.

^d Analyses performed on sediment trap samples only (not bottom water samples).

Source: Exponent, 2001c

Table 2-7. Summary of Sampling Specifications Achieved for the Supplemental Lake Water Sampling

Task	Number of Sampling Locations	Sampling Period	Field Replicates	Total Number of Samples	Analyses
Surface Water Sampling					
1 mid-depth grab sample at nine nearshore locations and 1 near-surface sample at 2 mid-basin locations	11	One sampling event (Sept. 1999)	1/event	12	Field measurements: pH, Eh, conductivity, dissolved oxygen, temperature, turbidity, and depth Laboratory analyses: total and dissolved mercury and methylmercury, total chromium, lead, manganese, nickel, TCL VOCs, TSS
Water Column Profile Sampling					
Events 1–3: seven water column samples from each basin	2	Five sampling events (Sept.–Dec. 1999)	1/event	74	Field measurements: pH, Eh, conductivity, dissolved oxygen, temperature, turbidity, and depth Laboratory analyses: total and dissolved mercury and methylmercury, total and dissolved iron and manganese, TSS/VSS, sulfate, sulfide, alkalinity, chlorophyll
Events 4–5: seven water column samples from south basin	1				
Events 1–3, 5: one or two water column samples from lake outlet	1				
Event 3: collect one mid-depth grab sample at three nearshore locations	3				
Turnover Monitoring					
Continuous water column profile of field parameters in south basin	1	Twice weekly before and after fall turnover, daily during fall turnover (Sept.–Dec. 1999)	–	–	Field measurements: pH, Eh, conductivity, dissolved oxygen, temperature, turbidity, and depth

Notes: TCL – target compound list
 TSS – total suspended solids
 VOC – volatile organic compound
 VSS – volatile suspended solids

Source: Exponent, 2001c

Table 2-8. Summary of Sampling Specifications Achieved for the Phase 2A Investigation

Investigation/Study	No. of Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples ^a	Analyses
Sediment Investigation					
Surface Sediment					
Onondaga Lake					
0–0.15 m	15	1	8/10–8/13	15	Chemical analysis
0–0.05 m	1	1	8/9	1	Chemical analysis
0–0.02 m	24	1	7/17 and 8/15	24	Grain-size distribution
Reference lake (Otisco Lake)					
0–0.15 m	2	1	8/9 and 8/14	2	Chemical analysis
Wetland Sediment					
Onondaga Lake					
0–0.3 m cores	16	2	8/11–8/13	32	Chemical analysis
Subsurface Sediment					
Onondaga Lake					
0–0.3 m cores	19	2 ^b	8/15–8/17	44	Chemical analysis
2-m cores	32	4 ^c	7/13–8/17	138	Chemical analysis
2.5-m cores	10	1	8/16–8/17	8 ^d	Consolidation testing
8-m cores	23	10 ^{e,f}	7/18–8/14	226	Chemical analysis
Dredged Material					
Onondaga Lake	8	5–6 ^g	8/16–8/17	41	Chemical analysis
Pore Water Investigation					
Onondaga Lake	7	3 ^h	7/19–7/21	63	Chemical analysis

Table 2-8. (cont.)

Investigation/Study	No. of Stations	No. Samples per Station	Sampling Period(s)	Total No. Samples ^a	Analyses
Aquatic Ecological Investigation					
Whole Fish					
Onondaga Lake	9	-- ⁱ	9/19–9/22	44	Species abundance Individual length, biomass, and abnormalities
Benthic Macroinvertebrates					
Onondaga Lake 0–0.15 m	15	5 replicates	7/28–8/13	75	Species abundance Biomass of major taxa Tissue chemistry of major taxa ^j
Reference lake (Otisco Lake) 0–0.15 m	2	5 replicates	8/9 and 8/14	10	Species abundance Biomass of major taxa Tissue chemistry of major taxa ^k
Sediment Toxicity					
Onondaga Lake 0–0.15 m	15	1	8/10–8/13	15	Amphipod test: survival, biomass, reproduction Chironomid test: survival, biomass, emergence
Reference lake (Otisco Lake) 0–0.15 m	2	1	8/9 and 8/14	2	Amphipod test: survival, biomass, reproduction Chironomid test: survival, biomass, emergence

Table 2-8. (cont.)

^a The number of samples does not include field quality control samples (i.e., field duplicate and field replicate samples).

^b Two intervals were collected from each 0–0.3 m core: 0–0.15 m and 0.15–0.3 m. In addition, the 0–0.02 m interval was also sampled at the surface of six 0–0.3 m cores. The 0–0.02 m interval was collected to permit comparison with data taken from the same interval in the Phase 1 sampling event (i.e., 1992). Specific core intervals that were sampled are provided in Table 2-9.

^c Four intervals were collected from each 2-m core. In addition, the 0–0.02 m interval was sampled at the surface of three 2-m cores. The 0–0.02 m interval was collected to permit comparison with data taken from the same interval in the Phase 1 sampling event (i.e., 1992). Furthermore, the presence of distinct layers observed in core sections deeper than 0.3 m occasionally increased the number of intervals collected in a core and altered the sectioning pattern as outlined in the work plan (Exponent 2000b). Specific core intervals that were sampled are provided in Table 2-9.

^d Two of the cores collected for consolidation testing were reserved for testing only if problems arose with testing the other cores; these two cores were not analyzed.

^e Ten sample intervals per core was the optimum number of intervals specified in the work plan (Exponent 2000b). However, full core recovery of 8-m was not always obtained. Information on specific core penetration and total recovery is provided in Table 2-9.

^f The presence of distinct layers observed in core sections deeper than 0.3 m occasionally increased the number of intervals collected in a core and altered the sectioning pattern as outlined in the work plan (Exponent 2000b). Specific core intervals that were sampled are provided in Table 2-9.

^g The presence of distinct layers observed in dredged material occasionally increased the number of intervals collected in a core. Specific core intervals that were sampled are provided in Table 2-11.

^h Three cores were collected at each station to obtain the volume of sediment required for analysis of the porewater. Three depth intervals were sampled in each core. Specific core intervals that were sampled are provided in Table 2-12.

ⁱ Whole adult fish were collected near the mouth and the area adjacent to Ninemile Creek and near the lake shore from Tributary 5A to Harbor Brook. Composite young-of-the-year fish were collected from the mouths of Ninemile Creek, East Flume, Ley Creek, Harbor Brook, Onondaga Creek, Sawmill Creek, and Bloody Brook.

^j Benthic macroinvertebrates collected for chemical analysis were collected from 7/28 through 8/2 at 15 stations, however as specified in the work plan (Exponent 2000b), these were not the same 15 stations that were used for analysis of species abundance and toxicity testing.

^k Benthic macroinvertebrates collected for chemical analysis were collected on 8/3 at the reference area.

Source: Exponent, 2001c

Table 2-9. Surface Sediment Station Locations, Water Depths, and General Sample Characteristics for Sediment Sampled in Onondaga and Otisco Lakes in 2000

Station	Location ^a		Water Depth ^b	Sample Depth	Sediment Characteristics ^d
	Easting	Northing	(m)	(m)	
Onondaga Lake					
S302	400045.9	4771589.4	9.0	0–0.15	Top 0–0.02 m grayish brown (2.5Y 5/2) silt; 0.02–0.15 m dark gray (2.5Y 4/1) silt, trace organic material and high moisture content, slight sulfide odor
S303	400182.7	4771855.6	16.5	0–0.15	Top 0–0.01 m light yellow brown (2.5Y 6/4) silt; 0.01–0.15 m very dark gray (10YR 3/1) silt with high moisture content and slight reducing odor
S304	400113.3	4771353.1	1.0	0-0.15	<i>Top 0-0.02 m super saturated, organic pieces (wood and plants); 0.02-0.15 m super saturated, fine to medium sand, some organic silt, few coarse sand, non-cohesive, soft to firm</i>
S305	400256.3	4771440.7	4.0	0–0.15	Top 0–0.01 m dark gray brown (10YR 4/2) silt and small amount of aquatic vegetation; 0.01–0.15 m very dark gray (10YR 3/1) silt, sulfide odor with few twigs and organic debris and chironomid, less moisture content than upper layer; amphipods observed on surface, non-cohesive, soft
S306	400614.5	4771448.7	2.0	0-0.15	<i>Top 0-0.04 m saturated, black (7.5YR 2.5/1), fine sand, little silt, few gastropods, unconsolidated, firm; 0.04-0.15 saturated, greyish brown (10YR 5/2) fine sand, little silt and organic material (plants and rootlets), trace clay, gastropods throughout, 1 cm x 1 cm wood fragment at 0.15 m, unconsolidated, firm</i>
S307	401971.9	4769273.7	1.0	0-0.15	<i>Top 0-0.09 m super saturated, very dark grey (N3/), coarse interval, round fine to medium gravel <2 cm diameter, oncolites with calcium carbonate centers, little fine to medium sand, trace silt, non-cohesive; 0.09-0.15 m wet, light gray (10YR 7/1), fine to medium gravel, trace silt, non-cohesive.</i>
S308	402335	4769048.3	7.5	0-0.15	<i>Super saturated, black (10YR 2/1), organic silt, organic material (twigs, leaves, and roots), non-cohesive</i>

Table 2-9. (cont.)

Station	Location ^a		Water Depth ^b	Sample Depth	Sediment Characteristics ^d
	Easting	Northing	(m)	(m)	
S309	402526	4768863.9	3.0	0-0.15	<i>Super saturated, black (10YR 2/1), silt, organic pieces, non-cohesive, loose</i>
S310	402828.8	4768923.6	7.0	0-0.15	<i>Super saturated, very dark grey (N3/), organic pieces and silt, loose, non-cohesive</i>
S311	403067.9	4768531.3	1.0	0-0.15	<i>Top 0-0.045 m wet, brown (10YR 4/3), weeds, coarse sand and silt, non-cohesive; 0.045-0.09 m wet, pale green (5G 7/2), fine sand-sized grained (possibly calcium carbonate material), hard at top 3mm; 0.09-0.15 m wet, white (2.5 7/1) fine sand-size grained calcareous material, soft, low cohesion, non-plastic</i>
S312	403292.4	4768574.4	2.5	0-0.15	<i>Top 0-0.10 m super saturated, dark gray (10YR 4/1) medium to coarse sand and silt, sand is black, sub-angular, may be ash (bottom); 0.10-0.15 wet, white (10YR 8/1), silt, few clay, laminated white and green, layers ~2 mm thick</i>
S312B				0-0.15	<i>Top 0-0.06 m wet, white (N8/), solidified calcareous material, little dark gray (N4/) very fine sand on bottom, possibly ash; 06-.06-0.13 m wet, gray (N6/) fine sand-sized calcareous material, non-solidified, streaks of medium sand, angular fragments, possibly ash; 0.13-0.15 m wet, white (N8/) fine sand-sized grained calcareous material, soft, moderate cohesion, non-</i>
S313	403432.3	4768278.2	0.5	0-0.15	<i>Wet, black (10YR 2/1), organic pieces (rootlet, twigs, etc) with little silt, little coarse sand, trace medium gravel, no odor</i>
S314	403418.1	4768361	1.5	0-0.15	<i>Wet, very dark gray (N3/), organic pieces and silt, low cohesion, non-plastic</i>
S315	403419.0	4768792.1	7.0	0-0.15	<i>Black (N2.5/) silt with high moisture content, little sheen, strong sewage odor, and detritus (twigs, roots and grass)</i>
S316	403714.8	4768647.8	2.0	0-0.15	<i>Top 0-0.10 m saturated, dark brown (10YR 3/3) fine to medium sand; 0.10-0.15 m saturated dark brown (10YR 3/3) fine to medium sand, some gastropods</i>

Table 2-9. (cont.)

Station	Location ^a		Water Depth ^b (m)	Sample Depth (m)	Sediment Characteristics ^d
	Easting	Northing			
S317	403668.4	4768794.2	3.5	0–0.15	Black (N2.5/) silt and clay with high moisture content, few small twigs and faint organic odor
S318	403921.5	4768790.2	1.0	0-0.15	<i>Super saturated, very dark gray (N3/), fine to medium sand, trace silt, trace organic pieces (rootlets), non-cohesive</i>
S319	403792.3	4769011.5	4.0	0-0.15	<i>Super saturated, very dark gray (N3/) and dark gray (N4/), organic silt, little decaying vegetation and rootlets, low cohesion, non-plastic</i>
S320	403648.7	4769229.9	8.5	0–0.15	Black (N2.5/) (10YR2/1) organic silt with lighter very dark gray (N3/) streaks on surface, faint petroleum odor and few organic pieces (roots)
S321	404042.3	4769009.4	1.0	0-0.15	<i>Moist, gray (5YR 6/1) fine to medium sand, angular, comprised of shell fragments, some silt</i>
S322	404044	4769444.3	2.0	0-0.15	<i>Super saturated, black (10YR 2/1) organic silt, trace clay, trace to few organic pieces (rootlets, twigs), sediment is muck-like with faint odor of petroleum</i>
S323	403923.3	4769605.6	3.5	0–0.15	Grayish brown (2.5Y 5/2) fine-grained well-sorted silty sand with tubes on surface and petroleum odor; sediment from 0.6–0.15 less moisture content than upper layer <i>Black (10YR2/1) loose organic silt with twigs and roots, low cohesion, non-plastic</i>
S332	402233.3	4769093.2	4.0	0–0.15	Top 0–0.04 m light-olive brown (2.5Y 5/3) medium to fine poorly sorted sand with a little silt; 0.04–0.15 m dark gray (10YR 4/1) silt with sheen and slight petroleum odor
S333	402214.7	4768984.5	0.5	0-0.15	<i>Top 0-0.06 m silty sand, fine grained, fairly well sorted, gray (5YR5/1), "puck layer" at 6 cm, moderate oil odor, grass shoots; 0.06-0.13 m black silt (N2.5/), sheen, moderate oil odor; 0.13-0.15 m black silt, more sheen, moderate oil odor</i>
S334	402235.7	4768964.7	0.5	0-0.15	<i>Top 0-0.14 m black sandy silt (2.5/), sheen, petroleum odor; 0.14-0.15 m very dark gray compacted silt, sheen, petroleum odor</i>
S335	402244.6	4768948.4	0.5	0-0.15	<i>Silt with sand, black (N2.5/)</i>

Table 2-9. (cont.)

Station	Location ^a		Water Depth ^b (m)	Sample Depth (m)	Sediment Characteristics ^d
	Easting	Northing			
S336	402269.4	4768921.4	0.5	0-0.15	<i>Very dark gray (10YR 2/1) gravel with dark gray brown (10YR 3/2) rocks at surface removed</i>
S337	402316.9	4768962.6	5.0	0-0.15	<i>Very dark gray (7.5YR 3/1) silt with small amount of brown (7.5YR 4/2) on surface, high moisture content, slight petroleum odor Black (10YR2/1) loose organic silt with twigs and roots</i>
S338	402401.7	4768829.7	4.5	0-0.15	<i>Black (N2.5/) silt, some organic debris, sheen from 0.00-0.30 m, petroleum odor</i>
S339	402321.2	4768858.9	1.5	0-0.15	<i>Black (N2.5/) silt, shiny, sheen from 0.00-0.30 m, petroleum odor, large rock (4 cm diameter) removed</i>
S340	402526.3	4768767.8	0.5	0-0.15	<i>Top 0-0.03 m reddish brown (5YR 4/4) gravel and organic debris, little silt, chemical odor; 0.03-0.05 m light bluish-gray (5B 8/1) silt with hard striations; 0.05-0.15 m white (N/8) silt with hard striations</i>
S341	402651.7	4768744.6	0.5	0-0.15	<i>Top 0-0.05 m dark gray (N4/) silt with sand and chunks of carbonate, chemical odor; 0.05-0.15 m bluish gray (5B 5/1) compacted silt with carbonate chunks, chemical odor</i>
S342	402667.2	4768921.4	4.0	0-0.15	<i>Top 0-0.01 m slanted surface of brown-yellow (10YR 76) sandy silt; 0.01-0.03 m gray (5YR 6/1) silt with trace fine sand; 0.03-0.15 m pale green (5G 7/2) silt with chemical odor Silty sand, 0-0.04 m brown and black, 0.04-0.15 m medium gray, strong sewage odor, chunks of calcareous material</i>
S343	402838.8	4768711.6	1.0	0-0.15	<i>0-0.05 m brown (7.5YR 4/4) sand and dark gray (7.5YR 4/1) silt, odor; 0.05-0.15 m white (N/8) silt, odor</i>
S344	403005.8	4768845.3	3.5	0-0.15	<i>Top 0-0.01 m slanted surface of brown-yellow (10YR 76) silt; 0.01-0.15 m very dark gray (2.5Y 3/1) clayey silt with trace-some fine sand with sheen on surface, petroleum odor</i>
S345	402958.4	4768634.9	1.0	0-0.15	<i>White (5YR 8/1) and gray (5YR 6/1; 5YR 5/1) silt, compacted, chunky, odor</i>

Table 2-9. (cont.)

Station	Location ^a		Water Depth ^b (m)	Sample Depth (m)	Sediment Characteristics ^d
	Easting	Northing			
S346	402957	4768569.4	0.5	0-0.15	<i>Top 0-0.02 m brown (10YR 4/3) gravel with chironomids (25 mm diameter), chemical odor; 0.02-0.15 m white (10YR 8/1) silt with gray (10YR 5/1) and light gray (10YR 7/1), chemical odor, visible petroleum at 0.10 m</i>
S347	403049.8	4768637.6	1.0	0-0.15	<i>Top 0-0.02 m brown (10YR 4/3) sand; 0.02-0.15 m white (10YR 8/1) silt with streaks of very dark gray (10YR 4/1), dark gray (10YR 5/1), gray (10YR 6/1; 10YR 5/1) and light gray (10YR 7/1), odor from 0.04 to 0.20 m</i>
S348	403173.6	4768452.5	1.0	0-0.15	<i>White (2.5Y 8/1) silt with some medium grained sand, chemical odor, moderate moisture content</i>
S349	403185	4768380.8	0.5	0-0.15	<i>Top 0-0.07 m black (N 2.5/) coarse sand, chemical odor; 0.07-0.15 m light green gray (5G 7/1) silt with sand, chemical odor</i>
S350	403284.4	4768334.6	0.5	0-0.15	<i>Top 0-0.01 m dark gray (N4/) silt; 0.01-0.15 m pale green (5G 8/2; 5G 7/2) and dark gray (N4/) silt with coarse sand from 0.10-0.15 m</i>
S351	403421.9	4768257.9	0.5	0-0.15	<i>Black (N2.5/) silt with sand (fraction and grain size increasing with depth), shiny, petroleum odor</i>
S352	403530.4	4768247	0.5	0-0.15	<i>Dark gray silty sand, slight petroleum odor</i>
S353	403667.6	4768356.4	0.5	0-0.15	<i>Dark gray brown fine to coarse sand, trace silt, petroleum/sewage odor</i>
S354	402668.6	4769174.2	17.0	0-0.15	<i>A few spots of light yellow-brown (2.5Y 6/4) silt on surface; black (2.5Y 2.5/1) silt, shiny without sheen, high moisture content Dark gray silt with petroleum odor, high gas content</i>
S355	403184.5	4769423.8	16.5	0-0.15	<i>Very dark gray (5YR 3/1) silt, shiny without sheen, high moisture content, sulfide petroleum odor</i>
S357	398892.6	4772828	0.5	0-0.15	<i>Top 0-0.02 m fine sand with trace organics, algae; 0.02-0.05 m medium brown medium to fine sand; 0.05-0.15 m light gray medium sand, oncolites and shells present</i>

Table 2-9. (cont.)

Station	Location ^a		Water Depth ^b (m)	Sample Depth (m)	Sediment Characteristics ^d
	Easting	Northing			
S358	399790.4	4771377.7	0.5	0-0.15	<i>Top 0-0.03 m gravel with pebbles, algae; 0.03-0.08 m light brown medium to fine sand, trace silt; 0.08-0.15 m light gray silty sand, oncolites, trace shells</i>
S359	399906.9	4771230.3	0.5	0-0.15	<i>Top 0-0.05 m fine brown sand, some silt; 0.05-0.15 medium brown sand, trace silt and medium gravel, roots and branches present</i>
S360	400215.4	4771189.8	0.5	0-0.15	<i>Top 0-0.03 m olive brown silt; 0.05-0.15 m very dark gray silt, organic decomposing odor</i>
S363	401258.8	4770487.5	0.5	0-0.15	<i>Top 0-0.04 m olive sand; 0.04-0.15 m olive brown to gray to medium gray sand, laminated</i>
S365	401833.5	4769636.3	4.0	0-0.15	<i>0-0.02 m zebra mussels on light olive-brown sand and hard calcareous layer; 0.02-0.09 m medium gray silt; 0.09-0.15 m greenish-gray crusty silt with petroleum odor 0-0.03 m olive-brown silt, 0.03-0.04 m black silt, 0.04-0.15 dark nitrile green silt</i>
S370	401569.6	4772374.8	0.5	0-0.15	<i>Top 0-0.02 m brown fine to medium sand, trace silt, trace organics; 0.02-0.15 m brown fine to medium sand, trace silt, trace organics, medium oncolites</i>
S371	401431.6	4772378.3	2.5	0-0.15	<i>Olive brown silt, trace sand, organics</i>
S372	400421.4	4773136.7	1.5	0-0.13 ^c	<i>Grayish brown (2.5Y 5/2) sand with lots of aquatic vegetation on surface and gastropod and shell fragments; no odor in sample but sulfide odor released when dredge became free of sediment surface</i>
S373	399897.2	4773667.8	4.0	0-0.15	<i>Top 0-0.02 m olive brown silt; 0.02-0.15 m olive brown silt with some sand</i>
S374	399336.7	4773918.5	3.0	0-0.15	<i>Top 0-0.05 m light brown medium sand, trace fine sand, trace silt; 0.05-0.15 m light beige fine to medium sand, trace silt, some shells</i>
S400	401994.2	4769317.3	3.0	0-0.14 ^c	<i>0-0.02 m zebra mussels on light olive-brown sand and hard calcareous layer; 0.02-0.14 m medium gray silt</i>
S401	402468.5	4768907.1	5.0	0-0.14 ^c	<i>0-0.02 m light olive-brown sand and hard calcareous layer; 0.02-0.14 m medium gray silt</i>

Table 2-9. (cont.)

Station	Location ^a		Water Depth ^b (m)	Sample Depth (m)	Sediment Characteristics ^d
	Easting	Northing			
S402	402637.9	4768835.4	0.5	0–0.10 ^c	Filamentous algae and zebra mussels on surface with fine green-brown sand; 0.01–0.04 m hard calcareous layer; 0.04–0.10 m light to medium gray layered silt
S403	402928.7	4768752.0	1.0	0–0.05 ^c	Filamentous algae and zebra mussels on surface with fine green-brown sand; 0.01–0.05 m layers of shades of gray and white throughout hard calcareous layer; whitish gray paste below (unable to penetrate)
S404	403161.2	4768622.3	1.5	0–0.07 ^c	0–0.05 m light brown-green medium sand with trace silt; 0–0.05–0.07 m trace gravel with hard calcareous light green-gray layer; sheen observed in one grab
S405	403300.8	4768755.6	5.0	0–0.15	0–0.04 m very black gray silt with sheen; 0.04–0.15 m medium to dark brown silt with sheen
S406	403338.7	4768465.5	1.5	0–0.14 ^c	Top 0–0.01 m dark olive-brown silt with some fine sand; 0.01–0.14 m medium gray silt with sheen
S407	403560.4	4768603.8	3.5	0–0.15	0–0.15 m dark gray fine silt with brown spots with some black organic debris and sheen
S410	402362.0	4768819.8	3.0	0–0.02	Black to dark gray silt with sheen on surface
S411	402382.0	4768850.6	4.0	0–0.02	Black to dark gray silt with sheen on surface
S412	402415.3	4768920.5	5.0	0–0.02	Brownish gray silt with sheen on surface
S413	402419.3	4768947.3	6.0	0–0.02	Brownish gray silt with sheen on surface
S414	402433.2	4768970.0	7.0	0–0.02	Greenish gray silt with worm tubes and sheen on surface
S415	402441.9	4768986.0	8.0	0–0.02	Grayish black silt with high moisture content with worm tubes and sheen on surface
S416	402822.0	4768895.3	3.0	0–0.02	Brown sandy silt with fine gravel and petroleum odor
S417	402822.4	4768898.3	4.0	0–0.02	Top 0–0.005 m brown sandy silt; 0.005–0.02 m fine gray silt with petroleum odor

Table 2-9. (cont.)

Station	Location ^a		Water Depth ^b (m)	Sample Depth (m)	Sediment Characteristics ^d
	Easting	Northing			
S418	402827.8	4768902.3	5.0	0–0.02	0–0.002 m brown silt; 0.002–0.02 m gray silty sand and some gravel with strong petroleum odor
S419	402874.5	4768904.1	6.0	0–0.02	Top 0–0.0025 m greenish-brown silt with sand; 0.0025–0.02 m dark gray-black silt with petroleum odor
S420	402868.6	4768919.7	7.0	0–0.02	Fine grain silt with sheen
S421	402874.4	4768923.7	8.0	0–0.02	Top 0–0.005 m fine greenish-brown silt; 0.005–0.02 m fine dark gray to black silt
S422	403188.6	4768740.9	3.0	0–0.02	Gray-brown silt with trace sand and petroleum odor
S423	403193.3	4768779.4	4.0	0–0.02	Top 0–0.01 m dark olive-brown silt with some fine sand; 0.01–0.02 m medium gray silt with strong petroleum odor and sheen
S424	403194.2	4768791.1	5.0	0–0.02	Top 0–0.005 m medium olive-brown silt with trace fine sand; 0.005–0.02 m dark gray silt with sheen and petroleum odor
S425	403197.8	4768822.3	6.0	0–0.02	Dark brownish-gray silt with trace sand and petroleum odor
S426	403211.7	4768821.7	7.0	0–0.02	Dark gray silt with trace fine sand, high moisture content, petroleum odor
S427	403223.2	4768837.7	8.0	0–0.02	Very dark gray silt with some fine sand, petroleum odor
S428	403526.7	4768521.8	3.0	0–0.02	Black silt with trace fine sand, high moisture content, slight sheen, and sewage odor
S429	403523.9	4768599.0	4.0	0–0.02	Black silt with trace fine sand, high moisture content, slight sheen, and strong sewage odor
S430	403502.1	4768670.2	5.0	0–0.02	Black silt with trace fine sand, high moisture content, sheen, and strong sewage odor
S431	403496.4	4768735.5	6.0	0–0.02	Black silt with trace fine sand, high moisture content, sheen, and mixture of sewage and petroleum odor
S432	403494.1	4768818.7	7.0	0–0.02	Black silt with trace fine sand, high moisture content, sheen, and mixture of sewage and petroleum odor

Table 2-9. (cont.)

Station	Location ^a		Water Depth ^b (m)	Sample Depth (m)	Sediment Characteristics ^d
	Easting	Northing			
S433	403485.5	4768861.6	8.0	0–0.02	Black fine-grain silt with high water content and little sheen
S434	401998.9	4769234.4	0.5	0–0.15	
S435	401967.8	4769243.4	0.5	0–0.05	Black silt with oncolites and plastic consistency and strong odor
Otisco Lake					
OT-6			5.0	0–0.15	Top 0–0.01 m zebra mussels on slightly slanted surface, brown (7.5YR 4/3) silt; 0.01–0.15 m color change to dark brown (7.5YR 3/3) silt with large pieces of wood debris, shell fragments, wood fibers, chironomid; amphipod observed in overlying water
	393249.5	4749308.0			
OT-7	393240.9	4749023.3	9.0	0–0.15	Dark gray-brown (10YR 4/2) silt with small amount of black wood fibers throughout sample, slight reducing odor

Notes: ^a Coordinates in UTM NAD27 meters.

^b Water depths are rounded to the nearest 0.5 m.

^c Average sample depth; penetration calculated using multiple grabs collected at a specific station.

^d Logs which are not available include: S356, S361, S362, S364, S366, S367, S368, S369, S401- S432, S435, OT6, and OT7.

^e Some of the sediment characteristics descriptions provided by Exponent in this table could not be confirmed with the logs included in the RI. Additional log descriptions are in italics. Where logs provided conflicted with table provided by Exponent, both versions are included.

**Table 2-10. Station Locations, Water Depths, and Core Depths for Subsurface Sediments
Sampled in Onondaga Lake in 2000**

Station	Location ^a		Water Depth ^b (m)	Core Penetration (m)	Total Recovery (m)	Sampled Core Intervals (m)	
	Easting	Northing				Upper	Lower
Onondaga Lake							
0.3-m Cores							
S356	398757.7	4773115.4	0.5	0.3	0.3	0	0.15
						0.15	0.3
S357	398892.6	4772828.0	0.5	0.3	0.3	0	0.02
						0.02	0.15
						0.15	0.3
S358	399790.4	4771377.7	0.5	0.3	0.3	0	0.15
						0.15	0.3
S359	399906.9	4771230.3	0.5	0.3	0.3	0	0.15
						0.15	0.3
S360	400215.4	4771189.8	0.5	0.3	0.3	0	0.02
						0.02	0.15
						0.15	0.3
S361	400895.5	4771275.0	1.5	0.3	0.3	0	0.15
						0.15	0.3
S362	400788.0	4771127.0	1.5	0.3	0.3	0	0.15
						0.15	0.3
S363	401258.8	4770487.5	0.5	0.3	0.3	0	0.02
						0.02	0.15
						0.15	0.3
S364	401614.4	4770053.4	3.0	0.3	0.3	0	0.15
						0.15	0.3
S365	401833.5	4769636.3	4.0	0.3	0.3	0	0.15
						0.15	0.3
S366	403868.6	4769829.1	1.5	0.3	0.3	0	0.15
						0.15	0.3
S367	403342.3	4770432.8	1.5	0.3	0.3	0	0.02
						0.02	0.15
						0.15	0.3
S368	402876.8	4770959.1	2.0	0.3	0.3	0	0.15
						0.15	0.3
S369	402241.7	4771839.5	0.5	0.3	0.3	0	0.15
						0.15	0.3
S370	401569.6	4772374.8	0.5	0.3	0.3	0	0.02
						0.02	0.15
						0.15	0.3
S371	401431.6	4772378.3	2.5	0.3	0.3	0	0.15
						0.15	0.3
S372	400421.4	4773136.7	1.5	0.3	0.3	0	0.15
						0.15	0.3
S373	399897.2	4773667.8	4.0	0.3	0.3	0	0.02
						0.02	0.15
						0.15	0.3
S374	399336.7	4773918.5	3.0	0.3	0.3	0	0.15
						0.15	0.3

Table 2-10. (cont.)

Station	Location ^a		Water Depth ^b (m)	Core Penetration (m)	Total Recovery (m)	Sampled Core Intervals (m)	
	Easting	Northing				Upper	Lower
2-m Cores							
S324	401514.4	4770274.2	4.5	1.96	1.96	0	0.15
						0.15	0.3
						0.3	1
						1	1.96
S325	401823.1	4769457.8	0.5	2.1	2.1	0	0.02
						0.02	0.15
						0.15	0.3
						0.3	1
						1	2
S326	401894.4	4769513.7	7.0	2.35	2.35	0	0.15
						0.15	0.3
						0.3	1
						1	2
S327	401963.0	4769432.2	6.5	2.20	2.00	0	0.15
						0.15	0.3
						0.3	0.6
						0.6	1.4
						1.4	1.96
S328	402044.5	4769189.8	1.0	1.81	1.81	0	0.15
						0.15	0.3
						0.3	1
						1	1.81
S329	402083.7	4769241.7	1.5	2.05	2.05	0	0.15
						0.15	0.3
						0.3	1
						1	2
S330	402131.4	4769089.6	0.5	1.99	1.99	0	0.15
						0.15	0.3
						0.3	1
						1	1.99
S331	402212.6	4769187.5	7.0	2.16	2.16	0	0.15
						0.15	0.3
						0.3	1
						1	2
S332	402233.3	4769093.2	4.0	2.00	2.00	0	0.15
						0.15	0.3
						0.3	1
						1	2
S333	402214.7	4768984.5	0.5	2.30	1.93	0	0.15
						0.15	0.3
						0.3	1
						1	1.93
S334	402235.7	4768964.7	0.5	2.20	2.00	0	0.15
						0.15	0.3
						0.3	1.1
						1.1	2

Table 2-10. (cont.)

Station	Location ^a		Water Depth ^b (m)	Core Penetration (m)	Total Recovery (m)	Sampled Core Intervals (m)	
	Easting	Northing				Upper	Lower
S335	402244.6	4768948.4	0.5	2.15	1.90	0	0.15
						0.15	0.3
						0.3	1
						1	1.9
S336	402269.4	4768921.4	0.5	2.20	1.40	0	0.15
						0.15	0.3
						0.3	1
						1	1.4
S337	402316.9	4768962.6	5.0	2.20	1.78	0	0.15
						0.15	0.3
						0.3	1
						1	1.78
S338	402401.7	4768829.7	4.5	2.20	1.80	0	0.15
						0.15	0.3
						0.3	1.3
						1.3	1.8
S339	402321.2	4768858.9	1.5	2.60	2.80	0	0.15
						0.15	0.3
						0.3	1
						1	1.68
S340	402526.3	4768767.8	0.5	2.30	2.70	0	0.02
						0.02	0.15
						0.15	0.3
						0.3	1
S341	402651.7	4768744.6	0.5	2.10	2.10	0	0.15
						0.15	0.3
						0.3	0.85
						0.85	1.6
S342	402667.2	4768921.4	4.0	2.19	2.19	0	0.15
						0.15	0.3
						0.3	1
						1	2
S343	402838.8	4768711.6	1.0	2.40	2.56	0	0.15
						0.15	0.3
						0.3	1
						1	2
S344	403005.8	4768845.3	3.5	1.75	1.75	0	0.15
						0.15	0.3
						0.3	1
						1	1.75
S345	402958.4	4768634.9	1.0	2.30	2.20	0	0.15
						0.15	0.3
						0.3	1
						1	2

Table 2-10. (cont.)

Station	Location ^a		Water Depth ^b (m)	Core Penetration (m)	Total Recovery (m)	Sampled Core Intervals (m)	
	Easting	Northing				Upper	Lower
S346	402957.0	4768569.4	0.5	2.20	2.32	0	0.15
						0.15	0.3
						0.3	1.6
						1.6	2
S347	403049.8	4768637.6	1.0	2.20	2.80	0	0.15
						0.15	0.3
						0.3	1
						1	2
S348	403173.6	4768452.5	1.0	2.20	2.60	0	0.15
						0.15	0.3
						0.3	1
						1	2
S349	403185.0	4768380.8	0.5	2.10	2.60	0	0.15
						0.15	0.3
						0.3	1
						1	2
S350	403284.4	4768334.6	0.5	2.20	2.10	0	0.15
						0.15	0.3
						0.3	0.92
						0.92	2
S351	403421.9	4768257.9	0.5	2.10	1.80	0	0.02
						0.02	0.15
						0.15	0.3
						0.3	1
S352	403530.4	4768247.0	0.5	2.00	2.00	0	0.15
						0.15	0.3
						0.3	1
						1	2
S353	403667.6	4768356.4	0.5	2.13	2.13	0	0.15
						0.15	0.3
						0.3	1
						1	2
S354	402668.6	4769174.2	17.0	2.00	2.00	0	0.15
						0.15	0.3
						0.3	1
						1	2
S355	403184.5	4769423.8	16.5	2.00	2.00	0	0.15
						0.15	0.3
						0.3	1
						1	2
S434	401998.9	4769234.4	0.5	2.00	2.00	0	0.15
						0.15	0.3
						0.3	1
						1	2

Table 2-10. (cont.)

Station	Location ^a		Water Depth ^b (m)	Core Penetration (m)	Total Recovery (m)	Sampled Core Intervals (m)	
	Easting	Northing				Upper	Lower
8-m Cores							
S301	399832.6	4771480.2	6.0	8.00	7.32	0	0.15
						0.15	0.3
						0.3	0.56
						0.56	1.56
						1.56	2.56
						2.56	3.56
						3.56	4.37
						4.37	5.37
						5.37	6.37
						6.37	7.3
S302	400045.9	4771589.4	9.0	8.00	7.63	0	0.15
						0.15	0.3
						0.3	0.59
						0.59	1.59
						1.59	2.59
						2.59	3.59
						3.59	4.59
						4.59	5.59
						5.59	6.59
						6.59	7.61
S303	400182.7	4771855.6	16.5	8.00	6.81	0	0.15
						0.15	0.3
						0.3	1
						1	2
						2	3
						3	4
						4	5
						5	6
						6	6.81
S304	400113.3	4771353.1	1.0	8.00	7.27	0	0.15
						0.15	0.3
						0.3	1
						1	2
						2	3
						3	4
						4	5
						5	6
						6	7
						7	7.27
S305	400256.3	4771440.7	4.0	8.00	7.36	0	0.15
						0.15	0.3
						0.3	1
						1	2
						2	3
						3	4

Table 2-10. (cont.)

Station	Location ^a		Water Depth ^b (m)	Core Penetration (m)	Total Recovery (m)	Sampled Core Intervals (m)							
	Easting	Northing				Upper	Lower						
S305						4	5						
						5	6						
						6	6.35						
						6.35	6.92						
						6.92	7.37						
						0	0.15						
						0.15	0.3						
S306	400614.5	4771448.7	2.0	8.00	7.36	0.3	1						
						1	2						
						2	3						
						3	4						
						4	5						
						5	6						
						6	7						
						7	7.32						
						0	0.15						
						0.15	0.3						
						0.3	1						
						1	2						
						2	3						
						3	4						
S307	401971.9	4769273.7	1.0	7.10	5.77	4	5						
						5	6						
						5	5.77						
						0	0.15						
						0.15	0.3						
						0.3	1						
						1	2						
						2	2.59						
						2.59	3.59						
						3.59	4.59						
						4.59	5.59						
						4.59	5.59						
						5.59	5.89						
						5.59	5.89						
S308	402335.0	4769048.3	7.5	8.00	5.89	0	0.15						
						0.15	0.3						
						0.3	1						
						1	2						
						2	2.59						
						2.59	3.59						
						3.59	4.59						
						4.59	5.59						
						4.59	5.59						
						5.59	5.89						
						5.59	5.89						
						S309	402526.0	4768863.9	3.0	7.80	7.90	0	0.15
												0.15	0.3
												0.3	0.74
0.74	1.74												
1.74	2.74												
2.74	3.74												
3.74	4.74												
4.74	5.78												
5.78	6.27												
6.27	6.74												
6.27	6.74												
6.74	6.96												
6.74	6.96												
6.96	7.3												
6.96	7.3												
7.3	7.89												

Table 2-10. (cont.)

Station	Location ^a		Water Depth ^b (m)	Core Penetration (m)	Total Recovery (m)	Sampled Core Intervals (m)	
	Easting	Northing				Upper	Lower
S310	402828.8	4768923.6	7.0	8.02	7.29	0	0.15
						0.15	0.3
						0.3	1
						1	2
						2	3
						3	4
						4	5
S311	403067.9	4768531.3	1.0	8.00	5.97	5	6
						6	6.53
						6.53	7.24
						0	0.15
						0.15	0.3
						0.3	1
						1	2
S312	403292.4	4768574.4	2.5	8.00	6.95	2	3
						3	4
						4	5
						5	5.97
						0	0.15
						0.15	0.3
						0.3	1
S313	403432.3	4768278.2	0.5	8.00	7.98	1	2
						2	3
						3	4
						4	5
						5	6
						6	6.95
						0	0.15
S314	403418.1	4768361.0	1.5	7.80	8.08	0.15	0.3
						0.3	1
						1	2
						2	3
						3	4
						4	5
						5	6
6	7						
7	8						
0	0.15						
0.15	0.3						
0.3	1						
1	2						
2	3						
3	4						
4	5						
5	6						
6	7						
7	8						

Table 2-10. (cont.)

Station	Location ^a		Water Depth ^b (m)	Core Penetration (m)	Total Recovery (m)	Sampled Core Intervals (m)	
	Easting	Northing				Upper	Lower
S315	403419.0	4768792.1	7.0	8.00	7.69	0	0.15
						0.15	0.3
						0.3	1
						1	2
						2	3
						3	4
						4	5
S316	403714.8	4768647.8	2.0	7.80	7.36	5	6
						6	6.73
						6.73	7.67
						0	0.15
						0.15	0.3
						0.3	1
						1	2
S317	403668.4	4768794.2	3.5	8.00	6.83	2	3
						3	4
						4	5
						5	6
						6	7
						7	7.36
						0	0.15
S318	403921.5	4768790.2	1.0	8.00	7.86	0.15	0.3
						0.3	1
						1	2
						2	3
						3	4
						4	5
						5	6
S319	403792.3	4769011.5	4.0	8.00	8.00	6	6.83
						6.83	7.86
						0	0.15
						0.15	0.3
						0.3	1
						1	2
						2	3
S319	403792.3	4769011.5	4.0	8.00	8.00	3	4
						4	5
						5	6
						6	7
						7	7.86
						0	0.15
						0.15	0.3
S319	403792.3	4769011.5	4.0	8.00	8.00	0.3	1
						1	2
						2	3
						3	4
						4	5
						5	6
						6	7
S319	403792.3	4769011.5	4.0	8.00	8.00	7	8
						7	8

Table 2-10. (cont.)

Station	Location ^a		Water Depth ^b (m)	Core Penetration (m)	Total Recovery (m)	Sampled Core Intervals (m)	
	Easting	Northing				Upper	Lower
S320	403648.7	4769229.9	8.5	8.00	7.08	0	0.15
						0.15	0.3
						0.3	1
						1	2
						2	3
						3	4
						4	5
						5	6
						6	7
						7	8
S321	404042.3	4769009.4	1.0	8.00	8.01	0	0.15
						0.15	0.3
						0.3	1
						1	2
						2	3
						3	4
						4	5
						5	6
						6	7
						7	8
S322	404044.0	4769444.3	2.0	8.00	7.85	0	0.15
						0.15	0.3
						0.3	1
						1	2
						2	3
						3	4
						4	5
						5	6
						6	7
						7	8
S323	403923.3	4769605.6	3.5	8.00	7.88	0	0.15
						0.15	0.3
						0.3	1
						1	2
						2	3
						3	4
						4	5
						5	6
						6	7
						7	7.88

Table 2-10. (cont.)

Station	Location ^a		Water Depth ^b (m)	Core Penetration (m)	Total Recovery (m)	Sampled Core Intervals (m)		
	Easting	Northing				Upper	Lower	
2.5-m Cores								
S302	400045.9	4771589.4	9.0	2.50	2.50	NA ^c	NA ^c	
S311	403067.9	4768531.3	1.0	2.50	2.50	NA ^c	NA ^c	
S312	403292.4	4768574.4	2.5	2.50	2.50	NA ^c	NA ^c	
S315	403419.0	4768792.1	7.0	2.50	2.50	NA ^c	NA ^c	
S339	402321.2	4768858.9	1.5	2.50	2.50	NA ^c	NA ^c	
S341	402651.7	4768744.6	0.5	2.50	2.50	NA ^c	NA ^c	
S342	402667.2	4768921.4	4.0	2.50	2.50	NA ^c	NA ^c	
S343	402838.8	4768711.6	1.0	2.50	2.50	NA ^c	NA ^c	
S344	403005.8	4768845.3	3.5	2.50	2.50	NA ^c	NA ^c	
S351	403421.9	4768257.9	0.5	2.50	2.50	NA ^c	NA ^c	
<i>In Situ</i> Shear Test Cores								
S302	400045.9	4771589.4	9.0	8.0	NA ^d	NA ^d	NA ^d	
S309	402526.0	4768863.9	3.0	8.0	NA ^d	NA ^d	NA ^d	
S310	402828.8	4768923.6	7.0	8.0	NA ^d	NA ^d	NA ^d	
S311	403067.9	4768531.3	1.0	8.0	NA ^d	NA ^d	NA ^d	
S312	403292.4	4768574.4	2.5	8.0	NA ^d	NA ^d	NA ^d	
S314	403418.1	4768361.0	1.5	8.0	NA ^d	NA ^d	NA ^d	
S315	403419.0	4768792.1	7.0	8.0	NA ^d	NA ^d	NA ^d	
S338	402401.7	4768829.7	4.5	2.00	NA ^d	NA ^d	NA ^d	
S339A	402456.5	4768795.6	1.5	2.00	NA ^d	NA ^d	NA ^d	
S340VS	402486.4	4768781.9	0.5	2.00	NA ^d	NA ^d	NA ^d	
S341A	402706.8	4768819.8	0.5	2.00	NA ^d	NA ^d	NA ^d	
S342A	402666.1	4768914.8	4.0	2.00	NA ^d	NA ^d	NA ^d	
S343	402838.8	4768711.6	1.0	2.00	NA ^d	NA ^d	NA ^d	
S344	403005.8	4768845.3	3.5	2.00	NA ^d	NA ^d	NA ^d	
S346VS	402983.3	4768635.7	0.5	2.00	NA ^d	NA ^d	NA ^d	
S347	403049.8	4768637.6	1.0	2.00	NA ^d	NA ^d	NA ^d	
S348	403173.6	4768452.5	1.0	2.00	NA ^d	NA ^d	NA ^d	
S350	403284.4	4768334.6	0.5	2.00	NA ^d	NA ^d	NA ^d	
S351A	403350.6	4768288.8	0.5	2.00	NA ^d	NA ^d	NA ^d	
S352VS	403457.6	4768298.1	0.5	2.00	NA ^d	NA ^d	NA ^d	

Notes: ^a Coordinates in UTM NAD27 meters.

^b Water depths are rounded to the nearest 0.5 m.

^c The 2.5-m cores for consolidation testing were transported intact to the local testing in an upright position.

^d *In situ* shear tests of sediment; no sample was collected. Shear testing was performed at 1-m intervals down to the specified core penetration depth.

Source: Exponent, 2001c

Table 2-11. Wetland Sediment Station Locations and General Sample Characteristics for Sediment Sampled in Onondaga Lake Wetlands in 2000

Station	Location ^a		Sample Depth (m)	Sediment Characteristics
	Easting	Northing		
Area SYW-6				
S375	398880.7	4772718.5	0–0.15	Top 0–0.02 m wood chips mixed into dark brown clay with large amount of organic material (roots); 0.02–0.15 m dark brown clay with large amount of organic material (roots)
			0.15–0.3	Dark brown clay with large amount of organic material (roots)
S376	398801.6	4772957.7	0–0.15	Medium brown clayey silt with medium sand and white substance and trace organic material
			0.15–0.3	Medium brown silty clay with medium sand and white substance and trace organic material
S377	398648.1	4773327.5	0–0.15	Top 0–0.03 m sand with oncolites and shells; 0.03–0.13 m root mat and dark brown silt and clay; 0.13–0.15 m light brown marled medium to coarse sand layer mixed with some silt and trace clay
			0.15–0.3	Light brown marled medium to coarse sand layer mixed with some silt and trace clay
S378	398680.5	4773201.0	0–0.15	Intermittent intervals of fine to coarse sand with shells mixed with intervals of dark brown silt
			0.15–0.3	Intermittent intervals of fine to coarse sand with shells mixed with intervals of dark brown silt
Area SYW-10				
S379	399812.7	4771299.8	0–0.15	Top 0.01 m brown silt with organic material (roots); 0.02–0.15 m light blue-gray clay with some darker streaks
			0.15–0.3	Very dark brown silt with trace sand and organic material (roots), low moisture content
S380	399863.9	4771251.5	0–0.15	Top 0–0.05 m moist dark brown silty sand with some gravel; 0.05–0.15 m moist light gray-brown medium to coarse sand with trace gravel and dark brown silt and organic material (roots) mixed in

Table 2-11. (cont.)

Station	Location ^a		Sample Depth (m)	Sediment Characteristics
	Easting	Northing		
			0.15–0.3	Moist light gray-brown medium to coarse sand with trace gravel and trace silt and organic material (roots)
S381	399913.3	4771252.3	0–0.15	Medium brown silty clay with some organic material (roots)
			0.15–0.3	Light brown plastic clay with some organic material (roots) and oxidation (i.e., blackening)
S382	399966.1	4771267.3	0–0.15	Top 0–0.05 m brown silt with organic material; 0.05–0.15 m light gray clay with trace silt and sand and oxidation (i.e., black and gold streaks)
			0.15–0.3	Light gray clay with trace silt and sand and oxidation (i.e., black and gold streaks)
Area SYW-12				
S387	404186.6	4769386.9	0–0.15	Medium to coarse brown-orange sand
			0.15–0.3	Medium to coarse brown-orange sand; 0.28–0.3 m medium to coarse bright orange sand
S388	404123.7	4769055.9	0–0.15	Top 0–0.05 m fine light brown sand with organic material; 0.05–0.15 m fine light brown sand
			0.15–0.3	Fine light brown sand
S389	404199.4	4769316.6	0–0.15	Brown silty medium sand with trace gravel and organic material
			0.15–0.3	Brown to dark brown silt and sand with trace roots and shells
S390	404118.3	4769234.3	0–0.15	Brown medium sand with trace silt
			0.15–0.3	Top 0.15–0.25 m medium dark brown sand with trace silt; 0.25–0.3 m very dark brown silt with strong petroleum odor
Area SYW-19				
S383	403391.7	4768252.3	0–0.15	Top 0.05 m olive-brown sand with organic material (roots and fibers); 0.05–0.15 m dark olive-brown medium to fine sand with organic material (roots and fibers)
			0.15–0.3	Dark olive brown medium to fine sand with organic material (roots and fibers)

Table 2-11. (cont.)

Station	Location ^a		Sample Depth (m)	Sediment Characteristics
	Easting	Northing		
S384	403469.7	4768247.7	0–0.15	Top 0.03 m medium to fine sand with large amount of organic material; 0.03–0.15 m very dark brown fine to medium sand with trace amount of organic material (roots)
			0.15–0.3	Very dark brown fine to medium sand with trace amount of organic material (roots)
S385	403273.7	4768319.5	0–0.15	Top 0.02 m covered with algae; 0.02–0.05 m fine to medium dark brown sand with organic material (roots); 0.05–0.15 m dark brown sand and silt graduations to some gray-brown clay
			0.15–0.3	Top 0.15–0.25 m dark brown sand and silt graduations to some gray-brown clay; 0.25–0.3 gray to light gray silt with trace sand
S386	402944.7	4768568.6	0–0.15	Top 0.01 m very dark brown fine to medium sand with traces of silt; 0.02–0.15 m medium to coarse light olive-brown sand with trace amount of organics
			0.15–0.3	Coarse angular light gray to dark gray sand with some fine gravel with some brick red color mixed in

Note: ^a Coordinates in UTM NAD27 meters.

Source: Exponent, 2001c

Table 2-12. Dredged Material Station Locations and Soil Intervals Sampled Near Onondaga Lake in 2000

Station	Location ^a		Sampled Intervals (m)		Soil Characteristics
	Easting	Northing	Upper	Lower	
S436	399730.3	4771415.9	0	0.4	Existing cover material
			0.4	1.0	Aug. 1968 dredged material
			1.0	1.8	July 1967 dredged material
			2.4	2.8	Nov. 1966–Feb. 1967 dredged material
			2.8	3.1	Native material
S437	399641.4	4771452.3	0	1.1	Existing cover material
			1.1	1.5	Aug. 1968 dredged material
			1.5	1.9	July 1967 dredged material
			2.1	2.3	Nov. 1966–Feb. 1967 dredged material
			2.8	3.0	Native material
S438	399597.9	4771526.2	0	0.5	Existing cover material
			0.6	1.5	Aug. 1968 dredged material
			1.8	2.1	July 1967 dredged material
			2.1	2.7	Nov. 1966–Feb. 1967 dredged material
			2.7	3.0	Native material
S439	399628.4	4771597.8	0.1	0.2	Existing cover material
			0.2	0.5	Aug. 1968 dredged material
			0.6	1.8	July 1967 dredged material
			1.8	2.2	Nov. 1966–Feb. 1967 dredged material
			2.2	2.4	Native material
S440	399600.6	4771675.1	0	0.2	Existing cover material
			0.9	1.4	Aug. 1968 dredged material
			1.4	1.9	July 1967 dredged material
			1.9	2.3	Nov. 1966–Feb. 1967 dredged material
			2.6	2.9	Native material
S441	399536.9	4771710.0	0.1	0.5	Existing cover material
			0.6	1.3	Aug. 1968 dredged material
			1.3	2.0	July 1967 dredged material
			2.0	2.6	Nov. 1966–Feb. 1967 dredged material
			2.7	2.9	Fill material below silt dredge spoils
			2.9	3.6	Native material
S442	399364.7	4771907.8	0	0.6	Existing cover material
			0.6	1.2	Aug. 1968 dredged material
			1.2	1.8	July 1967 dredged material
			1.8	2.3	Nov. 1966–Feb. 1967 dredged material
			2.4	3.0	Native material
S443	399327.4	4771962.8	0.0	0.6	Existing cover material
			0.6	1.2	Aug. 1968 dredged material
			1.2	1.7	July 1967 dredged material
			1.7	1.8	Nov. 1966–Feb. 1967 dredged material
			1.8	2.0	Native material

Note: ^a Coordinates in UTM NAD27 meters.

Source: Exponent, 2001c

**Table 2-13. Porewater Core Station Locations, Water Depths, and Core Depths
Sampled in Onondaga Lake in 2000**

Station	Location ^a		Water Depth ^b (m)	Core Number	Core Penetration (m)	Sampled Core Intervals (cm)	
	Easting	Northing				Upper	Lower
S303	400182.7	4771855.6	16.5	1	1.1	0	4
						4	8
						106	110
				2	1.1	0	4
						4	8
						106	110
				3	1.1	0	4
						4	8
						106	110
S305	400256.3	4771440.7	4.0	1	0.64	0	4
						4	8
						60	64
				2	0.66	0	4
						4	8
						58	66
				3	0.64	0	4
						4	8
						60	64
S344	403005.8	4768845.3	3.5	1	0.64	0	4
						4	8
						60	64
				2	0.66	0	4
						4	8
						58	66
				3	0.64	0	4
						4	8
						60	64
S354	402668.6	4769174.2	17.0	1	0.34	0	4
						8	12
						30	34
				2	0.34	0	4
						8	12
						30	34
				3	0.34	0	4
						8	12
						30	34
S355	403184.5	4769423.8	16.5	1	0.34	0	4
						8	12
						30	34
				2	0.34	0	4
						8	12
						30	34
				3	0.34	0	4
						8	12
						30	34

Table 2-13. (cont.)

Station	Location ^a		Water Depth ^b (m)	Core Number	Core Penetration (m)	Sampled Core Intervals (cm)	
	Easting	Northing				Upper	Lower
S402	402637.9	4768835.4	0.5	1	0.34	0	4
						4	8
						30	34
				2	0.34	0	4
						4	8
						30	34
				3	0.34	0	4
						4	8
						30	34
S405	403300.8	4768755.6	5.0	1	1.1	0	4
						4	8
						106	110
				2	1.1	0	4
						4	8
						106	110
				3	1.12	0	4
						4	8
						104	112

Notes: ^a Coordinates in UTM NAD27 meters.

^b Water depths are rounded to the nearest 0.5 m.

Source: Exponent, 2001c

**Table 2-14. *In Situ* Water Quality Station Locations and Water Depths
in Onondaga Lake in 2000**

Station	Location ^a		Water Depth ^b	Parameter	Value	Units
	Easting	Northing	(m)			
S303	400182.7	4771855.6	16.5	pH	7.42	pH Unit
				Conductivity	2.01	µS/cm
				Turbidity	-10	NTU
				Dissolved oxygen	4.1	mg/L
				Temperature	19.4	deg C
				Salinity	0.09	%
S305	400256.3	4771440.7	4.0	pH	7.9	pH Unit
				Conductivity	1.79	µS/cm
				Turbidity	-10	NTU
				Dissolved oxygen	12.87	mg/L
				Temperature	23.2	deg C
				Salinity	0.08	%
S344	403005.8	4768845.3	3.5	pH	8.27	pH Unit
				Conductivity	1.74	µS/cm
				Turbidity	-10	NTU
				Dissolved oxygen	14.14	mg/L
				Temperature	25.1	deg C
				Salinity	0.09	%
S354	402668.6	4769174.2	17.0	pH	7.84	pH Unit
				Conductivity	1.75	µS/cm
				Turbidity	-10	NTU
				Dissolved oxygen	9.51	mg/L
				Temperature	23.4	deg C
				Salinity	0.08	%
S355	403184.5	4769423.8	16.5	pH	7.59	pH Unit
				Conductivity	1.77	µS/cm
				Turbidity	-10	NTU
				Dissolved oxygen	8.15	mg/L
				Temperature	23	deg C
				Salinity	0.08	%
S402	402637.9	4768835.4	0.5	pH	8.16	pH Unit
				Conductivity	1.74	µS/cm
				Turbidity	-10	NTU
				Dissolved oxygen	13.56	mg/L
				Temperature	25.9	deg C
				Salinity	0.08	%
S405	403300.8	4768755.6	5.0	pH	8.32	pH Unit
				Conductivity	1.74	µS/cm
				Turbidity	-10	NTU
				Dissolved oxygen	14.89	mg/L
				Temperature	25	deg C
				Salinity	0.08	%

Notes: ^a Coordinates in UTM NAD27 meters.

^b Water depths are rounded to the nearest 0.5 m.

Source: Exponent, 2001c