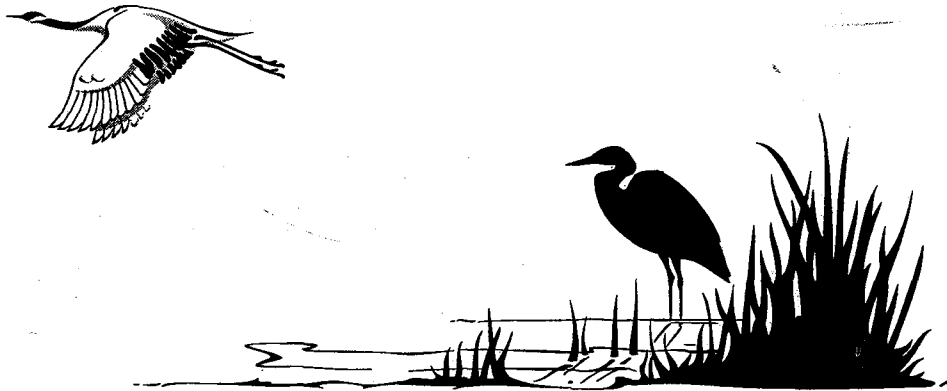


Charles River
Sediment/Water Quality Analysis
Project Report



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Ecosystem Assessment

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EXECUTIVE SUMMARY

Purpose and Scope

In January 1996, EPA's Charles River Task Force 2005 and the Charles River Watershed Association (CRWA) requested assistance from EPA's Office of Environmental Measurement and Evaluation (OEME) to evaluate the water and sediment quality at selected sites in the Charles River Basin. The Charles River is a priority waterbody for EPA Region 1 - New England and current data on water and sediment quality are lacking. In addition, the Massachusetts Department of Environmental Protection (MADEP) is scheduled to monitor the river in the summer of 1997 as part of the Commonwealth's basin-wide assessment program. Conducting this study gained added importance because it would provide information about present conditions which could also be used to target geographical areas for monitoring in 1997 and focus the scope of those monitoring activities.

The EPA, CRWA and MADEP collaborated on the scope and objectives of the study. The project objectives identified in the quality assurance project plan were to determine current water quality conditions, chemical concentrations in the sediments, and to evaluate if the sediments are toxic to aquatic life. CRWA, EPA, and MADEP will use the results of this study to make decisions, model conditions, and target future monitoring.

During May 29-30, 1996, a team of OEME and CRWA personnel collected water and sediment samples at nine sites in the River. Sampling was conducted from the headwaters at Echo Lake in Hopkinton, MA to the lower basin upstream from the Charles River Boat Locks in Boston. Sampling locations had been selected after several meetings and site visits among EPA, CRWA and the MADEP. Figure 1 shows the sampling locations.

Sediment and water quality samples were collected at all sites. Six of the nine sites were examined for sediment toxicity. Table 1 lists the parameters analyzed at each site. EPA's New England Regional Laboratory in Lexington, MA, performed all the analyses and testing.

Conclusions

All metal results in the water column were less than the method reporting limits. Chromium and zinc concentrations in the water column were less than the water quality chronic criteria at all sites. The sediments in the lower basin (sites CRWA08 and CRWA09) were the most contaminated. They had the highest levels of total polyaromatic hydrocarbons (PAHs) concentrations, elevated metals concentrations and exhibited sediment toxicity with amphipods. Sediment from site CRWA09 (between Harvard and Longfellow bridges) had the greatest toxicity to both midges and amphipods. Chlorinated pesticides were detected at all nine sites and polychlorinated biphenyls (PCBs) were detected at sites CRWA05 (lakes district) and at CRWA08 (near the North Harvard Street Bridge). Site CRWA03 (downstream from Populatic Pond and Charles River Pollution Control District plant's discharge) had the lowest concentrations of metals, chlorinated pesticides and total PAHs.

BACKGROUND

The Charles River is the longest river in Massachusetts and flows 80 miles from its headwaters at Echo Lake in Hopkinton to the outlet in the Boston Harbor. From Echo Lake to the Watertown Dam the River flows over many dams and drops approximately 340 feet. From the Watertown Dam the River is primarily flat water to the Charles River boat locks in Boston (Medcalf & Eddy 1994).

The Charles River watershed is located in eastern Massachusetts and drains 311 square miles. There are 24 cities and towns in the watershed. The basin contains pockets of urban areas and is highly urbanized from Newton/Waltham through the lower basin to its mouth.

The Charles has been polluted and physically altered for more than a century. The lower basin, once a tidal estuary, is now impounded. The banks and shoreline are defined by sea walls. Present conditions in the River are the result of current and historical pollution sources. The basin is influenced by point sources and storm water runoff. In the lower basin, combined sewer overflows (CSOs) are major sources of pollutants.

SAMPLING PROGRAM

On May 29 & 30, 1996, staff from EPA and CRWA collected water and sediment samples at nine sites in the Charles River. The water was analyzed for metals, total organic carbon (TOC), dissolved oxygen (D.O.), and temperature. Conductivity and pH were monitored at six sites. All sediments were analyzed for metals, base neutral acids (BNAs), PCBs, chlorinated pesticides, acid volatile sulfide and simultaneously extracted metals (AVS&SEM), and total organic carbon (TOC) concentrations. Sediment toxicity and grain size distributions were determined at six of the sites. Table 1 summarizes the sampling at each site.

All sampling was conducted from a boat near center channel except for samples collected at sites CRWA01 (Echo Lake) and CRWA02 (Box Pond). Here the samples were collected at the deep holes near the outlets. The latitude and longitude were determined at each site using Global Positioning System (GPS) and are presented in the Appendix. Site locations are plotted on Figure 1.

At site CRWA03, blind duplicate samples were collected for all reported compounds. At Site CRWA06, a marked duplicate sample was collected for pesticides and PCBs. Laboratory blanks were analyzed for BNAs and pesticides and PCBs. For further discussion refer to the Data Usability section.

Water Sampling

Field water quality measurements were made with an electronic multi-parameter monitor (YSI 6000 Sonde) connected to a lap top computer or with a YSI model 57 D.O. and temperature meter. All sites were monitored for D.O. and temperature. Conductivity and pH were monitored at the six sites sampled on May 29. On May 30, rain interfered with the computer's electronics which prevented the collection of conductivity and pH measurements. Field water quality measurements were collected at 0.2 meters below the water's surface. If the water depth was greater than 1 meter, field measurements were made at 1 meter depth intervals.

Metals and TOC samples were collected 0.1 meters below the water's surface at every site. Water and sediment samples were collected at the same sites.

Sediment sampling

The sampling crew attempted to collect sediments from silty and clay bottoms since contaminants tend to bind to these substrates. A stainless steel petite ponar dredge was used to collect sediment samples from the upper six inches of aquatic substrate. The dredge was used several times at each site to obtain adequate sample volumes. Samples were emptied from the dredge into a clean plastic tray. Detritus and pebbles were removed and excess water was poured off. Samples for metal analyses were collected first. A new plastic spoon was used at each site to take samples from the sediment in the plastic tray. The samples were placed directly in the sample jar. Additional samples were taken from the sediment in the plastic tray and placed in a clean stainless steel bowl where they were mixed (homogenized) with a clean stainless steel spoon. BNAs, PCBs, pesticides, TOC and grain size samples were taken from this homogenized sample. The sample remaining in the plastic tray was homogenized and saved for toxicity testing. The dredge, plastic tray, stainless steel bowl, and stainless steel spoon were decontaminated between sampling stations with soapy water, tap water and deionized water. All samples were placed in precleaned containers. Samples were collected according to OEME Standard Operating Procedures.

Table 1: Sampling Site Summary

Station	Water column Analyses				Sediment Analyses				
	D.O. Temp.	Cond. & pH	TOC	Metals (Cu, Zn, Pb, Cd, Cr, Ni, Hg)	Metals (Cu, Zn, Pb, Cd, Cr, Ni, Hg)	AVS&SEM (Cu, Zn, Pb, Cd, Ni, Hg)	BNAs, PCBs, & Pest.	TOC	Toxicity & Grain Size
CRWA01, Echo Lake Dam, Hopkinton	X		X	X	X		X	X	
CRWA02, Box Pond Dam, Bellingham	X	X	X	X	X	X	X	X	X
CRWA03, Downstream of Populatic Pond, Medway	X	X	X	X	X	X	X	X	X
CRWA04, Upstream from the Natick Dam	X		X	X	X		X	X	
CRWA05, Lake District, Newton	X	X	X	X	X	X	X	X	X
CRWA06, Downstream from Landfill, Boston	X		X	X	X		X	X	
CRWA07, Upstream from the Watertown Dam	X	X	X	X	X	X	X	X	X
CRWA08, Lower Basin between N Harvard Street bridge and foot bridge, Boston	X	X	X	X	X	X	X	X	X
CRWA09, Lower Basin between Harvard and Longfellow bridges, Boston	X	X	X	X	X	X	X	X	X

DATA SUMMARY

Water Column Analysis

All metal concentrations in the water column were less than the method reporting limits. Method reporting limits for chromium, and zinc were less than the freshwater quality chronic criteria. Cadmium, copper, nickel, lead, and mercury reporting limits were higher than these criteria. Except for mercury, the toxicity of the metals tested are dependent on water hardness. The lower the hardness of the water the more toxic the metals. The method for calculating water quality criteria is shown in 40 CFR part 131.36. These criteria are goals established to protect the waterbody uses. The published freshwater quality chronic criteria based upon 100 mg/L CaCO₃ were re-calculated using 25 mg/L CaCO₃ to represent the hardness in the Charles River. The results, reporting limits, chronic criteria are shown below in Table 2.

TOC concentrations ranged from a high of 12.2 ppm at site CRWA06 to a low of 4.3 ppm at site CRWA01. These concentrations are shown in the Appendix.

Table 2: Metal Results in the Water Column Summary

Metal		Sample results for all stations (µg/L)	Reporting limit (µg/L)	Freshwater chronic criterion hardness adjusted ¹ (µg/L)
Cadmium	Cd	ND	15	0.3
Chromium	Cr	ND	15	57.2
Copper	Cu	ND	15	3.5
Nickel	Ni	ND	60	48.6
Lead	Pb	ND	100	0.4
zinc	Zn	ND	20	32.3
Mercury	Hg	ND	0.5	0.012 ²

Notes:

ND =Not detected above the associated reporting limit.

¹ =Values were calculated using a total hardness of 25 mg/L

CaCO₃ ² =Value is not hardness dependent

Sediment Analysis

Whole sediment toxicity tests were conducted using two EPA approved test organisms; *Chironomus tentans* (midges) and *Hyallela azteca* (amphipods). The 10 day acute toxicity tests measured survival and did not evaluate chronic or subchronic effects (i.e. growth and reproductive effects). The tests results were used to determine if the sediments adversely affect aquatic life. The chemistry results were used to aid in identifying potential causes of sediment toxicity. Results from acid volatile sulfide and simultaneously extracted metals (AVS&SEM) analyses were used in an attempt to correlate toxicity with the SEM/AVS ratio.

Sediment chemistry results were compared to 1993 sediment quality guidelines prepared by the Ontario Ministry of the Environment (OMOE). Reported concentrations were compared to the Lowest Effect Level (LEL) and the Severe Effect Level (SEL) guidelines. The LEL indicates a level of sediment contamination that can be tolerated by the majority of the benthic organisms. The SEL is the sediment concentration of a compound that would be detrimental to the majority of benthic species (Persaud and others 1993). Sediment quality guidelines were available for all metals and some of the BNAs, pesticides, and PCBs. The SELs used for BNA's and pesticides comparisons were adjusted based on the TOC concentration in the sediment. A summary of sediment conditions at each site appears in Table 3.

Sediment Analysis by Site

Table 3: Site Summary (from least to most contaminated)

Rank	Site	Summary Comments
1	CRWA03	(Downstream from Populatic Pond and the Charles River Pollution Control District plant's discharge) The sediment had a mercury concentration greater than the LEL. The SEM/AVS ratio was 0.16 and total PAH was 834 ug/Kg. No toxicity was observed at this site. The sediment consisted of mostly sand and a small percent of silt and clay.
2	CRWA01	(At the deep hole near the Echo Lake dam in Echo Lake) This lake is the water supply for the towns of Milford and Mendon. The sediment had copper, lead, zinc, mercury, and 2 pesticides concentrations greater than their LEL's. The SEM/AVS ratio was 0.16 and total PAH was 922 ug/Kg. Toxicity testing and grain size analyses were not performed at this site.
3	CRWA04	(Upstream from the Natick Dam) Chromium, copper, lead, zinc, mercury, and 2 pesticides in the sediment exceeded their LEL's. The SEM/AVS ratio was 0.93 and total PAH was 1406 ug/Kg. Toxicity testing and grain size analyses were not performed at this site.
4	CRWA06	(Just downstream from the City of Boston - Gardner Street Landfill) The sediment had lead, mercury, 2 pesticides, 2 BNAs, and total PAH concentrations greater than their LEL's. The SEM/AVS ratio was 1.3 and total PAH was 3,598 ug/Kg. Toxicity testing and grain size analyses were not performed at this site.
5	CRWA07	(Upstream from the Watertown Dam) The sediment had copper, lead, 2 pesticides, 10 BNAs, and total PAH concentrations greater than their LEL's. The SEM/AVS ratio was 0.58 and total PAH was 41,930 ug/Kg. No toxicity was observed at this site. The sediment consisted mostly of sand and very little silt and clay.

Rank	Site	Summary Comments
6	CRWA02	<p>(Near the outlet dam in Box Pond in Bellingham)</p> <p>The sediment had chromium, copper, and zinc concentrations greater than their SEL's. Copper was greater than 5 times its SEL. This site had 3 pesticides, 1 BNA, and total PAH concentrations greater than their LEL's. The SEM/AVS ratio was 0.28 and the total PAH was 2,600 ug/Kg. No toxicity was observed at this site. The sediment consisted of a mixture of sand, silt and clay. The BNA results were reported with high analytical detection limits. This could reduce the number of reported compounds and the total PAH value.</p>
7	CRWA05	<p>(The Lakes district in Newton)</p> <p>The sediment had cadmium, chromium, copper, nickel, lead, zinc, mercury, 2 pesticides, 8 BNAs, 1 PCB and total PAH concentrations greater than their LEL's. The SEM/AVS ratio was 0.45 and the total PAH was 22,910 ug/Kg. No toxicity was observed at this site. The sediment consisted of a sandy silty clay mixture.</p>
8	CRWA08	<p>(The lower basin between North Harvard Street and a footbridge in Boston)</p> <p>The sediment had chromium, copper, and lead concentrations greater than their SEL's. Cadmium, nickel, zinc, mercury, 2 pesticides, 10 BNAs, 1 PCB, and total PAHs concentrations were greater than their LEL's. The SEM/AVS ratio was 0.7 and the total PAH was 62,800 ug/Kg. Amphipod toxicity occurred at this site and the sediment consisted of a mixture of sand, silt and clay.</p>
9	CRWA09	<p>(The lower basin between Harvard and Longfellow bridges in Boston)</p> <p>The sediment had chromium, copper, lead, and mercury concentrations greater than their SEL's. Cadmium, nickel, zinc, 3 pesticides, 8 BNAs, and total PAHs concentrations were greater than their LEL's. The SEM/AVS ratio was 0.05 and the total PAH was 59,600 ug/Kg. Midge and amphipod toxicity occurred at this site and the sediment consisted of a mixture of sand and silt and clay.</p>

Sediment Analyses by Parameter

Metals

Metals were analyzed in the sediment at all sites. Results were compared to the LEL and SEL sediment quality guidelines. Mercury concentrations exceeded the LEL at all sites. Site CRWA02 had copper concentrations six times higher than the SEL. The Lower Basin sites (CRWA08 and CRWA09) had levels of chromium, copper and lead above their SEL's. Site CRWA09 was the only site with a mercury concentration higher than the SEL.

Acid Volatile Sulfide and Simultaneously Extracted Metals

AVS&SEM concentrations and the SEM/AVS ratio were determined at every site. The SEM/AVS ratio can be used to predict the bioavailability and potential toxicity for nickel, zinc, cadmium, copper, and lead. Sulfides bind these metals to the sediment which reduces their availability to benthic biota. AVS is typically highest during summer months because warmer temperatures, increased microbial activity, and lower dissolved oxygen, produce an environment where sulfides predominate. In the winter time AVS is lower and these metals are more bioavailable. At any time of the year, if there is an excess of SEM over AVS or if the SEM/AVS ratio is greater than one the metals are usually bioavailable and may cause toxicity. If the SEM/AVS ratio is less than one the metals are usually not bioavailable to cause toxicity (W. Berry 1996). Site CRWA06 was the only site which had an SEM/AVS ratio greater than one.

Total Organic Carbon

TOC concentrations were analyzed at each site. The highest concentration measured was 12.69% at site CRWA02. The sediment at this site was a sandy-silt mixture and had high metals concentrations in the sediment. Site CRWA08 and CRWA09 had TOC concentrations of 11.40% and 11.92%, respectively. Sediment from both sites were toxic and grossly contaminated. Site CRWA03 had the lowest measured TOC of 0.84%. The sediment at this site consisted of mostly fine sand and had the least sediment contamination.

Grain Size Distribution

Grain size distributions were determined at sites CRWA02, CRWA03, CRWA05, CRWA07, CRWA08, CRWA09. Sites CRWA03 and CRWA07 had higher percentages of sand. These two sites were associated with narrow river widths and swift current. Sites CRWA02, CRWA05, CRWA08, and CRWA09 had the highest composition of silt and clay. These sites were located in slow moving water and wide river widths.

Base Neutral Acids, Chlorinated Pesticides and Polychlorinated Biphenyls

BNAs, PCBs, and chlorinated pesticides were analyzed at each site. The sediment results were compared to LELs and SELs from the Ontario Ministry of the environment's sediment quality guidelines. The available SELs were adjusted for each site by multiplying the actual percent TOC in the sediment (to a maximum of 10%) by the SEL in ug/g organic carbon. This was done to convert the SELs to site specific bulk sediment values (Persaud and others 1993). The site specific bulk sediment SELs were compared to the reported concentration and are shown with the reported results. None of the BNA, pesticide or PCB compounds reported exceeded its SEL at any site. Site CRWA03 was the only site where none of the reported compounds exceeded its LEL.

The concentration of the pesticides, 4,4'DDD and 4,4'DDE exceeded the LEL at 8 of the 9 sites. Sites CRWA05 and CRWA08 were the only sites where PCBs were detected. Aroclor-1254, the only PCB detected, exceeded the LEL at both sites.

The total PAH was calculated by adding the concentrations of the compounds in Table 4. Site CRWA08 in the lower basin had the highest total PAH of 62,800 ug/Kg and site CRWA03 with 834 ug/Kg had the lowest.

Table 4: PAHs Used to Determine Total PAH

acenaphthene	benzo[a]pyrene	fluorene
acenaphthylene	benzo[g,h,i]perylene	indeno[1,2,3-cd]pyrene
anthracene	chrysene	naphthalene
benzo[k]fluoranthene	dibenzo[a,h]anthracene	phenanthrene
benzo[a]anthracene	fluoranthene	pyrene

(Persaud and others 1993)

Toxicity

Toxicity tests were performed on sediment from sites CRWA02, CRWA03, CRWA05, CRWA07, CRWA08, and CRWA09. The amphipod test had statistically significant toxicity at sites CRWA08 and CRWA09. Sites CRWA08 and CRWA09 had survivals of 74% and 12.5%, respectively. The reference sediment for the amphipod test had 100% organism survival for all eight replicates. When compared to the reference sediment, site CRWA08 shows significant toxicity even with the relatively high survival of 74%.

Sediments from site CRWA09 showed statically significant toxicity with the midge test; survival was 23.7%. The SEM/AVS ratio was less than 1 at sites CRWA08 and CRWA09. This reduces the probability that nickel, zinc, cadmium, copper, and lead caused toxicity. Chromium was just above the SEL at both sites and mercury was greater than the SEL at site CRWA09. The highest total PAH concentrations were measured at both these sites. The individual or synergistic effects of the high PAHs, chromium, and mercury concentrations may have caused toxicity. Some of the silty sediments appeared to contain oil. Since total petroleum hydrocarbons (TPH) were not analyzed, this could not be correlated with toxicity. Additional studies need to be conducted to define pollution effects in the area. These could include: benthic community analysis, laboratory bio-accumulation studies, sediment TPH analysis, and/or fish tissue analysis.

Data Usability

Chain of custody records were maintained for all collected samples. Holding times were met for all analyzed parameters. Field duplicates were collected at site CRWA03. A second duplicate sample was collected at site CRWA06 for PCBs and pesticides. All reported compounds from the duplicate samples met the relative percent difference goals established in the Quality Assurance Project Plan. Duplicate sample results are presented in the Appendix.

Method blanks were analyzed for BNAs, metals, PCBS, and pesticides. The results indicate no significant laboratory contamination. The BNA results show low level contamination of a common laboratory contaminate bis-(2-ethylhexyl)phthalate.

All samples were analyzed for a full scan BNA analysis. Some BNA samples had elevated reporting limits because the combination of a high percent moisture and excess foaming when the extracts were being concentrated. All BNA compounds met the laboratory and field duplicate quality control limits.

In order to gain lower detection limits for the PAHs, an additional PAH analysis was performed on the extracts using GC/MS in the selected ion mode. Some PAHs from this analysis had to be rejected because they did not meet the quality control limits. All PAHs were rejected for samples CRWA07, CRWA08, and CRWA09 because of poor surrogate recoveries. Six PAHs were rejected from all other sites due to inconsistent recoveries from the laboratory control sample. The reported results for these compounds are from the full scan BNA analysis. The BNA results had high reporting limits which in most cases were above the LELs for the PAHs. High reporting limits can reduce the number of identified compounds and reduce the total PAH value. Site CRWA02 had the highest reporting limits for most PAHs and BNAs.

Some of the PCB and pesticide reporting limits were above the LELs. Except for site CRWA01, all reporting limits for chlordane were above the SEL.

REFERENCES

Metcalf & Eddy. 1994. Baseline Water Quality Assessment. Master Planning and CSO Facility Planning. Report prepared for MWRA

D. Persaud, R. Jaagumagi, and A. Hayton. 1993. Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario. Ontario Ministry of Environment. Toronto. 26 pp.

W. Berry. 1996. An Overview of Sediment Assessment Methods For Metals Contaminated Sediments and the EPA Approach to Developing Metals Sediment Quality Criteria. USEPA, Atlantic Ecology Division. Narragansett, RI. 4 pp

APPENDIX

ANALYTICAL RESULTS

Sampling site: CRWA 01
 Site description: Echo Lake Dam, Hopkinton
 Sampling date: 5/30/96
 Latitude: 42 11' 34.551" Longitude: 71 30' 30.338"
 Water depth: 28.2 meters

Water column analysis

Field measurements

Depth of sample (meters)	0.2	1	2	3	4	5	6	7	8
D.O. (mg/l)	8.7	8.5	8.6	8.5	8.8	8.3	7.2	4.4	3.8
Temp (C)	17.5	17.5	17.5	17.4	13.2	12.5	10.8	8.5	7.8

Metals & TOC Parameter	Sample result (ug/L)	Reporting limit (ug/L)
Cd	ND	15
Cr	ND	15
Cu	ND	15
Ni	ND	60
Pb	ND	100
Zn	ND	20
Hg	ND	0.5
TOC	4300	

Sediment Analysis

Metals Parameter	Sample result (ug/gm)*	Reporting limit (ug/gm)*	OMOE Biological Guidelines	
			LEL (ug/gm)*	SEL (ug/gm)*
Cd	ND	1.3	0.6	10
Cr	21.4		26	110
	29.4		16	110
Ni	11.9		16	75
	132		31	250
	150		120	820
	0.64		0.2	2

OMOE = Ontario Ministry of the Environment

█ = greater than Lowest Effect Level (LEL)

█ = greater than Severe Effect Level (SEL)

AVS&SEM Parameter	Sample result (umole/gm)*	Reporting limit (umole/gm)*
Cd	ND	0.04
Cr	ND	0.80
Cu	0.49	
Hg	ND	0.0006
Ni	ND	0.66
Pb	0.55	
Zn	1.9	
AVS	17.9	
SEM/ AVS ratio	0.16	

TOC	Sample result (%)
TOC	6.95

Note:

Toxicity and Grain Size Analysis not performed at this site

* = Reported as dry weight

ND = Not detected above reporting limit

BNAs			OMOE Biological Guidelines				
CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
Priority Pollutants							
83-32-9	34205	Acenaphthene	ND	28			
208-96-8	34200	Acenaphthylene	43	28			
120-12-7	34220	Anthracene	30	28		220	25715
56-55-3	34526	Benzo(a)anthracene	99	28		320	102860
205-99-2	34230	Benzo(b)fluoranthene	ND	4400			
207-08-9	34242	Benzo(k)fluoranthene	ND	4400		240	93130
50-32-8	34247	Benzo(a)pyrene	ND	4400		370	100080
191-24-2	34521	Benzo(ghi)perylene	ND	4400		170	22240
85-68-7	34292	Benzyl butyl phthalate	ND	4400			
111-44-4	34273	Bis(2-chloroethyl)ether	ND	4400			
111-91-1	34278	Bis(2-chloroethoxy)methane	ND	4400			
117-81-7	39100	Bis(2-ethylhexyl)phthalate	ND	4400			
108-60-1	34283	Bis(2-chloroisopropyl)ether	ND	4400			
101-55-3	34636	4-Bromophenylphenyl ether	ND	4400			
86-74-8		Carbazole	ND	4400			
59-50-7	34452	4-Chloro-3-methylphenol	ND	8900			
91-58-7	34581	2-Chloronaphthalene	ND	4400			
95-57-8	34586	2-Chlorophenol	ND	8900			
7005-72-3	34641	4-Chlorophenylphenyl ether	ND	4400			
218-01-9	34320	Chrysene	160	28		340	31970
53-70-3	34556	Dibenzo(a,h)anthracene	ND	4400		60	9035
84-74-2	39110	Di-n-butylphthalate	ND	4400			
541-73-1	34566	1,3-Dichlorobenzene	ND	4400			
95-50-1	34536	1,2-Dichlorobenzene	ND	4400			
106-46-7	34571	1,4-Dichlorobenzene	ND	4400			
91-94-1	34631	3,3'-Dichlorobenzidine	ND	4400			
120-83-2	34601	2,4-Dichlorophenol	ND	8900			
84-66-2	34336	Diethylphthalate	ND	4400			
105-67-9	34606	2,4-Dimethylphenol	ND	8900			
131-11-3	34341	Dimethylphthalate	ND	4400			
51-28-5	34616	2,4-Dinitrophenol	ND	11000			
121-14-2	34611	2,4-Dinitrotoluene	ND	4400			
606-20-2	34626	2,6-Dinitrotoluene	ND	4400			
117-84-0	34596	Di-n-octylphthalate	ND	4400			
206-44-0	34376	Fluoranthene	260	28		750	70890
86-73-7	34381	Fluorene	ND	28		190	11120
118-74-1	39700	Hexachlorobenzene	ND	4400			
87-68-3	34391	Hexachlorobutadiene	ND	4400			
77-47-4	34386	Hexachlorocyclopentadiene	ND	4400			
67-72-1	34396	Hexachloroethane	ND	4400			
193-39-5	34403	Indeno(1,2,3-cd)pyrene	ND	4400		200	22240
78-59-1	34408	Isophorone	ND	4400			
534-52-1	34657	2-Methyl-4,6-dinitrophenol	ND	11000			
91-20-3	34696	Naphthalene	ND	28			
98-95-3	34447	Nitrobenzene	ND	4400			
88-75-5	34591	2-Nitrophenol	ND	8900			
100-02-7	34646	4-Nitrophenol	ND	11000			
86-30-3	34433	N-Nitrosodiphenylamine	ND	4400			
621-64-7	34428	N-Nitrosodi-n-propylamine	ND	4400			
87-86-5	39032	Pentachlorophenol	ND	11000			
85-01-8	34461	Phenanthrene	130	28		560	66025
108-95-2	34694	Phenol	ND	8900			
129-00-0	34469	Pyrene	200	28		490	59075
120-82-1	34551	1,2,4-Trichlorobenzene	ND	4400			
88-06-2	34621	2,4,6-Trichlorophenol	ND	8900			
		Total PAH	922			4000	695000
Hazardous Substances							
65-53-3	77089	Aniline	ND	4400			
65-85-0	77247	Benzoic Acid	ND	11000			
100-51-6	77147	Benzyl Alcohol	ND	4400			
106-47-8		4-Chloroaniline	ND	4400			
132-64-9	81302	Dibenzofuran	ND	4400			
91-57-6		2-Methylnaphthalene	ND	4400			
95-48-7		2-Methylphenol	ND	4400			
106-44-5		4-Methylphenol	ND	4400			
88-74-4		2-Nitroaniline	ND	11000			
99-09-2		3-Nitroaniline	ND	11000			
100-01-6		4-Nitroaniline	ND	11000			
95-95-4	34621	2,4,5-Trichlorophenol	ND	11000			
Other Compounds Quantitated							
		Diphenylhydrazine	ND	4400			

CRWA01

PCBs & Pesticides

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
309-00-2	39330	Aldrin	ND	3		2	556
319-84-6	39337	alpha-BHC	ND	3		6	695
319-85-7	39338	beta-BHC	ND	3		5	1459.5
319-86-8	34259	delta-BHC	ND	3			
58-89-9	39340	gamma-BHC	ND	3		3	69.5
5103-71-9	---	Alpha Chlordane	ND	3			
5103-74-2	---	gamma Chlordane	ND	3			
57-74-9	39350	Chlordane (technical)	ND	300		7	417
72-54-8	39310	4,4'-DDD	34	3		8	417
72-55-9	39320	4,4'-DDE	24	3		5	1320.5
50-29-3	39300	4,4'-DDT	ND	3			
60-57-1	39380	Dieldrin	ND	3		2	6324.5
959-98-8	34361	Endosulfan I	ND	3			
33212-65-9	34356	Endosulfan II	ND	3			
1031-078	34351	Endosulfan sulfate	ND	3			
72-20-8	39390	Endrin	ND	3		3	9035
7421-93-4	34366	Endrin aldehyde	ND	3			
53494-70-5	---	Endrin ketone	ND	3			
76-44-8	39410	Heptachlor	ND	3			
1024-57-3	39420	Heptachlor epoxide	ND	3		5	347.5
72-43-5	---	Methoxychlor	ND	3			
8001-35-2	39400	Toxaphene	ND	300			
12674-11-2	34671	Aroclor-1016	ND	90		7	3683.5
11104-28-2	39488	Aroclor-1221	ND	90			
11141-16-5	39492	Aroclor-1232	ND	90			
53469-21-9	39496	Aroclor-1242	ND	90			
12672-29-6	39500	Aroclor-1248	ND	90		30	10425
11097-69-1	39504	Aroclor-1254	ND	90		60	2363
11096-82-5	39508	Aroclor-1260	ND	90		5	1668
11100-14-4	81649	Aroclor-1262	ND	90			
37324-23-5	81650	Aroclor-1268	ND	90			

Note:

ND = Not detected above reporting limit

[Redacted] = Greater than Lowest Effect Level (LEL)

[Redacted] = Greater than Severe Effect Level (SEL)

LELs and SELs are based on the 5th and 95th percentiles respectively of the screening level concentration except where noted below.

gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, SELs are based on 90% screening level concentrations
 gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs are based on 10% screening level concentrations
 gamma-BHC, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs and SELs are tentative guidelines.

Sampling site: CRWA 02
 Site description: Box Pond, Bellingham
 Sampling date: 5/29/96
 Latitude: 42 05' 41.042" Longitude: 71 29' 08.958"
 Approximate water depth: 1.5 meters

Water column analysis

Field measurements

Depth of sample (meters)	0.2
D.O. (mg/l)	10.8
Temp (C)	18.27
pH	7.29
Conductivity (mS/cm)	0.549

Metals & TOC Parameter	Sample result (ug/L)	Reporting limit (ug/L)
Cd	ND	15
Cr	ND	15
Cu	ND	15
Ni	ND	60
Pb	ND	100
Zn	ND	20
Hg	ND	0.5
TOC	8300	

Sediment Analysis

Metals Parameter	Sample result (ug/gm)*	Reporting limit (ug/gm)*	OMOE Biological Guidelines	
			LEL (ug/gm)*	SEL (ug/gm)*
Cd	5.9		0.6	10
Cr	134		26	110
Cu	627		16	110
Ni	33.3		16	75
Pb	219		31	250
Zn	853		120	820
Hg	1.6		0.2	2

OMOE = Ontario Ministry of the Environment

█ = greater than Lowest Effect Level (LEL)

█ = greater than Severe Effect Level (SEL)

AVS&SEM Parameter	Sample result (umole/gm)*	Reporting limit (umole/gm)*
Cd	0.07	
Cr	2	
Cu	10	
Hg	ND	0.0001
Ni	0.57	
Pb	1.2	
Zn	15.2	
AVS	95.9	
SEM/ AVS ratio	0.28	

TOC	Sample result (%)
TOC	12.69

Grain Size	Course sand	Medium sand	Fine sand	Silt & clay
	< 4.75 mm > 2 mm	< 2 mm > 0.425 mm	< 0.425 mm > 0.075 mm	< 0.075 mm
% composition	30	20	16	34

Toxicity Organism	type	% Survival-10 days
<i>Chironomus tentans</i>	midge	89
<i>Hyallela azteca</i>	amphipod	96

Note:

* = Reported as dry weight

ND = Not detected above reporting limit

CRWA02 BNAs							OMOE Biological Guidelines	
CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	LEL (ug/Kg)	SEL TOC corrected (ug/Kg)	
Priority Pollutants								
83-32-9	34205	Acenaphthene	ND	120				
208-96-8	34200	Acenaphthylene	180	120				
120-12-7	34220	Anthracene	130	120		220	37000	
56-55-3	34526	Benzo(a)anthracene	310	120		320	148000	
205-99-2	34230	Benzo(b)fluoranthene	ND	16000				
207-08-9	34242	Benzo(k)fluoranthene	ND	16000		240	134000	
50-32-8	34247	Benzo(a)pyrene	ND	16000		370	144000	
191-24-2	34521	Benzo(ghi)perylene	ND	16000		170	32000	
85-68-7	34292	Benzyl butyl phthalate	ND	16000				
111-44-4	34273	Bis(2-chloroethyl)ether	ND	16000				
111-91-1	34278	Bis(2-chloroethoxy)methan	ND	16000				
117-81-7	39100	Bis(2-ethylhexyl)phthalate	22000	16000	B			
108-60-1	34283	Bis(2-chloroisopropyl)ether	ND	16000				
101-55-3	34636	4-Bromophenylphenyl ether	ND	16000				
86-74-8		Carbazole	ND	16000				
59-50-7	34452	4-Chloro-3-methylphenol	ND	31000				
91-58-7	34581	2-Chloronaphthalene	ND	16000				
95-57-8	34586	2-Chlorophenol	ND	31000				
7005-72-3	34641	4-Chlorophenylphenyl ether	ND	16000				
218-01-9	34320	Chrysene	480	120		340	46000	
53-70-3	34556	Dibenzo(a,h)anthracene	ND	16000		60	13000	
84-74-2	39110	Di-n-butylphthalate	ND	16000				
541-73-1	34566	1,3-Dichlorobenzene	ND	16000				
95-50-1	34536	1,2-Dichlorobenzene	ND	16000				
106-46-7	34571	1,4-Dichlorobenzene	ND	16000				
91-94-1	34631	3,3'-Dichlorobenzidine	ND	16000				
120-83-2	34601	2,4-Dichlorophenol	ND	31000				
84-66-2	34336	Diethylphthalate	ND	16000				
105-67-9	34606	2,4-Dimethylphenol	ND	31000				
131-11-3	34341	Dimethylphthalate	ND	16000				
51-28-5	34616	2,4-Dinitrophenol	ND	39000				
121-14-2	34611	2,4-Dinitrotoluene	ND	16000				
606-20-2	34626	2,6-Dinitrotoluene	ND	16000				
117-84-0	34596	Di-n-octylphthalate	ND	16000				
206-44-0	34376	Fluoranthene	610	120		750	102000	
86-73-7	34381	Fluorene	ND	120		190	16000	
118-74-1	39700	Hexachlorobenzene	ND	16000				
87-68-3	34391	Hexachlorobutadiene	ND	16000				
77-47-4	34386	Hexachlorocyclopentadiene	ND	16000				
67-72-1	34396	Hexachloroethane	ND	16000				
193-39-5	34403	Indeno(1,2,3-cd)pyrene	ND	16000		200	32000	
78-59-1	34408	Isophorone	ND	16000				
534-52-1	34657	2-Methyl-4,6-dinitrophenol	ND	39000				
91-20-3	34696	Naphthalene	ND	120				
98-95-3	34447	Nitrobenzene	ND	16000				
88-75-5	34591	2-Nitrophenol	ND	31000				
100-02-7	34646	4-Nitrophenol	ND	39000				
86-30-3	34433	N-Nitrosodiphenylamine	ND	16000				
621-64-7	34428	N-Nitrosodi-n-propylamine	ND	16000				
87-86-5	39032	Pentachlorophenol	ND	39000				
85-01-8	34461	Phenanthrene	290	120		560	95000	
108-95-2	34694	Phenol	ND	31000				
129-00-0	34469	Pyrene	600	120		490	85000	
120-82-1	34551	1,2,4-Trichlorobenzene	ND	16000				
88-06-2	34621	2,4,6-Trichlorophenol	ND	31000				
		Total PAH	2600			4000	1000000	
Hazardous Substances								
65-53-3	77089	Aniline	ND	16000				
65-85-0	77247	Benzoic Acid	ND	39000				
100-51-6	77147	Benzyl Alcohol	ND	16000				
106-47-8		4-Chloroaniline	ND	16000				
132-64-9	81302	Dibenzofuran	ND	16000				
91-57-6		2-Methylnaphthalene	ND	16000				
95-48-7		2-Methylphenol	ND	16000				
106-44-5		4-Methylphenol	ND	16000				
88-74-4		2-Nitroaniline	ND	39000				
99-09-2		3-Nitroaniline	ND	39000				
100-01-6		4-Nitroaniline	ND	39000				
95-95-4	34621	2,4,5-Trichlorophenol	ND	39000				
Other Compounds Quantitated								
		Diphenylhydrazine	ND	16000				

CRWA02

PCBs & Pesticides

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
309-00-2	39330	Aldrin	ND	10		2	800
319-84-6	39337	alpha-BHC	ND	10		6	1000
319-85-7	39338	beta-BHC	ND	10		5	2100
319-86-8	34259	delta-BHC	ND	10			
58-89-9	39340	gamma-BHC	ND	10		3	100
5103-71-9	—	Alpha Chlordane	62	10			
5103-74-2	—	gamma Chlordane	26	10			
57-74-9	39350	Chlordane (technical)	ND	1000		7	600
72-54-8	39310	1,4- DDD	86	10		8	600
72-55-9	39320	1,4- DDE	200	10		5	1900
50-29-3	39300	4,4'-DDT	ND	10			
60-57-1	39380	Dieldrin	26	10		2	9100
959-98-8	34361	Endosulfan I	ND	10			
33212-65-9	34356	Endosulfan II	ND	10			
1031-078	34351	Endosulfan sulfate	ND	10			
72-20-8	39390	Endrin	ND	10		3	13000
7421-93-4	34366	Endrin aldehyde	ND	10			
53494-70-5	—	Endrin ketone	ND	10			
76-44-8	39410	Heptachlor	ND	10			
1024-57-3	39420	Heptachlor epoxide	ND	10		5	500
72-43-5	—	Methoxychlor	ND	10			
8001-35-2	39400	Toxaphene	ND	1000			
12674-11-2	34671	Aroclor-1016	ND	300		7	5300
11104-28-2	39488	Aroclor-1221	ND	300			
11141-16-5	39492	Aroclor-1232	ND	300			
53469-21-9	39496	Aroclor-1242	ND	300			
12672-29-6	39500	Aroclor-1248	ND	300		30	15000
11097-69-1	39504	Aroclor-1254	ND	300		60	3400
11096-82-5	39508	Aroclor-1260	ND	300		5	2400
11100-14-4	81649	Aroclor-1262	ND	300			
37324-23-5	81650	Aroclor-1268	ND	300			

Note:

ND = Not detected above reporting limit

B = Analyte is associated with lab blank contamination

L = Estimated value is below the calibration range

[REDACTED] = Greater than Lowest Effect Level (LEL)

[REDACTED] = Greater than Severe Effect Level (SEL)

LELs and SELs are based on the 5th and 95th percentiles respectively of the screening level concentration except where noted below.

gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, SELs are based on 90% screening level concentrations

gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs are based on 10% screening level concentrations

gamma-BHC, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs and SELs are tentative guidelines.

Sampling site: CRWA 03
 Site description: Down stream of Populatic Pond, Medway
 Sampling date: 5/29/96
 Latitude: 42 08' 07.478" Longitude: 71 22' 41.022"
 Water depth: 2.1 meters

Water column analysis

Field measurements

Depth of sample (meters)	0.2	1
D.O. (mg/l)	9.37	9.25
Temp (C)	18.72	17.77
pH	6.9	6.96
Conductivity (mS/cm)	0.286	0.303

Metals & TOC

Parameter	Sample result (ug/L)	Reporting limit (ug/L)
Cd	ND	15
Cr	ND	15
Cu	ND	15
Ni	ND	60
Pb	ND	100
Zn	ND	20
Hg	ND	0.5
TOC	10400	

Sediment Analysis

Metals

Parameter	Sample result (ug/gm)*	Reporting limit (ug/gm)*	OMOE Biological Guidelines	
			LEL (ug/gm)*	SEL (ug/gm)*
Cd	ND	1.1	0.6	10
Cr	12.3		26	110
Cu	9.8		16	110
Ni	ND	4.2	16	75
Pb	11.9		31	250
Zn	62.1		120	820
Hg	0.33		0.2	2

OMOE = Ontario Ministry of the Environment

[Redacted] = greater than Lowest Effect Level (LEL)

[Redacted] = greater than Severe Effect Level (SEL)

AVS&SEM

Parameter	Sample result (umole/gm)*	Reporting limit (umole/gm)*
Cd	ND	0.006
Cr	ND	0.15
Cu	ND	0.15
Hg	ND	0.0001
Ni	ND	0.12
Pb	0.05	
Zn	1	
AVS	1.8	
SEM/ AVS ratio	0.67	

TOC	Sample result (%)
TOC	0.84

Grain Size	Course sand	Medium sand	Fine sand	Silt & clay
	< 4.75 mm	< 2 mm	< 0.425 mm	<0.075 mm
	> 2 mm	> 0.425 mm	> 0.075 mm	
% composition	9	33	51	7

Toxicity

Organism	type	% Survival-10 days
<i>Chironomus tentans</i>	midge	87.5
<i>Hyallela azteca</i>	amphipod	94

Note:

* = Reported as dry weight

ND = Not detected above reporting limit

BNAs

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
Priority Pollutants							
83-32-9	34205	Acenaphthene	ND	9.5			
208-96-8	34200	Acenaphthylene	15	9.5			
120-12-7	34220	Anthracene	12	9.5		220	3108
56-55-3	34526	Benzo(a)anthracene	79	9.5		320	12432
205-99-2	34230	Benzo(b)fluoranthene	110	300	L		
207-08-9	34242	Benzo(k)fluoranthene	110	300	L	240	11256
50-32-8	34247	Benzo(a)pyrene	96	300	L	370	12096
191-24-2	34521	Benzo(ghi)perylene	ND	300		170	2688
85-68-7	34292	Benzyl butyl phthalate	ND	300			
111-44-4	34273	Bis(2-chloroethyl)ether	ND	300			
111-91-1	34278	Bis(2-chloroethoxy)methane	ND	300			
117-81-7	39100	Bis(2-ethylhexyl)phthalate	330	300	B		
108-60-1	34283	Bis(2-chloroisopropyl)ether	ND	300			
101-55-3	34636	4-Bromophenylphenyl ether	ND	300			
86-74-8		Carbazole	ND	300			
59-50-7	34452	4-Chloro-3-methylphenol	ND	600			
91-58-7	34581	2-Chloronaphthalene	ND	300			
95-57-8	34586	2-Chlorophenol	ND	600			
7005-72-3	34641	4-Chlorophenylphenyl ether	ND	300			
218-01-9	34320	Chrysene	98	9.5		340	3864
53-70-3	34556	Dibenzo(a,h)anthracene	ND	300		60	1092
84-74-2	39110	Di-n-butylphthalate	48	300	L,B		
541-73-1	34566	1,3-Dichlorobenzene	ND	300			
95-50-1	34536	1,2-Dichlorobenzene	ND	300			
106-46-7	34571	1,4-Dichlorobenzene	ND	300			
91-94-1	34631	3,3'-Dichlorobenzidine	ND	300			
120-83-2	34601	2,4-Dichlorophenol	ND	600			
84-66-2	34336	Diethylphthalate	ND	300			
105-67-9	34606	2,4-Dimethylphenol	ND	600			
131-11-3	34341	Dimethylphthalate	ND	300			
51-28-5	34616	2,4-Dinitrophenol	ND	740			
121-14-2	34611	2,4-Dinitrotoluene	ND	300			
606-20-2	34626	2,6-Dinitrotoluene	ND	300			
117-84-0	34596	Di-n-octylphthalate	ND	300			
206-44-0	34376	Fluoranthene	130	9.5		750	8568
86-73-7	34381	Fluorene	ND	9.5		190	1344
118-74-1	39700	Hexachlorobenzene	ND	300			
87-68-3	34391	Hexachlorobutadiene	ND	300			
77-47-4	34386	Hexachlorocyclopentadiene	ND	300			
67-72-1	34396	Hexachloroethane	ND	300			
193-39-5	34403	Indeno(1,2,3-cd)pyrene	ND	300		200	2688
78-59-1	34408	Isophorone	ND	300			
534-52-1	34657	2-Methyl-4,6-dinitrophenol	ND	740			
91-20-3	34696	Naphthalene	ND	9.5			
98-95-3	34447	Nitrobenzene	ND	300			
88-75-5	34591	2-Nitrophenol	ND	600			
100-02-7	34646	4-Nitrophenol	ND	740			
86-30-3	34433	N-Nitrosodiphenylamine	ND	300			
621-64-7	34428	N-Nitrosodi-n-propylamine	ND	300			
87-86-5	39032	Pentachlorophenol	ND	740			
85-01-8	34461	Phenanthrene	54	9.5		560	7980
108-95-2	34694	Phenol	ND	600			
129-00-0	34469	Pyrene	130	9.5		490	7140
120-82-1	34551	1,2,4-Trichlorobenzene	ND	300			
88-06-2	34621	2,4,6-Trichlorophenol	ND	600			
		Total PAH	834			4000	84000
Hazardous Substances							
65-53-3	77089	Aniline	ND	300			
65-85-0	77247	Benzoic Acid	150	740	L		
100-51-6	77147	Benzyl Alcohol	ND	300			
106-47-8		4-Chloroaniline	ND	300			
132-64-9	81302	Dibenzofuran	ND	300			
91-57-6		2-Methylnaphthalene	ND	300			
95-48-7		2-Methylphenol	ND	300			
106-44-5		4-Methylphenol	ND	300			
88-74-4		2-Nitroaniline	ND	740			
99-09-2		3-Nitroaniline	ND	740			
100-01-6		4-Nitroaniline	ND	740			
95-95-4	34621	2,4,5-Trichlorophenol	ND	740			
Other Compounds Quantitated							
		Diphenylhydrazine	ND	300			

CRWA03

PCBs & Pesticides

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
309-00-2	39330	Aldrin	ND	1		2	67.2
319-84-6	39337	alpha-BHC	ND	1		6	84
319-85-7	39338	beta-BHC	ND	1		5	176.4
319-86-8	34259	delta-BHC	ND	1			
58-89-9	39340	gamma-BHC	ND	1		3	8.4
5103-71-9	—	Alpha Chlordane	1.2	1			
5103-74-2	—	gamma Chlordane	ND	1			
57-74-9	39350	Chlordane (technical)	ND	100		7	50.4
72-54-8	39310	4,4'-DDD	3.9	1		8	50.4
72-55-9	39320	4,4'-DDE	4.2	1		5	159.6
50-29-3	39300	4,4'-DDT	ND	1			
60-57-1	39380	Dieldrin	ND	1		2	764.4
959-98-8	34361	Endosulfan I	ND	1			
33212-65-9	34356	Endosulfan II	ND	1			
1031-078	34351	Endosulfan sulfate	ND	1			
72-20-8	39390	Endrin	ND	1		3	1092
7421-93-4	34366	Endrin aldehyde	ND	1			
53494-70-5	—	Endrin ketone	ND	1			
76-44-8	39410	Heptachlor	ND	1			
1024-57-3	39420	Heptachlor epoxide	ND	1		5	42
72-43-5	—	Methoxychlor	ND	1			
8001-35-2	39400	Toxaphene	ND	100			
12674-11-2	34671	Aroclor-1016	ND	30		7	445.2
11104-28-2	39488	Aroclor-1221	ND	30			
11141-16-5	39492	Aroclor-1232	ND	30			
53469-21-9	39496	Aroclor-1242	ND	30			
12672-29-6	39500	Aroclor-1248	ND	30		30	1260
11097-69-1	39504	Aroclor-1254	ND	30		60	285.6
11096-82-5	39508	Aroclor-1260	ND	30		5	201.6
11100-14-4	81649	Aroclor-1262	ND	30			
37324-23-5	81650	Aroclor-1268	ND	30			

Note:

ND = Not detected above reporting limit

B = Analyte is associated with lab blank contamination

L = Estimated value is below the calibration range

█ = Greater than Lowest Effect Level (LEL)

█ = Greater than Severe Effect Level (SEL)

LELs and SELs are based on the 5th and 95th percentiles respectively of the screening level concentration except where noted below.

gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, SELs are based on 90% screening level concentrations

gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs are based on 10% screening level concentrations

gamma-BHC, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs and SELs are tentative guidelines.

Sampling site: CRWA 04
 Site description: Upstream from the Natick Dam, Natick
 Sampling date: 5/30/96
 Latitude: 42 16' 13.98" Longitude: 71 18' 56.977"
 Water depth: 1.5 meters

Water column analysis

Field measurements

Depth of sample (meters)	0.2	1
D.O. (mg/l)	6	5.9
Temp (C)	16	16.2

Metals & TOC

Parameter	Sample result (ug/L)	Reporting limit (ug/L)
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Cd	ND	15
Cr	ND	15
Cu	ND	15
Ni	ND	60
Pb	ND	100
Zn	ND	20
Hg	ND	0.5
TOC	12000	

Sediment Analysis

Metals Parameter	Sample result (ug/gm)*	Reporting limit (ug/gm)*	OMOE Biological Guidelines	
			LEL (ug/gm)*	SEL (ug/gm)*
Cd	ND	1.3	0.6	10
Cr	61.1		26	110
Cu	29.4		16	110
Ni	10.8		16	75
Pb	57		31	250
Zn	195		120	820
Hg	0.63		0.2	2

OMOE = Ontario Ministry of the Environment

█ = greater than Lowest Effect Level (LEL)

█ = greater than Severe Effect Level (SEL)

AVS&SEM Parameter	Sample result (umole/g)	Reporting limit (umole/gm)*
Cd	ND	0.01
Cr	0.42	
Cu	0.44	
Hg	ND	0.0002
Ni	ND	0.21
Pb	0.28	
Zn	3.1	
AVS	4.1	
SEM/ AVS ratio	0.93	

TOC	Sample result (%)
TOC	5.64

Note:

Toxicity and Grain Size Analysis not performed at this site

* = Reported as dry weight

ND = Not detected above reporting limit

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
Priority Pollutants							
83-32-9	34205	Acenaphthene	ND	17			
208-96-8	34200	Acenaphthylene	58	17			
120-12-7	34220	Anthracene	48	17		220	20868
56-55-3	34526	Benzo(a)anthracene	120	17		320	83472
205-99-2	34230	Benzo(b)fluoranthene	170	550	L		
207-08-9	34242	Benzo(k)fluoranthene	220	550	L	240	75576
50-32-8	34247	Benzo(a)pyrene	170	550	L	370	81216
191-24-2	34521	Benzo(ghi)perylene	ND	550		170	18048
85-68-7	34292	Benzyl butyl phthalate	ND	550			
111-44-4	34273	Bis(2-chloroethyl)ether	ND	550			
111-91-1	34278	Bis(2-chloroethoxy)methane	ND	550			
117-81-7	39100	Bis(2-ethylhexyl)phthalate	520	550	L		
108-60-1	34283	Bis(2-chloroisopropyl)ether	ND	550			
101-55-3	34636	4-Bromophenylphenyl ether	ND	550			
86-74-8		Carbazole	94	550	L		
59-50-7	34452	4-Chloro-3-methylphenol	ND	1100			
91-58-7	34581	2-Chloronaphthalene	ND	550			
95-57-8	34586	2-Chlorophenol	ND	1100			
7005-72-3	34641	4-Chlorophenylphenyl ether	ND	550			
218-01-9	34320	Chrysene	180	17		340	25944
53-70-3	34556	Dibenzo(a,h)anthracene	ND	550		60	7332
84-74-2	39110	Di-n-butylphthalate	88	550	L		
541-73-1	34566	1,3-Dichlorobenzene	ND	550			
95-50-1	34536	1,2-Dichlorobenzene	ND	550			
106-46-7	34571	1,4-Dichlorobenzene	ND	550			
91-94-1	34631	3,3'-Dichlorobenzidine	ND	550			
120-83-2	34601	2,4-Dichlorophenol	ND	1100			
84-66-2	34336	Diethylphthalate	ND	550			
105-67-9	34606	2,4-Dimethylphenol	ND	1100			
131-11-3	34341	Dimethylphthalate	ND	550			
51-28-5	34616	2,4-Dinitrophenol	ND	1400			
121-14-2	34611	2,4-Dinitrotoluene	ND	550			
606-20-2	34626	2,6-Dinitrotoluene	ND	550			
117-84-0	34596	Di-n-octylphthalate	ND	550			
206-44-0	34376	Fluoranthene	240	17		750	57528
86-73-7	34381	Fluorene	16	17	L	190	9024
118-74-1	39700	Hexachlorobenzene	ND	550			
87-68-3	34391	Hexachlorobutadiene	ND	550			
77-47-4	34386	Hexachlorocyclopentadiene	ND	550			
67-72-1	34396	Hexachloroethane	ND	550			
193-39-5	34403	Indeno(1,2,3-cd)pyrene	ND	550		200	18048
78-59-1	34408	Isophorone	ND	550			
534-52-1	34657	2-Methyl-4,6-dinitrophenol	ND	1400			
91-20-3	34696	Naphthalene	ND	17			
98-95-3	34447	Nitrobenzene	ND	550			
88-75-5	34591	2-Nitrophenol	ND	1100			
100-02-7	34646	4-Nitrophenol	ND	1400			
86-30-3	34433	N-Nitrosodiphenylamine	ND	550			
621-64-7	34428	N-Nitrosodi-n-propylamine	ND	550			
87-86-5	39032	Pentachlorophenol	ND	1400			
85-01-8	34461	Phenanthrene	140	17		560	53580
108-95-2	34694	Phenol	ND	1100			
129-00-0	34469	Pyrene	270	17		490	47940
120-82-1	34551	1,2,4-Trichlorobenzene	ND	550			
88-06-2	34621	2,4,6-Trichlorophenol	ND	1100			
		Total PAH	1406			4000	564000
Hazardous Substances							
65-53-3	77089	Aniline	ND	550			
65-85-0	77247	Benzoic Acid	270	1400	L		
100-51-6	77147	Benzyl Alcohol	ND	550			
106-47-8		4-Chloroaniline	ND	550			
132-64-9	81302	Dibenzofuran	ND	550			
91-57-6		2-Methylnaphthalene	ND	550			
95-48-7		2-Methylphenol	ND	550			
106-44-5		4-Methylphenol	ND	550			
88-74-4		2-Nitroaniline	ND	1400			
99-09-2		3-Nitroaniline	ND	1400			
100-01-6		4-Nitroaniline	ND	1400			
95-95-4	34621	2,4,5-Trichlorophenol	ND	1400			
Other Compounds Quantitated							
		Diphenylhydrazine	ND	550			

CRWA04

PCBs & Pesticides

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
309-00-2	39330	Aldrin	ND	5		2	451.2
319-84-6	39337	alpha-BHC	ND	5		6	564
319-85-7	39338	beta-BHC	ND	5		5	1184.4
319-86-8	34259	delta-BHC	ND	5			
58-89-9	39340	gamma-BHC	ND	5		3	56.4
5103-71-9	---	Alpha Chlordane	ND	5			
5103-74-2	---	gamma Chlordane	ND	5			
57-74-9	39350	Chlordane (technical)	ND	500		7	338.4
72-54-8	39310	4,4'-DDD	68	5		8	338.4
72-55-9	39320	4,4'-DDE	55	5		5	1071.6
50-29-3	39300	4,4'-DDT	ND	5			
60-57-1	39380	Dieldrin	ND	5		2	5132.4
959-98-8	34361	Endosulfan I	ND	5			
33212-65-9	34356	Endosulfan II	ND	5			
1031-078	34351	Endosulfan sulfate	ND	5			
72-20-8	39390	Endrin	ND	5		3	7332
7421-93-4	34366	Endrin aldehyde	ND	5			
53494-70-5	---	Endrin ketone	ND	5			
76-44-8	39410	Heptachlor	ND	5			
1024-57-3	39420	Heptachlor epoxide	ND	5		5	282
72-43-5	---	Methoxychlor	ND	5			
8001-35-2	39400	Toxaphene	ND	500			
12674-11-2	34671	Aroclor-1016	ND	100		7	2989.2
11104-28-2	39488	Aroclor-1221	ND	100			
11141-16-5	39492	Aroclor-1232	ND	100			
53469-21-9	39496	Aroclor-1242	ND	100			
12672-29-6	39500	Aroclor-1248	ND	100		30	8460
11097-69-1	39504	Aroclor-1254	ND	100		60	1917.6
11096-82-5	39508	Aroclor-1260	ND	100		5	1353.6
11100-14-4	81649	Aroclor-1262	ND	100			
37324-23-5	81650	Aroclor-1268	ND	100			

Note:

ND = Not detected above reporting limit

L = Estimated value is below the calibration range

█ = Greater than Lowest Effect Level (LEL)

█ = Greater than Severe Effect Level (SEL)

LELs and SELs are based on the 5th and 95th percentiles respectively of the screening level concentration except where noted below.

gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, SELs are based on 90% screening level concentrations

gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs are based on 10% screening level concentrations

gamma-BHC, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs and SELs are tentative guidelines.

Sampling site: CRWA 05
 Site description: Lakes district, Newton
 Sampling date: 5/29/96
 Latitude: 42 21' 04.229" Longitude: 71 15' 30.691"
 Water depth: 2.1 meters

Water column analysis

Field measurements

Depth of sample (meters)	0.2	1
D.O. (mg/l)	9.5	8.6
Temp (C)	21.8	18.77
pH	6.98	6.92
Conductivity (mS/cm)	6.98	0.303

Metals & TOC Parameter	Sample result (ug/L)	Reporting limit (ug/L)
Cd	ND	15
Cr	ND	15
Cu	ND	15
Ni	ND	60
Pb	ND	100
Zn	ND	20
Hg	ND	0.5
TOC	11900	

Sediment Analysis

Metals Parameter	Sample result (ug/gm)*	Reporting limit (ug/gm)*	OMOE Biological Guidelines	
			LEL (ug/gm)*	SEL (ug/gm)*
Cd	2		0.6	10
Cr	68.7		26	110
Cu	69		16	110
Ni	18.6		16	75
Pb	218		31	250
Zn	306		120	820
Hg	1.1		0.2	2

OMOE = Ontario Ministry of the Environment

█ = greater than Lowest Effect Level (LEL)

█ = greater than Severe Effect Level (SEL)

AVS&SEM Parameter	Sample result (umole/gm)*	Reporting limit (umole/gm)*
Cd	ND	0.02
Cr	0.64	
Cu	1	
Hg	ND	0.0002
Ni	0.34	
Pb	1.2	
Zn	4.8	
AVS	16.3	
SEM/ AVS ratio	0.45	

TOC	Sample result (%)
TOC	7.74

Grain Size	Course sand < 4.75 mm > 2 mm	Medium sand < 2 mm > 0.425 mm	Fine sand < 0.425 mm > 0.075 mm	Silt & clay <0.075 mm > 0.075 mm
% composition	6	25	28	41

Toxicity Organism		% Survival-10 days
<i>Chironomus tentans</i>	midge	92.5
<i>Hyallolela azteca</i>	amphipod	95

Note:

* = Reported as dry weight

ND = Not detected above reporting limit

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
Priority Pollutants							
83-32-9	34205	Acenaphthene	ND	110			
208-96-8	34200	Acenaphthylene	190	110			
120-12-7	34220	Anthracene	320	110		220	28638
56-55-3	34526	Benzo(a)anthracene	2000	110		320	114552
205-99-2	34230	Benzo(b)fluoranthene	3100	3600	L		
207-08-9	34242	Benzo(k)fluoranthene	2700	3600	L	240	103716
50-32-8	34247	Benzo(a)pyrene	2900	3600	L	370	111456
191-24-2	34521	Benzo(ghi)perylene	ND	3600		170	24768
85-68-7	34292	Benzyl butyl phthalate	ND	3600			
111-44-4	34273	Bis(2-chloroethyl)ether	ND	3600			
111-91-1	34278	Bis(2-chloroethoxy)methane	ND	3600			
117-81-7	39100	Bis(2-ethylhexyl)phthalate	6600	3600	B		
108-60-1	34283	Bis(2-chloroisopropyl)ether	ND	3600			
101-55-3	34636	4-Bromophenylphenyl ether	ND	3600			
86-74-8		Carbazole	740	3600			
59-50-7	34452	4-Chloro-3-methylphenol	ND	7200			
91-58-7	34581	2-Chloronaphthalene	ND	3600			
95-57-8	34586	2-Chlorophenol	ND	7200			
7005-72-3	34641	4-Chlorophenylphenyl ether	ND	3600			
218-01-9	34320	Chrysene	2600	110		340	35604
53-70-3	34556	Dibenzo(a,h)anthracene	ND	3600		60	10062
84-74-2	39110	Di-n-butylphthalate	ND	3600			
541-73-1	34566	1,3-Dichlorobenzene	ND	3600			
95-50-1	34536	1,2-Dichlorobenzene	ND	3600			
106-46-7	34571	1,4-Dichlorobenzene	ND	3600			
91-94-1	34631	3,3'-Dichlorobenzidine	ND	3600			
120-83-2	34601	2,4-Dichlorophenol	ND	7200			
84-66-2	34336	Diethylphthalate	ND	3600			
105-67-9	34606	2,4-Dimethylphenol	ND	7200			
131-11-3	34341	Dimethylphthalate	ND	3600			
51-28-5	34616	2,4-Dinitrophenol	ND	8900			
121-14-2	34611	2,4-Dinitrotoluene	ND	3600			
606-20-2	34626	2,6-Dinitrotoluene	ND	3600			
117-84-0	34596	Di-n-octylphthalate	ND	3600			
206-44-0	34376	Fluoranthene	4100	110		750	78948
86-73-7	34381	Fluorene	120	110		190	12384
118-74-1	39700	Hexachlorobenzene	ND	3600			
87-68-3	34391	Hexachlorobutadiene	ND	3600			
77-47-4	34386	Hexachlorocyclopentadiene	ND	3600			
67-72-1	34396	Hexachloroethane	ND	3600			
193-39-5	34403	Indeno(1,2,3-cd)pyrene	ND	3600		200	24768
78-59-1	34408	Isophorone	ND	3600			
534-52-1	34657	2-Methyl-4,6-dinitrophenol	ND	8900			
91-20-3	34696	Naphthalene	ND	110			
98-95-3	34447	Nitrobenzene	ND	3600			
88-75-5	34591	2-Nitrophenol	ND	7200			
100-02-7	34646	4-Nitrophenol	ND	8900			
86-30-3	34433	N-Nitrosodiphenylamine	ND	3600			
621-64-7	34428	N-Nitrosodi-n-propylamine	ND	3600			
87-86-5	39032	Pentachlorophenol	ND	8900			
85-01-8	34461	Phenanthrene	1600	110		560	73530
108-95-2	34694	Phenol	ND	7200			
129-00-0	34469	Pyrene	3400	110		490	65790
120-82-1	34551	1,2,4-Trichlorobenzene	ND	3600			
88-06-2	34621	2,4,6-Trichlorophenol	ND	7200			
		Total PAH	22910			4000	774000
Hazardous Substances							
65-53-3	77089	Aniline	ND	3600			
65-85-0	77247	Benzoic Acid	ND	8900			
100-51-6	77147	Benzyl Alcohol	ND	3600			
106-47-8		4-Chloroaniline	ND	3600			
132-64-9	81302	Dibenzofuran	ND	3600			
91-57-6		2-Methylnaphthalene	ND	3600			
95-48-7		2-Methylphenol	ND	3600			
106-44-5		4-Methylphenol	ND	3600			
88-74-4		2-Nitroaniline	ND	8900			
99-09-2		3-Nitroaniline	ND	8900			
100-01-6		4-Nitroaniline	ND	8900			
95-95-4	34621	2,4,5-Trichlorophenol	ND	8900			
Other Compounds Quantitated							
		Diphenylhydrazine	ND	3600			

PCBs & Pesticides

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
309-00-2	39330	Aldrin	ND	6		2	619.2
319-84-6	39337	alpha-BHC	ND	6		6	774
319-85-7	39338	beta-BHC	25	6		5	1625.4
319-86-8	34259	delta-BHC	ND	6			
58-89-9	39340	gamma-BHC	ND	6		3	77.4
5103-71-9	—	Alpha Chlordane	42	6			
5103-74-2	—	gamma Chlordane	32	6	P		
57-74-9	39350	Chlordane (technical)	ND	600		7	464.4
72-54-8	39310	4,4'-DDD	100	6		8	464.4
72-55-9	39320	4,4'-DDE	68	6		5	1470.6
50-29-3	39300	4,4'-DDT	40	6			
60-57-1	39380	Dieldrin	ND	6		2	7043.4
959-98-8	34361	Endosulfan I	ND	6			
33212-65-9	34356	Endosulfan II	ND	6			
1031-078	34351	Endosulfan sulfate	ND	6			
72-20-8	39390	Endrin	ND	6		3	10062
7421-93-4	34366	Endrin aldehyde	ND	6			
53494-70-5	—	Endrin ketone	ND	6			
76-44-8	39410	Heptachlor	ND	6			
1024-57-3	39420	Heptachlor epoxide	ND	6		5	387
72-43-5	—	Methoxychlor	ND	6			
8001-35-2	39400	Toxaphene	ND	600			
12674-11-2	34671	Aroclor-1016	ND	100		7	4102.2
11104-28-2	39488	Aroclor-1221	ND	100			
11141-16-5	39492	Aroclor-1232	ND	100			
53469-21-9	39496	Aroclor-1242	ND	100			
12672-29-6	39500	Aroclor-1248	ND	100		30	11610
11097-69-1	39504	Aroclor-1254	590	100		60	2631.6
11096-82-5	39508	Aroclor-1260	ND	100		5	1857.6
11100-14-4	81649	Aroclor-1262	ND	100			
37324-23-5	81650	Aroclor-1268	ND	100			

Note:

ND = Not detected above reporting limit

B = Analyte is associated with lab blank contamination

P = The confirmation value exceeded 35% difference and is less than 100 The lower value is reported.

= Greater than Lowest Effect Level (LEL)

= Greater than Severe Effect Level (SEL)

LELs and SELs are based on the 5th and 95th percentiles respectively of the screening level concentration except where noted below.

gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, SELs are based on 90% screening level concentrations
gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs are based on 10% screening level concentrations
gamma-BHC, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs and SELs are tentative guidelines.

Sampling site: CRWA 06
 Site description: Downstream from Landfill, Boston
 Sampling date: 5/30/96
 Latitude: 42 16' 52.789" Longitude: 71 11' 23.496"
 Water depth: 1.5 meters

Water column analysis

Field measurements

Depth of sample (meters)	0.2	1
D.O. (mg/l)	8.4	8.3
Temp (C)	17.2	17.2

Metals & TOC

Parameter	Sample result (ug/L)	Reporting limit (ug/L)
Cd	ND	15
Cr	ND	15
Cu	ND	15
Ni	ND	60
Pb	ND	100
Zn	ND	20
Hg	ND	0.5
TOC	12200	

Sediment Analysis

Metals

Parameter	Sample result (ug/gm)*	Reporting limit (ug/gm)*	OMOE Biological Guidelines	
			LEL (ug/gm)*	SEL (ug/gm)*
Cd	ND	1.3	0.6	10
Cr	20.4		26	110
Cu	14.7		16	110
Ni	7.9		16	75
Pb	49.1		31	250
Zn	99.8		120	820
Hg	0.27		0.2	2

OMOE = Ontario Ministry of the Environment

[Redacted] = greater than Lowest Effect Level (LEL)

[Redacted] = greater than Severe Effect Level (SEL)

AVS&SEM

Parameter	Sample result (umole/g)	Reporting limit (umole/gm)*
Cd	ND	0.02
Cr	0.42	
Cu	0.18	
Hg	ND	0.0003
Ni	ND	0.3
Pb	0.2	
Zn	1.4	
AVS	1.4	
SEM/ AVS ratio	1.3	

TOC	Sample result (%)
TOC	2.44

Note:

Toxicity and Grain Size Analysis not performed at this site

* = Reported as dry weight

ND = Not detected above reporting limit

BNAs CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
Priority Pollutants							
83-32-9	34205	Acenaphthene	50	13			
208-96-8	34200	Acenaphthylene	32	13			
120-12-7	34220	Anthracene	92	13		220	9028
56-55-3	34526	Benzo(a)anthracene	280	13		320	36112
205-99-2	34230	Benzo(b)fluoranthene	390	410	L		
207-08-9	34242	Benzo(k)fluoranthene	420	410		240	32696
50-32-8	34247	Benzo(a)pyrene	370	410	L	370	35136
191-24-2	34521	Benzo(ghi)perylene	ND	410		170	7808
85-68-7	34292	Benzyl butyl phthalate	ND	410			
111-44-4	34273	Bis(2-chloroethyl)ether	ND	410			
111-91-1	34278	Bis(2-chloroethoxy)methane	ND	410			
117-81-7	39100	Bis(2-ethylhexyl)phthalate	1200	410			
108-60-1	34283	Bis(2-chloroisopropyl)ether	ND	410			
101-55-3	34636	4-Bromophenylphenyl ether	ND	410			
86-74-8		Carbazole	190	410			
59-50-7	34452	4-Chloro-3-methylphenol	ND	820			
91-58-7	34581	2-Chloronaphthalene	ND	410			
95-57-8	34586	2-Chlorophenol	ND	820			
7005-72-3	34641	4-Chlorophenylphenyl ether	ND	410			
218-01-9	34320	Chrysene	280	13		340	11224
53-70-3	34556	Dibenzo(a,h)anthracene	ND	410		60	3172
84-74-2	39110	Di-n-butylphthalate	ND	410			
541-73-1	34566	1,3-Dichlorobenzene	ND	410			
95-50-1	34536	1,2-Dichlorobenzene	ND	410			
106-46-7	34571	1,4-Dichlorobenzene	ND	410			
91-94-1	34631	3,3'-Dichlorobenzidine	ND	410			
120-83-2	34601	2,4-Dichlorophenol	ND	820			
84-66-2	34336	Diethylphthalate	ND	410			
105-67-9	34606	2,4-Dimethylphenol	ND	820			
131-11-3	34341	Dimethylphthalate	ND	410			
51-28-5	34616	2,4-Dinitrophenol	ND	1000			
121-14-2	34611	2,4-Dinitrotoluene	ND	410			
606-20-2	34626	2,6-Dinitrotoluene	ND	410			
117-84-0	34596	Di-n-octylphthalate	ND	410			
206-44-0	34376	Fluoranthene	610	13		750	24888
86-73-7	34381	Fluorene	49	13		190	3904
118-74-1	39700	Hexachlorobenzene	ND	410			
87-68-3	34391	Hexachlorobutadiene	ND	410			
77-47-4	34386	Hexachlorocyclopentadiene	ND	410			
67-72-1	34396	Hexachloroethane	ND	410			
193-39-5	34403	Indeno(1,2,3-cd)pyrene	ND	410		200	7808
78-59-1	34408	Isophorone	ND	410			
534-52-1	34657	2-Methyl-4,6-dinitrophenol	ND	1000			
91-20-3	34696	Naphthalene	15	13			
98-95-3	34447	Nitrobenzene	ND	410			
88-75-5	34591	2-Nitrophenol	ND	820			
100-02-7	34646	4-Nitrophenol	ND	1000			
86-30-3	34433	N-Nitrosodiphenylamine	ND	410			
621-64-7	34428	N-Nitrosodi-n-propylamine	ND	410			
87-86-5	39032	Pentachlorophenol	ND	1000			
85-01-8	34461	Phenanthrene	460	13		560	23180
108-95-2	34694	Phenol	ND	820			
129-00-0	34469	Pyrene	550	13		490	20740
120-82-1	34551	1,2,4-Trichlorobenzene	ND	410			
88-06-2	34621	2,4,6-Trichlorophenol	ND	820			
		Total PAH	3598			4000	244000
Hazardous Substances							
65-53-3	77089	Aniline	ND	410			
65-85-0	77247	Benzoic Acid	ND	1000			
100-51-6	77147	Benzyl Alcohol	ND	410			
106-47-8		4-Chloroaniline	ND	410			
132-64-9	81302	Dibenzofuran	ND	410			
91-57-6		2-Methylnaphthalene	ND	410			
95-48-7		2-Methylphenol	ND	410			
106-44-5		4-Methylphenol	ND	410			
88-74-4		2-Nitroaniline	ND	1000			
99-09-2		3-Nitroaniline	ND	1000			
100-01-6		4-Nitroaniline	ND	1000			
95-95-4	34621	2,4,5-Trichlorophenol	ND	1000			
Other Compounds Quantitated							
		Diphenylhydrazine	ND	410			

PCBs & Pesticides

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
309-00-2	39330	Aldrin	ND	2		2	195.2
319-84-6	39337	alpha-BHC	ND	2		6	244
319-85-7	39338	beta-BHC	ND	2		5	512.4
319-86-8	34259	delta-BHC	ND	2			
58-89-9	39340	gamma-BHC	ND	2		3	24.4
5103-71-9	—	Alpha Chlordane	4.3	2			
5103-74-2	—	gamma Chlordane	2.5	2	P		
57-74-9	39350	Chlordane (technical)	ND	200		7	146.4
72-54-8	39310	4,4'-DDD	12	2		8	146.4
72-55-9	39320	4,4'-DDE	11	2		5	463.6
50-29-3	39300	4,4'-DDT	ND	2			
60-57-1	39380	Dieldrin	ND	2		2	2220.4
959-98-8	34361	Endosulfan I	ND	2			
33212-65-9	34356	Endosulfan II	ND	2			
1031-078	34351	Endosulfan sulfate	ND	2			
72-20-8	39390	Endrin	ND	2		3	3172
7421-93-4	34366	Endrin aldehyde	ND	2			
53494-70-5	—	Endrin ketone	ND	2			
76-44-8	39410	Heptachlor	ND	2			
1024-57-3	39420	Heptachlor epoxide	ND	2		5	122
72-43-5	—	Methoxychlor	ND	2			
8001-35-2	39400	Toxaphene	ND	200			
12674-11-2	34671	Aroclor-1016	ND	40		7	1293.2
11104-28-2	39488	Aroclor-1221	ND	40			
11141-16-5	39492	Aroclor-1232	ND	40			
53469-21-9	39496	Aroclor-1242	ND	40			
12672-29-6	39500	Aroclor-1248	ND	40		30	3660
11097-69-1	39504	Aroclor-1254	ND	40		60	829.6
11096-82-5	39508	Aroclor-1260	ND	40		5	585.6
11100-14-4	81649	Aroclor-1262	ND	40			
37324-23-5	81650	Aroclor-1268	ND	40			

Note:

ND = Not detected above reporting limit

L = Estimated value is below the calibration range

P = The confirmation value exceeded 35% difference and is less than 100 %. The lower value is reported.

█ = Greater than Lowest Effect Level (LEL)

█ = Greater than Severe Effect Level (SEL)

LELs and SELs are based on the 5th and 95th percentiles respectively of the screening level concentration except where noted below.

gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, SELs are based on 90% screening level concentrations

gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs are based on 10% screening level concentrations

gamma-BHC, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs and SELs are tentative guidelines.

Sampling site: CRWA 07
 Site description: Upstream from the Watertown Dam, Watertown
 Sampling date: 5/29/96
 Latitude: 42 21' 54.578" Longitude: 71 11' 31.215"
 Water depth: 1.5 meters

Water column analysis

Field Measurements

Depth of sample (meters)	0.2	1
D.O. (mg/l)	7.1	7
Temp (C)	19.6	19.5
pH	6.9	6.91
Conductivity (mS/cm)	0.317	0.317

Metals & TOC

Parameter	Sample result (ug/L)	Reporting limit (ug/L)
Cd	ND	15
Cr	ND	15
Cu	ND	15
Ni	ND	60
Pb	ND	100
Zn	ND	20
Hg	ND	0.5
TOC	11400	

Sediment Analysis

Metals

Parameter	Sample result (ug/gm)*	Reporting limit (ug/gm)*	OMOE Biological Guidelines	
			LEL (ug/gm)*	SEL (ug/gm)*
Cd	ND	1.1	0.6	10
Cr	18.9		26	110
	23.7		16	110
Ni	10.7		16	75
	85.2		31	250
Zn	100		120	820
Hg	0.13		0.2	2

OMOE = Ontario Ministry of the Environment

█ = greater than Lowest Effect Level (LEL)

█ = greater than Severe Effect Level (SEL)

AVS&SEM

Parameter	Sample result (umole/gm)*	Reporting limit (umole/gm)*
Cd	ND	0.01
Cr	0.29	
Cu	0.33	
Hg	ND	0.0001
Ni	0.16	
Pb	0.41	
Zn	1.6	
AVS	4.3	
SEM/ AVS ratio	0.58	

TOC

TOC	Sample result (%)
TOC	1.92

Grain Size

	Course sand < 4.75 mm > 2 mm	Medium sand < 2 mm > 0.425 mm	Fine sand < 0.425 mm > 0.075 mm	Silt & clay < 0.075 mm
% composition	13	47	40	<1

Toxicity

Organism	type	% Survival-10 days
<i>Chironomus tentans</i>	midge	81
<i>Hyallela azteca</i>	amphipod	95

Note:

* = Reported as dry weight

ND = Not detected above reporting limit

BNAs

CAS NO	STORE NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
Priority Pollutants							
83-32-9	34205	Acenaphthene	ND	3400			
208-96-8	34200	Acenaphthylene	730	3400	L		
120-12-7	34220	Anthracene	1300	3400	L	220	7104
56-55-3	34526	Benzo(a)anthracene	3800	3400		320	28416
205-99-2	34230	Benzo(b)fluoranthene	3200	3400	L		
207-08-9	34242	Benzo(k)fluoranthene	3800	3400		240	25728
50-32-8	34247	Benzo(a)pyrene	3800	3400		370	27648
191-24-2	34521	Benzo(ghi)perylene	1600	3400	L	170	6144
85-68-7	34292	Benzyl butyl phthalate	ND	3400			
111-44-4	34273	Bis(2-chloroethyl)ether	ND	3400			
111-91-1	34278	Bis(2-chloroethoxy)methane	ND	3400			
117-81-7	39100	Bis(2-ethylhexyl)phthalate	4100	3400	B		
108-60-1	34283	Bis(2-chloroisopropyl)ether	ND	3400			
101-55-3	34636	4-Bromophenylphenyl ether	ND	3400			
86-74-8		Carbazole	1000	3400	L		
59-50-7	34452	4-Chloro-3-methylphenol	ND	6700			
91-58-7	34581	2-Chloronaphthalene	ND	3400			
95-57-8	34586	2-Chlorophenol	ND	6700			
7005-72-3	34641	4-Chlorophenylphenyl ether	ND	3400			
218-01-9	34320	Chrysene	4000	3400		340	8832
53-70-3	34556	Dibenzo(a,h)anthracene	ND	3400		60	2496
84-74-2	39110	Di-n-butylphthalate	ND	3400			
541-73-1	34566	1,3-Dichlorobenzene	ND	3400			
95-50-1	34536	1,2-Dichlorobenzene	ND	3400			
106-46-7	34571	1,4-Dichlorobenzene	ND	3400			
91-94-1	34631	3,3'-Dichlorobenzidine	ND	3400			
120-83-2	34601	2,4-Dichlorophenol	ND	6700			
84-66-2	34336	Diethylphthalate	ND	3400			
105-67-9	34606	2,4-Dimethylphenol	ND	6700			
131-11-3	34341	Dimethylphthalate	ND	3400			
51-28-5	34616	2,4-Dinitrophenol	ND	8400			
121-14-2	34611	2,4-Dinitrotoluene	ND	3400			
606-20-2	34626	2,6-Dinitrotoluene	ND	3400			
117-84-0	34596	Di-n-octylphthalate	ND	3400			
206-44-0	34376	Fluoranthene	7100	3400		750	19584
86-73-7	34381	Fluorene	ND	3400		190	3072
118-74-1	39700	Hexachlorobenzene	ND	3400			
87-68-3	34391	Hexachlorobutadiene	ND	3400			
77-47-4	34386	Hexachlorocyclopentadiene	ND	3400			
67-72-1	34396	Hexachloroethane	ND	3400			
193-39-5	34403	Indeno(1,2,3-cd)pyrene	1200	3400	L	200	6144
78-59-1	34408	Isophorone	ND	3400			
534-52-1	34657	2-Methyl-4,6-dinitrophenol	ND	8400			
91-20-3	34696	Naphthalene	ND	3400			
98-95-3	34447	Nitrobenzene	ND	3400			
88-75-5	34591	2-Nitrophenol	ND	6700			
100-02-7	34646	4-Nitrophenol	ND	8400			
86-30-3	34433	N-Nitrosodiphenylamine	ND	3400			
621-64-7	34428	N-Nitrosodi-n-propylamine	ND	3400			
87-86-5	39032	Pentachlorophenol	ND	8400			
85-01-8	34461	Phenanthrene	4100	3400		560	18240
108-95-2	34694	Phenol	ND	6700			
129-00-0	34469	Pyrene	7300	3400		490	16320
120-82-1	34551	1,2,4-Trichlorobenzene	ND	3400			
88-06-2	34621	2,4,6-Trichlorophenol	ND	6700			
		Total PAH	41930			4000	192000
Hazardous Substances							
65-53-3	77089	Aniline	ND	3400			
65-85-0	77247	Benzoic Acid	ND	8400			
100-51-6	77147	Benzyl Alcohol	ND	3400			
106-47-8		4-Chloroaniline	ND	3400			
132-64-9	81302	Dibenzofuran	ND	3400			
91-57-6		2-Methylnaphthalene	ND	3400			
95-48-7		2-Methylphenol	ND	3400			
106-44-5		4-Methylphenol	ND	3400			
88-74-4		2-Nitroaniline	ND	8400			
99-09-2		3-Nitroaniline	ND	8400			
100-01-6		4-Nitroaniline	ND	8400			
95-95-4	34621	2,4,5-Trichlorophenol	ND	8400			
Other Compounds Quantitated							
		Diphenylhydrazine	ND	3400			

CRWA07

PCBs & Pesticides

CAS NO	STORE NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
309-00-2	39330	Aldrin	ND	4		2	153.6
319-84-6	39337	alpha-BHC	ND	4		6	192
319-85-7	39338	beta-BHC	ND	4		5	403.2
319-86-8	34259	delta-BHC	ND	4			
58-89-9	39340	gamma-BHC	ND	4		3	19.2
5103-71-9	---	Alpha Chlordane	12	4			
5103-74-2	---	gamma Chlordane	ND	4			
57-74-9	39350	Chlordane (technical)	ND	400		7	115.2
72-54-8	39310	4,4'-DDD	38	4		8	115.2
72-55-9	39320	4,4'-DDE	8	4		5	364.8
50-29-3	39300	4,4'-DDT	ND	4			
60-57-1	39380	Dieldrin	ND	4		2	1747.2
959-98-8	34361	Endosulfan I	ND	4			
33212-65-	34356	Endosulfan II	ND	4			
1031-078	34351	Endosulfan sulfate	ND	4			
72-20-8	39390	Endrin	ND	4		3	2496
7421-93-4	34366	Endrin aldehyde	ND	4			
53494-70-	---	Endrin ketone	ND	4			
76-44-8	39410	Heptachlor	ND	4			
1024-57-3	39420	Heptachlor epoxide	ND	4		5	96
72-43-5	---	Methoxychlor	ND	4			
8001-35-2	39400	Toxaphene	ND	400			
12674-11-	34671	Aroclor-1016	ND	100		7	1017.6
11104-28-	39488	Aroclor-1221	ND	100			
11141-16-	39492	Aroclor-1232	ND	100			
53469-21-	39496	Aroclor-1242	ND	100			
12672-29-	39500	Aroclor-1248	ND	100		30	2880
11097-69-	39504	Aroclor-1254	ND	100		60	652.8
11096-82-	39508	Aroclor-1260	ND	100		5	460.8
11100-14-	81649	Aroclor-1262	ND	100			
37324-23-	81650	Aroclor-1268	ND	100			

Note:

ND = Not detected above reporting limit

B = Analyte is associated with lab blank contamination

L = Estimated value is below the calibration range

[Redacted] = Greater than Lowest Effect Level (LEL)

[Redacted] = Greater than Severe Effect Level (SEL)

LELs and SELs are based on the 5th and 95th percentiles respectively of the screening level concentration except where noted below.

gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, SELs are based on 90% screening level concentrations
 gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs are based on 10% screening level concentrations
 gamma-BHC, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs and SELs are tentative guidelines.

Sampling site: CRWA 08
 Site description: Lower basin between N. Harvard Street & foot Bridge, Boston
 Sampling date: 5/29/96
 Latitude: 42 22' 07.164" Longitude: 71 07' 11.623"
 Water depth: Not determined

Water column analysis

Field measurements

Depth of sample (meters)	0.2	1	2
D.O. (mg/l)	7.5	7.5	7.2
Temp (C)	19.79	19.85	19.82
pH	7.01	7.02	6.98
Conductivity (mS/cm)	0.328	0.329	0.329

Metals & TOC

Parameter	Sample result (ug/L)	Reporting limit (ug/L)
Cd	ND	15
Cr	ND	15
Cu	ND	15
Ni	ND	60
Pb	ND	100
Zn	ND	20
Hg	ND	0.5
TOC	10700	

Sediment Analysis

Metals

Parameter	Sample result (ug/gm)*	Reporting limit (ug/gm)*	OMOE Biological Guidelines	
			LEL (ug/gm)*	SEL (ug/gm)*
Cd	9.3		0.6	10
Cr	113		26	110
Cu	242		16	110
Ni	32.3		16	75
Pb	610		31	250
Zn	675		120	820
Hg	1.59		0.2	2

OMOE = Ontario Ministry of the Environment

█ = greater than Lowest Effect Level (LEL)

█ = greater than Severe Effect Level (SEL)

AVS&SEM

Parameter	Sample result (umole/gm)*	Reporting limit (umole/gm)*
Cd	0.08	
Cr	1.7	
Cu	3.9	
Hg	ND	0.0007
Ni	0.69	
Pb	3	
Zn	10.5	
AVS	26	
SEM/ AVS ratio	0.7	

TOC

Parameter	Sample result (%)
TOC	11.4

Grain Size	Course sand	Medium sand	Fine sand	Silt & clay
	< 4.75 mm	< 2 mm	< 0.425 mm	< 0.075 mm
	> 2 mm	> 0.425 mm	> 0.075 mm	

% composition	5	39	24	32
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Toxicity

Organism		% Survival-10 days
<i>Chironomus tentans</i>	midge	85
<i>Hyallela azteca</i>	amphipod	74 (statistically significant toxicity)

Note:

* = Reported as dry weight

ND = Not detected above reporting limit

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
Priority Pollutants							
83-32-9	34205	Acenaphthene	ND	5100			
208-96-8	34200	Acenaphthylene	1100	5100	L		
120-12-7	34220	Anthracene	1600	5100	L	220	37000
56-55-3	34526	Benzo(a)anthracene	4400	5100	L	320	148000
205-99-2	34230	Benzo(b)fluoranthene	7200	5100			
207-08-9	34242	Benzo(k)fluoranthene	7900	5100		240	134000
50-32-8	34247	Benzo(a)pyrene	5700	5100		370	144000
191-24-2	34521	Benzo(ghi)perylene	2500	5100		170	32000
85-68-7	34292	Benzyl butyl phthalate	ND	5100			
111-44-4	34273	Bis(2-chloroethyl)ether	ND	5100			
111-91-1	34278	Bis(2-chloroethoxy)methan	ND	5100			
117-81-7	39100	Bis(2-ethylhexyl)phthalate	44000	5100			
108-60-1	34283	Bis(2-chloroisopropyl)ether	ND	5100			
101-55-3	34636	4-Bromophenylphenyl ether	ND	5100			
86-74-8		Carbazole	2100	5100	L		
59-50-7	34452	4-Chloro-3-methylphenol	ND	10000			
91-58-7	34581	2-Chloronaphthalene	ND	5100			
95-57-8	34586	2-Chlorophenol	ND	10000			
7005-72-3	34641	4-Chlorophenylphenyl ether	ND	5100			
218-01-9	34320	Chrysene	6600	5100	L	340	46000
53-70-3	34556	Dibenzo(a,h)anthracene	ND	5100		60	13000
84-74-2	39110	Di-n-butylphthalate	ND	5100			
541-73-1	34566	1,3-Dichlorobenzene	ND	5100			
95-50-1	34536	1,2-Dichlorobenzene	ND	5100			
106-46-7	34571	1,4-Dichlorobenzene	ND	5100			
91-94-1	34631	3,3'-Dichlorobenzidine	ND	5100			
120-83-2	34601	2,4-Dichlorophenol	ND	10000			
84-66-2	34336	Diethylphthalate	ND	5100			
105-67-9	34606	2,4-Dimethylphenol	ND	10000			
131-11-3	34341	Dimethylphthalate	ND	5100			
51-28-5	34616	2,4-Dinitrophenol	ND	13000			
121-14-2	34611	2,4-Dinitrotoluene	ND	5100			
606-20-2	34626	2,6-Dinitrotoluene	ND	5100			
117-84-0	34596	Di-n-octylphthalate	ND	5100			
206-44-0	34376	Fluoranthene	9200	5100		750	102000
86-73-7	34381	Fluorene	ND	5100		190	16000
118-74-1	39700	Hexachlorobenzene	ND	5100			
87-68-3	34391	Hexachlorobutadiene	ND	5100			
77-47-4	34386	Hexachlorocyclopentadiene	ND	5100			
67-72-1	34396	Hexachloroethane	ND	5100			
193-39-5	34403	Indeno(1,2,3-cd)pyrene	1200	5100		200	32000
78-59-1	34408	Isophorone	ND	5100			
534-52-1	34657	2-Methyl-4,6-dinitrophenol	ND	13000			
91-20-3	34696	Naphthalene	ND	5100			
98-95-3	34447	Nitrobenzene	ND	5100			
88-75-5	34591	2-Nitrophenol	ND	10000			
100-02-7	34646	4-Nitrophenol	ND	13000			
86-30-3	34433	N-Nitrosodiphenylamine	ND	5100			
621-64-7	34428	N-Nitrosodi-n-propylamine	ND	5100			
87-86-5	39032	Pentachlorophenol	ND	13000			
85-01-8	34461	Phenanthrene	4400	5100	L	560	95000
108-95-2	34694	Phenol	ND	10000			
129-00-0	34469	Pyrene	11000	5100		490	85000
120-82-1	34551	1,2,4-Trichlorobenzene	ND	5100			
88-06-2	34621	2,4,6-Trichlorophenol	ND	10000			
		Total PAH	62800			4000	1000000
Hazardous Substances							
65-53-3	77089	Aniline	ND	5100			
65-85-0	77247	Benzoic Acid	ND	13000			
100-51-6	77147	Benzyl Alcohol	ND	5100			
106-47-8		4-Chloroaniline	ND	5100			
132-64-9	81302	Dibenzofuran	ND	5100			
91-57-6		2-Methylnaphthalene	ND	5100			
95-48-7		2-Methylphenol	ND	5100			
106-44-5		4-Methylphenol	ND	5100			
88-74-4		2-Nitroaniline	ND	13000			
99-09-2		3-Nitroaniline	ND	13000			
100-01-6		4-Nitroaniline	ND	13000			
95-95-4	34621	2,4,5-Trichlorophenol	ND	13000			
Other Compounds Quantitated							
		Diphenylhydrazine	ND	5100			

PCBs & Pesticides

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
309-00-2	39330	Aldrin	ND	8		2	800
319-84-6	39337	alpha-BHC	ND	8		6	1000
319-85-7	39338	beta-BHC	ND	8		5	2100
319-86-8	34259	delta-BHC	ND	8			
58-89-9	39340	gamma-BHC	ND	8		3	100
5103-71-9	—	Alpha Chlordane	76	8			
5103-74-2	—	gamma Chlordane	60	8	P		
57-74-9	39350	Chlordane (technical)	ND	800		7	600
72-54-8	39310	4,4'-DDD	140	8		8	600
72-55-9	39320	4,4'-DDE	110	8		5	1900
50-29-3	39300	4,4'-DDT	ND	8			
60-57-1	39380	Dieldrin	ND	8		2	9100
959-98-8	34361	Endosulfan I	ND	8			
33212-65-9	34356	Endosulfan II	ND	8			
1031-078	34351	Endosulfan sulfate	ND	8			
72-20-8	39390	Endrin	ND	8		3	13000
7421-93-4	34366	Endrin aldehyde	ND	8			
53494-70-5	—	Endrin ketone	ND	8			
76-44-8	39410	Heptachlor	ND	8			
1024-57-3	39420	Heptachlor epoxide	ND	8		5	500
72-43-5	—	Methoxychlor	ND	8			
8001-35-2	39400	Toxaphene	ND	800			
12674-11-2	34671	Aroclor-1016	ND	200		7	5300
11104-28-2	39488	Aroclor-1221	ND	200			
11141-16-5	39492	Aroclor-1232	ND	200			
53469-21-9	39496	Aroclor-1242	ND	200			
12672-29-6	39500	Aroclor-1248	ND	200		30	15000
11097-69-1	39504	Aroclor-1254	1100	200		60	3400
11096-82-5	39508	Aroclor-1260	ND	200		5	2400
11100-14-4	81649	Aroclor-1262	ND	200			
37324-23-5	81650	Aroclor-1268	ND	200			

Note:

ND = Not detected above reporting limit

L = Estimated value is below the calibration range

P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.

█ = Greater than Lowest Effect Level (LEL)

█ = Greater than Severe Effect Level (SEL)

LELs and SELs are based on the 5th and 95th percentiles respectively of the screening level concentration except where noted below.

gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, SELs are based on 90% screening level concentrations

gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs are based on 10% screening level concentrations

gamma-BHC, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs and SELs are tentative guidelines.

Sampling site: CRWA 09
 Site description: Lower basin between Harvard & Longfellow bridges, Boston
 Sampling date: 5/29/96
 Latitude: 42 21' 24.522" Longitude: 71 05' 22.491"
 Approximate water depth: 7 meters

Water column analysis

Field measurements

Depth of sample (meters)	0.2	1	2	3	4	5	6
D.O. (mg/l)	6.8	7.1	6.8	6.7	6.8	6.7	6.5
Temp (C)	19.49	19.5	19.42	19.49	19.47	19.45	19.05
pH	6.94	6.96	6.97	6.97	6.94	6.95	6.8
Conductivity (mS/cm)	0.352	0.352	0.352	0.352	0.352	0.352	0.361

Metals & TOC Parameter	Sample result (ug/L)	Reporting limit (ug/L)
Cd	ND	15
Cr	ND	15
Cu	ND	15
Ni	ND	60
Pb	ND	100
Zn	ND	20
Hg	ND	0.5
TOC	10200	

Sediment Analysis

Metals Parameter	Sample result (ug/gm)*	Reporting limit (ug/gm)*	OMOE Biological Guidelines	
			LEL (ug/gm)*	SEL (ug/gm)*
	8.8		0.6	10
	111		26	110
	362		16	110
	42		16	75
	895		31	250
	729		120	820
	2.08		0.2	2

OMOE = Ontario Ministry of the Environment

= greater than Lowest Effect Level (LEL)

= greater than Severe Effect Level (SEL)

AVS&SEM Parameter	Sample result (umole/gm)*	Reporting limit (umole/gm)*
Cd	ND	0.13
Cr	2.6	
Cu	5.2	
Hg	ND	0.0005
Ni	1.2	
Pb	3.9	
Zn	11.2	
AVS	418	
SEM/ AVS ratio	0.05	

TOC	Sample result (%)
TOC	11.92

Grain Size	Course sand	Medium sand	Fine sand	Silt & clay
	< 4.75 mm	< 2 mm	< 0.425 mm	< 0.075 mm
	> 2 mm	> 0.425 mm	> 0.075 mm	
% composition	11	34	15	40

Toxicity Organism	type	% Survival-10 days
<i>Chironomus tentans</i>	midge	23.7 (statistically significant toxicity)
<i>Hyallela azteca</i>	amphipod	12.5 (statistically significant toxicity)

Note:

* = Reported as dry weight

ND = Not detected above reporting limit

BNAs

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
Priority Pollutants							
83-32-9	34205	Acenaphthene	ND	9800			
208-96-8	34200	Acenaphthylene	ND	9800			
120-12-7	34220	Anthracene	1700	9800	L	220	37000
56-55-3	34526	Benzo(a)anthracene	5200	9800	L	320	148000
205-99-2	34230	Benzo(b)fluoranthene	6500	9800	L		
207-08-9	34242	Benzo(k)fluoranthene	7300	9800	L	240	134000
50-32-8	34247	Benzo(a)pyrene	5100	9800	L	370	144000
191-24-2	34521	Benzo(ghi)perylene	ND	9800		170	32000
85-68-7	34292	Benzyl butyl phthalate	ND	9800			
111-44-4	34273	Bis(2-chloroethyl)ether	ND	9800			
111-91-1	34278	Bis(2-chloroethoxy)methane	ND	9800			
117-81-7	39100	Bis(2-ethylhexyl)phthalate	81000	9800	B		
108-60-1	34283	Bis(2-chloroisopropyl)ether	ND	9800			
101-55-3	34636	4-Bromophenylphenyl ether	ND	9800			
86-74-8		Carbazole	2400	9800	L		
59-50-7	34452	4-Chloro-3-methylphenol	ND	20000			
91-58-7	34581	2-Chloronaphthalene	ND	9800			
95-57-8	34586	2-Chlorophenol	ND	20000			
7005-72-3	34641	4-Chlorophenylphenyl ether	ND	9800			
218-01-9	34320	Chrysene	7000	9800	L	340	46000
53-70-3	34556	Dibenzo(a,h)anthracene	ND	9800		60	13000
84-74-2	39110	Di-n-butylphthalate	ND	9800			
541-73-1	34566	1,3-Dichlorobenzene	ND	9800			
95-50-1	34536	1,2-Dichlorobenzene	ND	9800			
106-46-7	34571	1,4-Dichlorobenzene	ND	9800			
91-94-1	34631	3,3'-Dichlorobenzidine	ND	9800			
120-83-2	34601	2,4-Dichlorophenol	ND	20000			
84-66-2	34336	Diethylphthalate	ND	9800			
105-67-9	34606	2,4-Dimethylphenol	ND	20000			
131-11-3	34341	Dimethylphthalate	ND	9800			
51-28-5	34616	2,4-Dinitrophenol	ND	24000			
121-14-2	34611	2,4-Dinitrotoluene	ND	9800			
606-20-2	34626	2,6-Dinitrotoluene	ND	9800			
117-84-0	34596	Di-n-octylphthalate	ND	9800			
206-44-0	34376	Fluoranthene	9700	9800	L	750	102000
86-73-7	34381	Fluorene	ND	9800		190	16000
118-74-1	39700	Hexachlorobenzene	ND	9800			
87-68-3	34391	Hexachlorobutadiene	ND	9800			
77-47-4	34386	Hexachlorocyclopentadiene	ND	9800			
67-72-1	34396	Hexachloroethane	ND	9800			
193-39-5	34403	Indeno(1,2,3-cd)pyrene	ND	9800		200	32000
78-59-1	34408	Isophorone	ND	9800			
534-52-1	34657	2-Methyl-4,6-dinitrophenol	ND	24000			
91-20-3	34696	Naphthalene	ND	9800			
98-95-3	34447	Nitrobenzene	ND	9800			
88-75-5	34591	2-Nitrophenol	ND	20000			
100-02-7	34646	4-Nitrophenol	ND	24000			
86-30-3	34433	N-Nitrosodiphenylamine	ND	9800			
621-64-7	34428	N-Nitrosodi-n-propylamine	ND	9800			
87-86-5	39032	Pentachlorophenol	ND	24000			
85-01-8	34461	Phenanthrene	5100	9800	L	560	95000
108-95-2	34694	Phenol	ND	20000			
129-00-0	34469	Pyrene	12000	9800		490	85000
120-82-1	34551	1,2,4-Trichlorobenzene	ND	9800			
88-06-2	34621	2,4,6-Trichlorophenol	ND	20000			
		Total PAH	59600			4000	1000000
Hazardous Substances							
65-53-3	77089	Aniline	ND	9800			
65-85-0	77247	Benzoic Acid	ND	24000			
100-51-6	77147	Benzyl Alcohol	ND	9800			
106-47-8		4-Chloroaniline	ND	9800			
132-64-9	81302	Dibenzofuran	ND	9800			
91-57-6		2-Methylnaphthalene	ND	9800			
95-48-7		2-Methylphenol	ND	9800			
106-44-5		4-Methylphenol	ND	9800			
88-74-4		2-Nitroaniline	ND	24000			
99-09-2		3-Nitroaniline	ND	24000			
100-01-6		4-Nitroaniline	ND	24000			
95-95-4	34621	2,4,5-Trichlorophenol	ND	24000			
Other Compounds Quantitated							
		Diphenylhydrazine	ND	9800			

CRWA09

PCBs & Pesticides

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	OMOE Biological Guidelines	
						LEL (ug/Kg)	SEL TOC corrected (ug/Kg)
309-00-2	39330	Aldrin	ND	10		2	800
319-84-6	39337	alpha-BHC	ND	10		6	1000
319-85-7	39338	beta-BHC	66	10		5	2100
319-86-8	34259	delta-BHC	ND	10			
58-89-9	39340	gamma-BHC	ND	10		3	100
5103-71-9	—	Alpha Chlordane	110	10			
5103-74-2	—	gamma Chlordane	91	10			
57-74-9	39350	Chlordane (technical)	ND	1000		7	600
72-54-8	39310	4,4'-DDD	140	10		8	600
72-55-9	39320	4,4'-DDE	120	10		5	1900
50-29-3	39300	4,4'-DDT	ND	10			
60-57-1	39380	Dieldrin	ND	10		2	9100
959-98-8	34361	Endosulfan I	ND	10			
33212-65-9	34356	Endosulfan II	ND	10			
1031-078	34351	Endosulfan sulfate	ND	10			
72-20-8	39390	Endrin	ND	10		3	13000
7421-93-4	34366	Endrin aldehyde	ND	10			
53494-70-5	—	Endrin ketone	ND	10			
76-44-8	39410	Heptachlor	ND	10			
1024-57-3	39420	Heptachlor epoxide	ND	10		5	500
72-43-5	—	Methoxychlor	ND	10			
8001-35-2	39400	Toxaphene	ND	1000			
12674-11-2	34671	Aroclor-1016	ND	300		7	5300
11104-28-2	39488	Aroclor-1221	ND	300			
11141-16-5	39492	Aroclor-1232	ND	300			
53469-21-9	39496	Aroclor-1242	ND	300			
12672-29-6	39500	Aroclor-1248	ND	300		30	15000
11097-69-1	39504	Aroclor-1254	ND	300		60	3400
11096-82-5	39508	Aroclor-1260	ND	300		5	2400
11100-14-4	81649	Aroclor-1262	ND	300			
37324-23-5	81650	Aroclor-1268	ND	300			

Note:

ND = Not detected above reporting limit

B = Analyte is associated with lab blank contamination

L = Estimated value is below the calibration range

= Greater than Lowest Effect Level (LEL)

= Greater than Severe Effect Level (SEL)

LELs and SELs are based on the 5th and 95th percentiles respectively of the screening level concentration except where noted below.

gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, SELs are based on 90% screening level concentrations

gamma-BHC, Heptachlor epoxide, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs are based on 10% screening level concentrations

gamma-BHC, Aroclor-1016, Aroclor-1248, Aroclor-1254, Aroclor-1260, LELs and SELs are tentative guidelines.

Field and Laboratory Duplicate Data

Sampling site: CRWA 03

Water column analysis

Parameter	Metals & TOC		Field Duplicate		Actual RPD (%)	Goal RPD (%)
	Sample result (ug/L)	Reporting limit (ug/L)	Sample result (ug/L)	Reporting limit (ug/L)		
Cd	ND	15	ND	15	0	25
Cr	ND	15	ND	15	0	25
Cu	ND	15	ND	15	0	25
Ni	ND	60	ND	60	0	25
Pb	ND	100	ND	100	0	25
Zn	ND	20	ND	20	0	25
Hg	ND	0.5	ND	0.5	0	25
TOC	10400		10100		2.9	35

Sediment Analysis

Parameter	Metals		Field Duplicate		Actual RPD (%)	Goal RPD (%)
	Sample result (ug/gm)*	Reporting limit (ug/gm)*	Sample result (ug/gm)*	Reporting limit (ug/gm)*		
Cd	ND	1.1	ND	1.1		35
Cr	12.3		12.5		1.6	35
Cu	9.8		10.6		7.8	35
Ni	ND	4.2	ND	4.5		35
Pb	11.9		12.1		1.7	35
Zn	62.1		64.5		3.8	35
Hg	0.33		0.13		NC	35

Parameter	AVS&SEM		Field Duplicate		Actual RPD (%)	Goal RPD (%)
	Sample result (umole/gm)*	Reporting limit (umole/gm)*	Sample result (umole/gm)*	Reporting limit (umole/gm)*		
Cd	ND	0.006	ND	0.01		35
Cr	ND	0.15	ND	0.22		35
Cu	ND	0.15	0.13		NC	35
Hg	ND	0.0001	ND	0.0002		35
Ni	ND	0.12	ND	0.18		35
Pb	0.05		0.06		18.2	35
Zn	1		0.91		9.4	35
AVS	1.8		2.1		15.4	35
SEM/ AVS	0.67		0.52		25.2	35

TOC	Field Duplicate		Relative Percent Difference	Goal RPD (%)
	Sample result (%)	Sample Result		
TOC	0.84	0.97	14.4	35

Note:

* = Reported as dry weight

ND = Not detected above reporting limit

RPD = Relative Percent Difference

NC = Not calculated, since reported concentration is less than twice the reporting limit

CRWA03

BNAs (Duplicate data)

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	Field Duplicate data			Actual RPD (%)	Goal RPD (%)
						Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment		
Priority Pollutants										
83-32-9	34205	Acenaphthene	ND	9.5		ND	10			35
208-96-8	34200	Acenaphthylene	15	9.5		13	10		14.3	35
120-12-7	34220	Anthracene	12	9.5		14	10		15.4	35
56-55-3	34526	Benzo(a)anthracene	110	300	L	46	10		NA	35
205-99-2	34230	Benzo(b)fluoranthene	110	300	L	68	320	L	NA	35
207-08-9	34242	Benzo(k)fluoranthene	96	300	L	63	320	L	NA	35
50-32-8	34247	Benzo(a)pyrene	ND	300		58	320	L	NA	35
191-24-2	34521	Benzo(ghi)perylene	ND	300		ND	320			35
85-68-7	34292	Benzyl butyl phthalate	ND	300		ND	320			35
111-44-4	34273	Bis(2-chloroethyl)ether	ND	300		ND	320			35
111-91-1	34278	Bis(2-chloroethoxy)methane	ND	300		ND	320			35
117-81-7	39100	Bis(2-ethylhexyl)phthalate	330	300	B	970	320	B	NA	35
108-60-1	34283	Bis(2-chloroisopropyl)ether	ND	300		ND	320			35
101-55-3	34636	4-Bromophenylphenyl ether	ND	300		ND	320			35
86-74-8		Carbazole	ND	300		ND	320			35
59-50-7	34452	4-Chloro-3-methylphenol	ND	600		ND	630			35
91-58-7	34581	2-Chloronaphthalene	ND	300		ND	320			35
95-57-8	34586	2-Chlorophenol	ND	600		ND	630			35
7005-72-3	34641	4-Chlorophenylphenyl ether	ND	300		ND	320			35
218-01-9	34320	Chrysene	98	9.5		69	10		34.7	35
53-70-3	34556	Dibenzo(a,h)anthracene	ND	300		ND	320			35
84-74-2	39110	Di-n-butylphthalate	48	300	L,B	ND	320		NA	35
541-73-1	34566	1,3-Dichlorobenzene	ND	300		ND	320			35
95-50-1	34536	1,2-Dichlorobenzene	ND	300		ND	320			35
106-46-7	34571	1,4-Dichlorobenzene	ND	300		ND	320			35
91-94-1	34631	3,3'-Dichlorobenzidine	ND	300		ND	320			35
120-83-2	34601	2,4-Dichlorophenol	ND	600		ND	630			35
84-66-2	34336	Diethylphthalate	ND	300		ND	320			35
105-67-9	34606	2,4-Dimethylphenol	ND	600		ND	630			35
131-11-3	34341	Dimethylphthalate	ND	300		ND	320			35
51-28-5	34616	2,4-Dinitrophenol	ND	740		ND	780			35
121-14-2	34611	2,4-Dinitrotoluene	ND	300		ND	320			35
606-20-2	34626	2,6-Dinitrotoluene	ND	300		ND	320			35
117-84-0	34596	Di-n-octylphthalate	ND	300		ND	320			35
206-44-0	34376	Fluoranthene	130	9.5		93	10		33.2	35
86-73-7	34381	Fluorene	ND	9.5		ND	10			35
118-74-1	39700	Hexachlorobenzene	ND	300		ND	320			35
87-68-3	34391	Hexachlorobutadiene	ND	300		ND	320			35
77-47-4	34386	Hexachlorocyclopentadiene	ND	300		ND	320			35
67-72-1	34396	Hexachloroethane	ND	300		ND	320			35
193-39-5	34403	Indeno(1,2,3-cd)pyrene	ND	300		ND	320			35
78-59-1	34408	Isophorone	ND	300		ND	320			35
534-52-1	34657	2-Methyl-4,6-dinitrophenol	ND	740		ND	780			35
91-20-3	34696	Naphthalene	ND	9.5		ND	10			35
98-95-3	34447	Nitrobenzene	ND	300		ND	320			35
88-75-5	34591	2-Nitrophenol	ND	600		ND	630			35
100-02-7	34646	4-Nitrophenol	ND	740		ND	780			35
86-30-3	34433	N-Nitrosodiphenylamine	ND	300		ND	320			35
621-64-7	34428	N-Nitrosodi-n-propylamine	ND	300		ND	320			35
87-86-5	39032	Pentachlorophenol	ND	740		ND	780			35
85-01-8	34461	Phenanthrene	54	9.5		49	10		9.7	35
108-95-2	34694	Phenol	ND	600		ND	630			35
129-00-0	34469	Pyrene	130	9.5		100	10		26.1	35
120-82-1	34551	1,2,4-Trichlorobenzene	ND	300		ND	320			35
88-06-2	34621	2,4,6-Trichlorophenol	ND	600		ND	630			35
		Total PAH	755			573			27.4	35
Hazardous Substances										
65-53-3	77089	Aniline	ND	300		ND	320			35
65-85-0	77247	Benzoic Acid	150	740	L	70	780	L	NA	35
100-51-6	77147	Benzyl Alcohol	ND	300		ND	320			35
106-47-8		4-Chloroaniline	ND	300		ND	320			35
132-64-9	81302	Dibenzofuran	ND	300		ND	320			35
91-57-6		2-Methylnaphthalene	ND	300		ND	320			35
95-48-7		2-Methylphenol	ND	300		ND	320			35
106-44-5		4-Methylphenol	ND	300		ND	320			35
88-74-4		2-Nitroaniline	ND	740		ND	780			35
99-09-2		3-Nitroaniline	ND	740		ND	780			35
100-01-6		4-Nitroaniline	ND	740		ND	780			35
95-95-4	34621	2,4,5-Trichlorophenol	ND	740		ND	780			35
Other Compounds Quantitated										
		Diphenylhydrazine	ND	300		ND	320			35

CRWA03

PCBs & Pesticides (duplicate data)

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	Field Duplicate data			Actual RPD (%)	Goal RPD (%)
						Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment		
309-00-2	39330	Aldrin	ND	1		ND	1			35
319-84-6	39337	alpha-BHC	ND	1		ND	1			35
319-85-7	39338	beta-BHC	ND	1		ND	1			35
319-86-8	34259	delta-BHC	ND	1		ND	1			35
58-89-9	39340	gamma-BHC	ND	1		ND	1			35
5103-71-9	---	Alpha Chlordane	1.2	1		1.2	1		0.0	35
5103-74-2	---	gamma Chlordane	ND	1		ND	1			35
57-74-9	39350	Chlordane (technical)	ND	100		ND	100			35
72-54-8	39310	4,4'-DDD	3.9	1		4	1		2.5	35
72-55-9	39320	4,4'-DDE	4.2	1		4.2	1		0.0	35
50-29-3	39300	4,4'-DDT	ND	1		ND	1			35
60-57-1	39380	Dieldrin	ND	1		ND	1			35
959-98-8	34361	Endosulfan I	ND	1		ND	1			35
33212-65-	34356	Endosulfan II	ND	1		ND	1			35
1031-078	34351	Endosulfan sulfate	ND	1		ND	1			35
72-20-8	39390	Endrin	ND	1		ND	1			35
7421-93-4	34366	Endrin aldehyde	ND	1		ND	1			35
53494-70-	---	Endrin ketone	ND	1		ND	1			35
76-44-8	39410	Heptachlor	ND	1		ND	1			35
1024-57-3	39420	Heptachlor epoxide	ND	1		ND	1			35
72-43-5	---	Methoxychlor	ND	1		ND	1			35
8001-35-2	39400	Toxaphene	ND	100		ND	100			35
12674-11-	34671	Aroclor-1016	ND	30		ND	30			35
11104-28-	39488	Aroclor-1221	ND	30		ND	30			35
11141-16-	39492	Aroclor-1232	ND	30		ND	30			35
53469-21-	39496	Aroclor-1242	ND	30		ND	30			35
12672-29-	39500	Aroclor-1248	ND	30		ND	30			35
11097-69-	39504	Aroclor-1254	ND	30		ND	30			35
11096-82-	39508	Aroclor-1260	ND	30		ND	30			35
11100-14-	81649	Aroclor-1262	ND	30		ND	30			35
37324-23-	81650	Aroclor-1268	ND	30		ND	30			35

CRWA06

PCBs & Pesticides (duplicate data)

CAS NO	STORET NO	Compound	Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment	Field Duplicate			Actual RPD (%)	Goal RPD (%)
						Sample Result (ug/Kg)	Reporting limit (ug/Kg)	Qualifier or comment		
309-00-2	39330	Aldrin	ND	2		ND	2			25
319-84-6	39337	alpha-BHC	ND	2		ND	2			25
319-85-7	39338	beta-BHC	ND	2		ND	2			25
319-86-8	34259	delta-BHC	ND	2		ND	2			25
58-89-9	39340	gamma-BHC	ND	2		ND	2			25
5103-71-9	---	Alpha Chlordane	4.3	2		4.6	2		6.7	25
5103-74-2	---	gamma Chlordane	2.5	2	P	3.1	2	P	21.4	25
57-74-9	39350	Chlordane (technical)	ND	200		ND	200			25
72-54-8	39310	4,4'-DDD	12	2		14	2		15.4	25
72-55-9	39320	4,4'-DDE	11	2		10	2		9.5	25
50-29-3	39300	4,4'-DDT	ND	2		ND	2			25
60-57-1	39380	Dieldrin	ND	2		ND	2			25
959-98-8	34361	Endosulfan I	ND	2		ND	2			25
33212-65-	34356	Endosulfan II	ND	2		ND	2			25
1031-078	34351	Endosulfan sulfate	ND	2		ND	2			25
72-20-8	39390	Endrin	ND	2		ND	2			25
7421-93-4	34366	Endrin aldehyde	ND	2		ND	2			25
53494-70-	---	Endrin ketone	ND	2		ND	2			25
76-44-8	39410	Heptachlor	ND	2		ND	2			25
1024-57-3	39420	Heptachlor epoxide	ND	2		ND	2			25
72-43-5	---	Methoxychlor	ND	2		ND	2			25
8001-35-2	39400	Toxaphene	ND	200		ND	200			25
12674-11-	34671	Aroclor-1016	ND	40		ND	40			25
11104-28-	39488	Aroclor-1221	ND	40		ND	40			25
11141-16-	39492	Aroclor-1232	ND	40		ND	40			25
53469-21-	39496	Aroclor-1242	ND	40		ND	40			25
12672-29-	39500	Aroclor-1248	ND	40		ND	40			25
11097-69-	39504	Aroclor-1254	ND	40		ND	40			25
11096-82-	39508	Aroclor-1260	ND	40		ND	40			25
11100-14-	81649	Aroclor-1262	ND	40		ND	40			25
37324-23-	81650	Aroclor-1268	ND	40		ND	40			25

Note:

ND = Not detected above reporting limit

P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.

B = Analyte is associated with lab blank contamination

L = Estimated value is below the calibration range

NA = Not applicable, because of qualifier or comment