Appendix C. Target Analytes and Contaminants of Concern

Table C-1. Organic Pesticides - Project Action/Quantitation Limits, Analytical Methods, and Achievable Laboratory Limits

Analyte	CAS Number	Project Action Limit (Units) (wet or dry weight)	Project Quantitation Limit (Units) (wet or dry weight)	Analytical Method		Achievable Laboratory Limits	
				MDLs	Method QLs	MDLs	QLs
Aldrin	309-00-2	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000031 mg/Kg dry weight	.00015 mg/Kg dry weight
alpha-BHC	319-84-6	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000021 mg/Kg dry weight	.0001 mg/Kg dry weight
beta-BHC	319-85-7	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000052 mg/Kg dry weight	.00025 mg/Kg dry weight
delta-BHC	319-86-8	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000030 mg/Kg dry weight	.00015 mg/Kg dry weight
gamma-BHC	58-89-9	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000010 mg/Kg dry weight	.00005 mg/Kg dry weight
alpha-Chlordane	5103-71-9	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000027 mg/Kg dry weight	.00013 mg/Kg dry weight
gamma-Chlordane	5103-74-2	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000031 mg/Kg dry weight	.00015 mg/Kg dry weight
Chlordane (technical)	57-74-9	.1 mg/Kg dry weight	.02 mg/Kg dry weight	.001 mg/Kg dry weight	.005 mg/Kg dry weight	.0002 mg/Kg dry weight	.008 mg/Kg dry weight
4, 4' DDD	72-54-8	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000116 mg/Kg dry weight	.00058 mg/Kg dry weight
4, 4' DDE	72-55-9	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000064 mg/Kg dry weight	.00032 mg/Kg dry weight
4, 4' DDT	50-29-3	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000092 mg/Kg dry weight	.00046 mg/Kg dry weight
Dieldrin	60-57-1	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000028 mg/Kg dry weight	.00014 mg/Kg dry weight
	959-98-8	.01 mg/Kg	.002 mg/Kg	.00025 mg/Kg	.001 mg/Kg dry	.000022 mg/Kg	.00011

Analyte	CAS Number	Project Action Limit (Units) (wet or dry weight)	Project Quantitation Limit (Units) (wet or dry weight)	Analytical Method		Achievable Laboratory Limits	
				MDLs	Method QLs	MDLs	QLs
Endosulfan I		dry weight	dry weight	dry weight	weight	dry weight	mg/Kg dry weight
Endosulfan II	33212-65-9	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000098 mg/Kg dry weight	.00049 mg/Kg dry weight
Endosulfan sulfate	1031-078	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000044 mg/Kg dry weight	.00022 mg/Kg dry weight
Endrin	72-20-8	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000061 mg/Kg dry weight	.0003 mg/Kg dry weight
Endrin Aldehyde	7421-93-4	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000135 mg/Kg dry weight	.00067 mg/Kg dry weight
Endrin Ketone	53494-70-5	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000061 mg/Kg dry weight	.0003 mg/Kg dry weight
Heptachlor	76-44-8	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000023 mg/Kg dry weight	.00012 mg/Kg dry weight
Heptachlor Epoxide	1024-57-3	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/Kg dry weight	.001 mg/Kg dry weight	.000043 mg/Kg dry weight	.00021 mg/Kg dry weight
Hexachlorobenzene x							
Methoxychlor	72-43-5	.5mg/Kg dry weight	.2mg/Kg dry weight	.0005mg/Kg dry weight	.002 mg/Kg dry weight	.000180 mg/Kg dry weight	.0009 mg/Kg dry weight
Mirex x	2385-85-5						
Nonachlor, cis- x							
Nonachlor, trans- x	39765-80-5						

x - Hexachlorobenzene, Mirex, and cis and trans-Nonachlor were not described in the QAPP, but were analyzed for by ERI.

Table C-2. Metals - Project Action/Quantitation Limits, Analytical Methods, and Achievable Laboratory Limits

Analyte	CAS Number	Project Action Limit (Units) (wet or dry weight)	Project Quantitation Limit (Units) (wet or dry weight)	Analytical Method		Achievable Laboratory Limits	
				MDLs[2]	Method QLs[2]	MDLs[3]	QLs[3]
Cadmium[X]	7440-43-9						
Mercury (total)	7439-97-6	0.20 mg/kg wet weight	0.04 mg/kg wet weight	0.2 ug/Kg	1 ug/Kg	.08 ug/Kg	.4 ug/Kg

x - Cadmium was not described in the QAPP, but was analyzed for by ERI.

Table C-3. Dioxins and Furans - Project Action/Quantitation Limits, Analytical Methods, and Achievable Laboratory Limits

Analyte	CAS Number	Project Action Limit [1] (Units) (wet or dry weight)	Project Quantitation Limit (Units) (wet or dry weight)	Analytical Method [3]		Achievable Laboratory Limits	
				MDLs	Method QLs	MDLs[3]	QLs
2,3,7,8-TCDD	1746-01-6	0.006 µg/kg (NYDEC 1989)[2]	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	
1,2,3,7,8-PentaCDD	40321-76-4	0.06 µg/kg	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	
1,2,3,4,7,8-HexaCDD	32598-13-3	0.012 µg/kg	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	
1,2,3,6,7,8-HexaCDD	57753-85-7	0.60 µg/kg	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	
1,2,3,7,8,9-HexaCDD	19408-74-3	0.60 µg/kg	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	
1,2,3,4,6,7,8-HeptaCDD	37871-00-4	6.00 µg/kg	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	
OctaCDD	3268-87-9	60.00 µg/kg	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	
1,2,3,7,8-PentaCDF	57117-41-6	0.12 µg/kg	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	
2,3,4,7,8-PentaCDF	57117-31-6	0.012 µg/kg	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	
1,2,3,4,7,8-HexaCDF	70648-26-9	0.06 µg/kg	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	
1,2,3,6,7,8-HexaCDF	57117-44-9	0.06 µg/kg	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	
1,2,3,7,8,9-HexaCDF	72918-21-9	0.06 µg/kg	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	
2,3,4,6,7,8-HexaCDF	60851-34-5	0.06 µg/kg	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	
1,2,3,4,6,7,8-HeptaCDF	67562-39-4	0.6 µg/kg	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	
1,2,3,4,7,8,9-HeptaCDF	55673-89-7	0.6 µg/kg	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	

Analyte	CAS Number	Project Action Limit [1] (Units) (wet or dry weight)	Project Quantitation Limit (Units) (wet or dry weight)	Analytical Method [3]		Achievable Laboratory Limits	
				MDLs	Method QLs	MDLs[3]	QLs
OctaCDF	39001-02-0	60.00 µg/kg	1.0 ng/kg	0.5 ng/kg		0.5 ng/kg	

[1] Project action limits for dioxin-like compounds (dioxins and some PCBs) have been normalized to TCDD by using Toxic Equivalency Factors (TEF's) established by the World health Organization. TEF values were taken from Van den Berg, L. et al.(1998).

[2] This value is based on the ambient water quality guidance values (AWQGV) proposed by the Division of Fish and Wildlife; wildlife based criteria are derived from wildlife fish flesh criteria. (NYDEC, NYDF&W, RI Bureau of Environmental Conservation, 1989)

[3] Method modified from EPA 8290.

Table C-4. "Dioxin-like" Coplanar Polychlorinated Biphenyls (PCBs) - Project Action/Quantitation Limits, Analytical Methods, and Achievable Laboratory Limits

Analyte	CAS Number	Project Action Limit (Units) (wet or dry weight)	Project Quantitation Limit (Units) (wet or dry weight)	Analytical Method[1]		Achievable Laboratory Limits	
				MDLs	Method QLs	MDLs	QLs
3,3',4,4'-Tetrachlorobiphenyl (PCB 77)	32598-13-3	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/kg	.001 mg/kg		
3,3',4,4',5-Pentachlorobiphenyl (PCB 126)	57465-28-8	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/kg	.001 mg/kg		
3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)	32774-16-6	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/kg	.001 mg/kg		
3,4,4',5-Tetrachlorobiphenyl (PCB 81)	70362-50-4	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/kg	.001 mg/kg		
2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)	32598-14-4	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/kg	.001 mg/kg		
2,3,4,4',5- Pentachlorobiphenyl (PCB 114)	74472-37-0	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/kg	.001 mg/kg		
2,3',4,4',5- Pentachlorobiphenyl (PCB 118)	31508-00-6	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/kg	.001 mg/kg		
2',3,4,4',5- Pentachlorobiphenyl (PCB 123)	65510-44-3	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/kg	.001 mg/kg		
2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)	38380-08-4	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/kg	.001 mg/kg		
2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157)	69782-90-7	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/kg	.001 mg/kg		
2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)	52663-72-6	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/kg	.001 mg/kg		
2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)	39635-31-9	.01 mg/Kg dry weight	.002 mg/Kg dry weight	.00025 mg/kg	.001 mg/kg		

[1] Method modified from NOAA NOS ORCA 130 Mussel Watch method (under development)

Table C-5. Non-“Dioxin-like” Polychlorinated Biphenyls (PCBs) - Project Action/Quantitation Limits, Analytical Methods, and Achievable Laboratory Limits

Analyte	CAS Number	Project Action Limit (Units) (wet or dry weight)	Project Quantitation Limit (Units) (wet or dry weight)	Analytical Method		Achievable Laboratory Limits	
				MDLs[2]	Method QLs[2]	MDLs[3]	QLs[3]
2, 4'-Dichlorobiphenyl (PCB 8)	34883-43-7						
2,2',5-Trichlorobiphenyl (PCB 18)	37680-65-2						
2,4,4'-Trichlorobiphenyl (PCB 28)	7012-37-5						
2,2',6,6'-Tetrachlorobiphenyl (PCB 52)	35693-99-3						
2,2',3,5'-Tetrachlorobiphenyl (PCB 44)	41464-47-5						
2,3',4,4'-Tetrachlorobiphenyl (PCB 66)	32598-10-0						
2,2',4,5,5'-Pentachlorobiphenyl (PCB 101)	37680-73-2						
2,2',4,4',5,5'-Hexachlorobiphenyl (PCB 153)	35065-27-1						
2,2',3,4,4',5'-Hexachlorobiphenyl (PCB 138)	35065-28-2						
2,2',3,4',5,5',6-Heptachlorobiphenyl (PCB 187)	52663-68-0						
2,2',3,3',4,4'-Hexachlorobiphenyl (PCB 128)	38380-07-3						

Analyte	CAS Number	Project Action Limit (Units) (wet or dry weight)	Project Quantitation Limit (Units) (wet or dry weight)	Analytical Method		Achievable Laboratory Limits	
				MDLs[2]	Method QLs[2]	MDLs[3]	QLs[3]
2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180)	35065-29-3						
2,2',3,3',4,4',5-Heptachlorobiphenyl (PCB 170)	35065-30-6						
2,2',3,3',4,4',5,6-Octachlorobiphenyl (PCB 195)	52663-78-2						
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (PCB 206)	40186-72-9						
Decachlorobiphenyl (PCB 209)	2051-24-3						

x - Non-dioxin-like PCBs were not described in the QAPP, but were analyzed for by ERI.

Table C-6. Field and Quality Control Sample Summary Table

Medium/ Matrix	Analytical Parameter	Conc. Level	Analytical Method/ SOP Reference[1]	No. of Sampling Locations[2]	No. of Field Duplicate Pairs	Organic		Inorganic		No. of Trip Blanks	No. of Bottle Blanks	No. of Equip. Blanks	No. of PE Samples	Total No. of Samples to Lab
						No. of MS	No. of MSD	No. of Duplicates	No. of MS					
Fish Tissue	Pesticides & Total PCB's	Low	Modified NOAA NOS ORCA 130 Mussel Watch methods	8	N/A	At least 1 per sample batch, min. 1 per 20 samples	At least 1 per sample batch, min. 1 per 20 samples			1 per sampling trip	N/A	N/A		240
Fish Tissue	Metals	Low	EPA 245.6	8	N/A			At least 1 per sample batch, min. 1 per 20 samples	At least 1 per sample batch, min. 1 per 20 samples	1 per sampling trip	N/A	N/A		260
Fish Tissue	Dioxins	Low	Modified EPA Method 8290	8	N/A					1 per sampling trip	N/A	N/A		12
Fish Tissue	Dioxin-Like PCB's	Low	Modified NOAA NOS ORCA 130 Mussel Watch methods Method under development	8	N/A	At least 1 per sample batch, min. 1 per 20 samples	At least 1 per sample batch, min. 1 per 20 samples			1 per sampling trip	N/A	N/A		260
Fish Tissue	Total PCB's	Low	Modified NOAA NOS ORCA 130 Mussel Watch methods	2	N/A	1	1			1 per sampling trip	N/A	N/A		20