Attachment A

Supplement to Baseline Human Health Risk Assessment

Utilizing

Uniform Protocol for Great Lakes Sport Fish Consumption Advisory

TABLE WBGCR 3.3
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
WBGCR Fish

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Fish Tissue

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
WBGCR Fish Tissue	Aroclor 1242	mg/kg	1.177	NA	2.6	2.6	mg/kg	Maximum Detected Concentration	(2)
	Aroclor 1248	mg/kg	2.45708	3.60406	9.1	3.6041	mg/kg	95% Student's-t UCL	(1)
	Aroclor 1254	mg/kg	2.662727	4.25018	7	4.2502	mg/kg	95% Student's-t UCL	(1)
	Aroclor 1260	mg/kg	0.985393	1.41628	3.9	1.4163	mg/kg	95% Student's-t UCL	(1)
	2-Methylnaphthalene	mg/kg	0.12146	NA	1	1	mg/kg	Maximum Detected Concentration	(2)
	Benz[a]anthracene	mg/kg	0.006304	0.01076	0.03	0.0108	mg/kg	95% Student's-t UCL	(1)
	Benz[a]pyrene	mg/kg	0.004736	0.009032	0.0295	0.00903	mg/kg	95% Student's-t UCL	(1)
	Benza(k)fluoranthene	mg/kg	0.004214	0.007882	0.0255	0.0079	mg/kg	95% Student's-t UCL	(1)
	Chlordane - alpha	mg/kg	0.021061	0.031049	0.11	0.03105	mg/kg	95% Student's-t UCL	(1)
	Chlordane - gamma	mg/kg	0.016666	0.024435	0.081	0.02444	mg/kg	95% Student's-t UCL	(1)
	Chromium	mg/kg	0.268	0.387	0.89	0.387	mg/kg	95% Student's-t UCL	(2)
	Dibenz(a,h)anhracene	mg/kg	0.0038	0.006995	0.225	0.006995	mg/kg	95% Student's-t UCL	(1)
	Dieldrin	mg/kg	0.00815	0.011409	0.034	0.011409	mg/kg	95% Student's-t UCL	(1)
	Heptachlor epoxide	mg/kg	0.002534	0.004166	0.0125	0.004166	mg/kg	95% Student's-t UCL	(1)
	Hexachlorobenzene	mg/kg	0.004182	0.006102	0.0125	0.006102	mg/kg	95% Student's-t UCL	(1)
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.007257	NA	0.065	0.065	mg/kg	Maximum Detected Concentration	(2)
	Hexachlorocyclohexane, Gamma-	mg/kg	0.0032	0.00426	0.013	0.00426	mg/kg	95% Student's-t UCL	(1)
	Mercury	mg/kg	0.0706	0.113505	0.39	0.113505	mg/kg	Maximum Detected Concentration	(2)
	DDD	mg/kg	0.053396	0.0737165	0.35	0.0737165	mg/kg	95% Student's-t UCL	(1)
	DDE	mg/kg	0.083964	0.12672	0.76	0.12672	mg/kg	95% Student's-t UCL	(1)
	DDT	mg/kg	0.011824	0.019155	0.045	0.019155	mg/kg	95% Student's-t UCL	(1)
	Selenium	mg/kg	0.1178	NA	1200	1.2	mg/kg	Maximum Detected Concentration	(2)
	Zinc	mg/kg	31.488	45.23	84	45.23	mg/kg	95% Student's-t UCL	(1)
	Total PCBs	mg/kg	7.2822	11.8706	19	11.8706	mg/kg	95% Student's-t UCL	(1)

Refer to Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (EPA 2002).

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration. For duplicate sample results, the values were averaged for use in the calculation.

NA = UCL could not be calculated due to too few samples.

Distribution: N = Normal (95% Student's-T UCL); G1 = Gamma (95% Approximate Gamma UCL); G2 = Gamma (95% Adjusted Gamma UCL); T1 = Lognormal (95% H-UCL); T2 = Lognormal (95% Chebyshev (MVUE) UCL); NP1 = Nonparametric (95% Chebyshev (Mean, Sd) UCL);NP2 = Nonparametric (97.5% Chebyshev (Mean, Sd) UCL); NP3 = Nonparametric (99% Chebyshev (Mean, Sd) UCL)

(1) UCL as determined by STATISTICA

(2) Maximum concentration used because UCL could not be calculated.

TABLE IHC 3.3

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

IHC Fish

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
IHC Fish	Arsenic	mg/kg	0.131	N/A	0.139	0.139	mg/kg	N/A	(2)
	Mercury	mg/kg	0.090	N/A	0.135	0.135	mg/kg	N/A	(2)
	Selenium	mg/kg	1.114	N/A	1.36	1.360	mg/kg	N/A	(2)
	Aroclor 1248	mg/kg	6.710	N/A	6.71	6.710	mg/kg	N/A	(2)
	Aroclor 1254	mg/kg	4.170	N/A	4.17	4.170	mg/kg	N/A	(2)
	Aroclor 1260	mg/kg	1.340	N/A	1.34	1.340	mg/kg	N/A	(2)
	Benz[a]anthracene	mg/kg	0.004	N/A	0.00543	0.005	mg/kg	N/A	(2)
	DDD	mg/kg	0.027	N/A	0.0349	0.035	mg/kg	N/A	(2)
	DDE	mg/kg	0.382	N/A	0.495	0.495	mg/kg	N/A	(2)
	DDT	mg/kg	0.085	N/A	0.0942	0.094	mg/kg	N/A	(2)
	Dieldrin	mg/kg	0.007	N/A	0.00893	0.009	mg/kg	N/A	(2)
	Heptachlor epoxide	mg/kg	0.002	N/A	0.00318	0.003	mg/kg	N/A	(2)
	Hexachlorocyclohexane, Gamma-	mg/kg	0.003	N/A	0.00619	0.006	mg/kg	N/A	(2)
	PCBs, Total	mg/kg	12.200	N/A	12.2	12.200	mg/kg	N/A	(2)
	PCB Congeners, Total	mg/kg	4.615	N/A	6.57	6.570	mg/kg	N/A	(2)
	PCB, TEQ	mg/kg	0.019	N/A	0.0256012	0.026	mg/kg	N/A	(2)

Refer to Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (EPA 2002).
For non-detects, 1/2 sample quantitation limit was used as a proxy concentration. For duplicate sample results, the values were averaged for use in the calculation.
NA = UCL could not be calculated due to too few samples.
Distribution: N = Normal (95% Student's-T UCL); G1 = Gamma (95% Approximate Gamma UCL); G2 = Gamma (95% Adjusted Gamma UCL); T1 = Lognormal (95% H-UCL);
T2 = Lognormal (95% Chebyshev (MVUE) UCL); NP1 = Nonparametric (97.5% Chebyshev (Mean, Sd) UCL); NP2 = Nonparametric (99% Chebyshev (Mean, Sd) UCL)
(1) UCL as determined by ProUCL
(2) Maximum concentration used because UCL could not be calculated.

TABLE Lake Mary 3.3

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

Lake Mary Fish

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Lake Mary Fish	Mercuric Chloride	mg/kg	0.079	0.14591	0.07	0.14591	mg/kg	95% Student's-t UCL	(1)
	Selenium	mg/kg	0.029	0.95031	0.98	0.95031	mg/kg	95% Student's-t UCL	(1)
	Aroclor 1254	mg/kg	0.177	N/A	0.4	0.4	mg/kg	Maximum Detected Concentration	(2)
	Aroclor 1260	mg/kg	0.143	N/A	0.28	0.28	mg/kg	Maximum Detected Concentration	(2)
	DDD	mg/kg	0.012	N/A	0.027	0.027	mg/kg	Maximum Detected Concentration	(2)
	DDE	mg/kg	0.042	N/A	0.087	0.087	mg/kg	Maximum Detected Concentration	(2)
	Copper	mg/kg	13.180	N/A	32	32	mg/kg	Maximum Detected Concentration	(2)
	Lead	mg/kg	0.403	0.78386	0.84	0.7838597	mg/kg	95% Student's-t UCL	(1)
	Naphthalene	mg/kg	0.005	0.00706	0.0076	0.00706	mg/kg	95% Student's-t UCL	(1)
	PCBs, Total	mg/kg	0.315	N/A	0.68	0.68	mg/kg	Maximum Detected Concentration	(2)

Refer to Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (EPA 2002).
For non-detects, 1/2 sample quantitation limit was used as a proxy concentration. For duplicate sample results, the values were averaged for use in the calculation.
NA = UCL could not be calculated due to too few samples.
Distribution: N = Normal (95% Student's-T UCL); G1 = Gamma (95% Approximate Gamma UCL); G2 = Gamma (95% Adjusted Gamma UCL); T1 = Lognormal (95% H-UCL);
T2 = Lognormal (95% Chebyshev (MVUE) UCL); NP1 = Nonparametric (97.5% Chebyshev (Mean, Sd) UCL); NP2 = Nonparametric (99% Chebyshev (Mean, Sd) UCL)
(1) UCL as determined by ProUCL
(2) Maximum concentration used because UCL could not be calculated.

TABLE LGBC 3.3

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

LGB Fish

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
LGB Fish	Arsenic	mg/kg	0.132	N/A	0.176	0.176	mg/kg	N/A	(2)
	Mercury	mg/kg	0.029	N/A	0.0468	0.047	mg/kg	N/A	(2)
	Selenium	mg/kg	1.162	N/A	1.43	1.430	mg/kg	N/A	(2)
	Aroclor 1248	mg/kg	6.865	N/A	9.29	9.290	mg/kg	N/A	(2)
	Aroclor 1254	mg/kg	3.575	N/A	4.98	4.980	mg/kg	N/A	(2)
	Aroclor 1260	mg/kg	1.116	N/A	1.31	1.310	mg/kg	N/A	(2)
	Benz[a]anthracene	mg/kg	0.003	N/A	0.00431	0.004	mg/kg	N/A	(2)
	Chlordane	mg/kg	0.036	N/A	0.0657	0.066	mg/kg	N/A	(2)
	DDD	mg/kg	0.170	N/A	0.317	0.317	mg/kg	N/A	(2)
	DDE	mg/kg	0.177	N/A	0.304	0.304	mg/kg	N/A	(2)
	DDT	mg/kg	0.074	N/A	0.0882	0.088	mg/kg	N/A	(2)
	Dieldrin	mg/kg	0.009	N/A	0.0115	0.012	mg/kg	N/A	(2)
	Chlordane	mg/kg	0.015	N/A	0.027	0.027	mg/kg	N/A	(2)
	Heptachlor	mg/kg	0.021	N/A	0.0336	0.034	mg/kg	N/A	(2)
	Heptachlor Epoxide	mg/kg	0.003	N/A	0.0042	0.004	mg/kg	N/A	(2)
	PCBs, Total	mg/kg	11.565	N/A	15.6	15.600	mg/kg	N/A	(2)
	PCB Congeners, Total	mg/kg	3.970	N/A	4.29	4.290	mg/kg	N/A	(2)
	PCB, TEQ	mg/kg	0.015	N/A	0.0156589	0.016	mg/kg	N/A	(2)

Refer to Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (EPA 2002).
For non-detects, 1/2 sample quantitation limit was used as a proxy concentration. For duplicate sample results, the values were averaged for use in the calculation.
NA = UCL could not be calculated due to too few samples.
Distribution: N = Normal (95% Student's-T UCL); G1 = Gamma (95% Approximate Gamma UCL); G2 = Gamma (95% Adjusted Gamma UCL); T1 = Lognormal (95% H-UCL);
T2 = Lognormal (95% Chebyshev (MVUE) UCL); NP1 = Nonparametric (97.5% Chebyshev (Mean, Sd) UCL); NP2 = Nonparametric (99% Chebyshev (Mean, Sd) UCL)
(1) UCL as determined by ProUCL
(2) Maximum concentration used because UCL could not be calculated.

TABLE EBGCR-I 3.3
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
EBGCR-I Fish

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Fish Tissue

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
EBGCR-I Fish Tissue	Aldrin	mg/kg	0.00647	0.00736 (NP2)	0.008	0.00736	mg/kg	Mod-t UCL (Adjusted for skewness)	(1)
	Aroclor 1248	mg/kg	5.19158	7.98293 (NP1)	14	7.98293	mg/kg	95% Chebyshev (Mean, Sd) UCL	(1)
	Aroclor 1254	mg/kg	3.49632	4.71845 (G1)	11	4.71845	mg/kg	Approximate Gamma UCL	(1)
	Aroclor 1260	mg/kg	0.95482	1.21278 (N)	2.3	1.21278	mg/kg	Student's-t UCL	(1)
	Arsenic	mg/kg	0.14887	NA	0.224	0.224	mg/kg	Maximum Detected Concentration	(2)
	Benz[a]anthracene	mg/kg	0.004823	NA	0.00633	0.00633	mg/kg	Maximum Detected Concentration	(2)
	Chlordane - alpha	mg/kg	0.01238	0.01523 (N)	0.027	0.01523	mg/kg	Student's-t UCL	(1)
	Chlordane - gamma	mg/kg	0.00981	0.010077 (N)	0.017	0.010077	mg/kg	Student's-t UCL	(1)
	DDD	mg/kg	0.07004	0.091226 (G1)	0.2	0.091226	mg/kg	Approximate Gamma UCL	(1)
	DDE	mg/kg	0.25344	0.45101 (G1)	1.3	0.45101	mg/kg	Approximate Gamma UCL	(1)
	DDT	mg/kg	0.02181	0.0335 (T1)	0.0956	0.0335	mg/kg	95% H-UCL	(1)
	Dieldrin	mg/kg	0.01124	0.01317 (N)	0.021	0.01317	mg/kg	Student's-t UCL	(1)
	Heptachlor	mg/kg	0.031	0.02746 (NP1)	0.0348	0.027459881	mg/kg	95% Chebyshev (Mean, Sd) UCL	(1)
	Heptachlor epoxide	mg/kg	0.00579	0.00879 (NP1)	0.008	0.008	mg/kg	Maximum Detected Concentration	(2)
	Hexachlorobenzene	mg/kg	0.00877	0.01021 (N)	0.02	0.01021	mg/kg	Student's-t UCL	(1)
	Hexachlorocyclohexane, Alpha-	mg/kg	0.005646	NA	0.008	0.008	mg/kg	Maximum Detected Concentration	(2)
	Hexachlorocyclohexane, Beta-	mg/kg	0.005664	NA	0.008	0.008	mg/kg	Maximum Detected Concentration	(2)
	Hexachlorocyclohexane, Gamma-	mg/kg	0.0058789	0.009039 (NP1)	0.01	0.009039	mg/kg	95% Chebyshev (Mean, Sd) UCL	(1)
	Mercury	mg/kg	0.066815789	0.1031835405 (T1)	0.27	0.103183541	mg/kg	99% Chebyshev (Mean, Sd) UCL	(1)
	Selenium	mg/kg	1.239	NA	1.59	1.59	mg/kg	Maximum Detected Concentration	(2)
	Toxaphene	mg/kg	0.02739	0.0317 (N)	0.046	0.0317	mg/kg	Student's-t UCL	(1)
	Zinc	mg/kg	31.9	NA	45.5	45.5	mg/kg	Maximum Detected Concentration	(2)

Refer to Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (EPA 2002).

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration. For duplicate sample results, the values were averaged for use in the calculation.

NA = UCL could not be calculated due to too few samples.

Distribution: N = Normal (95% Student's-T UCL); G1 = Gamma (95% Approximate Gamma UCL); G2 = Gamma (95% Adjusted Gamma UCL); T1 = Lognormal (95% H-UCL);

T2 = Lognormal (95% Chebyshev (MVUE) UCL); NP1 = Nonparametric (95% Chebyshev (Mean, Sd) UCL);NP2 = Nonparametric (97.5% Chebyshev (Mean, Sd) UCL);

NP3 = Nonparametric (99% Chebyshev (Mean, Sd) UCL)

(1) UCL as determined by ProUCL

(2) Maximum concentration used because UCL could not be calculated.

TABLE GCRL WL 3.3

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

GCRL West Lagoon Fish

Scenario Timeframe: Current/Future

Medium: Fish

Exposure Medium: Fish

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
GCRL Fish West Lagoon	Antimony	mg/kg	0.228	0.472 (NP1)	0.507	0.472	mg/kg	Chebyshev (Mean, Sd)	(1)
	Arsenic	mg/kg	0.256	0.333 (N)	0.42	0.333	mg/kg	95% Student's-t UCL	(1)
	Beryllium	mg/kg	0.040	0.218 (NP3)	0.162	0.162	mg/kg	Max Detect	(3)
	Cadmium	mg/kg	0.049	0.0245 (NP2)	0.166	0.170	mg/kg	Max Detect	(3)
	Lead	mg/kg	0.157	N/A	0.22	0.157	mg/kg	Mean	(4)
	Mercury	mg/kg	0.134	0.171 (N)	0.245	0.171	mg/kg	95% Student's-t UCL	(1)
	Selenium	mg/kg	0.699	0.793 (N)	0.909	0.793	mg/kg	95% Student's-t UCL	(1)
	Polychlorinated Biphenyls (high risk)	mg/kg	0.456	0.595 (N)	0.93	0.595	mg/kg	95% Student's-t UCL	(1)

Refer to Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (EPA 2002).

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration. For duplicate sample results, the values were averaged for use in the calculation.

NA = UCL could not be calculated due to too few samples.

Distribution: N = Normal (95% Student's-T UCL); G1 = Gamma (95% Approximate Gamma UCL); G2 = Gamma (95% Adjusted Gamma UCL); T1 = Lognormal (95% H-UCL);

T2 = Lognormal (95% Chebyshev (MVUE) UCL); NP1 = Nonparametric (95% Chebyshev (Mean, Sd) UCL);

NP2 = Nonparametric (97.5% Chebyshev (Mean, Sd) UCL); NP3 = Nonparametric (99% Chebyshev (Mean, Sd) UCL)

(1) UCL as determined by ProUCL

(2) Maximum concentration used because UCL could not be calculated.

(3) UCL exceeded max detect; max detect used.

(4) Arithmetic mean required as input for the IEUBK and ALM models.

TABLE GCRL ML+EL 3.3

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

GCRL Middle and East Lagoon Fish

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
GCRL ME Lagoon Fish	Antimony	mg/kg	0.294	0.427 (N)	0.658	0.427	mg/kg	95% Student's-t UCL	(1)
	Arsenic	mg/kg	0.123	0.162 (N)	0.335	0.162	mg/kg	95% Student's-t UCL	(1)
	Beryllium	mg/kg	0.014	0.033 (NP1)	0.059	0.033	mg/kg	Chebyshev (Mean, Sd)	(1)
	Cadmium	mg/kg	0.018	0.036 (NP1)	0.047	0.036	mg/kg	Chebyshev (Mean, Sd)	(1)
	Mercury	mg/kg	0.060	0.105 (NP1)	0.115	0.105	mg/kg	Chebyshev (Mean, Sd)	(1)
	Selenium	mg/kg	0.299	0.340 (N)	0.376	0.340	mg/kg	95% Student's-t UCL	(1)
	Aroclor 1260	mg/kg	0.121	N/A (3)	0.148	0.148	mg/kg	Max Detect	(3)
	Aroclor 1254	mg/kg	0.317	0.574 (N)	0.641	0.574	mg/kg	95% Student's-t UCL	(1)
	Aroclor 1248	mg/kg	0.129	N/A (3)	0.241	0.241	mg/kg	Max Detect	(3)
	Chlordane	mg/kg	0.016	0.021 (N)	0.025	0.021	mg/kg	95% Student's-t UCL	(1)
	DDT	mg/kg	0.007	0.009 (N)	0.0212	0.009	mg/kg	95% Student's-t UCL	(1)
	DDD	mg/kg	0.014	0.026 (N)	0.02375	0.024	mg/kg	Max Detect	(2)
	DDE	mg/kg	0.044	0.304 (NP3)	0.234	0.234	mg/kg	Max Detect	(2)
	Dieldrin	mg/kg	0.005	0.005 (N)	0.005	0.005	mg/kg	95% Student's-t UCL	(1)
	Hexachlorobenzene	mg/kg	0.004	0.006 (NP1)	0.005	0.005	mg/kg	Max Detect	(2)
	Heptachlor epoxide	mg/kg	0.003	0.005 (NP1)	0.004	0.004	mg/kg	Max Detect	(2)

Refer to Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (EPA 2002).

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration. For duplicate sample results, the values were averaged for use in the calculation.

NA = UCL could not be calculated due to too few samples.

Distribution: N = Normal (95% Student's-T UCL); G1 = Gamma (95% Approximate Gamma UCL); G2 = Gamma (95% Adjusted Gamma UCL); T1 = Lognormal (95% H-UCL); T2 = Lognormal (95% Chebyshev (MVUE) UCL); NP1 = Nonparametric (95% Chebyshev (Mean, Sd) UCL); NP2 = Nonparametric (97.5% Chebyshev (Mean, Sd) UCL); NP3 = Nonparametric (99% Chebyshev (Mean, Sd) UCL); NP4 = Nonparametric (95% Hall's Bootstrap UCL)

(1) UCL as determined by ProUCL

(2) Calculated UCL greater than maximum concentration.

(3) Too few samples to calculate UCL.

TABLE FNC (6A) 3.3

EXPOSURE POINT CONCENTRATION SUMMARY

REASONABLE MAXIMUM EXPOSURE

FNC (6A) Fish

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Fish Tissue

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
FNC (6A) Fish Tissue	1-Methylnaphthalene	mg/kg	0.09985	NA	0.25	0.25	mg/kg	Maximum Detected Concentration	(2)
	2-Methylnaphthalene	mg/kg	0.06235	NA	0.1	0.1	mg/kg	Maximum Detected Concentration	(2)
	Acenaphthene	mg/kg	0.2642	0.56481	0.66	0.56481	mg/kg	95% Student's-t UCL	(1)
	Acenaphthylene	mg/kg	0.0333	NA	0.06	0.06	mg/kg	Maximum Detected Concentration	(2)
	Aldrin	mg/kg	0.026504	0.047245	0.21	0.047245	mg/kg	95% Student's-t UCL	(1)
	Anthracene	mg/kg	0.02513	0.05255	0.059	0.05255	mg/kg	95% Student's-t UCL	(1)
	Antimony	mg/kg	0.10727	NA	0.175	0.175	mg/kg	Maximum Detected Concentration	(2)
	Aroclor 1242	mg/kg	0.74055	1.513034	3.2	1.513034	mg/kg	95% Student's-t UCL	(1)
	Aroclor 1248	mg/kg	3.767647	6.203305	13.9	6.203305	mg/kg	95% Student's-t UCL	(1)
	Aroclor 1254	mg/kg	2.262625	3.507809	7.28	3.507809	mg/kg	95% Student's-t UCL	(1)
	Aroclor 1260	mg/kg	0.944	1.67867	5.3	1.67867	mg/kg	95% Student's-t UCL	(1)
	Arsenic	mg/kg	0.0918	NA	0.154	0.154	mg/kg	Maximum Detected Concentration	(2)
	Benzene	mg/kg	0.023667	NA	0.061	0.061	mg/kg	Maximum Detected Concentration	(2)
	Benz[a]anthracene	mg/kg	0.005508	0.010609	0.0125	0.010609	mg/kg	95% Student's-t UCL	(1)
	Cadmium	mg/kg	0.008	0.0103	0.0103	0.0103	mg/kg	95% Student's-t UCL	(1)
	Chlordane - alpha	mg/kg	0.017798	0.026066	0.08	0.026066	mg/kg	95% Student's-t UCL	(1)
	Chlordane - gamma	mg/kg	0.01112	0.015759	0.041	0.015759	mg/kg	95% Student's-t UCL	(1)
	Chromium	mg/kg	0.1196	NA	0.132	0.132	mg/kg	Maximum Detected Concentration	(2)
	Chrysene	mg/kg	0.00686	0.012374	0.0125	0.012374	mg/kg	95% Student's-t UCL	(1)
	Dibenzofuran	mg/kg	0.088563	NA	0.26	0.26	mg/kg	Maximum Detected Concentration	(2)
	Dieldrin	mg/kg	0.025392	0.043982	0.21	0.043982	mg/kg	95% Student's-t UCL	(1)
	Heptachlor	mg/kg	0.011671	0.015526	0.04	0.015526	mg/kg	95% Student's-t UCL	(1)

	Heptachlor epoxide	mg/kg	0.009424	0.017966	0.1	0.017966	mg/kg	95% Student's-t UCL	(1)
	Hexachlorobenzene	mg/kg	0.008783	0.011766	0.025	0.011766	mg/kg	95% Student's-t UCL	(1)
	Lead	mg/kg	0.177677	0.276942	0.85	0.276942	mg/kg	95% Student's-t UCL	(1)
	Hexachlorocyclohexane, Gamma-	mg/kg	0.04825	0.006377	0.02	0.006377	mg/kg	95% Student's-t UCL	(1)
	Mercury	mg/kg	0.04105	0.057294	0.13	0.057294	mg/kg	95% Student's-t UCL	(1)
	DDD	mg/kg	0.042783	0.061188	0.29	0.061188	mg/kg	95% Student's-t UCL	(1)
	DDE	mg/kg	0.079977	0.109958	0.376	0.109958	mg/kg	95% Student's-t UCL	(1)
	DDT	mg/kg	0.018437	0.023258	0.0819	0.023258	mg/kg	95% Student's-t UCL	(1)
	Selenium	mg/kg	0.8442	1.610799	1.88	1.610799	mg/kg	95% Student's-t UCL	(1)

Refer to Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (EPA 2002).

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration. For duplicate sample results, the values were averaged for use in the calculation.

NA = UCL could not be calculated due to too few samples.

Distribution: N = Normal (95% Student's-T UCL); G1 = Gamma (95% Approximate Gamma UCL); G2 = Gamma (95% Adjusted Gamma UCL); T1 = Lognormal (95% H-UCL);

T2 = Lognormal (95% Chebyshev (MVUE) UCL); NP1 = Nonparametric (95% Chebyshev (Mean, Sd) UCL);NP2 = Nonparametric (97.5% Chebyshev (Mean, Sd) UCL);

NP3 = Nonparametric (99% Chebyshev (Mean, Sd) UCL)

(1) UCL as determined by ProUCL

(2) Maximum concentration used because UCL could not be calculated.