Summary of Stormwater Pond Sediment Testing Results

Project Name: Example Ponds

Sample Date: 03/01/09

				Sample Locations and Depths											
		Dredge Mgmt. Level 1	Dredge Mgnt. Level 2	Pond A - Core Location #1		Pond A -Core Location #2				Pond A -Core Location #3					
Parameters	**Insert Reporting Limit******	**mg/kg**	**mg/kg**	**0 - 2 feet**		**2 - 4 feet**		**0 - 2 feet**		**2 - 4 feet**		**0 - 2 feet**		**2 - 4 feet**	
Grain Size Analysis *															
Metals	**mg/kg**														
Arsenic	0.42	9	20	5.3		5.3		6		4.1		4		3	
Copper	0.01	100	9000	21		19		21		18		15		12	
Polycyclic Aromatic Hydrocarbons (PAHs) -use EPA Method 8270 full scan GCMS (report conc. in mg/kg)															
Noncarcinogenic PAHs	**mg/kg**														
Acenapthene	0.339	1,200	5,260												
Acenapthylene	0.339	na	na												
Anthracene	0.339	7,880	45,400	0.546		0.301		1.94		0.397		1.5		1.1	
Benzo(g,h,i)perlyene	0.339	na	na	1.74				1.23		1.94		1.1		0.75	
Fluoranthene	1.690	1,080	6,800	10.7		0.97		25.4		9.1		7.4		6.5	
Fluorene	0.283	850	4,120					0.828		0.191		0.12		0.11	
2-Methylnapthalene	0.339	100	369												
Naphthalene	0.339	10	28												
Phenanthrene	0.339	na	na			0.345		19.9		3.18		0.26		0.19	
Pyrene	1.690	890	5,800	7.44		0.738		2.66		6.29		3.45		2.5	
Quinoline**		4	7												

Carcinogenic PAHs & BaP Equiv.	**Insert Reporting Limit**** mg/kg**	**Potency Equiv. Factor (PEF)**		Site Conc.	BaP Equiv.	Site Conc.	BaP Equiv.	Site Conc.	BaP Equiv.	Site Conc.	BaP Equiv.	Site Conc.	BaP Equiv.	Site Conc.	BaP Equiv.
Benz[a]anthracene	0.339	0.10		2.97	**0.297**	0.261	**0.034**	8.080	**0.808**	2.430	**0.243**	0.16	**0.034**	0.450	**0.045**
Benzo[b]fluoranthene	0.678	0.10		5.41	**0.541**	0.710	**0.071**	14.800	**1.480**	5.350	**0.535**	0.000	**0.000**		**0.000**
Benzo[j]flouranthene**	0.339	0.10		1.81	**0.181**	0.120	**0.012**	0.000	**0.000**	0.001	**0.000**	0.000	**0.000**		**0.000**
Benzo[k]fluoranthene	0.339	0.10		3.49	**0.349**	0.342	**0.034**	4.670	**0.467**	1.740	**0.174**	0.350	**0.034**	0.360	**0.036**
Benzo[a]pyrene	0.339	1.00		4.45	**4.450**	0.340	**0.340**	8.520	**8.520**	3.070	**3.070**	0.560	**0.560**	0.480	**0.480**
Chrysene	0.339	0.01		0	**0.000**	0.000	**0.000**	10.300	**0.103**	4.430	**0.044**	0.640	**0.006**	0.490	**0.005**
Dibenz[a,j]acridine	0.339	0.10		0	**0.000**	0.000	**0.000**	0.000	**0.000**	0.000	**0.000**		**0.000**		**0.000**
Dibenz[a,h]acridine	0.339	0.10		0.000	**0.000**	0.000	**0.000**	0.161	**0.034**	0.000	**0.000**		**0.000**		**0.000**
Dibenz[a,h]anthracene	0.339	0.56		0.518	**0.290**	0.158	**0.190**	0.881	**0.493**	0.396	**0.222**	0.320	**0.190**	0.520	**0.291**
7H-Dibenzo[c,g]carbazole	0.339	1.00		0.000	**0.000**	0.000	**0.000**		**0.339**		**0.000**		**0.000**		**0.000**
Dibenzo[a,e]pyrene	0.339	1.00		0.422	**0.422**	0.000	**0.000**	1.060	**1.060**	0.596	**0.596**	0.410	**0.410**	0.610	**0.610**
Dibenzo[a,h]pyrene	0.339	10.00		0.148	**3.390**	0.270	**3.390**	0.391	**3.910**	0.284	**2.840**		**0.000**		**0.000**
Dibenzo[a,i]pyrene	0.339	10.00		0.378	**3.780**	0.000	**0.000**	0.650	**6.500**	0.336	**3.360**	0.000	**0.000**		**0.000**
Dibenzo[a,l]pyrene	0.339	10.00		0.000	**0.000**	0.000	**0.000**		**0.000**		**0.000**		**0.000**		**0.000**
7,12 Dimethylbenz-anthracene	0.339	34.00		0.000	**0.000**	0.000	**0.000**		**0.000**		**0.000**		**0.000**		**0.000**
1,6-Dinitropyrene	0.339	10.00		0.000	**0.000**	0.000	**0.000**	0.050	**0.500**	0.001	**0.005**		**0.000**		**0.000**
1,8-Dinitropyrene	0.339	1.00		0.000	**0.000**	0.000	**0.000**	0.050	**0.050**		**0.000**		**0.000**	0.350	**0.350**
Indeno[1,2,3,-c,d]pyrene	0.339	0.10		1.770	**0.177**	0.000	**0.000**	4.020	**0.402**		**0.000**		**0.000**		**0.000**
3-Methylcholanthrene	0.339	3.00		0.000	**0.000**	0.000	**0.000**		**0.000**		**0.000**		**0.000**		**0.000**
5-Methylchrysene	0.339	1.00		0.000	**0.000**	0.000	**0.000**	0.000	**0.000**	0.000	**0.000**		**0.000**		**0.000**
5-Nitroacenenapthene	0.339	0.02		0.000	**0.000**	0.000	**0.000**	0.000	**0.000**		**0.000**		**0.000**		**0.000**
1-Nitropyrene	0.339	0.10		0.000	**0.000**	0.000	**0.000**		**0.000**		**0.000**		**0.000**		**0.000**
4-Nitropyrene	0.339	0.10		0.000	**0.000**	0.000	**0.000**	0.010	**0.001**	0.008	**0.001**		**0.000**		**0.000**
6-Nitrochrysene	0.339	10.00		0.000	**0.000**	0.000	**0.000**	0.010	**0.100**	0.045	**0.450**	0.000	**0.000**		**0.000**
2--Nitrofluorene	0.339	0.01		0.000	**0.000**	0.360	**0.004**	0.708	**0.007**	0.456	**0.005**	0.350	**0.004**		**0.000**
(BaP) Equivalent***		2 mg/kg	3 mg/kg		13.877		4.075		24.774		11.545		1.238		1.817

Dredge Management Level 1= results less than SRV 1 (suitable for residential landuse)

DredgeManagement Level 2= results less than SRV 2 (suitable for industrial landuse)

Dredge Management Level 3- exceeds SRV2 (must be treated or disposed in a landfill with MPCA approved industrial waste management pl

Highlight value when sample concentration is above Method Detection Level (MDL) but is below Reporting Limit (RL) = those with a "J" flag;

"J" flag results the cell formula for BaP equiv. must be modified to = (0.5 * column "B") * (column "C" PEF value) quotient for BaP equivalent

Labs must use "J" flag on lab sheets if value is between the Method Detection Level (MDL) and Reporting Limit (RL) {see note on BaP equiv.}

*** Grain Size Analysis**- note: if initial testing determines that 93% or more of the sediment is retained on a #200 sieve then material is not required to be tested for remaining parameters

**** Quinloine is a** carcinogneic PAH that does not have a PEF therefore they are not included in the BaP equivalent calculation

*****BaP Equivalent** - this sheet is set up to multiply the sample concentration for each parameter by the Potency Equivalency Factor (PEF) and sum them to determine the BaP Equivalent for each sample allowing comparison to the Mgmt. Level (see formula in cells E27:P51)

Calculating the BaP equivalents when conc. below the RL; use 1/2 the reporting limit multipied by the PEF (change default formula for "J" flagged results).

****** Reporting Limits**- insert reporting limits in this column from the lab analytcal results reports (converting to mg/kg if necessary)

This material was used at a presentation sponsored by University of Minnesota Extension, Stormwater U Education Program, in partnership the Minnesota Pollution Control Agency. www.extension.umn.edu/stormwater