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APPENDIX C

Watershed Analysis WiLMS Results

Date: 2/23/2007 Scenario: Porters Current

Lake Id: **Porters Current**

Watershed Id: Porters Current

Hydrologic and Morphometric Data

Tributary Drainage Area: 76.9 acre
Total Unit Runoff: 10.30 in.
Annual Runoff Volume: 66.0 acre-ft
Lake Surface Area <As>: 75.6 acre
Lake Volume <V>: 488.0 acre-ft
Lake Mean Depth <z>: 6.5 ft
Precipitation - Evaporation: 3.2 in.
Hydraulic Loading: 86.2 acre-ft/year
Areal Water Load <qs>: 1.1 ft/year
Lake Flushing Rate <p>: 0.18 1/year
Water Residence Time: 5.66 year
Observed spring overturn total phosphorus (SPO): 12 mg/m^3
Observed growing season mean phosphorus (GSM): 17.6 mg/m^3
% NPS Change: 0%
% PS Change: 0%

NON-POINT SOURCE DATA

Land Use	Acre	Low	Most Likely	High	Loading %	Low	Most Likely	High
	(ac)	Loading (kg/ha-year)				Loading (kg/year)		
Row Crop AG	1.5	0.50	1.00	3.00	4.3	0	1	2
Mixed AG	0.0	0.30	0.80	1.40	0.0	0	0	0
Pasture/Grass	17.8	0.10	0.30	0.50	15.3	1	2	4
HD Urban (1/8 Ac)	0.0	1.00	1.50	2.00	0.0	0	0	0
MD Urban (1/4 Ac)	0.0	0.30	0.50	0.80	0.0	0	0	0
Rural Res (>1 Ac)	16.6	0.05	0.10	0.25	4.8	0	1	2
Wetlands	1.1	0.10	0.10	0.10	0.3	0	0	0
Forest	39.9	0.05	0.09	0.18	10.3	1	1	3
Lake Surface	75.6	0.10	0.30	1.00	65.0	3	9	31

POINT SOURCE DATA

Point Sources	Water Load (m^3/year)	Low (kg/year)	Most Likely (kg/year)	High (kg/year)	Loading %

SEPTIC TANK DATA

Description		Low	Most Likely	High	Loading %
Septic Tank Output (kg/capita-year)		0.30	0.50	0.80	
# capita-years	0.0				
% Phosphorus Retained by Soil		98.0	90.0	80.0	
Septic Tank Loading (kg/year)		0.00	0.00	0.00	0.0

TOTALS DATA

Description	Low	Most Likely	High	Loading %
Total Loading (lb)	11.6	31.1	89.6	100.0
Total Loading (kg)	5.3	14.1	40.6	100.0
Areal Loading (lb/ac-year)	0.15	0.41	1.19	
Areal Loading (mg/m^2-year)	17.23	46.14	132.86	
Total PS Loading (lb)	0.0	0.0	0.0	0.0
Total PS Loading (kg)	0.0	0.0	0.0	0.0
Total NPS Loading (lb)	4.9	10.9	22.2	100.0
Total NPS Loading (kg)	2.2	4.9	10.1	100.0

Phosphorus Prediction and Uncertainty Analysis Module

Date: 2/23/2007 Scenario: **Porters Current**
Observed spring overturn total phosphorus (SPO): 12.0 mg/m^3
Observed growing season mean phosphorus (GSM): 17.6 mg/m^3
Back calculation for SPO total phosphorus: 0.0 mg/m^3
Back calculation GSM phosphorus: 0.0 mg/m^3
% Confidence Range: 70%
Nurenberg Model Input - Est. Gross Int. Loading: 0 kg

Lake Phosphorus Model	Low Total P (mg/m^3)	Most Likely Total P (mg/m^3)	High Total P (mg/m^3)	Predicted -Observed (mg/m^3)	% Dif.
Walker, 1987 Reservoir	21	56	161	38	216
Canfield-Bachmann, 1981 Natural Lake	14	27	52	9	51
Canfield-Bachmann, 1981 Artificial Lake	15	26	44	8	45
Rechow, 1979 General	1	4	11	-14	-80
Rechow, 1977 Anoxic	24	63	183	45	256
Rechow, 1977 water load<50m/year	5	14	40	-4	-23
Rechow, 1977 water load>50m/year	N/A	N/A	N/A	N/A	N/A
Walker, 1977 General	18	47	136	35	292
Vollenweider, 1982 Combined OECD	14	31	75	16	108
Dillon-Rigler-Kirchner	11	31	88	19	158
Vollenweider, 1982 Shallow Lake/Res.	11	26	65	11	74
Larsen-Mercier, 1976	15	39	113	27	225
Nurnberg, 1984 Oxic	9	24	70	6	34

Lake Phosphorus Model	Confidence Lower Bound	Confidence Upper Bound	Parameter Fit?	Back Calculation (kg/year)	Model Type
Walker, 1987 Reservoir	30	123	Tw	0	GSM
Canfield-Bachmann, 1981 Natural Lake	8	78	FIT	1	GSM
Canfield-Bachmann, 1981 Artificial Lake	8	75	FIT	1	GSM
Rechow, 1979 General	2	9	L qs	0	GSM
Rechow, 1977 Anoxic	34	139	FIT	0	GSM
Rechow, 1977 water load<50m/year	7	31	FIT	0	GSM
Rechow, 1977 water load>50m/year	N/A	N/A	N/A	N/A	N/A
Walker, 1977 General	21	108	FIT	0	SPO
Vollenweider, 1982 Combined OECD	14	65	FIT	0	ANN
Dillon-Rigler-Kirchner	16	67	P L qs p	0	SPO
Vollenweider, 1982 Shallow Lake/Res.	12	55	FIT	0	ANN
Larsen-Mercier, 1976	22	85	P Pin	0	SPO
Nurnberg, 1984 Oxic	11	55	qs	0	ANN