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APPENDIX D

Wisconsin Lake Modeling Suite Data

Date: 7/7/2006 Scenario: YBL Full Watershed

Lake Id: Yellow Birch Lake
Watershed Id: FullWatershed

Hydrologic and Morphometric Data

Tributary Drainage Area: 153928.0 acre
Total Unit Runoff: 14.00 in.
Annual Runoff Volume: 179582.7 acre-ft
Lake Surface Area <As>: 202.0 acre
Lake Volume <V>: 2158.0 acre-ft
Lake Mean Depth <z>: 10.7 ft
Precipitation - Evaporation: 5.5 in.
Hydraulic Loading: 179675.3 acre-ft/year
Areal Water Load <qs>: 889.5 ft/year
Lake Flushing Rate <p>: 83.26 1/year
Water Residence Time: 0.01 year
Observed spring overturn total phosphorus (SPO): 26.0 mg/m^3
Observed growing season mean phosphorus (GSM): 31.7 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	0.0	0.50	1.00	3.00	0.0	0	0	0
Mixed AG	0.0	0.30	0.80	1.40	0.0	0	0	0
Pasture/Grass	6375.0	0.10	0.30	0.50	11.6	258	774	1290
HD Urban (1/8 Ac)	52.0	1.00	1.50	2.00	0.5	21	32	42
MD Urban (1/4 Ac)	368.0	0.30	0.50	0.80	1.1	45	74	119
Rural Res (>1 Ac)	0.0	0.05	0.10	0.25	0.0	0	0	0
Wetlands	31175.0	0.10	0.10	0.10	19.0	1262	1262	1262
Forest	115815.0	0.05	0.09	0.18	63.5	2344	4218	8437
Golf Course	143.0	0.00	4.53	0.00	3.9	0	262	0
Lake Surface	202.0	0.10	0.30	1.00	0.4	8	25	82

POINT SOURCE DATA

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

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)	8679.6	14653.3	24760.5	100.0
Total Loading (kg)	3937.1	6646.7	11231.3	100.0
Areal Loading (lb/ac-year)	42.97	72.54	122.58	
Areal Loading (mg/m^2-year)	4816.19	8130.85	13739.15	
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)	8661.6	14599.2	24580.2	100.0
Total NPS Loading (kg)	3928.9	6622.2	11149.5	100.0

Phosphorus Prediction and Uncertainty Analysis Module

Date: 7/7/2006 Scenario: **YBL Full Watershed**
Observed spring overturn total phosphorus (SPO): 26.0 mg/m^3
Observed growing season mean phosphorus (GSM): 31.7 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	17	28	48	-4	-13
Canfield-Bachmann, 1981 Natural Lake	17	28	47	-4	-13
Canfield-Bachmann, 1981 Artificial Lake	16	26	43	-6	-19
Rechow, 1979 General	14	24	41	-8	-25
Rechow, 1977 Anoxic	16	26	45	-6	-19
Rechow, 1977 water load<50m/year	N/A	N/A	N/A	N/A	N/A
Rechow, 1977 water load>50m/year	12	21	35	-11	-35
Walker, 1977 General	16	27	46	1	4
Vollenweider, 1982 Combined OECD	15	23	36	-6	-21
Dillon-Rigler-Kirchner	17	29	48	3	12
Vollenweider, 1982 Shallow Lake/Res.	12	19	29	-10	-35
Larsen-Mercier, 1976	16	27	46	1	4
Nurnberg, 1984 Oxic	17	28	48	-4	-13

Lake Phosphorus Model	Confidence Lower Bound	Confidence Upper Bound	Parameter Fit?	Back Calculation (kg/year)	Model Type
Walker, 1987 Reservoir	18	44	Tw	0	GSM
Canfield-Bachmann, 1981 Natural Lake	9	81	L	1	GSM
Canfield-Bachmann, 1981 Artificial Lake	8	75	FIT	1	GSM
Rechow, 1979 General	14	38	qs	0	GSM
Rechow, 1977 Anoxic	17	40	FIT	0	GSM
Rechow, 1977 water load<50m/year	N/A	N/A	N/A	N/A	N/A
Rechow, 1977 water load>50m/year	15	30	FIT	0	GSM
Walker, 1977 General	14	47	FIT	0	SPO
Vollenweider, 1982 Combined OECD	12	40	Tw	0	ANN
Dillon-Rigler-Kirchner	18	44	P L qs p	0	SPO
Vollenweider, 1982 Shallow Lake/Res.	10	33	Tw	0	ANN
Larsen-Mercier, 1976	18	41	P Pin p	0	SPO
Nurnberg, 1984 Oxic	16	47	L qs	0	ANN