

Attachment F

**Water Quality Data Received from the Minnesota
Pollution Control Agency**

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Waterbody/WID/ Parameter/Quarter	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Red River of the North																			
09020311-560																			
Biochemical oxygen demand, standard conditions																2.2			
Qtr2																2.3			
Qtr3																2.1			
Chlorophyll a, corrected for pheophytin				37.7	10.7							10.8	22.0			16.9	13.7		
Qtr2					9.8							7.0	23.0			14.3	11.4		
Qtr3					11.6							13.3	20.0			18.0	14.5		
Qtr4				37.7															
Dissolved oxygen (DO)				8.3	9.0	7.8	9.0	7.5				8.6	10.1			7.7	7.1		
Qtr1					14.1								11.3						
Qtr2				8.6	8.9	8.4	8.9	7.9				7.8	10.0			7.9	7.4		
Qtr3				6.4	7.8	6.2	8.8	6.5				7.0	7.3			7.6	6.9		
Qtr4				15.9	10.4		12.5					13.4							
Mercury				0.0	0.0	0.0	0.0												
Qtr1							0.0												
Qtr2					0.0	0.0													
Qtr3					0.0														
Qtr4				0.0															
Phosphorus				0.4	0.6	0.3	0.3	0.4				0.3	0.3			0.2	0.3		
Qtr1					1.0								0.3						
Qtr2				0.3	0.6	0.3	0.4	0.5				0.3	0.2			0.2	0.3		
Qtr3				0.4	0.3	0.4	0.2	0.4				0.3	0.2			0.3	0.3		
Qtr4				0.2	0.8		0.2	0.3				0.1							
County Ditch 27																			
09020311-564																			
Chlorophyll a, corrected for pheophytin														2.0	3.3				
Qtr2															3.3				
Qtr3														2.0					
Dissolved oxygen (DO)														7.4	9.3				
Qtr2														7.4	9.3				
Phosphorus														0.2	0.2				
Qtr2														0.1	0.2				
Qtr3														0.3					
09020311-566																			
Chlorophyll a, corrected for pheophytin									3.0					2.0	2.8				
Qtr2															2.8				
Qtr3									3.0					2.0					
Dissolved oxygen (DO)	10.0	9.0	11.5	15.3					8.0	8.4				7.4	8.2	8.8	8.6	9.6	8.0
Qtr1																11.7	11.4	8.5	
Qtr2		9.0		15.3					8.2	7.0				7.4	9.1	9.8	8.2	10.7	8.1
Qtr3			11.5						7.9	9.1					6.1	6.6	6.9	8.2	6.9
Qtr4	10.0															9.8	9.7	10.2	
Phosphorus	0.1	0.4							0.3					0.3	0.4	0.4	0.3	0.2	0.3
Qtr1																0.7	0.3	0.4	
Qtr2									0.1					0.2	0.4	0.3	0.3	0.1	0.3
Qtr3		0.4							0.4					0.4	0.4	0.4	0.3	0.1	0.2
Qtr4	0.1															0.1	0.1	0.1	
Judicial Ditch 10																			
09020311-520																			
Chlorophyll a, corrected for pheophytin													1.0	1.0	2.7				
Qtr2													1.0	1.0	2.7				
Qtr3														1.0					
Dissolved oxygen (DO)													16.7	9.5	9.0				
Qtr2													16.7	9.5	9.0				
Phosphorus													0.2	0.2	0.2				
Qtr2													0.2	0.2	0.2				
Qtr3														0.3					

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Waterbody/WID/ Parameter/Quarter	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
09020311-524																			
Chlorophyll a, corrected for pheophytin									4.0					6.0	2.7				
Qtr2									5.0					1.0	2.7				
Qtr3									3.0					11.0					
Dissolved oxygen (DO)									6.4	8.5				7.3	8.9				
Qtr2									3.6	9.0				7.3	8.9				
Qtr3									7.8	8.2									
Phosphorus									0.3					0.4	0.3				
Qtr2									0.2					0.2	0.3				
Qtr3									0.4					0.6					
09020311-525																			
Dissolved oxygen (DO)													10.8	7.4					
Qtr1													11.6						
Qtr2													10.9	7.3					
Qtr3													7.4	7.6					
Phosphorus													0.3	0.4					
Qtr1													0.5						
Qtr2													0.2	0.4					
Qtr3														0.6					
Tamarac River																			
09020311-503																			
Chlorophyll a, corrected for pheophytin										4.7	5.1								
Qtr2										3.4	4.1								
Qtr3										5.7	6.1								
Qtr4										4.0	3.0								
Dissolved oxygen (DO)	8.7	7.3	8.5	8.6	9.5	9.8	8.7	9.0	10.6	8.9	8.8	8.8	7.8	9.8	8.4	8.7	9.6		
Qtr2	8.5	6.6	8.3	9.0	10.6	10.0	9.0	9.8	10.1	9.6	9.1	8.7	7.2		7.8	8.9	9.4		
Qtr3	9.1	6.9	7.6	7.6	7.7	9.1	7.1	7.1	10.0	8.4	8.0	7.9	8.3	8.7	8.2	8.6	8.9		
Qtr4	8.4	11.4	13.5	9.6	11.7	11.3	12.9	12.1	14.1	9.8	10.8	10.7		13.1	10.5		11.7		
Phosphorus	0.1	0.1	0.1							0.1	0.1								
Qtr2	0.1	0.1	0.1							0.1	0.1								
Qtr3	0.1	0.1	0.1							0.1	0.1								
Qtr4	0.1	0.0	0.0							0.1	0.0								
Middle River																			
09020309-540																			
Dissolved oxygen (DO)	6.5		9.6	7.7	9.6	9.5	9.8	8.9	9.4	9.4	8.9	9.0	5.1	7.9	9.4	9.6	9.8	10.1	9.2
Qtr1																13.0	12.8	11.3	
Qtr2	7.1		9.5	9.3	10.1	9.6	10.0	10.0	10.3	9.8	9.0	8.8	5.5		10.3	9.4	9.3	11.2	9.9
Qtr3	5.7		7.7	5.9	7.9	8.9	8.0	4.9	7.7	9.0	8.1	8.1	4.7	6.1	8.0	8.0	8.5	7.5	6.9
Qtr4			12.5	8.1	12.1	11.6	14.8	11.2	12.4	9.9	12.8	10.3	6.2	13.3	10.1	12.9	11.8	11.3	11.4
Phosphorus	0.1		0.1		0.0	0.1	0.0		0.1	0.1					0.2	0.2	0.2	0.1	0.3
Qtr1																0.3	0.3	0.2	
Qtr2	0.1		0.2		0.1	0.1	0.0		0.0	0.1					0.2	0.1	0.1	0.1	0.3
Qtr3	0.1		0.1		0.1	0.1	0.1		0.1	0.1					0.2	0.2	0.2	0.1	0.2
Qtr4			0.0		0.0				0.1						0.1	0.1	0.0	0.1	0.1
Snake River																			
09020309-543																			
Chemical oxygen demand	50.8																		
Qtr2	44.6																		
Qtr3	60.0																		
Chlorophyll a, corrected for pheophytin										4.4									
Qtr2										2.5									
Qtr3										5.0									
Dissolved oxygen (DO)	6.7					8.4	11.3		7.6	7.4	5.3								
Qtr2	7.3					9.4	12.7		9.0	7.2									
Qtr3	5.8					7.6	7.3		5.5	7.5	5.3								
Qtr4									10.8										
Phosphorus	0.1				0.1	0.1	0.1		0.1	0.1									
Qtr2	0.1				0.1	0.1	0.1		0.0	0.1									
Qtr3	0.1				0.1	0.1	0.3		0.1	0.1									
Qtr4					0.1				0.1										
Total suspended solids	17.3				5.6	10.6	4.8			3.0	3.0								
Qtr2	20.6				9.3	20.0	4.3			3.0									
Qtr3	12.5				2.3	3.5	6.0				3.0								
Qtr4					4.0														
Turbidity					9.3	9.0	6.0		4.4	5.0	4.7								

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Qtr2					16.7	15.3	3.7		4.7	5.1										
Qtr3					4.3	4.3	13.0		4.1	4.9	4.7									
Qtr4					2.0				3.4											
Red Lake River																				
09020303-513																				
Biochemical oxygen demand, standard conditions													3.2	2.5		4.0	3.7	2.7	3.5	
Qtr2													3.2	2.5		6.7	2.1	2.9	5.0	
Qtr3																1.4	4.5	2.3	2.1	
Qtr4																			3.2	
Chlorophyll a, corrected for pheophytin				3.8	7.4															
Qtr2					10.6															
Qtr3					1.0															
Qtr4				3.8																
Dissolved oxygen (DO)	8.3	8.4	10.3	9.2	8.0	9.2	8.7	9.1	9.3	9.2	9.1	9.8	10.1	8.8	9.4	9.8	8.4	10.0	8.5	
Qtr1													12.5							
Qtr2	9.7	10.0	16.2	7.9	7.7	10.4	9.1	8.0	9.6	9.8	8.8	10.6	9.7	8.8	10.3	10.3	8.3	10.2	8.1	
Qtr3	6.1	6.3	8.6	9.2	8.5	7.5	8.5	8.9	8.2	8.5	8.8	9.1	8.7	7.6	9.0	8.2	8.5	9.1	8.2	
Qtr4	9.2	9.0	9.2	11.8		13.0		11.6	12.4		11.0	9.7	12.5	11.8	9.6	10.9		11.2	11.7	
Mercury				0.0	0.0	0.0	0.0													
Qtr1							0.0													
Qtr2					0.0	0.0														
Qtr3					0.0															
Qtr4				0.0																
Phosphorus	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	
Qtr1							0.0													
Qtr2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	
Qtr3	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	
Qtr4	0.1	0.1	0.0	0.0	0.1	0.1		0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.1	
Black River																				
09020303-557																				
Biochemical oxygen demand, standard conditions													2.3	5.5	4.3	6.5	9.7	3.8	1.5	3.3
Qtr2																4.1	2.9	1.5		
Qtr3													2.3	8.1	4.3	6.5	1.5	4.4		3.3
Qtr4													2.9			23.5				
Dissolved oxygen (DO)	11.6	11.2	11.9	9.2	7.7	15.1	13.2	12.9	11.9	14.9	16.0	16.7	13.4	11.6	7.6	9.9	9.9	13.3	16.4	
Qtr2	15.4	12.2	20.4	9.2	7.9		13.2	12.6	15.6	18.3	12.1	21.0	15.1	15.1	10.9	14.5	12.2	15.2	19.6	
Qtr3	9.4	8.8	9.5		7.0	14.9			9.3	13.4	17.2	16.5	13.6	9.9	4.8	8.6	9.5	11.5	10.1	
Qtr4	13.1	13.2	10.8			15.3		13.4	12.4	12.3	20.2	8.4	9.2	11.0	6.7	18.2		13.1		
Phosphorus	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	
Qtr2	0.0	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	
Qtr3	0.0	0.2	0.1		0.0	0.1			0.1	0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	
Qtr4	0.1	0.0	0.0		0.0	0.0		0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.3		0.0		
County Ditch 21																				
09020303-541																				
Biochemical oxygen demand, standard conditions																1.5				
Qtr3																1.5				
Dissolved oxygen (DO)									5.5	6.4					8.8	8.8	12.5	11.8	12.4	
Qtr2									4.7	7.3					12.4	10.7	11.4	11.5	11.7	
Qtr3									4.5	5.5					5.1	7.8	13.6		14.0	
Qtr4									10.1	7.4						6.1			12.7	
Phosphorus									1.2	0.2					0.2	0.2	0.2	0.2	0.1	
Qtr2									0.1	0.1					0.2	0.2	0.1	0.2	0.1	
Qtr3									2.1	0.2					0.2	0.1	0.2		0.2	
Qtr4									0.1	0.2						0.5			0.1	
Clearwater River																				
09020305-517																				
Biochemical oxygen demand, standard conditions													2.4	2.8	2.2	4.8				

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Waterbody/WID/ Parameter/Quarter	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Qtr2											2.7								
Qtr3										2.4	3.0	2.2							
Qtr4													4.8						
Chlorophyll a, corrected for pheophytin																39.0			
Qtr2																39.0			
Dissolved oxygen (DO)	6.8	5.8	9.1	7.8	9.6	8.0	8.4	7.0	6.6	6.0	7.4	7.3	7.3	7.1	8.4	8.9	7.5	8.3	6.9
Qtr1	6.6	1.8	7.8	5.7	6.2	6.2													
Qtr2	8.6	6.5	10.0	7.0	10.8	9.1	9.2	8.5	8.1	8.5	9.0	8.6	8.6	8.3	9.2	8.8	9.0	10.0	8.1
Qtr3	4.5	3.0	8.7	7.3	9.0	5.3	7.3	4.6	5.7	3.0	5.4	5.4	6.1	5.4	7.6	9.0	6.5	6.8	5.3
Qtr4	8.3	8.7	8.6	11.2	8.9	10.2	7.4	12.4	6.9	8.7	9.9	9.6	7.6	8.9		9.4		7.2	
Phosphorus	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1
Qtr1	0.1	0.0	0.0	0.1	0.2	0.3													
Qtr2	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1
Qtr3	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1
Qtr4	0.0	0.0	0.0	0.1	0.0		0.0	0.0	0.0		0.0		0.0	0.0		0.0		0.0	
09020305-648																			
Biochemical oxygen demand, standard conditions											2.5	2.0	2.5						
Qtr2											2.5	3.1	2.5						
Qtr3												1.5							
Qtr4																			
Dissolved oxygen (DO)	8.7	8.5	8.7	9.0	10.1	9.2	8.7	8.7	10.4	9.8	9.3	10.4	11.7	10.1	8.9	10.0	10.0	9.8	9.0
Qtr1	11.2	8.3	10.0	12.5	10.8					10.0						11.2	12.1	9.5	
Qtr2	10.1	9.1	9.3	8.6	10.1	9.3	10.2	8.1	10.7	11.2	9.0	11.8	11.6	10.7	9.1	10.2	10.3	10.3	9.0
Qtr3	6.3	6.4	7.3	6.6	7.8	8.2	7.5	8.3	9.2	8.4	8.9	8.9	12.2	8.5	8.3	9.2	7.6	8.2	8.3
Qtr4	9.1	9.9	11.0	12.4	12.2	13.5	9.8	10.7	10.8	11.2	13.7	9.3	11.6	12.2	11.3	10.4	13.2	12.6	12.1
Phosphorus	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Qtr1	0.1	0.4	0.0	0.5	0.2											0.1	0.1	0.2	
Qtr2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2
Qtr3	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1
Qtr4	0.1	0.1	0.0	0.0	0.1		0.1	0.1			0.0		0.0	0.0	0.0	0.1	0.0	0.0	0.0
Lost River																			
09020305-646																			
Chemical oxygen demand	40.2	36.3	30.8	41.7	31.7	26.7									47.7	40.2			
Qtr1	59.6	38.0	35.8	32.7	27.8	24.2													
Qtr2	33.1	34.9	36.6	31.1	36.6	29.1											40.2		
Qtr3	34.1	38.3	31.1	20.0	35.3										47.7	40.2			
Qtr4	34.1	34.1	19.7	82.9	27.2														
Dissolved oxygen (DO)	10.5	9.5	9.2	8.9	11.6	9.8	9.2	9.8	10.8	10.1	10.0	9.8	11.6	10.5	9.4	9.9	9.7	9.0	8.8
Qtr1	11.6	9.1	9.5	12.6	11.6	12.5				8.2						12.7	13.2	10.3	9.8
Qtr2	11.7	9.0	9.0	10.2	12.1	9.4	10.8	9.5	11.1	11.1	10.3	11.1	11.0	12.2	9.5	11.0	10.8	9.7	9.9
Qtr3	9.0	7.4	7.8	5.8	8.5	9.0	8.2	8.9	10.3	9.1	8.5	8.6	12.8	9.1	8.8	7.7	7.9	7.5	7.0
Qtr4	9.9	11.2	12.4	10.4	11.9	12.3	8.8	11.8	11.1	11.6	13.7	8.9	12.4	11.7	11.8	10.7	10.2	12.1	12.4
Dissolved oxygen saturation								113.3	108.7	113.6	121.3								
Qtr2								97.9	110.6	124.7									
Qtr3							120.7	130.5	117.5	119.1									
Qtr4							105.8	92.3		116.6									
Phosphorus	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Qtr1	0.2	0.0	0.1	0.2	0.2	0.3										0.1	0.1	0.1	0.1
Qtr2	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1
Qtr3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1
Qtr4	0.1	0.0	0.0	0.0	0.1		0.0	0.0	0.1		0.0		0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total suspended solids	8.5	12.0	18.3	12.0	15.6	8.9	6.8	2.8	7.3	4.0	2.8	6.8	3.0	2.6	14.8	6.2	6.6	6.4	9.3
Qtr1	8.0	11.0	6.0	32.0	18.0	14.0										4.0	6.7	12.0	6.8
Qtr2	5.0	21.0	23.3	3.0	6.0	12.3	9.0	3.7	11.7	7.0	2.0	10.5	3.8	3.0	26.5	11.6	2.9	7.3	13.6
Qtr3	10.0	9.0	23.4	10.0	14.0	3.7	7.0	3.0	2.5	1.0	4.0	3.8	1.0	3.0	2.3	1.7	13.3	6.0	6.0
Qtr4	11.0	7.0	4.0	3.0	20.0		2.0	1.5	5.5		3.0		3.5	1.5	1.0	2.0	1.0	2.7	1.1
Turbidity	8.6	5.2	11.2	8.7	10.2	20.9	6.7	4.5	9.3	4.5	4.4	9.4	5.0	3.5	10.3	5.4	2.1	3.9	3.5
Qtr1		6.5	6.9		12.5	12.1				5.6						5.7			
Qtr2		4.9	12.2	6.5	6.4	11.8	10.2	3.9	15.2	5.9	3.2	13.8	6.2	3.2	18.1	9.1	2.4	4.8	5.0
Qtr3		4.8	13.8	12.7	18.0	40.0	5.1	7.9	2.0	3.2	6.9	6.0	3.1	4.8	2.2	2.2	1.7	4.8	2.3

Attachment F
Water Quality Data Received from the Minnesota Pollution Control Agency

Waterbody/WID/ Parameter/Quarter	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Qtr4	8.6	5.3	3.2	5.5	10.5	5.1	1.5	1.5	9.0	3.2	4.3	5.1	3.9	0.4	2.4	2.8	1.5	1.9	2.8
Lost River																			
09020305-512																			
Dissolved oxygen (DO)	9.7	9.6	11.0	10.6	9.9	10.0	10.1	10.1	12.2	11.4	10.1	10.8	9.8	9.9	10.0	9.0	10.5	8.8	9.1
Qtr1	10.0	6.7	11.5	8.1	7.2	8.7						11.2							
Qtr2	10.5	9.1	10.2	6.5	11.1	10.4	10.1	10.6	12.8	11.7	12.1	10.4	9.3	9.5	9.5	9.7	11.0	10.1	8.3
Qtr3	7.1	9.1	9.8	13.8	9.2	10.1		8.6	10.1	11.0	9.2	11.4	9.7	10.1	10.2	8.3	9.2	7.2	10.1
Qtr4	11.1	13.5	12.3	14.1	11.3			11.1	13.2		9.4		11.5	10.3		8.9	12.1	11.4	
Phosphorus	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Qtr1	0.0	0.0	0.0	0.0	0.0	0.0						0.2							
Qtr2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Qtr3	0.0	0.1	0.0	0.0	0.1	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Qtr4	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0			0.0	0.0	0.0		0.0	
Silver Creek																			
09020305-527																			
Biochemical oxygen demand, standard conditions																			3.3
Qtr3																			3.3
Dissolved oxygen (DO)	10.7	11.8	10.4	8.9	9.7	10.1	11.1	9.0	11.2	9.8	13.1	10.2	7.8	9.5	10.0	8.8	9.4	8.1	9.0
Qtr1	11.7	12.2	10.5	6.9	11.6		14.9												
Qtr2	11.5	11.9	10.7	9.4	11.6	9.1	10.0	9.1	11.5	10.6	12.0	9.7	11.9	8.6	10.4	10.7	9.7	10.5	9.0
Qtr3	8.8	9.0	9.8	9.0	6.8	9.1	10.8	8.6	8.2	8.6	9.0	10.6	6.4	8.8	9.8	7.5	8.2	6.3	9.1
Qtr4	10.7	14.1	10.7	11.7	10.3	13.7	10.0	9.6	13.9		19.6			11.4	8.5	8.8	12.6	11.7	
Phosphorus	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.2	0.1	0.1	0.1
Qtr1	0.1	0.1	0.1	0.1	0.2							0.1							
Qtr2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Qtr3	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.5	0.2	0.1	0.2	0.2	0.2	0.1
Qtr4	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1		0.0			0.1		0.2		0.1	
Unnamed Creek																			
04010201-A07																			
Dissolved oxygen (DO)										8.0	8.4								
Qtr2										7.4	8.5								
Qtr3										8.4	7.9								
Phosphorus										0.1									
Qtr2										0.1									
Qtr3										0.1									
09020305-572																			
Dissolved oxygen (DO)					7.6	10.0	10.2	7.1											5.3
Qtr2					9.5		9.7	7.1											
Qtr3					6.5	6.6													5.3
Qtr4					9.3	11.7	10.7												
Phosphorus					0.1	0.0	0.0	0.0											0.0
Qtr2					0.0		0.0	0.0											
Qtr3					0.1	0.1													0.0
Qtr4						0.0	0.0												
Walker Brook																			
09020305-509																			
Dissolved oxygen (DO)			6.2		6.0	3.9	6.9	6.9	4.8	4.7	2.6	2.8	3.5	2.6	3.9	4.9	2.5	3.7	1.8
Qtr1			4.9		3.7														
Qtr2			7.6		10.7	7.4	6.6	8.8	6.1	4.5	3.7	4.8	5.6	3.5	5.2	4.5	5.9	6.7	2.9
Qtr3			4.9		2.4	2.2	4.0	1.2	3.7	3.2	0.9	1.2	0.8	0.7	1.9	1.0	1.2	0.6	0.8
Qtr4			7.8		7.9		10.8	8.9	6.2	9.5	2.1	4.1	6.1	4.6		9.8		3.8	
Phosphorus			0.1						0.1										
Qtr1			0.0																
Qtr2			0.1						0.1										
Qtr3			0.1						0.1										
Qtr4			0.1						0.1										
Mississippi River																			
07010101-753																			
Biochemical oxygen demand, standard conditions			1.8			0.8		0.8			2.2			1.4					

Attachment F
Water Quality Data Received from the Minnesota Pollution Control Agency

Waterbody/WID/ Parameter/Quarter	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Qtr2			0.9			0.8		0.6			1.4								
Qtr3			2.2			0.8		1.0			2.5			1.4					
Chlorophyll a, corrected for pheophytin	2.2	1.9	3.8	2.7		3.5		4.1			9.3			1.9	1.4				1.9
Qtr2		1.7	4.2	4.7		2.0		0.8			3.5			2.6	1.9				2.8
Qtr3	1.9	2.0	2.9	1.0		4.0		5.3			11.3			1.6	1.1				1.5
Qtr4	2.6		5.6	3.7															
Dissolved oxygen (DO)	9.1	7.5	7.2	7.8	13.1	8.2	9.3	6.7		6.7	6.4			6.2	4.7	8.8	8.9	8.9	7.0
Qtr1	11.4		11.8			11.8		10.7			9.3						10.7	11.3	
Qtr2	9.2	7.6	7.8	8.2		8.5	9.8	7.5			6.5			5.7	3.9	8.1	10.0	9.1	7.0
Qtr3	8.1	7.2	6.3	7.2		5.5	4.3	1.3			4.3			6.5	5.2	8.0	5.3	7.4	6.3
Qtr4	9.8	9.4	8.7	8.6	13.1		12.4			6.7						11.2	9.4	11.3	10.0
Mercury			0.0	0.0							0.6								
Qtr1			0.0																
Qtr2			0.0	0.0							0.7								
Qtr3											0.5								
Qtr4				0.0															
Phosphorus	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0		0.0	0.0				0.1	0.1	0.1	0.0	0.1
Qtr1			0.0			0.0	0.0				0.0					0.1	0.1	0.1	
Qtr2		0.1	0.1	0.1		0.0	0.0				0.0				0.1	0.1	0.1	0.1	0.1
Qtr3	0.1	0.1	0.1	0.1		0.1	0.1	0.1			0.0				0.1	0.1	0.1	0.1	0.1
Qtr4	0.0	0.0	0.0	0.0	0.0		0.1			0.0						0.0	0.0	0.0	0.0
07010103-708																			
Biochemical oxygen demand, standard conditions														1.4					
Qtr2																			
Qtr3														1.4					
Chlorophyll a, corrected for pheophytin														5.0	3.8				6.2
Qtr2														5.9	2.5				5.4
Qtr3														4.5	4.3				6.5
Dissolved oxygen (DO)				9.0	9.4	8.8	9.0	8.8	8.5	8.6				7.6	6.8				7.0
Qtr1										11.4									
Qtr2				8.0	9.9	6.7	9.0	8.0	7.8	8.9				8.0	7.1				8.0
Qtr3				8.0	8.0	7.9	8.0	8.1	7.8	8.0				7.3	6.7				6.5
Qtr4				11.2	11.9	11.2	11.4	10.7	10.8										
Mercury			0.0																
Qtr1			0.0																
Qtr2			0.0																
Phosphorus															0.0				0.1
Qtr2															0.0				0.1
Qtr3															0.0				0.1
Straight River																			
07010106-558																			
Biochemical oxygen demand, standard conditions					1.1	0.9	0.9	2.4	2.1										
Qtr1					1.0	1.2	0.8												
Qtr2					1.0	0.9	0.9	2.4											
Qtr3					1.3				2.1										
Qtr4					0.8														
Chlorophyll a, corrected for pheophytin								3.3	5.2										
Qtr2								4.4	6.0										
Qtr3								2.6	4.2										
Dissolved oxygen (DO)		8.8			10.0		9.9	9.8	9.5		8.9	7.7				10.8	11.1		
Qtr1					14.9		11.8	14.9								12.9	11.1		
Qtr2		8.5			10.8		9.9	7.2	9.2		9.8	8.0				9.6			
Qtr3		6.6			7.4		8.6	9.1	9.9		8.3	7.5				11.4			
Qtr4		11.5			8.3		12.9									11.1			
Phosphorus					0.1	0.0	0.1	0.0	0.0		0.0					0.0	0.1		
Qtr1					0.1	0.1	0.1	0.1								0.1	0.1		
Qtr2					0.1	0.1	0.1	0.0	0.0		0.1					0.0	0.1		

Attachment F
Water Quality Data Received from the Minnesota Pollution Control Agency

Waterbody/WID/ Parameter/Quarter	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Qtr3					0.0	0.0	0.0	0.0	0.0		0.0					0.0			
Qtr4					0.0	0.0	0.0									0.0			
Shell River																			
07010106-537																			
Biochemical oxygen demand, standard conditions								2.2	2.8										
Qtr2								2.2	2.8										
Qtr3																			
Chlorophyll a, corrected for pheophytin								2.9	3.9										
Qtr2								3.8	4.8										
Qtr3								1.5	2.8										
Dissolved oxygen (DO)							9.8	8.8	9.3		8.8	8.2	9.0	8.3	8.8	9.8	13.3		
Qtr1											11.2		11.7			13.6	10.3		
Qtr2							8.3	9.5	8.0		9.6	7.9	9.3	8.1	7.8	10.0	13.0		
Qtr3							10.0	8.3	10.6		7.6	8.2	8.4	7.9	9.0	8.7	13.8		
Qtr4							12.7				11.6	10.2	10.8	11.5	12.3	12.4	10.6		
Phosphorus								0.0	0.0										
Qtr2								0.1	0.0										
Qtr3								0.0	0.0										
Shell River																			
07010106-536																			
Biochemical oxygen demand, standard conditions								4.8	4.2										
Qtr2								3.7	2.2										
Qtr3								6.0	5.5										
Chlorophyll a, corrected for pheophytin								43.2	34.3										
Qtr2								20.7	8.7										
Qtr3								65.7	60.0										
Dissolved oxygen (DO)								9.9	9.4		8.9	8.6	9.5	8.1	8.0	9.2	8.4		
Qtr1											13.8		10.1			13.3			
Qtr2								9.9	9.9		10.4	9.8	11.0	9.2	8.2	11.0	9.8		
Qtr3								9.9	9.0		6.5	6.9	7.6	6.5	6.9	6.7	7.7		
Qtr4											10.8	9.2	11.5	10.6	10.1	8.2	8.2		
Dissolved oxygen saturation									96.6										
Qtr2									91.9										
Qtr3									101.2										
Phosphorus								0.1	0.1										
Qtr2								0.1	0.0										
Qtr3								0.1	0.1										
Total suspended solids								16.3	9.0										
Qtr2								8.7	4.3										
Qtr3								24.0	13.7										
Turbidity								13.4	10.4		5.1	5.7	6.0	8.9	5.5	6.3	8.8		
Qtr1											2.6		4.7			5.9	3.1		
Qtr2								7.0	2.9		4.8	4.3	4.8	4.9	4.0	2.9	6.5		
Qtr3								19.8	17.9		5.7	8.1	7.4	11.6	7.4	11.1	10.3		
Qtr4											4.5	3.8	5.5	14.3	2.9	5.6	5.0		
Crow Wing River																			
07010106-523																			
Biochemical oxygen demand, standard conditions								2.6	2.4										
Qtr2								2.9	2.4										
Qtr3								2.4	2.4										
Chlorophyll a, corrected for pheophytin								6.8	7.3										
Qtr2								5.0	10.3										
Qtr3								8.7	4.3										
Dissolved oxygen (DO)								4.2	7.0		6.2	4.7							
Qtr2								4.1	9.8		8.6	7.5							
Qtr3								4.3	4.2		4.6	3.2							
Phosphorus								0.0	0.0		0.0								
Qtr2								0.0	0.0		0.0								

Attachment F
Water Quality Data Received from the Minnesota Pollution Control Agency

Waterbody/WID/ Parameter/Quarter	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Qtr3								0.0	0.0		0.0								
Hay Creek																			
07010106-617																			
Dissolved oxygen (DO)											6.3	7.8							
Qtr2											9.4								
Qtr3											4.7	7.8							
Phosphorus											0.4								
Qtr2											0.0								
Qtr3											0.6								
Total suspended solids											4.3								
Qtr2											3.8								
Qtr3											4.6								
07010106-619																			
Biochemical oxygen demand, standard conditions								2.3											
Qtr2								2.3											
Qtr3																			
Chlorophyll a, corrected for pheophytin								5.2	5.2										
Qtr2								6.0	5.0										
Qtr3								4.3	5.5										
Dissolved oxygen (DO)								7.2	7.0										
Qtr2								6.5	9.1										
Qtr3								7.5	4.9										
Phosphorus								0.0	0.0										
Qtr2								0.0	0.0										
Qtr3								0.0	0.0										
Total suspended solids								1.8	3.5										
Qtr2								2.0	3.5										
Qtr3								1.5											
Turbidity								2.6	1.7										
Qtr2								3.3	2.0										
Qtr3								1.8	1.4										
Pine River																			
07010105-669																			
Biochemical oxygen demand, standard conditions													1.5						
Qtr2													2.0						
Qtr3													1.4						
Qtr4													1.1						
Chlorophyll a, corrected for pheophytin											2.2	2.5							
Qtr2											3.4	4.8							
Qtr3											1.3	1.1							
Dissolved oxygen (DO)		8.6									9.6	9.3							
Qtr2		7.7									9.8	9.8							
Qtr3		8.1									9.3	8.6							
Qtr4		9.9									10.1	10.4							
Phosphorus											0.0	0.0							
Qtr2											0.0	0.0							
Qtr3											0.0	0.0							
Qtr4											0.0	0.0							
Moose River																			
07010103-749																			
Dissolved oxygen (DO)								6.4	7.5	6.5						7.2	4.8		
Qtr1								10.0											
Qtr2								6.1	8.6	7.5						8.0	7.4		
Qtr3								4.1	4.9	3.9						6.8	3.5		
Qtr4								10.4	8.9	9.9									
Phosphorus								0.0	0.0	0.0						0.0			
Qtr1								0.1											
Qtr2								0.1	0.1	0.0						0.0			

Attachment F
Water Quality Data Received from the Minnesota Pollution Control Agency

Waterbody/WID/ Parameter/Quarter	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Qtr3								0.0	0.0	0.0						0.0			
Qtr4								0.0	0.0	0.0									
Daggett Brook																			
07010105-561																			
Phosphorus							0.0						0.1	0.0	0.0	0.1	0.0	0.1	0.1
Qtr2													0.1	0.0	0.0	0.1	0.0	0.1	0.1
Qtr3							0.0						0.1	0.0	0.1	0.1	0.0	0.1	0.1
07010105-562														0.0	0.0	0.0	0.0	0.0	0.0
Phosphorus														0.0	0.0	0.0	0.0	0.0	0.0
Qtr2																0.0	0.0	0.0	0.0
Qtr3														0.0	0.0	0.0	0.0	0.0	0.0
Willow River																			
07010103-748																			
Chlorophyll a, corrected for pheophytin																2.4	2.8		
Qtr2																3.0	3.8		
Qtr3																2.2	2.1		
Dissolved oxygen (DO)								9.3	9.8	9.0						7.9	7.4	7.7	6.2
Qtr1								11.5		10.7							10.7		
Qtr2								8.8	10.2	8.8						7.6	8.6	7.9	6.6
Qtr3								7.9	8.1	7.4						8.0	4.8	7.0	4.5
Qtr4								12.4	12.7	11.8						8.9	9.4	9.2	9.2
Phosphorus								0.1	0.0	0.0						0.1	0.1	0.1	0.1
Qtr1								0.1		0.1							0.1		
Qtr2								0.1	0.1	0.0						0.1	0.1	0.0	0.1
Qtr3								0.0	0.0	0.0						0.1	0.1	0.1	0.1
Qtr4								0.1	0.0	0.1						0.1	0.0	0.0	0.0
West Savanna River																			
07010103-514																			
Dissolved oxygen (DO)					9.8	10.6	10.1	9.7	9.6										
Qtr1					11.7			14.0											
Qtr2					10.2		10.0	9.2	10.5										
Qtr3					8.4		10.6	8.1	9.7										
Qtr4					8.5	10.6		10.9	8.8										
Phosphorus					0.0	0.0	0.0	0.0	0.0										
Qtr1					0.0			0.1											
Qtr2					0.0		0.0	0.0	0.0										
Qtr3					0.0		0.0	0.0	0.0										
Qtr4					0.0	0.0	0.0	0.0	0.0										
East Savanna River																			
04010201-561																			
Dissolved oxygen (DO)										5.0	4.7								
Qtr2										6.0	5.5								
Qtr3										4.4	4.4								
Phosphorus										0.1									
Qtr2										0.1									
Qtr3										0.1									
St. Louis River (for Ahmik River)																			
04010201-506																			
Biochemical oxygen demand, standard conditions													1.3						
Qtr3													1.3						
Chemical oxygen demand													64.0						
Qtr3													64.0						
Dissolved oxygen (DO)													8.6	8.6					
Qtr2													8.6						
Qtr3													8.6						
Total suspended solids													3.0						
Qtr3													3.0						
Turbidity													2.8						
Qtr3													2.8						
Little Otter Creek																			
04010201-628																			

Attachment F
Water Quality Data Received from the Minnesota Pollution Control Agency

Waterbody/WID/ Parameter/Quarter	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Dissolved oxygen (DO)													6.7						
Qtr3													6.7						
Otter Creek (for Little Otter Creek)																			
04010201-629																			
Biochemical oxygen demand, standard conditions													1.2						
Qtr3													1.2						
Dissolved oxygen (DO)								9.4	9.3				8.7	9.5					
Qtr1													13.2						
Qtr2								9.4					8.4	9.5					
Qtr3								9.4	9.3				8.1						
Phosphorus								0.0					0.0						
Qtr1													0.1						
Qtr2													0.0						
Qtr3								0.0											