

July 18, 2019

North Dakota Department of Environmental Quality
Division of Water Quality
918 East Divide Avenue
Bismarck, ND 58501-1947

Re: June 2019 Devils Lake Outlets Monthly Discharge and Water Quality Report

Division of Water Quality:

The monthly discharge report for the Devils Lake Outlets for the month of June 2019 is enclosed. The West Outlet began discharging at 125 cubic feet per second (cfs) on June 5th and was increased to full capacity, 250 cfs, on June 10th. The East Outlet began discharging on June 11th and operated at an average rate of 113 cfs for the month. Combined discharge averaged 317 cfs and a total of 16,328 acre-feet were discharged.

The attached tables contain average daily outlet discharges and water quality results from samples collected from the outlets and the corresponding upstream and downstream locations. Also included are average daily stream flow data and conductivity data obtained from the USGS gaging stations located upstream and downstream of the outlets.

If you have any questions, please contact me at (701) 328-4948.

Sincerely,



Jonathan Kelsch P.E.
Section Chief of Construction

JK:TD/416-10
Enclosure

June 2019 Devils Lake Outlet Discharge Summary

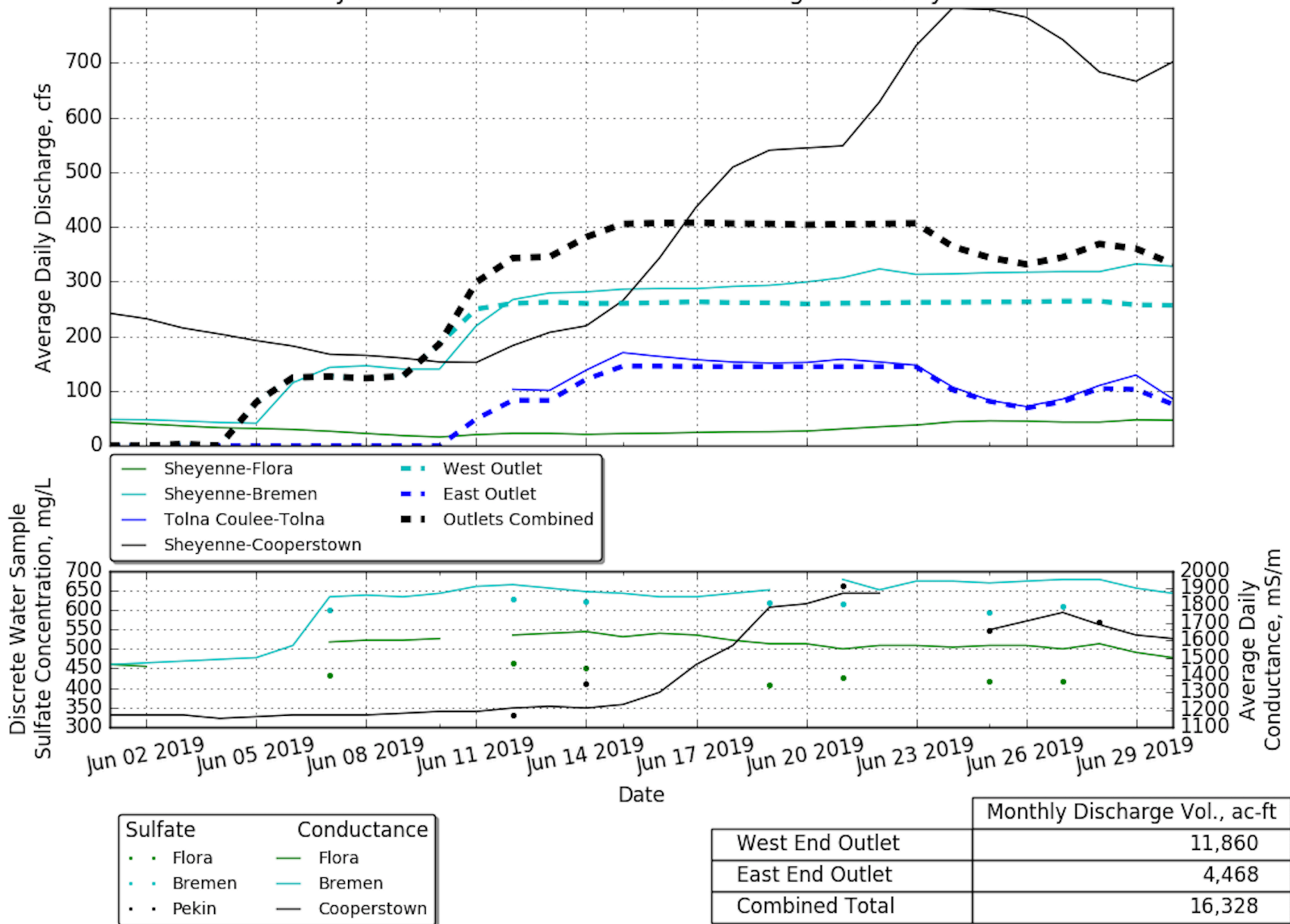


Figure 1: Devils Lake Outlet Discharge Summary

OUTLET OPERATOR NAME/ADDRESS

NAME: ND State Water Commission
 ADDRESS: 900 E Boulevard Avenue,
 Bismarck ND 58505

MONTHLY DISCHARGE REPORT


LOCATION: WEST END OUTLET

FACILITY: Devils Lake Outlet Project

MONITORING PERIOD	
START DATE	END DATE
6/1/19	6/30/19

LOCATION: Benson Co, ND

Devils Lake West Outlet discharged 11,860 ac-ft over 27 Days

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.65	8.91	8.75	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	NA	NA	NA	µS/cm	Continuous	Recorder
SULFATE	605	642	632	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	625	636	633	mg/L	Average	GRAB
OUTLET DISCHARGE	0	264	230	cfs	Continuous	Recorder
SIGNATURE				7/18/19	701-328-4948	
NAME AND TITLE	JONATHAN KELSCH, HEAD, CONSTRUCTION SECTION			DATE	TELEPHONE NUMBER	
COMMENT AND EXPLANATION OF ANY VIOLATIONS						
A summary of individual sample results and flow data for both outlets, and upstream & downstream monitoring locations is attached.						

Notes:

- ac-ft - Acre feet
- SU - Standard Units
- µS/cm - Microsiemens per Centimeter at 25 degrees Celsius
- mg/L - Milligrams per liter or parts per million
- cfs - Cubic feet per second
- NA - Not available

OUTLET OPERATOR NAME/ADDRESS

NAME: ND State Water Commission
 ADDRESS: 900 E Boulevard Avenue,
 Bismarck ND 58505

MONTHLY DISCHARGE REPORT


LOCATION: EAST END OUTLET

FACILITY: Devils Lake Outlet Project

MONITORING PERIOD	
START DATE	END DATE
6/1/19	6/30/19

LOCATION: Ramsey, Benson, Nelson, ND

Devils Lake East Outlet discharged 4,468 ac-ft over 20 Days

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.61	8.73	8.67	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	2800	2920	2875	µS/cm	Continuous	Recorder
SULFATE	989	1020	1005	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	999	1020	1005	mg/L	Average	GRAB
OUTLET DISCHARGE	0	145	113	cfs	Continuous	Recorder
SIGNATURE				7/18/19	701-328-4948	
NAME AND TITLE	JONATHAN KELSCH, HEAD, CONSTRUCTION SECTION			DATE	TELEPHONE NUMBER	
COMMENT AND EXPLANATION OF ANY VIOLATIONS						
A summary of individual sample results and flow data for both outlets, and upstream & downstream monitoring locations is attached.						

Notes:

- ac-ft - Acre feet
- SU - Standard Units
- µS/cm - Microsiemens per Centimeter at 25 degrees Celsius
- mg/L - Milligrams per liter or parts per million
- cfs - Cubic feet per second
- NA - Not available

OUTLET OPERATOR NAME/ADDRESS

NAME: ND State Water Commission
 ADDRESS: 900 E Boulevard Avenue,
 Bismarck ND 58505


MONTHLY DISCHARGE REPORT

LOCATION: UPSTREAM OF THE WEST END OUTLET (FLORA)

FACILITY: Devils Lake Outlet Project

MONITORING PERIOD	
START DATE	END DATE
6/1/19	6/30/19

LOCATION: Benson Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.33	8.57	8.44	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	1,450	1,650	1,577	µS/cm	Continuous	Recorder
SULFATE	409	464	432	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	418	459	433	mg/L	Average	GRAB
FLOW, INSTREAM	16	47	31	cfs	Continuous	Recorder
SIGNATURE				7/18/19	701-328-4948	
NAME AND TITLE	JONATHAN KELSCH, HEAD, CONSTRUCTION SECTION			DATE	TELEPHONE NUMBER	
COMMENT AND EXPLANATION OF ANY VIOLATIONS						
A summary of individual sample results and flow data for both outlets, and upstream & downstream monitoring location is attached.						

Notes:

- SU - Standard Units
- µS/cm - Microsiemens per Centimeter at 25 degrees Celsius
- mg/L - Milligrams per liter or parts per million
- cfs - Cubic feet per second
- USGS streamflow and specific conductance data courtesy of the USGS
- USGS data are provisional and subject to revision

OUTLET OPERATOR NAME/ADDRESS

NAME: ND State Water Commission
 ADDRESS: 900 E Boulevard Avenue,
 Bismarck ND 58505


MONTHLY DISCHARGE REPORT

LOCATION: DOWNSTREAM OF THE WEST END OUTLET (BREMEN)
 UPSTREAM OF THE EAST END OUTLET

FACILITY: Devils Lake Outlet Project

MONITORING PERIOD	
START DATE	END DATE
6/1/19	6/30/19

LOCATION: Eddy Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.57	8.77	8.67	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	1,460	1,950	1,814	µS/cm	Continuous	Recorder
SULFATE	593	628	612	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	601	625	613	mg/L	Average	GRAB
FLOW, INSTREAM	41	332	229	cfs	Continuous	Recorder
SIGNATURE				7/18/19	701-328-4948	
NAME AND TITLE	JONATHAN KELSCH, HEAD, CONSTRUCTION SECTION			DATE	TELEPHONE NUMBER	
COMMENT AND EXPLANATION OF ANY VIOLATIONS						
A summary of individual sample results and flow data for both outlets, and upstream & downstream monitoring locations is attached.						

Notes:

- SU - Standard Units
- µS/cm - Microsiemens per Centimeter at 25 degrees Celsius
- mg/L - Milligrams per liter or parts per million
- cfs - Cubic feet per second
- USGS streamflow and specific conductance data courtesy of the USGS
- USGS data are provisional and subject to revision

OUTLET OPERATOR NAME/ADDRESS

NAME: ND State Water Commission
 ADDRESS: 900 E Boulevard Avenue,
 Bismarck ND 58505


MONTHLY DISCHARGE REPORT

LOCATION: DOWNSTREAM OF BOTH OUTLETS (PEKIN)

FACILITY: Devils Lake Outlet Project

MONITORING PERIOD	
START DATE	END DATE
6/1/19	6/30/19

LOCATION: Nelson Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.41	8.53	8.46	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	NA	NA	NA	µS/cm	Continuous	Recorder
SULFATE	331	661	504	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	331	661	505	mg/L	Average	GRAB
FLOW, INSTREAM	NA	NA	NA	cfs	Continuous	Recorder
SIGNATURE	 JONATHAN KELSCH, HEAD, CONSTRUCTION SECTION			7/18/19	701-328-4948	
NAME AND TITLE				DATE	TELEPHONE NUMBER	

COMMENT AND EXPLANATION OF ANY VIOLATIONS

A summary of individual sample results and flow data for both outlets, and upstream & downstream monitoring locations is attached.

Notes:

- SU - Standard Units
- µS/cm - Microsiemens per Centimeter at 25 degrees Celsius
- mg/L - Milligrams per liter or parts per million
- cfs - Cubic feet per second
- NA - Not available

OUTLET OPERATOR NAME/ADDRESS

NAME: ND State Water Commission
 ADDRESS: 900 E Boulevard Avenue,
 Bismarck ND 58505


MONTHLY DISCHARGE REPORT

LOCATION: DOWNSTREAM OF BOTH OUTLETS (COOPERSTOWN)

FACILITY: Devils Lake Outlet Project

MONITORING PERIOD	
START DATE	END DATE
6/1/19	6/30/19

LOCATION: Griggs Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.33	8.46	8.40	SU	Weekly	GRAB
SPECIFIC CONDUCTANCE	1,150	1,870	1,410	µS/cm	Continuous	Recorder
SULFATE	294	537	451	mg/L	Weekly	GRAB
7 DAY AVERAGE OF SULFATE	294	530	449	mg/L	Average	GRAB
FLOW, INSTREAM	152	800	413	cfs	Continuous	Recorder
SIGNATURE				7/18/19	701-328-4948	
NAME AND TITLE	JONATHAN KELSCH, HEAD, CONSTRUCTION SECTION			DATE	TELEPHONE NUMBER	

COMMENT AND EXPLANATION OF ANY VIOLATIONS

A summary of individual sample results and flow data for both outlets, and upstream & downstream monitoring locations is attached.

Notes:

- SU - Standard Units
- µS/cm - Microsiemens per Centimeter at 25 degrees Celsius
- mg/L - Milligrams per liter or parts per million
- cfs - Cubic feet per second
- NA - Not available

Daily Outlet Discharge and Upstream and Downstream Flows Devils Lake Outlets

Date	Above West End Outlet - Sheyenne River near Flora		West End Outlet		Below West End Outlet/Above East End Outlet -Sheyenne River near Bremen		East End Outlet		Below East End Outlet - Tolna Coulee near Tolna		Below East End Outlet - Sheyenne River near Cooperstown		Sum of Outlets	
	Average Streamflow USGS Gage (cfs)	Average Specific Conductance USGS Gage (µS/cm)	Average Daily Outlet Discharge (cfs)	Total Daily Volume (ft ³)	Average Streamflow USGS Gage (cfs)	Average Specific Conductance USGS Gage (µS/cm)	Average Daily Outlet Discharge (cfs)	Total Daily Volume (ft ³)	Average Streamflow USGS Gage (cfs)	Average Specific Conductance USGS Gage (µS/cm)	Average Streamflow USGS Gage (cfs)	Average Specific Conductance USGS Gage (µS/cm)	Average Daily Outlet Discharge (cfs)	Total Daily Volume (ft ³)
6/1/19	43	1,460	0	0	48	1,460	0	0	-	1,070	242	1,170	0	0
6/2/19	40	1,450	0	0	47	1,470	0	0	-	1,060	232	1,170	0	0
6/3/19	36	-	3	247,000	45	1,480	0	0	-	1,030	215	1,170	3	247,000
6/4/19	33	-	0	0	42	1,490	0	0	-	1,070	204	1,150	0	0
6/5/19	31	-	79	6,861,000	41	1,500	0	0	-	1,080	192	1,160	79	6,861,000
6/6/19	30	-	125	10,764,000	115	1,570	0	0	-	1,100	182	1,170	125	10,764,000
6/7/19	26	1,590	126	10,919,000	143	1,850	0	0	-	1,170	167	1,170	126	10,919,000
6/8/19	22	1,600	123	10,646,000	146	1,860	0	0	-	1,130	165	1,170	123	10,646,000
6/9/19	18	1,600	127	10,968,000	140	1,850	0	0	-	1,190	160	1,180	127	10,968,000
6/10/19	16	1,610	186	16,084,000	140	1,870	0	0	-	1,170	153	1,190	186	16,084,000
6/11/19	20	-	250	21,573,000	219	1,910	49	4,214,000	-	1,930	152	1,190	298	25,787,000
6/12/19	23	1,630	260	22,465,000	267	1,920	83	7,167,000	103	2,790	183	1,210	343	29,632,000
6/13/19	23	1,640	262	22,661,000	279	1,900	83	7,142,000	101	2,890	207	1,220	345	29,803,000
6/14/19	21	1,650	260	22,451,000	281	1,880	121	10,480,000	138	2,900	219	1,210	381	32,931,000
6/15/19	22	1,620	260	22,468,000	286	1,870	145	12,554,000	170	2,860	265	1,230	405	35,022,000
6/16/19	23	1,640	261	22,572,000	287	1,850	145	12,559,000	163	2,890	343	1,300	407	35,131,000
6/17/19	24	1,630	263	22,724,000	287	1,850	145	12,495,000	157	2,900	436	1,460	408	35,219,000
6/18/19	25	1,600	261	22,574,000	291	1,870	145	12,487,000	153	2,910	509	1,570	406	35,061,000
6/19/19	26	1,580	261	22,555,000	293	1,890	144	12,482,000	151	2,910	540	1,790	406	35,037,000
6/20/19	27	1,580	259	22,384,000	299	-	144	12,481,000	152	2,900	544	1,810	404	34,865,000
6/21/19	31	1,550	260	22,490,000	307	1,950	144	12,482,000	158	-	548	1,870	405	34,972,000
6/22/19	35	1,570	261	22,530,000	323	1,890	145	12,490,000	153	2,860	628	1,870	405	35,020,000
6/23/19	38	1,570	262	22,631,000	313	1,940	144	12,466,000	147	2,910	731	-	406	35,097,000
6/24/19	44	1,560	262	22,639,000	314	1,940	102	8,791,000	107	2,890	800	-	364	31,430,000
6/25/19	46	1,570	263	22,694,000	316	1,930	81	7,006,000	83	2,880	797	1,660	344	29,700,000
6/26/19	45	1,570	263	22,705,000	317	1,940	69	5,937,000	72	2,860	783	1,710	332	28,642,000
6/27/19	43	1,550	264	22,804,000	318	1,950	80	6,936,000	85	2,850	742	1,760	344	29,740,000
6/28/19	43	1,580	264	22,818,000	318	1,950	105	9,038,000	110	2,850	683	1,690	369	31,856,000
6/29/19	47	1,530	257	22,227,000	332	1,900	103	8,886,000	129	2,740	666	1,630	360	31,113,000
6/30/19	47	1,500	256	22,161,000	328	1,870	76	6,543,000	86	2,790	701	1,610	332	28,704,000
Minimum	16	1,450	0	0	41	1,460	0	0	-	1,030	152	1,150	0	0
Maximum	47	1,650	264	22,818,000	332	1,950	145	12,559,000	-	2,910	800	1,870	408	35,219,000
Average	31	1,577	230	19,860,308	229	1,814	113	9,731,800	-	2,227	413	1,410	317	27,346,308
			Total (Mgal)	3,864			Total (Mgal)	1,456					Total (Mgal)	5,320
			Total (Ac-ft)	11,860			Total (Ac-ft)	4,468					Total (Ac-ft)	16,328

Notes:

- cfs - cubic feet per second
- µS/cm - Microsiemens per Centimeter at 25 degrees Celsius
- ft³ - cubic feet
- Mgal - Millions of Gallons
- Ac ft - Acre Feet
- USGS streamflow and specific conductance data are preliminary and courtesy of the USGS
- NC - Not calculated

**Sheyenne River Upstream of West End Outlet Near Flora
Monthly Water Quality Summary
Devils Lake Outlet Discharge Report**

Date	Time	Specific Conductance USGS Gage (μ S/cm)	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	Number of Samples included in 7- day Average
6/1/19	-	-	-	-	-	-	-
6/2/19	-	-	-	-	-	-	-
6/3/19	-	-	-	-	-	-	-
6/4/19	-	-	-	-	-	-	-
6/5/19	-	-	-	-	-	-	-
6/6/19	-	-	-	-	-	-	-
6/7/19	8:30	1,580	8.49	434	434	NA	1
6/8/19	-	-	-	-	-	-	-
6/9/19	-	-	-	-	-	-	-
6/10/19	-	-	-	-	-	-	-
6/11/19	-	-	-	-	-	-	-
6/12/19	8:00	1,630	8.45	464	449	NA	2
6/13/19	-	-	-	-	-	-	-
6/14/19	8:10	1,630	8.57	453	459	NA	2
6/15/19	-	-	-	-	-	-	-
6/16/19	-	-	-	-	-	-	-
6/17/19	-	-	-	-	-	-	-
6/18/19	-	-	-	-	-	-	-
6/19/19	8:15	1,560	8.39	409	431	43	2
6/20/19	-	-	-	-	-	-	-
6/21/19	9:05	1,560	8.48	428	419	NA	2
6/22/19	-	-	-	-	-	-	-
6/23/19	-	-	-	-	-	-	-
6/24/19	-	-	-	-	-	-	-
6/25/19	7:51	1,580	8.39	417	418	NA	3
6/26/19	-	-	-	-	-	-	-
6/27/19	12:55	1,530	8.33	417	421	NA	3
6/28/19	-	-	-	-	-	-	-
6/29/19	-	-	-	-	-	-	-
6/30/19	-	-	-	-	-	-	-
Minimum		1,530	8.33	409	418	43	
Maximum		1,630	8.57	464	459	43	
Average		1,581	8.44	432	433	43	

Notes:

μ S/cm - Microsiemens per Centimeter at 25 degrees Celsius
mg/L - Milligrams per liter or parts per million
NA - Not Analyzed
USGS specific conductance data courtesy of the USGS
USGS data are provisional and subject to revision
Italic font denotes preliminary result

**West End Outlet
Monthly Water Quality Summary
Devils Lake Outlet Discharge Report**

Date	Time	Specific Conductance from Telemetry System (µS/cm)	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	Number of Samples included in 7- day Average
6/1/19	-	-	-	-	-	-	-
6/2/19	-	-	-	-	-	-	-
6/3/19	-	-	-	-	-	-	-
6/4/19	-	-	-	-	-	-	-
6/5/19	-	-	-	-	-	-	-
6/6/19	-	-	-	-	-	-	-
6/7/19	8:45	-	8.79	635	635	NA	1
6/8/19	-	-	-	-	-	-	-
6/9/19	-	-	-	-	-	-	-
6/10/19	-	-	-	-	-	-	-
6/11/19	-	-	-	-	-	-	-
6/12/19	8:15	-	8.65	637	636	NA	2
6/13/19	-	-	-	-	-	-	-
6/14/19	8:20	-	8.91	634	636	NA	2
6/15/19	-	-	-	-	-	-	-
6/16/19	-	-	-	-	-	-	-
6/17/19	-	-	-	-	-	-	-
6/18/19	-	-	-	-	-	-	-
6/19/19	8:25	-	8.69	632	633	15	2
6/20/19	-	-	-	-	-	-	-
6/21/19	9:15	-	8.77	638	635	NA	2
6/22/19	-	-	-	-	-	-	-
6/23/19	-	-	-	-	-	-	-
6/24/19	-	-	-	-	-	-	-
6/25/19	8:04	-	8.65	605	625	NA	3
6/26/19	-	-	-	-	-	-	-
6/27/19	13:05	-	8.81	642	628	NA	3
6/28/19	-	-	-	-	-	-	-
6/29/19	-	-	-	-	-	-	-
6/30/19	-	-	-	-	-	-	-
Minimum		NA	8.65	605	625	15	
Maximum		NA	8.91	642	636	15	
Average		NA	8.75	632	633	15	

Notes:

mg/L - Milligrams per liter or parts per million
 NA - Not Analyzed
 Italic font denotes preliminary result

Sheyenne River Downstream of West End Outlet/Upstream of East End Outlet (Bremen)
Monthly Water Quality Summary
Devils Lake Outlet Discharge Report

Date	Time	Specific Conductance USGS Gage (μ S/cm)	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	Number of samples included in 7- day Average
6/1/19	-	-	-	-	-	-	-
6/2/19	-	-	-	-	-	-	-
6/3/19	-	-	-	-	-	-	-
6/4/19	-	-	-	-	-	-	-
6/5/19	-	-	-	-	-	-	-
6/6/19	-	-	-	-	-	-	-
6/7/19	8:10	1,840	8.66	601	601	NA	1
6/8/19	-	-	-	-	-	-	-
6/9/19	-	-	-	-	-	-	-
6/10/19	-	-	-	-	-	-	-
6/11/19	-	-	-	-	-	-	-
6/12/19	7:30	1,920	8.57	628	615	NA	2
6/13/19	-	-	-	-	-	-	-
6/14/19	7:45	1,880	8.74	621	625	NA	2
6/15/19	-	-	-	-	-	-	-
6/16/19	-	-	-	-	-	-	-
6/17/19	-	-	-	-	-	-	-
6/18/19	-	-	-	-	-	-	-
6/19/19	7:47	1,880	8.64	618	620	34	2
6/20/19	-	-	-	-	-	-	-
6/21/19	8:40	1,970	8.70	614	616	NA	2
6/22/19	-	-	-	-	-	-	-
6/23/19	-	-	-	-	-	-	-
6/24/19	-	-	-	-	-	-	-
6/25/19	7:27	1,930	8.59	593	608	NA	3
6/26/19	-	-	-	-	-	-	-
6/27/19	12:30	1,950	8.77	609	605	NA	3
6/28/19	-	-	-	-	-	-	-
6/29/19	-	-	-	-	-	-	-
6/30/19	-	-	-	-	-	-	-
Minimum		1,840	8.57	593	601	34	
Maximum		1,970	8.77	628	625	34	
Average		1,910	8.67	612	613	34	

Notes:

μ S/cm - Microsiemens per Centimeter at 25 degrees Celsius
mg/L - Milligrams per liter or parts per million
NA - Not Analyzed
USGS specific conductance data courtesy of the USGS
USGS data are provisional and subject to revision
Italic font denotes preliminary result

**East End Outlet
Monthly Water Quality Summary
Devils Lake Discharge Report**

Date	Time	Specific Conductance USGS Gage (μ S/cm)	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	Number of samples included in 7- day Average
6/1/19	-	-	-	-	-	-	-
6/2/19	-	-	-	-	-	-	-
6/3/19	-	-	-	-	-	-	-
6/4/19	-	-	-	-	-	-	-
6/5/19	-	-	-	-	-	-	-
6/6/19	-	-	-	-	-	-	-
6/7/19	-	-	-	-	-	-	-
6/8/19	-	-	-	-	-	-	-
6/9/19	-	-	-	-	-	-	-
6/10/19	-	-	-	-	-	-	-
6/11/19	-	-	-	-	-	-	-
6/12/19	9:25	2800	8.63	1020	1020	NA	1
6/13/19	-	-	-	-	-	-	-
6/14/19	6:20	2880	8.61	999	1010	NA	2
6/15/19	-	-	-	-	-	-	-
6/16/19	-	-	-	-	-	-	-
6/17/19	-	-	-	-	-	-	-
6/18/19	-	-	-	-	-	-	-
6/19/19	9:50	2920	8.66	999	999	24	2
6/20/19	-	-	-	-	-	-	-
6/21/19	7:15	2910	8.71	1010	1005	NA	2
6/22/19	-	-	-	-	-	-	-
6/23/19	-	-	-	-	-	-	-
6/24/19	-	-	-	-	-	-	-
6/25/19	9:25	2880	8.66	989	999	NA	3
6/26/19	-	-	-	-	-	-	-
6/27/19	-	-	-	-	-	-	-
6/28/19	8:35	2860	8.73	1010	1000	NA	2
6/29/19	-	-	-	-	-	-	-
6/30/19	-	-	-	-	-	-	-
Minimum		2800	8.61	989	999	24	
Maximum		2920	8.73	1020	1020	24	
Average		2875	8.67	1005	1005	24	

Notes:

mg/L - Milligrams per liter or parts per million

NA - Not Analyzed

Italic font denotes preliminary result

**Sheyenne River Downstream of Both Outlets near Pekin
Monthly Water Quality Summary
Devils Lake Outlet Discharge Report**

Date	Time	Specific Conductance Laboratory Analysis (µS/cm)	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	Number of samples included in 7- day Average
6/1/19	-	-	-	-	-	-	-
6/2/19	-	-	-	-	-	-	-
6/3/19	-	-	-	-	-	-	-
6/4/19	-	-	-	-	-	-	-
6/5/19	-	-	-	-	-	-	-
6/6/19	-	-	-	-	-	-	-
6/7/19	-	-	-	-	-	-	-
6/8/19	-	-	-	-	-	-	-
6/9/19	-	-	-	-	-	-	-
6/10/19	-	-	-	-	-	-	-
6/11/19	-	-	-	-	-	-	-
6/12/19	9:50	-	8.42	331	331	NA	1
6/13/19	-	-	-	-	-	-	-
6/14/19	6:40	-	8.53	412	372	NA	2
6/15/19	-	-	-	-	-	-	-
6/16/19	-	-	-	-	-	-	-
6/17/19	-	-	-	-	-	-	-
6/18/19	-	-	-	-	-	-	-
6/19/19	-	-	-	-	-	-	-
6/20/19	-	-	-	-	-	-	-
6/21/19	7:40	-	8.52	661	661	NA	1
6/22/19	-	-	-	-	-	-	-
6/23/19	-	-	-	-	-	-	-
6/24/19	-	-	-	-	-	-	-
6/25/19	9:50	-	8.41	548	605	NA	2
6/26/19	-	-	-	-	-	-	-
6/27/19	-	-	-	-	-	-	-
6/28/19	9:00	-	8.41	568	558	NA	2
6/29/19	-	-	-	-	-	-	-
6/30/19	-	-	-	-	-	-	-
Minimum			8.41	331	331	0	
Maximum			8.53	661	661	0	
Average			8.46	504	505	0	

Notes:

mg/L - Milligrams per liter or parts per million

NA - Not Analyzed

Italic font denotes preliminary result

Bold font denotes sample sulfate concentration exceeds 750 mg/L

**Sheyenne River Downstream of Both Outlets near Cooperstown
Monthly Water Quality Summary
Devils Lake Outlet Discharge Report**

Date	Time	Specific Conductance USGS Gage (µS/cm)	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	Number of samples included in 7- day Average
6/1/19	-	-	-	-	-	-	-
6/2/19	-	-	-	-	-	-	-
6/3/19	-	-	-	-	-	-	-
6/4/19	-	-	-	-	-	-	-
6/5/19	-	-	-	-	-	-	-
6/6/19	-	-	-	-	-	-	-
6/7/19	-	-	-	-	-	-	-
6/8/19	-	-	-	-	-	-	-
6/9/19	-	-	-	-	-	-	-
6/10/19	-	-	-	-	-	-	-
6/11/19	-	-	-	-	-	-	-
6/12/19	10:40	1,210	8.46	294	294	NA	1
6/13/19	-	-	-	-	-	-	-
6/14/19	-	-	-	-	-	-	-
6/15/19	-	-	-	-	-	-	-
6/16/19	-	-	-	-	-	-	-
6/17/19	-	-	-	-	-	-	-
6/18/19	-	-	-	-	-	-	-
6/19/19	11:00	1,790	8.40	522	522	146	1
6/20/19	-	-	-	-	-	-	-
6/21/19	-	-	-	-	-	-	-
6/22/19	-	-	-	-	-	-	-
6/23/19	-	-	-	-	-	-	-
6/24/19	-	-	-	-	-	-	-
6/25/19	10:35	1,650	8.33	537	530	NA	2
6/26/19	-	-	-	-	-	-	-
6/27/19	-	-	-	-	-	-	-
6/28/19	-	-	-	-	-	-	-
6/29/19	-	-	-	-	-	-	-
6/30/19	-	-	-	-	-	-	-
Minimum		1,210	8.33	294	294	146	
Maximum		1,790	8.46	537	530	146	
Average		1,550	8.40	451	449	146	

Notes:

mg/L - Milligrams per liter or parts per million

NA - Not Analyzed

Italic font denotes preliminary result

Bold font denotes sample sulfate concentration exceeds 750 mg/L