



North Dakota State Water Commission

900 EAST BOULEVARD AVENUE, DEPT 770 • BISMARCK, NORTH DAKOTA 58505-0850
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WATER DEVELOPMENT DIVISION
(701) 328-2752

August 10, 2017

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

RE: July 2017 Devils Lake Outlets Monthly Discharge and Water Quality Report

Division of Water Quality:

Enclosed is the monthly discharge report for the Devils Lake Outlets for the month of July 2017. July discharge started near full 600 cfs capacity, was reduced temporarily for canal maintenance and began to be limited in the second half of the month because of water quality constraints in the Sheyenne River. The 750 mg/L sulfate limitation was exceeded at Pekin as the natural streamflow in the Sheyenne River dropped. In response, East Outlet discharges were reduced to prevent further exceedance (**Figure 1**). A total of 26,247 acre-feet were discharged in July which brings the 2017 discharge total to 67,629 ac-ft.

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

July 2017 Devils Lake Outlet Discharge Summary

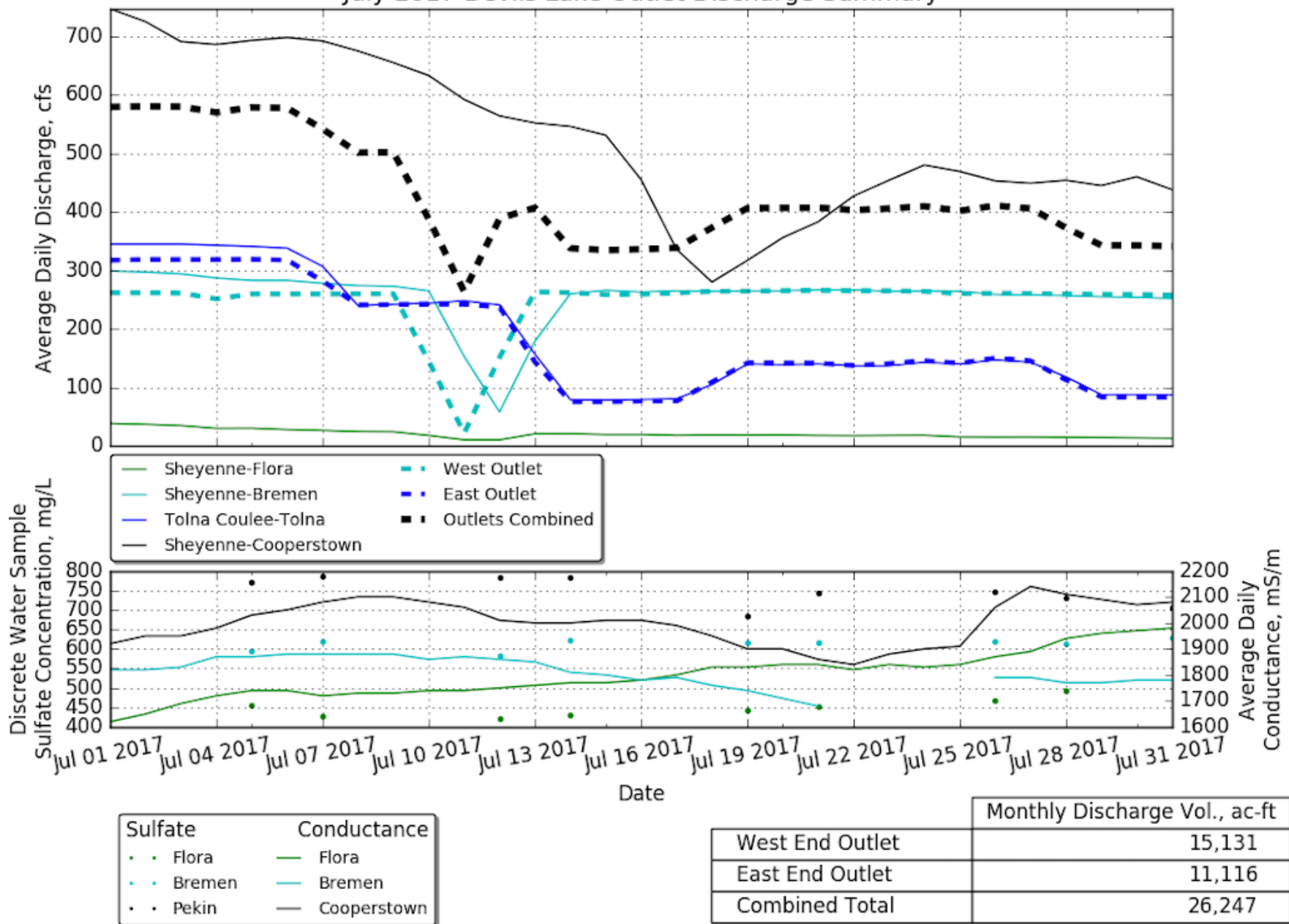


Figure 1: Devils Lake Outlet Discharge Summary

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
7/1/17	7/31/17

LOCATION: Benson Co, ND

Devils Lake West Outlet discharged 15,131 ac-ft over 31 Days

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.32	8.96	8.76	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	NA	NA	NA	µS/cm	Continuous	Recorder
SULFATE	608	631	619	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	611	626	618	mg/L	2 x Week	GRAB
OUTLET DISCHARGE	21	266	246	cfs	Continuous	Recorder
SIGNATURE				8/10/17	701-328-4948	
NAME AND TITLE	JONATHAN KELSCH, HEAD, CONSTRUCTION SECTION			DATE	TELEPHONE NUMBER	
COMMENT AND EXPLANATION OF ANY VIOLATIONS						
Summary of individual sample results and flow data for outlet, upstream & downstream monitoring locations 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
7/1/17	7/31/17

LOCATION: Ramsey, Benson, Nelson, ND

Devils Lake East Outlet discharged 11,116 ac-ft over 31 Days

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.62	8.89	8.72	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	NA	NA	NA	µS/cm	Continuous	Recorder
SULFATE	975	1000	991	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	985	999	994	mg/L	2 x Week	GRAB
OUTLET DISCHARGE	76	319	181	cfs	Continuous	Recorder
SIGNATURE	 JONATHAN KELSCH, HEAD, CONSTRUCTION SECTION			8/10/17	701-328-4948	
NAME AND TITLE				DATE	TELEPHONE NUMBER	
COMMENT AND EXPLANATION OF ANY VIOLATIONS						
Summary of individual sample results and flow data for outlet, upstream & downstream monitoring locations 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
7/1/17	7/31/17

LOCATION: Benson Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.36	8.42	8.39	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	1,620	1,980	1,798	µS/cm	Continuous	Recorder
SULFATE	421	493	449	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	414	481	441	mg/L	2 x Week	GRAB
FLOW, INSTREAM	10	39	21	cfs	Continuous	Recorder
SIGNATURE	 JONATHAN KELSCH, HEAD, CONSTRUCTION SECTION			8/10/17	701-328-4948	
NAME AND TITLE				DATE	TELEPHONE NUMBER	
COMMENT AND EXPLANATION OF ANY VIOLATIONS						
Summary of individual sample results and flow data for outlet, upstream & downstream monitoring locations 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

LOCATION: Eddy Co, ND

MONITORING PERIOD	
START DATE	END DATE
7/1/17	7/31/17

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.69	8.88	8.78	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	1,680	1,880	1,812	µS/cm	Continuous	Recorder
SULFATE	584	628	613	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	589	621	611	mg/L	2 x Week	GRAB
FLOW, INSTREAM	58	299	256	cfs	Continuous	Recorder
SIGNATURE				8/10/17	701-328-4948	
NAME AND TITLE	JONATHAN KELSCH, HEAD, CONSTRUCTION SECTION			DATE	TELEPHONE NUMBER	
COMMENT AND EXPLANATION OF ANY VIOLATIONS						
Summary of individual sample results and flow data for outlet, upstream & downstream monitoring locations 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 EAST END OUTLET (PEKIN)

FACILITY: Devils Lake Outlet Project

MONITORING PERIOD	
START DATE	END DATE
7/1/17	7/31/17

LOCATION: Nelson Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.58	8.86	8.65	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	NA	NA	NA	µS/cm	Continuous	Recorder
SULFATE	685	786	748	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	715	784	751	mg/L	2 x Week	GRAB
FLOW, INSTREAM	NA	NA	NA	cfs	Continuous	Recorder
SIGNATURE				8/10/17	701-328-4948	
NAME AND TITLE	JONATHAN KELSCH, HEAD, CONSTRUCTION SECTION			DATE	TELEPHONE NUMBER	
COMMENT AND EXPLANATION OF ANY VIOLATIONS						
Summary of individual sample results and flow data for outlet, upstream & downstream monitoring locations 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 - Toina Coulee near Toina		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)
7/1/17	39	1,620	262	22,615,000	299	1,820	317	27,421,000	345	2,850	747	1,920	579	50,036,000
7/2/17	37	1,650	262	22,613,000	297	1,820	319	27,529,000	345	2,840	725	1,950	580	50,142,000
7/3/17	35	1,690	261	22,576,000	294	1,830	319	27,519,000	345	-	691	1,950	580	50,095,000
7/4/17	30	1,720	251	21,711,000	287	1,870	319	27,520,000	343	-	686	1,980	570	49,231,000
7/5/17	30	1,740	260	22,436,000	283	1,870	319	27,554,000	341	-	693	2,030	579	49,990,000
7/6/17	28	1,740	260	22,442,000	283	1,880	318	27,442,000	338	-	698	2,050	577	49,884,000
7/7/17	27	1,720	260	22,434,000	278	1,880	282	24,368,000	307	-	692	2,080	542	46,802,000
7/8/17	25	1,730	260	22,458,000	274	1,880	241	20,822,000	240	2,820	675	2,100	501	43,280,000
7/9/17	24	1,730	260	22,471,000	273	1,880	242	20,889,000	242	-	655	2,100	502	43,360,000
7/10/17	18	1,740	145	12,528,000	265	1,860	243	20,956,000	244	-	633	2,080	388	33,484,000
7/11/17	11	1,740	21	1,850,000	153	1,870	243	20,957,000	248	2,840	592	2,060	264	22,807,000
7/12/17	10	1,750	151	13,074,000	58	1,860	237	20,505,000	241	2,850	564	2,010	389	33,579,000
7/13/17	21	1,760	263	22,762,000	179	1,850	143	12,397,000	157	2,860	552	2,000	407	35,159,000
7/14/17	21	1,770	262	22,627,000	260	1,810	76	6,550,000	79	2,860	546	2,000	338	29,177,000
7/15/17	20	1,770	259	22,367,000	266	1,800	76	6,546,000	78	2,860	531	2,010	335	28,913,000
7/16/17	20	1,780	259	22,404,000	263	1,780	77	6,625,000	80	2,860	455	2,010	336	29,029,000
7/17/17	18	1,800	261	22,589,000	265	1,790	77	6,642,000	80	2,860	336	1,990	338	29,231,000
7/18/17	19	1,830	264	22,831,000	264	1,760	109	9,405,000	105	2,870	280	1,950	373	32,236,000
7/19/17	18	1,830	264	22,851,000	265	1,740	142	12,253,000	140	2,870	317	1,900	406	35,104,000
7/20/17	19	1,840	265	22,919,000	265	1,710	142	12,235,000	139	2,840	356	1,900	407	35,154,000
7/21/17	18	1,840	266	22,957,000	267	1,680	142	12,229,000	140	2,850	383	1,860	407	35,186,000
7/22/17	18	1,820	265	22,919,000	267	-	138	11,884,000	137	2,800	427	1,840	403	34,803,000
7/23/17	18	1,840	265	22,897,000	264	-	141	12,161,000	137	2,860	454	1,880	406	35,058,000
7/24/17	18	1,830	264	22,822,000	265	-	146	12,578,000	143	2,850	480	1,900	410	35,400,000
7/25/17	15	1,840	260	22,486,000	264	-	141	12,218,000	140	2,840	469	1,910	402	34,704,000
7/26/17	15	1,870	261	22,528,000	259	1,790	150	12,964,000	147	2,860	453	2,060	411	35,492,000
7/27/17	15	1,890	260	22,506,000	258	1,790	145	12,562,000	143	2,850	449	2,140	406	35,068,000
7/28/17	15	1,940	260	22,429,000	257	1,770	113	9,782,000	118	2,780	454	2,110	373	32,211,000
7/29/17	14	1,960	259	22,375,000	255	1,770	84	7,243,000	88	2,810	445	2,090	343	29,618,000
7/30/17	14	1,970	259	22,361,000	254	1,780	84	7,232,000	88	2,780	460	2,070	343	29,593,000
7/31/17	13	1,980	258	22,284,000	252	1,780	83	7,205,000	88	2,760	438	2,080	341	29,489,000
Minimum	10	1,620	21	1,850,000	58	1,680	76	6,546,000	78	2,760	280	1,840	264	22,807,000
Maximum	39	1,980	266	22,957,000	299	1,880	319	27,554,000	345	2,870	747	2,140	580	50,142,000
Average	21	1,798	246	21,262,000	256	1,812	181	15,619,129	187	2,838	527	2,000	427	36,881,129
			Total (Mgal)	4,930			Total (Mgal)	3,622					Total (Mgal)	8,552
			Total (Ac-ft)	15,131			Total (Ac-ft)	11,116					Total (Ac-ft)	26,247

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
7/1/17	-	-	-	-	-	-	-
7/2/17	-	-	-	-	-	-	-
7/3/17	-	-	-	-	-	-	-
7/4/17	-	-	-	-	-	-	-
7/5/17	8:25	1,730	8.38	455	414	NA	2
7/6/17	-	-	-	-	-	-	-
7/7/17	9:15	1,710	8.40	427	441	NA	2
7/8/17	-	-	-	-	-	-	-
7/9/17	-	-	-	-	-	-	-
7/10/17	-	-	-	-	-	-	-
7/11/17	-	-	-	-	-	-	-
7/12/17	8:10	1,750	8.42	421	424	93	2
7/13/17	-	-	-	-	-	-	-
7/14/17	9:10	1,760	8.36	430	426	NA	2
7/15/17	-	-	-	-	-	-	-
7/16/17	-	-	-	-	-	-	-
7/17/17	-	-	-	-	-	-	-
7/18/17	-	-	-	-	-	-	-
7/19/17	8:10	1,830	8.38	444	437	NA	2
7/20/17	-	-	-	-	-	-	-
7/21/17	9:25	1,840	8.39	454	449	NA	2
7/22/17	-	-	-	-	-	-	-
7/23/17	-	-	-	-	-	-	-
7/24/17	-	-	-	-	-	-	-
7/25/17	-	-	-	-	-	-	-
7/26/17	8:10	1,870	8.37	468	461	107	2
7/27/17	-	-	-	-	-	-	-
7/28/17	9:30	1,920	8.40	493	481	NA	2
7/29/17	-	-	-	-	-	-	-
7/30/17	-	-	-	-	-	-	-
7/31/17	-	-	-	-	-	-	-
Minimum		1,710	8.36	421	414	93	
Maximum		1,920	8.42	493	481	107	
Average		1,801	8.39	449	441	100	

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
7/1/17	-	-	-	-	-	-	-
7/2/17	-	-	-	-	-	-	-
7/3/17	-	-	-	-	-	-	-
7/4/17	-	-	-	-	-	-	-
7/5/17	8:35	-	8.74	608	611	NA	2
7/6/17	-	-	-	-	-	-	-
7/7/17	9:15	-	8.96	618	613	NA	2
7/8/17	-	-	-	-	-	-	-
7/9/17	-	-	-	-	-	-	-
7/10/17	-	-	-	-	-	-	-
7/11/17	-	-	-	-	-	-	-
7/12/17	-	-	-	-	-	-	-
7/13/17	-	-	-	-	-	-	-
7/14/17	9:25	-	8.86	618	618	NA	1
7/15/17	-	-	-	-	-	-	-
7/16/17	-	-	-	-	-	-	-
7/17/17	-	-	-	-	-	-	-
7/18/17	-	-	-	-	-	-	-
7/19/17	8:30	-	8.78	613	616	NA	2
7/20/17	-	-	-	-	-	-	-
7/21/17	9:35	-	8.32	620	617	NA	2
7/22/17	-	-	-	-	-	-	-
7/23/17	-	-	-	-	-	-	-
7/24/17	-	-	-	-	-	-	-
7/25/17	-	-	-	-	-	-	-
7/26/17	8:25	-	8.78	628	624	16	2
7/27/17	-	-	-	-	-	-	-
7/28/17	9:45	-	8.85	619	624	NA	2
7/29/17	-	-	-	-	-	-	-
7/30/17	-	-	-	-	-	-	-
7/31/17	13:55	-	8.80	631	626	NA	3
Minimum		NA	8.32	608	611	16	
Maximum		NA	8.96	631	626	16	
Average		NA	8.76	619	618	16	

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 (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
7/1/17	-	-	-	-	-	-	-
7/2/17	-	-	-	-	-	-	-
7/3/17	-	-	-	-	-	-	-
7/4/17	-	-	-	-	-	-	-
7/5/17	8:00	1,870	8.69	594	589	NA	2
7/6/17	-	-	-	-	-	-	-
7/7/17	8:50	1,880	8.88	621	608	NA	2
7/8/17	-	-	-	-	-	-	-
7/9/17	-	-	-	-	-	-	-
7/10/17	-	-	-	-	-	-	-
7/11/17	-	-	-	-	-	-	-
7/12/17	7:45	1,860	8.70	584	603	150	2
7/13/17	-	-	-	-	-	-	-
7/14/17	8:45	1,810	8.81	624	604	NA	2
7/15/17	-	-	-	-	-	-	-
7/16/17	-	-	-	-	-	-	-
7/17/17	-	-	-	-	-	-	-
7/18/17	-	-	-	-	-	-	-
7/19/17	7:40	1,750	8.72	618	621	NA	2
7/20/17	-	-	-	-	-	-	-
7/21/17	9:05	1,700	8.85	617	618	NA	2
7/22/17	-	-	-	-	-	-	-
7/23/17	-	-	-	-	-	-	-
7/24/17	-	-	-	-	-	-	-
7/25/17	-	-	-	-	-	-	-
7/26/17	19:40	1,790	8.74	620	619	65	2
7/27/17	-	-	-	-	-	-	-
7/28/17	9:05	1,780	8.80	613	617	NA	2
7/29/17	-	-	-	-	-	-	-
7/30/17	-	-	-	-	-	-	-
7/31/17	13:20	1,780	8.80	628	620	NA	3
Minimum		1,700	8.69	584	589	65	
Maximum		1,880	8.88	628	621	150	
Average		1,802	8.78	613	611	108	

Notes:

µS/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 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
7/1/17	-	-	-	-	-	-	-
7/2/17	-	-	-	-	-	-	-
7/3/17	-	-	-	-	-	-	-
7/4/17	-	-	-	-	-	-	-
7/5/17	9:50	-	8.66	985	998	NA	2
7/6/17	-	-	-	-	-	-	-
7/7/17	7:25	-	8.73	997	991	NA	2
7/8/17	-	-	-	-	-	-	-
7/9/17	-	-	-	-	-	-	-
7/10/17	-	-	-	-	-	-	-
7/11/17	-	-	-	-	-	-	-
7/12/17	9:28	-	8.62	997	997	13	2
7/13/17	-	-	-	-	-	-	-
7/14/17	7:20	-	8.68	1000	999	NA	2
7/15/17	-	-	-	-	-	-	-
7/16/17	-	-	-	-	-	-	-
7/17/17	-	-	-	-	-	-	-
7/18/17	-	-	-	-	-	-	-
7/19/17	9:20	-	8.68	994	997	NA	2
7/20/17	-	-	-	-	-	-	-
7/21/17	7:35	-	8.79	994	994	NA	2
7/22/17	-	-	-	-	-	-	-
7/23/17	-	-	-	-	-	-	-
7/24/17	-	-	-	-	-	-	-
7/25/17	-	-	-	-	-	-	-
7/26/17	9:35	-	8.72	1000	997	18	2
7/27/17	-	-	-	-	-	-	-
7/28/17	7:25	-	8.72	979	990	NA	2
7/29/17	-	-	-	-	-	-	-
7/30/17	-	-	-	-	-	-	-
7/31/17	15:00	-	8.89	975	985	NA	3
Minimum		NA	8.62	975	985	13	
Maximum		NA	8.89	1000	999	18	
Average		NA	8.72	991	994	16	

Notes:

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

**Sheyenne River Downstream of East End Outlet 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
7/1/17	-	-	-	-	-	-	-
7/2/17	-	-	-	-	-	-	-
7/3/17	-	-	-	-	-	-	-
7/4/17	-	-	-	-	-	-	-
7/5/17	10:30	0	8.58	770	751	NA	2
7/6/17	-	-	-	-	-	-	-
7/7/17	7:45	0	8.77	786	778	NA	2
7/8/17	-	-	-	-	-	-	-
7/9/17	-	-	-	-	-	-	-
7/10/17	-	-	-	-	-	-	-
7/11/17	-	-	-	-	-	-	-
7/12/17	9:55	0	8.59	782	784	47	2
7/13/17	-	-	-	-	-	-	-
7/14/17	7:55	0	8.58	785	784	NA	2
7/15/17	-	-	-	-	-	-	-
7/16/17	-	-	-	-	-	-	-
7/17/17	-	-	-	-	-	-	-
7/18/17	-	-	-	-	-	-	-
7/19/17	9:40	0	8.58	685	735	NA	2
7/20/17	-	-	-	-	-	-	-
7/21/17	7:50	-	8.86	744	715	NA	2
7/22/17	-	-	-	-	-	-	-
7/23/17	-	-	-	-	-	-	-
7/24/17	-	-	-	-	-	-	-
7/25/17	-	-	-	-	-	-	-
7/26/17	10:15	0	8.63	746	745	51	2
7/27/17	-	-	-	-	-	-	-
7/28/17	7:55	0	8.66	730	738	NA	2
7/29/17	-	-	-	-	-	-	-
7/30/17	-	-	-	-	-	-	-
7/31/17	15:30	-	8.62	705	727	NA	3
Minimum			8.58	685	715	47	
Maximum			8.86	786	784	51	
Average			8.65	748	751	49	

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