



North Dakota State Water Commission

900 EAST BOULEVARD AVENUE, DEPT 770 • BISMARCK, NORTH DAKOTA 58505-0850
(701)-328-2750 • TTY 1-800-366-6888 • FAX (701)-328-3696 • <http://swc.nd.gov>

WATER DEVELOPMENT DIVISION
(701) 328-2752

August 12, 2016

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

RE: July 2016 Devils Lake Outlets Monthly Discharge and Water Quality Report

Dear Division of Water Quality:

Enclosed is the monthly discharge report for the Devils Lake Outlets for the month of July 2016. Both outlets discharged at reduced rates in July. The West Outlet was shut down for two days in early July for channel maintenance and discharged steadily afterwards at an average rate of 204 cfs. The East Outlet was shut down multiple times to both provide capacity in the Sheyenne during high flow and to allow water quality to improve downstream. It discharged at an average rate of 108 cfs for the month. **(Figure 1)**. A total of 19,156 acre-feet were discharged in July 2016.

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. Two samples gathered at Pekin in early July exceeded 750 mg/L of sulfate. 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

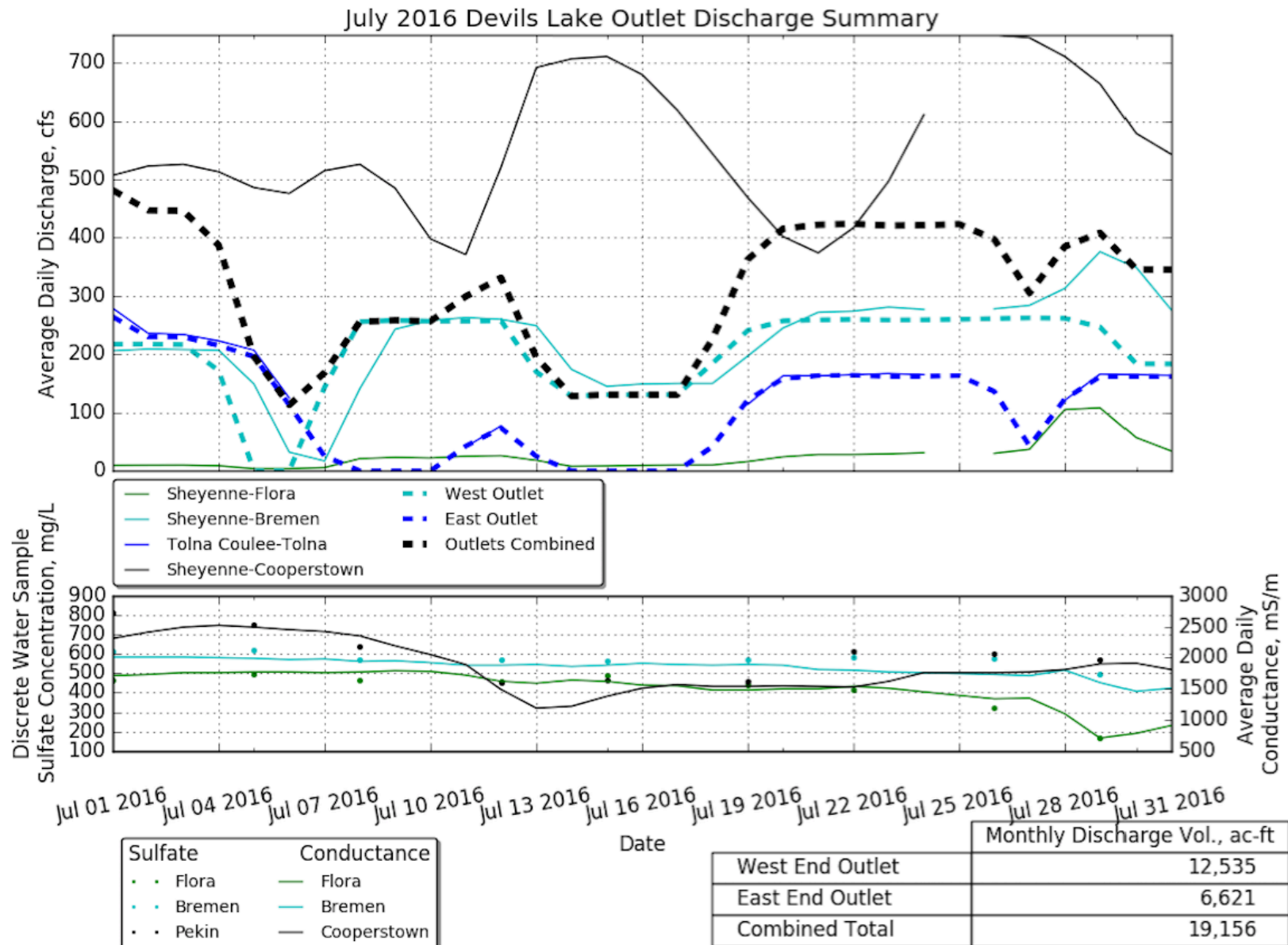


Figure 1: Devils Lake Outlet Discharge Summary

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
7/1/16	7/31/16

LOCATION: Benson Co, ND

Devils Lake West Outlet discharged 12,535 ac-ft over 31 Days

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.64	8.80	8.71	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	NA	NA	NA	µS/cm	Continuous	Recorder
SULFATE	576	622	596	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	583	620	595	mg/L	2 x Week	GRAB
OUTLET DISCHARGE	0	262	204	cfs	Continuous	Recorder
SIGNATURE				8/12/16	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
7/1/16	7/31/16

LOCATION: Ramsey, Benson, Nelson, ND

Devils Lake East Outlet discharged 6,621 ac-ft over 24 Days

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.64	8.73	8.68	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	NA	NA	NA	µS/cm	Continuous	Recorder
SULFATE	990	1020	1002	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	990	1013	1000	mg/L	2 x Week	GRAB
OUTLET DISCHARGE	0	264	108	cfs	Continuous	Recorder
SIGNATURE				8/12/16	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: UPSTREAM OF THE WEST END OUTLET (FLORA)

FACILITY: Devils Lake Outlet Project

MONITORING PERIOD	
START DATE	END DATE
7/1/16	7/31/16

LOCATION: Benson Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	7.92	8.66	8.51	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	709	1,790	1,519	µS/cm	Continuous	Recorder
SULFATE	171	494	414	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	248	481	429	mg/L	2 x Week	GRAB
FLOW, INSTREAM	4	108	25	cfs	Continuous	Recorder
SIGNATURE				8/12/16	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 WEST END OUTLET (BREMEN)
 UPSTREAM OF THE EAST END OUTLET**

FACILITY: Devils Lake Outlet Project

MONITORING PERIOD	
START DATE	END DATE
7/1/16	7/31/16

LOCATION: Eddy Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.59	8.78	8.67	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	1,460	2,010	1,852	µS/cm	Continuous	Recorder
SULFATE	498	619	574	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	537	617	581	mg/L	2 x Week	GRAB
FLOW, INSTREAM	17	376	221	cfs	Continuous	Recorder
SIGNATURE				8/12/16	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
7/1/16	7/31/16

LOCATION: Nelson Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.36	8.59	8.48	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	NA	NA	NA	µS/cm	Continuous	Recorder
SULFATE	455	810	596	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	459	791	607	mg/L	2 x Week	GRAB
FLOW, INSTREAM	NA	NA	NA	cfs	Continuous	Recorder
SIGNATURE				8/12/16	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 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)
7/1/16	10	1,710	217	18,774,000	206	2,010	264	22,840,000	279	2,840	507	2,310	482	41,614,000
7/2/16	10	1,730	217	18,783,000	209	2,010	230	19,844,000	236	2,910	523	2,410	447	38,627,000
7/3/16	10	1,760	217	18,711,000	208	2,010	230	19,829,000	234	2,930	526	2,490	446	38,540,000
7/4/16	9	1,760	172	14,863,000	207	2,000	215	18,585,000	223	2,930	513	2,520	387	33,448,000
7/5/16	4	1,770	0	4,000	149	1,990	196	16,946,000	207	2,930	486	2,490	196	16,950,000
7/6/16	4	1,770	0	8,000	32	1,970	113	9,752,000	125	2,900	476	2,450	113	9,760,000
7/7/16	6	1,760	143	12,384,000	17	1,980	25	2,179,000	-	2,630	515	2,420	169	14,563,000
7/8/16	21	1,770	256	22,111,000	141	1,940	0	0	-	-	526	2,350	256	22,111,000
7/9/16	23	1,790	258	22,307,000	243	1,950	0	0	-	-	485	2,190	258	22,307,000
7/10/16	22	1,780	257	22,178,000	258	1,920	0	0	-	966	398	2,050	257	22,178,000
7/11/16	25	1,720	257	22,180,000	263	1,880	42	3,664,000	41	1,650	371	1,890	299	25,844,000
7/12/16	26	1,620	258	22,261,000	260	1,880	74	6,363,000	77	2,940	521	1,490	331	28,624,000
7/13/16	18	1,590	170	14,658,000	249	1,890	25	2,154,000	-	2,860	692	1,190	195	16,812,000
7/14/16	8	1,640	128	11,077,000	174	1,860	0	0	-	2,180	707	1,220	128	11,077,000
7/15/16	8	1,620	131	11,281,000	145	1,880	0	0	-	1,900	711	1,380	131	11,281,000
7/16/16	9	1,560	131	11,277,000	149	1,910	0	0	-	1,480	680	1,510	131	11,277,000
7/17/16	10	1,550	131	11,293,000	150	1,890	0	0	-	1,280	619	1,570	131	11,293,000
7/18/16	10	1,480	185	15,943,000	150	1,880	42	3,607,000	-	1,900	544	1,540	226	19,550,000
7/19/16	16	1,480	241	20,815,000	197	1,890	122	10,523,000	114	2,920	469	1,540	363	31,338,000
7/20/16	24	1,500	257	22,236,000	245	1,880	158	13,660,000	163	2,590	402	1,550	415	35,896,000
7/21/16	28	1,500	259	22,367,000	272	1,810	163	14,121,000	163	2,570	374	1,540	422	36,488,000
7/22/16	28	1,540	260	22,443,000	274	1,800	164	14,162,000	165	2,490	417	1,530	424	36,605,000
7/23/16	29	1,510	259	22,358,000	281	1,770	162	14,001,000	167	2,530	497	1,620	421	36,359,000
7/24/16	31	1,450	259	22,384,000	277	1,760	162	14,031,000	165	2,690	611	1,760	421	36,415,000
7/25/16	-	-	260	22,457,000	-	-	163	14,110,000	-	-	-	-	423	36,567,000
7/26/16	30	1,340	261	22,567,000	278	1,730	136	11,765,000	154	2,850	748	1,760	397	34,332,000
7/27/16	37	1,350	262	22,669,000	284	1,710	43	3,700,000	-	2,920	743	1,770	305	26,369,000
7/28/16	105	1,100	262	22,612,000	313	1,800	123	10,641,000	121	2,790	711	1,810	385	33,253,000
7/29/16	108	709	247	21,311,000	376	1,600	162	13,962,000	166	2,960	664	1,900	408	35,273,000
7/30/16	57	786	184	15,875,000	349	1,460	162	14,004,000	165	2,950	579	1,910	346	29,879,000
7/31/16	34	912	183	15,844,000	276	1,570	162	13,975,000	164	2,950	543	1,810	345	29,819,000
Minimum	4	709	0	4,000	17	1,460	0	0	41	966	371	1,190	113	9,760,000
Maximum	108	1,790	262	22,669,000	376	2,010	264	22,840,000	279	2,960	748	2,520	482	41,614,000
Average	25	1,519	204	17,613,903	221	1,852	108	9,303,806	165	2,516	552	1,866	312	26,917,710
			Total (Mgal)	4,084			Total (Mgal)	2,157					Total (Mgal)	6,242
			Total (Ac-ft)	12,535			Total (Ac-ft)	6,621					Total (Ac-ft)	19,156

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 (µS/cm)	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	Total Samples included in 7- day Average
7/1/16	9:35	1,700	8.66	468	463	NA	2
7/2/16	-	-	-	-	-	-	-
7/3/16	-	-	-	-	-	-	-
7/4/16	-	-	-	-	-	-	-
7/5/16	8:00	1,770	8.65	494	473	NA	3
7/6/16	-	-	-	-	-	-	-
7/7/16	-	-	-	-	-	-	-
7/8/16	9:00	1,750	8.59	467	481	NA	2
7/9/16	-	-	-	-	-	-	-
7/10/16	-	-	-	-	-	-	-
7/11/16	-	-	-	-	-	-	-
7/12/16	8:10	1,630	8.60	457	462	48	2
7/13/16	-	-	-	-	-	-	-
7/14/16	-	-	-	-	-	-	-
7/15/16	9:55	1,630	8.65	488	473	NA	2
7/16/16	-	-	-	-	-	-	-
7/17/16	-	-	-	-	-	-	-
7/18/16	-	-	-	-	-	-	-
7/19/16	8:30	1,470	8.56	442	465	NA	2
7/20/16	-	-	-	-	-	-	-
7/21/16	-	-	-	-	-	-	-
7/22/16	9:40	1,540	8.50	416	429	NA	2
7/23/16	-	-	-	-	-	-	-
7/24/16	-	-	-	-	-	-	-
7/25/16	-	-	-	-	-	-	-
7/26/16	8:10	1,340	8.45	325	371	68	2
7/27/16	-	-	-	-	-	-	-
7/28/16	-	-	-	-	-	-	-
7/29/16	9:15	719	7.92	171	248	NA	2
7/30/16	-	-	-	-	-	-	-
7/31/16	-	-	-	-	-	-	-
Minimum		719	7.92	171	248	48	
Maximum		1,770	8.66	494	481	68	
Average		1,505	8.51	414	429	58	

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

**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)	Total Samples included in 7- day Average
7/1/16	9:50	-	8.70	622	620	NA	2
7/2/16	-	-	-	-	-	-	-
7/3/16	-	-	-	-	-	-	-
7/4/16	-	-	-	-	-	-	-
7/5/16	-	-	-	-	-	-	-
7/6/16	-	-	-	-	-	-	-
7/7/16	-	-	-	-	-	-	-
7/8/16	9:15	-	8.64	600	600	NA	1
7/9/16	-	-	-	-	-	-	-
7/10/16	-	-	-	-	-	-	-
7/11/16	-	-	-	-	-	-	-
7/12/16	8:17	-	8.66	589	595	28	2
7/13/16	-	-	-	-	-	-	-
7/14/16	-	-	-	-	-	-	-
7/15/16	10:10	-	8.66	576	583	NA	2
7/16/16	-	-	-	-	-	-	-
7/17/16	-	-	-	-	-	-	-
7/18/16	-	-	-	-	-	-	-
7/19/16	8:40	-	8.70	590	583	NA	2
7/20/16	-	-	-	-	-	-	-
7/21/16	-	-	-	-	-	-	-
7/22/16	9:55	-	8.75	595	593	NA	2
7/23/16	-	-	-	-	-	-	-
7/24/16	-	-	-	-	-	-	-
7/25/16	-	-	-	-	-	-	-
7/26/16	8:20	-	8.80	595	595	20	2
7/27/16	-	-	-	-	-	-	-
7/28/16	-	-	-	-	-	-	-
7/29/16	10:10	-	8.76	598	597	NA	2
7/30/16	-	-	-	-	-	-	-
7/31/16	-	-	-	-	-	-	-
Minimum		NA	8.64	576	583	20	
Maximum		NA	8.80	622	620	28	
Average		NA	8.71	596	595	24	

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)	Total samples included in 7- day Average
7/1/16	9:15	2,010	8.69	614	616	NA	2
7/2/16	-	-	-	-	-	-	-
7/3/16	-	-	-	-	-	-	-
7/4/16	-	-	-	-	-	-	-
7/5/16	7:35	1,990	8.63	619	617	NA	3
7/6/16	-	-	-	-	-	-	-
7/7/16	-	-	-	-	-	-	-
7/8/16	8:30	1,920	8.75	570	595	NA	2
7/9/16	-	-	-	-	-	-	-
7/10/16	-	-	-	-	-	-	-
7/11/16	-	-	-	-	-	-	-
7/12/16	7:40	1,880	8.61	573	572	62	2
7/13/16	-	-	-	-	-	-	-
7/14/16	-	-	-	-	-	-	-
7/15/16	9:15	1,860	8.59	561	567	NA	2
7/16/16	-	-	-	-	-	-	-
7/17/16	-	-	-	-	-	-	-
7/18/16	-	-	-	-	-	-	-
7/19/16	8:00	1,880	8.65	571	566	NA	2
7/20/16	-	-	-	-	-	-	-
7/21/16	-	-	-	-	-	-	-
7/22/16	9:15	1,800	8.71	583	577	NA	2
7/23/16	-	-	-	-	-	-	-
7/24/16	-	-	-	-	-	-	-
7/25/16	-	-	-	-	-	-	-
7/26/16	7:40	1,740	8.78	575	579	NA	2
7/27/16	-	-	-	-	-	-	-
7/28/16	-	-	-	-	-	-	-
7/29/16	9:15	1,660	8.63	498	537	NA	2
7/30/16	-	-	-	-	-	-	-
7/31/16	-	-	-	-	-	-	-
Minimum		1,660	8.59	498	537	62	
Maximum		2,010	8.78	619	617	62	
Average		1,860	8.67	574	581	62	

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 from Telemetry System (µS/cm)	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	Total samples included in 7- day average
7/1/16	8:05	-	8.71	1010	1010	NA	2
7/2/16	-	-	-	-	-	-	-
7/3/16	-	-	-	-	-	-	-
7/4/16	-	-	-	-	-	-	-
7/5/16	9:20	-	8.66	1020	1013	NA	3
7/6/16	-	-	-	-	-	-	-
7/7/16	-	-	-	-	-	-	-
7/8/16	-	-	-	-	-	-	-
7/9/16	-	-	-	-	-	-	-
7/10/16	-	-	-	-	-	-	-
7/11/16	-	-	-	-	-	-	-
7/12/16	9:46	-	8.64	990	990	24	1
7/13/16	-	-	-	-	-	-	-
7/14/16	-	-	-	-	-	-	-
7/15/16	-	-	-	-	-	-	-
7/16/16	-	-	-	-	-	-	-
7/17/16	-	-	-	-	-	-	-
7/18/16	-	-	-	-	-	-	-
7/19/16	9:50	-	8.64	992	992	NA	1
7/20/16	-	-	-	-	-	-	-
7/21/16	-	-	-	-	-	-	-
7/22/16	7:50	-	8.70	1000	996	NA	2
7/23/16	-	-	-	-	-	-	-
7/24/16	-	-	-	-	-	-	-
7/25/16	-	-	-	-	-	-	-
7/26/16	9:40	-	8.71	992	996	17	2
7/27/16	-	-	-	-	-	-	-
7/28/16	-	-	-	-	-	-	-
7/29/16	8:00	-	8.73	1010	1001	NA	2
7/30/16	-	-	-	-	-	-	-
7/31/16	-	-	-	-	-	-	-
Minimum		NA	8.64	990	990	17	
Maximum		NA	8.73	1020	1013	24	
Average		NA	8.68	1002	1000	21	

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)	Total samples included in 7- day Average
7/1/16	7:35	0	8.53	810	791	NA	2
7/2/16	-	-	-	-	-	-	-
7/3/16	-	-	-	-	-	-	-
7/4/16	-	-	-	-	-	-	-
7/5/16	9:50	0	8.59	752	778	NA	3
7/6/16	-	-	-	-	-	-	-
7/7/16	-	-	-	-	-	-	-
7/8/16	6:40	0	-	637	695	NA	2
7/9/16	-	-	-	-	-	-	-
7/10/16	-	-	-	-	-	-	-
7/11/16	-	-	-	-	-	-	-
7/12/16	10:00	0	8.36	455	546	112	2
7/13/16	-	-	-	-	-	-	-
7/14/16	-	-	-	-	-	-	-
7/15/16	7:30	0	8.36	463	459	NA	2
7/16/16	-	-	-	-	-	-	-
7/17/16	-	-	-	-	-	-	-
7/18/16	-	-	-	-	-	-	-
7/19/16	10:25	0	8.46	458	461	NA	2
7/20/16	-	-	-	-	-	-	-
7/21/16	-	-	-	-	-	-	-
7/22/16	7:25	0	8.45	615	537	NA	2
7/23/16	-	-	-	-	-	-	-
7/24/16	-	-	-	-	-	-	-
7/25/16	-	-	-	-	-	-	-
7/26/16	10:10	0	8.56	600	608	NA	2
7/27/16	-	-	-	-	-	-	-
7/28/16	-	-	-	-	-	-	-
7/29/16	7:35	0	8.54	573	587	NA	2
7/30/16	-	-	-	-	-	-	-
7/31/16	-	-	-	-	-	-	-
Minimum			8.36	455	459	112	
Maximum			8.59	810	791	112	
Average			8.48	596	607	112	

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