

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

June 11, 2018

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

RE: May 2018 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 May 2018. The West End Outlet was started on May 9th and discharged 125 cfs steadily until May 15th when the outlet was shut down for a planned electrical preventive maintenance service. The service was completed on May 18th and the West Outlet returned to full capacity (250 cfs) discharge on May 22nd (**Figure 1**).

A repair at the East Outlet terminal structure was also completed on May 22nd. Over time, the impact from the discharge falling onto the articulated concrete block had displaced the block and allowed erosion to begin occurring. The repair consisted of placing sections of sheet pile against the toe of the structure, filling the void with cementitious grout, and reinforcing the impact area of structure discharge. The structure will continue to be monitored closely for future changes. The East Outlet began discharging on May 24th at 150 cfs and a combined outlet total of 9,808 acre-feet were discharged in May.

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,

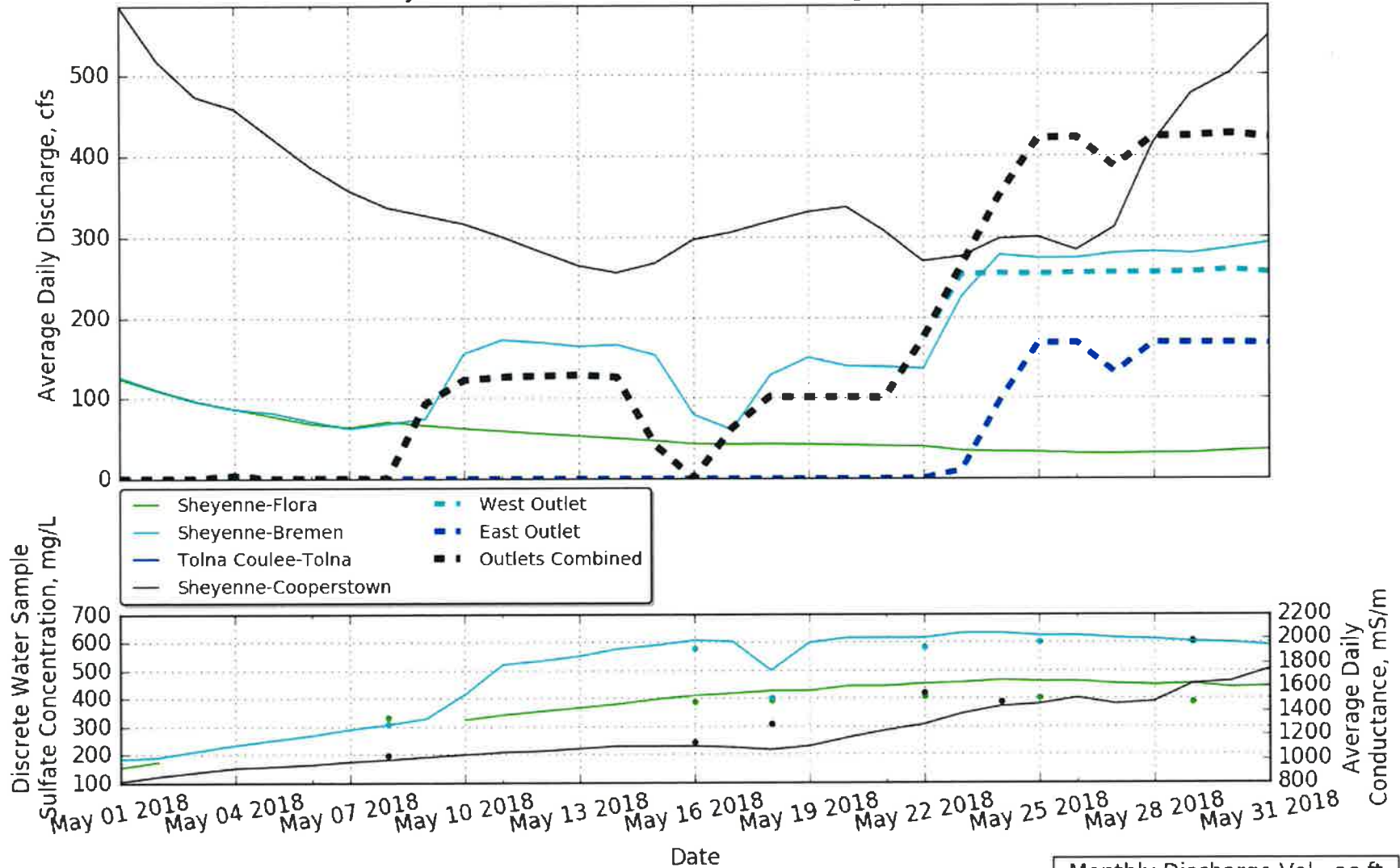
Jonathan Kelsch P.E.
Section Chief of Construction

JK:TD/416-10
Enclosure

DOUG BURGUM, GOVERNOR
CHAIRMAN

GARLAND ERBELE, P.E.
CHIEF ENGINEER - SECRETARY

May 2018 Devils Lake Outlet Discharge Summary



Sulfate		Conductance	
• • Flora	— Flora	— Flora	— Flora
• • Bremen	— Bremen	— Bremen	— Bremen
• • Pekin	— Cooperstown	— Cooperstown	— Cooperstown

	Monthly Discharge Vol., ac-ft
West End Outlet	7,337
East End Outlet	2,472
Combined Total	9,808

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
5/1/18	5/31/18

LOCATION: Benson Co, ND

Devils Lake West Outlet discharged 7,337 ac-ft over 23 Days

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.49	8.51	8.50	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	NA	NA	NA	µS/cm	Continuous	Recorder
SULFATE	231	623	492	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	231	622	426	mg/L	2 x Week	GRAB
OUTLET DISCHARGE	0	259	119	cfs	Continuous	Recorder
SIGNATURE	 JONATHAN KELSCH, HEAD, CONSTRUCTION SECTION			6/12/18	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: EAST END OUTLET

FACILITY: Devils Lake Outlet Project

MONITORING PERIOD	
START DATE	END DATE
5/1/18	5/31/18

LOCATION: Ramsey, Benson, Nelson, ND

Devils Lake East Outlet discharged 2,472 ac-ft over 10 Days

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.66	8.66	8.66	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	2510	2510	2510	µS/cm	Continuous	Recorder
SULFATE	952	952	952	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	952	952	952	mg/L	2 x Week	GRAB
OUTLET DISCHARGE	0	168	40	cfs	Continuous	Recorder
SIGNATURE	<i>Jon Kelsch</i>			6/12/18	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

LOCATION: Benson Co, ND

MONITORING PERIOD	
START DATE	END DATE
5/1/18	5/31/18

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.38	8.64	8.51	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	924	1,650	1,497	µS/cm	Continuous	Recorder
SULFATE	331	407	384	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	331	405	383	mg/L	2 x Week	GRAB
FLOW, INSTREAM	31	124	54	cfs	Continuous	Recorder
SIGNATURE	<i>Jon Kelsch</i>			6/12/18	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
5/1/18	5/31/18

LOCATION: Eddy Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.40	8.56	8.52	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	994	2,040	1,703	µS/cm	Continuous	Recorder
SULFATE	310	602	512	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	310	601	515	mg/L	2 x Week	GRAB
FLOW, INSTREAM	60	292	163	cfs	Continuous	Recorder
SIGNATURE	<i>Jon Kelsch</i>			6/12/18	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

LOCATION: Nelson Co, ND

MONITORING PERIOD	
START DATE	END DATE
5/1/18	5/31/18

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.36	8.50	8.43	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	NA	NA	NA	µS/cm	Continuous	Recorder
SULFATE	199	604	360	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	199	495	318	mg/L	2 x Week	GRAB
FLOW, INSTREAM	NA	NA	NA	cfs	Continuous	Recorder
SIGNATURE	<i>Jon Kelsch</i>			6/12/18	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

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)
5/1/18	124	924	0	0	126	994	0	0	-	-	586	809	0	0
5/2/18	109	971	0	0	110	1,010	0	0	-	-	517	851	0	0
5/3/18	95	-	0	0	96	1,060	0	0	-	-	473	886	0	0
5/4/18	86	-	4	309,000	86	1,110	0	0	-	-	458	919	4	309,000
5/5/18	77	-	0	0	81	1,150	0	0	-	-	422	932	0	0
5/6/18	68	-	0	0	71	1,190	0	0	-	-	386	947	0	0
5/7/18	63	-	0	0	62	1,240	0	0	-	-	357	971	0	0
5/8/18	70	-	0	0	68	1,280	0	0	-	-	336	988	0	0
5/9/18	66	-	93	8,019,000	75	1,330	0	0	-	1,070	326	1,010	93	8,019,000
5/10/18	62	1,320	122	10,537,000	155	1,530	0	0	-	1,090	316	1,030	122	10,537,000
5/11/18	59	1,360	126	10,881,000	172	1,780	0	0	-	1,040	300	1,050	126	10,881,000
5/12/18	56	1,390	127	10,998,000	169	1,810	0	0	-	1,030	282	1,060	127	10,998,000
5/13/18	53	1,420	128	11,090,000	164	1,850	0	0	-	941	264	1,080	128	11,090,000
5/14/18	50	1,450	126	10,870,000	166	1,910	0	0	-	973	255	1,100	126	10,870,000
5/15/18	47	1,490	41	3,578,000	153	1,940	0	0	-	1,020	267	1,100	41	3,578,000
5/16/18	43	1,520	0	0	79	1,980	0	0	-	1,000	296	1,100	0	0
5/17/18	42	1,540	62	5,337,000	60	1,970	0	0	-	999	305	1,090	62	5,337,000
5/18/18	43	1,560	102	8,776,000	128	1,730	0	0	-	1,100	318	1,070	102	8,776,000
5/19/18	42	1,560	101	8,731,000	150	1,960	0	0	-	1,060	330	1,100	101	8,731,000
5/20/18	41	1,600	101	8,743,000	139	2,000	0	0	-	1,010	336	1,170	101	8,743,000
5/21/18	40	1,600	100	8,672,000	138	2,000	0	0	-	1,010	306	1,230	100	8,672,000
5/22/18	40	1,620	173	14,914,000	136	2,000	0	41,000	-	1,020	269	1,280	173	14,955,000
5/23/18	35	1,630	253	21,847,000	225	2,040	10	903,000	-	1,020	275	1,370	263	22,750,000
5/24/18	33	1,650	254	21,930,000	277	2,040	97	8,371,000	-	1,890	297	1,430	351	30,301,000
5/25/18	33	1,640	253	21,887,000	273	2,020	168	14,486,000	-	2,820	299	1,450	421	36,373,000
5/26/18	31	1,640	254	21,988,000	273	2,020	168	14,497,000	-	2,820	283	1,500	422	36,485,000
5/27/18	31	1,620	255	22,016,000	279	2,000	131	11,330,000	-	2,730	311	1,450	386	33,346,000
5/28/18	31	1,610	255	22,022,000	281	1,990	168	14,539,000	-	2,690	415	1,470	423	36,561,000
5/29/18	31	1,620	255	22,074,000	279	1,970	168	14,521,000	-	-	476	1,620	424	36,595,000
5/30/18	34	1,590	259	22,349,000	285	1,960	168	14,516,000	-	-	501	1,640	427	36,865,000
5/31/18	36	1,600	255	22,026,000	292	1,940	167	14,455,000	-	-	547	1,740	422	36,481,000
Minimum	31	924	0	0	60	994	0	0	0	941	255	809	0	0
Maximum	124	1,650	259	22,349,000	292	2,040	168	14,539,000	0	2,820	586	1,740	427	36,865,000
Average	54	1,497	119	10,309,484	163	1,703	40	3,472,871	0	1,417	358	1,176	160	13,782,355
			Total (Mgal)	2,391				Total (Mgal)	805				Total (Mgal)	3,196
			Total (Ac-ft)	7,337				Total (Ac-ft)	2,472				Total (Ac-ft)	9,808

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)	Number of Samples included in 7- day Average
5/1/18	-	-	-	-	-	-	-
5/2/18	-	-	-	-	-	-	-
5/3/18	-	-	-	-	-	-	-
5/4/18	-	-	-	-	-	-	-
5/5/18	-	-	-	-	-	-	-
5/6/18	-	-	-	-	-	-	-
5/7/18	-	-	-	-	-	-	-
5/8/18	8:20	1,240	8.38	331	331	20	1
5/9/18	-	-	-	-	-	-	-
5/10/18	-	-	-	-	-	-	-
5/11/18	-	-	-	-	-	-	-
5/12/18	-	-	-	-	-	-	-
5/13/18	-	-	-	-	-	-	-
5/14/18	-	-	-	-	-	-	-
5/15/18	-	-	-	-	-	-	-
5/16/18	8:00	1,430	8.47	386	386	NA	1
5/17/18	-	-	-	-	-	-	-
5/18/18	9:10	1,560	8.64	391	389	NA	2
5/19/18	-	-	-	-	-	-	-
5/20/18	-	-	-	-	-	-	-
5/21/18	-	-	-	-	-	-	-
5/22/18	8:15	1,460	8.54	407	395	NA	3
5/23/18	-	-	-	-	-	-	-
5/24/18	-	-	-	-	-	-	-
5/25/18	9:35	1,640	8.52	403	405	NA	2
5/26/18	-	-	-	-	-	-	-
5/27/18	-	-	-	-	-	-	-
5/28/18	-	-	-	-	-	-	-
5/29/18	8:45	1,620	8.48	386	395	18	2
5/30/18	-	-	-	-	-	-	-
5/31/18	-	-	-	-	-	-	-
Minimum		1,240	8.38	331	331	18	
Maximum		1,640	8.64	407	405	20	
Average		1,492	8.51	384	383	19	

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 (uS/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
5/1/18	-	-	-	-	-	-	-
5/2/18	-	-	-	-	-	-	-
5/3/18	-	-	-	-	-	-	-
5/4/18	-	-	-	-	-	-	-
5/5/18	-	-	-	-	-	-	-
5/6/18	-	-	-	-	-	-	-
5/7/18	-	-	-	-	-	-	-
5/8/18	-	-	-	-	-	-	-
5/9/18	-	-	-	-	-	-	-
5/10/18	-	-	-	-	-	-	-
5/11/18	-	-	-	-	-	-	-
5/12/18	-	-	-	-	-	-	-
5/13/18	-	-	-	-	-	-	-
5/14/18	-	-	-	-	-	-	-
5/15/18	-	-	-	-	-	-	-
5/16/18	-	-	-	-	-	-	-
5/17/18	-	-	-	-	-	-	-
5/18/18	-	-	-	-	-	-	-
5/19/18	-	-	-	-	-	-	-
5/20/18	-	-	-	-	-	-	-
5/21/18	-	-	-	-	-	-	-
5/22/18	8:25	-	8.51	231	231	NA	1
5/23/18	-	-	-	-	-	-	-
5/24/18	-	-	-	-	-	-	-
5/25/18	9:50	-	8.49	621	426	NA	2
5/26/18	-	-	-	-	-	-	-
5/27/18	-	-	-	-	-	-	-
5/28/18	-	-	-	-	-	-	-
5/29/18	9:00	-	8.50	623	622	8	2
5/30/18	-	-	-	-	-	-	-
5/31/18	-	-	-	-	-	-	-
Minimum		NA	8.49	231	231	8	
Maximum		NA	8.51	623	622	8	
Average		NA	8.50	492	426	8	

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
5/1/18	-	-	-	-	-	-	-
5/2/18	-	-	-	-	-	-	-
5/3/18	-	-	-	-	-	-	-
5/4/18	-	-	-	-	-	-	-
5/5/18	-	-	-	-	-	-	-
5/6/18	-	-	-	-	-	-	-
5/7/18	-	-	-	-	-	-	-
5/8/18	7:50	1,270	8.40	310	310	31	1
5/9/18	-	-	-	-	-	-	-
5/10/18	-	-	-	-	-	-	-
5/11/18	-	-	-	-	-	-	-
5/12/18	-	-	-	-	-	-	-
5/13/18	-	-	-	-	-	-	-
5/14/18	-	-	-	-	-	-	-
5/15/18	-	-	-	-	-	-	-
5/16/18	7:40	1,930	8.51	577	577	NA	1
5/17/18	-	-	-	-	-	-	-
5/18/18	8:45	1,640	8.55	400	489	NA	2
5/19/18	-	-	-	-	-	-	-
5/20/18	-	-	-	-	-	-	-
5/21/18	-	-	-	-	-	-	-
5/22/18	7:50	1,910	8.55	583	520	NA	3
5/23/18	-	-	-	-	-	-	-
5/24/18	-	-	-	-	-	-	-
5/25/18	9:10	2,020	8.56	602	593	NA	2
5/26/18	-	-	-	-	-	-	-
5/27/18	-	-	-	-	-	-	-
5/28/18	-	-	-	-	-	-	-
5/29/18	8:25	1,970	8.52	599	601	23	2
5/30/18	-	-	-	-	-	-	-
5/31/18	-	-	-	-	-	-	-
Minimum		1,270	8.40	310	310	23	
Maximum		2,020	8.56	602	601	31	
Average		1,790	8.52	512	515	27	

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
5/1/18	-	-	-	-	-	-	-
5/2/18	-	-	-	-	-	-	-
5/3/18	-	-	-	-	-	-	-
5/4/18	-	-	-	-	-	-	-
5/5/18	-	-	-	-	-	-	-
5/6/18	-	-	-	-	-	-	-
5/7/18	-	-	-	-	-	-	-
5/8/18	-	-	-	-	-	-	-
5/9/18	-	-	-	-	-	-	-
5/10/18	-	-	-	-	-	-	-
5/11/18	-	-	-	-	-	-	-
5/12/18	-	-	-	-	-	-	-
5/13/18	-	-	-	-	-	-	-
5/14/18	-	-	-	-	-	-	-
5/15/18	-	-	-	-	-	-	-
5/16/18	-	-	-	-	-	-	-
5/17/18	-	-	-	-	-	-	-
5/18/18	-	-	-	-	-	-	-
5/19/18	-	-	-	-	-	-	-
5/20/18	-	-	-	-	-	-	-
5/21/18	-	-	-	-	-	-	-
5/22/18	-	-	-	-	-	-	-
5/23/18	-	-	-	-	-	-	-
5/24/18	-	-	-	-	-	-	-
5/25/18	-	-	-	-	-	-	-
5/26/18	-	-	-	-	-	-	-
5/27/18	-	-	-	-	-	-	-
5/28/18	-	-	-	-	-	-	-
5/29/18	10:15	2510	8.66	952	952	64	1
5/30/18	-	-	-	-	-	-	-
5/31/18	-	-	-	-	-	-	-
Minimum		2510	8.66	952	952	64	
Maximum		2510	8.66	952	952	64	
Average		2510	8.66	952	952	64	

Notes:

- mg/L - Milligrams per liter or parts per million
- NA - Not Analyzed
- 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 (uS/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
5/1/18	-	-	-	-	-	-	-
5/2/18	-	-	-	-	-	-	-
5/3/18	-	-	-	-	-	-	-
5/4/18	-	-	-	-	-	-	-
5/5/18	-	-	-	-	-	-	-
5/6/18	-	-	-	-	-	-	-
5/7/18	-	-	-	-	-	-	-
5/8/18	10:05	-	-	199	199	32	1
5/9/18	-	-	-	-	-	-	-
5/10/18	-	-	-	-	-	-	-
5/11/18	-	-	-	-	-	-	-
5/12/18	-	-	-	-	-	-	-
5/13/18	-	-	-	-	-	-	-
5/14/18	-	-	-	-	-	-	-
5/15/18	-	-	-	-	-	-	-
5/16/18	9:25	-	8.36	243	243	NA	1
5/17/18	-	-	-	-	-	-	-
5/18/18	7:50	-	8.50	311	277	NA	2
5/19/18	-	-	-	-	-	-	-
5/20/18	-	-	-	-	-	-	-
5/21/18	-	-	-	-	-	-	-
5/22/18	10:00	-	8.42	419	324	NA	3
5/23/18	-	-	-	-	-	-	-
5/24/18	10:40	-	8.42	386	372	NA	3
5/25/18	-	-	-	-	-	-	-
5/26/18	-	-	-	-	-	-	-
5/27/18	-	-	-	-	-	-	-
5/28/18	-	-	-	-	-	-	-
5/29/18	10:45	-	8.47	604	495	72	2
5/30/18	-	-	-	-	-	-	-
5/31/18	-	-	-	-	-	-	-
Minimum			8.36	199	199	32	
Maximum			8.50	604	495	72	
Average			8.43	360	318	52	

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

