

October 24, 2019

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

Re: September 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 September 2019 is enclosed. For the month of September, the West and East Outlets operated at average rates of 141 cubic feet per second (cfs) and 32 cfs respectively. Both outlets were shut down on September 21<sup>st</sup> because of heavy precipitation that caused streamflow to rise in the Sheyenne River. Conditions were monitored for a potential resuming of operation, however, continued wet conditions have resulted in the decision to cease outlet operation for the remainder of 2019. A total of 10,265 acre-feet were discharged in September which brings the 2019 discharge total to 61,129 acre-feet.

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.  
Director of Water Development

JK:TD/416-10  
Enclosure

### September 2019 Devils Lake Outlet Discharge Summary

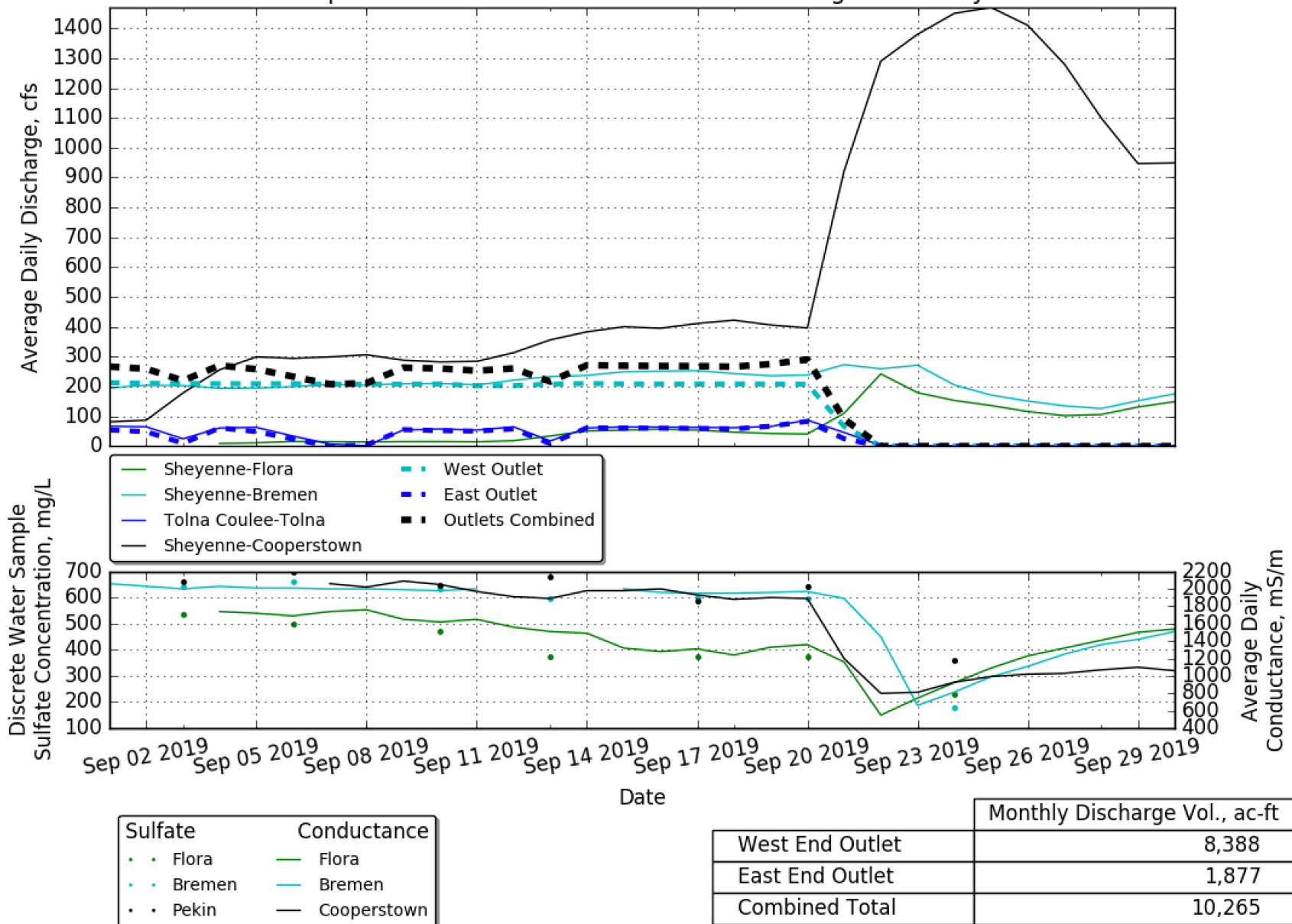


Figure 1: Devils Lake Outlet Discharge Summary

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
9/1/19	9/30/19

LOCATION: Benson Co, ND

Devils Lake West Outlet discharged 8,388 ac-ft over 21 Days

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.75	9.00	8.84	SU	2 x Week	GRAB
SULFATE	645	660	652	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	648	660	653	mg/L	Average	GRAB
OUTLET DISCHARGE	0	212	141	cfs	Continuous	Recorder
SIGNATURE				10/24/19	701-328-4948	
NAME AND TITLE	JONATHAN KELSCH, DIRECTOR, WATER DEVELOPMENT DIVISION			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
9/1/19	9/30/19

LOCATION: Ramsey, Benson, Nelson, ND

Devils Lake East Outlet discharged 1,877 ac-ft over 20 Days

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.57	8.81	8.67	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	2700	3010	2858	µS/cm	Continuous	Recorder
SULFATE	1010	1070	1038	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	1010	1050	1033	mg/L	Average	GRAB
OUTLET DISCHARGE	0	83	32	cfs	Continuous	Recorder
SIGNATURE				10/24/19	701-328-4948	
NAME AND TITLE	JONATHAN KELSCH, DIRECTOR, WATER DEVELOPMENT DIVISION			DATE	TELEPHONE NUMBER	

COMMENT AND EXPLANATION OF ANY VIOLATIONS

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- 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
9/1/19	9/30/19

LOCATION: Benson Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.13	8.52	8.34	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	550	1,850	1,403	µS/cm	Continuous	Recorder
SULFATE	231	538	409	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	304	556	433	mg/L	Average	GRAB
FLOW, INSTREAM	7	242	69	cfs	Continuous	Recorder
SIGNATURE				10/24/19	701-328-4948	
NAME AND TITLE	JONATHAN KELSCH, DIRECTOR, WATER DEVELOPMENT DIVISION			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
9/1/19	9/30/19

LOCATION: Eddy Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.12	8.96	8.69	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	662	2,060	1,717	µS/cm	Continuous	Recorder
SULFATE	179	662	559	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	388	658	595	mg/L	Average	GRAB
FLOW, INSTREAM	126	273	210	cfs	Continuous	Recorder
SIGNATURE				10/24/19	701-328-4948	
NAME AND TITLE	JONATHAN KELSCH, DIRECTOR, WATER DEVELOPMENT DIVISION			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
9/1/19	9/30/19

LOCATION: Nelson Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.32	8.83	8.62	SU	2 x Week	GRAB
SULFATE	360	697	611	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	502	679	632	mg/L	Average	GRAB
FLOW, INSTREAM	NA	NA	NA	cfs	Continuous	Recorder
SIGNATURE				10/24/19	701-328-4948	
NAME AND TITLE	JONATHAN KELSCH, DIRECTOR, WATER DEVELOPMENT DIVISION			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
9/1/19	9/30/19

LOCATION: Griggs Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.01	8.58	8.41	SU	Weekly	GRAB
SPECIFIC CONDUCTANCE	800	2,090	1,565	µS/cm	Continuous	Recorder
SULFATE	257	641	491	mg/L	Weekly	GRAB
7 DAY AVERAGE OF SULFATE	257	641	491	mg/L	Average	GRAB
FLOW, INSTREAM	81	1,470	611	cfs	Continuous	Recorder
SIGNATURE				10/24/19	701-328-4948	
NAME AND TITLE	JONATHAN KELSCH, DIRECTOR, WATER DEVELOPMENT DIVISION			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 <sup>3</sup> )	Average Streamflow USGS Gage (cfs)	Average Specific Conductance USGS Gage (µS/cm)	Average Daily Outlet Discharge (cfs)	Total Daily Volume (ft <sup>3</sup> )	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 <sup>3</sup> )
9/1/19	7	1,850	212	18,356,000	195	2,060	54	4,675,000	67	2,990	81	-	267	23,031,000
9/2/19	-	-	211	18,204,000	204	2,030	48	4,173,000	65	2,910	87	-	259	22,377,000
9/3/19	-	-	210	18,129,000	203	2,000	10	832,000	25	2,830	178	-	219	18,961,000
9/4/19	9	1,740	209	18,089,000	194	2,030	61	5,267,000	61	2,880	256	-	270	23,356,000
9/5/19	11	1,720	209	18,071,000	195	2,010	48	4,186,000	63	2,900	299	-	258	22,257,000
9/6/19	16	1,690	209	18,078,000	199	2,010	24	2,043,000	34	2,930	294	-	233	20,121,000
9/7/19	15	1,740	208	17,931,000	207	2,000	0	0	7	2,940	299	2,060	208	17,931,000
9/8/19	14	1,760	207	17,899,000	204	2,000	4	337,000	1	2,830	306	2,020	211	18,236,000
9/9/19	15	1,650	207	17,926,000	209	1,990	55	4,779,000	54	-	288	2,090	263	22,705,000
9/10/19	15	1,620	208	18,001,000	210	1,980	52	4,463,000	57	2,910	282	2,050	260	22,464,000
9/11/19	15	1,650	203	17,504,000	205	2,000	50	4,336,000	54	-	284	1,970	253	21,840,000
9/12/19	18	1,560	203	17,500,000	221	-	58	4,977,000	65	-	313	1,910	260	22,477,000
9/13/19	34	1,510	208	17,956,000	233	-	8	730,000	18	-	356	1,890	216	18,686,000
9/14/19	51	1,490	210	18,122,000	237	-	61	5,301,000	61	-	383	1,980	271	23,423,000
9/15/19	54	1,320	209	18,020,000	249	2,000	61	5,246,000	64	-	400	1,980	269	23,266,000
9/16/19	56	1,280	208	17,987,000	251	1,960	60	5,197,000	64	3,000	395	2,000	268	23,184,000
9/17/19	54	1,310	208	18,004,000	253	1,950	60	5,152,000	63	3,020	411	1,930	268	23,156,000
9/18/19	47	1,240	208	18,009,000	243	1,950	58	4,985,000	62	3,030	422	1,880	266	22,994,000
9/19/19	42	1,330	208	17,987,000	236	1,960	67	5,765,000	66	2,800	406	1,900	275	23,752,000
9/20/19	41	1,360	207	17,902,000	238	1,970	83	7,179,000	87	2,480	396	1,890	290	25,081,000
9/21/19	110	1,160	66	5,699,000	273	1,890	25	2,149,000	46	2,450	922	1,200	91	7,848,000
9/22/19	242	550	0	0	259	1,450	0	0	2	2,160	1,290	800	0	0
9/23/19	179	745	0	0	271	662	0	0	1	1,620	1,380	812	0	0
9/24/19	153	923	0	0	205	814	0	0	1	1,460	1,450	927	0	0
9/25/19	136	1,090	0	0	171	990	0	0	1	-	1,470	993	0	0
9/26/19	116	1,230	0	0	151	1,110	0	0	1	-	1,410	1,020	0	0
9/27/19	102	1,320	0	0	135	1,250	0	0	1	-	1,280	1,030	0	0
9/28/19	106	1,410	0	0	126	1,360	0	0	0	1,150	1,100	1,070	0	0
9/29/19	131	1,500	0	0	152	1,420	0	0	1	1,050	947	1,100	0	0
9/30/19	149	1,540	0	0	175	1,510	0	0	2	988	949	1,060	0	0
<b>Minimum</b>	7	550	0	0	126	662	0	0	0	988	81	800	0	0
<b>Maximum</b>	242	1,850	212	18,356,000	273	2,060	83	7,179,000	87	3,030	1,470	2,090	290	25,081,000
<b>Average</b>	69	1,403	141	12,179,133	210	1,717	32	2,725,733	36	2,444	611	1,565	173	14,904,867
			<b>Total (Mgal)</b>	2,733			<b>Total (Mgal)</b>	612					<b>Total (Mgal)</b>	3,345
			<b>Total (Ac-ft)</b>	8,388			<b>Total (Ac-ft)</b>	1,877					<b>Total (Ac-ft)</b>	10,265

**Notes:**

- cfs - cubic feet per second
- µS/cm - Microsiemens per Centimeter at 25 degrees Celsius
- ft<sup>3</sup> - 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 ( $\mu$ 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
9/1/19	-	-	-	-	-	-	-
9/2/19	-	-	-	-	-	-	-
9/3/19	8:30	1,750	8.38	538	556	NA	2
9/4/19	-	-	-	-	-	-	-
9/5/19	-	-	-	-	-	-	-
9/6/19	9:20	1,680	8.52	499	519	NA	2
9/7/19	-	-	-	-	-	-	-
9/8/19	-	-	-	-	-	-	-
9/9/19	-	-	-	-	-	-	-
9/10/19	8:10	1,600	8.40	470	485	44	2
9/11/19	-	-	-	-	-	-	-
9/12/19	-	-	-	-	-	-	-
9/13/19	9:50	1,520	8.41	376	423	NA	2
9/14/19	-	-	-	-	-	-	-
9/15/19	-	-	-	-	-	-	-
9/16/19	-	-	-	-	-	-	-
9/17/19	8:00	1,320	8.26	372	374	NA	2
9/18/19	-	-	-	-	-	-	-
9/19/19	-	-	-	-	-	-	-
9/20/19	9:20	1,380	8.29	376	374	NA	2
9/21/19	-	-	-	-	-	-	-
9/22/19	-	-	-	-	-	-	-
9/23/19	-	-	-	-	-	-	-
9/24/19	8:20	945	8.13	231	304	NA	2
9/25/19	-	-	-	-	-	-	-
9/26/19	-	-	-	-	-	-	-
9/27/19	-	-	-	-	-	-	-
9/28/19	-	-	-	-	-	-	-
9/29/19	-	-	-	-	-	-	-
9/30/19	-	-	-	-	-	-	-
<b>Minimum</b>		945	8.13	231	304	44	
<b>Maximum</b>		1,750	8.52	538	556	44	
<b>Average</b>		1,456	8.34	409	433	44	

**Notes:**

- $\mu$ 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
9/1/19	-	-	-	-	-	-	-
9/2/19	-	-	-	-	-	-	-
9/3/19	8:45	-	8.80	656	660	NA	2
9/4/19	-	-	-	-	-	-	-
9/5/19	-	-	-	-	-	-	-
9/6/19	9:30	-	8.95	660	658	NA	2
9/7/19	-	-	-	-	-	-	-
9/8/19	-	-	-	-	-	-	-
9/9/19	-	-	-	-	-	-	-
9/10/19	8:21	-	8.78	652	656	21	2
9/11/19	-	-	-	-	-	-	-
9/12/19	-	-	-	-	-	-	-
9/13/19	10:05	-	9.00	645	649	NA	2
9/14/19	-	-	-	-	-	-	-
9/15/19	-	-	-	-	-	-	-
9/16/19	-	-	-	-	-	-	-
9/17/19	8:15	-	8.75	650	648	NA	2
9/18/19	-	-	-	-	-	-	-
9/19/19	-	-	-	-	-	-	-
9/20/19	9:30	-	8.77	647	649	NA	2
9/21/19	-	-	-	-	-	-	-
9/22/19	-	-	-	-	-	-	-
9/23/19	-	-	-	-	-	-	-
9/24/19	-	-	-	-	-	-	-
9/25/19	-	-	-	-	-	-	-
9/26/19	-	-	-	-	-	-	-
9/27/19	-	-	-	-	-	-	-
9/28/19	-	-	-	-	-	-	-
9/29/19	-	-	-	-	-	-	-
9/30/19	-	-	-	-	-	-	-
<b>Minimum</b>			8.75	645	648	21	
<b>Maximum</b>			9.00	660	660	21	
<b>Average</b>			8.84	652	653	21	

**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 ( $\mu$ 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
9/1/19	-	-	-	-	-	-	-
9/2/19	-	-	-	-	-	-	-
9/3/19	8:10	2,000	8.78	641	658	NA	2
9/4/19	-	-	-	-	-	-	-
9/5/19	-	-	-	-	-	-	-
9/6/19	9:00	2,010	8.96	662	652	NA	2
9/7/19	-	-	-	-	-	-	-
9/8/19	-	-	-	-	-	-	-
9/9/19	-	-	-	-	-	-	-
9/10/19	7:40	1,970	8.75	634	648	35	2
9/11/19	-	-	-	-	-	-	-
9/12/19	-	-	-	-	-	-	-
9/13/19	9:20	0	8.91	598	616	NA	2
9/14/19	-	-	-	-	-	-	-
9/15/19	-	-	-	-	-	-	-
9/16/19	-	-	-	-	-	-	-
9/17/19	7:36	1,960	8.61	603	601	NA	2
9/18/19	-	-	-	-	-	-	-
9/19/19	-	-	-	-	-	-	-
9/20/19	8:55	1,970	8.72	597	600	NA	2
9/21/19	-	-	-	-	-	-	-
9/22/19	-	-	-	-	-	-	-
9/23/19	-	-	-	-	-	-	-
9/24/19	7:55	764	8.12	179	388	NA	2
9/25/19	-	-	-	-	-	-	-
9/26/19	-	-	-	-	-	-	-
9/27/19	-	-	-	-	-	-	-
9/28/19	-	-	-	-	-	-	-
9/29/19	-	-	-	-	-	-	-
9/30/19	-	-	-	-	-	-	-
<b>Minimum</b>		0	8.12	179	388	35	
<b>Maximum</b>		2,010	8.96	662	658	35	
<b>Average</b>		1,525	8.69	559	595	35	

**Notes:**

- $\mu$ 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 ( $\mu$ 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
9/1/19	-	-	-	-	-	-	-
9/2/19	-	-	-	-	-	-	-
9/3/19	10:00	2810	8.57	1010	1010	NA	1
9/4/19	-	-	-	-	-	-	-
9/5/19	-	-	-	-	-	-	-
9/6/19	7:40	2880	8.64	1030	1020	NA	2
9/7/19	-	-	-	-	-	-	-
9/8/19	-	-	-	-	-	-	-
9/9/19	-	-	-	-	-	-	-
9/10/19	10:00	2890	8.65	1040	1035	26	2
9/11/19	-	-	-	-	-	-	-
9/12/19	-	-	-	-	-	-	-
9/13/19	7:20	-	8.81	1050	1045	NA	2
9/14/19	-	-	-	-	-	-	-
9/15/19	-	-	-	-	-	-	-
9/16/19	-	-	-	-	-	-	-
9/17/19	9:30	3010	8.63	1030	1040	NA	2
9/18/19	-	-	-	-	-	-	-
9/19/19	-	-	-	-	-	-	-
9/20/19	7:30	2700	8.74	1070	1050	NA	2
9/21/19	-	-	-	-	-	-	-
9/22/19	-	-	-	-	-	-	-
9/23/19	-	-	-	-	-	-	-
9/24/19	-	-	-	-	-	-	-
9/25/19	-	-	-	-	-	-	-
9/26/19	-	-	-	-	-	-	-
9/27/19	-	-	-	-	-	-	-
9/28/19	-	-	-	-	-	-	-
9/29/19	-	-	-	-	-	-	-
9/30/19	-	-	-	-	-	-	-
<b>Minimum</b>		2700	8.57	1010	1010	26	
<b>Maximum</b>		3010	8.81	1070	1050	26	
<b>Average</b>		2858	8.67	1038	1033	26	

**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
9/1/19	-	-	-	-	-	-	-
9/2/19	-	-	-	-	-	-	-
9/3/19	10:30	-	8.56	661	661	NA	1
9/4/19	-	-	-	-	-	-	-
9/5/19	-	-	-	-	-	-	-
9/6/19	8:00	-	8.83	697	679	NA	2
9/7/19	-	-	-	-	-	-	-
9/8/19	-	-	-	-	-	-	-
9/9/19	-	-	-	-	-	-	-
9/10/19	10:45	-	8.60	646	672	50	2
9/11/19	-	-	-	-	-	-	-
9/12/19	-	-	-	-	-	-	-
9/13/19	7:50	-	8.83	678	662	NA	2
9/14/19	-	-	-	-	-	-	-
9/15/19	-	-	-	-	-	-	-
9/16/19	-	-	-	-	-	-	-
9/17/19	9:55	-	8.54	589	634	NA	2
9/18/19	-	-	-	-	-	-	-
9/19/19	-	-	-	-	-	-	-
9/20/19	7:50	-	8.64	644	617	NA	2
9/21/19	-	-	-	-	-	-	-
9/22/19	-	-	-	-	-	-	-
9/23/19	-	-	-	-	-	-	-
9/24/19	9:50	-	8.32	360	502	NA	2
9/25/19	-	-	-	-	-	-	-
9/26/19	-	-	-	-	-	-	-
9/27/19	-	-	-	-	-	-	-
9/28/19	-	-	-	-	-	-	-
9/29/19	-	-	-	-	-	-	-
9/30/19	-	-	-	-	-	-	-
10/1/19	-	-	-	-	-	-	-
<b>Minimum</b>			8.32	360	502	50	
<b>Maximum</b>			8.83	697	679	50	
<b>Average</b>			8.62	611	632	50	

**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
9/1/19	-	-	-	-	-	-	-
9/2/19	-	-	-	-	-	-	-
9/3/19	11:20	-	8.49	473	473	NA	1
9/4/19	-	-	-	-	-	-	-
9/5/19	-	-	-	-	-	-	-
9/6/19	-	-	-	-	-	-	-
9/7/19	-	-	-	-	-	-	-
9/8/19	-	-	-	-	-	-	-
9/9/19	-	-	-	-	-	-	-
9/10/19	11:30	2,060	8.58	641	641	44	1
9/11/19	-	-	-	-	-	-	-
9/12/19	-	-	-	-	-	-	-
9/13/19	-	-	-	-	-	-	-
9/14/19	-	-	-	-	-	-	-
9/15/19	-	-	-	-	-	-	-
9/16/19	-	-	-	-	-	-	-
9/17/19	10:40	1,950	8.54	591	591	NA	1
9/18/19	-	-	-	-	-	-	-
9/19/19	-	-	-	-	-	-	-
9/20/19	-	-	-	-	-	-	-
9/21/19	-	-	-	-	-	-	-
9/22/19	-	-	-	-	-	-	-
9/23/19	-	-	-	-	-	-	-
9/24/19	10:40	920	8.01	257	257	NA	1
9/25/19	-	-	-	-	-	-	-
9/26/19	-	-	-	-	-	-	-
9/27/19	-	-	-	-	-	-	-
9/28/19	-	-	-	-	-	-	-
9/29/19	-	-	-	-	-	-	-
9/30/19	-	-	-	-	-	-	-
10/1/19	-	-	-	-	-	-	-
<b>Minimum</b>		920	8.01	257	257	44	
<b>Maximum</b>		2,060	8.58	641	641	44	
<b>Average</b>		1,643	8.41	491	491	44	

**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**