



North Dakota State Water Commission

900 EAST BOULEVARD AVENUE, DEPT 770 • BISMARCK, NORTH DAKOTA 58505-0850
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August 30, 2012

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

RE: July 2012 Devils Lake Outlets Monthly Discharge and Water Quality Report

Enclosed are the monthly discharge reports for the Devils Lake Outlets for the month of July 2012 and summaries of sample results and flow data. Both the West End and East End Outlets operated continuously throughout the reported period. Discharges from the West End Outlet were limited for a period of few days for canal maintenance. Discharges from the East End Outlet were also reduced during this time and remained reduced to maintain an optimal blend of outlet discharges and the natural Sheyenne River baseflow.

Governor Dalrymple issued Executive Order 2012-07 during the reported period, which suspends water quality standards that may restrict the operation of the outlets. However, some samples contained sulfates above the aquatic life standard of 750 milligrams per liter (mg/L) developed for the Sheyenne River from its headwaters to 1/10 mile downstream from Baldhill Dam. Sulfates were detected above the currently suspended standard in samples collected from the following sites below the confluence of Tolna Coulee with the Sheyenne River during the reported period: below Pekin (Highway 1), near Cooperstown, and Lake Ashtabula upstream crossing east of Hannaford.

The attached tables contain average daily outlet discharges and water quality results from samples collected from both 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.
Head, Construction Section
JK:MSW:416-10

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
7/1/12	7/31/12

LOCATION: Benson Co, ND

Devils Lake West Outlet discharged 13,644 ac-ft over 31 Days

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.47	8.80	8.63	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	NA	NA	NA	µS/cm	Continuous	Recorder
SULFATE	557	580	567	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	560	575	566	mg/L	2 x Week	GRAB
OUTLET DISCHARGE	34	261	221	cfs	Continuous	Recorder
SIGNATURE				8/30/12	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
7/1/12	7/31/12

LOCATION: Ramsey, Benson, Nelson, ND

Devils Lake East Outlet discharged 18,182 ac-ft over 30 Days

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.62	8.82	8.76	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	NA	NA	NA	µS/cm	Continuous	Recorder
SULFATE	981	1010	997	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	981	1003	996	mg/L	2 x Week	GRAB
OUTLET DISCHARGE	162	382	296	cfs	Continuous	Recorder
SIGNATURE				8/30/12	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
7/1/12	7/31/12

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.31	8.49	8.39	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	1,570	1,770	1,684	µS/cm	Continuous	Recorder
SULFATE	400	450	417	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	397	450	421	mg/L	2 x Week	GRAB
FLOW, INSTREAM	7	28	16	cfs	Continuous	Recorder
SIGNATURE				8/30/12	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

LOCATION: Eddy Co, ND

MONITORING PERIOD	
START DATE	END DATE
7/1/12	7/31/12

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.45	8.75	8.59	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	1,850	1,930	1,878	µS/cm	Continuous	Recorder
SULFATE	518	574	557	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	531	573	555	mg/L	2 x Week	GRAB
FLOW, INSTREAM	24	262	206	cfs	Continuous	Recorder
SIGNATURE				8/30/12	701-328-4948	
NAME AND TITLE				JONATHAN KELSCH, HEAD, CONSTRUCTION SECTION		

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
7/1/12	7/31/12

LOCATION: Nelson Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.27	8.41	8.36	SU	2 x Week	GRAB
SPECIFIC CONDUCTANCE	NA	NA	NA	µS/cm	Continuous	Recorder
SULFATE	679	807	759	mg/L	2 x Week	GRAB
7 DAY AVERAGE OF SULFATE	536	799	730	mg/L	2 x Week	GRAB
FLOW, INSTREAM	NA	NA	NA	cfs	Continuous	Recorder
SIGNATURE				8/30/12	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 - Tolna Coulee near Tolna		Below East End Outlet - Sheyenne River near Cooperstown	
	Average Streamflow USGS Gage (cfs)	Average Specific Conductance USGS Gage (µS/cm)	Average Daily Outlet Discharge (cfs)	Total Daily Volume (ft³)	Average Streamflow USGS Gage (cfs)	Average Specific Conductance USGS Gage (µS/cm)	Average Daily Outlet Discharge (cfs)	Total Daily Volume (ft³)	Average Streamflow USGS Gage (cfs)	Average Specific Conductance USGS Gage (µS/cm)	Average Streamflow USGS Gage (cfs)	Average Specific Conductance USGS Gage (µS/cm)
7/1/12	28	1,640	243	21,305,544	262	1,890	231	20,000,000	224	2,930	563	1,640
7/2/12	23	1,650	230	20,199,852	248	1,900	255	22,000,000	231	2,930	563	1,780
7/3/12	22	1,650	231	20,224,308	214	1,900	370	32,000,000	387	2,930	537	1,960
7/4/12	21	1,660	232	20,356,051	206	1,900	370	32,000,000	393	2,930	521	2,120
7/5/12	18	1,660	233	20,391,150	200	1,910	382	33,000,000	396	2,920	517	2,190
7/6/12	18	1,610	107	9,421,559	179	1,860	370	32,000,000	401	2,910	555	2,230
7/7/12	21	1,620	236	19,380,959	117	1,850	382	33,000,000	391	2,920	610	2,380
7/8/12	23	1,630	234	19,186,865	175	1,880	370	32,000,000	387	2,920	622	2,440
7/9/12	22	1,590	83	6,602,969	155	1,880	231	20,000,000	358	2,910	626	2,460
7/10/12	23	1,590	34	2,522,071	51	1,910	243	21,000,000	140	2,930	622	2,490
7/11/12	22	1,570	81	6,482,978	24	1,930	220	19,000,000	272	2,920	618	2,490
7/12/12	22	1,590	246	20,808,689	96	1,850	174	15,000,000	172	2,920	594	2,490
7/13/12	21	1,610	261	22,905,901	205	1,900	162	14,000,000	177	2,910	511	2,520
7/14/12	19	1,650	258	22,636,879	235	1,900	162	14,000,000	174	2,920	455	2,430
7/15/12	19	1,660	254	22,271,330	239	1,880	174	15,000,000	168	2,920	399	2,360
7/16/12	17	1,680	247	21,615,705	244	1,860	231	20,000,000	226	2,940	319	2,380
7/17/12	16	1,710	243	21,282,205	245	1,870	324	28,000,000	332	2,920	283	2,330
7/18/12	15	1,710	244	21,378,807	246	1,870	313	27,000,000	334	2,920	319	2,430
7/19/12	13	1,750	243	21,344,410	244	1,860	324	28,000,000	336	2,940	386	2,480
7/20/12	12	-	242	21,243,733	238	1,870	324	28,000,000	334	2,940	466	2,310
7/21/12	11	1,770	241	21,139,245	232	1,870	324	28,000,000	336	2,940	517	2,400
7/22/12	10	1,770	242	21,234,031	230	1,880	324	28,000,000	338	2,940	539	2,390
7/23/12	11	1,760	234	20,473,713	230	1,880	324	28,000,000	339	2,940	543	2,340
7/24/12	11	1,750	241	21,092,654	234	1,880	324	28,000,000	340	2,930	546	2,340
7/25/12	9	1,740	240	21,058,704	237	1,870	324	28,000,000	336	2,910	555	2,320
7/26/12	9	1,740	237	20,790,388	230	1,880	324	28,000,000	333	2,910	568	2,320
7/27/12	8	1,740	249	21,869,623	231	1,870	313	27,000,000	334	2,910	583	2,260
7/28/12	8	1,740	240	21,073,752	232	1,860	324	28,000,000	334	2,920	600	2,250
7/29/12	8	1,750	241	21,134,639	239	1,850	324	28,000,000	334	2,920	598	2,300
7/30/12	7	1,760	243	21,327,463	240	1,850	324	28,000,000	332	2,920	591	2,340
7/31/12	7	1,770	246	21,587,786	228	1,870	324	28,000,000	337	2,930	587	2,330
Minimum	7	1,570	34	2,522,071	24	1,850	162	14,000,000	140	2,910	283	1,640
Maximum	28	1,770	261	22,905,901	262	1,930	382	33,000,000	401	2,940	626	2,520
Average	16	1,684	221	19,172,386	206	1,878	296	25,548,387	307	2,924	526	2,306

Total (ft³)	594,343,962	Total (ft³)	792,000,000
Total (Mgal)	4,446	Total (Mgal)	5,924
Total (Ac-ft)	13,644	Total (Ac-ft)	18,182

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

**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)	No. of days included in the 7 day Rolling Average
7/1/12	-	-	-	-	-	-	-
7/2/12	8:30	1,640	8.36	409	397	NA	7
7/3/12	-	-	-	-	-	-	-
7/4/12	-	-	-	-	-	-	-
7/5/12	-	-	-	-	-	-	-
7/6/12	8:35	1,570	8.49	407	408	NA	7
7/7/12	-	-	-	-	-	-	-
7/8/12	-	-	-	-	-	-	-
7/9/12	-	-	-	-	-	-	-
7/10/12	8:45	1,590	8.40	405	406	42	7
7/11/12	-	-	-	-	-	-	-
7/12/12	-	-	-	-	-	-	-
7/13/12	-	-	-	-	-	-	-
7/14/12	-	-	-	-	-	-	-
7/15/12	-	-	-	-	-	-	-
7/16/12	-	-	-	-	-	-	-
7/17/12	8:30	1,700	8.36	450	450	NA	7
7/18/12	-	-	-	-	-	-	-
7/19/12	9:00	1,720	8.44	440	445	NA	7
7/20/12	-	-	-	-	-	-	-
7/21/12	-	-	-	-	-	-	-
7/22/12	-	-	-	-	-	-	-
7/23/12	-	-	-	-	-	-	-
7/24/12	8:20	1,750	8.31	406	423	74	7
7/25/12	8:15	1,730	8.39	400	415	NA	7
7/26/12	-	-	-	-	-	-	-
7/27/12	-	-	-	-	-	-	-
7/28/12	-	-	-	-	-	-	-
7/29/12	-	-	-	-	-	-	-
7/30/12	-	-	-	-	-	-	-
7/31/12	-	-	-	-	-	-	-
Minimum		1,570	8.31	400	397	42	
Maximum		1,750	8.49	450	450	74	
Average		1,671	8.39	417	421	58	

Notes:

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



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

Date	Time	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	No. of days included in the 7 day Rolling Average
7/1/12	-	-	-	-	-	-
7/2/12	8:40	8.47	557	565	NA	7
7/3/12	-	-	-	-	-	-
7/4/12	-	-	-	-	-	-
7/5/12	-	-	-	-	-	-
7/6/12	8:45	8.64	562	560	NA	7
7/7/12	-	-	-	-	-	-
7/8/12	-	-	-	-	-	-
7/9/12	-	-	-	-	-	-
7/10/12	-	-	-	-	-	-
7/11/12	-	-	-	-	-	-
7/12/12	10:30	8.80	557	560	NA	7
7/13/12	-	-	-	-	-	-
7/14/12	-	-	-	-	-	-
7/15/12	-	-	-	-	-	-
7/16/12	-	-	-	-	-	-
7/17/12	8:50	8.52	569	563	NA	7
7/18/12	-	-	-	-	-	-
7/19/12	9:10	8.68	571	570	NA	7
7/20/12	-	-	-	-	-	-
7/21/12	-	-	-	-	-	-
7/22/12	-	-	-	-	-	-
7/23/12	-	-	-	-	-	-
7/24/12	8:35	8.61	574	573	43	7
7/25/12	8:25	8.66	580	575	NA	7
7/26/12	-	-	-	-	-	-
7/27/12	-	-	-	-	-	-
7/28/12	-	-	-	-	-	-
7/29/12	-	-	-	-	-	-
7/30/12	-	-	-	-	-	-
7/31/12	-	-	-	-	-	-
Minimum		8.47	557	560	43	
Maximum		8.80	580	575	43	
Average		8.63	567	566	43	

Notes:

mg/L - Milligrams per liter or parts per million
NA - Not Analyzed



**Sheyenne River Downstream of West End Outlet/Upstream of East End Outlet near 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)	No. of days included in the 7 day Rolling Average
7/1/12	-	-	-	-	-	-	-
7/2/12	8:00	1,910	8.45	553	545	NA	7
7/3/12	-	-	-	-	-	-	-
7/4/12	-	-	-	-	-	-	-
7/5/12	8:15	1,910	8.57	543	548	NA	7
7/6/12	-	-	-	-	-	-	-
7/7/12	-	-	-	-	-	-	-
7/8/12	-	-	-	-	-	-	-
7/9/12	-	-	-	-	-	-	-
7/10/12	8:10	1,900	8.62	518	531	38	7
7/11/12	-	-	-	-	-	-	-
7/12/12	10:45	1,800	8.75	562	540	NA	7
7/13/12	-	-	-	-	-	-	-
7/14/12	-	-	-	-	-	-	-
7/15/12	-	-	-	-	-	-	-
7/16/12	-	-	-	-	-	-	-
7/17/12	8:00	1,880	8.51	561	562	NA	7
7/18/12	-	-	-	-	-	-	-
7/19/12	8:40	1,870	8.67	573	567	NA	7
7/20/12	-	-	-	-	-	-	-
7/21/12	-	-	-	-	-	-	-
7/22/12	-	-	-	-	-	-	-
7/23/12	-	-	-	-	-	-	-
7/24/12	7:40	1,880	8.48	573	573	32	7
7/25/12	7:55	1,870	8.63	574	573	NA	7
7/26/12	-	-	-	-	-	-	-
7/27/12	-	-	-	-	-	-	-
7/28/12	-	-	-	-	-	-	-
7/29/12	-	-	-	-	-	-	-
7/30/12	-	-	-	-	-	-	-
7/31/12	-	-	-	-	-	-	-
Minimum		1,800	8.45	518	531	32	
Maximum		1,910	8.75	574	573	38	
Average		1,878	8.59	557	555	35	

Notes:

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



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

Date	Time	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	No. of days included in the 7 day Rolling Average
7/1/12	-	-	-	-	-	-
7/2/12	-	-	-	-	-	-
7/3/12	-	-	-	-	-	-
7/4/12	-	-	-	-	-	-
7/5/12	13:50	8.82	994	994	NA	7
7/6/12	-	-	-	-	-	-
7/7/12	-	-	-	-	-	-
7/8/12	-	-	-	-	-	-
7/9/12	-	-	-	-	-	-
7/10/12	-	-	-	-	-	-
7/11/12	-	-	-	-	-	-
7/12/12	12:30	8.62	981	981	NA	7
7/13/12	-	-	-	-	-	-
7/14/12	-	-	-	-	-	-
7/15/12	-	-	-	-	-	-
7/16/12	-	-	-	-	-	-
7/17/12	-	-	-	-	-	-
7/18/12	-	-	-	-	-	-
7/19/12	12:50	8.80	1000	1000	NA	-
7/20/12	-	-	-	-	-	-
7/21/12	-	-	-	-	-	-
7/22/12	-	-	-	-	-	-
7/23/12	-	-	-	-	-	-
7/24/12	11:00	8.77	999	1000	11	7
7/25/12	12:20	8.80	1010	1003	NA	-
7/26/12	-	-	-	-	-	-
7/27/12	-	-	-	-	-	-
7/28/12	-	-	-	-	-	-
7/29/12	-	-	-	-	-	-
7/30/12	-	-	-	-	-	-
7/31/12	-	-	-	-	-	-
Minimum		8.62	981	981	11	
Maximum		8.82	1010	1003	11	
Average		8.76	997	996	11	

Notes:

mg/L - Milligrams per liter or parts per million
NA - Not Analyzed



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

Date	Time	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	No. of days included in the 7 day Rolling Average
7/1/12	-	-	-	-	-	-
7/2/12	10:00	8.27	679	536	NA	7
7/3/12	-	-	-	-	-	-
7/4/12	-	-	-	-	-	-
7/5/12	14:30	8.36	757	718	NA	7
7/6/12	-	-	-	-	-	-
7/7/12	-	-	-	-	-	-
7/8/12	-	-	-	-	-	-
7/9/12	-	-	-	-	-	-
7/10/12	-	-	-	-	-	-
7/11/12	-	-	-	-	-	-
7/12/12	13:30	8.36	774	774	NA	7
7/13/12	-	-	-	-	-	-
7/14/12	-	-	-	-	-	-
7/15/12	-	-	-	-	-	-
7/16/12	-	-	-	-	-	-
7/17/12	10:35	8.31	703	739	NA	7
7/18/12	-	-	-	-	-	-
7/19/12	13:20	8.41	791	747	NA	7
7/20/12	-	-	-	-	-	-
7/21/12	-	-	-	-	-	-
7/22/12	-	-	-	-	-	-
7/23/12	-	-	-	-	-	-
7/24/12	11:50	8.41	807	799	35	7
7/25/12	12:40	8.40	800	799	NA	7
7/26/12	-	-	-	-	-	-
7/27/12	-	-	-	-	-	-
7/28/12	-	-	-	-	-	-
7/29/12	-	-	-	-	-	-
7/30/12	-	-	-	-	-	-
7/31/12	-	-	-	-	-	-
Minimum		8.27	679	536	35	
Maximum		8.41	807	799	35	
Average		8.36	759	730	35	

Notes:

mg/L - Milligrams per liter or parts per million
NA - Not Analyzed

Bold font and gray shading denotes sample sulfate concentration exceeds currently suspended standard of 750 mg/L for aquatic life

