

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES  
 Station No 05287890 Elm Creek Nr Champlin, MN Source Agency USGS State 27 County 053  
 WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Daily Mean Values Discharge, cubic feet per second [e, estimated]

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e9.5	e1.7	e4.0	e20	e2.7	e3.2	172	52	13	e1.9	0.67	3.5
2	e9.0	e1.7	e3.3	e28	e2.4	e2.9	194	48	15	e1.8	0.44	3.4
3	e8.2	e1.6	e2.9	e34	e1.7	e2.7	209	44	38	e2.0	0.35	3.1
4	e7.6	e1.6	e2.5	e37	e1.1	e2.4	214	42	36	e2.5	0.36	2.9
5	e6.8	e1.6	e2.6	40	e1.0	e2.5	208	41	36	e2.4	0.37	2.5
6	e6.2	e1.6	e2.4	42	e1.1	e2.6	198	40	32	e2.2	0.37	2.2
7	e5.6	e1.5	e2.2	42	e1.1	e2.9	181	36	29	e2.1	0.33	2.7
8	e5.0	e1.5	e2.3	39	e1.2	e3.4	161	39	24	e2.0	0.34	2.5
9	e4.7	e1.5	e2.4	e34	e1.2	e4.2	145	37	20	e1.9	0.33	2.2
10	e4.2	e1.4	e2.5	e29	e1.3	5.1	130	37	17	e1.8	0.33	1.7
11	e3.7	e1.4	e2.5	e17	e1.5	7.3	120	34	14	e1.8	0.62	1.5
12	e3.5	e1.4	e2.6	e11	e1.4	18	112	32	12	e1.7	0.50	1.6
13	e3.3	e1.4	2.6	e5.0	e1.4	73	105	29	11	e3.0	0.71	1.4
14	e3.1	e1.4	2.9	e4.7	e1.4	147	98	26	9.1	e2.8	2.0	1.3
15	e2.9	e1.4	6.0	e4.0	e1.4	185	93	23	7.1	e2.6	1.8	1.0
16	e2.8	e1.4	6.5	e3.3	e1.5	182	88	20	5.6	e2.3	1.2	1.0
17	e2.6	e1.4	4.2	e3.4	e1.5	200	83	17	4.4	e2.1	0.77	1.0
18	e2.5	e1.5	e4.1	e3.6	e1.6	206	79	15	4.1	e2.0	0.86	1.9
19	e2.4	e1.6	e4.0	e3.5	e2.1	210	75	14	3.8	e1.8	1.2	4.1
20	e2.3	e1.9	e4.0	e3.4	e3.0	202	71	13	3.7	e1.6	1.4	5.9
21	e2.2	e2.2	4.1	e3.5	e4.0	190	65	12	4.1	e1.5	2.3	16
22	e2.1	e2.5	4.1	e3.5	e3.7	183	62	11	4.2	e1.4	2.9	39
23	e2.0	e2.7	4.7	e3.4	e3.4	173	68	11	4.1	e1.3	2.5	48
24	e1.9	e3.0	5.2	e3.3	e3.4	164	70	13	3.8	e1.2	2.3	54
25	e1.8	e3.3	e5.6	e3.4	e3.3	158	71	14	3.4	e1.1	2.1	58
26	e1.8	e3.6	e5.8	e3.5	e3.3	154	69	13	e2.8	e1.0	1.9	57
27	e1.8	e4.0	6.1	e3.3	e3.5	143	65	13	e2.6	e0.88	2.0	54
28	e1.8	e5.0	6.6	e2.9	e3.6	137	63	11	e2.4	e0.82	2.8	49
29	e1.8	e6.0	8.5	e3.1	---	133	58	12	e2.2	e0.74	3.6	43
30	e1.7	e5.0	9.9	e2.9	---	133	54	13	e2.1	0.69	3.6	39
31	e1.7	---	e13	e3.0	---	144	---	13	---	0.68	3.5	---

Statistics for Water Year October 2006 to September 2007

Total	116.5	67.8	140.1	439.7	59.8	3,174.2	3,381	775	366.5	53.61	44.45	504.4
Mean	3.76	2.26	4.52	14.2	2.14	102	113	25.0	12.2	1.73	1.43	16.8
Max	9.5	6.0	13	42	4.0	210	214	52	38	3.0	3.6	58
Min	1.7	1.4	2.2	2.9	1.0	2.4	54	11	2.1	0.68	0.33	1.0
Ac-ft	231	134	278	872	119	6,300	6,710	1,540	727	106	88	1,000
Cfsm	0.04	0.03	0.05	0.16	0.02	1.19	1.31	0.29	0.14	0.02	0.02	0.20
Inches	0.05	0.03	0.06	0.19	0.03	1.37	1.46	0.34	0.16	0.02	0.02	0.22

Statistics of monthly mean data for 1979 - 2007, by Water Year (WY)

Mean	32.7	21.8	10.9	5.54	9.03	61.0	104	71.1	51.8	39.1	28.9	28.0
Max	240	67.4	41.3	22.0	99.1	185	414	203	196	157	151	170
(WY)	(1986)	(1994)	(1992)	(1992)	(1984)	(1985)	(2001)	(2002)	(2004)	(1993)	(2002)	(1991)
Min	1.13	1.03	0.92	0.74	0.91	3.86	5.31	3.54	1.34	0.76	1.43	1.08
(WY)	(1990)	(1990)	(1990)	(1991)	(1990)	(2001)	(1987)	(2000)	(1988)	(1988)	(2007)	(1988)

Summary Statistics

	Calendar Year 2006	Water Year 2007	Water Years 1979 - 2007
Annual total	11,038.6	9,123.06	
Annual mean	30.2	25.0	38.8
Highest annual mean			82.2
Lowest annual mean			4.54
Highest daily mean	276	May 6	815
Lowest daily mean	1.2	Jul 31	0.31
Annual seven-day minimum	1.4	Jul 25	0.35
Maximum peak flow		223	875
Maximum peak stage		7.93	10.02
Instantaneous low flow		0.30	0.29
Annual runoff (ac-ft)	21,900	18,100	28,090
Annual runoff (cfsm)	0.352	0.291	0.451
Annual runoff (inches)	4.77	3.95	6.13
10 percent exceeds	101	77	108
50 percent exceeds	8.4	3.5	11
90 percent exceeds	1.6	1.3	1.8

<sup>a</sup> Also occurred August 9, 10.



**Elm Creek Near Champlin (USGS Station 05287890)**

**Manual Water Quality Samples for Water Year 2007**

USGS Parameter #	P00010	P00020	P00025	P00061	P00095	P00300	P00301	P00340	P00400	
DATE	Sample Start Time	Water Temp. °C	Air Temp. °C	Barom Press mm Hg	Disch Inst cfs	Sp cond µS/cm	DO mg/L	DO % Satur	COD mg/L	pH
16-Oct-06	11:00	8.2	12	734	2.8	612	8	68	20	7.6
27-Nov-06	9:55	3.3	6	745	4.1	746	10.4	78	20	7.8
20-Dec-06	11:25	0.8	6	745	4	732	11.8	83	30	7.6
15-Feb-07	11:10	0	< 0.0	750	1.4	711	11.5	79	10	8.5
14-Mar-07	11:05	0.1	6.5	731	143	370	11.7	84	40	7.4
16-Apr-07	11:50	8.4	21.5	743	86	530	10.5	90	30	8.1
1-May-07	10:45	12.7	15	740	57	658	8.2	77	30	7.8
13-Jun-07	12:15	21.5	30	742	11	706	9.4	107	30	8
14-Jun-07	11:30	21.5	28.5	740	12	703	10	117		8
2-Jul-07	11:00	18.9	21	746	1.8	691	6.3	68	20	7.6
10-Aug-07	8:00	19.6				695	6.2			7.9
10-Aug-07	8:01	19.6				695	6.2			7.9
10-Aug-07	8:30	19.6		742	1.4	695	6.2	70		7.9
28-Aug-07	10:40	19.3	24	740	2.6	615	6.1	66	30	7.4
17-Sep-07	9:35	14.2	20	739	1	667	7.5	73	20	7.5

USGS Parameter #	P00530	P00535	P00608	P00613	P00625	P00631	P00665	P00666	P00940	
DATE	Sample Start Time	TSS mg/L	Volatile Residue mg/L	Ammonia mg/L	Nitrite mg/L	Total Nitrogen mg/L	Dissolved NO2+NO3 mg/L	Total P mg/L	Dissolved P mg/L	Dissolved Chloride mg/L
16-Oct-06	11:00	< 10	< 10	E 0.019	0.013	0.73	0.1	0.1	0.06	42
27-Nov-06	9:55	< 10	< 10	0.042	0.007	0.57	0.21	0.08	E 0.03	30.4
20-Dec-06	11:25	11	< 10	0.144	0.004	1.3	0.11	0.11	E 0.03	65.8
15-Feb-07	11:10	< 10	< 10	0.237	0.002	0.62	0.14	0.07	< 0.04	21.9
14-Mar-07	11:05	< 20	< 20	0.5	0.018	1.6	0.64	0.38	0.28	57.7
16-Apr-07	11:50	15	< 10	< 0.020	0.004	1.1	0.14	0.08	0.04	59.2
1-May-07	10:45	13	< 10	0.078	0.013	1	0.1	0.12	0.05	52.1
13-Jun-07	12:15	< 10	< 10			0.83		0.14		48.1
14-Jun-07	11:30			E 0.015	0.009		0.036	0.281		
2-Jul-07	11:00	< 10	< 10	0.058	0.013	0.57	0.07	0.15	0.11	30.4
10-Aug-07	8:00									
10-Aug-07	8:01									
10-Aug-07	8:30			0.037	0.004		0.033	0.113		
28-Aug-07	10:40	< 10	< 10	0.053	0.023	0.77	0.17	0.16	0.12	50.2
17-Sep-07	9:35	< 10	< 10	0.027	0.003	0.48	E 0.06	0.08	0.05	31.9

E = Estimated

**Elm Creek Near Champlin (USGS Station 05287890)**

**Automatic Event Samples for Water Year 2007**

USGS Parameter #			P00095	P00340	P00400	P00530	P00608	P00613	P00625	P00631	P00665	P00666	P00940
DATE & TIME			Sp Cond µS/cm	COD mg/L	pH	TSS mg/L	Ammonia mg/L	Nitrite mg/L	Total N mg/L	Dissolved NO2+NO3 mg/L	Total P mg/L	Dissolved P mg/L	Dissolved Chloride mg/L
31-Mar-07	18:50	to	499	40	7.3	108	0.217	0.013	1.5	0.27	0.26	0.10	44.5
31-Mar-07	21:50												
2-Jun-07	19:27	to	566	120	8.2	<10	<0.020	0.044	1.4	0.73	0.26	0.09	43.6
3-Jun-07	10:27												
21-Sep-07	15:06	to	515	50	7.4	<14	0.169	0.065	1.7	0.38	0.28	0.18	75.3
24-Sep-07	9:07												

USGS Parameters

- # P00010 - Temperature, water, degrees Celsius
- # P00020 - Temperature, air, degrees Celsius
- # P00025 - Barometric pressure, millimeters of mercury
- # P00061 - Discharge, instantaneous, cubic feet per second
- # P00095 - Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius
- # P00300 - Dissolved oxygen, water, unfiltered, milligrams per liter
- # P00301 - Dissolved oxygen, water, unfiltered, percent of saturation
- # P00340 - Chemical oxygen demand, high level, water, unfiltered, milligrams per liter
- # P00400 - pH, water, unfiltered, field, standard units
- # P00530 - Residue, total nonfilterable, milligrams per liter
- # P00535 - Loss on ignition, from nonfilterable residue, milligrams per liter
- # P00608 - Ammonia, water, filtered, milligrams per liter as nitrogen
- # P00613 - Nitrite, water, filtered, milligrams per liter as nitrogen
- # P00625 - Ammonia plus organic nitrogen, water, unfiltered, milligrams per liter as nitrogen
- # P00631 - Nitrate plus nitrite, water, filtered, milligrams per liter as nitrogen
- # P00665 - Phosphorus, water, unfiltered, milligrams per liter
- # P00666 - Phosphorus, water, filtered, milligrams per liter
- # P00940 - Chloride, water, filtered, milligrams per liter



## Annual Runoff Summary



