

Water-Data Report 2009

05079000 RED LAKE RIVER AT CROOKSTON, MN

Lower Red Basin
Red Lake Subbasin

LOCATION.--Lat 47°46'32", long 96°36'33" referenced to North American Datum of 1927, in SW ¼ SW ¼ sec.30, T.150 N., R.46 W., Polk County, MN, Hydrologic Unit 09020303, on right bank 100 ft upstream from Woodland Avenue bridge in Crookston, 0.3 mi downstream from Interstate Power Co.'s dam, 0.6 mi downstream from bridge on U.S. Highway 75, and 53 mi upstream from mouth.

DRAINAGE AREA.--5,270 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--May 1901 to current year. Monthly discharge only for some periods, published in WSP 1308. Figures of daily discharge for Apr. 3-30, 1904, published in WSP 130, have been found unreliable and should not be used.

REVISED RECORDS.--WSP 1115: 1906, 1915-16, 1919-20, 1922, 1925, 1927, 1929. WSP 1308: 1916(M), 1919(M), 1928(M), 1930(M). Unpublished 2009: 1920(M).

GAGE.--Water-stage recorder. Datum of gage is 832.72 ft above sea level (NGVD of 1929). May 18, 1901 to June 30, 1909, non-recording gage at bridge 300 ft upstream at same datum. July 1, 1909 to Sept. 25, 1911, non-recording gage, Sept. 26, 1911 to Sept. 30, 1919, water-stage recorder, Oct. 1, 1919 to Sept. 30, 1930, non-recording gage, at present site and datum. Oct. 1, 1930 to present, water-stage recorder.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diurnal fluctuation prior to 1975 caused by power plant 1,000 ft upstream. Runoff from 1,950 mi² in the headwaters of Red Lake River is completely controlled by dam at outlet of Lower Red Lake. Flow partially affected by occasional regulation at Thief and Mud Lakes in Thief River basin (see station 05076000).

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	267	1,110	e619	e358	e273	e747	9,880	3,950	3,080	4,240	763	675
2	247	1,100	e567	e357	e270	e746	9,390	4,200	2,840	3,060	757	680
3	247	1,080	e518	e355	e267	e750	9,080	4,010	2,660	2,150	720	665
4	292	1,040	e489	e354	e266	e755	8,820	3,720	2,460	1,680	749	635
5	279	1,020	e476	e353	e265	e758	8,950	3,450	2,400	1,460	716	614
6	349	1,060	e465	e352	e266	e763	8,770	3,160	2,160	1,280	683	591
7	396	1,210	e460	e351	e267	e761	8,640	2,880	2,010	1,110	724	575
8	e484	1,880	e459	e350	e267	e755	8,590	2,680	1,820	1,040	715	584
9	588	e2,400	e457	e349	e269	e744	9,240	2,510	1,660	953	738	630
10	660	e2,160	e466	e348	e272	e723	9,080	2,440	1,570	904	735	677
11	676	1,830	e463	e346	e280	e700	8,320	2,440	1,620	902	750	702
12	845	1,570	e459	e341	e290	e692	7,820	2,430	1,680	792	720	851
13	e2,400	1,580	e453	e332	e301	e707	7,510	2,400	1,710	787	709	915
14	e3,880	1,490	e448	e319	e319	e723	7,490	2,490	1,580	784	739	811
15	e3,820	1,490	e433	e309	e358	e801	7,390	2,580	1,530	794	823	771
16	e2,940	1,490	e414	e306	e477	e988	6,760	2,680	1,580	820	1,190	727
17	2,270	1,330	e398	e305	e627	e1,740	6,250	2,730	e1,450	920	2,460	704
18	1,870	1,020	e386	e306	e724	e2,950	5,850	2,730	1,360	908	2,580	659
19	1,630	e866	e380	e307	e758	e3,550	5,510	2,660	1,400	e798	2,250	649
20	1,450	e767	e378	e305	e769	e3,990	5,190	2,510	1,380	e808	1,880	626
21	1,330	e701	e377	e300	e773	e5,140	4,840	2,390	1,390	797	1,760	602
22	1,250	e681	e374	e290	e770	e7,570	4,460	2,270	1,320	746	1,650	581
23	1,200	e717	e373	e285	e768	e12,100	4,120	2,190	1,270	666	1,480	584
24	1,180	e814	e371	e281	e766	e20,400	3,850	2,080	1,250	706	1,270	572
25	1,160	e871	e372	e279	e763	e25,000	3,630	2,050	1,080	814	1,120	567
26	1,200	e888	e372	e277	e756	e22,400	3,560	2,960	999	810	973	586
27	1,230	e868	e369	e275	e751	17,800	3,530	4,640	e2,090	743	881	542
28	1,230	e805	e367	e274	e748	14,400	3,620	4,920	7,780	742	848	519
29	1,190	e743	e364	e275	---	12,800	3,690	4,250	7,600	681	836	576
30	1,170	e676	e362	e276	---	11,700	3,690	3,560	5,760	749	788	520
31	1,150	---	e360	e276	---	10,800	---	3,190	---	787	766	---
Total	38,880	35,257	13,249	9,791	13,680	184,453	197,520	93,150	68,489	34,431	33,773	19,390
Mean	1,254	1,175	427	316	489	5,950	6,584	3,005	2,283	1,111	1,089	646
Max	3,880	2,400	619	358	773	25,000	9,880	4,920	7,780	4,240	2,580	915
Min	247	676	360	274	265	692	3,530	2,050	999	666	683	519
Ac-ft	77,120	69,930	26,280	19,420	27,130	365,900	391,800	184,800	135,800	68,290	66,990	38,460
Cfsm	0.24	0.22	0.08	0.06	0.09	1.13	1.25	0.57	0.43	0.21	0.21	0.12
In.	0.27	0.25	0.09	0.07	0.10	1.30	1.39	0.66	0.48	0.24	0.24	0.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1901 - 2009, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	863	776	605	527	513	1,080	3,153	2,148	1,807	1,391	872	866
Max	2,836	3,620	1,900	1,663	1,778	5,950	11,870	15,290	7,205	6,851	3,868	5,408
(WY)	(1972)	(2001)	(1904)	(1951)	(1998)	(2009)	(1997)	(1950)	(1962)	(1975)	(1985)	(1999)
Min	8.02	10.1	5.34	15.6	17.8	24.9	232	154	80.4	26.2	12.3	8.87
(WY)	(1937)	(1937)	(1937)	(1934)	(1937)	(1936)	(1981)	(1934)	(1934)	(1936)	(1934)	(1934)

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SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1901 - 2009	
Annual total	274,328		742,063			
Annual mean	750		2,033		1,214	
Highest annual mean					3,129	1950
Lowest annual mean					83.6	1934
Highest daily mean	3,880	Oct 14	25,000	Mar 25	27,500	Apr 18, 1997
Lowest daily mean	131	Aug 30	^a 247	Oct 2	2.5	Sep 29, 1936
Annual seven-day minimum	159	Aug 27	267	Feb 3	3.9	Sep 28, 1936
Maximum peak flow			^b 25,000	Mar 25	^c 28,400	Apr 12, 1969
Maximum peak stage			^d 25.63	Mar 24	^e 28.40	Apr 17, 1997
Instantaneous low flow					^f 0.00	Jul 13, 1960
Annual runoff (ac-ft)	544,100		1,472,000		879,200	
Annual runoff (cfsm)	0.142		0.386		0.230	
Annual runoff (inches)	1.94		5.24		3.13	
10 percent exceeds	1,730		4,720		2,670	
50 percent exceeds	456		811		748	
90 percent exceeds	230		319		122	

^a Also occurred Oct. 3.

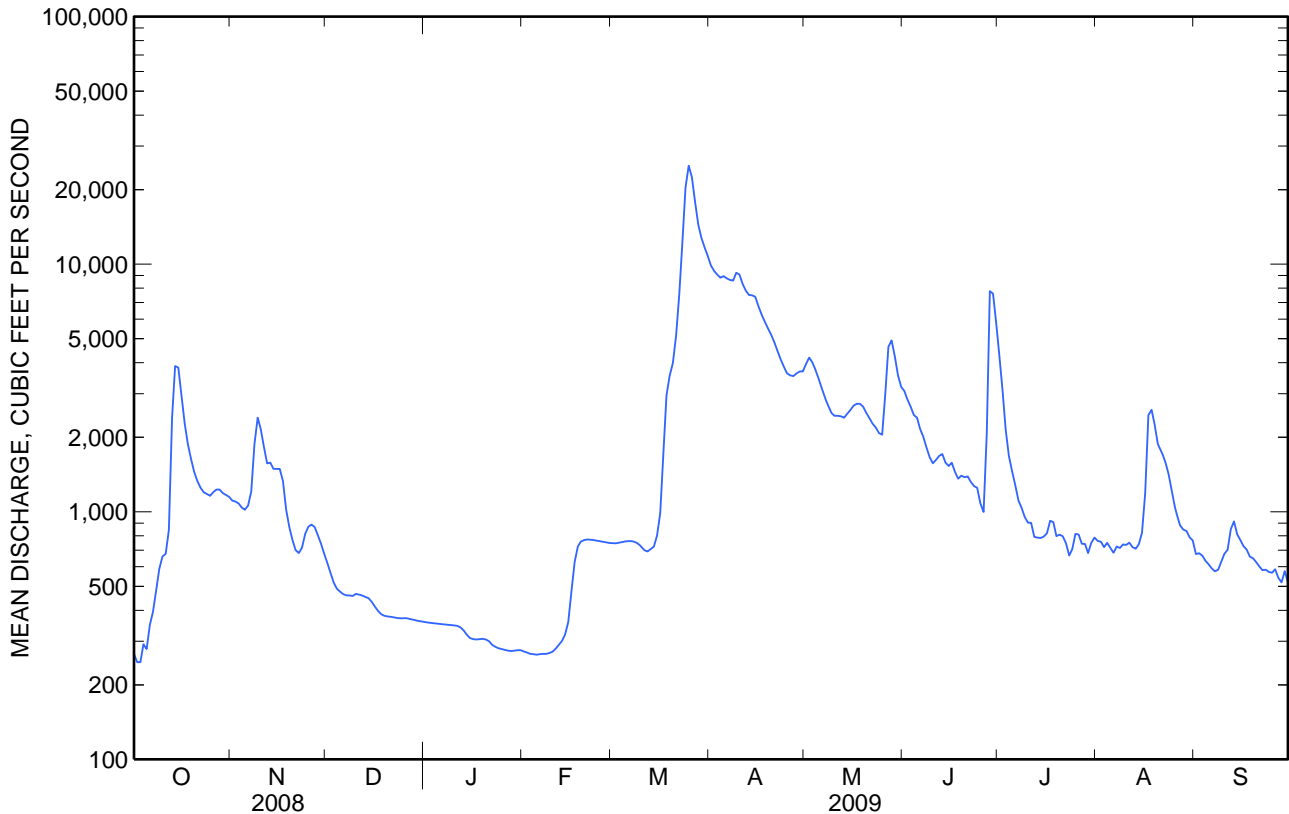
^b Estimated daily-mean discharge.

^c Gage height, 27.33 ft.

^d Backwater from ice.

^e From highwater mark, backwater from ice.

^f From regulation by powerplant upstream.



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