Water-Data Report 2009

05345000 VERMILLION RIVER NEAR EMPIRE, MN

Upper Mississippi Basin
Rush-Vermillion Subbasin

LOCATION.--Lat 44°40′00″, long 93°03′17″ referenced to North American Datum of 1927, in SW ¼ NW ¼ sec.24, T.114 N., R.19 W., Dakota County, MN, Hydrologic Unit 07040001, on right bank and just downstream from County Road 79, 2 mi west of Empire and 4 mi northeast of Farmington.

DRAINAGE AREA.--129 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--May 1942 to June 1945 (no record during July, August, and September 1944), September 1969 to September 1973 (discharge measurements only), October 1973 to current year. Prior to October 1975 published as "near Empire City".

GAGE.--Water-stage recorder. Datum of gage is 851.99 ft above sea level (NGVD of 1929, levels by U.S. Army Corps of Engineers). April 12, 1942 to June 30, 1944, and October 1, 1944 to July 7, 1945, nonrecording gage at same site and present datum.

REMARKS.--Records good except those for estimated daily discharge, which are fair to poor. Some regulation at lower flows by wastewater treatment plant upstream. On Mar. 18, 2008, discharges from this wastewate treatment were diverted away from the Vermillion River and directly to the Mississippi River.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1965, reached a stage of 7.5 ft, from information by local resident. A previously published peak discharge of 6,200 ft^3/s has since been removed from database due to questions about it's accuracy.

REVISIONS.--Previously published peak discharge for 1965 water year of 6,200 ft^3/s has been deleted.

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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	17	18	19	e22	e17	e18	54	44	23	22	20	23
2	17	19	e18	e22	e18	e18	53	41	23	21	19	23
3	17	19	20	e22	e18	e18	50	38	23	21	18	24
4	18	19	e21	e22	e17	e20	47	36	22	21	17	22
5	18	19	e23	e22	e17	21	49	36	22	26	16	23
6	21	23	e23	e22	e17	26	54	35	26	22	16	24
7	23	26	e22	e21	e18	57	51	33	38	21	22	24
8	31	26	e21	e21	e20	63	48	32	39	20	53	23
9	25	24	e21	e21	e24	41	45	36	45	19	91	21
10	22	23	e21	e21	e40	e32	43	35	38	18	45	23
11	19	23	e21	e21	e74	e27	41	34	34	17	30	20
12	18	24	e21	e21	e54	e25	39	33	31	17	31	19
13	21	25	e22	e20	e38	e26	39	33	29	17	25	19
14	24	25	e22	e20	e32	30	38	32	28	16	24	19
15	23	24	e21	e20	e27	57	37	30	26	21	22	20
16	18	23	e21	e19	e25	80	35	30	27	18	54	19
17	18	21	e21	e18	24	90	35	29	32	19	57	18
18	18	21	e21	e18	23	79	35	28	31	19	36	18
19	17	21	e21	e18	e22	69	36	27	30	19	33	19
20	18	20	e21	e18	e21	62	36	26	28	18	50	19
21	18	e19	e21	e18	e21	62	35	24	27	25	56	19
22	19	e20	e21	e18	e22	58	35	24	32	24	50	19
23	19	20	e21	e18	e21	62	34	25	28	21	39	18
24	19	20	e21	e18	e22	80	33	24	26	20	33	15
25	18	20	e21	e17	22	95	32	23	25	20	37	15
26	18	e20	e21	e17	e23	84	37	23	23	19	41	16
27	19	20	e22	e17	e20	70	51	24	25	19	33	15
28	18	19	e23	e17	e19	63	47	25	24	18	29	14
29	18	19	e23	e17	---	57	44	25	22	18	27	13
30	18	19	e22	e17	---	52	45	26	22	19	25	13
31	18	---	e22	e17	---	51	---	25	---	18	24	---
Total	605	639	659	600	716	1,593	1,258	936	849	613	1,073	577
Mean	19.5	21.3	21.3	19.4	25.6	51.4	41.9	30.2	28.3	19.8	34.6	19.2
Max	31	26	23	22	74	95	54	44	45	26	91	24
Min	17	18	18	17	17	18	32	23	22	16	16	13
Ac-ft	1,200	1,270	1,310	1,190	1,420	3,160	2,500	1,860	1,680	1,220	2,130	1,140
Cfsm	0.15	0.17	0.16	0.15	0.20	0.40	0.33	0.23	0.22	0.15	0.27	0.15
In.	0.17	0.18	0.19	0.17	0.21	0.46	0.36	0.27	0.24	0.18	0.31	0.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2009, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	61.6	51.8	41.4	33.9	38.5	94.6	113	94.3	93.4	70.4	59.5	68.4
Max	263	133	79.5	58.6	89.8	199	337	223	290	258	234	313
(WY)	(2003)	(1993)	(1993)	(1998)	(1998)	(1983)	(2001)	(1986)	(1993)	(1997)	(1997)	(1992)
Min	14.9	15.6	12.4	11.0	13.1	25.4	35.2	29.3	23.0	16.0	14.3	14.6
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1975)	(1977)	(1977)	(1988)	(1988)	(1976)	(1976)

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SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1942 - 2009	
Annual total	18,816		10,118			
Annual mean	51.4		27.7		68.6	
Highest annual mean					147	1998
Lowest annual mean					23.6	1977
Highest daily mean	277	Apr 12	95	Mar 25	3,000	Sep 16, 1992
Lowest daily mean	15	Aug 21	[a]13	Sep 29	8.4	Jan 15, 1975
Annual seven-day minimum	16	Aug 19	14	Sep 24	9.0	Jan 13, 1975
Maximum peak flow			[b]104	Aug 9	6,570	Sep 16, 1992
Maximum peak stage			[c]4.48	Feb 11	10.00	Sep 16, 1992
Instantaneous low flow			[d]13	Sep 25	[e]6.8	Aug 15, 1992
Annual runoff (ac-ft)	37,320		20,070		49,670	
Annual runoff (cfsm)	0.399		0.215		0.532	
Annual runoff (inches)	5.43		2.92		7.22	
10 percent exceeds	121		47		128	
50 percent exceeds	35		22		47	
90 percent exceeds	18		18		22	

[a] Also occurred Sept 30.

[b] Stage 3.77 ft.

[c] Backwater from ice.

[d] Also occurred Sept 28.

[e] Result of regulation.