

## RED RIVER OF THE NORTH BASIN

## 05030500 OTTER TAIL RIVER NEAR ELIZABETH, MN

LOCATION.--Lat 46°22'10", long 96°01'02", in SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec. 31, T.134 N., R.42 W., Otter Tail County, Hydrologic Unit 09020103, on right bank at County Highway 10, 2.5 miles below Taplin Gorge Dam, 5.0 miles above the Diversion Dam, 5.7 miles east of Elizabeth and 6.6 miles northeast of Fergus Falls.

DRAINAGE AREA.--1,230 mi<sup>2</sup> (approximately).

PERIOD OF RECORD.--May 1904 to September 1917, monthly discharge only, published as "at German Church near Fergus Falls" in WSP 1308. July 1992 to current year.

REVISED RECORD.--WDR MN-03-1: Minimum discharge, 2000 and 2001 water years.

GAGE.--Water-stage recorder. Elevation of gage is 1,250 ft above sea level (from topographic map). Nonrecording gage at same site November 1913 to September 1917 at elevation 1,265 ft (from topographic map).

REMARKS.--Records good except those for estimated daily discharge, which are poor. Flow regulated by power plant upstream.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	357	504	517	e390	e350	e340	e365	660	675	816	462	377
2	353	486	512	e380	e360	e340	e370	653	673	815	439	376
3	357	473	510	e370	e370	e330	e370	647	672	803	434	384
4	302	473	507	e370	e370	e330	e370	644	671	785	445	394
5	314	473	506	e360	e370	e340	376	638	675	767	425	438
6	430	474	503	e360	e370	e350	378	623	687	755	421	489
7	397	473	477	e360	e360	e360	382	624	715	742	408	473
8	403	473	433	e360	e350	e350	388	625	728	717	368	464
9	447	475	416	e360	e350	e340	399	620	719	711	390	430
10	430	476	414	e360	e350	e340	406	635	730	703	406	415
11	368	477	413	e360	e350	e335	446	633	736	671	395	422
12	384	485	e400	e350	e350	e335	509	636	737	650	420	487
13	411	486	e330	e340	e360	e330	562	637	751	648	409	489
14	434	485	e270	e330	e370	e330	579	647	777	637	401	460
15	437	486	e260	e330	e370	e330	575	648	771	636	394	455
16	428	487	e270	e330	e370	e340	575	650	775	630	386	449
17	425	487	e380	e330	e370	e340	584	651	793	619	379	447
18	426	487	e460	e330	e360	e340	601	653	785	584	366	442
19	425	489	e440	e340	e360	e340	619	652	775	564	389	438
20	397	490	e420	e340	e350	e340	688	650	744	562	382	436
21	384	493	e430	e340	e340	e345	675	649	847	555	374	411
22	391	480	e400	e340	e340	e350	654	635	872	541	350	399
23	472	505	e390	e340	e350	e360	651	631	726	532	330	406
24	482	506	e380	e340	e350	e370	658	628	755	521	325	411
25	471	506	e380	e350	e340	e365	672	644	769	517	309	411
26	471	524	e390	e360	e340	e360	670	659	682	496	358	410
27	468	526	e390	e350	e350	e360	664	666	916	470	382	408
28	467	522	e390	e350	e350	e360	665	702	816	478	384	400
29	470	521	e390	e350	---	e360	665	689	768	485	434	396
30	469	519	e390	e350	---	e365	663	673	823	481	395	392
31	470	---	e400	e350	---	e365	---	674	---	471	371	---
TOTAL	12,940	14,741	12,768	10,870	9,970	10,740	16,179	20,076	22,563	19,362	12,131	12,809
MEAN	417	491	412	351	356	346	539	648	752	625	391	427
MAX	482	526	517	390	370	370	688	702	916	816	462	489
MIN	302	473	260	330	340	330	365	620	671	470	309	376
AC-FT	25,670	29,240	25,330	21,560	19,780	21,300	32,090	39,820	44,750	38,400	24,060	25,410
CFSM	0.34	0.40	0.33	0.29	0.29	0.28	0.44	0.53	0.61	0.51	0.32	0.35
IN.	0.39	0.45	0.39	0.33	0.30	0.32	0.49	0.61	0.68	0.59	0.37	0.39
MEAN	293	318	321	306	318	358	508	666	633	564	409	333
MAX	740	571	529	479	523	477	725	1,056	1,003	770	759	817
(WY)	(1994)	(1994)	(1999)	(1999)	(1999)	(1999)	(1999)	(2001)	(2001)	(1998)	(1993)	(1993)
MIN	66.6	63.4	69.2	61.9	81.3	159	251	286	429	341	218	97.8
(WY)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2002)	(2004)	(1996)	(2003)

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SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1992 - 2005	
ANNUAL TOTAL	105,669		175,149		421	
ANNUAL MEAN	289		480		593	
HIGHEST ANNUAL MEAN					1999	
LOWEST ANNUAL MEAN					2004	
HIGHEST DAILY MEAN	526	Nov 27	a916	Jun 27	a1,110	May 23, 2001
LOWEST DAILY MEAN	48	Jan 30	b260	Dec 15	48	Jan 30, 2004
ANNUAL SEVEN-DAY MINIMUM	50	Jan 29	332	Dec 11	50	Jan 29, 2004
MAXIMUM PEAK FLOW			a976	Jun 27	a1,170	May 23, 2001
MAXIMUM PEAK STAGE			a8.63	Jun 27	a9.37	May 23, 2001
INSTANTANEOUS LOW FLOW			c158	Aug 25	c8.8	Mar 25, 2004
ANNUAL RUNOFF (AC-FT)	209,600		347,400		305,300	
ANNUAL RUNOFF (CFSM)	0.235		0.390		0.343	
ANNUAL RUNOFF (INCHES)	3.20		5.30		4.65	
10 PERCENT EXCEEDS	478		687		717	
50 PERCENT EXCEEDS	286		430		387	
90 PERCENT EXCEEDS	67		340		182	

- a Due in part to regulation.
- b Estimated daily discharge, backwater from ice.
- c Result of regulation.
- e Estimated.

