

# Missouri River Region - Water Management Information

## U. S. Army Corps of Engineers - Civil Works

### Discharge Measurements for January 2003

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
19,500	-1,100	RUNE	1-02-03	1120	4.56	20,600	37	Air Temp 34	<6
20,700	-1,000	STJ	1-08-03	0915	3.97	21,700	38	Air Temp 59	<5
25,300	-400	HEMO	1-09-03	1115	1.56	25,700	41	Air Temp 45	<2
18,500	-600	RUNE	1-13-03	1130	4.32	19,100	35	Air Temp 26	3
20,400	-900	MKC	1-13-03	0900	5.20	21,300	35	Air Temp 34	4
18,100	-2,900	WVMO	1-30-03	1230	5.93	21,000	34	Air Temp 45	16
14,800	+200	SUX	1-31-03	1115	9.56	14,600	32	Air Temp 34	1
14,000	-1,000	DENE	1-31-03	1445	16.90	15,000	35	Air Temp 35	7
15,300	-1,600	OMA	1-31-03	1020	10.58	16,900	34	Air Temp 37	10
19,700	-600	NCNE	1-31-03	1245	5.08	20,300	35	Air Temp 42	3
19,600	-1,200	RUNE	1-31-03	1030	4.59	20,800	36	Air Temp 39	6

## Discharge Measurements for February 2003

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
14,300	-600	SUX	2-3-03	1115	9.41	14,900	32	Air Temp 28	4
14,400	-800	DENE	2-3-03	1415	16.56	15,200	33	Air Temp 28	<6
14,800	-900	OMA	2-4-03	1315	10.37	15,700	24	Air Temp 37	6
19,700	-400	NCNE	2-4-03	1015	5.09	20,100	34	Air Temp 25	2
19,600	-1,000	RUNE	2-5-03	1100	4.61	20,600	37	Air Temp 28.4	5
22,900	-500	MKC	2-11-03	1000	5.91	23,400	36	Air Temp 41	2
23,500	+1,800	HEMO	2-12-03	0905	1.16	25,300	39	Air Temp 28	<8
20,200	-900	STJ	2-13-03	1100	3.83	20,100	35	Air Temp 46	4
22,900	-3,300	WVMO	2-18-02	1030	6.35	19,600	36	Air Temp 46	17
21,400	-700	NCNE	2-20-03	1430	5.53	22,100	37	Air Temp 54	3
21,200	-1,400	RUNE	2-20-03	1115	5.02	22,600	37	Air Temp 54	7
10,600	0	DENE	2-26-03	1230	14.89	10,600		Air Temp	0
34,700	+200	MKC	2-26-03	1230	8.82	34,500	34	Air Temp 34	<1
11,700	-1,200	OMA	2-27-03	1015	9.03	12,900	33	Air Temp 40	10
15,700	-400	NCNE	2-28-03	1020	3.95	16,100	34	Air Temp 31	<3

## Discharge Measurements for March 2003

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
13,600	+200	SUX	3-3-03	1230	9.22	13,400	33	Air Temp 39	<2
18,900	-300	MKC	3-3-03	1430	4.79	19,200		Air Temp	<2
21,100	-500	RUNE	3-7-03	1115	5.00	21,600	33	Air Temp 41	2
22,200	+400	BNMO	3-7-03	1145	3.00	21,800	37	Air Temp 50	2
10,400	-300	DENE	3-10-03	1310	14.80	10,700	35	Air Temp 23	3
13,900	-700	OMA	3-10-03	1630	10.00	14,600	35	Air Temp	5
19,500	-200	NCNE	3-11-03	1345	5.02	19,700	36	Air Temp 54	1
21,100	-400	RUNE	3-11-03	1100	5.00	21,500	43	Air Temp	2
20,100	-600	MKC	3-11-03	1015	5.13	21,700	38	Air Temp 51	3
21,300	-1,400	STJ	3-12-03	1000	4.14	22,700	39	Air Temp 63	6
34,500	-1,200	HEMO	3-13-03	1115	3.58	35,700	46	Air Temp 40	4
15,600	+800	SUX	3-14-03	1205	9.78	14,800	33	Air Temp 50	5
18,000	-600	OMA	3-18-03	1245	11.72	18,600	49	Air Temp 64	3
23,800	-300	NCNE	3-18-03	1000	6.10	23,500	46	Air Temp 56	1
25,600	-2,100	WVMO	3-18-03	1100	7.86	27,700	52	Air Temp 66	8
27,300	+3,300	SUX	3-19-03	1145	13.07	24,000	41	Air Temp 47	12
29,400	+400	MKC	3-20-03	1130	7.57	29,000	49	Air Temp 46	1
29,700	0	RUNE	3-21-03	1035	7.17	29,700	48	Air Temp 49	0
25,200	+1,100	SUX	3-24-03	1135	13.06	24,100	47	Air Temp 46	4
25,100	+1,100	DENE	3-24-03	1545	19.86	24,000	46	Air Temp 54	4
26,400	+1,300	OMA	3-25-03	1335	14.06	25,100	47	Air Temp 61	5
32,000	+1,900	NCNE	3-25-03	1040	7.91	30,100	50	Air Temp 48	6
34,500	-400	WVMO	3-25-03	1045	9.52	34,900	54	Air Temp 59	1
34,700	+600	MKC	3-26-03	1315	8.53	34,100	55	Air Temp 74	2
37,500	+100	BNMO	3-27-03	0930	6.31	37,400	55	Air Temp 73	<1
31,300	+1,100	RUNE	3-28-03	1105	7.19	30,200	49	Air Temp 41	4

52,700	-800	HEMO	3-28-03	1000	6.6	53,500	54	Air Temp 60	<2
25,100	+100	SUX	3-31-03	1120	13.38	25,000	45	Air Temp 49	<1
25,000	-700	DENE	3-31-03	1335	20.17	25,700	45	Air Temp 67	2

## Discharge Measurements for April 2003

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
27,900	+2,400	OMA	4-1-03	1630	14.52	25,500	46	Air Temp 55	9
32,500	+400	NCNE	4-1-03	1315	8.04	32,100	49	Air Temp 77	1
35,700	+1,400	MKC	4-2-03	0945	8.76	34,300	54	Air Temp 79	4
36,000	+3,000	BNMO	4-2-03	1330	5.84	33,000	56	Air Temp 80	8
32,600	+400	STJ	4-3-03	0900	7.17	32,200	55	Air Temp 70	1
28,100	+2,400	OMA	4-4-03	1545	14.59	25,700	55	Air Temp 40	<9
32,700	+2,300	RUNE	4-4-03	1115	7.55	30,400	56	Air Temp 42	7
37,000	-1,200	HEMO	4-4-03	0920	4.11	38,200	61		3
26,400	+500	SUX	4-8-03	1005	13.72	25,900	39	Air Temp 36	2
26,000	-600	DENE	4-8-03	1350	20.50	26,600	39	Air Temp 39	2
27,300	+100	OMA	4-8-03	1005	14.68	27,200	44	Air Temp 46	<1
32,500	-100	NCNE	4-9-03	1320	8.16	32,600	44	Air Temp 49	<1
34,500	-500	STJ	4-9-03	0915	7.61	35,000	46	Air Temp 43	<2
35,000	+1,200	BNMO	4-9-03	1345	5.61	33,800		Air Temp 59	3
36,800	+1,400	WVMO	4-10-03	1100	9.56	35,400	49	Air Temp 54	<4
32,500	-900	RUNE	4-11-03	1050	7.81	33,400	46	Air Temp 61	<3
29,000	+300	OMA	4-15-03	1235	15.19	28,700	57	Air Temp 70	1
34,200	+1,000	NCNE	4-15-03	0945	8.71	33,200	60	Air Temp 66	<3
35,400	+200	MKC	4-16-03	0900	9.08	35,200	60	Air Temp 67	<1
36,600	+500	BNMO	4-17-03	1000	5.71	36,100	56	Air Temp 49	1
33,500	+400	RUNE	4-18-03	1100	8.0	33,100	58	Air Temp 49	1
39,100	-1,500	HEMO	4-18-03	1045	4.52	40,600	56	Air Temp 54	4
28,600	+100	SUX	4-21-03	1105	14.39	28,500	49	Air Temp 54	<1
28,300	+100	DENE	4-21-03	1335	21.04	28,200	52	Air Temp 59	<1
35,300	-1,800	STJ	4-22-03	1000	7.93	37,100	58	Air Temp 70	<5
29,800	+1,300	OMA	4-22-03	1045	15.44	28,500	55	Air Temp 64	4

34,300	-100	NCNE	4-22-03	1150	8.75	34,400	54	Air Temp 53	<1
45,800	+3,600	WVMO	4-23-03	1045	11.1	42,200	60	Air Temp 67	<8
42,200	+500	MKC	4-24-03	0815	10.7	41,700	58	Air Temp 56	1
35,400	+500	RUNE	4-25-03	1235	8.48	34,900	55	Air Temp 55	1
26,200	-100	SUX	4-28-03	1200	13.75	26,300	58	Air Temp 64	<1
27,000	+400	DENE	4-28-03	1430	20.65	26,600	59	Air Temp 66	<2
55,400	+1,900	BNMO	4-28-03	1245	9.06	53,500		Air Temp 68	3
64,800	+4,400	HEMO	4-28-03	1300	8.22	60,400	68	Air Temp	<7
29,200	+1,800	OMA	4-29-03	1415	15.26	27,400	63	Air Temp 63	6
34,600	+1,900	NCNE	4-29-03	1145	8.83	32,700	64	Air Temp 55	<6
41,300	-700	MKC	4-29-03	0815	10.55	42,000	64	Air Temp 67	<2
35,800	-400	STJ	4-30-03	0900	8.05	36,200	62	Air Temp 63	1

## Discharge Measurements for May 2003

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
40,400	+4,100	OMA	5-5-03	1415	17.96	36,300	16.0	Air Temp 71	11
58,700	-6,900	NCNE	5-6-03	1115	13.90	65,600	61	Air Temp 67	12
53,400	+3,800	WVMO	5-6-03	1045	12.46	49,600	66	Air Temp 81	7
29,100	+1,000	SUX	5-7-03	1520	14.52	28,100	57	Air Temp 76	3
29,400	0	DENE	5-7-03	1200	21.46	29,400	57	Air Temp 66	0
63,700	+500	BNMO	5-7-03	0930	10.28	63,200	64	Air Temp 69	<1
70,300	-5,900	MKC	5-8-03	0815	16.11	76,200	62	Air Temp 64	8
29,800	+1,000	SUX	5-12-03	1150	14.73	28,800	55	Air Temp 65	3
30,600	-200	DENE	5-12-03	1420	21.80	30,800	55	Air Temp 70	<1
36,100	+2,200	OMA	5-12-03	1245	17.03	33,900	59	Air Temp 65	6
44,200	-600	NCNE	5-12-03	1005	11.20	44,800	59	Air Temp 65	1
61,500	+2,600	RUNE	5-12-03	1205	13.71	58,900	61	Air Temp 67	4
51,800	-3,000	STJ	5-12-03	1230	11.58	54,800	61	Air Temp 73	<6
46,400	-900	RUNE	5-16-03	1220	11.12	47,300	66	Air Temp 66	<2
30,600	+100	SUX	5-19-03	1145	14.92	30,500	65	Air Temp 61	<1
42,400	+1,200	NCNE	5-19-03	1050	10.76	41,200	66	Air Temp 66	<3
30,900	+600	DENE	5-20-03	1420	21.86	30,300	60	Air Temp 63	<2
36,700	+1,700	OMA	5-20-03	1045	17.16	35,000	64	Air Temp 59	<5
54,600	+4,400	WVMO	5-20-03	1030	12.63	50,200	66	Air Temp 66	<9
52,100	-2,100	MKC	5-21-03	0915	12.72	54,200	66	Air Temp 66	4
56,300	+2,500	BNMO	5-22-03	0900	9.2	53,800	68	Air Temp 66	4
42,800	-200	RUNE	5-23-03	1115	10.30	43,000	68	Air Temp 84	<1
68,200	+3,200	HEMO	5-23-03	1145	8.66	65,000	68	Air Temp	<5
33,400	-500	OMA	5-27-03	1400	16.61	32,900	68	Air Temp 84	<2
39,100	+800	NCNE	5-27-03	1010	10.08	38,300	69	Air Temp 80	2
49,400	+3,500	WVMO	5-27-03	1015	11.86	45,900	70	Air Temp 82	7

40,900	-200	STJ	5-28-03	0900	9.34	41,100	68	Air Temp 77	<1
29,400	+1,200	SUX	5-28-03	1100	14.61	28,200	67	Air Temp 85	4
29,300	+200	DENE	5-28-03	1430	21.6	29,100	68	Air Temp 90	<1
45,100	+100	MKC	5-29-03	1030	11.33	45,000	72	Air Temp 73	<1
40,400	+1,900	RUNE	5-30-03	1300	9.69	38,500	73	Air Temp 88	<5



## Discharge Measurements for June 2003

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
28,100	-100	SUX	6-2-03	1230	14.37	28,200	64	Air Temp 64	<1
28,600	+500	DENE	6-2-03	1445	21.38	28,100	61	Air Temp 54	<2
37,200	+1,800	NCNE	6-2-03	1045	9.60	35,400	72	Air Temp 55	<5
42,900	+900	MKC	6-3-03	1100	11.06	43,800	66	Air Temp 64	2
38,500	-1,300	STJ	6-4-03	0915	8.73	39,800	67	Air Temp 64	3
49,700	+400	HEMO	6-4-03	1210	6.44	49,300	69	Air Temp 75	<1
38,400	+900	RUNE	6-5-03	1130	9.22	37,500	69	Air Temp 86	2
50,400	+1,300	BNMO	6-5-03	0930	8.53	49,100	71	Air Temp 70	<3
31,300	+200	OMA	6-6-03	0905	16.06	31,100	67	Air Temp 67	<1
43,000	+1,400	WVMO	6-6-03	1115	11.23	41,600			3
27,700	+600	SUX	6-9-03	1130	14.28	27,100	66	Air Temp 76	2
28,900	-400	DENE	6-9-03	1415	21.46	29,300	67	Air Temp 86	1
31,500	+200	OMA	6-9-03	1315	16.21	31,300	69	Air Temp 82	<1
37,500	+1,300	NCNE	6-9-03	1030	9.68	36,200	70	Air Temp 75	<4
43,000	+1,600	RUNE	6-11-03	1110	10.35	41,400	73	Air Temp 77	<4
50,400	-100	MKC	6-11-03	1015	12.38	50,500	72	Air Temp 79	<1
32,500	+1,300	OMA	6-16-03	1010	16.39	31,200	77	Air Temp 82	4
38,900	+1,700	NCNE	6-16-03	1230	10.04	37,200	78	Air Temp 92	4
75,900	-900	BNMO	6-16-03	1215	12.15	76,800	73	Air Temp 82	1
28,300	+300	SUX	6-16-03	1205	14.45	28,000	74	Air Temp 84	1
29,200	+900	DENE	6-16-03	1425	21.56	28,300	75	Air Temp 92	3
42,000	-1,700	STJ	6-17-03	0930	9.61	43,700	78	Air Temp 88	4
92,500	+4,400	HEMO	6-17-03	1135	11.66	88,100	76	Air Temp 93	5
43,100	+1,700	MKC	6-19-03	0945	10.93	41,400	78	Air Temp 78	<4
44,800	+1,400	WVMO	6-19-03	1245	11.52	43,400	79	Air Temp 81	3
40,600	+2,200	RUNE	6-20-03	1015	9.74	38,400	79	Air Temp 72	5

32,000	31,100	SUX	6-24-03	1135	15.4	31,100	76	Air Temp 84	3
29,900	-200	DENE	6-24-03	1420	21.89	30,100	78	Air Temp 86	<1
36,200	+1,500	SUX	6-25-03	1515	16.43	34,700	75	Air Temp 65	4
54,500	-2,500	MKC	6-25-03	1100	13.18	57,000	81	Air Temp 91	<5
60,200	7.85	HEMO	6-25-03	1100	7.85	59,800	79	Air Temp 85	<1
43,900	+3,500	OMA	6-26-03	0945	18.99	40,400	74	Air Temp 69	8
42,100	-1,600	STJ	6-26-03	0900	9.63	43,700	76	Air Temp 80	<4
47,100	-1,900	NCNE	6-27-03	1330	12.04	49,000	77	Air Temp 91	4
47,200	-500	RUNE	6-27-03	1045	11.27	47,700	78	Air Temp 75	1
41,900	+3,200	OMA	6-30-03	1015	18.58	38,700	77	Air Temp 82	8
45,100	-1,500	NCNE	6-30-03	1300	11.61	46,600	79	Air Temp 90	3

## Discharge Measurements for July 2003

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
31,100	-400	SUX	7-1-03	1120	15.43	31,500	77	Air Temp 86	1
32,200	-500	DENE	7-1-03	1400	22.49	32,700	79	Air Temp 91	<2
55,600	+1500	WVMO	7-2-03	1415	23.22	54,100	82	Air Temp 91	<1
61,200	-600	BNMO	7-2-03	1130	10.18	61,800	80	Air Temp 94	1
44,800	+2,000	STJ	7-3-03	1045	10.67	42,800	82	Air Temp 90	<5
50,200	+600	MKC	7-3-03	0945	12.34	49,600	81	Air Temp 85	1
29,500	+200	SUX	7-7-03	1215	15.01	29,300	81	Air Temp 83	<1
30,600	-200	DENE	7-7-03	1515	22.09	30,800	82	Air Temp 86	<1
39,500	+1000	OMA	7-8-03	1415	18.50	38,500	82	Air Temp 88	<3
52,300	+1,100	NCNE	7-8-03	1120	12.81	51,200	82	Air Temp 83	2
53,100	-700	HEMO	7-8-03	1033	6.90	53,800	85	Air Temp 88	>1
52,300	-1,500	MKC	7-9-03	0845	12.77	53,800	85	Air Temp 96	3
48,000	-1,800	STJ	7-10-03	1000	10.88	49,800	86	Air Temp 86	<4
29,500	+1,300	SUX	7-14-03	1200	15.00	28,200	79	Air Temp 81	4
31,600	+1,000	DENE	7-14-03	1420	22.35	30,600	81	Air Temp 90	3
37,500	+100	OMA	7-15-03	1345	18.06	37,400	82	Air Temp 93	<1
43,700	+1,900	NCNE	7-15-03	1105	11.07	41,800	82	Air Temp 88	4
61,100	+1,000	BNMO	7-15-03	1200	10.17	60,100		Air Temp 95	3
44,000	-200	STJ	7-16-03	1130	10.08	44,200	81	Air Temp 88	<1
42,000	+2,100	RUNE	7-17-03	1105	10.10	39,900	84	Air Temp 91	5
47,200	+400	MKC	7-17-03	1345	11.75	46,800	84	Air Temp 100	<1
49,400	+1,300	WVMO	7-17-03	1100	12.19	48,100	84	Air Temp 84	<3
31,200	-100	OMA	7-21-03	1015	16.29	31,300	84	Air Temp 84	<1
34,600	+1,500	NCNE	7-21-03	1230	9.29	33,100	85	Air Temp 88	4
25,900	+200	SUX	7-22-03	1100	14.05	25,700	79	Air Temp 79	<1
27,100	0	DENE	7-22-03	1330	21.11	27,100	82	Air Temp 80	0

36,500	-100	STJ	7-22-03	0930	8.24	36,600	82	Air Temp 78	<1
36,300	+2,900	RUNE	7-24-03	1100	8.68	33,400	84	Air Temp 86	8
41,600	+200	BNMO	7-24-03	1100	7.00	41,400	83	Air Temp	<1
29,200	-1,000	OMA	7-28-03	1315	15.72	30,200	83	Air Temp 86	3
32,400	+1,400	NCNE	7-28-03	1035	8.74	31,000	82	Air Temp 88	4
24,700	-1,000	SUX	7-29-03	1040	13.74	25,700	81	Air Temp 83	4
26,500	0	DENE	7-29-03	1255	20.91	26,500	81	Air Temp 88	0
38,600	-800	HEMO	7-30-03	1115	4.67	39,400	80	Air Temp 83	2

### Discharge Measurements for August 2003

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
35,000	-1,400	MKC	8-1-03	1100	9.09	36,400	82	Air Temp 77	4
33,900	+2,300	RUNE	8-1-03	1100	8.09	31,600	82	Air Temp 75	7
35,300	+100	WVMO	8-4-03	1230	9.80	35,200	82	Air Temp 91	<1
27,100	-200	SUX	8-5-03	1150	14.11	27,300	79	Air Temp 82	<1
27,100	-300	DENE	8-5-03	1640	21.10	27,400	82	Air Temp 93	1
32,500	-1,600	STJ	8-5-03	0930	7.23	34,100	83	Air Temp 90	5
28,300	-500	OMA	8-6-03	1200	15.44	28,800	84	Air Temp 83	2
31,200	+1,500	NCNE	8-6-03	0915	8.42	29,700	82	Air Temp 74	<5
37,000	-400	BNMO	8-6-03	0945	6.05	37,400	84	Air Temp 93	1
36,900	-1,800	HEMO	8-6-03	1145	4.33	38,700	78	Air Temp 84	<5
35,400	-1,800	MKC	8-7-03	0800	8.90	37,200	82	Air Temp 81	5
31,800	+600	RUNE	8-8-03	1205	8.00	31,200	85	Air Temp 90	<2
27,800	-600	OMA	8-11-03	1315	15.30	28,400	82	Air Temp 83	2
33,100	+2,800	NCNE	8-11-03	1045	8.37	30,300	80	Air Temp 84	<9
34,000	-400	WVMO	8-11-03	1130	9.56	34,400		Air Temp 82	1
31,100	+700	RUNE	8-13-03	1115	7.83	30,400	84	Air Temp 79	2
34,900	+1,700	MKC	8-13-03	1100	8.77	33,200	83	Air Temp 78	<5
36,200	+1,300	BNMO	8-13-03	1130	5.88	34,900	82	Air Temp 82	<4
32,300	0	STJ	8-14-03	0930	6.95	32,300	M	Air Temp 82	0
36,700	+900	HEMO	8-14-03	1315	4.01	35,800	82	Air Temp 85	<3
20,400	-600	SUX	8-15-03	1225	12.27	21,000	80	Air Temp 91	<3
22,200	+500	DENE	8-15-03	1630	19.46	21,700	81	Air Temp 91	2
29,100	-1,700	WVMO	8-19-03	0945	8.58	30,800	88	Air Temp 102	<6
25,600	-600	OMA	8-19-03	1415	14.60	26,200	84	Air Temp 98	2
27,200	+1,100	NCNE	8-19-03	1130	7.42	26,100	85	Air Temp 93	4
24,800	-400	SUX	8-20-03	1115	13.49	25,200	80	Air Temp 84	<2
25,500	+200	DENE	8-20-03	1400	20.59	25,300	81	Air Temp 91	<1

27,900	+700	STJ	8-20-03	0930	5.82	27,200	84	Air Temp 93	<3
28,500	-100	MKC	8-21-03	0845	7.27	28,600	86	Air Temp 92	<1
29,200	0	RUNE	8-22-03	1045	7.36	29,200	85	Air Temp 83	0
24,400	-200	SUX	8-25-03	1125	13.39	24,600	82	Air Temp 92	<1
25,500	+200	DENE	8-25-03	1410	20.57	25,300	82	Air Temp 96	<1
25,000	-700	OMA	8-26-03	1335	14.46	25,700	83	Air Temp 99	<3
27,500	+800	NCNE	8-26-03	1055	7.48	26,700	83	Air Temp 91	<2
29,800	+100	WVMO	8-26-03	0945	8.55	29,700	84	Air Temp 95	<1
29,800	0	MKC	8-27-03	0830	7.60	29,800	85	Air Temp 85	0
39,500	-500	HEMO	8-28-03	1140	4.58	40,000	85	Air Temp 105	1
27,700	0	RUNE	8-29-03	1240	6.99	27,700	85	Air Temp 91	0

### Discharge Measurements for September 2003

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
24,700	-600	OMA	9-02-03	1315	14.29	25,300	77	Air Temp 85	>2
26,100	-100	NCNE	9-02-03	1030	7.24	26,200	77	Air Temp 79	<1
28,600	+300	STJ	9-02-03	1230	6.01	28,300	77	Air Temp 72	1
32,400	-2,500	MKC	9-02-03	1200	8.22	34,900	76	Air Temp 76	>7
28,500	+600	SUX	9-03-03	1145	14.47	27,900	76	Air Temp 79	<2
27,500	-400	DENE	9-03-03	1345	21.21	27,900	76	Air Temp 82	>1
64,300	-1,400	BNMO	9-03-03	1300	10.91	65,700		Air Temp 84	2
28,200	-400	RUNE	9-05-03	1100	7.13	28,600	77	Air Temp 77	>1
31,600	-500	WVMO	9-05-03	1115	8.92	32,100	79	Air Temp 79	>1
70,300	+4,800	HEMO	9-05-03	1105	8.90	65,500	73	Air Temp 80	<7
30,200	-1,300	OMA	9-08-03	1315	16.00	31,500	76	Air Temp 83	<3
31,200	-500	NCNE	9-08-03	1030	8.53	31,700	77	Air Temp 75	<2
34,500	+1,200	MKC	9-09-03	1030	8.53	33,300		Air Temp 74	<4
35,300	+1,800	SUX	9-10-03	1200	16.20	33,500	70	Air Temp 69	5
33,900	600	DENE	9-10-03	1435	22.89	33,300	73	Air Temp 74	<2
33,800	-1,600	STJ	9-10-03	1000	7.20	32,200	75	Air Temp 76	<5
33,100	+400	RUNE	9-11-03	1050	8.18	32,700	77	Air Temp 78	>1
34,200	+300	BNMO	9-11-03	0945	5.53	33,900	79	Air Temp 85	<1
34,200	+300	HEMO	9-11-03	0945	5.53	33,900	79	Air Temp 85	<1
31,600	+400	OMA	9-15-03	1320	16.26	31,200	71	Air Temp	<2
36,500	-1,200	NCNE	9-15-03	1030	9.72	37,700	71	Air Temp 73	3
29,500	+800	SUX	9-15-03	1110	14.75	28,700	69	Air Temp 75	<3
29,900	+100	DENE	9-15-03	1345	21.90	29,800	69	Air Temp 82	<1
44,000	-500	MKC	9-16-03	0830	10.65	44,500	71	Air Temp	1
51,500	+700	BNMO	9-16-03	1330	8.79	52,200	74	Air Temp 77	>1
35,000	0	RUNE	9-17-03	1050	8.64	35,000	73	Air Temp 78	0
37,800	+600	STJ	9-17-03	0830	8.19	37,200	70	Air Temp 72	>1

59,100	+2,100	HEMO	9-17-03	1115	7.44	57,000	73	Air Temp 75	<4
41,100	+3,500	WVMO	9-18-03	1400	10.42	37,600	73	Air Temp 77	>8
28,200	-1,400	SUX	9-23-03	1415	14.40	29,600	68	Air Temp 63	<5
28,800	-500	DENE	9-23-03	1120	21.58	29,300	66	Air Temp 60	<2
29,000	-1,000	OMA	9-23-03	1325	15.51	30,000	67	Air Temp 84	<4
31,600	-300	NCNE	9-23-03	1045	8.39	31,300	66	Air Temp 68	1
39,600	+2,200	WVMO	9-23-03	1400	10.18	37,400	70	Air Temp 77	<5
52,500	+500	HEMO	9-25-03	1020	6.55	52,000	69	Air Temp 62	1
27,100	0	SUX	9-29-03	1140	14.10	27,100	59	Air Temp 61	0
27,700	-400	DENE	9-29-03	1515	21.26	28,100	61	Air Temp 66	1
27,600	-1,000	OMA	9-29-03	1320	15.09	28,600	62	Air Temp 60	4
30,900	+800	NCNE	9-29-03	1045	8.07	30,100	62	Air Temp 55	<3
34,800	+1,700	MKC	9-29-03	1115	8.53	33,100	64	Air Temp 62	<5
39,300	-300	HEMO	9-30-03	1110	4.54	39,600	64	Air Temp 57	1



## Discharge Measurements for October 2003

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
36,300	+2,100	BNMO	10-02-03	1200	5.68	34,200	62	Air Temp 62	6
27,500	-600	SUX	10-06-03	1020	14.20	28,100	61	Air Temp 59	>2
28,000	-800	DENE	10-06-03	1255	21.37	28,800	63	Air Temp 77	<3
28,200	-500	OMA	10-06-03	1330	15.27	28,700	64	Air Temp 80	<2
30,800	+1,200	NCNE	10-06-03	1030	8.04	29,600	63	Air Temp 70	<4
27,100	0	SUX	10-6-03	1140	14.10	27,100	59	Air Temp 61	0
27,700	-400	DENE	10-6-03	1515	21.26	28,100	61	Air Temp 66	1
27,600	-1,000	OMA	10-06-03	1320	15.09	28,600	62	Air Temp 60	4
30,900	+800	NCNE	10-06-03	1045	8.07	30,100	62	Air Temp 55	<3
32,000	+500	STJ	10-07-03	0915	6.82	31,500			<2
34,900	+2,300	MKC	10-08-03	1100	8.55	32,600	65	Air Temp 73	6
34,500	+1,100	WVMO	10-08-03	1430	9.14	33,400	67	Air Temp 77	3
30,800	+100	RUNE	10-9-03	1210	7.63	30,700	67	Air Temp 77	<1
36,200	+1,600	BNMO	10-09-03	1030	5.64	34,600			4
40,700	-200	HEMO	10-09-03	1000	4.5	40,900	66	Air Temp	<1
28,900	+500	SUX	10-14-03		14.60	28,400	61	Air Temp 57	<2
29,200	-600	DENE	10-14-03		21.70	29,800	62	Air Temp 72	2
29,400	+100	OMA	10-14-03	1315	15.64	29,300	63	Air Temp 70	<1
33,300	-100	NCNE	10-14-03	1020	4.2	33,400	64	Air Temp 68	<1
36,800	+1,200	MKC	10-14-03	1015	9.20	35,600	64	Air Temp 60	3
36,900	+1,700	WVMO	10-14-03	1345	9.57	35,200	65	Air Temp 68	<5
34,700	+400	STJ	10-15-03	1045	7.51	34,300	64	Air Temp 65	1
32,300	-300	RUNE	10-17-03	1150	8.00	32,600	61	Air Temp 55	<1
28,300	-900	OMA	10-20-03	1100	15.3	29,200	59	Air Temp 68	3
28,200	-300	SUX	10-21-03		15.5	28,500	60	Air Temp 63	1
28,600	-500	DENE	10-21-03		21.53	29,100	62	Air Temp 73	<2

31,100	-400	NCNE	10-21-03	1345	8.28	31,500	64	Air Temp 85	1
31,100	-400	RUNE	10-21-03	1345	8.28	31,500	64	Air Temp 85	1
38,200	+2,100	BNMO	10-21-03	1021	6.08	36,100	65	Air Temp 75	<6
28,300	-100	SUX	10-27-03	1115	14.13	28,400	53	Air Temp 41	<1
28,700	-1,500	DENE	10-27-03	1345	21.55	30,200	53	Air Temp 50	5
28,600	-100	OMA	10-27-03	1350	15.39	28,700	56	Air Temp 52	<1
30,800	-400	NCNE	10-27-03	1100	8.21	31,200	57	Air Temp 52	1
35,100	+1,400	MKC	10-30-03	1015	8.83	33,700	59	Air Temp 69	4
35,600	+1,600	WVMO	10-30-03	1400	9.44	34,000	60	Air Temp 73	>4
37,500	+600	HEMO	10-30-03	1015	3.87	38,100	60	Air Temp 70	<2
31,400	-1,200	RUNE	10-31-03	1130	7.77	32,600	54	Air Temp 46	<4

### Discharge Measurements for November 2003

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
30,200	+500	SUX	11-03-03	1445	14.93	29,700	46	Air Temp 37	<2
30,400	-200	DENE	11-03-03	1150	22.04	30,600	46	Air Temp 37	<1
30,100	-1,600	OMA	11-03-03	1415	15.84	31,700	48	Air Temp 44	<5
30,900	-2,100	NCNE	11-03-03	1130	8.24	33,000	49	Air Temp 43	<7
38,100	-600	STJ	11-04-03	1030	8.36	38,700	49	Air Temp 49	<2
37,100	-800	MKC	11-04-03	1330	9.46	37,900	51	Air Temp 47	<2
38,300	+500	WVMO	11-05-03	1115	10.10	37,800			1
42,800	+900	HEMO	11-05-03	1100	4.90	41,900	59	Air Temp 40	2
38,600	+1,100	BNMO	11-06-03	1130	6.17	37,500	52	Air Temp 40	<3
33,400	-2,900	RUNE	11-07-03	1110	8.26	36,300	46	Air Temp 42	>8
28,900	-100	SUX	11-10-03	1045	14.51	29,000	46	Air Temp 50	<1
29,500	-200	DENE	11-10-03	1320	21.66	29,700	44	Air Temp 46	<1
29,800	0	OMA	11-10-03	1300	15.37	29,800	43	Air Temp 49	0
33,100	-900	NCNE	11-10-03	1020	8.31	34,000	44	Air Temp 49	<3
37,000	+100	WVMO	11-13-03	1345	9.88	36,900	46	Air Temp 46	<1
38,400	+400	BNMO	11-13-03	1100	6.13	38,000	45	Air Temp 45	1
33,700	+100	RUNE	11-14-03	1115	7.93	33,600	46	Air Temp 49	<1
33,700	-300	STJ	11-14-03	1115	7.35	34,000	44	Air Temp 47	<1
40,300	-1,200	HEMO	11-14-03	1030	4.51	41,500	46	Air Temp 39	3
29,000	-200	SUX	11-17-03	1015	14.55	29,200	46	Air Temp 55	<1
29,600	-1,000	DENE	11-17-03	1230	21.68	30,600	46	Air Temp 57	3
30,100	+100	OMA	11-17-03	1345	15.46	30,000	47	Air Temp 59	<1
33,500	0	NCNE	11-17-03	1115	8.4	33,500	47	Air Temp 57	0
36,800	-200	WVMO	11-17-03	1045	9.84	37,000	51	Air Temp 58	<1
18,600	-1,500	SUX	11-21-03	1410	11.67	20,100	45	Air Temp 39	8
33,300	+200	RUNE	11-21-03	1110	7.83	33,100	50	Air Temp 48	<1
17,900	-800	OMA	11-24-03	1405	11.41	18,700	42	Air Temp 32	<4

25,500	+1,500	NCNE	11-24-03	1140	6.39	24,000	43	Air Temp 42	<6
13,900	+100	SUX	11-24-03	1245	9.26	13,800	39	Air Temp 32	<1
14,300	-600	DENE	11-25-03	1210	16.33	14,900	36	Air Temp 44	<4
29,600	-2,000	MKC	11-25-03	1000	7.58	31,600	43	Air Temp 46	<7
38,400	0	BNMO	11-25-03	1125	6.12	38,400	45	Air Temp 46	0
47,700	+800	HEMO	11-25-03	1045	5.68	46,900	45	Air Temp 41	<2
24,500	+800	STJ	11-26-03	0945	4.9	23,700	43	Air Temp 49	>3

## Discharge Measurements for December 2003

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
13,000	-800	SUX	12-01-03	1110	8.57	13,800	40	Air Temp 49	6
13,900	-900	DENE	12-01-03	1440	16.14	14,800	39	Air Temp 46	<7
14,300	-1,000	OMA	12-01-03	1355	9.88	15,300	37	Air Temp 46	7
20,600	-300	RUNE	12-05-03	1220	4.65	20,900	40	Air Temp 35	<2
60,200	-3,500	BNMO	12-11-03	1430	9.80	63,700		Air Temp	<6
18,100	-800	STJ	12-12-03	1230	3.00	18,900	34	Air Temp 30	>4
17,600	+1,600	SUX	12-15-03	1115	9.87	16,000	34	Air Temp 36	9
16,300	-300	DENE	12-15-03	1408	17.13	16,600	34	Air Temp 37	<2
18,500	-1,300	RUNE	12-16-03	1215	4.09	19,800	36	Air Temp 34	7
18,400	-1,900	MKC	12-17-03	1130	4.62	20,300		Air Temp 36	10
63,600	-800	HEMO	12-17-03	1130	7.82	64,400	41	Air Temp 43	1
16,200	-1,700	OMA	12-18-03	1410	10.69	17,900	36	Air Temp 45	10
20,700	0	NCNE	12-18-03	1100	5.13	20,700	36	Air Temp 44	0
20,600	-2,100	WVMO	12-19-03	1345	6.32	22,700	37	Air Temp 37	10
16,000	-1,300	OMA	12-29-03	1310	10.61	17,300	39	Air Temp 37	8
22,400	900	NCNE	12-29-03	1040	5.58	21,500	40	Air Temp 38	4