

# Missouri River Region - Water Management Information

U. S. Army Corps of Engineers - Civil Works

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## Discharge Measurements For January 1999

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
25,000	+400	SUX	1-19-99	0940	12.72	24,600	32	Air Temp 34	2%
27,100	+1,300	DENE	1-19-99	1300	20.76	25,800	34	Air Temp 50	5%
30,900	+100	OMA	1-19-99	1045	14.94	30,800	35	Air Temp 37	0%
43,000	-1,000	MKC	1-19-99	0845	11.62	44,000	35	Air Temp 48	2%
81,600	-1,800	HEMO	1-20-99	1200	10.80	83,400	36	Air Temp 12	2%
37,700	+700	NCNE	1-21-99	1045	9.29	37,000	34	Air Temp 37	2%
49,900	+700	WVMO	1-22-99	1215	12.14	49,200	35	Air Temp 36	1%

### Discharge Measurements For February 1998

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
28,600	-200	SUX	1-5-98	11:45	13.05	28,800	33	Air Temp 31	1%
37,500	+200	NCNE	1-7-98	10:00	9.96	37,300	34	Air Temp 33	1%
29,900	-800	OMA	1-7-98	11:00	15.24	30,700	35	Air Temp 34	3%
41,300	-400	RUNE	1-8-98	11:15	9.57	41,700	34	Air Temp 33	1%
24,600	+ 800	OMA	1-20-98	11:00	13.38	25,400	34	Air Temp 28 - Little Shore Ice	3%
33,500	-3,200	NCNE	1-22-98	10:45	8.58	30,300	33	Air Temp 31 - Little Shore Ice	10%
41,700	-3,400	MKC	1-21-98	---	11.51	38,300	32	---	9%
35,300	-1,100	STJ	1-22-98	---	7.63	34,200	32	---	3%
26,300	-200	SUX	1-23-98	12:15	12.67	26,100	32	Air Temp 31	1%
36,100	-2,600	RUNE	1-23-98	11:45	8.21	33,500	35	Air Temp 29 Clear No Ice	9%
45,600	+200	BNMO	1-23-98	12:00	8.06	45,800	32	---	1%
28,400	-300	SUX	1-26-98	11:45	13.26	28,100	35	Slush ice - some ice cakes AT = 35	2%
26,900	-700	DENE	1-26-98	11:00	21.10	26,200	33	20% ice cover - shore ice AT = 33	3%
30,700	-3,000	OMA	1-27-98	12:15	14.95	27,700	33	AT = 31	10%
33,800	+1,000	NCNE	1-28-98	10:45	9.46	34,800	39	AT = 48	3%
39,000	+1,900	RUNE	1-29-98	11:40	9.48	40,900	50	AT = 63	5%

### Discharge Measurements For March 1999

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
28,600	-200	SUX	1-5-98	11:45	13.05	28,800	33	Air Temp 31	1%
37,500	+200	NCNE	1-7-98	10:00	9.96	37,300	34	Air Temp 33	1%
29,900	-800	OMA	1-7-98	11:00	15.24	30,700	35	Air Temp 34	3%
41,300	-400	RUNE	1-8-98	11:15	9.57	41,700	34	Air Temp 33	1%
24,600	+ 800	OMA	1-20-98	11:00	13.38	25,400	34	Air Temp 28 - Little Shore Ice	3%
33,500	-3,200	NCNE	1-22-98	10:45	8.58	30,300	33	Air Temp 31 - Little Shore Ice	10%
41,700	-3,400	MKC	1-21-98	---	11.51	38,300	32	---	9%
35,300	-1,100	STJ	1-22-98	---	7.63	34,200	32	---	3%
26,300	-200	SUX	1-23-98	12:15	12.67	26,100	32	Air Temp 31	1%
36,100	-2,600	RUNE	1-23-98	11:45	8.21	33,500	35	Air Temp 29 Clear No Ice	9%
45,600	+200	BNMO	1-23-98	12:00	8.06	45,800	32	---	1%
28,400	-300	SUX	1-26-98	11:45	13.26	28,100	35	Slush ice - some ice cakes AT = 35	2%
26,900	-700	DENE	1-26-98	11:00	21.10	26,200	33	20% ice cover - shore ice AT = 33	3%
30,700	-3,000	OMA	1-27-98	12:15	14.95	27,700	33	AT = 31	10%
33,800	+1,000	NCNE	1-28-98	10:45	9.46	34,800	39	AT = 48	3%
39,000	+1,900	RUNE	1-29-98	11:40	9.48	40,900	50	AT = 63	5%

### Discharge Measurements For April 1999

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
39,400	+2,800	SUX	4-5-99	1430	16.39	36,600	49	Air Temp 48	7%
45,300	+4,100	OMA	4-5-99	1115	18.14	41,200	49	Air Temp 50	9%
60,300	+1,500	WVMO	4-5-99	1130	13.68	58,800	57	Air Temp 74	2%
63,000	+800	RUNE	4-7-99	1045	13.40	62,200	52	Air Temp 73	1%
41,700	+4,700	SUX	4-9-99	1100	16.89	37,000	46	Air Temp 50	11%
35,700	+100	SUX	4-12-99	1100	16.39	35,600	47	Air Temp 60	3%
45,800	+500	OMA	4-12-99	0920	18.68	45,300	50	Air Temp 61	1%
63,500	+6,400	RUNE	4-14-99	1115	13.46	57,100	54	Air Temp 54	10%
42,600	+400	DENE	4-15-99	1130	24.65	42,200	46	Air Temp 46	1%
107,000	-2,000	HEMO	4-15-99	1130	13.83	109,000	55		2%
39,400	-700	SUX	4-16-99	1110	17.28	40,100	45	Air Temp 32	2%
93,500	+4,500	NCNE	4-16-99	1000	18.18	89,000	39	Air Temp 48	5%
44,500	+3,200	OMA	4-20-99	1020	18.45	41,300	55	Air Temp 55	7%
70,000	+4,100	RUNE	4-21-99	1045	14.46	65,900	54	Air Temp 72	6%
32,900	+100	SUX	4-23-99	1100	15.71	32,800	48	Air Temp 45	0%
35,600	-400	SUX	4-26-99	1050	16.35	36,000	51	Air Temp 52	1%
36,800	+1,900	DENE	4-26-99	1030	23.46	34,900	55	Air Temp 56	5%
44,700	+1,300	OMA	4-26-99	0920	18.24	43,400	54	Air Temp 55	3%
57,700	+5,400	NCNE	4-26-99	1045	13.42	52,300	54	Air Temp 59	10%
260,500	-6,500	HEMO	4-29-99	1130	25.77	267,000	58		2%
83,800	+9,600	RUNE	4-29-	1045	16.38	74,200	55	Air Temp	

			99					66	13%
31,800	+300	SUX	4-30-99	1050	15.43	31,500	64	Air Temp 64	1%

### Discharge Measurements For May 1999

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
34,900	-1,200	SUX	5-3-99	1430	16.18	36,100	55	Air Temp 63	3%
48,400	+2,200	OMA	5-3-99	1035	19.18	46,200	58	Air Temp 70	5%
105,100	+1,100	MKC	5-3-99	1315	22.44	104,000	61	Air Temp 60	1%
58,400	+5,400	NCNE	5-4-99	0850	13.48	53,000	61	Air Temp 64	9%
196,500	+12,100	HEMO	5-4-99	0930	21.20	184,400	59		6%
155,300	-13,700	WVMO	5-5-99	1100	23.91	169,000	62	Air Temp 71	4%
73,300	+4,200	STJ	5-7-99	0930	15.16	69,100	61	Air Temp 55	6%
295,900	+1,900	HEMO	5-7-99	0930	28.20	294,000	63		1%
		OCSD	5-10-99	1315	20.52	40,200			
33,500	0	SUX	5-10-99	1045	15.85	33,500	62	Air Temp 66	0%
36,700	+1,200	DENE	5-10-99	0945	23.54	35,500	58	Air Temp 64	3%
104,500	+1,500	MKC	5-10-99	1000	22.35	103,000		Air Temp 73	1%
63,000	+4,100	NCNE	5-11-99	0910	14.26	58,900	61	Air Temp 59	6%
68,100	-1,600	RUNE	5-12-99	1145	14.48	69,700	62	Air Temp 64	2%
118,100	+4,100	WVMO	5-12-99	1400	20.40	114,000	62	Air Temp 59	3%
181,000	+16,000	HEMO	5-13-99	1130	20.04	165,000	59		9%
34,000	-900	SUX	5-14-99	0930	15.98	34,900	60	Air Temp 57	3%
38,700	-400	SUX	5-17-99	1105	17.12	39,100	61	Air Temp 55	1%
50,600	+3,700	OMA	5-17-99	0945	19.91	46,900	63	Air Temp 61	7%
72,400	+4,000	NCNE	5-18-99	1045	15.85	68,400	64	Air Temp 68	6%
86,700	-300	RUNE	5-19-99	1125	17.02	87,000			
43,400	+3,100	SUX	5-21-99	1015	17.95	40,300	63	Air Temp 68	7%
53,200	-2,200	OMA	5-25-99	0900	20.86	55,400	64	Air Temp 70	4%

90,200	+4,000	RUNE	5-24-99	1040	17.41	86,000	68	Air Temp 70	5%
71,600	+5,300	NCNE	5-25-99	1040	15.75	66,300			7%
146,100	-3,900	WVMO	5-25-99	1730	23.50	150,000			3%
163,400	-2,600	BNMO	5-25-99	1730	21.21	166,000			2%
222,800	-3,200	HEMO	5-26-99	1400	23.52	226,000			1%
44,900	+600	DENE	5-26-99	1120	25.44	44,300	65	Air Temp 68	1%
44,500	+1,100	SUX	5-28-99	0935	18.20	43,400	64	Air Temp 68	2%

### Discharge Measurements For June 1999

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
50,100	+2,100	SUX	6-1-99	1010	19.37	48,000	55	Air Temp 63	4%
54,000	+100	OMA	6-1-99	0900	21.03	53,900	66	Air Temp 68	0%
69,600	+4,900	NCNE	6-1-99	1130	15.48	64,700	59	Air Temp 64	7%
136,000	+15,000	MKC	6-1-99		25.03	121,000	73	Air Temp 77	11%
45,000	-700	SUX	6-3-99	1000	18.03	45,700	65	Air Temp 63	2%
128,400	-2,600	WVMO	6-3-99	1045	21.82	131,000	70	Air Temp 66	2%
44,800	+1,900	SUX	6-7-99	1210	18.26	42,900	72	Air Temp 74	4%
46,600	+3,300	DENE	6-7-99	1045	25.77	43,300	71	Air Temp 68	7%
129,100	+3,100	BNMO	6-7-99	1115	18.40	126,000	77	Air Temp 100	2%
94,900	+7,000	STJ	6-8-99	1030	17.80	87,900	77	Air Temp 77	7%
81,100	+4,000	RUNE	6-9-99	1130	16.36	77,100	57	Air Temp 79	5%
40,500	-100	SUX	6-14-99	1100	17.32	40,600	73	Air Temp 75	0%
127,600	-3,400	WVMO	6-14-99	1145	21.75	131,000	75	Air Temp 74	3%
51,700	+2,200	OMA	6-15-99	1020	20.62	49,500	73	Air Temp 59	4%
143,800	+6,800	BNMO	6-16-99	1245	19.71	137,000	74	Air Temp 63	5%
40,600	-600	SUX	6-17-99	0800	17.56	41,200	63	Air Temp 55	2%
51,800	-2,300	OMA	6-21-99	0900	20.63	54,100	76	Air Temp 74	5%
48,500	+2,000	DENE	6-22-99	0850	26.11	46,500	68	Air Temp 74	4%
68,400	+5,700	NCNE	6-22-99	1030	15.32	62,700	70	Air Temp 70	8%
82,900	+2,200	RUNE	6-24-99	1220	16.58	80,700	55	Air Temp 57	2%
118,000	0	WVMO	6-24-99	1045	20.82	118,000	75	Air Temp	0%



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54,300	+1,400	SUX	6-28-99	1145	20.4	52,900	72	Air Temp 72	3%
75,000	+10,200	OMA	6-28-99	1015	23.99	64,800	75	Air Temp 77	13%
39,700	+6,100	LUNE	6-29-99	1020	7.65	33,600			15%
115,100	+11,600	NCNE	6-29-99	1030	20.71	103,500	73	Air Temp 72	10%
228,600	+21,600	MKC	6-30-99	0630	33.12	207,000	75	Air Temp 93	9%

### Discharge Measurements For July 1999

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
130,700	+8,500	STJ	7-1-99	1130	20.96	121,000	79	Air Temp 81	10%
44,000	+500	SUX	7-2-99	1215	18.30	43,500	71	Air Temp 70	1%
171,000	-1,500	WVMO	7-2-99	1000	25.64	173,000	75	Air Temp 84	0%
260,700	- 10,300	HEMO	7-2-99	1315	25.78	271,000			3%
51,300	+2,400	SUX	7-6-99	1050	19.82	48,900	75	Air Temp 73	5%
83,600	+8,500	NCNE	7-6-99	1130	17.31	75,100	79	Air Temp 81	10%
50,500	+2,800	DENE	7-6-99	1000	25.03	53,300	78	Air Temp 78	5%
59,800	-200	SUX	7-8-99	1130	19.53	50,000	76	Air Temp 83	> 1%
59,000	+-700	OMA	7-8-99	1040	21.74	58,300	79	Air Temp 91	1%
84,200	+1,400	RUNE	7-9-99	1000	16.74	82,800	59	Air Temp 73	2%
116,800	+5,800	WVMO	7-9-99	1045	20.67	111,000	84	Air Temp 88	5%
46,100	-1,000	SUX	7-12-99	1100	18.77	47,100	73	Air Temp 75	2%
53,900	+500	OMA	7-12-99	0930	20.98	53,400	79	Air Temp 81	<1%
111,000	+9,000	MKC	7-13-99	0811	21.9	102,000	81	Air Temp 86	8
117,300	+5,300	BNMO	7-14-99	1115	17.29	112,000	80	Air Temp 80	< 5%
101,200	-800	WVMO	7-15-99	1145	19.09	102,000	82	Air Temp 90	<1%
44,200	+300	SUX	7-16-99	0910	18.34	43,900	77	Air Temp 73	<1%
66,500	+900	RUNE	7-20-99	1110	14.23	65,600	60	Air Temp 88	1%
77,000	+4,000	MKC	7-21-99	1100	17.62	73,000	85	Air Temp 85	5%

### Discharge Measurements For August 1999

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
42,600	-1,700	SUX	8-2-99	1130	17.88	43,300	77	Air Temp 84	4
55,000	+3,500	NCNE	8-2-99	0910	13.28	51,500	82	Air Temp 76	6
78,200	+5,900	BNMO	8-2-99	1200	13.44	77,600	93	Air Temp	< 3
80,000	+2,400	WVMO	8-3-99		16.67	77,700	84	Air Temp 72	3
55,800	-3,000	RUNE	8-4-99	1140	12.73	58,800	81	Air Temp 84	5
74,500	+9,400	MKC	8-4-99	1045	17.17	65,100	86	Air Temp 89	13
42,800	0	DENE	8-5-99	1200	25.2	42,800	80	Air Temp 83	0
54,300	+2,400	SUX	8-6-99	1030	17.88	51,300	75	Air Temp 71	6
56,500	-1,000	STJ	8-6-99	1115	12.35	57,500	86	Air Temp 90	< 2
37,100	-2,000	SUX	8-9-99		16.62	39,100	77	Air Temp 84	5
47,900	-700	OMA	8-10-99	0855	19.98	48,600	86	Air Temp 91	< 2
64,000	+3,500	NCNE	8-10-99	0910	14.72	60,400	78	Air Temp 76	> 5
88,100	+1,800	MKC	8-11-99	1030	19.42	86,300	88	Air Temp 77	2
41,300	-1,100	SUX	8-13-99	1015	17.6	42,400	71	Air Temp 61	3
68,400	+2,700	STJ	8-13-99	0915	14.4	65,700	77	Air Temp 67	4
41,400	-2,300	SUX	8-16-99	1005	17.61	43,600	73	Air Temp 74	5
46,800	-1,200	OMA	8-16-99	0950	19.78	48,000	82	Air Temp 86	3
60,100	+1,100	RUNE	8-18-99	1100	13.41	59,000	81	Air Temp 77	2
68,200	+200	MKC	8-19-99		19.42	68,100	79	Air Temp 72	< 1
71,400	+5,900	WVMO	8-20-99	1015	15.59	65,500	81	Air Temp 77	8
73,400	+3,400	BNMO	8-20-	1145	12.66	70,000	78	Air	< 5

			99					Temp 76	
40,600	-300	SUX	8-23-99	1030	17.44	40,900	75	Air Temp 72	< 1
44,700	-300	OMA	8-23-99	1115	19.38	45,000	77	Air Temp 70	< 1
71,100	+3,200	BNMO	8-23-99	1215	12.37	67,900	82	Air Temp 86	4
41,200	-500	SUX	8-26-99	1030	17.58	41,700	75	Air Temp 72	1
53,400	+500	NCNE	8-26-99	1145	13.00	52,900	78	Air Temp 79	< 1
54,300	-100	RUNE	8-27-99	1045	12.45	54,400	79	Air Temp 73	< 1
48,100	-200	SUX	8-30-99	1020	19.05	48,100	78	Air Temp 80	< 1
57,500	+3,200	NCNE	8-30-99	0940	13.70	54,300	77	Air Temp 77	6
56,500	+2,000	RUNE	8-31-99	1035	13.16	56,500	81	Air Temp 71	3

### Discharge Measurements For September 1999

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
49,800	+2,700	DENE	9/2/99	1000	26.54	47,100	77	Air Temp 77	5
65,000	+3,400	BNMO	9/2/99	1130	11.56	61,600	81	Air Temp 86	5
47,200	-1,000	SUX	9/3/99	0945	18.9	48,200	77	Air Temp 82	2
63,300	+4,100	MKC	9/3/99	1115	15.15	59,200	81	Air Temp 88	6.5
48,100	-1,500	SUX	9/7/99	1045	19.09	49,600	71	Air Temp 71	3
71,000	+2,500	HEMO	9/7/99	1400	9.66	68,500	81	--	4
60,400	+600	STJ	9/8/99	1115	13.08	59,800	72	--	1
48,900	-400	DENE	9/13/99	1100	26.37	49,300	68	Air Temp 64	1
57,600	+3,100	NCNE	9/13/99	1020	13.71	54,500	70	Air Temp 67	6
3,180	+60	GRNE	9/14/99	1215	2.58	3,120	65	Air Temp 68	2
57,000	-3,300	RUNE	9/14/99	1100	12.94	60,300	70	Air Temp 64	5
65,500	+1,700	BNMO	9/16/99	1130	11.63	63,800	61	Air Temp 72	3
46,700	-1,900	SUX	9/17/99	1100	18.80	48,600	64	Air Temp 58	4
58,800	+700	STJ	9/17/99	1100	12.77	58,100	63	Air Temp 68	1
47,300	-5,800	OMA	9/20/99	1015	19.87	53,100	65	Air Temp 57	11
56,700	+3,200	NCNE	9/20/99	1200	13.57	53,500	65	Air Temp 62	6
56,100	-200	RUNE	9/23/99	1030	12.79	56,300	66	Air Temp 73	0
46,600	-1,900	SUX	9/24/99	1030	18.74	48,500	66	Air Temp 70	4
46,600	-1,600	SUX	9/27/99	0950	18.74	48,200	63	Air Temp 55	3
49,100	-1,600	OMA	9/28/99	0905	19.99	50,700	66	Air Temp 57	3
55,600	-200	NCNE	9/28/99	1040	13.74	55,700	66	Air Temp 60	0

56,000	+500	RUNE	9/30/99	1050	12.83	55,500	64	Air Temp 63	0
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### Discharge Measurements For October 1999

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
47,300	+600	DENE	10/1/99	0945	26.07	46,700	63	Air Temp 51	1
64,800	+1,900	WVMO	10/1/99	10:30	14.66	62,900	68	Air Temp 81	3
47,000	-800	SUX	10/4/99	1045	18.59	47,800	51	Air Temp 41	2
47,400	-3,800	OMA	10/4/99	0920	19.68	51,200	57	Air Temp 50	8
54,000	-1,400	NCNE	10/4/99	1035	13.47	55,400	57	Air Temp 39	3
61,000	+3,300	MKC	10/4/99	11:00	14.54	57,700	61	Air Temp 46	5
62,800	+2,000	WVMO	10/5/99	10:15	14.32	60,800	--	Air Temp 73	3
63,700	+1,800	BNMO	10/6/99	12:00	11.37	61,900	64	Air Temp 73	3
55,100	-3,000	RUNE	10/7/99	11:20	12.60	58,100	59	Air Temp 75	5
47,300	-300	SUX	10/8/99	18.66	9:00	47,600	57	Air Temp 59	1
60,600	+4,600	MKC	10/8/99	9:45	14.63	56,000	68	Air Temp 64	8
46,900	+800	SUX	10/12/99	11:15	18.57	46,100	62	Air Temp 64	2
48,200	-500	OMA	10/12/99	11:30	19.54	48,700	61	Air Temp 64	1
60,200	+3,800	MKC	10/12/99	11:00	14.57	56,400	64	Air Temp 82	6
46,700	+700	DENE	10/13/99	11:20	25.98	46,000	58	Air Temp 54	1
53,300	+700	NCNE	10/13/99	10:45	13.36	52,600	62	Air Temp 57	1
65,400	+2,100	HEMO	10/13/99	12:30	8.90	63,300	63	---	3
55,300	-1,100	RUNE	10/14/199	12:15	12.65	56,400	62	Air Temp 57	2
56,700	+1,900	STJ	10/14/99	11:15	12.41	54,800	61	Air Temp 56	4
46,300	0	SUX	10/18/99	10:45	18.44	46,300	53	Air Temp 48	0
52,900	-700	NCNE	10/18/99	10:20	13.28	53,600	57	Air Temp 46	1

56,400	+900	STJ	10/18/99	12:30	12.37	55,500	58	Air Temp 55	2
47,600	-2,200	OMA	10/19/99	10:00	19.42	49,800	55	Air Temp 46	4
45,800	-1,000	SUX	10/21/99	10:45	18.34	46,800	52	Air Temp 48	2
54,900	-3,600	RUNE	10/21/99	11:00	12.61	58,500	54	Air Temp 57	6
60,900	+300	BNMO	10/21/99	11:15	10.94	60,600	59	Air Temp 77	0
45,500	-900	SUX	10/26/99	10:20	18.25	46,400	53	Air Temp 49	2
44,500	-3,300	DENE	10/27/99	11:55	25.53	47,800	54	Air Temp 62	7
67,400	+3,300	HEMO	10/27/99	12:00	9.08	64,100			5
53,300	-2,200	RUNE	10/28/99	11:00	12.24	55,500	54	Air Temp 55	4
45,600	-1,700	SUX	10/29/99	10:15	18.28	47,300	50	Air Temp 48	4
52,200	-400	NCNE	10/29/99	11:20	13.16	52,600	55	Air Temp 79	1



### Discharge Measurements For November 1999

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
46,700	+200	SUX	11/1/99	10:15	18.32	46,500	52	Air Temp 50	0
52,200	+700	NCNE	11/1/99	10:00	13.08	51,500	54	Air Temp 59	1
47,000	-3,300	OMA	11/2/99	9:35	19.13	50,300	53	Air Temp 54	8
59,600	+2,900	WVMO	11/2/99	10:45	13.98	56,700	--	Air Temp 50	5
54,500	-3,100	RUNE	11/3/99	10:50	12.37	57,600	52	Air Temp 61	5
58,300	+1,900	MKC	11/3/99	10:45	14.09	56,400	--	Air Temp 59	4
46,100	+1,700	SUX	11/5/99	10:15	18.17	44,400	49	Air Temp 55	4
66,700	+2,200	HEMO	11/5/99	1000	9.00	64,500			3
45,800	-300	SUX	11/8/99	10:45	18.15	46,100	57	Air Temp 59	0
46,000	-2,600	OMA	11/8/99	9:20	18.90	48,600	52	Air Temp 61	5
52,200	-200	NCNE	11/9/99	10:00	13.05	52,400	52	Air Temp 64	0
54,000	-4,200	RUNE	11/9/99	13:00	12.32	58,200	53	Air Temp 78	7
57,700	-900	WVMO	11/9/99	11:45	13.66	58,600	55	Air Temp 80	2
65,400	+1,600	HEMO	11/9/99	9:00	8:82	63,800			2
46,300	+1,300	SUX	11/10/99	10:40	18.24	45,000	50	Air Temp 54	3
57,500	+900	MKC	11/10/99	11:00	13.95	56,600	54	Air Temp 68	2
47,000	-934	SUX	11/15/99	10:10	18.17	46,100	49	Air Temp 40	2
52,200	-4,200	NCNE	11/15/99	11:00	13.16	56,400	52	Air Temp 61	7
48,300	+800	OMA	11/16/99	10:15	19.00	47,500	52	Air Temp 59	2
46,700	-2,300	DENE	11/17/99	0900	25.48	49,000	50	Air Temp 46	5
52,000	-2,200	NCNE	11/18/99	1300	13.06	54,200	52	Air Temp 70	4

54,400	-1,900	RUNE	11/18/99	1000	12.37	56,300	52	Air Temp 68	4
55,500	+100	STJ	11/18/99	1045	12.18	55,400	53	Air Temp 73	0
46,200	-1,000	SUX	11/19/99	9:00	18.20	47,200	46	Air Temp 32	2
45,400	-200	SUX	11/22/99	11:00	18.02	45,600	45	Air Temp 42	0
58,700	-800	BNMO	11/22/99	1100	10.64	59,500	52	Air Temp 55	1
45,500	-100	SUX	11/24/99	8:15	18.05	45,600	39	Air Temp 31	0
45,000	-1,700	SUX	11/29/99	11:45	17.93	46,700	43	Air Temp 48	4
46,000	-2,000	OMA	11/29/99	9:30	18.57	48,000	45	Air Temp 32	4
51,400	-100	NCNE	11/29/99	1040	12.95	51,500	46	Air Temp 46	< 1
58,300	+100	MKC	11/29/99	1045	14.10	58,200	45	Air Temp 48	< 1
59,000	+1,100	WVMO	11/29/99	1045	13.86	57,900	37	Air Temp 52	2
53,300	-5,500	RUNE	11/30/99	10:15	12.23	58,800	45	Air Temp 45	10

### Discharge Measurements For December 1999

COE Discharge	Difference	Station	Date	Time	Gage Height	Measured Discharge	Water Temp (F)	Remarks	% Diff
66,500	+2,800	HEMO	12/1/99	1100	8.97	63,700			4
45,000	-1,800	SUX	12/2/99	1000	17.93	46,800	43	Air Temp 44	4
37,900	-400	SUX	12/6/99	1030	16.33	38,300	39	Air Temp 37	1
48,900	-2,500	NCNE	12/6/99	1130	12.48	51,400	42	Air Temp 53	5
50,100	-5,300	RUNE	12/7/99	1100	11.64	56,800	43	Air Temp 43	13
37,300	+2,300	OMA	12/8/99	1115	16.8	35,000	43	Air Temp 45	6
28,400	-200	SUX	12/9/99	1030	13.81	28,600	43	Air Temp 43	< 1
31,300	-1,700	DENE	12/9/99	1015	22.12	33,000	41	Air Temp 37	5
52,500	+1,200	MKC	12/10/99	1030	12.99	51,300	43	Air Temp 52	2
23,000	-1,800	SUX	12/13/99	1115	12.37	24,800	37	Air Temp 37	8
29,000	+100	OMA	12/13/99	1020	14.7	28,900	39	Air Temp 48	< 1
35,600	+1,600	NCNE	12/14/99	1015	9.3	34,000	38	Air Temp 39	< 5
37,800	-3,200	RUNE	12/14/99	1045	8.8	41,000			
47,300	-500	BNMO	12/14/99	1130	8.85	47,800	41	Air Temp 41	
27,600	-3,600	OMA	12/20/99	1515	14.25	31,200	33	Air Temp 18	13
35,500	-4,000	RUNE	12/20/99	1225	8.29	39,500	33	Air Temp 21	11
39,900	+1,100	MKC	12/21/99		10.46	38,800	34	Air Temp 26	< 3
40,300	+2,700	WVMO	12/21/99		11.06	37,600	36	Air Temp 23	< 7
23,700	-800	SUX	12/27/99	1030	12.24	24,500	37	Air Temp 42	3
35,600	+2,700	NCNE	12/27/99	1430	8.74	32,900	34	Air Temp 30	8
37,900	-1,300	RUNE	12/27/99	1130	8.18	39,200	34	Air Temp 31	3