

Public-data File 89-23

**HYDROLOGIC AND WATER-QUALITY INVESTIGATIONS RELATED TO
PLACER MINING IN INTERIOR ALASKA, SUMMER 1988**

By

Scott R. Ray

Alaska Division of
Geological and Geophysical Surveys

April 1989

THIS REPORT HAS NOT BEEN REVIEWED FOR
TECHNICAL CONTENT (EXCEPT AS NOTED IN
TEXT) OR FOR CONFORMITY TO THE
EDITORIAL STANDARDS OF DGGS.

794 University Avenue, Suite 200
Fairbanks, Alaska 99709-3645

Monitoring of interior Alaska streams affected by placer mining was continued during the 1988 field season by Alaska Division of Geological and Geophysical Surveys (DGGS) investigators. The study, which began in 1984, is a combined effort of the Alaska Departments of Environmental Conservation (ADEC) and Fish and Game (ADF&G). Results of the previous field seasons can be found in Mack et al (1988), Mack et al (1987), Mack and Moorman (1987), and Mack and Moorman (1986).

The 1988 summer field season plan was to maintain two automated sites on Birch Creek (at the Steese Highway bridge and above Twelve Mile Creek), one on Faith Creek (at Steese Highway bridge), and two on Goldstream Creek (at Ballaine Road and at Minto Flats). Turbidity, total suspended solids, and discharge (except at Goldstream Creek sites) were monitored at each site. Grab samples were collected from additional streams in the Birch Creek Drainage.

To ensure consistency of data between the different field seasons, the same sampling and analytical techniques were used during each field season. For details of the methods, see Mack et al (1988).

RESULTS AND DISCUSSION

Appendix A contains the turbidity, total suspended solids, discharge, and sediment load data from the automated collection sites. Appendix B contains the turbidity and total suspended solids from the non-automated sites. The automated sites represent the average daily conditions, while the non-automated sites (grab samples) represent instantaneous conditions. Appendix C contains the daily discharge data from the automated sites.

Discharge

Table 1 summarizes the discharge data from the 1988 field season and previous field seasons. The 1988 season was much drier than the previous seasons with the flow at Birch Creek at the Bridge 43 percent less than the 1987 flow; Birch Creek above Twelve Mile Creek was 65 percent less, and Faith Creek was 29 percent less.

The average flow for Faith Creek and Birch Creek above Twelve Mile Creek during June is based on four days of data. The average monthly flow for these sites would probably be higher if we had data for the entire month, as greater flows existed earlier in the month from the spring runoff.

The flows during September, 1988 were similar to those previously measured during September. The largest deviations from previous years occurs during the summer months of June and July.

Table 1. Summary of discharge data (discharge values in cfs, area in mi²).

Site	Area (mi ²)	Jun	Jul	Aug	Sep	Ave
Birch at Bridge						
1988	2150	2490	1230	1300	1370	1430
1987		4120	2570	2380	1010	2520
1986		3730	2370	700	828	1910
1985		4600	1710	1930	3790	3010
Birch above 12 Mile						
1988	85.4	66.9	35.4	47.5	68.0	49.2
1987		196	147	149	74.8	142
1986		207	125	71.2	76.5	120
Faith Creek						
1988	61.0	81.8	46.1	91.3	93.9	70.6
1987		113	51.6	134	103	100
1986		107	80.4	141	149	123

Turbidity

Table 2 summarizes the monthly and seasonal turbidity averages and seasonal medians at the automated sites. Mack (1988) suggested that "the median may better represent the normally observed turbidity value and indicates the extent to which the average is affected by extreme events". The median turbidity value has continued to fall each year at every site except Goldstream Creek at Minto. The average turbidity value decline was over 50 percent from 1987 values, with the smallest decline of 39 percent at Birch Creek above Twelve Mile Creek.

Table 2. Monthly and season average turbidity, and seasonal median turbidity All values are in NTUs.

Site	Jun	Jul	Aug	Sep	Ave	Median
Birch at Bridge						
1988	23	5.7	6.9	9.6	11	7.1
1987	72	31	24	12	38	18
1986	79	110	6.3	19	54	23
1985	47	23	35	18	31	25
Birch above 12 Mile						
1988	47	119	74	98	92	91
1987	240	362	148	82	206	150
1986	255	201	237	251	236	230
Faith Creek						
1988	6.5	3.7	7.7	8.9	6.5	5.9
1987	31	11	20	24	21	14
1986	46	77	158	17	85	31
Goldstream at Ballaine						
1988		29	66	91	62	67
1987	22	266	205		185	170
Goldstream at Minto						
1988	39	13	23	---	25	19
1987	6.3	7.4	---	---	6.8	6.2

Sediment Load

Table 3 shows the monthly and seasonal sediment loads for the automated sites. The sediment loads in 1988 were much less than previously measured. This is probably a function of two factors; lower discharges and less sediment input from placer mining. The lower discharge translates to lower stream power, resulting in less sediment eroded from streambanks and disturbed areas. Since major events account for the majority of the annual natural sediment input (Ray and Maurer, 1989; Mack et al., 1988), the seasonal sediment load is less. The low turbidity values at low flow also indicates that there was less sediment input from placer mining than in previous years. These factors combined resulted in very low seasonal sediment loads.

Table 3. Average daily sediment load by month and season (tons/day).

Site	Jun	Jul	Aug	Sep	Ave
Birch at Bridge					
1988	2810	188	90.7	175	772
1987	8660	6580	1100		5260
1986	7270	1450		567	3100
Birch above 12 Mile					
1988	8.1	8.7	9.1	31.4	12.1
1987	4580	1110	426	32.0	1150
1986	420	79.2	40.2	48.3	147
Faith Creek					
1988	6.0	1.4	5.0	3.1	3.4
1987	119	8.9	22.1	13.6	30.9
1986	57.2	31.3	548	57.9	174

REFERENCES CITED

- Mack, S.F., Moorman, M.A., and L. Harris, 1988, Hydrologic and water quality investigations related to placer mining in interior Alaska, summer 1987, Alaska Division of Geological and Geophysical Surveys, Public-data file 88-5, 69 pp.
- Mack, S.F., Moorman, M.A., and L. Harris, 1987, Water quality and discharge data from selected sites in the Fortymile and Tolovana drainages, summer 1987, Alaska Division of Geological and Geophysical Surveys, Public-data file 87-32, 39 pp.
- Mack, S.F. and M.A. Moorman, 1987, Hydrologic and water quality investigations related to the occurrence of placer mining in interior Alaska, summer 1986, Alaska Division of Geological and Geophysical Surveys, Public-data file 87-10, 88 pp.
- Mack, S.F. and M.A. Moorman, 1986, Hydrologic and water quality investigations related to the occurrence of placer mining in interior Alaska, summer 1984-85, Alaska Division of Geological and Geophysical Surveys, Public-data file 86-16, 138 pp.
- Ray, S.R. and M.A. Maurer, 1989, Streamflow, sediment load, and water quality study of Hoseanna Creek Basin near Healy, Alaska: 1988 Progress Report, Alaska Division of Geological and Geophysical Surveys, Public-data file 89-10, 62 pp.

APPENDIX A

Data from automated sites. "g" indicates grab sample.

SITE	DATE	TSS (mg/l)	TURB (NTU)	Q (cfs)	LOAD (tons/day)
BIRCH @ BR g	08-Jun-88	12.3	5.1		
BIRCH @ BR g	13-Jul-88	6.00	4.8		
BIRCH @ BR g	03-Aug-88	2.08	1.7		
BIRCH @ BR g	09-Aug-88	2.72	2.5		
BIRCH @ BR g	24-Aug-88	7.38	7.2		
BIRCH @ BR g	22-Sep-88	4.37	3.9		
BIRCH @ BR	09-Jun-88	2040	31	1340	7380
BIRCH @ BR	10-Jun-88	163	6.5	1310	575
BIRCH @ BR	11-Jun-88	705	7.0	1240	2360
BIRCH @ BR	12-Jun-88	948	6.4	1300	3320
BIRCH @ BR	13-Jun-88	1090	3.7	2390	7010
BIRCH @ BR	14-Jun-88	255	32	2890	1990
BIRCH @ BR	15-Jun-88	264	46	2490	1770
BIRCH @ BR	16-Jun-88	161	23	2150	933
BIRCH @ BR	17-Jun-88	124	18	5210	1750
BIRCH @ BR	18-Jun-88	444	35	5690	6810
BIRCH @ BR	19-Jun-88	983	110	3890	10300
BIRCH @ BR	20-Jun-88	558	31	2740	4130
BIRCH @ BR	21-Jun-88	518	31	3840	5370
BIRCH @ BR	22-Jun-88	305	21	4710	3870
BIRCH @ BR	23-Jun-88	426	39	3220	3700
BIRCH @ BR	24-Jun-88	304	28	2210	1810
BIRCH @ BR	25-Jun-88	139	9.9	1710	643
BIRCH @ BR	26-Jun-88	84.1	8.8	1450	329
BIRCH @ BR	27-Jun-88	78.7	6.5	1310	278
BIRCH @ BR	28-Jun-88	28.0	5.6	1360	103
BIRCH @ BR	29-Jun-88	29.8	9.1	1700	137
BIRCH @ BR	30-Jun-88	29.6	5.8	1700	136
BIRCH @ BR	01-Jul-88	50.1	7.3	1380	187
BIRCH @ BR	02-Jul-88	20.6	7.5	1200	66.6
BIRCH @ BR	03-Jul-88	29.2	8.0	1090	85.8
BIRCH @ BR	04-Jul-88	27.1	7.7	1020	74.6
BIRCH @ BR	05-Jul-88	23.2	4.9	977	61.3
BIRCH @ BR	06-Jul-88	57.3	2.6	926	144
BIRCH @ BR	07-Jul-88			902	
BIRCH @ BR	08-Jul-88			896	
BIRCH @ BR	09-Jul-88			1060	
BIRCH @ BR	10-Jul-88			1510	
BIRCH @ BR	11-Jul-88			1370	
BIRCH @ BR	12-Jul-88			1200	
BIRCH @ BR	13-Jul-88	25.9	5.1	1180	82.5
BIRCH @ BR	14-Jul-88	9.31	3.2	1110	27.9
BIRCH @ BR	15-Jul-88	12.1	3.7	1070	34.8
BIRCH @ BR	16-Jul-88	17.9	3.9	1370	66.3

SITE	DATE	TSS (mg/l)	TURB (NTU)	Q (cfs)	LOAD (tons/day)
BIRCH @ BR	17-Jul-88	12.1	3.4	1290	42.1
BIRCH @ BR	18-Jul-88	6.32	3.7	1120	19.1
BIRCH @ BR	19-Jul-88	6.53	2.4	1020	18.0
BIRCH @ BR	20-Jul-88	8.81	2.5	956	22.8
BIRCH @ BR	21-Jul-88	5.08	2.9	922	12.6
BIRCH @ BR	22-Jul-88	9.61	5.9	973	25.1
BIRCH @ BR	23-Jul-88	68.2	9.8	1410	259
BIRCH @ BR	24-Jul-88	309	19	2620	2180
BIRCH @ BR	25-Jul-88	187	17	2050	1030
BIRCH @ BR	26-Jul-88	25.6	4.4	1560	108
BIRCH @ BR	27-Jul-88	13.0	4.0	1320	46.4
BIRCH @ BR	28-Jul-88	10.6	3.9	1190	34.1
BIRCH @ BR	29-Jul-88	8.03	3.4	1120	24.3
BIRCH @ BR	30-Jul-88	5.68	3.0	1090	16.7
BIRCH @ BR	31-Jul-88	7.88	3.9	1160	24.7
BIRCH @ BR	01-Aug-88	9.71	3.3	1190	31.2
BIRCH @ BR	02-Aug-88	5.51	2.9	1120	16.6
BIRCH @ BR	03-Aug-88	7.86	2.4	1070	22.7
BIRCH @ BR	04-Aug-88	7.88	3.1	1040	22.1
BIRCH @ BR	05-Aug-88	7.17	3.7	1100	21.3
BIRCH @ BR	06-Aug-88	16.0	4.5	1230	52.9
BIRCH @ BR	07-Aug-88			1180	
BIRCH @ BR	08-Aug-88			1130	
BIRCH @ BR	09-Aug-88	32.1	4.0	1420	123
BIRCH @ BR	10-Aug-88	100	15	1900	514
BIRCH @ BR	11-Aug-88	59.0	13	1710	272
BIRCH @ BR	12-Aug-88	40.0	7.6	1500	162
BIRCH @ BR	13-Aug-88	15.1	9.5	1410	57.5
BIRCH @ BR	14-Aug-88	11.5	4.7	1410	43.6
BIRCH @ BR	15-Aug-88	10.6	5.8	1390	39.9
BIRCH @ BR	16-Aug-88	12.1	5.7	1380	44.9
BIRCH @ BR	17-Aug-88	13.9	5.3	1420	53.1
BIRCH @ BR	18-Aug-88	11.3	5.2	1340	41.0
BIRCH @ BR	19-Aug-88	14.8	5.7	1260	50.2
BIRCH @ BR	20-Aug-88	13.8	4.6	1310	48.7
BIRCH @ BR	21-Aug-88	18.5	7.1	1350	67.5
BIRCH @ BR	22-Aug-88	29.8	16	1280	103
BIRCH @ BR	23-Aug-88	19.4	12	1240	64.9
BIRCH @ BR	24-Aug-88	17.5	11	1260	59.4
BIRCH @ BR	25-Aug-88	43.7	8.3	1280	151
BIRCH @ BR	26-Aug-88	24.4	6.4	1250	82.2
BIRCH @ BR	27-Aug-88	23.3	4.5	1220	76.8
BIRCH @ BR	28-Aug-88	23.7	5.6	1200	76.8
BIRCH @ BR	29-Aug-88	23.3	5.1	1200	75.5
BIRCH @ BR	30-Aug-88	49.5	8.5	1250	167
BIRCH @ BR	31-Aug-88	26.3	8.4	1300	92.1
BIRCH @ BR	01-Sep-88	37.6	10	1390	141

SITE	DATE	TSS (mg/l)	TURB (NTU)	Q (cfs)	LOAD (tons/day)
BIRCH @ BR	02-Sep-88	49.1	9.1	1500	199
BIRCH @ BR	03-Sep-88	37.7	11	1480	150
BIRCH @ BR	04-Sep-88	32.3	9.8	1440	126
BIRCH @ BR	05-Sep-88	31.5	8.0	1510	128
BIRCH @ BR	06-Sep-88	102	14	1910	525
BIRCH @ BR	07-Sep-88	108	18	1870	543
BIRCH @ BR	08-Sep-88	83.1	16	1780	399
BIRCH @ BR	09-Sep-88	52.8	12	1630	232
BIRCH @ BR	10-Sep-88	46.8	9.8	1500	189
BIRCH @ BR	11-Sep-88	37.7	9.7	1430	145
BIRCH @ BR	12-Sep-88	33.0	9.4	1350	120
BIRCH @ BR	13-Sep-88	36.1	8.5	1280	125
BIRCH @ BR	14-Sep-88	23.4	8.3	1230	77.5
BIRCH @ BR	15-Sep-88	38.6	11	1200	125
BIRCH @ BR	16-Sep-88	23.3	6.7	1160	73.0
BIRCH @ BR	17-Sep-88	38.8	7.6	1130	118
BIRCH @ BR	18-Sep-88	25.7	5.8	1100	76.3
BIRCH @ BR	19-Sep-88	25.4	5.5	1070	73.4
BIRCH @ BR	20-Sep-88	20.6	5.7	1060	58.9
BIRCH @ BR	21-Sep-88	19.1	6.3	1040	53.6
BIRCH 12MI g	23-Jun-88	30.2	17		
BIRCH 12MI g	27-Jun-88	13.4	12		
BIRCH 12MI g	12-Jul-88	50.2	46		
BIRCH 12MI g	27-Jul-88	87.4	100		
BIRCH 12MI g	03-Aug-88	12.6	16		
BIRCH 12MI g	09-Aug-88	156	120		
BIRCH 12MI g	25-Aug-88	23.3	25		
BIRCH 12MI g	22-Sep-88	6.38	11		
BIRCH 12MI	23-Jun-88	57.2	28		
BIRCH 12MI	24-Jun-88	58.6	30		
BIRCH 12MI	25-Jun-88	74.3	91		
BIRCH 12MI	26-Jun-88	29.4	17		
BIRCH 12MI	27-Jun-88	26.5	13	44.5	3.2
BIRCH 12MI	28-Jun-88	39.1	27	70.8	7.5
BIRCH 12MI	29-Jun-88	45.4	68	75.0	9.2
BIRCH 12MI	30-Jun-88	73.5	100	63.6	12.6
BIRCH 12MI	01-Jul-88	66.5	93	51.7	9.3
BIRCH 12MI	02-Jul-88	56.6	88	50.0	7.6
BIRCH 12MI	03-Jul-88	55.8	93	42.2	6.3
BIRCH 12MI	04-Jul-88	57.4	91	40.0	6.2
BIRCH 12MI	05-Jul-88	75	110	36.9	7.5
BIRCH 12MI	06-Jul-88	124	170	32.3	10.8
BIRCH 12MI	07-Jul-88	133	170	30.8	11.1
BIRCH 12MI	08-Jul-88	147	130	50.2	19.9
BIRCH 12MI	09-Jul-88	88.6	120	59.1	14.1
BIRCH 12MI	10-Jul-88	85.1	120	46.8	10.7

SITE	DATE	TSS (mg/l)	TURB (NTU)	Q (cfs)	LOAD (tons/day)
BIRCH 12MI	11-Jul-88	73.6	120	43.8	8.7
BIRCH 12MI	12-Jul-88	64.9	93	38.8	6.8
BIRCH 12MI	13-Jul-88	91.7	120	33.9	8.4
BIRCH 12MI	14-Jul-88	87.9	130	28.9	6.9
BIRCH 12MI	15-Jul-88	30.7	48	27.5	2.3
BIRCH 12MI	16-Jul-88	88.5	130	24.2	5.8
BIRCH 12MI	17-Jul-88	111	160	23.0	6.9
BIRCH 12MI	18-Jul-88	111	180	21.9	6.6
BIRCH 12MI	19-Jul-88	41.4	66	21.7	2.4
BIRCH 12MI	20-Jul-88	39.2	66	23.7	2.5
BIRCH 12MI	21-Jul-88	112	130	25.9	7.8
BIRCH 12MI	22-Jul-88	132	170	28.3	10.1
BIRCH 12MI	23-Jul-88	249	200	44.6	29.9
BIRCH 12MI	24-Jul-88	64.7	65	44.3	7.7
BIRCH 12MI	25-Jul-88	64.6	79	40.0	7.0
BIRCH 12MI	26-Jul-88	115	140	35.5	11.0
BIRCH 12MI	27-Jul-88	76.8	96	31.2	6.5
BIRCH 12MI	28-Jul-88	114	140	29.5	9.1
BIRCH 12MI	29-Jul-88	79.7	110	31.5	6.8
BIRCH 12MI	30-Jul-88	67.0	110	28.6	5.2
BIRCH 12MI	31-Jul-88	101	140	29.5	8.0
BIRCH 12MI	01-Aug-88	103	120	27.6	7.7
BIRCH 12MI	02-Aug-88	72.3	110	27.1	5.3
BIRCH 12MI	03-Aug-88	43.8	63	28.2	3.3
BIRCH 12MI	04-Aug-88			28.9	
BIRCH 12MI	05-Aug-88	33.4	37	29.5	2.7
BIRCH 12MI	06-Aug-88	29.6	37	31.1	2.5
BIRCH 12MI	07-Aug-88	32.8	41	32.7	2.9
BIRCH 12MI	08-Aug-88	12.5	12	36.3	1.2
BIRCH 12MI	09-Aug-88	169	150	38.0	17.3
BIRCH 12MI	10-Aug-88	105	110	40.8	11.6
BIRCH 12MI	11-Aug-88	162	190	41.4	18.1
BIRCH 12MI	12-Aug-88	121	170	43.5	14.3
BIRCH 12MI	13-Aug-88	90.8	130	43.9	10.8
BIRCH 12MI	14-Aug-88	78.3	83	55.4	11.7
BIRCH 12MI	15-Aug-88	91.0	80	59.2	14.5
BIRCH 12MI	16-Aug-88	58.8	45	55.6	8.8
BIRCH 12MI	17-Aug-88	43.0	38	55.4	6.4
BIRCH 12MI	18-Aug-88	39.2	24	50.3	5.3
BIRCH 12MI	19-Aug-88	57.8	44	54.2	8.4
BIRCH 12MI	20-Aug-88	79.5	81	54.4	11.7
BIRCH 12MI	21-Aug-88	49.0	61	61.4	8.1
BIRCH 12MI	22-Aug-88	70.8	69	65.4	12.5
BIRCH 12MI	23-Aug-88	92.6	74	63.4	15.8
BIRCH 12MI	24-Aug-88	80.2	71	58.7	12.7
BIRCH 12MI	25-Aug-88	44.0	38	56.0	6.6
BIRCH 12MI	26-Aug-88	34.8	26	56.4	5.3

SITE	DATE	TSS (mg/l)	TURB (NTU)	Q (cfs)	LOAD (tons/day)
BIRCH 12MI	27-Aug-88	41.4	24	56.9	6.4
BIRCH 12MI	28-Aug-88	32.5	19	52.8	4.6
BIRCH 12MI	29-Aug-88	64.5	80	52.2	9.1
BIRCH 12MI	30-Aug-88	74.7	78	58.2	11.7
BIRCH 12MI	31-Aug-88	105	110	56.3	15.9
BIRCH 12MI	01-Sep-88	170	150	48.5	22.3
BIRCH 12MI	02-Sep-88	98.7	91	47.7	12.7
BIRCH 12MI	03-Sep-88	70.3	83	78.2	14.8
BIRCH 12MI	04-Sep-88	72.6	78	111	21.7
BIRCH 12MI	05-Sep-88	209	150	118	66.6
BIRCH 12MI	06-Sep-88	294	140	104	82.6
BIRCH 12MI	07-Sep-88	143	100	96.6	37.3
BIRCH 12MI	08-Sep-88	135	93	88.1	32.1
BIRCH 12MI	09-Sep-88	82.0	54	83.2	18.4
BIRCH 12MI	10-Sep-88	88.5	63	78.2	18.7
BIRCH 12MI	11-Sep-88	93.5	71	75.4	19.0
FAITH g	23-Jun-88	6.00	5.2		
FAITH g	27-Jun-88	11.5	7.0		
FAITH g	12-Jul-88	2.44	3.2		
FAITH g	04-Aug-88	1.25	4.6		
FAITH g	08-Aug-88	4.25	6.7		
FAITH g	25-Aug-88	7.55	3.9		
FAITH g	22-Sep-88	6.30	8.8		
FAITH	23-Jun-88	14.4	6.7		
FAITH	24-Jun-88	17.4	6.0		
FAITH	25-Jun-88	14.1	6.4		
FAITH	26-Jun-88	11.4	6.8		
FAITH	27-Jun-88	9.30	5.8	43.9	1.1
FAITH	28-Jun-88	50.5	9.0	119	16.2
FAITH	29-Jun-88	15.5	5.3	93.6	3.9
FAITH	30-Jun-88	15.1	6.3	70.5	2.9
FAITH	01-Jul-88	8.35	7.4	56.8	1.3
FAITH	02-Jul-88	10.5	6.0	54.3	1.5
FAITH	03-Jul-88	10.9	7.3	48.4	1.4
FAITH	04-Jul-88	62.8	8.2	49.0	8.3
FAITH	05-Jul-88	7.53	4.9	44.0	0.9
FAITH	06-Jul-88	15.0	4.2	42.0	1.7
FAITH	07-Jul-88	7.76	3.2	42.1	0.9
FAITH	08-Jul-88	14.1	4.4	43.9	1.7
FAITH	09-Jul-88	5.83	3.3	42.0	0.7
FAITH	10-Jul-88	14.4	4.2	40.7	1.6
FAITH	11-Jul-88	7.53	4.5	41.0	0.8
FAITH	12-Jul-88	11.0	3.1	40.1	1.2
FAITH	13-Jul-88	7.02	3.1	39.0	0.7
FAITH	14-Jul-88	4.60	2.6	39.7	0.5
FAITH	15-Jul-88	4.67	2.5	41.3	0.5

SITE	DATE	TSS (mg/l)	TURB (NTU)	Q (cfs)	LOAD (tons/day)
FAITH	16-Jul-88	2.85	2.1	36.4	0.3
FAITH	17-Jul-88	6.10	2.6	32.8	0.5
FAITH	18-Jul-88	3.13	2.3	31.9	0.3
FAITH	19-Jul-88	9.54	1.6	31.0	0.8
FAITH	20-Jul-88	2.84	1.6	31.1	0.2
FAITH	21-Jul-88	5.65	1.7	40.9	0.6
FAITH	22-Jul-88	11.1	2.7	49.3	1.5
FAITH	23-Jul-88	8.75	2.4	71.6	1.7
FAITH	24-Jul-88	3.23	1.5	53.2	0.5
FAITH	25-Jul-88	6.91	1.7	45.0	0.8
FAITH	26-Jul-88	1.62	1.7	40.8	0.2
FAITH	27-Jul-88	5.54	3.3	39.0	0.6
FAITH	28-Jul-88	13.2	4.8	40.8	1.4
FAITH	29-Jul-88	31.7	7.8	69.8	6.0
FAITH	30-Jul-88	11.8	4.5	80.7	2.6
FAITH	31-Jul-88	14.1	2.4	72.1	2.7
FAITH	01-Aug-88	9.31	3.3	63.1	1.6
FAITH	02-Aug-88	8.26	4.4	57.0	1.3
FAITH	03-Aug-88	10.0	7.2	55.9	1.5
FAITH	04-Aug-88	23.1	6.2	54.8	3.4
FAITH	05-Aug-88	8.65	9.3	54.3	1.3
FAITH	06-Aug-88	8.03	7.6	51.7	1.1
FAITH	07-Aug-88	8.09	8.1	56.2	1.2
FAITH	08-Aug-88	9.80	9.3	66.8	1.8
FAITH	09-Aug-88	9.05	5.5	67.2	1.6
FAITH	10-Aug-88	7.46	6.2	62.9	1.3
FAITH	11-Aug-88	8.26	7.2	62.8	1.4
FAITH	12-Aug-88	30.8	15	102	8.5
FAITH	13-Aug-88	53.4	16	126	18.2
FAITH	14-Aug-88	19.9	13	113	6.0
FAITH	15-Aug-88	45.0	12	144	17.4
FAITH	16-Aug-88	26.5	8.4	130	9.3
FAITH	17-Aug-88	15.7	4.5	112	4.7
FAITH	18-Aug-88	13.5	5.2	103	3.7
FAITH	19-Aug-88	8.11	3.7	91.1	2.0
FAITH	20-Aug-88	9.75	5.5	85.3	2.2
FAITH	21-Aug-88	12.2	13	80.6	2.6
FAITH	22-Aug-88	11.1	6.7	84.2	2.5
FAITH	23-Aug-88	34.2	9.3	120	11.1
FAITH	24-Aug-88	41.4	9.7	138	15.4
FAITH	25-Aug-88	20.9	5.3	120	6.8
FAITH	26-Aug-88	24.4	4.8	111	7.3
FAITH	27-Aug-88	13.8	4.7	104	3.9
FAITH	28-Aug-88	19.1	6.1	102	5.3
FAITH	29-Aug-88	15.9	12	97.5	4.2
FAITH	30-Aug-88	10.6	3.3	105	3.0
FAITH	31-Aug-88	13.2	5.5	109	3.9

SITE	DATE	TSS (mg/l)	TURB (NTU)	Q (cfs)	LOAD (tons/day)
FAITH	01-Sep-88	11.8	8.3	101	3.2
FAITH	02-Sep-88	11.6	10	94.7	3.0
FAITH	03-Sep-88	13.3	8.7	86.4	3.1
FAITH	04-Sep-88	14.7	13		
FAITH	05-Sep-88	17.8	9.9		
FAITH	06-Sep-88	30.5	13		
FAITH	07-Sep-88	34.9	8.3		
FAITH	08-Sep-88	21.1	12		
FAITH	09-Sep-88	18.0	11		
FAITH	10-Sep-88	16.8	13		
FAITH	11-Sep-88	9.40	4.8		
FAITH	12-Sep-88	15.2	5.4		
FAITH	13-Sep-88	7.55	4.2		
FAITH	14-Sep-88	7.77	2.4		
FAITH	15-Sep-88	13.1	3.1		
FAITH	16-Sep-88	10.8	4.3		
FAITH	17-Sep-88	15.3	7.7		
FAITH	18-Sep-88	12.1	12		
FAITH	19-Sep-88	9.77	8.8		
FAITH	20-Sep-88	8.21	11		
FAITH	21-Sep-88	11.5	7.3		
FAITH	22-Sep-88	12.0	17		
GOLD @BAL	11-May-88	53.1	39		
GOLD @BAL	11-May-88	26.0	81		
GOLD @BAL	11-May-88	596	33		
GOLD @BAL	12-May-88	265	39		
GOLD @BAL	13-May-88	234	36		
GOLD @BAL	14-May-88	506	64		
GOLD @BAL	15-May-88	663	80		
GOLD @BAL	16-May-88	780	62		
GOLD @BAL	17-May-88	472	40		
GOLD @BAL	18-May-88	232	30		
GOLD @BAL	19-May-88	182	25		
GOLD @BAL	20-May-88	204	27		
GOLD @BAL	21-May-88	218	41		
GOLD @BAL	22-May-88	162	34		
GOLD @BAL	23-May-88	126	23		
GOLD @BAL	24-May-88	119	23		
GOLD @BAL	25-May-88	172	40		
GOLD @BAL	26-May-88	107	22		
GOLD @BAL	27-May-88	98.9	23		
GOLD @BAL	28-May-88	120	35		
GOLD @BAL	29-May-88	174	72		
GOLD @BAL	30-May-88	284	86		
GOLD @BAL	31-May-88	141	23		
GOLD @BAL	01-Jun-88	102	17		

SITE	DATE	TSS (mg/l)	TURB (NTU)	Q (cfs)	LOAD (tons/day)
GOLD @BAL	02-Jun-88	78.5	13		
GOLD @BAL	20-Jul-88	42.1	19		
GOLD @BAL	21-Jul-88	60.3	17		
GOLD @BAL	22-Jul-88	52.3	18		
GOLD @BAL	23-Jul-88	84.4	46		
GOLD @BAL	24-Jul-88	45.2	20		
GOLD @BAL	25-Jul-88	54.0	22		
GOLD @BAL	26-Jul-88	72.9	29		
GOLD @BAL	27-Jul-88	85.3	29		
GOLD @BAL	28-Jul-88	83.1	37		
GOLD @BAL	29-Jul-88	112	31		
GOLD @BAL	30-Jul-88	79.3	27		
GOLD @BAL	31-Jul-88	109	39		
GOLD @BAL	01-Aug-88	134	79		
GOLD @BAL	02-Aug-88	116	63		
GOLD @BAL	03-Aug-88	124	77		
GOLD @BAL	04-Aug-88	120	71		
GOLD @BAL	05-Aug-88	123	75		
GOLD @BAL	06-Aug-88	119	83		
GOLD @BAL	07-Aug-88	117	79		
GOLD @BAL	08-Aug-88	114	66		
GOLD @BAL	09-Aug-88	79.2	65		
GOLD @BAL	10-Aug-88	68.3	74		
GOLD @BAL	11-Aug-88	70.6	69		
GOLD @BAL	12-Aug-88	107	94		
GOLD @BAL	13-Aug-88	112	87		
GOLD @BAL	14-Aug-88	69.0	69		
GOLD @BAL	15-Aug-88	65.4	77		
GOLD @BAL	16-Aug-88	66.7	70		
GOLD @BAL	16-Aug-88	71.8	48		
GOLD @BAL	17-Aug-88	55.1	45		
GOLD @BAL	18-Aug-88	48.0	42		
GOLD @BAL	19-Aug-88	53.8	38		
GOLD @BAL	20-Aug-88	40.9	42		
GOLD @BAL	21-Aug-88	43.5	35		
GOLD @BAL	22-Aug-88	29.3	29		
GOLD @BAL	23-Aug-88	53.7	40		
GOLD @BAL	24-Aug-88	56.5	42		
GOLD @BAL	25-Aug-88	42.9	39		
GOLD @BAL	26-Aug-88	37.4	68		
GOLD @BAL	27-Aug-88	153	87		
GOLD @BAL	28-Aug-88	49.4	87		
GOLD @BAL	29-Aug-88	44.8	77		
GOLD @BAL	30-Aug-88	81.9	85		
GOLD @BAL	31-Aug-88	89.7	120		
GOLD @BAL	01-Sep-88	80.0	120		

SITE	DATE	TSS (mg/l)	TURB (NTU)	Q (cfs)	LOAD (tons/day)
GOLD @BAL	02-Sep-88	67.7	110		
GOLD @BAL	03-Sep-88	51.6	83		
GOLD @BAL	04-Sep-88	51.0	84		
GOLD @BAL	05-Sep-88	90.8	120		
GOLD @BAL	06-Sep-88	113	100		
GOLD @BAL	07-Sep-88	100	110		
GOLD @BAL	08-Sep-88	76.6	95		
GOLD @BAL	09-Sep-88	152	120		
GOLD @BAL	10-Sep-88	60.9	85		
GOLD @BAL	11-Sep-88	28.7	39		
GOLD @BAL	12-Sep-88	22.8	32		
GOLD @MIN	10-May-88	90.2	21		
GOLD @MIN	11-May-88	118	19		
GOLD @MIN	12-May-88	61.3	15		
GOLD @MIN	13-May-88	90.8	22		
GOLD @MIN	14-May-88	45.4	18		
GOLD @MIN	15-May-88	25.2	13		
GOLD @MIN	16-May-88	27.5	11		
GOLD @MIN	17-May-88	51.0	16		
GOLD @MIN	18-May-88	63.0	20		
GOLD @MIN	19-May-88	119	17		
GOLD @MIN	20-May-88	48.3	19		
GOLD @MIN	21-May-88	68.8	21		
GOLD @MIN	22-May-88	60.3	21		
GOLD @MIN	23-May-88	39.8	16		
GOLD @MIN	24-May-88	47.6	17		
GOLD @MIN	25-May-88	302	21		
GOLD @MIN	26-May-88	32.6	21		
GOLD @MIN	27-May-88	65.5	15		
GOLD @MIN	28-May-88	44.7	18		
GOLD @MIN	29-May-88	39.9	14		
GOLD @MIN	30-May-88	33.6	14		
GOLD @MIN	31-May-88	44.9	14		
GOLD @MIN	01-Jun-88	28.3	15		
GOLD @MIN	02-Jun-88	13.8	25		
GOLD @MIN	03-Jun-88	42.4	19		
GOLD @MIN	04-Jun-88	67.5	26		
GOLD @MIN	05-Jun-88	60.5	18		
GOLD @MIN	06-Jun-88	110	35		
GOLD @MIN	07-Jun-88	143	48		
GOLD @MIN	08-Jun-88	82.1	36		
GOLD @MIN	09-Jun-88	108	39		
GOLD @MIN	10-Jun-88	141	44		
GOLD @MIN	11-Jun-88	87	33		
GOLD @MIN	12-Jun-88	136	25		
GOLD @MIN	13-Jun-88	173	41		

SITE	DATE	TSS (mg/l)	TURB (NTU)	Q (cfs)	LOAD (tons/day)
GOLD @MIN	14-Jun-88	108	46		
GOLD @MIN	15-Jun-88	103	44		
GOLD @MIN	16-Jun-88	135	57		
GOLD @MIN	17-Jun-88	189	44		
GOLD @MIN	18-Jun-88	128	58		
GOLD @MIN	19-Jun-88	215	88		
GOLD @MIN	20-Jun-88	164	49		
GOLD @MIN	21-Jun-88	151	68		
GOLD @MIN	22-Jun-88	133	78		
GOLD @MIN	23-Jun-88	83.2	43		
GOLD @MIN	24-Jun-88	78.4	45		
GOLD @MIN	25-Jun-88	91.4	37		
GOLD @MIN	26-Jun-88	77.6	34		
GOLD @MIN	27-Jun-88	85.0	42		
GOLD @MIN	28-Jun-88	30.8	33		
GOLD @MIN	28-Jun-88	53.6	12		
GOLD @MIN	29-Jun-88	50.8	12		
GOLD @MIN	30-Jun-88	64.1	15		
GOLD @MIN	01-Jul-88	49.7	22		
GOLD @MIN	02-Jul-88	68.3	25		
GOLD @MIN	03-Jul-88	35.1	12		
GOLD @MIN	04-Jul-88	31.4	10		
GOLD @MIN	05-Jul-88	30.1	17		
GOLD @MIN	06-Jul-88	17.8	9.3		
GOLD @MIN	07-Jul-88	16.1	12		
GOLD @MIN	08-Jul-88	17.8	11		
GOLD @MIN	09-Jul-88	14.9	11		
GOLD @MIN	10-Jul-88	36.7	17		
GOLD @MIN	11-Jul-88	17.4	11		
GOLD @MIN	12-Jul-88	15.6	10		
GOLD @MIN	13-Jul-88	60.2	26		
GOLD @MIN	14-Jul-88	26.5	14		
GOLD @MIN	15-Jul-88	17.8	10		
GOLD @MIN	16-Jul-88	22.3	12		
GOLD @MIN	17-Jul-88	34.2	11		
GOLD @MIN	18-Jul-88	20.7	10		
GOLD @MIN	19-Jul-88	18.7	12		
GOLD @MIN	20-Jul-88	15.9	8.0		
GOLD @MIN	21-Jul-88	14.2	8.9		
GOLD @MIN	22-Jul-88	25.5	8.0		
GOLD @MIN	23-Jul-88	23.2	5.8		
GOLD @MIN	24-Jul-88	16.0	5.8		
GOLD @MIN	25-Jul-88	13.0	8.9		
GOLD @MIN	26-Jul-88	46.0	23		
GOLD @MIN	27-Jul-88	16.0	14		
GOLD @MIN	28-Jul-88	15.0	15		
GOLD @MIN	29-Jul-88	18.0	15		

SITE	DATE	TSS (mg/l)	TURB (NTU)	Q (cfs)	LOAD (tons/day)
GOLD @MIN	30-Jul-88	24.0	12		
GOLD @MIN	31-Jul-88	26.0	18		
GOLD @MIN	01-Aug-88	20.0	14		
GOLD @MIN	02-Aug-88	28.0	24		
GOLD @MIN	03-Aug-88	24.0	18		
GOLD @MIN	04-Aug-88	21.0	18		
GOLD @MIN	05-Aug-88	39.0	25		
GOLD @MIN	06-Aug-88	40.0	30		
GOLD @MIN	07-Aug-88	38.0	17		
GOLD @MIN	08-Aug-88	42.0	30		
GOLD @MIN	09-Aug-88	53.0	36		
GOLD @MIN	10-Aug-88	45.0	39		
GOLD @MIN	11-Aug-88	34.0	32		
GOLD @MIN	12-Aug-88	54.0	20		
GOLD @MIN	13-Aug-88	28.0	27		
GOLD @MIN	14-Aug-88	29.0	22		
GOLD @MIN	15-Aug-88	23.0	19		
GOLD @MIN	16-Aug-88	29.0	19		
GOLD @MIN	17-Aug-88	25.0	20		
GOLD @MIN	18-Aug-88	71.0	18		
GOLD @MIN	19-Aug-88	23.0	16		
GOLD @MIN	20-Aug-88	27.0	23		
GOLD @MIN	21-Aug-88	44.0	29		
GOLD @MIN	26-Aug-88	8.00	12		

APPENDIX B

Data from non-automated sites.

SITE	DATE	TSS (mg/l)	TURB (NTU)	COMMENTS
BIRCH	12-Jul-88	309	470	above GoldDust Cr
BIRCH	13-Jul-88	267	390	
BIRCH	03-Aug-88	20.5	19	
ALBERT	22-Sep-88	2.15	0.8	
BEDROCK	12-Jul-88	0.84	0.9	
BEDROCK	13-Jul-88	0.21	3.9	
BEDROCK	21-Jul-88	2.88	0.4	
BEDROCK	27-Jul-88	0.44	0.6	
BEDROCK	02-Aug-88	1.27	0.5	
BEDROCK	03-Aug-88	1.95	0.4	
BEDROCK	09-Aug-88	2.55	1.0	
BEDROCK	10-Aug-88	0.78	0.8	
BEDROCK	11-Aug-88	2.33	1.0	
BEDROCK	17-Aug-88	2.42	1.8	
BEDROCK	18-Aug-88	2.86	1.0	
BEDROCK	25-Aug-88	0.63	0.6	
BEDROCK	01-Sep-88	4.51	1.1	
BEDROCK	14-Sep-88	1.00	0.4	
BEDROCK	22-Sep-88	0.84	0.5	
BONANZA	10-Aug-88	75.7	100	
BONANZA	17-Aug-88	25.0	33	
BOULDER	12-Jul-88	7.83	1.0	
BOULDER	13-Jul-88	0.49	1.1	
BOULDER	21-Jul-88	1.95	0.5	
BOULDER	27-Jul-88	2.23	0.7	
BOULDER	02-Aug-88	0.42	0.4	
BOULDER	09-Aug-88	2.72	0.7	
BOULDER	10-Aug-88	0.78	0.4	
BOULDER	11-Aug-88	0.40	0.6	
BOULDER	17-Aug-88	0.39	0.6	
BOULDER	18-Aug-88	1.53	0.6	
BOULDER	25-Aug-88	0.21	0.9	
BOULDER	01-Sep-88	2.62	1.1	
BOULDER	14-Sep-88	1.40	0.7	
BOULDER	22-Sep-88	1.70	0.7	
CROOKED	12-Jul-88	147	240	@ Steese Hwy
CROOKED	13-Jul-88	69.8	140	
CROOKED	21-Jul-88	17.4	65	
CROOKED	28-Jul-88	51.1	130	

SITE	DATE	TSS (mg/l)	TURB (NTU)	COMMENTS
CROOKED	03-Aug-88	81.7	45	
CROOKED	04-Aug-88	71.7	89	
CROOKED	09-Aug-88	274	210	
CROOKED	11-Aug-88	131	180	
CROOKED	17-Aug-88	113	180	
CROOKED	18-Aug-88	81.3	100	
CROOKED	24-Aug-88	75.0	83	
CROOKED	01-Sep-88	93.5	110	
CROOKED	22-Sep-88	7.69	21	
CROOKED	12-Jul-88	43.8	73	below Bedrock Cr.
CROOKED	13-Jul-88	24.0	42	
DEADWOOD	12-Jul-88	59.6	23	
DEADWOOD	13-Jul-88	40.5	69	
DEADWOOD	21-Jul-88	3.33	2.9	
DEADWOOD	27-Jul-88	3.78	3.3	
DEADWOOD	28-Jul-88	4.09	4.9	
DEADWOOD	04-Aug-88	196	170	
DEADWOOD	09-Aug-88	169	45	
DEADWOOD	10-Aug-88	46.2	48	
DEADWOOD	11-Aug-88	94.8	110	
DEADWOOD	18-Aug-88	63.2	97	
DEADWOOD	24-Aug-88	78.9	90	
DEADWOOD	01-Sep-88	68.9	60	
DEADWOOD	14-Sep-88	46.2	20	
DEADWOOD	22-Sep-88	19.8	16	
DEEP	07-Jun-88	398	88	
EAGLE	13-Jul-88	1280	1780	
EAGLE	27-Jul-88	477	670	
EAGLE	03-Aug-88	70.4	120	
EAGLE	09-Aug-88	142	190	
EAGLE	18-Aug-88	33.9	61	
EAGLE	25-Aug-88	60.3	120	
EAGLE	22-Sep-88	60.1	110	
GOLDDUST	12-Jul-88	75.3	140	
GOLDDUST	13-Jul-88	71.2	160	
GOLDDUST	03-Aug-88	2.79	5.5	
INDEPENDENCE	21-Jul-88	7.69	8.7	
INDEPENDENCE	21-Jul-88	462	400	
KETCHEM	12-Jul-88	200	55	
KETCHEM	13-Jul-88	178	70	

SITE	DATE	TSS (mg/l)	TURB (NTU)	COMMENTS
KETCHEM	21-Jul-88	254	410	
KETCHEM	27-Jul-88	198	290	
KETCHEM	28-Jul-88	173	400	
KETCHEM	28-Jul-88	269	380	
KETCHEM	04-Aug-88	781	650	
KETCHEM	09-Aug-88	492	190	
KETCHEM	10-Aug-88	152	120	
KETCHEM	11-Aug-88	213	230	
KETCHEM	18-Aug-88	303	420	
KETCHEM	24-Aug-88	62.1	110	
KETCHEM	01-Sep-88	166	130	
KETCHEM	14-Sep-88	833	850	
KETCHEM	22-Sep-88	40.4	150	
MASTODON	21-Jul-88	24.8	26	
MILLER	21-Jul-88	1.42	0.5	
N. F. HARRISON	21-Jul-88	1.22	0.7	
PORCUPINE	10-Aug-88	109	120	
PORCUPINE	17-Aug-88	45.4	43	
PORTAGE	28-Jul-88	2.18	3.2	
PTARMIGAN	12-Jul-88	0.86	1.0	@ Steese Highway Brd
PTARMIGAN	13-Jul-88	0.22	0.6	
PTARMIGAN	27-Jul-88	1.79	1.5	
PTARMIGAN	03-Aug-88	2.15	0.3	
PTARMIGAN	09-Aug-88	3.98	0.4	
PTARMIGAN	18-Aug-88	0.81	0.9	
PTARMIGAN	25-Aug-88	1.24	1.0	
PTARMIGAN	22-Sep-88	0.85	1.3	
TWELVE MI	23-Jun-88	3.88	0.4	above Birch Cr.
TWELVE MI	27-Jun-88	2.70	0.7	
TWELVE MI	12-Jul-88	0.21	0.7	
TWELVE MI	20-Jul-88	0.00	0.3	
TWELVE MI	27-Jul-88	3.46	0.6	
TWELVE MI	02-Aug-88	0.20	0.3	
TWELVE MI	03-Aug-88	0.40	0.4	
TWELVE MI	09-Aug-88	0.78	0.9	
TWELVE MI	11-Aug-88	1.24	1.1	
TWELVE MI	18-Aug-88	0.80	0.4	
TWELVE MI	25-Aug-88	5.28	2.1	
TWELVE MI	14-Sep-88	2.72	0.6	
TWELVE MI	22-Sep-88	2.17	0.9	

SITE	DATE	TSS (mg/l)	TURB (NTU)	COMMENTS
MAMMOTH	12-Jul-88	179	260	@ Steese Highway Brd
MAMMOTH	13-Jul-88	44.2	81	
MAMMOTH	21-Jul-88	134	200	
MAMMOTH	27-Jul-88	246	420	
MAMMOTH	02-Aug-88	1.84	7.3	
MAMMOTH	03-Aug-88	8.88	12	
MAMMOTH	09-Aug-88	201	200	
MAMMOTH	10-Aug-88	18.3	69	
MAMMOTH	11-Aug-88	180	230	
MAMMOTH	17-Aug-88	3580	770	
MAMMOTH	18-Aug-88	1210	480	
MAMMOTH	25-Aug-88	71.6	93	
MAMMOTH	01-Sep-88	203	260	
MAMMOTH	14-Aug-88	782	690	
MAMMOTH	22-Sep-88	78.1	63	
MAMMOTH	21-Jul-88	131	200	@ Harrison Cr. Road
MAMMOTH	21-Jul-88	140	190	above Miller Cr.
CHATANIKA	20-Jul-88	3.13	0.5	@ 39 Mile Brd
CHATANIKA	27-Jul-88	2.22	0.8	
BIRCH	13-Jul-88	1.77	5.2	below Frying Pan Cr.
BIRCH	13-Jul-88	2.38	4.5	below Harrington Cr.
BIRCH	14-Jul-88	9.17	3.0	below Clums Cr.
BIRCH	14-Jul-88	3.60	2.2	below Wolf Cr.
BIRCH	15-Jul-88	17.4	2.9	below Harrison Cr.
BIRCH	15-Jul-88	22.8	5.5	above Harrison Cr.
BIRCH	15-Jul-88	7.88	2.4	below Sheep Cr.
BIRCH	16-Jul-88	6.05	3.6	below South Fork
BIRCH	17-Jul-88	25.8	1.6	above Crooked Cr.
BIRCH	17-Jul-88	9.78	2.6	below Crooked Cr.
FRYING PAN	13-Jul-88	2.22	2.2	
HARRINGTON	13-Jul-88	6.25	0.6	

SITE	DATE	TSS (mg/l)	TURB (NTU)	COMMENTS
WOLF	14-Jul-88	3.42	0.8	
CLUMS	14-Jul-88	15.1	3.5	
HARRISON	15-Jul-88	5.86	3.1	
SHEEP	15-Jul-88	1.88	1.8	
SOUTH FORK	16-Jul-88	2.62	4.6	
CROOKED	17-Jul-88	16.2	15	

APPENDIX C

Daily discharge from Birch Creek at Steese Highway Bridge.
All values in cfs.

Date	Jun	Jul	Aug	Sep
1		1380	1190	1390
2		1200	1120	1500
3		1090	1070	1480
4		1020	1040	1440
5		977	1100	1510
6		926	1230	1910
7		902	1180	1870
8	1320	896	1130	1780
9	1340	1060	1420	1630
10	1310	1510	1900	1500
11	1240	1370	1710	1430
12	1300	1200	1500	1350
13	2390	1180	1410	1280
14	2890	1110	1410	1230
15	2490	1070	1390	1200
16	2150	1370	1380	1160
17	5210	1290	1420	1130
18	5690	1120	1340	1100
19	3890	1020	1260	1070
20	2740	956	1310	1060
21	3840	922	1350	1040
22	4710	973	1280	1050
23	3220	1410	1240	
24	2210	2620	1260	
25	1710	2050	1280	
26	1450	1560	1250	
27	1310	1320	1220	
28	1360	1190	1200	
29	1700	1120	1200	
30	1700	1090	1250	
31		1160	1300	
Month Average	2486	1228	1301	1369
Season Average	1434			
Maximum Flow	7740 cfs on 17 Jun			
Minimum Flow	896 cfs on 08 Jul			

APPENDIX C (cont)

Daily discharge from Birch Creek above Twelve Mile Creek.
All values in cfs.

Date	Jun	Jul	Aug	Sep
1		51.7	27.6	48.5
2		50.0	27.1	47.7
3		42.2	28.2	78.2
4		40.0	28.9	111
5		36.9	29.5	118
6		32.3	31.1	104
7		30.8	32.7	96.6
8		50.2	36.3	88.1
9		59.1	38.0	83.2
10		46.8	40.8	78.2
11		43.8	41.4	68.6
12		38.8	43.5	66.3
13		33.9	43.9	53.9
14		28.9	55.4	58.9
15		27.5	59.2	56.3
16		24.2	55.6	51.9
17		23.0	55.4	50.1
18		21.9	50.3	50.4
19		21.7	54.2	50.0
20		23.7	54.4	47.7
21		25.9	61.4	44.3
22		28.3	65.4	44.2
23		44.6	63.4	
24		44.3	58.7	
25		40.0	56.0	
26		35.5	56.4	
27	58.2	31.2	56.9	
28	70.8	29.5	52.8	
29	75.0	31.5	52.2	
30	63.6	28.6	58.2	
31		29.5	56.3	
Month Average	66.9	35.4	47.5	68.0
Season Average	49.2			
Maximum Flow	120 cfs on 05 Sep			
Minimum Flow	19.1 cfs on 19 Jul			

APPENDIX C (cont)

Daily discharge from Faith Creek at Steese Highway Bridge.
All values in cfs.

Date	JuN	Jul	Aug	Sep
1		56.8	63.1	101
2		54.3	57.0	94.7
3		48.4	55.9	86.4
4		49.0	54.8	
5		44.0	54.3	
6		42.0	51.7	
7		42.1	56.2	
8		43.9	66.8	
9		42.0	67.2	
10		40.7	62.9	
11		41.0	62.8	
12		40.1	102	
13		39.0	126	
14		39.7	113	
15		41.3	144	
16		36.4	130	
17		32.8	112	
18		31.9	103	
19		31.0	91.1	
20		31.1	85.3	
21		40.9	80.6	
22		49.3	84.2	
23		71.6	120	
24		53.2	138	
25		45.0	120	
26		40.8	111	
27	43.9	39.0	104	
28	119	40.8	102	
29	93.6	69.8	97.5	
30	70.5	80.7	105	
31		72.1	109	
Month Average	81.8	46.1	91.3	93.9
Season Average	70.6			
Maximum Flow	152 cfs on 15 Aug			
Minimum Flow	27.6 cfs on 19 Jul			