UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DATA FROM A HYDROLOGIC RECONNAISSANCE OF THE BELUGA,
PETERS CREEK, AND HEALY COAL AREAS, ALASKA

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U.S. Geological Survey

Open-File Report 80-1206

Anchorage, Alaska
1980

UNITED STATES DEPARTMENT OF THE INTERIOR

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CONVERSION FACTORS

<u>Multiply</u>	<u>By</u>	<u>To obtain</u>
inch (in.)	25.4	millimeter (mm)
foot (ft)	.3048	meter (m)
mile (mi)	1.609	kilometer (km)
square foot (ft ²)	.09290	square meter (m ²)
square mile (mi ²)	2.590	square kilometer (km ²)
ton, short (2,000 lb)	.9072	megagram (Mg)
feet per second (ft/s)	.3048	meters per second (m/s)
inches per year (in./yr)	25.4	millimeters per year (mm/yr)
tons per day (T/d)	.9072	megagrams per day (Mg/d)
tons per year (T/yr)	.9072	megagrams per year (Mg/yr)
gallons per minute (gal/min)	.00006309	cubic meters per second (m ³ /s)
cubic feet per second (ft ³ /s)	.02832	cubic meters per second (m ³ /s)
tons per square mile per year [(T/mi ²)/yr]	.3503	megagrams per square kilometer per year [(Mg/km ²)/yr]
cubic feet per second per square mile [(ft ³ /s)/mi ²]	.01093	cubic meters per second per square kilometer [(m ³ /s)/km ²]

Milligrams per liter (mg/L) is a standard reporting unit for which no inch-pound equivalent is used.

Temperature Conversion Table

Degrees Celsius (°C) to degrees Fahrenheit (°F)*

°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
0.0	32	4.5	40	9.0	48	13.5	56	18.0	64
0.5	33	5.0	41	9.5	49	14.0	57	18.5	65
1.0	34	5.5	42	10.0	50	14.5	58	19.0	66
1.5	35	6.0	43	10.5	51	15.0	59	19.5	67
2.0	36	6.5	44	11.0	52	15.5	60	20.0	68
2.5	36	7.0	45	11.5	53	16.0	61	20.5	69
3.0	37	7.5	45	12.0	54	16.5	62	21.0	70
3.5	38	8.0	46	12.5	54	17.0	63	21.5	71
4.0	39	8.5	47	13.0	55	17.5	63	22.0	72

* °C = 5/9 (°F - 32) or °F = 9/5 (°C) + 32

ABSTRACT

Data are tabulated from a hydrologic study of the Beluga, Peters Creek, and Healy coal areas from July 1975 to June 1979. These include streamflow and water-quality data for all three areas, ground-water data for the Beluga and Healy coal areas, and information from springs in the Beluga coal area. Results of analyses of samples of the benthic invertebrate community in the Beluga area are also included.

PURPOSE AND SCOPE

This report contains a tabulation of data collected in a hydrologic study of three coal areas of Alaska during the period July 1975 to June 1979. A companion report, "Hydrologic reconnaissance of the Beluga, Peters Creek, and Healy coal areas, Alaska," presents a summary and interpretation of the data.

Part I of this report contains data for streamflow, water quality, springs, and ground water in the Beluga coal area. A section on the benthic invertebrate community is included. Part II contains data for streamflow and water quality in the Peters Creek coal area. In part III are data for streamflow, water quality, and ground water in the Healy coal area.

Data collection site name, location and drainage area above site for coal areas.

Site name	Latitude and longitude	Drainage area (mi ²)
<u>Beluga Coal Area</u>		
Capps Creek near Tyonek	61°19'46" 151°37'36"	11.6
Bishop Creek near Tyonek	61°18'23" 151°30'27"	10.9
Chuitna River below Wolverine Fork near Tyonek	61°11'52" 151°39'20"	19.5
Chuitna River above Chuit Creek near Tyonek	61°09'16" 151°30'11"	37.3
Chuit Creek 5.4 miles above mouth near Tyonek	61°12'44" 151°33'54"	9.80
Chuit Creek at mouth near Tyonek	61°09'18" 151°30'11"	23.0
Chuitna River near Tyonek (Station 15294450)	61°06'31" 151°15'07"	131
<u>Peters Creek Coal Area</u>		
Peters Creek near Petersville	62°31'57" 150°48'27"	25.4
Peters Creek above Martin Creek at Peters Creek	62°23'00" 150°43'31"	53.1
<u>Healy Coal Area</u>		
Healy Creek near Usibelli	63°53'08" 148°38'20"	58.8
Coal Creek near Usibelli	63°52'47" 148°40'37"	18.1
Cripple Creek near Usibelli	63°52'45" 148°44'06"	7.33
Healy Creek at Suntrana	63°51'10" 148°50'37"	107
Lignite Creek above Sanderson Creek near Usibelli	63°55'17" 148°42'10"	8.37
Lignite Creek below Sanderson Creek near Usibelli	63°54'53" 148°42'37"	15.6
Lignite Creek near Healy	63°54'26" 148°58'17"	48.6

PART I BELUGA COAL AREA

WATER-DISCHARGE RECORDS

Partial-Record Stations

Instantaneous discharge, in cubic feet per second

Date	Capps Cr nr Tyonek	Bishop Cr nr Tyonek	Chuitna R blw Wolverine Fk nr Tyonek	Chuitna R ab Chuit Cr nr Tyonek	Chuit Cr 5.4 mi abv mth nr Tyonek	Chuit Cr at mth nr Tyonek
08-14-75	49	59	68	--	55	--
10-09-75	31	23	74	48	28	31
04-07-76	--	--	--	--	--	12
04-08-76	--	--	--	10	2.7	--
04-14-76	5.5	4.0	11	--	--	--
07-02-76	103	18	97	144	26	49
08-20-76	22	16	39	59	16	29
10-19-76	39	39	51	118	33	88
03-31-77	--	--	--	20	7.5	14
04-05-77	6.5	--	10	--	--	--
07-18-77	156	13	131	158	32	46
08-19-77	80	32	90	149	38	59
09-16-77	70	85	123	259	73	176
10-18-77	28	19	--	36	21	21
12-08-77	--	--	--	26	--	13
12-13-77	6.7	2.2	17	--	7.0	--
02-15-78	--	--	19	23	--	11
02-16-78	6.8	3.5	--	--	6.8	--
03-30-78	6.8	4.4	17	25	5.3	8.6
05-11-78	50	131	140	252	72	189
06-20-78	89	28	105	182	34	79
07-17-78	39	27	73	136	29	68
08-14-78	16	9.5	32	55	14	27
08-24-78	12	--	--	--	--	--
09-12-78	63	28	135	138	48	33
10-16-78	31	24	55	81	23	45

Chuitna River Near Tyonek (Station 15294450)

LOCATION.--Lat 61°06'31", long 151°15'07", in NE¼NE¼ sec.29, T.12 N., R.11 W., Kenai Peninsula Borough, Hydrologic Unit 19050002, on left bank 2.1 mi (3.4 km) downstream from Lone Creek, 4.8 mi (7.7 km) northwest of Tyonek, and 6.1 mi (9.8 km) upstream from mouth.

DRAINAGE AREA.--131 mi² (339 km²).

PERIOD OF RECORD.--October 1975 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 160 ft (49 m), from topographic map.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,700 ft³/s (190 m³/s) Sept. 21, 1977, gage height, 9.50 ft (2.896 m), from rating curve extended above 2,700 ft³/s (76 m³/s); maximum gage height, 10.97 ft (3.344 m) May 14, 1976, backwater from ice; minimum daily discharge, about 60 ft³/s (1.7 m³/s) Mar. 1 to Apr. 15, 1976 and Feb. 12 to Mar. 12, 1978.

Chuitna River Near Tyonek--Continued

Discharge, in cubic feet per second, Water Year October 1975 To September 1976

Mean values

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
1	500	140	90	90	90	60	60	110	1540	281	85	79		
2	400	120	90	90	90	60	60	120	1630	297	81	78		
3	350	120	85	90	90	60	60	140	1630	245	81	78		
4	300	110	85	90	90	60	60	180	1640	214	81	78		
5	260	110	80	90	90	60	60	180	1960	198	81	79		
6	220	100	80	90	90	60	60	200	2630	183	95	74		
7	200	100	80	90	80	60	60	200	1770	171	145	79		
8	180	100	80	80	80	60	60	220	1800	153	159	396		
9	170	100	80	80	80	60	60	220	1560	142	357	224		
10	200	120	80	80	80	60	60	240	1890	132	189	148		
11	400	120	90	80	70	60	60	260	2160	125	135	159		
12	600	120	90	80	70	60	60	300	1930	153	132	138		
13	800	120	90	80	70	60	60	350	1510	142	116	123		
14	600	120	90	80	70	60	60	450	1140	123	110	153		
15	500	120	90	80	70	60	60	600	976	114	107	450		
16	400	120	100	80	70	60	70	800	896	112	103	470		
17	350	120	100	80	70	60	70	1100	904	112	107	624		
18	300	120	100	80	70	60	70	1270	679	110	305	420		
19	250	120	100	80	70	60	70	1150	600	107	238	863		
20	220	120	100	80	70	60	80	1300	651	105	162	1740		
21	200	120	100	90	70	60	90	1430	564	101	130	1610		
22	300	120	100	90	70	60	100	1570	510	97	112	1040		
23	480	120	100	90	70	60	100	1410	460	99	101	558		
24	400	120	100	90	70	60	90	1220	410	97	95	425		
25	350	120	100	90	70	60	80	1310	415	91	93	410		
26	300	120	100	90	70	60	80	1420	388	87	91	345		
27	280	120	100	90	70	60	80	1420	357	83	89	325		
28	240	110	100	90	70	60	90	1270	341	81	89	1070		
29	200	100	100	90	70	60	90	1420	297	89	83	893		
30	180	95	100	90	---	60	100	1520	277	110	81	460		
31	160	---	100	90	---	60	---	1500	---	97	79	---		
TOTAL	10290	3465	2880	2660	2190	1860	2160	24880	33515	4251	3912	13589		
MEAN	332	116	92.9	85.8	75.5	60.0	72.0	803	1117	137	126	453		
MAX	800	140	100	90	90	60	100	1570	2630	297	357	1740		
MIN	160	95	80	80	70	60	60	6.13	277	74	79	74		
CFSM	2.53	.89	.71	.66	.58	.46	.55	6.13	8.53	1.05	.96	3.46		
IN.	2.92	.98	.82	.76	.62	.53	.61	7.07	9.52	1.21	1.11	3.86		
AC-FT	20410	6870	5710	5280	4340	3690	4280	49350	66480	8430	7760	26950		
WTR YR 1976	TOTAL	105652	MEAN	289	MAX	2630	MIN	60	CFSM	2.21	IN	30.00	AC-FT	209600

Chuitna River Near Tyonek--Continued

Discharge, in cubic feet per second, Water Year October 1976 To September 1977
Mean values

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	349	190	784	190	150	95	80	400	2410	1370	156	114
2	297	170	564	190	250	95	80	450	2660	1290	148	112
3	289	190	510	200	280	95	80	500	2730	1110	156	107
4	333	220	500	190	180	95	80	588	2650	1020	542	103
5	450	250	450	190	160	90	80	637	3600	928	321	97
6	826	289	400	190	140	90	90	735	2770	742	204	486
7	475	305	400	190	140	90	90	742	2190	618	277	1420
8	333	485	350	190	130	85	90	700	1960	576	321	686
9	277	440	300	190	130	85	90	658	1900	594	257	791
10	261	465	300	180	130	85	90	624	2100	606	441	2100
11	224	445	300	180	120	80	100	618	2220	570	277	1680
12	183	383	300	180	120	80	100	693	2310	522	207	594
13	189	564	280	170	120	80	100	798	2350	460	671	420
14	204	707	280	170	110	80	100	904	2340	415	582	383
15	249	594	260	160	110	80	100	1020	2310	353	420	554
16	242	588	260	160	110	80	110	1140	2190	289	281	1170
17	341	516	260	150	110	80	110	1180	2350	293	561	516
18	588	450	240	150	110	80	120	1460	2280	265	721	420
19	485	400	240	140	110	80	120	1620	2010	245	370	357
20	819	400	220	140	110	80	140	1620	1980	372	277	361
21	833	350	220	140	100	80	160	1520	2060	363	217	4940
22	552	500	220	140	100	80	200	1460	1950	289	180	2060
23	365	450	200	150	100	80	250	1450	2120	220	171	805
24	325	400	200	170	100	80	350	1390	2050	192	156	606
25	301	400	200	190	100	80	450	1440	2100	174	148	495
26	238	350	200	200	100	80	500	1530	2000	220	145	440
27	201	400	200	190	100	80	450	1670	1780	438	142	1220
28	170	800	200	170	100	80	430	1770	1680	293	132	2810
29	150	1020	200	150	---	80	410	1860	1650	210	123	1080
30	150	920	200	130	---	80	400	1980	1390	180	118	665
31	200	---	200	130	---	80	---	2100	---	165	116	---
TOTAL	10899	13631	9438	5250	3540	2585	5550	35257	66090	15382	8838	27592
MEAN	352	454	304	169	126	83.4	185	1137	2203	496	285	920
MAX	833	1020	784	200	250	95	500	2100	3600	1370	721	4940
MIN	150	170	200	130	100	80	80	400	1390	165	116	97
CFSM	2.69	3.47	2.32	1.29	.96	.64	1.41	8.68	16.8	3.79	2.18	7.02
IN.	3.09	3.87	2.68	1.49	1.01	.73	1.58	10.01	18.77	4.37	2.51	7.84
AC-FT	21620	27040	18720	10410	7020	5130	11010	69930	131100	30510	17530	56730
CAL YR 1976	TOTAL 122985	MEAN 336	MAX 336	MIN 60	CFSM 2.57	IN 34.92	AC-FT 243900					
WTR YR 1977	TOTAL 204052	MEAN 559	MAX 4940	MIN 80	CFSM 4.27	IN 57.94	AC-FT 404700					

Chuitna River Near Tyonek--Continued

Discharge, in cubic feet per second, Water Year October 1977 To September 1978

Mean values

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	564	159	75	75	62	60	70	330	763	253	153	93
2	500	135	75	75	62	60	70	390	665	228	142	91
3	455	130	75	75	62	60	70	450	644	253	132	87
4	430	130	75	75	62	60	70	520	665	686	130	85
5	383	125	70	75	62	60	70	600	651	992	130	256
6	365	120	70	70	62	60	70	693	560	552	128	201
7	396	115	70	70	62	60	70	714	480	396	123	138
8	365	110	70	70	62	60	70	819	406	309	118	138
9	406	110	70	70	62	60	70	880	396	257	135	201
10	420	105	70	70	62	60	70	856	374	238	142	174
11	401	100	70	70	62	60	70	1020	396	228	125	140
12	374	100	70	65	60	60	70	1060	370	665	118	218
13	333	100	75	65	60	62	70	1020	353	378	150	561
14	317	95	75	65	60	62	70	1120	760	305	150	345
15	297	95	75	65	60	62	70	1180	1060	365	132	210
16	285	95	75	65	60	62	70	984	840	406	125	177
17	273	90	75	65	60	62	75	864	582	383	177	150
18	204	90	75	65	60	62	75	864	651	301	132	159
19	220	90	80	65	60	62	75	880	558	710	116	214
20	253	90	80	65	60	64	80	968	425	693	198	231
21	281	85	80	65	60	64	80	968	353	516	145	198
22	317	85	80	65	60	64	90	944	480	505	118	165
23	297	85	80	62	60	64	90	1030	410	455	110	148
24	273	80	80	62	60	64	100	1780	317	361	103	140
25	257	80	80	62	60	66	110	1360	361	383	97	148
26	249	80	80	62	60	66	125	1060	707	293	93	238
27	245	80	80	62	60	66	150	856	445	249	91	183
28	242	80	75	62	60	68	190	798	337	217	89	159
29	228	75	75	62	---	68	240	784	277	195	91	148
30	224	75	75	62	---	68	280	805	281	183	95	138
31	224	---	75	62	---	68	---	944	---	168	97	---
TOTAL	10078	2989	2330	2068	1702	1944	2880	27541	15567	12123	3885	5534
MEAN	325	99.6	75.2	66.7	60.8	62.7	96.0	888	519	391	125	184
MAX	564	159	80	75	62	68	280	1780	1060	992	198	561
MIN	204	75	70	62	60	60	70	330	277	168	89	85
CFSM	2.48	.76	.57	.51	.46	.48	.73	6.78	3.96	2.99	.95	1.41
IN.	2.86	.85	.66	.59	.48	.55	.82	7.82	4.42	3.44	1.10	1.57
AC-FT	19990	5930	4620	4100	3380	3860	5710	54630	30880	24050	7710	10980
CAL YR 1977	TOTAL	185481	MEAN 508	MAX 4940	MIN 70	CFSM 3.88	IN 52.67	AC-FT 367900				
WTR YR 1978	TOTAL	88641	MEAN 243	MAX 1780	MIN 60	CFSM 1.86	IN 25.17	AC-FT 175800				

SUSPENDED-SEDIMENT DISCHARGE RECORDS

Partial-Record Stations

Capps Creek Near Tyonek					Bishop Creek Near Tyonek					Chuitna River Below Wolverine Fork Near Tyonek				
DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)
AUG • 1975	1600	49	417	55	AUG • 1975	1700	59	9	1.4	AUG • 1975	1500	68	4	.73
OCT 14...					OCT 14...					OCT 14...				
APR • 1976	1400	31	92	7.7	JUL • 1976	1500	23	4	.25	JUL • 1976	1300	74	8	1.6
APR • 1976	1155	5.5	9	.13	JUL • 1976	1330	18	3	.15	JUL • 1976	1100	97	7	1.8
JUL 14...					AUG 02...					AUG 02...				
JUL 02...	1200	103	96	27	AUG 20...	1300	16	1	.04	AUG 20...	1035	39	1	.11
AUG 02...					OCT 19...	1330	39	3	.32	OCT 19...	1200	51	3	.41
AUG 20...	1130	22	1	.06	JUL • 1977	1600	13	2	.07	JUL • 1977	1330	131	8	2.8
OCT 19...	1300	39	53	5.6	AUG 18...					AUG 18...				
JUL • 1977					AUG 19...	1430	32	4	.35	AUG 19...	1230	90	2	.49
JUL 18...	1500	156	212	89	SEP 16...	1345	85	29	6.7	SEP 16...	1230	123	4	1.3
AUG 18...					OCT 16...					OCT 16...				
AUG 19...	1330	80	44	9.5	SEP 18...	1430	19	7	.36	SEP 18...	1245	140	19	7.2
SEP 16...	1315	70	86	16	OCT 11...	1425	131	113	40	OCT 11...	1115	105	6	1.7
SEP 16...					MAY • 1978					MAY • 1978				
OCT 18...	1400	28	11	.83	JUN 20...	1315	28	6	.45	JUN 20...	1235	73	1	.20
MAY • 1978					JUL 17...	1425	27	3	.22	JUL 17...	1210	135	24	8.7
MAY 11...	1400	50	448	60	SEP 12...	1405	28	10	.76	SEP 12...	1145	55	2	.30
JUN 20...					OCT 16...	1350	24	4	.26	OCT 16...				
JUL 17...	1215	89	69	17										
JUL 20...	1330	39	6	.63										
AUG 14...	1400	16	3	.13										
SEP 12...	1305	63	88	15										
OCT 16...	1300	31	16	1.3										

Partial-Record Stations--Continued

Chuitna River Above Chuit Creek Near Tyonek					Chuit Creek 5.4 Miles Above Mouth Near Tyonek					Chuit Creek At Mouth Near Tyonek				
DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)
OCT , 1975	0900	48	3	.39	AUG , 1975	1330	55	3	.45	OCT , 1975	0830	31	3	.25
09....					OCT	09....				09....				
APR , 1976	1250	10	1	.03	09....	1200	28	5	.38	JUL , 1976	0820	49	2	.26
08....					JUL , 1976	02....				02....				
JUL	0910	144	11	4.3	1000	1000	26	1	.07	AUG	0800	29	1	.08
02....					AUG	20....				20....				
AUG	0845	59	2	.32	0930	0930	16	1	.04	OCT	0900	88	3	.71
20....					OCT	19....				19....				
OCT	0930	118	10	3.2	1050	1050	33	1	.09	JUL , 1977	1000	46	6	.75
19....					JUL , 1977	18....				18....				
JUL , 1977	1050	158	7	3.0	1215	1215	32	2	.17	AUG	1000	59	3	.48
18....					AUG	19....				19....				
AUG	1000	149	7	2.8	1145	1145	38	1	.10	SEP	1015	176	10	4.8
19....					SEP	16....				16....				
SEP	1100	259	29	20	1200	1200	73	2	.39	OCT	0930	21	0	.00
16....					OCT	18....				18....				
OCT	1045	36	0	.00	1100	1100	21	1	.06	MAY , 1978	0945	189	31	16
18....					MAY , 1978	11....				11....				
					JUN	1140	72	8	1.6	JUN	0915	79	3	.64
					JUN	20....				20....				
JUN	1000	182	13	6.4	1020	1020	34	2	.18	JUL	1000	68	2	.37
20....					JUL	17....				17....				
JUL	1045	136	5	1.8	1140	1140	29	1	.08	SEP	0935	33	6	.53
17....					SEP	12....				12....				
SEP	1020	138	62	23	1120	1120	48	16	2.1	OCT	0930	45	2	.24
12....					OCT	16....				16....				
OCT	1010	81	3	.66	1105	1105	23	1	.06					
16....														

Chuitna River Near Tyonek

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM	SED. SUSP. SIEVE DIAM. % FINER THAN 2.00 MM
AUG , 1975															
14...	0930	387	44	46	--	--	--	--	--	--	--	--	--	--	--
OCT															
09...	1600	172	5	2.3	--	--	--	--	--	--	--	--	--	--	--
23...	1130	477	13	17	--	--	--	--	--	--	--	--	--	--	--
MAY , 1976															
26...	1330	1110	67	201	--	--	--	--	--	61	69	82	98	100	--
JUN															
07...	1430	1500	128	518	--	--	--	--	--	38	46	66	95	100	--
JUL															
02...	1600	279	3	2.3	--	--	--	--	--	--	--	--	--	--	--
AUG															
20...	1400	157	1	.42	--	--	--	--	--	--	--	--	--	--	--
OCT															
01...	1300	346	4	3.7	--	--	--	--	--	--	--	--	--	--	--
19...	1600	441	7	8.3	--	--	--	--	--	--	--	--	--	--	--
MAY , 1977															
13...	0900	750	27	55	--	--	--	--	--	66	74	86	97	100	--
28...	1600	1590	129	554	--	--	--	--	--	--	--	--	--	--	--
28...	2030	1780	187	899	--	--	--	--	--	--	--	--	--	--	--
29...	0100	1930	194	1010	--	--	--	--	--	37	51	78	96	98	100
JUN															
11...	2030	2560	229	1580	--	--	--	--	--	43	57	74	96	100	--
12...	0030	2700	278	2030	--	--	--	--	--	38	51	79	98	100	--
12...	0630	2250	172	1050	--	--	--	--	--	31	42	70	97	100	--
12...	1200	2020	120	654	--	--	--	--	--	29	39	66	95	100	--
SEP															
21...	1110	6450	1570	27300	12	20	30	42	54	63	74	88	99	100	--
21...	1315	6180	1040	17400	10	17	26	37	47	56	68	84	98	100	--
22...	0915	2170	195	1140	--	--	--	--	--	--	--	--	--	--	--
22...	1115	1900	126	646	--	--	--	--	--	--	--	--	--	--	--
22...	1315	1650	112	499	--	--	--	--	--	--	--	--	--	--	--
JUN , 1978															
08...	1230	432	10	12	--	--	--	--	--	--	--	--	--	--	--

WATER-TEMPERATURE RECORDS Partial-Record Stations Periodic water temperature, °C

Date	Capps Cr nr Tyonek		Bishop Cr nr Tyonek		Chuitna R blw Wolverine Fk nr Tyonek		Chuitna R abv Chuit Cr nr Tyonek		Chuit Cr 5.4 mi abv mth nr Tyonek		Chuit Cr at mth nr Tyonek	
	Time	Temp	Time	Temp	Time	Temp	Time	Temp	Time	Temp	Time	Temp
08-14-75	1610	13.5	1705	14.0	1445	12.5	--	--	1330	12.5	--	--
10-09-75	1410	1.0	1500	1.5	1315	0.5	0925	0.0	1210	1.0	0840	1.5
04-07-76	--	--	--	--	--	--	--	--	--	--	1345	1.0
04-08-76	--	--	--	--	--	--	1325	1.0	1530	1.0	--	--
04-14-76	1140	1.0	0950	1.0	1405	1.0	--	--	--	--	--	--
07-02-76	1215	7.0	1310	11.0	1115	8.0	0905	8.5	1010	9.5	0830	10.0
08-20-76	1150	10.5	1250	12.0	1050	9.5	0850	10.0	0940	9.0	0810	9.5
10-19-76	1315	1.0	1440	1.0	1205	0.5	1000	1.0	1110	1.0	0905	1.0
03-31-77	--	--	--	--	--	--	1345	0.0	1520	0.0	1220	0.0
04-05-77	1110	0.0	--	--	1230	0.0	--	--	--	--	--	--
07-18-77	1450	10.0	1550	17.0	1320	10.5	1030	8.5	1205	12.0	0950	11.0
08-19-77	1325	9.5	1440	13.0	1230	10.5	1045	10.0	1145	11.5	0945	10.0
09-16-77	1300	7.0	1340	8.0	1220	6.5	--	--	1150	7.0	1020	7.5
10-18-77	1350	0.0	1440	0.0	--	--	1025	0.0	1130	0.0	0920	0.0
02-15-78	--	--	--	--	1520	0.5	1330	0.5	--	--	1200	0.5
02-16-78	1120	0.5	1230	0.5	--	--	--	--	0950	0.5	--	--
03-30-78	1400	1.0	1505	0.0	1240	0.0	0925	0.5	1115	0.0	0840	0.5
05-11-78	1340	1.0	1440	1.0	1230	0.0	1015	1.0	1125	0.0	0930	1.0
06-20-78	1235	8.5	1330	12.0	1130	8.0	0945	7.0	1040	9.0	0910	7.0
07-17-78	1320	10.5	1415	11.0	1225	10.0	1030	10.0	1130	10.0	0950	9.5
08-14-78	1410	12.0	--	--	1305	12.5	1100	12.5	1220	11.5	--	--
08-24-78	0900	8.0	--	--	--	--	--	--	--	--	--	--
09-12-78	1255	8.0	1355	8.0	1200	8.0	1010	8.5	1110	8.0	0920	8.5
10-16-78	1240	0.0	1335	0.5	1130	0.0	1050	0.0	1040	0.0	0910	0.5

Chuitna River Near Tyonek

PERIOD OF DAILY RECORD.--May 1976 to October 1978.

INSTRUMENTATION.--Temperature recorder since May 10, 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--Maximum, 22.5°C Aug. 4, 1976; 0.0°C on most days during winter period.

Water temperature, °C, May to October 1976

Day	May			June			July			August			September			October		
	Max	Min	---	Max	Min	---	Max	Min	---	Max	Min	---	Max	Min	---	Max	Min	---
1	---	---	---	---	---	---	12.5	12.0	21.0	15.0	11.5	8.5	4.0	2.0	---	4.0	2.0	---
2	---	---	---	---	---	---	14.0	11.0	18.0	14.0	11.0	8.5	2.5	1.0	---	2.5	1.0	---
3	---	---	---	---	---	---	15.5	11.0	21.5	14.5	12.5	7.5	4.0	2.0	---	4.0	2.0	---
4	---	---	---	---	---	---	13.0	9.5	22.5	16.0	10.0	7.5	4.5	3.0	---	4.5	3.0	---
5	---	---	---	---	---	---	13.5	9.0	20.0	15.5	10.0	5.5	5.0	4.0	---	5.0	4.0	---
6	---	---	---	---	---	---	18.0	11.0	17.0	14.0	9.0	5.0	5.0	4.0	---	5.0	4.0	---
7	---	---	---	5.0	3.0	---	19.0	12.5	16.0	13.0	8.0	6.5	4.5	2.0	---	4.5	2.0	---
8	---	---	---	6.0	2.0	---	20.0	13.0	14.5	12.5	8.0	6.5	2.0	.5	---	2.0	.5	---
9	---	---	---	5.5	2.0	---	21.0	15.0	12.5	11.0	9.5	7.0	1.5	.0	---	1.5	.0	---
10	1.0	1.0	---	7.5	2.0	---	20.0	15.0	17.0	11.5	8.5	7.0	1.5	.5	---	1.5	.5	---
11	1.0	1.0	---	8.5	2.0	---	18.5	15.0	16.0	12.5	9.5	7.5	1.0	.0	---	1.0	.0	---
12	1.0	.5	---	8.5	2.0	---	19.0	14.0	16.5	13.0	9.0	7.0	.0	.0	---	.0	.0	---
13	.5	.5	---	6.0	2.5	---	19.0	12.5	15.0	12.5	9.5	8.0	---	---	---	---	---	---
14	1.5	.5	---	6.5	4.0	---	18.5	12.0	14.5	13.0	8.5	7.5	---	---	---	---	---	---
15	1.0	.5	---	6.5	5.0	---	17.0	14.0	14.5	12.0	7.5	6.5	---	---	---	---	---	---
16	---	---	---	6.0	5.0	---	18.0	13.5	14.5	12.0	7.5	6.5	---	---	---	---	---	---
17	---	---	---	5.0	5.0	---	18.0	14.0	12.5	11.5	7.0	6.5	---	---	---	---	---	---
18	---	---	---	6.0	5.0	---	17.0	14.0	12.0	10.0	7.0	5.5	---	---	---	---	---	---
19	---	---	---	7.0	6.0	---	16.5	13.5	13.5	10.5	7.0	5.0	2.0	2.0	---	2.0	2.0	---
20	---	---	---	7.5	6.5	---	18.0	13.0	16.0	11.0	6.5	5.0	2.0	2.0	---	2.0	2.0	---
21	---	---	---	7.5	7.0	---	19.5	13.5	16.0	11.5	6.5	5.5	2.0	1.5	---	2.0	1.5	---
22	---	---	---	8.0	7.0	---	16.0	14.5	16.0	11.0	7.5	6.5	1.5	.0	---	1.5	.0	---
23	---	---	---	8.5	8.0	---	17.5	12.0	17.0	12.0	7.0	6.0	.0	.0	---	.0	.0	---
24	---	---	---	9.5	8.5	---	19.0	12.5	17.0	13.0	7.5	6.0	.0	.0	---	.0	.0	---
25	---	---	---	10.0	9.5	---	19.0	12.0	14.5	12.0	7.0	6.0	.0	.0	---	.0	.0	---
26	---	---	---	10.5	10.0	---	18.5	12.5	12.5	10.5	7.5	6.5	.0	.0	---	.0	.0	---
27	---	---	---	11.5	10.5	---	20.0	14.0	12.5	10.5	7.5	6.0	---	---	---	---	---	---
28	---	---	---	11.5	11.0	---	17.0	14.5	15.0	10.0	7.0	5.0	---	---	---	---	---	---
29	---	---	---	12.0	11.5	---	14.5	13.5	14.5	10.0	5.0	4.0	---	---	---	---	---	---
30	---	---	---	12.5	12.0	---	17.0	12.0	13.5	8.5	4.5	3.0	---	---	---	---	---	---
31	---	---	---	---	---	---	20.0	12.0	13.0	8.5	---	---	---	---	---	---	---	---
MONTH				12.5	2.0		21.0	9.0	22.5	8.5	12.5	3.0						

Chuitna River Near Tyonek--Continued

Water temperature, °C, April to October 1977

Day	April		May		June		July		August		September		October	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1			.0	.0	8.5	3.5	14.5	11.0	21.0	15.0	15.5	11.0	4.0	2.5
2			.0	.0	9.0	4.5	15.0	10.5	21.5	15.0	15.0	9.5	4.0	2.0
3			.5	.0	11.0	5.5	13.0	10.0	18.0	15.0	15.0	10.5	3.5	2.0
4			1.5	.0	10.5	5.5	11.0	9.0	16.0	14.5	12.5	10.5	2.5	1.0
5			1.5	.5	9.5	5.5	11.5	10.0	15.0	13.5	12.0	10.5	4.0	2.5
6			1.0	.5	9.5	6.0	11.5	9.5	17.5	12.5	12.0	9.0	5.0	4.0
7			2.5	.5	11.5	7.5	13.5	10.0	17.5	13.5	11.5	9.0	5.0	4.0
8			4.5	.5	10.5	8.0	16.0	10.0	16.5	14.5	12.0	10.0	5.5	5.0
9			2.0	1.0	11.5	9.0	13.5	12.0	15.5	14.0	11.5	9.5	5.5	4.5
10			6.0	1.0	14.0	9.0	17.0	12.0	19.0	13.5	11.0	8.0	4.5	3.5
11			6.0	.5	13.5	10.5	14.5	12.0	18.0	14.0	10.5	8.0	4.0	3.0
12			4.5	.5	14.5	10.0	13.5	11.0	16.0	14.0	11.0	9.5	4.0	3.0
13			5.5	1.0	12.0	9.5	15.5	11.0	16.5	13.0	10.0	9.5	4.0	2.0
14			7.0	1.5	9.5	7.5	14.0	12.0	15.5	13.0	10.5	9.0	2.5	.5
15			5.5	1.0	9.5	7.5	11.5	10.5	17.0	12.0	10.5	8.5	1.0	.0
16			5.5	2.0	9.5	7.5	11.0	10.0	14.5	12.5	10.5	8.5	1.5	.5
17			6.0	1.5	9.0	7.5	13.0	10.0	16.0	10.5	10.0	4.0	1.5	1.5
18			6.5	2.0	8.5	7.0	14.5	11.5	17.0	11.5	10.0	8.5	2.5	1.5
19			8.0	1.0	11.0	8.0	13.0	11.0	15.0	12.5	9.5	8.0	2.5	1.0
20			8.5	1.5	14.0	9.0	11.5	10.5	14.5	12.0	9.0	8.0	2.5	2.0
21			8.5	1.5	14.5	10.0	11.5	10.0	15.5	11.0	9.0	7.5	2.0	.0
22			6.0	2.5	13.0	9.5	12.0	10.5	16.0	11.0	9.0	6.5	.5	.0
23			4.5	2.5	14.0	9.0	14.0	10.5	16.0	11.0	6.5	4.0	.0	.0
24			4.0	2.5	14.0	11.0	13.5	12.0	16.0	10.5	6.5	4.0	.0	.0
25			7.0	2.5	12.0	9.5	16.0	11.0	16.0	11.0	7.0	6.0	.0	.0
26			5.5	3.0	12.5	8.5	16.5	12.5	15.5	10.5	8.0	6.0	.0	.0
27		.0	7.5	2.5	11.5	9.5	18.5	13.0	14.5	10.5	6.5	4.5	.5	.0
28		.0	6.5	3.5	14.5	8.5	18.0	14.5	14.0	12.0	6.5	4.0	.0	.0
29		.0	8.0	4.5	14.5	11.5	17.5	13.5	13.0	11.5	6.0	3.5	.0	.0
30		.0	6.5	4.0	14.0	11.5	19.0	13.0	14.0	10.5	4.5	2.5	.0	.0
31		---	6.0	3.5	---	---	20.5	14.0	15.0	11.0	---	---	.0	.0
MONTH			8.5	.0	14.5	3.5	20.5	9.0	21.5	10.5	15.5	2.5	5.5	.0
YEAR	21.5	.0												

Chuitna River Near Tyonek--Continued

Water temperature, °C, April to October 1978

Day	April			May			June			July			August			September			October		
	Max	Min		Max	Min		Max	Min		Max	Min		Max	Min		Max	Min		Max	Min	
1	.0	.0	.0	.0	.0	.0	6.5	1.5	10.0	3.5	16.5	12.5	11.5	8.5	3.5	11.5	8.5	3.5	11.5	8.5	3.5
2	.0	.0	.0	.0	.0	.0	6.5	2.0	10.0	4.0	15.0	13.0	12.5	8.5	4.0	13.0	8.5	4.0	13.0	8.5	4.0
3	.0	.0	.0	1.0	.0	.0	6.5	2.0	8.5	5.0	13.5	12.0	13.5	9.0	5.0	13.5	9.0	5.0	13.5	9.0	5.0
4	.0	.0	.0	1.5	.0	.0	4.0	2.0	11.0	5.5	14.5	12.5	13.5	9.0	5.5	13.5	9.0	5.5	13.5	9.0	5.5
5	.0	.0	.0	.5	.0	.0	3.5	2.0	8.0	4.5	---	12.0	13.0	8.5	4.5	12.0	8.5	4.5	12.0	8.5	4.5
6	.0	.0	.0	1.5	.0	.0	4.5	1.5	11.0	5.5	---	---	11.0	9.5	5.5	11.0	9.5	5.5	11.0	9.5	5.5
7	.0	.0	.0	2.5	.0	.0	6.0	2.0	10.0	6.5	---	---	10.0	9.5	6.5	10.0	9.5	6.5	10.0	9.5	6.5
8	.0	.0	.0	2.0	.0	.0	4.0	2.5	11.5	7.0	---	---	11.0	9.5	7.0	11.0	9.5	7.0	11.0	9.5	7.0
9	.0	.0	.0	3.0	.0	.0	5.0	2.5	13.5	8.5	---	---	10.5	9.5	8.5	10.5	9.5	8.5	10.5	9.5	8.5
10	.0	.0	.0	4.5	.0	.0	6.0	2.5	14.0	8.5	---	---	10.0	9.0	8.5	10.0	9.0	8.5	10.0	9.0	8.5
11	.0	.0	.0	4.5	.5	.0	7.5	2.5	14.5	9.0	---	---	11.0	9.5	9.0	11.0	9.5	9.0	11.0	9.5	9.0
12	.0	.0	.0	5.5	.0	.0	7.0	2.5	14.5	10.0	---	---	10.0	8.0	10.0	10.0	8.0	10.0	10.0	8.0	10.0
13	.0	.0	.0	5.5	.0	.0	7.5	2.5	13.5	10.5	---	---	9.0	7.5	10.5	9.0	7.5	10.5	9.0	7.5	10.5
14	.0	.0	.0	5.5	.0	.0	7.0	2.5	11.5	10.0	---	---	10.0	8.5	10.0	10.0	8.5	10.0	10.0	8.5	10.0
15	.0	.0	.0	5.5	.5	.0	6.5	2.5	13.5	8.5	---	---	9.0	7.5	8.5	9.0	7.5	8.5	9.0	7.5	8.5
16	.0	.0	.0	3.0	.5	.0	5.0	3.0	16.0	10.5	---	---	9.5	8.0	10.5	9.5	8.0	10.5	9.5	8.0	10.5
17	.0	.0	.0	2.0	1.0	.0	5.0	2.5	17.5	12.0	---	---	8.5	7.0	12.0	8.5	7.0	12.0	8.5	7.0	12.0
18	.0	.0	.0	2.0	1.0	.0	7.0	2.5	17.5	12.5	---	---	9.5	7.5	12.5	9.5	7.5	12.5	9.5	7.5	12.5
19	.0	.0	.0	3.5	1.0	.0	7.5	2.0	16.5	14.0	15.0	---	7.5	5.0	14.0	7.5	5.0	14.0	7.5	5.0	14.0
20	.0	.0	.0	4.5	.5	.0	7.5	3.0	15.5	13.0	17.5	13.0	6.5	6.0	13.0	6.5	6.0	13.0	6.5	6.0	13.0
21	.0	.0	.0	5.0	.5	.0	6.0	3.0	15.0	12.0	18.0	13.0	6.5	5.5	12.0	6.5	5.5	12.0	6.5	5.5	12.0
22	.0	.0	.0	4.0	1.0	.0	6.0	3.0	16.0	11.5	16.0	13.5	7.5	6.5	11.5	7.5	6.5	11.5	7.5	6.5	11.5
23	.0	.0	.0	3.5	1.0	.0	7.5	2.5	18.0	13.0	16.0	13.5	6.5	5.0	13.0	6.5	5.0	13.0	6.5	5.0	13.0
24	.0	.0	.0	4.5	1.0	.0	9.0	2.5	17.0	12.5	15.0	13.0	6.0	4.5	12.5	6.0	4.5	12.5	6.0	4.5	12.5
25	.0	.0	.0	6.0	1.0	.0	8.5	2.5	16.0	12.5	14.5	12.5	6.0	4.0	12.5	6.0	4.0	12.5	6.0	4.0	12.5
26	.0	.0	.0	6.5	1.0	.0	8.0	3.0	14.5	12.5	14.0	13.0	6.5	5.0	12.5	6.5	5.0	12.5	6.5	5.0	12.5
27	.0	.0	.0	6.5	1.0	.0	7.0	3.0	13.0	12.0	15.0	12.5	7.5	6.5	12.0	7.5	6.5	12.0	7.5	6.5	12.0
28	.0	.0	.0	9.5	1.0	.0	9.5	3.0	17.0	11.0	14.5	11.0	8.0	7.0	11.0	8.0	7.0	11.0	8.0	7.0	11.0
29	.0	.0	.0	4.0	1.5	.0	8.5	3.5	19.0	13.0	14.0	10.0	7.0	4.5	13.0	7.0	4.5	13.0	7.0	4.5	13.0
30	.0	.0	.0	6.5	1.0	.0	8.5	3.5	16.5	14.5	14.0	9.5	4.0	2.5	14.5	4.0	2.5	14.5	4.0	2.5	14.5
31	---	---	---	6.0	2.0	.0	---	---	15.0	12.5	12.0	10.0	---	---	10.0	---	---	10.0	---	---	10.0
MONTH	.0	.0	.0	6.5	.0	.0	9.5	1.5	19.0	3.5	18.0	9.5	13.5	2.5	3.5	13.5	2.5	3.5	13.5	2.5	3.5
YEAR	19.0	.0	.0																		

CHEMICAL-QUALITY RECORDS

Major Inorganic Constituents

Capps Creek Near Tyonek

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CaCO3)	CALCIUM DISSOLVED (MG/L AS Ca)	MAGNESIUM, DISSOLVED (MG/L AS Mg)
AUG , 1975										
14...	1600	49	30	7.1	13.5	45	9.9	15	4.7	.7
OCT										
09...	1400	31	50	6.9	1.0	20	--	17	5.4	.9
APR , 1976										
14...	1155	5.5	70	7.1	1.0	20	12.5	27	7.5	2.1
JUL										
02...	1200	103	17	6.6	7.0	10	11.5	6	--	--
AUG										
20...	1130	22	45	--	10.5	30	10.9	19	5.9	1.0
OCT										
19...	1300	39	40	6.8	1.0	20	13.2	19	5.5	1.2
APR , 1977										
05...	1130	6.5	55	--	.0	12	--	19	5.5	1.2
JUL										
18...	1500	156	<25	--	10.0	--	--	--	--	--
AUG										
19...	1330	80	25	7.2	9.5	17	--	12	3.5	.9
OCT										
18...	1400	28	45	--	.0	--	--	--	--	--
MAY , 1978										
11...	1400	50	35	--	1.0	--	--	--	--	--
JUN										
20...	1215	89	25	--	8.5	--	--	--	--	--
JUL										
17...	1330	39	35	--	10.5	--	--	--	--	--
AUG										
14...	1400	16	45	L 6.9	12.0	13	--	24	7.1	1.4

L VALUE DETERMINED AT LABORATORY

DATE	SODIUM, DISSOLVED (MG/L AS Na)	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
AUG , 1975									
14...	1.8	.5	19	1.7	.0	.0	11	33	31
OCT									
09...	2.1	.6	24	4.0	.1	.1	14	38	41
APR , 1976									
14...	3.5	.7	40	3.1	.5	.1	17	58	56
JUL									
02...	--	--	8	--	--	--	--	--	--
AUG									
20...	2.0	.5	25	3.3	.6	.1	13	38	39
OCT									
19...	1.9	.9	20	4.1	.6	.1	13	43	39
APR , 1977									
05...	3.3	.3	24	3.5	1.8	.0	13	42	42
JUL									
18...	--	--	--	--	--	--	--	--	--
AUG									
19...	1.1	.3	15	2.1	.4	.0	10	26	26
OCT									
18...	--	--	--	--	--	--	--	--	--
MAY , 1978									
11...	--	--	--	--	--	--	--	--	--
JUN									
20...	--	--	--	--	--	--	--	--	--
JUL									
17...	--	--	--	--	--	--	--	--	--
AUG									
14...	2.5	.6	24	3.5	.5	.1	14	41	42

Major Inorganic Constituents--Continued

Bishop Creek Near Tyonek

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
AUG . 1975										
14...	1700	59	27	7.1	14.0	25	9.6	11	3.4	.6
OCT										
09...	1500	23	44	6.9	1.5	10	--	15	4.8	.7
APR . 1976										
14...	0930	4.0	74	7.3	1.0	--	12.9	--	--	--
JUL										
02...	1330	18	41	6.7	11.0	20	10.5	14	--	--
AUG										
20...	1300	16	48	--	12.0	20	10.4	17	--	--
OCT										
19...	1330	39	35	L 7.2	1.0	10	14.1	14	--	--
JUL . 1977										
18...	1600	13	35	--	17.0	--	--	--	--	--
OCT										
18...	1430	19	42	--	.0	--	--	--	--	--
MAY . 1978										
11...	1425	131	28	--	1.0	--	--	--	--	--
JUN										
20...	1315	28	35	--	12.0	--	--	--	--	--
JUL										
17...	1425	27	35	--	11.0	--	--	--	--	--

L VALUE DETERMINED AT LABORATORY

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
AUG . 1975									
14...	2.1	.3	11	1.4	.3	.1	9.7	31	24
OCT									
09...	2.7	.4	20	2.8	.7	.0	12	41	35
APR . 1976									
14...	--	--	--	--	--	--	--	--	--
JUL									
02...	--	--	20	--	--	--	--	--	--
AUG									
20...	--	--	24	--	--	--	--	--	--
OCT									
19...	--	--	15	--	--	--	--	--	--
JUL . 1977									
18...	--	--	--	--	--	--	--	--	--
OCT									
18...	--	--	--	--	--	--	--	--	--
MAY . 1978									
11...	--	--	--	--	--	--	--	--	--
JUN									
20...	--	--	--	--	--	--	--	--	--
JUL									
17...	--	--	--	--	--	--	--	--	--

Major Inorganic Constituents--Continued
Chuitna River Below Wolverine Fork Near Tyonek

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)
AUG , 1975										
14...	1500	68	26	7.4	12.5	10	9.6	10	3.1	.5
OCT										
09...	1300	74	40	7.1	.5	2	--	14	3.8	1.2
APR , 1976										
14...	1300	11	54	7.2	1.0	--	11.1	--	--	--
JUL										
02...	1100	97	21	7.7	8.0	10	11.2	12	--	--
AUG										
20...	1035	39	39	--	9.5	10	10.7	14	--	--
OCT										
19...	1200	51	30	L 7.4	.5	5	13.6	14	--	--
JUL , 1977										
18...	1330	131	<25	--	10.5	--	--	--	--	--
JUN , 1978										
20...	1115	105	<25	--	8.0	--	--	--	--	--
JUL										
17...	1235	73	25	--	10.0	--	--	--	--	--

L VALUE DETERMINED AT LABORATORY

DATE	SODIUM, DIS- SOLVED (MG/L AS Na)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
AUG , 1975									
14...	1.5	.2	13	2.0	.0	.1	12	25	26
OCT									
09...	2.0	.4	15	3.7	.8	.0	14	33	33
APR , 1976									
14...	--	--	--	--	--	--	--	--	--
JUL									
02...	--	--	11	--	--	--	--	--	--
AUG									
20...	--	--	20	--	--	--	--	--	--
OCT									
19...	--	--	16	--	--	--	--	--	--
JUL , 1977									
18...	--	--	--	--	--	--	--	--	--
JUN , 1978									
20...	--	--	--	--	--	--	--	--	--
JUL									
17...	--	--	--	--	--	--	--	--	--

Major Inorganic Constituents--Continued

Chuitna River Above Chuit Creek Near Tyonek

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- CORAL UNITS)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT , 1975										
09...	0900	48	42	7.2	.0	5	--	16	4.7	1.1
APR , 1976										
08...	1250	10	71	7.3	1.0	4	13.3	28	7.6	2.3
JUL										
02...	0910	144	24	6.8	8.5	20	12.0	9	--	--
AUG										
20...	0845	59	43	--	10.0	20	11.1	17	--	--
OCT										
19...	0930	118	35	6.9	1.0	10	13.7	14	--	--
MAR , 1977										
31...	1400	20	65	--	.0	4	--	25	6.9	2.0
JUL										
18...	1050	158	<25	--	8.5	--	--	--	--	--
AUG										
19...	1000	149	30	--	10.0	12	--	14	3.8	1.2
OCT										
18...	1045	36	28	--	.0	--	--	--	--	--
JUN , 1978										
20...	1000	182	25	--	7.0	--	--	--	--	--
JUL										
17...	1045	136	30	--	10.0	--	--	--	--	--
AUG										
14...	1100	55	45	--	12.5	5	--	21	5.7	1.6

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
OCT , 1975									
09...	2.1	.4	20	3.0	1.1	.0	14	42	37
APR , 1976									
08...	3.7	.6	40	4.4	1.0	.1	16	57	56
JUL									
02...	--	--	15	--	--	--	--	--	--
AUG									
20...	--	--	23	--	--	--	--	--	--
OCT									
19...	--	--	20	--	--	--	--	--	--
MAR , 1977									
31...	3.3	.6	32	4.9	.6	.1	16	57	51
JUL									
18...	--	--	--	--	--	--	--	--	--
AUG									
19...	1.7	.3	15	2.1	.5	.0	13	31	30
OCT									
18...	--	--	--	--	--	--	--	--	--
JUN , 1978									
20...	--	--	--	--	--	--	--	--	--
JUL									
17...	--	--	--	--	--	--	--	--	--
AUG									
14...	2.6	.5	24	3.4	.8	.1	14	39	41

Major Inorganic Constituents--Continued
Chuit Creek 5.4 Miles Above Mouth Near Tyonek

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)
AUG , 1975										
14...	1330	55	25	7.1	12.5	20	9.7	11	3.3	.6
OCT										
09...	1200	28	35	7.0	1.0	3	--	13	3.8	.8
APR , 1976										
08...	1530	2.7	52	7.1	1.0	--	10.4	--	--	--
JUL										
02...	1000	26	30	6.8	9.5	10	10.8	10	--	--
AUG										
20...	0930	16	37	--	9.0	10	10.9	14	--	--
OCT										
19...	1050	33	30	6.5	1.0	8	13.2	12	--	--
JUL , 1977										
18...	1215	32	<25	--	12.0	--	--	--	--	--
OCT										
18...	1100	21	35	--	.0	--	--	--	--	--
JUN , 1978										
20...	1020	34	<25	--	9.0	--	--	--	--	--
JUL										
17...	1140	29	25	--	10.0	--	--	--	--	--

DATE	SODIUM, DIS- SOLVED (MG/L AS Na)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
AUG , 1975									
14...	1.8	.2	11	2.2	.1	.1	10	26	24
OCT									
09...	1.9	.3	16	3.2	.6	.0	11	30	30
APR , 1976									
08...	--	--	--	--	--	--	--	--	--
JUL									
02...	--	--	14	--	--	--	--	--	--
AUG									
20...	--	--	20	--	--	--	--	--	--
OCT									
19...	--	--	14	--	--	--	--	--	--
JUL , 1977									
18...	--	--	--	--	--	--	--	--	--
OCT									
18...	--	--	--	--	--	--	--	--	--
JUN , 1978									
20...	--	--	--	--	--	--	--	--	--
JUL									
17...	--	--	--	--	--	--	--	--	--

Major Inorganic Constituents--Continued

Chuit Creek At Mouth Near Tyonek

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)
OCT , 1975										
09...	0830	31	37	7.1	1.5	5	--	13	4.4	.6
APR , 1976										
07...	1300	12	54	7.2	1.0	--	13.9	--	--	--
JUL										
02...	0820	49	33	7.2	10.0	20	12.0	11	--	--
AUG										
20...	0800	29	39	--	9.5	15	11.1	14	--	--
OCT										
19...	0900	88	30	6.7	1.0	15	13.8	11	--	--
JUL , 1977										
18...	1000	46	30	--	11.0	--	--	--	--	--
OCT										
18...	0930	21	40	--	.0	--	--	--	--	--
MAY , 1978										
11...	0945	189	<25	--	1.0	--	--	--	--	--
JUN										
20...	0915	79	25	--	7.0	--	--	--	--	--
JUL										
17...	1000	68	<25	--	9.5	--	--	--	--	--

DATE	SODIUM, DIS- SOLVED (MG/L AS Na)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
OCT , 1975									
09...	2.1	.3	18	2.9	.9	.0	12	35	32
APR , 1976									
07...	--	--	--	--	--	--	--	--	--
JUL									
02...	--	--	16	--	--	--	--	--	--
AUG									
20...	--	--	20	--	--	--	--	--	--
OCT									
19...	--	--	15	--	--	--	--	--	--
JUL , 1977									
18...	--	--	--	--	--	--	--	--	--
OCT									
18...	--	--	--	--	--	--	--	--	--
MAY , 1978									
11...	--	--	--	--	--	--	--	--	--
JUN									
20...	--	--	--	--	--	--	--	--	--
JUL									
17...	--	--	--	--	--	--	--	--	--

Major Inorganic Constituents--Continued

Chuitna River Near Tyonek

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
AUG , 1975										
14...	0930	387	44	7.5	11.5	20	10.1	18	5.2	1.2
OCT										
09...	1600	172	50	7.1	1.5	10	--	16	4.6	1.2
23...	1130	477	40	7.3	.5	--	--	15	--	--
APR , 1976										
08...	1100	60	79	7.2	1.0	--	12.8	--	--	--
MAY										
10...	1400	E250	28	6.7	1.0	--	13.7	--	--	--
26...	1330	1110	27	6.8	3.5	28	13.0	10	2.5	.8
JUN										
07...	1430	1500	25	6.5	4.5	--	11.8	--	--	--
JUL										
02...	1600	279	36	7.1	14.0	30	10.2	12	--	--
AUG										
20...	1400	157	51	--	15.0	30	10.3	20	6.0	1.3
OCT										
01...	1300	346	50	H 6.9	3.0	--	--	H 14	--	--
19...	1600	441	35	--	2.0	30	13.5	14	4.1	1.0
MAY , 1977										
13...	0900	750	32	--	--	--	--	--	--	--
28...	1600	1590	<25	--	6.0	--	--	--	--	--
AUG										
19...	1600	349	35	--	15.0	--	--	--	--	--
SEP										
21...	1110	6450	<25	--	--	--	--	--	--	--
22...	1315	1650	<25	--	7.0	--	--	--	--	--

E ESTIMATED

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
AUG , 1975									
14...	2.7	.5	24	2.0	.5	.1	14	40	38
OCT									
09...	3.0	.5	25	3.5	1.1	.1	14	41	41
23...	--	--	18	--	--	--	--	--	--
APR , 1976									
08...	--	--	--	--	--	--	--	--	--
MAY									
10...	4	--	--	--	--	--	--	--	--
26...	1.0	.9	18	2.2	1.1	.1	6.3	29	24
JUN									
07...	--	--	--	--	--	--	--	--	--
JUL									
02...	--	--	21	--	--	--	--	--	--
AUG									
20...	2.9	.5	29	2.4	1.0	.1	13	41	42
OCT									
01...	--	--	H 18	--	--	--	--	--	--
19...	1.8	.4	15	5.6	1.5	.0	12	40	34
MAY , 1977									
13...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
AUG									
19...	--	--	--	--	--	--	--	--	--
SEP									
21...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--

H DETERMINATION WITH HACH KIT

Nutrients

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)
Capps Creek Near Tyonek									
AUG , 1975									
14...	1600	49	.07	.06	.00	.10	.10	.00	2.6
OCT									
09...	1400	31	.24	.23	.02	.24	.09	.00	3.4
APR , 1976									
14...	1155	5.5	.33	.30	.04	--	.01	.04	--
AUG									
20...	1130	22	.10	.09	.00	.05	.00	.00	3.0
OCT									
19...	1300	39	.27	.26	.00	.09	.02	.00	--
APR , 1977									
05...	1130	6.5	--	.27	--	--	--	.01	--
AUG									
19...	1330	80	.06	--	.01	.07	.05	--	--
AUG , 1978									
14...	1400	16	--	.08	--	--	--	--	--
Bishop Creek Near Tyonek									
AUG , 1975									
14...	1700	59	.05	.05	.00	.21	.02	.01	4.6
OCT									
09...	1500	23	.25	.27	.01	.20	.01	.00	2.3
Chuitna River Below Wolverine Fork Near Tyonek									
AUG , 1975									
14...	1500	68	.02	.02	.00	.06	.02	.01	3.2
OCT									
09...	1300	74	.02	.02	.02	.06	.00	.00	1.0
Chuitna River Above Chuit Creek Near Tyonek									
OCT , 1975									
09...	0900	48	.14	.12	.02	.10	.01	.00	1.8
APR , 1976									
08...	1250	10	.16	.16	.03	.20	.00	.00	--
MAR , 1977									
31...	1400	20	--	.18	--	--	--	.08	--
AUG									
19...	1000	149	.02	--	.01	.00	.03	--	--
AUG , 1978									
14...	1100	55	--	.02	--	--	--	--	--
Chuit Creek 5.4 Miles Above Mouth Near Tyonek									
AUG , 1975									
14...	1330	55	.04	.04	.00	.12	.02	.01	3.6
OCT									
09...	1200	28	.02	.02	.01	.04	.02	.00	1.1
Chuit Creek At Mouth Near Tyonek									
OCT , 1975									
09...	0830	31	.07	.06	.00	.06	.02	.00	2.6
Chuitna River Near Tyonek									
AUG , 1975									
14...	0930	387	.02	.02	.00	.28	.01	.01	4.0
OCT									
09...	1600	172	.08	.09	.01	.14	.02	.00	4.2
MAY , 1976									
26...	1330	1110	.23	--	.06	.27	.07	--	--
AUG									
20...	1400	157	.01	.01	.00	.09	.00	.00	2.2
OCT									
19...	1600	441	.16	.12	.00	.23	.02	.00	--

Minor Elements

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	ALUM- INUM. TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM. TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM. TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER. TOTAL RECOV- ERABLE (UG/L AS CU)	IRON. TOTAL RECOV- ERABLE (UG/L AS FE)	IRON. DIS- SOLVED (UG/L AS FE)
Capps Creek Near Tyonek										
AUG . 1975										
14...	1600	49	6000	4	<100	<10	20	20	10000	520
OCT										
09...	1400	31	1300	2	<100	10	10	20	2700	380
APR . 1976										
14...	1155	5.5	80	1	100	<10	0	10	810	240
AUG										
20...	1130	22	140	0	0	<10	10	<10	850	340
OCT										
19...	1300	39	340	1	0	<10	0	<10	1100	470
APR . 1977										
05...	1130	6.5	--	--	--	--	--	--	--	410
AUG										
19...	1330	80	780	0	0	<10	0	10	1400	150
AUG . 1978										
14...	1400	16	40	1	200	--	0	4	540	410
Bishop Creek Near Tyonek										
AUG . 1975										
14...	1700	59	200	0	<100	<10	0	10	870	300
OCT										
09...	1500	23	170	1	<100	10	10	10	360	160
Chuitna River Below Wolverine Fork Near Tyonek										
AUG . 1975										
14...	1500	68	110	2	<100	<10	10	10	350	210
OCT										
09...	1300	74	120	0	<100	10	10	10	150	50
Chuitna River Above Chuit Creek Near Tyonek										
OCT . 1975										
09...	0900	48	140	1	0	10	10	10	250	120
APR . 1976										
08...	1250	10	40	0	0	<10	0	<10	170	100
MAR . 1977										
31...	1400	20	--	--	--	--	--	--	--	130
AUG										
19...	1000	149	180	0	0	<10	0	10	470	100
AUG . 1978										
14...	1100	55	60	0	200	--	0	6	200	130
Chuit Creek 5.4 Miles Above Mouth Near Tyonek										
AUG . 1975										
14...	1330	55	110	0	<100	<10	0	10	540	150
OCT										
09...	1200	28	120	1	<100	10	10	0	230	90
Chuit Creek At Mouth Near Tyonek										
OCT . 1975										
09...	0830	31	50	0	<100	10	10	<10	170	70
Chuitna River Near Tyonek										
AUG . 1975										
14...	0930	387	680	0	<100	<10	10	10	2400	170
OCT										
09...	1600	172	140	1	0	0	10	10	620	270
MAY . 1976										
26...	1330	1110	--	--	--	--	--	--	--	410
AUG										
20...	1400	157	60	0	0	<10	0	<10	680	380
OCT										
19...	1600	441	340	1	0	<10	0	<10	880	0

Minor Elements-Continued

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L)
Capps Creek Near Tyonek										
AUG . 1975										
14...	<100	230	40	.1	1	<50	0	<10	70	<.01
OCT										
09...	<100	130	80	.1	1	100	0	<10	10	.03
APR . 1976										
14...	<100	60	60	.1	0	<50	0	<10	0	--
AUG										
20...	<100	70	60	.1	1	<50	0	<10	0	--
OCT										
19...	<100	50	60	.1	0	<50	1	<10	0	--
APR . 1977										
05...	--	--	30	--	--	--	--	--	--	--
AUG										
19...	<100	40	40	.1	0	<50	0	<10	10	--
AUG . 1978										
14...	--	40	40	.0	5	3	0	0	10	--
Bishop Creek Near Tyonek										
AUG . 1975										
14...	<100	30	0	.1	1	<50	0	<10	20	<.01
OCT										
09...	<100	30	10	.0	1	100	0	<10	20	<.01
Chuitna River Below Wolverine Fork Near Tyonek										
AUG . 1975										
14...	<100	10	0	.0	0	<50	0	<10	10	<.01
OCT										
09...	100	20	10	.0	0	50	0	<10	70	.01
Chuitna River Above Chuit Creek Near Tyonek										
OCT . 1975										
09...	<100	50	10	.2	1	100	0	0	50	<.01
APR . 1976										
08...	<100	20	20	.1	0	<50	0	<10	0	--
MAR . 1977										
31...	--	--	30	--	--	--	--	--	--	--
AUG										
19...	<100	10	8	.1	0	<50	0	<10	10	--
AUG . 1978										
14...	--	10	10	.0	4	4	0	0	10	--
Chuit Creek 5.4 Miles Above Mouth Near Tyonek										
AUG . 1975										
14...	<100	20	0	.1	0	<50	0	<10	10	<.01
OCT										
09...	<100	50	10	.1	0	100	0	<10	70	.04
Chuit Creek At Mouth Near Tyonek										
OCT . 1975										
09...	100	50	20	.1	1	100	0	<10	80	.01
Chuitna River Near Tyonek										
AUG . 1975										
14...	<100	130	10	.0	0	<50	0	<10	20	.03
OCT										
09...	0	30	30	.2	0	100	0	0	10	.04
MAY . 1976										
26...	--	--	30	--	--	--	--	--	--	--
AUG										
20...	<100	30	30	.1	0	<50	0	<10	0	--
OCT										
19...	100	30	20	.1	0	<50	1	<10	0	--

BENTHIC INVERTEBRATE COMMUNITY

Analysis Of Basket Samples

Chuitna River Near Tyonek

Sampling Interval	10-18-77/3-29-78		10-18-77/7-17-78	3-29-78/7-17-78			7-17-78/9-12-78			9-12-78/10-16-78		
Station Number	#50	#60	#40	#40	#50	#60	#40	#50	#60	#40	#50	#60
Insects												
Ephemeroptera nymphs												
(May Flies)												
Baetis sp	--	--	2	--	--	--	--	--	1	1	--	21
Ephemerella doddsi	--	--	--	--	--	--	--	--	--	--	--	1
Ephemerella inermis	2	--	--	--	1	--	9	--	1	15	9	15
Ephemerella sp	--	1	--	--	--	--	--	--	--	--	--	--
Plecoptera nymphs												
(Stone Flies)												
Capnia sp	--	--	--	--	--	--	10	--	5	--	10	9
Hastaperla brevis	--	6	2	1	1	2	--	5	2	3	6	22
Isoperla ebria	--	2	--	--	--	--	--	--	7	1	--	--
Isoperla sp	--	6	1	2	--	8	5	2	--	30	21	43
Pteronarcella badia	--	--	--	--	--	--	--	--	--	--	1	--
Taenionema nigripenne	--	--	--	--	--	--	35	24	39	53	2	31
Taenionema sp	--	3	--	--	--	--	--	--	--	--	--	--
Zapada cinctipes	2	6	--	--	--	--	25	5	17	76	19	46
Zapada frigida	--	3	2	--	--	--	1	--	3	3	1	4
Trichoptera larva												
(Caddis Flies)												
Apatania sp	--	--	--	--	--	--	10	3	2	2	--	1
Arctopsyche ladogensis	--	2	--	--	--	--	--	--	--	3	6	8
Brachycentrus sp	1	4	--	--	--	7	2	10	2	17	9	20
Ecclisomyia sp	--	--	--	--	--	--	--	--	2	--	--	--
Glossosoma sp	--	--	--	--	--	--	--	--	3	--	2	--
Homophylax sp	--	--	--	4P	--	--	--	--	--	--	--	--
Molanna sp	--	1/1P	--	--	--	--	--	--	--	--	--	--
Onocosmoecus sp	4	7	--	--	1	1	1	6	--	8	1	8
Psychoglypha subborealis	--	--	14	--	--	--	4	12P	2/18P	--	--	--
Rhyacophila sp	--	--	--	--	--	1	--	--	--	--	--	--
Diptera larva (True Flies)												
Tipulidae larva												
(Crane Flies)												
Dicranota sp	--	1	--	--	--	--	1	2	1	8	--	9
Hexatoma sp	--	--	6	5	5	9	8	19	13	--	1	1
Limnophila sp	--	--	1	--	--	--	--	--	--	--	--	--
Ormosia sp	--	--	--	--	--	--	1	--	--	--	--	--
Simuliidae larva												
(Black Flies)												
Prosimulium sp	3	1	1	--	--	--	--	--	--	2	--	--
Simulium sp	--	--	--	--	--	1	--	--	--	--	--	3

Chuitna River Near Tyonek--Continued

Sampling Interval	10-18-77/3-29-78		10-18-77/7-17-78	3-29-78/7-17-78			7-17-78/9-12-78			9-12-78/10-16-78		
Station Number	#50	#60	#40	#40	#50	#60	#40	#50	#60	#40	#50	#60
Chironomidae larva (midges)												
Arcto or Conchapelopia sp	--	--	--	--	--	--	24	6	19	6	3	4
Brillia sp	--	--	--	--	--	--	--	--	1	1	1	--
Cladotanytarsus sp	--	--	--	--	--	--	--	--	40	--	2	9
Conchapelopia sp	--	--	--	1	--	--	--	--	--	--	--	--
Cricotopus sp 3	--	--	--	3/1P	--	--	9	11	46/33P	6	--	--
Diamesa sp 1	1	1	--	--	--	1	--	--	--	2	6	9
Diamesa sp 2	--	--	--	--	--	--	--	3	--	20	--	--
Eukiefferiella sp	7	17	1	--	1	52	--	4	--	5	--	4
Microspectra sp	3	--	4	3/2P	--	--	105	5	--	22	2	--
Orthocladius sp	1	--	--	--	--	--	--	--	--	--	--	--
Polypedilum sp	--	--	2	1	1	1	1	--	--	1	--	--
Potthastia sp	--	--	--	--	--	--	3	--	--	--	--	1
Procladius sp	--	2	--	--	--	--	--	--	--	--	--	--
Rheotanytarsus sp	--	--	--	1	--	--	--	--	--	--	--	--
Tanytarsus sp	--	8	--	--	--	1	--	--	--	--	--	--
Trissocladius sp	--	--	6	--	--	--	21	5	3	26	7	1
Thienemanniella sp	--	6	2	--	--	--	--	--	--	--	--	--
Ceratopogonidae larva (Biting Midges)												
Palpomyia sp	--	--	1	2	1	1	1	--	--	3	--	1
Empididae larva (Dance Flies)	--	--	--	--	--	--	--	--	--	4	--	--
Psychodidae larva (Moth Flies)												
Pericoma sp	1	2	2	--	--	--	9	4	2	9	5	13
Miscellaneous Organisms												
Acari (Water Mites)												
Limnesia sp	--	--	--	--	1	--	--	--	--	--	--	--
Sperchon sp 1	--	--	4	2	1	17	2	6	25	10	2	3
TOTAL NUMBER OF ORGANISMS	25	80	51	28	13	102	287	132	287	337	116	287
TOTAL NUMBER OF TAXA	10	19	16	11	9	13	22	18	22	27	21	24
NUMBER OF TAXA-INSECTS ONLY	10	19	15	10	7	12	21	17	21	26	20	23
TOTAL NUMBER OF INSECTS	25	80	47	26	11	85	285	126	262	327	114	284
DIVERSITY INDEX-INSECTS ONLY	3.00	3.79	3.33	3.04	2.40	2.05	3.22	3.71	3.23	3.73	3.73	3.82
POOLED: TOTAL NUMBER OF INSECTS		105	--		122	--		673	--		721	--
DIVERSITY INDEX-INSECTS ONLY		3.92	--		2.93	--		3.87	--		4.06	--

P Indicates pupa stage.

Analysis Of Dip Net Samples

P Indicates pupa stage.

Insects	Capps Creek Near Tyonek		Bishop Creek Near Tyonek		Chuitna River Below Wolverine Fork Near Tyonek		Taxa
	07-18-77	10-18-77	07-18-77	10-18-77	07-18-77	10-18-77	
Ephemeroptera nymphs							
(May Flies)							
Ameletus validus	1	40	133	420	121	256	391
Baetis sp	300	35	1	1	3	29	16
Cinygmula sp	6	2	2	10	1	1	73
Epeorus sp	17	1	6	10	9	10	11
Ephemerella doddsi	1	1	2	1	1	1	2
Ephemerella inermis	1	1	1	1	1	1	38
Ephemerella sp	1	1	1	1	1	1	16
Ironopsis grandis	1	1	1	1	1	1	1
Iron longimanus	1	1	1	1	1	1	1
Stenonema sp	1	1	1	1	1	1	1
Plecoptera nymphs							
(Stone Flies)							
Capnia sp	1	1	1	1	1	1	1
Hastaperla brevis	1	1	1	1	1	1	1
Hastaperla sp	1	1	1	1	1	1	1
Isonema sp	1	1	1	1	1	1	1
Taenionema sp	1	1	1	1	1	1	1
Zapada cinctipes	1	1	1	1	1	1	1
Zapada frigida	1	1	1	1	1	1	1
Trichoptera larva							
(Caddis Flies)							
Arctopsyche ladogensis	1	1	1	1	1	1	1
Arctopsyche sp	1	1	1	1	1	1	1
Apantia sp	1	1	1	1	1	1	1
Brachycentrus americanus	1	1	1	1	1	1	1
Brachycentrus sp	1	1	1	1	1	1	1
Ecclisomyia sp	1	1	1	1	1	1	1
Glossosoma alascense	1	1	1	1	1	1	1
Glossosoma sp	1	1	1	1	1	1	1
Grammotaulius sp	1	1	1	1	1	1	1
Hydropsyche sp	1	1	1	1	1	1	1
Lepidostoma sp	1	1	1	1	1	1	1
Micrasema sp	1	1	1	1	1	1	1
Onocosmoecus sp	1	1	1	1	1	1	1
Psychoglypha subborealis	1	1	1	1	1	1	1
Psychoglypha sp	1	1	1	1	1	1	1
Rhyacophila angelita	1	1	1	1	1	1	1
Rhyacophila fuscata	1	1	1	1	1	1	1
Rhyacophila sp	1	1	1	1	1	1	1
Stactobiella sp	1	1	1	1	1	1	1

Analysis Of Dip Net Samples--Continued

Site Name	Capps Creek Near Tyonek	Bishop Creek Near Tyonek	Chuitna River Below Wolverine Fork Near Tyonek	
Taxa	07-18-77	07-18-77	07-18-77	10-16-78
Diptera larva (True Flies)				
Tipulidae (Crane Flies)				
Antocha sp	1	--	--	--
Dicranota sp	--	--	--	2
Hexatoma sp	--	--	--	--
Limnophila sp	9	--	--	--
Tipula sp	--	--	--	--
Simuliidae larva (Black Flies)				
Simulium sp	17/1P	--	--	--
Prosimulium travisi	27	595	707	112
Prosimulium sp	--	87	3	3
Chironomidae larva (Midges)				
Arcto or Conchapelopta sp	--	10	16	--
Brillia sp	--	5	6	--
Cardiocladius sp	--	1	--	--
Cladotanytarsus sp	--	--	--	--
Conchapelopta sp	3	45	--	5
Corynoneura sp	--	--	--	4
Corynoneura sp 1	--	--	--	--
Corynoneura sp 2	50	7	1	--
Cricotopus sp 1	5	7	1	4
Cricotopus sp 2	30	3	--	11
Cricotopus sp 3	--	--	--	27
Cricotopus sp	--	--	--	2
Cryptochironomus sp	--	--	--	--
Damesa latitarsis	--	--	--	--
Damesa sp	--	--	--	--
Damesa sp 1	2	--	--	--
Damesa sp 2	36	--	--	--
Damesa sp 3	1	4	--	3
Eukiefferiella sp 1	--	15	--	--
Eukiefferiella sp 2	10	--	--	2
Eukiefferiella sp 3	--	--	--	16
Eukiefferiella sp 4	--	26	--	--
Eukiefferiella sp 5	17	26	--	--
Eukiefferiella sp 6	--	--	--	--
Eukiefferiella sp	--	--	--	--
Heterotrissociolus sp	--	20	--	--
Microsectra sp	--	6	9	--
Orthocladius sp	13	22	4	23
Podoninae	--	--	--	18
Polypedilum sp	1	12	--	1
Potthastia sp	--	--	--	--
Procladius sp	--	5	--	--
Pseudosmittia sp	--	--	--	--
Rheocricotopus	17	6	--	--

Site Name	Chuitna River Below Wolverine Fork Near Tyonek	Bishop Creek Near Tyonek	Capps Creek Near Tyonek
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
10	10	10	10
11	11	11	11
12	12	12	12
13	13	13	13
14	14	14	14
15	15	15	15
16	16	16	16
17	17	17	17
18	18	18	18
19	19	19	19
20	20	20	20
21	21	21	21
22	22	22	22
23	23	23	23
24	24	24	24
25	25	25	25
26	26	26	26
27	27	27	27
28	28	28	28
29	29	29	29
30	30	30	30
31	31	31	31
32	32	32	32
33	33	33	33
34	34	34	34
35	35	35	35
36	36	36	36
37	37	37	37
38	38	38	38
39	39	39	39
40	40	40	40
41	41	41	41
42	42	42	42
43	43	43	43
44	44	44	44
45	45	45	45
46	46	46	46
47	47	47	47
48	48	48	48
49	49	49	49
50	50	50	50
51	51	51	51
52	52	52	52
53	53	53	53
54	54	54	54
55	55	55	55
56	56	56	56
57	57	57	57
58	58	58	58
59	59	59	59
60	60	60	60
61	61	61	61
62	62	62	62
63	63	63	63
64	64	64	64
65	65	65	65
66	66	66	66
67	67	67	67
68	68	68	68
69	69	69	69
70	70	70	70
71	71	71	71
72	72	72	72
73	73	73	73
74	74	74	74
75	75	75	75
76	76	76	76
77	77	77	77
78	78	78	78
79	79	79	79
80	80	80	80
81	81	81	81
82	82	82	82
83	83	83	83
84	84	84	84
85	85	85	85
86	86	86	86
87	87	87	87
88	88	88	88
89	89	89	89
90	90	90	90
91	91	91	91
92	92	92	92
93	93	93	93
94	94	94	94
95	95	95	95
96	96	96	96
97	97	97	97
98	98	98	98
99	99	99	99
100	100	100	100

*Note: 7-18-77 dip net sampling was conducted for 30 minutes; all others were for 15 minutes.

*Note: 7-18-77 dip net sampling was conducted for 30 minutes; all others were for 15 minutes.

Analysis Of Dip Net Samples--Continued P Indicates pupa stage.

Site Name	Chuitna River Above Chuit Creek Near Tyonek	Chuit Creek Mouth Near Tyonek	Chuit Creek 5.4 Miles Above Tyonek	Chuit Creek At Mouth Near Tyonek	Chuitna River Near Tyonek	
Taxa	07-18-77	10-18-77	07-17-78	09-12-78	10-16-78	07-18-77
Insects						
Ephemeroptera nymphs (May Flies)						
<i>Ameletus validus</i>	620	59	187	--	56	--
<i>Baetis</i> sp	7	1	5	--	--	--
<i>Cinygmula</i> sp	--	--	--	--	--	--
<i>Epeorus</i> sp	11	--	3	--	10	--
<i>Epemerella doddsi</i>	--	--	--	--	3	--
<i>Epemerella inermis</i>	7	--	--	--	--	--
<i>Epemerella</i> sp	--	--	--	--	--	--
<i>Tronopsis grandis</i>	--	--	6	--	--	--
<i>Tron longimanus</i>	--	--	--	--	--	--
<i>Stenonema</i> sp	--	--	--	--	--	--
Plecoptera nymphs (Stone Flies)						
<i>Capnia</i> sp	--	--	--	--	--	--
<i>Hastaperla brevis</i>	--	--	--	--	--	--
<i>Hastaperla</i> sp	39	2	1	--	2	--
<i>Isoperla</i> sp	8	--	--	--	4	--
<i>Taenionema</i> sp	--	--	--	--	1	--
<i>Zapada cinctipes</i>	--	--	--	--	9	--
<i>Zapada frigida</i>	179	--	1	--	1	--
Trichoptera larva (Caddis Flies)						
<i>Arctopsycha ladogensis</i>	6	--	--	--	--	--
<i>Arctopsycha</i> sp	--	--	--	--	--	--
<i>Apatania</i> sp	--	--	--	--	--	--
<i>Brachycentrus americanus</i>	--	--	7	--	--	--
<i>Brachycentrus</i> sp	144	--	--	168	13	--
<i>Ecdiomyia</i> sp	--	--	--	--	--	--
<i>Glossosoma alascense</i>	--	--	--	--	--	--
<i>Glossosoma</i> sp	7	--	--	--	1	--
<i>Grammatulius</i> sp	--	--	--	--	--	--
<i>Hydropsyche</i> sp	--	--	--	--	--	--
<i>Lepidostoma</i> sp	--	--	--	--	--	--
<i>Micrasema</i> sp	--	--	--	--	--	--
<i>Onocosmoeus</i> sp	3	--	--	--	1	--
<i>Psychoglypha subborealis</i>	--	--	1	--	--	--
<i>Psychoglypha</i> sp	--	--	--	--	--	--
<i>Rhyacophila angelita</i>	--	--	--	--	--	--
<i>Rhyacophila fuscata</i>	--	--	--	--	--	--
<i>Rhyacophila</i> sp	7	--	1	--	2	--
<i>Stactobifella</i> sp	--	--	--	--	--	--

Analysis Of Dip Net Samples--Continued

Site Name	Chuitna River Above Chuit Creek Near Tyonek				Chuit Creek 5.4 Miles Above Mouth Near Tyonek				Chuit Creek At Mouth Near Tyonek				Chuitna River Near Tyonek				
Taxa	07-18-77	10-18-77	07-17-78	09-12-78	10-16-78	07-18-77	10-18-77	07-17-78	09-12-78	10-16-78	07-18-77	10-18-77	07-17-78	10-18-77	07-17-78	09-12-78	10-16-78
Diptera larva (True Flies)																	
Tipulidae (Crane Flies)																	
Antocha sp	--	--	--	--	--	--	--	--	1	1	--	--	--	5	--	--	--
Dicranota sp	--	--	--	1	1	--	--	--	--	--	--	--	--	1	--	--	3
Hexatoma sp	--	--	--	--	--	--	--	--	--	--	--	1	--	1	--	--	--
Linnophila sp	--	--	--	--	--	3	--	--	--	--	--	--	--	9	--	--	--
Tipula sp	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Simuliidae larva (Black Flies)																	
Simulium sp	1156	--	8	--	--	236	--	65	--	--	166	--	--	--	2	--	--
Prosimulium travisi	95	4	--	--	--	40	45	7	--	17	2	81	--	1056	--	--	--
Prosimulium sp	--	--	--	--	--	--	--	--	--	--	--	--	--	400	--	--	--
Chironomidae larva (Midges)																	
Arcto or Conchapelopia sp	8	--	--	2	--	3	--	--	1	3	--	--	--	--	2	6	7
Brillia sp	--	--	--	--	--	--	--	--	--	2	--	--	--	--	--	--	3
Cardiocladius sp	--	--	--	--	--	--	--	--	--	--	9	--	--	--	--	--	--
Cladotanytarsus sp	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--
Conchapelopia sp	--	--	--	--	--	19	--	--	33/5P	--	--	--	--	1	3	--	--
Corynoneura sp	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Corynoneura sp 1	--	--	--	--	--	--	--	--	--	--	--	--	--	15	--	--	--
Corynoneura sp 2	57	--	--	--	23	63	7	3	--	33	4	--	29	2	--	--	--
Cricotopus sp 1	--	--	2	--	--	--	--	--	6	--	--	--	10	--	--	--	--
Cricotopus sp 2	335	1	2	--	--	71	--	--	293	3	--	--	--	43	14	20	--
Cricotopus sp 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cricotopus sp	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cryptochironomus sp	--	--	--	--	1	4P	--	--	--	--	--	--	--	--	--	--	--
Diamesa latitarsis	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diamesa sp	24	--	--	--	1	28	3	2	--	--	--	--	--	--	--	--	--
Diamesa sp 1	15	1	1	--	1	179	10	--	16	3	--	--	--	7	1/2P	--	--
Diamesa sp 2	27	--	--	--	7	5	--	--	2	--	--	--	--	--	--	--	--
Diamesa sp 3	39	2	--	--	4	10	7	--	18	161	5	5	--	10	5	--	1
Eukiefferiella sp 1	--	--	--	--	--	--	2	--	--	--	1	--	--	--	--	--	5
Eukiefferiella sp 2	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--
Eukiefferiella sp 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Eukiefferiella sp 4	--	--	--	--	--	13	--	--	304	--	3	--	--	--	2	--	--
Eukiefferiella sp 5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Eukiefferiella sp 6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Eukiefferiella sp	--	--	--	3	--	--	--	--	--	--	--	--	--	--	--	--	--
Heterotrissocladius sp	--	--	--	--	7	--	--	--	--	--	--	--	--	--	--	--	--
Microsectra sp	52	60	--	--	--	47	--	4	--	--	--	--	--	--	--	12	28
Orthocladius sp	965	6	--	1	--	1407/53P	2	6	48	--	--	--	32	--	--	5	--
Podonominae	33	--	--	--	--	12	--	--	778/24P	--	4	--	--	171/13P	--	--	--
Polypedilum sp	--	--	--	--	--	1	--	--	16	1	--	--	--	--	1	--	--
Potthastia sp	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--
Procladius sp	--	--	--	--	--	--	--	--	--	--	--	1	--	--	1	--	--
Pseudocricotopus	--	--	--	--	--	--	--	--	--	--	--	--	--	4	--	--	--
Rheocricotopus	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Analysis Of Dip Net Samples--Continued

Site Name	Chuitna River Above Chuit Creek Near Tyonek	Chuit Creek 5.4 Miles Above Mouth Near Tyonek	Chuit Creek At Mouth Near Tyonek	Chuitna River Near Tyonek	
Taxa	07-18-77	10-18-77	07-18-77	10-18-77	07-18-77
<i>Chironomidae larva (Midges) --Continued</i>					
Rheotanytarsus sp	542	1	96	41	39
Snittia sp	--	--	--	--	--
Stempellina	--	--	--	--	--
Symptothastia sp	--	--	--	--	--
Tanytarsus sp	--	--	--	--	--
Thienemannella sp	--	--	--	--	--
Zavrelimyia sp	--	--	--	--	--
Ceratopogonidae larva (Biting Midges)	19	--	--	93	1
Palpomyia sp	--	--	--	--	--
Psychodidae larva (Moth Flies)	--	--	--	--	--
Pericoma sp 1	--	1	2	1	39
Pericoma sp 2	--	--	--	133	--
Pericoma sp	--	--	--	--	65
Collembola (Spring Tails)	--	--	--	--	--
Isotomidae	--	--	4	--	--
Hemiptera (True Bugs)	--	--	--	--	--
Callicorixa alaskensis	--	--	--	--	2
<i>Miscellaneous Organisms</i>					
Acar (Water Mites)	--	--	--	--	--
Atractides sp	--	--	5	--	--
Atrus sp	--	--	--	3	--
Ceratoplia sp	--	--	--	18	--
Heminothrus sp	--	--	--	1	--
Hygrobatas sp	17	--	--	27	9
Limnesia sp	--	--	--	8	15
Malacothonus sp	105	2	21	51	8
Sperchon sp 1	6	--	--	22	1
Sperchon sp 2	--	--	--	3	--
Trimalaconothrus sp	--	--	--	--	--
Unid sp 1	--	--	--	--	--
Unid sp 2	--	--	--	--	--
Unid sp	8	--	--	25	--
TOTAL NUMBER OF ORGANISMS	4552	74	325	47	253
TOTAL NUMBER OF TAXA	*31	10	20	14	21
NUMBER OF TAXA-INSECTS ONLY	27	9	16	13	20
TOTAL NUMBER OF INSECTS	4416	72	292	42	244
DIVERSITY INDEX-INSECTS ONLY	3.14	1.18	1.82	3.25	2.86

*Note: 7-18-77 dip net sampling was conducted for 30 minutes; all others were for 15 minutes.

SPRINGS - RECORDS OF CHEMICAL CONSTITUENTS AND PHYSICAL CHARACTERISTICS

Parameter	(units)	Date of Sampling			
		Oct. 2, 1975	Oct. 2, 1975	Aug. 24, 1978	Aug. 24, 1978
Latitude		61-11-04	61-16-53	61-17-07	61-17-13
Longitude		151-35-49	151-44-37	151-47-35	151-44-26
Time		1100	1310	1400	1100
Discharge, instantaneous		.004	E.40	E.04	.10
Specific conductance	(micromhos/cm at 25°C)	70	20	28	26
pH	(units)	6.9	4.1	6.0	6.3
Temperature, water	(degrees Celsius)	4.5	4.0	6.0	2.5
Color	(platinum cobalt units)	4	22	--	--
Dissolved oxygen	(mg/l)	13.6	11.6	--	--
Hardness as CaCO ₃ (Ca, Mg)	(mg/l)	26	9	12	13
Calcium, dissolved (Ca)	(mg/l)	6.2	2.1	3.2	4.5
Magnesium, dissolved (Mg)	(mg/l)	2.6	.8	.9	.4
Sodium, dissolved (Na)	(mg/l)	3.2	1.0	2.1	1.0
Potassium, dissolved (K)	(mg/l)	.3	.3	.3	.4
Bicarbonate (HCO ₃)	(mg/l)	29	0	11	6
Sulfate, dissolved (SO ₄)	(mg/l)	3.1	4.7	4.5	5.5
Chloride, dissolved (Cl)	(mg/l)	1.1	1.0	.2	.3
Fluoride, dissolved (F)	(mg/l)	.1	.0	.0	.0
Silica, dissolved (SiO ₂)	(mg/l)	14	8.8	16	13
Dissolved solids, residue at 180°C	(mg/l)	51	26	17	16
Dissolved solids, calc., sum of constituents	(mg/l)	47	19	34	28
Nitrite plus nitrate, total as N	(mg/L)	.38	.38	--	--
Nitrate plus nitrate, dissolved as N	(mg/L)	.35	.01	.34	.02
Nitrogen, ammonia, total as N	(mg/L)	.01	.01	--	--
Nitrogen, total organic as N	(mg/L)	.01	.23	--	--
Phosphorus, total as P	(mg/L)	.02	.05	--	--
Phosphorus, dissolved ortho phosphate as P	(mg/L)	.00	.00	--	--
Carbon, organic dissolved as C	(mg/L)	.5	1.0	--	--
Aluminum, total as Al	(ug/L)	1,100	110	100	200
Arsenic, total as As	(ug/L)	2	1	0	0
Barium, total as Ba	(ug/L)	<100	<100	200	300
Cadmium, total as Cd	(ug/L)	10	10	0	0
Chromium, total as Cr	(ug/L)	10	10	0	0
Copper, total as Cu	(ug/L)	10	10	0	0
Iron, total as Fe	(ug/L)	2,900	50	3	3
Iron, dissolved as Fe	(ug/L)	120	40	190	90
Lead, total as Pb	(ug/L)	100	<100	60	20
Manganese, total as Mn	(ug/L)	440	70	10	0
Manganese, dissolved as Mn	(ug/L)	350	10	0	0
Mercury, total as Hg	(ug/L)	.1	.2	.0	.0
Molybdenum, total as Mo	(ug/L)	1	0	--	--
Nickel, total as Ni	(ug/L)	100	100	0	0
Selenium, total as Se	(ug/L)	0	0	1	0
Silver, total as Ag	(ug/L)	<10	<10	1	0
Zinc, total as Zn	(ug/L)	100	100	0	0

E Estimate

GROUND WATER - RECORDS OF CHEMICAL CONSTITUENTS AND PHYSICAL CHARACTERISTICS

Parameter	(units)	Well Number (AKRG)				
		20,061 June 12, 1975	20,935 Nov. 18, 1976	21,425 Sept. 30, 1977	20,049 Sept. 30, 1978	21,426 June 24, 1978
Latitude						
Longitude						
Depth to bottom of water-bearing zone	(ft)	61-10-40	61-11-09	61-09-47	61-08-40	61-06-47
Depth to top of water-bearing zone	(ft)	107	492	--	63	--
Depth of well, total	(ft)	133	515	97	383	206
Pump or flow period prior to sampling	(minutes)	--	--	50	50	40
Flow rate, instantaneous	(gallons per minute)	25	--	E 2.5	10	1.0
Specific conductance	(micromhos/cm at 25°C)	325	200	165	575	85
pH	(units)	8.1	6.5	7.7	7.3	6.1
Temperature, water	(degrees Celsius)	4.5	6.5	4.0	4.0	--
Color	(platinum cobalt units)	19	12	40	12	45
Hardness as CaCO ₃ (Ca, Mg)	(mg/L)	38	41	75	290	27
Calcium, dissolved (Ca)	(mg/L)	8.6	8.9	18	89	6.0
Magnesium, dissolved (Mg)	(mg/L)	3.9	4.6	7.2	16	3.0
Sodium, dissolved (Na)	(mg/L)	67	27	6.9	13	6.4
Potassium, dissolved (K)	(mg/L)	3.4	2.7	1.0	7.6	1.2
Bicarbonate (HCO ₃)	(mg/L)	219	112	97	390	50
Sulfate, dissolved (SO ₄)	(mg/L)	1.6	8.9	3.8	2.2	6.6
Chloride, dissolved (Cl)	(mg/L)	3.8	6.3	3.4	2.4	1.4
Fluoride, dissolved (F)	(mg/L)	3.5	.2	.1	.2	.0
Silica, dissolved (SiO ₂)	(mg/L)	32	54	29	39	14
Dissolved solids, residue at 180°C	(mg/L)	--	--	98	354	--
Dissolved solids, calc., sum of constit.	(mg/L)	232	171	120	369	65
Nitrite plus nitrate, dissolved as N	(mg/L)	.02	.04	.02	.00	.00
Phosphorus, dissolved ortho phosphate as P	(mg/L)	.78	.35	.16	.05	.08
Arsenic, dissolved as As	(µg/L)	12	1	0	150	2
Arsenic, total as As	(µg/L)	--	--	0	160	--
Barium, dissolved as Ba	(µg/L)	0	100	--	--	200
Boron, dissolved as B	(µg/L)	200	70	7	50	--
Boron, total as B	(µg/L)	--	--	70	80	--
Cadmium, dissolved as Cd	(µg/L)	0	0	--	--	0
Chromium, dissolved as Cr	(µg/L)	0	0	--	--	10
Copper, total as Cu	(µg/L)	--	--	<10	--	--
Copper, dissolved as Cu	(µg/L)	0	4	2	120	4
Iron, total as Fe	(µg/L)	--	--	9,100	18,000	--
Iron, dissolved as Fe	(µg/L)	420	1,500	1,800	6,200	960
Lead, total as Pb	(µg/L)	--	--	<100	100	--
Lead, dissolved as Pb	(µg/L)	4	0	0	3	3
Manganese, dissolved as Mn	(µg/L)	70	60	230	1,100	100
Selenium, dissolved as Se	(µg/L)	0	0	--	--	0
Silver, dissolved as Ag	(µg/L)	0	0	--	--	0
Zinc, dissolved as Zn	(µg/L)	70	20	--	--	110

E Estimate

PART II PETERS CREEK COAL AREA

WATER-DISCHARGE RECORDS

Instantaneous discharge, in cubic feet per second

Date	Peters Creek Near Petersville	Peters Creek Above Martin Creek At Peters Creek
08-07-75	66	113
10-06-75	82	--
10-07-75	--	136
06-23-76	189	248
08-13-76	--	85
08-14-76	57	--
10-24-76	--	103
08-03-77	59	91
10-07-77	97	167
03-13-78	--	21
07-31-78	66	--
08-01-78	--	102
08-23-78	--	171

SUSPENDED-SEDIMENT DISCHARGE RECORDS

Peters Creek Near Petersville					Peters Creek Above Martin Creek At Peters Creek				
DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)
AUG , 1975					AUG , 1975				
07...	2030	66	13	2.3	07...	1630	113	4	1.2
OCT					OCT				
06...	1430	82	25	5.5	07...	0930	136	33	12
JUN , 1976					JUN , 1976				
23...	1800	189	128	65	23...	1330	248	28	19
AUG					AUG				
14...	1330	57	76	12	13...	1330	85	8	1.8
AUG , 1977					OCT				
03...	1530	59	30	4.8	24...	1330	103	5	1.4
OCT					AUG , 1977				
07...	1200	97	29	7.6	03...	1815	91	6	1.5
JUL , 1978					OCT				
31...	2130	66	16	2.9	07...	1430	167	7	3.2
					AUG , 1978				
					01...	1030	102	9	2.5

WATER-TEMPERATURE RECORDS

Periodic water temperature, °C

Peters Creek Near Petersville			Peters Creek Above Martin Creek At Peters Creek	
Date	Time	Temp	Time	Temp
08-07-75	2030	11.0	1630	14.0
10-06-75	1430	4.0	--	--
10-07-75	--	--	0930	1.0
06-23-76	1800	6.5	1330	10.0
08-13-76	--	--	1330	15.5
08-14-76	1330	11.0	--	--
10-24-76	0930	0.0	1300	0.5
08-03-77	1530	15.5	1815	16.5
10-07-77	1200	3.0	1430	4.0
07-31-78	2130	14.0	--	--
08-01-78	--	--	1030	13.0
08-23-78	--	--	0900	8.0

CHEMICAL-QUALITY RECORDS

Major Inorganic Constituents

Peters Creek Near Petersville

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
AUG , 1975										
07...	2030	66	52	7.7	11.0	4	9.9	24	5.9	2.2
OCT										
06...	1430	82	46	6.5	4.0	36	--	17	4.8	1.2
JUN , 1976										
23...	1800	189	41	7.4	6.5	17	12.3	17	4.4	1.5
AUG										
14...	1330	57	50	7.4	11.0	20	9.8	22	--	--
OCT										
24...	0930	--	45	6.1	.0	--	--	--	--	--
AUG , 1977										
03...	1530	59	55	--	15.5	7	--	25	6.4	2.2
OCT										
07...	1200	97	45	7.3	3.0	--	--	--	--	--
JUL , 1978										
31...	2130	66	40	6.6	14.0	--	--	--	--	--

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
AUG , 1975									
07...	1.6	.1	26	5.1	.1	.1	5.8	36	34
OCT									
06...	1.6	.2	20	3.2	.1	.1	5.5	27	27
JUN , 1976									
23...	.8	.2	20	2.9	1.3	.1	5.2	32	26
AUG									
14...	--	--	28	--	--	--	--	--	--
OCT									
24...	--	--	20	--	--	--	--	--	--
AUG , 1977									
03...	1.7	.1	27	2.8	.1	.1	5.0	32	32
OCT									
07...	--	--	25	--	--	--	--	--	--
JUL , 1978									
31...	--	--	E20	--	--	--	--	--	--

E ESTIMATE

Major Inorganic Constituents--Continued
Peters Creek Above Martin Creek At Peters Creek

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
AUG , 1975										
07...	1630	113	51	7.1	14.0	15	9.3	23	5.8	2.0
29...	1100	--	55	7.4	8.0	--	10.8	--	--	--
29...	1200	--	55	7.3	9.0	--	10.6	--	--	--
29...	1230	--	55	7.3	10.0	--	10.8	--	--	--
29...	1400	--	55	7.0	10.0	--	11.0	--	--	--
29...	1500	--	60	7.6	11.0	--	10.4	--	--	--
29...	1600	--	60	7.6	12.0	--	10.4	--	--	--
29...	1700	--	55	7.2	12.0	--	10.4	--	--	--
29...	1800	--	55	7.4	12.0	--	10.6	--	--	--
29...	2000	--	60	7.6	11.5	--	9.4	--	--	--
29...	2010	--	55	7.5	11.5	--	9.4	--	--	--
29...	2100	--	55	7.6	11.5	--	9.4	--	--	--
30...	0200	--	55	7.6	9.5	--	10.8	--	--	--
30...	0500	--	60	7.4	7.5	--	11.0	--	--	--
30...	0700	--	55	7.3	7.5	--	10.9	--	--	--
30...	0800	--	55	7.2	7.5	--	10.4	--	--	--
30...	0900	--	60	7.4	8.0	--	10.2	--	--	--
OCT										
07...	0930	136	45	6.2	1.0	25	--	18	4.5	1.7
JUN , 1976										
23...	1330	248	41	7.2	10.0	3	11.5	19	4.9	1.6
AUG										
13...	1330	85	50	7.4	15.5	20	--	23	6.7	1.5
OCT										
24...	1330	103	40	6.2	.5	8	11.8	20	4.7	1.9
AUG , 1977										
03...	1815	91	50	--	16.5	8	--	24	6.5	2.0
OCT										
07...	1430	167	42	7.2	4.0	8	--	19	5.0	1.6
AUG , 1978										
01...	1030	102	50	6.4	13.0	--	--	22	5.7	1.9

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
AUG , 1975									
07...	1.8	.2	25	4.0	.1	.1	6.8	34	33
29...	--	--	32	--	--	--	--	--	--
29...	--	--	31	--	--	--	--	--	--
29...	--	--	29	--	--	--	--	--	--
29...	--	--	28	--	--	--	--	--	--
29...	--	--	31	--	--	--	--	--	--
29...	--	--	31	--	--	--	--	--	--
29...	--	--	34	--	--	--	--	--	--
29...	--	--	31	--	--	--	--	--	--
29...	--	--	29	--	--	--	--	--	--
29...	--	--	30	--	--	--	--	--	--
29...	--	--	30	--	--	--	--	--	--
30...	--	--	28	--	--	--	--	--	--
30...	--	--	31	--	--	--	--	--	--
30...	--	--	31	--	--	--	--	--	--
30...	--	--	32	--	--	--	--	--	--
30...	--	--	32	--	--	--	--	--	--
OCT									
07...	1.4	.2	23	3.1	.1	.0	7.0	36	30
JUN , 1976									
23...	1.0	.2	20	3.0	1.6	.1	6.0	35	28
AUG									
13...	1.5	.2	28	4.1	.6	.1	6.2	41	35
OCT									
24...	1.4	.2	25	3.4	1.0	.1	6.7	38	32
AUG , 1977									
03...	1.8	.2	27	3.0	.2	.1	5.9	39	33
OCT									
07...	1.4	.2	22	3.1	.4	.1	7.9	35	31
AUG , 1978									
01...	1.6	.2	25	2.9	.5	.1	7.0	28	34

Nutrients

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	NITRO- GEN. NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN. NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN. AMMONIA TOTAL (MG/L AS N)	NITRO- GEN. ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)
Peters Creek Near Petersville									
AUG . 1975									
07...	2030	66	.02	.02	.00	.16	.00	.02	.9
OCT									
06...	1430	82	.05	.05	.01	.10	.06	.00	1.1
JUN . 1976									
23...	1800	189	.04	--	.02	.11	.14	.03	--
AUG . 1977									
03...	1530	59	--	.00	--	--	--	.01	--
Peters Creek Above Martin Creek At Peters Creek									
AUG . 1975									
07...	1630	113	.02	.02	.00	.16	.00	.00	1.8
OCT									
07...	0930	136	.22	.16	.01	.13	.04	.00	3.9
JUN . 1976									
23...	1330	248	.05	--	.02	.11	.07	.02	--
AUG									
13...	1330	85	.01	.00	.00	.00	.02	.00	14
OCT									
24...	1330	103	.06	.08	.00	.13	.01	.00	--
AUG . 1977									
03...	1815	91	--	.00	--	--	--	.01	--
OCT									
07...	1430	167	--	.01	--	--	--	.01	--
AUG . 1978									
01...	1030	102	--	.34	--	--	--	--	--

Minor Elements

Peters Creek Near Petersville

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
AUG , 1975										
07...	2030	66	330	1	100	<10	0	<10	500	40
OCT										
06...	1430	82	1200	9	<100	10	10	10	2200	40
JUN , 1976										
23...	1800	189	2700	7	0	0	10	10	5400	60
AUG , 1977										
03...	1530	59	--	--	--	--	--	--	--	80

DATE	TIME	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L)
AUG , 1975											
07...	2030	<100	20	10	.0	0	<50	0	10	0	<.01
OCT											
06...	1430	<100	130	10	.0	0	50	0	0	150	.03
JUN , 1976											
23...	1800	2	110	20	<.5	0	--	0	0	20	--
AUG , 1977											
03...	1530	--	--	10	--	--	--	--	--	--	--

Minor Elements--Continued

Peters Creek Above Martin Creek At Peters Creek

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
AUG , 1975										
07...	1630	113	200	0	<200	<10	0	<10	440	120
OCT										
07...	0930	136	1500	11	<100	10	10	<10	3200	150
JUN , 1976										
23...	1330	248	770	3	0	0	10	0	1600	60
AUG										
13...	1330	85	370	2	0	<10	10	<10	950	120
OCT										
24...	1330	103	160	1	0	<10	0	<10	450	230
AUG , 1977										
03...	1815	91	--	--	--	--	--	--	--	170
OCT										
07...	1430	167	--	--	--	--	--	--	--	170
AUG , 1978										
01...	1030	102	0	2	100	0	0	3	780	160

DATE	TIME	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L)
AUG , 1975											
07...	1630	<100	50	50	.0	0	<50	0	<10	0	<.01
OCT											
07...	0930	<100	90	50	.1	10	<50	0	10	10	.03
JUN , 1976											
23...	1330	0	50	20	<.5	0	5	0	0	10	--
AUG											
13...	1330	<100	50	40	.0	0	<50	0	10	10	--
OCT											
24...	1330	<100	70	70	.1	0	<50	0	<10	0	--
AUG , 1977											
03...	1815	--	--	40	--	--	--	--	--	--	--
OCT											
07...	1430	--	--	50	--	--	--	--	--	--	--
AUG , 1978											
01...	1030	6	40	30	.0	3	4	0	0	0	--

PART III HEALY COAL AREA WATER-DISCHARGE RECORDS

Instantaneous discharge, in cubic feet per second

Date	Healy Cr nr Usibelli	Coal Cr nr Usibelli	Cripple Cr nr Usibelli	Healy Cr at Suntrana	Lignite Cr abv Sanderson Cr nr Usibelli	Lignite Cr blw Sanderson Cr nr Usibelli	Lignite Cr nr Healy
07-30-75	--	56	23	245	--	--	--
09-19-75	--	--	--	232	--	--	--
03-09-76	--	0.0	--	--	--	--	--
03-10-76	--	--	0.0	66	--	--	111
05-17-76	55	--	--	116	--	--	--
08-17-76	85	35	9.8	153	--	--	--
08-18-76	--	--	--	--	--	--	21
10-04-76	--	--	3.4	--	--	--	--
10-05-76	71	12	--	84	--	--	14
12-09-76	23	1.8	0.0	--	--	--	--
12-10-76	--	--	--	51	--	--	0.0
05-11-77	--	--	--	96	--	--	--
05-12-77	69	13	6.1	--	--	--	48
08-03-77	--	--	--	--	--	--	15
08-04-77	73	21	6.5	115	5.4	8.3	--
10-31-77	--	--	--	--	--	--	16
11-01-77	60	10	2.8	74	5.4	6.7	--
05-11-78	--	38	18	--	--	--	--
05-12-78	--	--	--	--	--	29	--
09-06-78	--	20	6.9	133	--	--	--
09-07-78	87	--	--	--	6.5	12	21

SUSPENDED-SEDIMENT DISCHARGE RECORDS

Healy Creek Near Usibelli					Coal Creek Near Usibelli					Cripple Creek Near Usibelli				
DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)
AUG , 1976					JUL , 1975					JUL , 1975				
17...	1530	85	75	17	30...	1330	56	12	1.8	30...	1730	23	180	11
OCT					AUG , 1976					AUG , 1976				
05...	1230	71	12	2.3	17...	1350	35	6	.57	17...	1700	9.8	13	.34
MAY , 1977					OCT					OCT				
12...	1600	69	154	29	05...	1340	12	1	.03	04...	1530	3.4	4	.04
AUG					MAY , 1977					MAY , 1977				
04...	1230	73	370	73	12...	1415	13	192	6.7	12...	1230	6.1	3680	61
NOV					AUG					AUG				
01...	1300	60	87	14	04...	1115	21	1	.06	04...	1030	6.5	9	.16
SEP , 1978					NOV					NOV				
07...	1700	87	22	5.2	01...	1130	10	34	.92	01...	1030	2.8	57	.43
					MAY , 1978					MAY , 1978				
					11...	1615	38	77	7.9	11...	1450	18	1220	59
					SEP					SEP				
					06...	1500	20	2	.11	06...	1400	6.9	82	1.5

SUSPENDED-SEDIMENT DISCHARGE RECORDS--Continued

Healy Creek At Suntrana					Lignite Creek Above Sanderson Creek Near Usibelli					Lignite Creek Below Sanderson Creek Near Usibelli				
DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEO (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDEO (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEO (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDEO (T/DAY)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEO (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDEO (T/DAY)
JUL , 1975					AUG , 1977					AUG , 1977				
30...	1900	245	470	311	04...	1500	5.4	212	3.1	04...	1430	8.3	114	2.6
SEP					NOV					NOV				
19...	1500	232	139	87	01...	1600	5.4	373	5.4	01...	1520	6.7	216	3.9
AUG , 1976					SEP , 1978					MAY , 1978				
17...	1810	153	480	198	07...	1400	6.5	128	2.2	12...	1220	29	3400	266
OCT										SEP				
05...	1500	84	12	2.7						07...	1300	12	153	5.0
MAY , 1977														
11...	1445	96	527	137										
AUG														
04...	0830	115	535	166										
NOV														
01...	0900	74	23	4.6										
SEP , 1978														
06...	1600	133	329	118										
Lignite Creek Near Healy														
DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEO (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDEO (T/DAY)										
AUG , 1976														
18...	0830	21	156	8.8										
OCT														
05...	1030	14	52	2.0										
MAY , 1977														
12...	1000	48	407	53										
AUG														
03...	1700	15	154	6.2										
OCT														
31...	1430	16	164	7.1										
SEP , 1978														
07...	1000	21	381	22										

WATER-TEMPERATURE RECORDS

Periodic water temperature, °C

Date	Healy Cr nr Usibelli		Coal Cr nr Usibelli		Cripple Cr nr Usibelli		Healy Cr at Suntrana		Lignite Cr abv Sanderson Cr nr Usibelli		Lignite Cr blw Sanderson Cr nr Usibelli		Lignite Cr nr Healy	
	Time	Temp	Time	Temp	Time	Temp	Time	Temp	Time	Temp	Time	Temp	Time	Temp
07-30-75	--	--	1330	9.0	1730	10.0	1900	11.5	--	--	--	--	--	--
09-19-75	--	--	--	--	--	--	1500	6.5	--	--	--	--	--	--
03-09-76	1830	0.0	--	--	--	--	--	--	--	--	--	--	--	--
03-10-76	--	--	--	--	--	--	0945	0.0	--	--	--	--	--	--
05-17-76	1130	6.0	--	--	--	--	1320	8.0	--	--	--	--	1700	0.5
08-17-76	1530	12.0	1350	12.0	1700	11.5	1810	13.0	--	--	--	--	--	--
08-18-76	--	--	--	--	--	--	--	--	--	--	--	--	0830	12.0
10-04-76	--	--	--	--	1530	6.0	--	--	--	--	--	--	--	--
10-05-76	1230	4.0	1340	3.0	--	--	1500	5.0	--	--	--	--	1030	2.0
12-09-76	--	--	1130	0.5	--	--	--	--	--	--	--	--	--	--
12-10-76	--	--	--	--	--	--	1130	0.5	--	--	--	--	--	--
05-11-77	--	--	--	--	--	--	1445	5.0	--	--	--	--	--	--
05-12-77	1600	5.5	1415	2.0	1230	0.5	--	--	--	--	--	--	1000	0.0
08-03-77	--	--	--	--	--	--	--	--	--	--	--	--	1700	23.0
08-04-77	1230	13.0	1115	14.0	1030	15.0	0830	12.0	1500	17.0	1430	18.0	--	--
10-31-77	--	--	--	--	--	--	--	--	--	--	--	--	1430	0.0
11-01-77	1300	0.0	1130	0.0	1030	0.0	0900	0.0	--	--	1520	0.0	--	--
05-11-78	1715	4.0	1615	0.0	1450	0.5	1230	5.0	1600	0.0	--	--	--	--
05-12-78	--	--	--	--	--	--	--	--	--	--	1220	0.0	0845	0.0
09-06-78	--	--	1500	9.0	1400	9.0	1600	10.0	--	--	--	--	--	--
09-07-78	1700	7.0	--	--	--	--	--	--	1400	7.0	1300	8.0	1000	7.0

CHEMICAL-QUALITY RECORDS

Major Inorganic Constituents

Healy Creek Near Usibelli

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	HARD- NESS (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
MAR , 1976									
09...	1830	--	430	H 7.9	.0	1	220	55	19
MAY									
17...	1130	55	360	H 8.2	6.0	3	210	51	20
AUG									
17...	1530	85	450	7.8	12.0	--	--	--	--
OCT									
05...	1230	71	350	7.3	4.0	--	--	--	--
MAY , 1977									
12...	1600	69	388	7.3	5.5	4	210	54	18
AUG									
04...	1230	73	375	8.1	13.0	--	--	--	--
NOV									
01...	1300	60	440	7.5	.0	--	--	--	--
MAY , 1978									
11...	1715	--	280	7.8	4.0	--	--	--	--
SEP									
07...	1700	87	450	7.9	7.0	--	--	--	--

H DETERMINATION WITH HACH KIT

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
MAR , 1976									
09...	4.5	1.1	163	81	4.5	.1	3.8	--	251
MAY									
17...	2.2	.8	160	84	1.5	.1	3.6	241	244
AUG									
17...	--	--	174	--	--	--	--	--	--
OCT									
05...	--	--	189	--	--	--	--	--	--
MAY , 1977									
12...	4.9	1.2	155	73	6.6	.1	3.5	238	242
AUG									
04...	--	--	168	--	--	--	--	268	--
NOV									
01...	--	--	180	--	--	--	--	274	--
MAY , 1978									
11...	--	--	130	--	--	--	--	--	--
SEP									
07...	--	--	166	--	--	--	--	272	--

Major Inorganic Constituents--Continued

Coal Creek Near Usibelli

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
JUL , 1975										
30...	1330	56	560	8.6	9.0	4	10.0	350	40	61
AUG , 1976										
17...	1350	35	800	8.5	12.0	--	--	--	--	--
OCT										
05...	1340	12	638	7.9	3.0	--	--	--	--	--
MAY , 1977										
12...	1415	13	638	7.5	2.0	43	--	350	52	54
AUG										
04...	1115	21	638	8.4	14.0	--	--	--	--	--
NOV										
01...	1130	10	838	7.9	.0	--	--	--	--	--
MAY , 1978										
11...	1615	38	380	7.8	.0	--	--	--	--	--
SEP										
06...	1500	20	738	8.0	9.0	3	--	440	54	73

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	RICAR- BONATE (MG/L AS HCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
JUL , 1975									
30...	2.4	1.2	283	98	.8	.2	1.7	350	365
AUG , 1976									
17...	--	--	292	--	--	--	--	--	--
OCT									
05...	--	--	396	--	--	--	--	--	--
MAY , 1977									
12...	5.8	2.2	286	140	2.5	.1	2.6	419	408
AUG									
04...	--	--	298	--	--	--	--	409	--
NOV									
01...	--	--	394	--	--	--	--	578	--
MAY , 1978									
11...	--	--	186	--	--	--	--	282	--
SEP									
06...	3.7	1.4	337	140	1.3	.1	2.9	468	444

Major Inorganic Constituents--Continued

Cripple Creek Near Usibelli

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- NUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
JUL , 1975										
30...	1730	23	552	8.5	10.0	5	10.7	300	41	48
AUG , 1976										
17...	1700	9.8	700	8.1	11.5	--	--	--	--	--
OCT										
04...	1530	3.4	650	8.1	6.0	--	--	--	--	--
MAY , 1977										
12...	1230	6.1	550	7.7	.5	43	--	280	46	41
AUG										
04...	1030	6.5	700	8.3	15.0	--	--	--	--	--
NOV										
01...	1030	2.8	875	7.6	.0	--	--	--	--	--
MAY , 1978										
11...	1450	18	288	7.6	.5	--	--	--	--	--
SEP										
06...	1400	6.9	788	8.6	9.0	4	--	450	58	73

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
JUL , 1975									
30...	3.1	1.3	265	110	.2	.1	2.0	352	338
AUG , 1976									
17...	--	--	287	--	--	--	--	--	--
OCT									
04...	--	--	339	--	--	--	--	--	--
MAY , 1977									
12...	3.8	2.1	213	110	1.1	.1	2.1	320	314
AUG									
04...	--	--	308	--	--	--	--	462	--
NOV									
01...	--	--	380	--	--	--	--	636	--
MAY , 1978									
11...	--	--	178	--	--	--	--	188	--
SEP									
06...	4.2	1.7	324	170	.8	.1	3.3	509	489

Major Inorganic Constituents--Continued

Healy Creek At Suntrana

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)
JUL , 1975										
30...	1900	245	487	8.4	11.5	3	10.1	270	49	36
SEP										
19...	1500	232	474	7.8	6.5	8	10.1	260	51	31
MAR , 1976										
10...	0945	66	451	H 8.4	.0	1	--	230	56	21
MAY										
17...	1320	116	453	H 8.4	8.0	4	--	250	57	27
AUG										
17...	1810	153	540	8.1	13.0	--	--	--	--	--
OCT										
05...	1500	84	412	7.4	5.0	--	--	--	--	--
DEC										
10...	1130	51	538	7.9	.5	2	--	270	62	28
MAY , 1977										
11...	1445	96	425	7.9	5.0	27	--	220	49	24
AUG										
04...	0830	115	500	8.3	12.0	--	--	--	--	--
NOV										
01...	0900	74	562	7.6	.0	--	--	--	--	--
MAY , 1978										
11...	1230	--	375	8.0	5.0	--	--	--	--	--
SEP										
06...	1600	133	538	7.7	10.0	--	--	--	--	--

H DETERMINATION WITH HACH KIT

DATE	SODIUM, DIS- SOLVED (MG/L AS Na)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
JUL , 1975									
30...	3.7	1.2	214	93	2.0	.1	3.5	301	295
SEP									
19...	3.5	1.2	196	99	2.6	.1	3.9	304	290
MAR , 1976									
10...	5.3	1.0	176	86	5.4	.1	4.3	273	268
MAY									
17...	5.1	1.2	178	96	5.4	.2	3.6	274	285
AUG									
17...	--	--	210	--	--	--	--	--	--
OCT									
05...	--	--	264	--	--	--	--	--	--
DEC									
10...	6.7	1.1	208	110	8.2	.1	4.4	324	326
MAY , 1977									
11...	5.1	1.7	170	82	5.7	.1	3.7	262	261
AUG									
04...	--	--	209	--	--	--	--	309	--
NOV									
01...	--	--	206	--	--	--	--	365	--
MAY , 1978									
11...	--	--	156	--	--	--	--	216	--
SEP									
06...	--	--	210	--	--	--	--	329	--

Major Inorganic Constituents--Continued

Lignite Creek Above Sanderson Creek Near Usibelli

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	HARD- NESS (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
AUG , 1977									
04...	1500	5.4	180	7.6	17.0	27	81	20	7.5
NOV									
01...	1600	5.4	205	6.7	.0	9	90	21	9.1
SEP , 1978									
07...	1400	6.5	160	7.5	7.0	35	70	16	7.4

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HC03)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
AUG , 1977									
04...	9.3	1.4	91	22	2.2	.1	19	125	127
NOV									
01...	10	1.3	130	23	2.1	.1	21	141	154
SEP , 1978									
07...	8.9	1.2	84	15	1.7	.1	16	111	109

Lignite Creek Below Sanderson Creek Near Usibelli

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	HARD- NESS (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
AUG , 1977									
04...	1430	8.3	375	7.8	18.0	9	180	36	21
NOV									
01...	1520	6.7	400	6.9	.0	23	180	36	23
MAY , 1978									
12...	1220	29	250	7.6	.0	220	130	24	16
SEP									
07...	1300	12	400	7.8	8.0	17	190	35	26

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HC03)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
AUG , 1977									
04...	13	2.0	124	85	9.2	.3	14	237	240
NOV									
01...	14	1.7	140	100	9.2	.3	18	311	273
MAY , 1978									
12...	7.4	2.1	80	63	4.6	.2	6.2	162	164
SEP									
07...	10	1.8	128	100	6.0	.3	11	262	254

Major Inorganic Constituents--Continued

Lignite Creek Near Healy

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	HARD- NESS (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)
MAY , 1976									
17...	1700	111	340	7.5	.5	25	100	22	12
AUG									
18...	0830	21	620	7.8	12.0	25	190	38	24
OCT									
05...	1030	14	600	7.5	2.0	--	--	--	--
MAY , 1977									
12...	1000	48	480	7.1	.0	110	130	27	16
AUG									
03...	1700	15	712	7.8	23.0	--	--	--	--
OCT									
31...	1430	16	750	6.9	.0	--	--	--	--
MAY , 1978									
12...	0845	--	355	7.4	.0	--	--	--	--
SEP									
07...	1000	21	612	7.6	7.0	--	--	--	--

H DETERMINATION WITH HACH KIT

DATE	SODIUM, DIS- SOLVED (MG/L AS Na)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
MAY , 1976									
17...	29	3.5	93	45	42	.2	5.7	206	206
AUG									
18...	51	5.4	160	81	73	.3	11	359	364
OCT									
05...	--	--	209	--	--	--	--	--	--
MAY , 1977									
12...	36	5.2	101	66	56	.2	7.3	290	265
AUG									
03...	--	--	170	--	--	--	--	421	--
OCT									
31...	--	--	170	--	--	--	--	437	--
MAY , 1978									
12...	--	--	90	--	--	--	--	240	--
SEP									
07...	--	--	164	--	--	--	--	361	--

Minor Elements

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
Healy Creek Near Usibelli										
MAR , 1976										
09...	1830	--	--	--	--	--	--	--	--	0
MAY										
17...	1130	55	30	0	0	<10	0	<10	220	240
MAY , 1977										
12...	1600	69	--	--	--	--	--	--	--	110
Coal Creek Near Usibelli										
JUL , 1975										
30...	1330	56	140	0	<100	<10	0	<10	540	30
MAY , 1977										
12...	1415	13	--	--	--	--	--	--	--	470
SEP , 1978										
06...	1500	20	--	--	--	--	--	--	--	20
Cripple Creek Near Usibelli										
JUL , 1975										
30...	1730	23	1100	1	<100	<10	9	<10	3000	40
MAY , 1977										
12...	1230	6.1	--	--	--	--	--	--	--	290
SEP , 1978										
06...	1400	6.9	--	--	--	--	--	--	--	130
Healy Creek At Suntrana										
JUL , 1975										
30...	1900	245	3600	2	<100	<10	14	<10	12000	10
SEP										
19...	1500	232	--	--	--	--	--	--	--	20
MAR , 1976										
10...	0945	66	--	--	--	--	--	--	--	10
MAY										
17...	1320	116	1300	8	0	<10	0	10	3500	70
DEC										
10...	1130	51	--	--	--	--	--	--	--	40
MAY , 1977										
11...	1445	96	--	--	--	--	--	--	--	2400
SEP , 1978										
06...	1600	133	480	1	0	2	10	4	1800	--
Lignite Creek Above Sanderson Creek Near Usibelli										
AUG , 1977										
04...	1500	5.4	--	--	--	--	--	--	--	400
NOV										
01...	1600	5.4	--	--	--	--	--	--	--	190
SEP , 1978										
07...	1400	6.5	--	--	--	--	--	--	--	350
Lignite Creek Below Sanderson Creek Near Usibelli										
AUG , 1977										
04...	1430	8.3	--	--	--	--	--	--	--	20
NOV										
01...	1520	6.7	--	--	--	--	--	--	--	90
MAY , 1978										
12...	1220	29	--	--	--	--	--	--	--	270
SEP										
07...	1300	12	--	--	--	--	--	--	--	110
Lignite Creek Near Healy										
MAY , 1976										
17...	1700	111	34000	--	1000	<10	80	150	100000	40
AUG										
18...	0830	21	--	--	--	--	--	--	--	100
MAY , 1977										
12...	1000	48	--	--	--	--	--	--	--	580

Minor Elements--Continued

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (UG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
Healy Creek Near Usibelli									
MAR , 1976									
09...	--	--	10	--	--	--	--	--	--
MAY									
17...	<100	0	0	.0	0	<50	0	<10	0
MAY , 1977									
12...	--	--	20	--	--	--	--	--	--
Coal Creek Near Usibelli									
JUL , 1975									
30...	<100	0	0	.1	1	<50	0	<10	10
MAY , 1977									
12...	--	--	20	--	--	--	--	--	--
SEP , 1978									
06...	--	--	10	--	--	--	--	--	--
Cripple Creek Near Usibelli									
JUL , 1975									
30...	<100	70	30	.0	0	<50	0	10	30
MAY , 1977									
12...	--	--	40	--	--	--	--	--	--
SEP , 1978									
06...	--	--	30	--	--	--	--	--	--
Healy Creek At Suntrana									
JUL , 1975									
30...	<100	350	0	.0	0	<50	0	10	40
SEP									
19...	--	--	10	--	--	--	--	--	--
MAR , 1976									
10...	--	--	20	--	--	--	--	--	--
MAY									
17...	<100	100	20	.0	0	<50	0	<10	20
DEC									
10...	--	--	10	--	--	--	--	--	--
MAY , 1977									
11...	--	--	100	--	--	--	--	--	--
SEP , 1978									
06...	8	60	--	.1	6	6	0	2	10
Lignite Creek Above Sanderson Creek Near Usibelli									
AUG , 1977									
04...	--	--	210	--	--	--	--	--	--
NOV									
01...	--	--	240	--	--	--	--	--	--
SEP , 1978									
07...	--	--	140	--	--	--	--	--	--
Lignite Creek Below Sanderson Creek Near Usibelli									
AUG , 1977									
04...	--	--	270	--	--	--	--	--	--
NOV									
01...	--	--	340	--	--	--	--	--	--
MAY , 1978									
12...	--	--	150	--	--	--	--	--	--
SEP									
07...	--	--	280	--	--	--	--	--	--
Lignite Creek Near Healy									
MAY , 1976									
17...	100	2500	240	.0	0	250	--	<10	500
AUG									
18...	--	--	330	--	--	--	--	--	--
MAY , 1977									
12...	--	--	290	--	--	--	--	--	--

GROUND WATER - RECORDS OF CHEMICAL CONSTITUENTS AND PHYSICAL CHARACTERISTICS

Vitro Camp Well--Latitude 63°53'05", Longitude 148°44'00"

Parameter	(units)	June 11, 1968	Sept. 17, 1975
Specific conductance	(micromhos/cm at 25°C)	232	276
pH	(units)	7.5	7.2
Temperature, water	(degrees Celsius)	1.0	1.0
Color	(platinum cobalt scale)	0	2
Carbon dioxide (CO ₂)	(mg/L)	--	15
Hardness as CaCO ₃ (Ca, Mg)	(mg/L)	118	140
Noncarbonate hardness	(mg/L)	--	18
Calcium, dissolved (Ca)	(mg/L)	24	30
Magnesium, dissolved (Mg)	(mg/L)	13	16
Sodium, dissolved (Na)	(mg/L)	1.6	2.2
Potassium, dissolved (K)	(mg/L)	1.3	1.2
Bicarbonate (HCO ₃)	(mg/L)	130	129
Sulfate, dissolved (SO ₄)	(mg/L)	19	25
Chloride, dissolved (Cl)	(mg/L)	0.0	0.6
Fluoride, dissolved (F)	(mg/L)	0.1	0.1
Silica, dissolved (SiO ₂)	(mg/L)	16	15
Dissolved solids, residue at 180° C	(mg/L)	143	165
Nitrite plus nitrate, total as N	(mg/L)	--	171
Nitrite plus nitrate, dissolved as N	(mg/L)	--	.02
Nitrogen, ammonia, total as N	(mg/L)	--	.02
Nitrogen, total organic as N	(mg/L)	--	.04
Phosphorus, total as P	(mg/L)	--	.69
Phosphorus, dissolved as P	(mg/L)	--	.05
Phosphorus, dissolved ortho phosphate as P	(mg/L)	--	.01
Aluminum, total as Al	(µg/L)	--	30
Arsenic, total as As	(µg/L)	--	0
Barium, total as Ba	(µg/L)	--	<100
Cadmium, total as Cd	(µg/L)	--	<10
Chromium, total as Cr	(µg/L)	--	10
Copper, total as Cu	(µg/L)	--	<10
Iron, total as Fe	(µg/L)	--	6,000
Iron, dissolved as Fe	(µg/L)	--	6,500
Lead, total as Pb	(µg/L)	--	<100
Manganese, total as Mn	(µg/L)	--	1,000
Manganese, dissolved as Mn	(µg/L)	--	910
Mercury, total as Hg	(µg/L)	--	.0
Molybdenum, total as Mo	(µg/L)	--	1
Nickel, total as Ni	(µg/L)	--	<50
Selenium, total as Se	(µg/L)	--	0
Silver, total as Ag	(µg/L)	--	<10
Zinc, total as Zn	(µg/L)	--	360