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GEOCHEMICAL RECONNAISSANCE OF THE PROSPECT CREEK AREA,
BETTLES QUADRANGLE, ALASKA

By

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THIS REPORT HAS NOT BEEN REVIEWED FOR
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Introduction

This report lists geochemical analyses of 14 stream-sediment samples (table 1), 10 pan-concentrate samples (table 2) and 101 rock samples (table 3) from the Prospect Creek area, which includes part of the Bettles D-2 and C-2 Quadrangles. These geochemical results represent part of a geological examination of the Prospect Creek area conducted by T.E. Smith and M.S. Robinson during July, 1984 at the invitation of Robert Aumiller.

All samples were analyzed by the DGGs laboratory. Lead, gold, silver, molybdenum and arsenic were analyzed by atomic-absorption spectrophotometry. Copper, zinc, cobalt, nickel, iron, manganese and chromium were analyzed by inductively coupled plasma atomic-emission spectrophotometry. DGGs laboratory staff involved in these analyses include M.A. Wiltse, N.C. Veach, M.R. Ashwell and M.K. Polly.

Lower limits of detection are 0.1 ppm for gold and silver; 1 ppm for copper, lead, zinc, cobalt, molybdenum, and nickel; 5 ppm for antimony; and 10 ppm for arsenic, iron, manganese and chromium.

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PLATE

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Table 1. Stream-sediment-sample analyses, Prospect Creek area, Alaska. Analyses in ppm.
 '-' indicates 'less than.'

Bettles Quad-			Cu	Pb	Zn	Au	Ag	Mo	Sb	As	Co	Ni	Fe	Mn	Cr
Sample	range	Location													
16034	D-2	T.22N., R.14W., sec.4	29	12	111	-0.1	0.2	-1	-5	-10	15	45	36680	206	45
duplicate	D-2	T.22N., R.14W., sec.4	30	12	111	-0.1	0.2	3	-5	-10	15	46	36210	207	45
16038	D-2	T.22N., R.14W., sec.4	52	15	362	-0.1	0.5	-1	-5	26	171	182	48910	2170	25
16039	D-2	T.22N., R.14W., sec.4	55	15	291	-0.1	0.3	3	-5	55	55	86	44530	683	28
16249	D-2	T.23N., R.14W., sec.34	63	12	97	-0.1	0.2	3	-5	14	18	36	33740	948	8
16253	D-2	T.23N., R.14W., sec.34	48	28	91	-0.1	1.3	3	-5	38	13	36	40430	333	34
16255	D-2	T.23N., R.14W., sec.34	56	21	86	-0.1	0.6	3	-5	11	11	33	39080	301	23
16257	D-2	T.23N., R.14W., sec.34	73	24	132	-0.1	3.6	5	-5	20	27	46	41280	1061	14
16259	D-2	T.23N., R.14W., sec.34	59	19	108	-0.1	0.2	4	-5	31	16	39	36660	548	13
16262	D-2	T.22N., R.14W., sec.2	37	12	132	-0.1	0.3	2	-5	12	33	47	33240	446	39
16264	D-2	T.22N., R.14W., sec.2	44	22	108	-0.1	0.6	2	-5	65	18	39	36910	270	35
16266	D-2	T.23N., R.14W., sec.35	33	15	292	-0.1	0.3	2	-5	137	65	70	37100	1374	24
16267	D-2	T.23N., R.14W., sec.35	31	19	226	-0.1	-0.1	2	-5	659	57	60	38030	1336	19
duplicate	D-2	T.23N., R.14W., sec.35	28	12	245	-0.1	-0.1	2	-5	748	63	66	42500	1470	12
16268	D-2	T.23N., R.14W., sec.36	40	10	162	-0.1	-0.1	3	-5	25	34	54	33010	1803	19
16269	D-2	T.23N., R.14W., sec.36	28	9	138	-0.1	-0.1	2	-5	31	24	42	30870	903	18

Table 2. Stream-sediment-sample analyses, Prospect Creek area, Alaska. Analyses in ppm.
'-' indicates 'less than.'

Bettles Quad-			Cu	Pb	Zn	Au	Ag	Mo	Sb	As	Co	Ni	Fe	Mn	Cr
Sample	range	Location													
16033	D-2	T.22N., R.14W., sec.4	22	7	90	-0.1	-0.1	-1	-5	16	19	29	37880	629	102
duplicate	D-2	T.22N., R.14W., sec.4	18	7	94	-0.1	-0.1	-1	-5	11	20	30	39880	658	105
16037	D-2	T.22N., R.14W., sec.4	33	10	208	-0.1	0.2	-1	-5	41	77	62	43420	1056	73
16040	D-2	T.22N., R.14W., sec.4	27	7	174	-0.1	0.3	-1	-5	28	38	43	42740	545	73
16250	D-2	T.23N., R.14W., sec.34	60	7	83	-0.1	-0.1	-1	-5	16	12	31	26360	543	70
16254	D-2	T.23N., R.14W., sec.34	40	20	86	-0.1	0.6	-1	-5	42	11	34	39080	240	56
16256	D-2	T.23N., R.14W., sec.34	56	12	74	-0.1	-0.1	-1	-5	25	8	29	33030	227	36
16258	D-2	T.23N., R.14W., sec.34	81	15	133	-0.1	-0.1	-1	-5	28	23	47	42040	1352	54
16260	D-2	T.23N., R.14W., sec.34	40	8	85	-0.1	-0.1	-1	-5	13	12	35	34070	377	52
16263	D-2	T.22N., R.14W., sec.2	16	3	96	-0.1	-0.1	-1	-5	-10	19	21	34770	427	72
16265	D-2	T.22N., R.14W., sec.2	22	12	85	-0.1	-0.1	-1	-5	61	14	31	35820	274	51

Table 3. Rock-sample analyses, Prospect Creek area, Bettles, Alaska. Analyses in ppm. '-' indicates 'less than.'

Bettles Quad-			Cu	Pb	Zn	Au	Ag	Mn	Sb	As	Co	Ni	Fe	Mn	Cr	Description
Sample	Range	Location														
16001	D-2	T.23N., R.14W., sec.22	74	-1	24	-0.1	-0.1	-1	-5	-10	27	41	39840	490	84	quartz and epidote vein in mafic aphanite
16002	D-2	T.23N., R.14W., sec.21	38	-1	21	-0.1	-0.1	-1	-5	-10	11	18	33920	373	68	propylitic quartz and carbonate(?) vein in greenstone
16003	D-2	T.23N., R.14W., sec.22	55	-1	24	-0.1	-0.1	-1	-5	-10	18	32	41840	837	94	epidote-quartz vein in greenstone
16004	D-2	T.23N., R.14W., sec.28	121	-1	41	-0.1	-0.1	2	-5	-10	23	34	47600	743	55	quartz vein in greenstone
16005	D-2	T.23N., R.14W., sec.33	4	17	42	-0.1	-0.1	2	-5	102	4	4	19700	378	26	altered intermediate dike cutting phyllite
16006	D-2	T.23N., R.14W., sec.33	15	4	13	-0.1	-0.1	2	-5	-10	2	9	17800	49	102	rusty quartz vein in dark phyllite
16007	D-2	T.23N., R.14W., sec.33	104	5	40	-0.1	-0.1	-1	-5	-10	6	21	12380	1095	137	rusty quartz vein in dark phyllite
16008	D-2	T.23N., R.14W., sec.33	70	17	30	-0.1	-0.1	-1	-5	10	4	20	29340	161	113	rusty quartz vein in dark phyllite
16009	D-2	T.23N., R.14W., sec.33	21	3	49	-0.1	-0.1	1	-5	-10	6	20	7689	224	119	vuggy quartz with barite(?)
16010	D-2	T.23N., R.14W., sec.33	13	10	61	-0.1	-0.1	1	-5	-10	8	28	14940	83	91	quartz vein in massive siltstone
16011	D-2	T.23N., R.14W., sec.33	56	28	157	-0.1	0.6	1	-5	33	5	24	62990	41	26	white drusy efflorescence on black slate
16012	D-2	T.23N., R.14W., sec.33	16	15	31	-0.1	-0.1	1	-5	-10	3	18	11560	31	119	rusty quartz vein in gray siltstone
16013	D-2	T.23N., R.14W., sec.33	15	12	63	-0.1	0.1	-1	-5	-10	12	33	39030	93	120	rusty quartz vein in siltstone
duplicate	D-2	T.23N., R.14W., sec.33	13	90	61	-0.1	0.2	-1	-5	-10	11	31	37890	90	108	rusty quartz vein in siltstone
16014	D-2	T.23N., R.14W., sec.33	9	43	7	-0.1	0.2	3	-5	14	1	6	8274	9	63	yellowish efflorescence in black slate
16015	D-2	T.23N., R.14W., sec.33	84	18	88	-0.1	0.6	1	-5	-10	4	44	11030	83	35	yellowish efflorescence on slate
16016	D-2	T.23N., R.14W., sec.33	21	44	26	-0.1	-0.1	2	-5	27	-1	10	34560	29	41	light gray efflorescence in slate
16017	D-2	T.23N., R.14W., sec.33	39	4	102	-0.1	-0.1	-1	-5	-10	10	43	36830	285	115	rusty, vuggy quartz vein
16018	D-2	T.23N., R.14W., sec.33	8	8	18	-0.1	0.4	-1	-5	-10	2	9	3716	33	105	clean, slightly rusty quartz vein
16019	D-2	T.23N., R.14W., sec.33	39	26	69	-0.1	-0.1	3	-5	49	1	15	46670	43	48	black soil in siltstone-shale
16020	D-2	T.23N., R.14W., sec.33	246	3	94	-0.1	-0.1	3	-5	12	4	53	52700	374	26	very rusty quartz vein in thin bedded slate
16021	D-2	T.23N., R.14W., sec.33	31	3	36	-0.1	-0.1	6	-5	13	2	25	21250	173	82	white quartz vein with gray vugs

Table 3. (con.).

Bettise Quad-			Cu	Pb	Zn	Au	Ag	Mo	Sb	As	Co	Ni	Fe	Mn	Cr	Description
Sample	Range	Location														
16022	D-2	T.23N., R.14W., sec.33	2	-1	1	-0.1	-0.1	-1	-5	20	1	5	2303	16	159	white quartz vein in gray chert
16023	D-2	T.23N., R.14W., sec.33	47	18	41	-0.1	0.2	3	-5	17	1	18	42070	136	128	rusty, vuggy quartz float
duplicate	D-2	T.23N., R.14W., sec.33	50	18	43	-0.1	-0.1	2	-5	25	1	20	44610	145	129	rusty, vuggy quartz float
16024	D-2	T.23N., R.14W., sec.33	150	23	96	-0.1	-0.1	3	-5	20	24	56	17200	643	117	rusty limonitic quartz vein
16025	D-2	T.23N., R.14W., sec.33	41	9	24	-0.1	-0.1	2	-5	15	1	12	26580	89	132	highly shattered rusty quartz vein in black slate
16026	D-2	T.23N., R.14W., sec.33	39	5	53	-0.1	-0.1	3	-5	-10	5	20	9936	2292	125	limonitic, rusty quartz vein
16027	D-2	T.23N., R.14W., sec.33	92	9	156	-0.1	-0.1	1	-5	27	22	42	46960	2486	45	white quartz-calcite veinlets in propylitic altered intrusive rock
16028	D-2	T.22N., R.14W., sec.9	10	4	17	-0.1	-0.1	1	-5	14	2	14	13810	81	104	slightly rusty, limonitic quartz vein in schist
16029	D-2	T.22N., R.14W., sec.9	1	-1	1	-0.1	-0.1	1	-5	-10	-1	3	2677	8	81	slightly rusty quartz vein in phyllite
16030	D-2	T.22N., R.14W., sec.8	11	1	5	-0.1	-0.1	1	-5	-10	-1	5	4528	15	136	rusty quartz vein
16031	D-2	T.22N., R.14W., sec.4	9	5	35	-0.1	-0.1	1	-5	-10	2	10	9343	97	109	quartz vein in phyllite
16032	D-2	T.22N., R.14W., sec.4	11	1	7	-0.1	0.2	-1	-5	-10	1	5	5075	15	83	rusty quartz vein in phyllite
16035	D-2	T.22N., R.14W., sec.4	9	4	32	-0.1	0.1	1	-5	-10	2	8	12080	117	147	rusty quartz vein
16036	D-2	T.22N., R.14W., sec.4	33	5	27	-0.1	0.3	2	-5	24	2	7	15530	91	89	white quartz vein material in siltstone float
16041	D-2	T.22N., R.14W., sec.10	20	5	47	-0.1	-0.1	2	-5	-10	3	9	20950	107	127	rusty quartz vein in andalusite schist
16042	D-2	T.22N., R.14W., sec.9	21	5	51	-0.1	-0.1	-1	-5	-10	6	18	20820	189	100	quartz laminations
16043	C-2	T.22N., R.14W., sec.9	4	3	74	-0.1	-0.1	-1	-5	-10	13	37	27450	209	112	pegmatitic quartz vein in andalusite schist
16044	C-2	T.22N., R.14W., sec.10	7	2	18	-0.1	-0.1	-1	-5	-10	2	7	8095	72	97	pegmatitic quartz-feldspar pod
16045	D-2	T.22N., R.14W., sec.10	14	8	160	-0.1	-0.1	1	-5	-10	17	48	46150	173	121	pegmatitic quartz vein
16201	D-2	T.23N., R.14W., sec.26	164	-1	68	-0.1	-0.1	1	-5	-10	26	39	61740	852	33	rusty quartz-chlorite veins in dark greenstone
16202	D-2	T.23N., R.14W., sec.26	161	-1	64	-0.1	-0.1	-1	-5	-10	29	44	57310	1029	87	quartz-carbonate stockwork veins in greenstone
16203	D-2	T.23N., R.14W., sec.26	5	-1	8	-0.1	-0.1	2	-5	-10	2	7	7530	98	120	quartz vein with minor chlorite
16204	D-2	T.23N., R.14W., sec.27	42	-1	33	-0.1	-0.1	2	-5	14	8	14	16810	335	114	quartz-carbonate vein in altered greenstone
16205	D-2	T.23N., R.14W., sec.27	169	-1	62	-0.1	-0.1	1	-5	-10	22	27	58530	641	43	quartz veinlets cutting greenstone
16206	D-2	T.23N., R.14W., sec.27	156	-1	68	-0.1	-0.1	-1	-5	16	25	39	60700	716	43	quartz veins in dark greenstone
16207	D-2	T.23N., R.14W., sec.27	94	-1	46	-0.1	-0.1	-1	-5	-10	18	31	40870	580	78	quartz vein in greenstone

Table 3. (con.)

Battles Quad-			Cu	Pb	Zn	Au	Ag	Mo	Sb	As	Co	Ni	Fe	Mn	Cr	Description
Sample	Frame	Location														
duplicate	D-2	T.23N., R.14W., sec.27	95	-1	68	-0.1	-0.1	-1	-5	12	19	33	44470	627	81	quartz vein in greenstone
	16208	D-2	T.23N., R.14W., sec.27	171	-1	69	-0.1	-0.1	-1	-5	-10	26	40	65230	897	38
16209	D-2	T.23N., R.14W., sec.27	108	-1	56	-0.1	-0.1	-1	-5	-10	22	40	52910	768	90	greenstone breccia
16210	D-2	T.23N., R.14W., sec.27	146	-1	45	-0.1	-0.1	1	-5	-10	21	30	45710	592	43	quartz veinlets cutting dark greenstone
16211	D-2	T.23N., R.14W., sec.27	174	18	61	-0.1	-0.1	-1	-5	-10	24	36	53600	704	41	quartz-carbonate vein in dark greenstone
16212	D-2	T.23N., R.14W., sec.27	95	-1	26	-0.1	-0.1	1	-5	-10	13	16	32180	433	43	quartz-carbonate vein in greenstone
16213	D-2	T.23N., R.14W., sec.34	16	-1	14	-0.1	-0.1	2	-5	-10	14	31	33260	714	61	quartz veinlets in altered chert
16214	D-2	T.23N., R.14W., sec.33	21	8	73	-0.1	-0.1	7	-5	-10	3	21	45070	532	51	dark gray slate with abundant pyrite
16215	D-2	T.23N., R.14W., sec.34	29	1	30	-0.1	-0.1	1	-5	18	1	12	10300	150	147	quartz veins in phyllite
16216	D-2	T.23N., R.14W., sec.34	32	-1	37	-0.1	-0.1	2	-5	42	2	19	8850	437	109	quartz vein in phyllite
16217	D-2	T.23N., R.14W., sec.34	31	9	34	-0.1	-0.1	1	11	10	2	9	12520	509	84	quartz vein cutting chert
duplicate	D-1	T.23N., R.14W., sec.34	32	9	35	-0.1	-0.1	2	11	-10	2	9	12850	518	87	rusty quartz veins in phyllite
	16218	D-2	T.23N., R.14W., sec.34	46	20	36	-0.1	-0.1	2	17	12	2	9	14870	834	77
16219	D-2	T.23N., R.14W., sec.34	37	5	44	-0.1	-0.1	2	-5	19	2	16	12280	574	75	vuggy, rusty quartz veins
16220	D-2	T.23N., R.14W., sec.34	25	29	35	-0.1	-0.1	2	8	22	1	13	9309	159	88	quartz veining in chert
16221	D-2	T.23N., R.14W., sec.34	29	6	19	-0.1	0.2	2	-5	-10	3	16	7859	503	104	quartz vein in phyllite
16222	D-2	T.23N., R.14W., sec.34	13	3	16	-0.1	0.1	2	-5	-10	1	11	4682	246	125	quartz vein in phyllite
16223	D-2	T.23N., R.14W., sec.34	14	5	35	-0.1	0.2	4	-5	-10	3	14	17410	809	59	black chert with abundant phyllite
16224	D-2	T.23N., R.14W., sec.34	219	6	140	-0.1	-0.1	1	-5	-10	71	110	103	1267	313	quartz vein material in black chert
16225	D-2	T.23N., R.14W., sec.34	13	3	24	-0.1	-0.1	2	-5	-10	2	9	9735	338	98	quartz vein cutting phyllite and chert
16226	D-2	T.23N., R.14W., sec.34	10	2	15	-0.1	-0.1	1	-5	-10	2	9	4657	830	170	vuggy quartz vein with clots of feldspar
16227	D-2	T.23N., R.14W., sec.34	33	-1	18	-0.1	-0.1	1	-5	-10	2	13	10290	970	138	rusty brown, vuggy quartz vein
duplicate	D-2	T.23N., R.14W., sec.34	34	-1	18	-0.1	-0.1	1	-5	-10	2	11	10100	951	143	rusty brown, vuggy quartz vein
	16228	D-2	T.23N., R.14W., sec.34	48	-1	1	-0.1	-0.1	2	-5	-10	1	3	5108	3816	47
16229	D-2	T.23N., R.14W., sec.34	10	3	36	-0.1	-0.1	3	-5	-10	3	17	11370	921	116	sulfide-bearing sandstone adjacent to quartz vein
16230	D-2	T.23N., R.14W., sec.34	19	-1	6	-0.1	-0.1	2	-5	-10	1	6	3027	431	125	white quartz vein cutting chert
16231	D-2	T.23N., R.14W., sec.34	29	-1	8	-0.1	-0.1	-1	-5	-10	4	29	6418	427	66	bleached chert cut by quartz vein
16232	D-2	T.23N., R.14W., sec.34	18	2	11	-0.1	-0.1	-1	14	-10	2	15	5775	141	138	quartz vein cutting chert
16233	D-2	T.23N., R.14W., sec.34	49	-1	15	-0.1	-0.1	-1	-5	-10	1	12	4196	46	84	rusty quartz-carbonate vein

Table 3. (con.)

Sample	Quad-	Location	Cu	Pb	Zn	Au	Ag	Mo	Sb	As	Co	Ni	Fe	Mn	Cr	Description
16234	D-2	T.23M., R.14W., sec.34	9	-1	7	-0.1	-0.1	-1	-5	-10	1	5	4541	19	131	quartz vein in black chert
16235	D-2	T.23M., R.14W., sec.34	39	-1	17	-0.1	-0.1	-1	-5	-10	1	8	4081	107	117	quartz vein cutting black chert
16236	D-2	T.23M., R.14W., sec.34	27	4	52	-0.1	-0.1	-1	-5	-10	6	17	12090	625	119	quartz vein cutting phyllite and chert
16237	D-2	T.23M., R.14W., sec.34	19	4	37	-0.1	-0.1	-1	-5	-10	2	10	13560	521	89	quartz vein in chert
16238	D-2	T.23M., R.14W., sec.34	10	9	36	-0.1	-0.1	1	-5	-10	2	11	14290	550	94	quartz vein in chert
16239	D-2	T.23M., R.14W., sec.34	15	8	25	-0.1	-0.1	2	-5	-10	2	10	11690	37	102	red-brown quartz in phyllite
16240	D-2	T.23M., R.14W., sec.34	33	11	34	-0.1	-0.1	1	-5	-10	13	19	20590	1487	112	rusty quartz in grey phyllite
16241	D-2	T.23M., R.14W., sec.34	19	1	7	-0.1	-0.1	-1	392	31	1	5	2802	19	164	quartz vein in chert
16242	D-2	T.23M., R.14W., sec.34	8	-1	5	-0.1	-0.1	2	-5	-10	1	4	2573	17	134	quartz vein in chert
16243	D-2	T.23M., R.14W., sec.34	14	1	15	-0.1	-0.1	2	-5	-10	1	8	13280	36	118	quartz vein in dark gray chert
16244	D-2	T.23M., R.14W., sec.34	12	-1	7	-0.1	-0.1	-1	-5	11	1	6	3665	27	109	quartz vein in black chert
16245	D-2	T.23M., R.14W., sec.34	10	-1	7	-0.1	-0.1	2	-5	-10	-1	6	3328	32	130	quartz vein in black chert
16246	D-2	T.23M., R.14W., sec.34	9	-1	17	-0.1	-0.1	2	-5	-10	3	10	5419	85	168	rusty, rusty quartz vein in black chert
16247	D-2	T.22M., R.14W., sec.3	11	4	43	-0.1	-0.1	2	-5	15	5	13	11660	86	176	quartz vein in dark gray siltstone
16248	D-2	T.22M., R.14W., sec.10	15	6	39	-0.1	-0.1	2	-5	-10	8	32	16410	121	167	coarse-grained quartz-feldspar pegmatitic vein
16249	D-2	T.22M., R.14W., sec.10	12	7	37	-0.1	-0.1	2	-5	-10	7	29	15530	114	138	coarse-grained quartz-feldspar pegmatitic vein
16250	D-2	T.22M., R.14W., sec.3	8	1	14	-0.1	-0.1	1	-5	-10	1	-	6573	32	117	quartz segregation in andalusite schist
16251	D-2	T.23M., R.14W., sec.34	15	3	15	-0.1	-0.1	-1	-5	14	4	15	5071	296	122	quartz vein cutting light gray chert
16252	D-2	T.23M., R.14W., sec.34	3	13	99	-0.1	-0.1	-1	-5	-10	13	31	23790	1440	24	altered grandioflorite(?) dike
16253	D-2	T.23M., R.14W., sec.34	6	13	98	-0.1	-0.1	-1	-5	-10	13	31	23890	1430	23	altered grandioflorite(?) dike
16254	D-2	T.23M., R.14W., sec.2	28	20	41	-0.1	0.3	3	-5	-10	3	19	19920	970	96	rusty quartz vein in biotite phyllite