STATE OF ALASKA

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DEPARTMENT OF NATURAL RESOURCES

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DIVISION OF MINES AND MINERALS

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Geologic Report No. 29

PROGRESS REPORT ON THE GEOLOGY AND GEOCHEMISTRY OF THE SINUK AREA

SEWARD PENINSULA, ALASKA

By

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College, Alaska

July 1968

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Figure 1	Preliminary geological-geochemical map of the Sinuk area, Seward Peninsula	In pocket
Figure 2	Aurora Creek zinc deposit	In pocket

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INTRODUCTION

This report and Division of Mines and Minerals Geologic Report No. 24 describe investigations in the Sinuk district made by the author during 1965 and 1966. Several mineralized localities indicated by numerous gossans and geochemical anomalies make up the district. Geochemical anomalies found during the 1965 field season at the Quarry and Galena prospects, the Monarch gossan, and elsewhere have been reported (Herreid, 1966). A geochemical anomaly discovered in 1966 on Aurora Creek is herein reported for the first time. The geology as mapped to date is shown (figure 1), as well as all of the geochemical data (tables 1 and 2) and several new assays (table 3).

Further field work in the Sinuk area is planned.

AURORA CREEK ZINC DEPOSIT

This apparently new discovery is located on the slope east of Aurora Creek, in the headwaters of Cripple River (figure 2). It is indicated by a geochemical soil anomaly and a scattering of sphalerite-bearing float for a distance of at least 7000 feet and by stream sediment anomalies in the stream sediments of Aurora Creek. There are no exposures of ore in place in the Aurora Creek drainage.

The deposit was detected in Aurora Creek sediments using the cold extractable heavy metals test. The tests required from 10 to over 20 milliliters of dithizone for a distance of 2 miles below the deposit. Total zinc contents of these samples range from 310 to 2600 parts per million, but only background amounts of lead and copper are present in all but one of the samples.

The area of highest grade float extends from Aurora Creek (figure 2, sample F) south to the old placer ditch on the hillside (figure 2, R). A specimen of high-grade dolomite-quartzite-sphalerite float ore found in Aurora Creek at the site of stream sediment sample 134 (table 3) contains 10 percent zinc. Under the microscope this was found to be a granular aggregate of dolomite with irregular clumps of granular quartz and sphalerite and a scattering of muscovite and chlorite flakes.

North and south of Aurora Creek the ore-bearing float is schist, partly replaced by quartz, dolomite and sulfides. At location F, 1200 feet north of Aurora Creek, the mineralized float is muscovite schist impregnated with quartz and pyrite.

Float at location C is similar to that at F and consists of muscovite schist with disseminated pyrite, chalcopyrite, and galena.

Surficial float on the hill south of upper Aurora Creek contains, in addition to unmineralized schist, silicified and dolomitized schist for a width of 400 feet

across the strike of the zone (figure 2, AA and BB). Along the uphill side of the mineralized zone, large float blocks contain crackled dolomite lenses bordered by granular quartz-dolomite rock with prominent pyrite-leucoxene bands. Fractures in the dolomite are filled with narrow ($\pm 1/8$ inch) quartz stringers. No ore minerals were seen, but mud from a seepage near the upper side of the zone carries 860 ppm zinc and 370 ppm lead (figure 2, BB). The great width of the zone of mineralized float may be due to down-slope creep from a narrow zone on the uphill side.

The geology between the zone at AA and the old placer ditch is obscured by well developed solifluction lobes.

Three thousand feet south of AA, on the ridge between Oregon Creek and Penny River, slightly mineralized rock is exposed in several old prospect pits for a distance of 500 feet. The dump at the northern-most pit contains dolomite boudins (lenses) veined by quartz and banded porous siliceous ore containing sparse sphalerite, galena, and chalcopryrite. This ore is an isolated pod in schist. There is no float ore in the rubble exposures surrounding the pit. The ore is strikingly similar to that in the zone at AA, BB.

For 500 feet south along the ridge most of the exposed rock is unmineralized schist, but in several small pits silicified muscovite schist and some quartz-veined dolomite is present. No ore minerals were seen. Three linear gullies cutting across the strike of the schist in this area are probably cross faults, as indicated by changes in lithology on opposite sides. The mineralization in this area may be related in origin to this faulting.

The area between the zone at AA and the pits on the ridge was not examined, but the lack of geochemical anomalies in the dry hillside gullies below (figure 2, samples 137 and 138) suggests that it is not strongly mineralized.

SUMMARY

This mineralized zone on Aurora Creek is at least 7000 feet long and still open to the north. It seems to represent lenticular zones of silicification and dolomitization with associated pyrite, sphalerite, and minor galena and chalcopryrite, possibly controlled by faults in the schist.

REFERENCES CITED

- Hawkes, H. E., 1963, Dithizone field tests: Econ. Geol. v. 58, 579-586
- Herreid, Gordon, 1966, Preliminary geology and geochemistry of the Sinuk River area, Seward Peninsula, Alaska: Alaska Division of Mines and Minerals Geologic Report No. 24.

TABLE I

Analyses of geochemical samples from the Sinuk area (a)

Map No.	Rept. No. 24 Map No.	Field No.	Concentration (ppm)(b)					Field test ml. dz. (c)	Stream sed. sample	Stream width	Soil Sample (depth below moss)	Float at the sample site						Remarks
			Copper	Zinc	Lead	Molybdenum	Schist					Marble	Greenstone	Dolomite	Vein quartz	Gossan	Granite to diorite	
1	1	5C 307	20	110	10	3	6	X	60'			2	1	1			95	silt st. 1%, Sinuk R.
2	2	5L 150	10	40	5	2	8	X	50'			60	5				35	
3	3	5L 151	20	65	10	2	-	X	6'			no float						
4	4	5C 295	10	15	5	2	5	X	2-8'			X					X	
5	5	5C 294	25	85	20	1	5	X	8-20'			10					80	Tertiary congl. 10%
6	6	5C 297	20	90	10	1	12	X	8-20'								100	
7	7	5L 183	20	100	15	6	+20	X	2-8'			40		10		10	40	
8	8	5C 306	25	100	5	1	5			X		X	5				X	
9	9	5C 298	20	90	10	2	5	X		boulders- fines-		95				2	100	
10	10	5L 182	20	130	20	4	7	X	2-8'			30		20			50	hematite stained calcite veins in place
11	11	5C 299	20	95	10	2	7	X				X				10	X	gravel mainly sch, boulders granite
12	12	5C 302	65	100	15	2	7	X				30	10				60	
13	13	5L 184	20	115	15	2	18	dry				7		1			90	calcite 2%
14	14	5L 181	20	90	15	7	6	X	2-8'			50					50	chlorite sch. interbedded with marble
15	15	5L 180	25	135	25	7	8	X	2-8'			20	2	granite boulders-			78	"
16	16	5L 152	30	265	35	2	13	X	8-20'			10					90	
17	17	5L 153	30	105	15	3	5	X	6'			2	50				48	
18	18	5L 154	25	155	30	2	10	X				not recorded						
19	19	5L 267	50	195	35	2	2			X		much organic material in sample						
20	20	5L 266	30	110	20	3	6			X		unfrozen soil under moss						

(a) Sample locations shown on figure 1

(b) Total metal contents analyzed by Rocky Mountain Geochemical Laboratories, Salt Lake City, Utah, using atomic absorption and colorimetric methods. Reported in parts per million.

(c) Milliliters dithizone, cold extractable heavy metals test (Hawkes, 1963).

Map No.	Rept. No. 24 Map No.	Field No.	Concentration (ppm) ^(b)				Field test Ml. dz. (c)	Stream sed. sample	Stream width	Soil Sample (depth below moss)	Float at the sample site						Remarks	
			Copper	Zinc	Lead	Molybdenum					Schist	Marble	Greenstone	Dolomite	Vein Quartz	Gossan		Granite to diorite
52	52	5L 220	130	+1000	950	2	+20			X								
53	53	5L 218	55	+1000	395	2	-			X								
54	54	5L 217	45	+1000	345	2	+20			X								
55	55	5L 216	55	+1000	525	2	-			X								
56	56	5C 326	35	+1000	370	1	+20			X								
57	57	5L 215	80	+1000	900	2	-			X								
58	58	5L 214	60	+1000	675	2	-			X								
59	59	5L 212	45	+1000	435	2	+20			X								
60	60	5L 213	25	+1000	40	2	11			X								
61	No Sample																	
62	62	5L 206	55	+1000	900	2	+20			X								
63	63	5L 209	30	+1000	950	2	-			X								
64	64	5L 210	25	+1000	900	2	-			X								
65	65	5L 211	80	+1000	465	2	+20			X								
66	66	5L 221	40	+1000	950	2	-			X								
67	67	5L 223	30	800	30	2	-			X								
68	68	5L 239	40	+1000	405	3	+20			X								
69	69	5L 240	15	55	230**	6	6			X	X							
70	70	5L 224	20	+1000	340**	3	-			X								
71	71	5L 225	20	980	130	2	+20			X								
72	72	5L 229	30	155	30	2	+10			X								
73	73	5L 283	25	80	15	2	-	X	2-8'		100							
74	74	5L 284	25	145	45	2	-			X								
75	75	5L 285	35	105	20	-				X								
76	76	5L 286	35	105	20	2	4			X								
77	77	5L 287	40	115	30	2	3			X								
78	78	5L 288	20	115	25	2	4			X								
79	79	5L 289	35	125	50	2	5			X								
80	90	5L 237	45	295	35	2	5	X	1-2'				98	2				
81	91	5L 238	25	120	15	2	2			X								
82	92	5C 332	25	215	20	2	11	dry			X		XX		XX		dolomite breccia	
83	93	5C 334	35	95	15	2	11	dry			X		plus	marble boulders			sch. bedrock	
84	94	5C 284-4	15	115	95	2	0			X			100				unmineralized looking	
85	95	5C 284-3	10	120	35	2	0			X-2"			X			5		

Concentration (ppm)(b)

Float at the sample site

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Map No.	Rept. No. 24	Field No.	Copper	Zinc	Lead	Molybdenum	Field test (b)	Stream Sed. sample	Stream width	Soil Sample (depth below moss)	Schist	Marble	Greensstone	Dolomite	Vein quartz	Gossan	Granite to diorite	Remarks
86	96	5C 284-2	10	40	20	2	0			X		49-lim.m. 50-brec. 1						
87	97	5C 294-1	10	55	20	2	3			X		X						
88	99	5C 337	10	25	-5	1	8			X		99-1t. brown						
89	100	X-ray spectrometer determination of Iron Creek gossan: 54% iron, trace zinc. (500 ppm).										1-goethite						trace bismuth (500 ppm)
90		6L 510	20	115	15	2	3	dry				98			1			
91		6L 511	25	85	15	2	1	dry			20	2	1		1			76
92		6L 512	20	70	15	1	1	dry			18	4			3			75
93		6L 513	20	60	15	1	1	X	4'		51	1			3			45
94		6L 514	20	110	20	7	1			X-12" no float								
95	122	5C 382	10	105	280**	1	3			X		99						1 marble cut by limonite veins
96	126	5C 370	25	495	340**	1	+20			X		50-lim.m						50-goethite
97	125	6L 517	35	1000	25	1	9			X 2"		70 lim.m.						30-
98		6L 516	15	380	25	1	6			X 2"		94 lim.m.						5-goethite calcite 1%
99	124	5C 387	35	175	25	3	2			X		X-lim.m. 99						X-
100	123	5C 384	15	95	20	1	2			X								1-
101	123a	5C 391	10	45	140**	2	1			X		95 lim.m.						5-
102		6L 515	20	300	90	1	5	X	2'			35						45
103		6L 521	20	135	20	2	10	X	2'		50	25-lim.m.						20
104	120	5L 157	10	85	10	3	4	X	4' boulders-fines-									100
105	121	5L 156	15	65	5	2	6	X	1' flows on moss		98							2
106	119	5L 158	20	90	10	3	2	X	1'									
107	118	5L 159	20	65	5	3	4	X	10'		10	40						50
108	117	5L 160	20	60	10	2	4	X	5'		5							90
109	107	5C 366	20	80	300**	2	5			X		80-lim.m.						20-goethite
110	106	5C 365	5	30	-5	1	10			X		99.9-lim.m.						0.1-
111	116	5L 171	30	80	15	7	1			X								
112	115	5C 258	-5	-5	5	1	0			X		90-lim.m.						0.10-
113	114	5L 172	15	55	5	12	4	X	1-2'			fine sediment						Tub Mtn. prospect
114	113	5L 173	15	100	250**	11	3			X		red mud in swamp						
115	112	5L 174	10	50	5	7	6	X	1-2'			fine sediment						100
116	111	5L 177	20	105	10	7	5	X	1-2'									100
117	110	5L 178	15	65	5	3	3	X	2-8'			2"-3' granite clasts						100
118	109	5L 179	20	75	5	4	4	X	1-2'			granite boulders						100

Map No.	Rept. No. 24 Map No.	Field No.	Concentration (ppm) ^(b)					Stream sed. sample	Stream width	Soil Sample (depth below moss)	Schist	Float at the sample site					Remarks	
			Copper	Zinc	Lead	Molybdenum	Field test, ml. dz. (b)					Marble	Greenstone	Dolomite	Vein quartz	Gossan		Granite to diorite
119	108	5C 358	20	70	10	2	6	X	1-2'		90	10						
120		6C 649	30	85	15	2	4	X	10'		95	1		1	3			
121		6C 657	40	100	20	3	2	X	6'		98				2			
122		6L 388	30	80	15	2	3	X	6'		99				1		Moose Cr.	
123		6L 389	40	115	35	3	1	X	10'		98				2		Josie Cr.	
124		6L 392	40	100	45	3	1	X	8'		99				1			
125		6L 402	30	75	15	1	1	X	7'		94	1			5			
126		6L 403	30	80	20	1	3	X	5'		97				2		Cripple R.	
127		6C 667	45	140	20	5	2	X	6'		94		5		1			
128		6L 405	25	80	15	2	1	X	40'		79		1		10			
129		6L 404	40	150	20	4	1	X	6'		93		5		2			
130		6L 406	30	340	20	3	+20	X	4'		70	15	5				Aurora Cr.	
131		6L 408	30	310	20	2	18	X	15'		30	44	18	5	3		" "	
132		6L 409	50	540	45	2	10	X	10'		49	30	20		1		" "	
133	6L 410	20	350	40	2	15	X	2'		60	30	10				Aurora Cr. Trib.		
134	6L 411	75	+1000	425	5	+20	X	5'		43		50		2	5		Aurora Cr. 10% zinc in float.	
135	6L 412	75	125	15	4	4	X	6'		23		75		2			Aurora Cr.	
136	6L 450	45	620	60	1	10	dry			83	5		10		1		sphalerite and pyrite-bearing gossan	
137	6L 451	20	95	20	1	1	dry			59	40			1				
138	6L 452	25	60	15	1	2	dry			20	59	1	20					
139	6L 371	25	250	30	2	10	X	4'		10	90						marble bedrock	
140	6L 370	25	145	15	3	2	X	6'		25	75						" "	
141	6L 369	40	130	20	2	1	X	3'			98		2				bedrock; med. gy. marble trib. to Oregon Cr.	
142	6L 368	20	65	20	2	1	X	3'		88	10	2					bedrock sch. Short Gulch	
143	6C 605	25	80	15	4		X	8'		30	70							
144	6L 367	20	85	10	2	1	X	6'		75	15	10					Oregon Cr. Trib.	
145	6L 366	40	75	20	1	1	X	25'		65	25	2		8				
146	6L 365	30	65	15	2	1	X	5'			94	1	5				Nugget Gulch	
147	6L 364	25	70	10	2	1	X	15'			94	2		1	1	1	lim.m. breccia	
148	6L 363	20	65	15	2	2	X	4'		20	19		78	1			Oregon Cr. Trib.	
149	127	6L 362	15	65	10	1	2	X	35'	15	83			1			Oregon Cr.	
150	128	5L 185	30	90	10	3	1	X	4-8'	90				5		5		

Map No.	Rept. No. 24 Map No.	Field No.	Concentration (ppm) ^(b)			Molybdenum	Field test ml. dz. (b)	Stream sed. sample	Stream width	Soil Sample (depth below moss)	Float at the sample site							Remarks
			Copper	Zinc	Lead						Schist	Marble	Greenstone	Dolomite	Vein quartz	Gossan	Granite to diorite	
151	129	5L 187	40	90	15	2	4	X	1-2'		90						10	
152	130	5L 188	30	105	15	2	2	X	1-2'		100							
153	131	5L 190	50	125	25	2	4	X	2-8'		50	40					10	
154	132	5L 189	50	125	15	2	2	X			45	45			2		8	
155	86	5L 241	45	120	20	4	5	X			60	40						
156	85	5L 242	85	10	10	2	2	X	8-20'		65				15			
157		6L 387	20	85	15	1	1	X	8'		99				1			Cleveland Cr.
158		6L 386	25	95	15	2	1	X	3'		98				2			" "
159		6L 385	30	105	15	4	1	X	4'		99				1			Cleveland Cr. Trib.
160		6L 384	20	95	15	2	1	X	8'		99				1			Cleveland Cr.
161		6L 383	25	100	20	2	1	X	4'		95				5			Cleveland Cr. Trib.
162		6L 506	20	90	15	2	1	X	4'		95				5			" " "
162a	133	5L 248	10	30	5	1	3			X-2"		X				X		Cleveland Cr. gossan
163	84	5L 243	20	80	10	2	8	X	2-8'		75	2			23			
164	83	5L 244	10	110	20	2	5	X	2-8'		90	2			5		5	
165	81	5L 246	20	90	15	2	3	X	2-8'		10	5	2				78	
166	82	5L 245	10	70	15	2	9	X	2-8'		80	5	1		4		10	
167	80	5L 247	10	65	5	2	5	X	1-2'		45	5			50			
168		6L 457	20	90	10	1	2	X	6'		15	20		27	3		35	Cripple Cr. Trib.
169		6L 458	15	80	15	2	2	intermittent			45		3	1	1	X	50	limonite stain on all rocks
170		6L 459	20	85	5	2	1	X	4'		95				5			
171		6L 460	15	65	10	1	1	X	3'		10			2	2		86	
172		6L 461	20	80	10	2	1	X	3'		4		1		2	1	92	
173		6L 462	20	85	10	2	1	X	10'		83				2		15	dolomite outcrop upstream
174		6L 463	25	95	15	2	1	X	10'		35	52	1		2		10	
175		6L 464	10	65	10	2	2	X	2'		flows over moss							
176		6L 466	20	80	10	2	1	X	8'		63	25			2		10	
177		6L 467	30	80	10	2	1	X	10'		69	25		1			5	marble bedrock
178		6L 469	35	95	10	3	1	X	4'		95				5			
179		6L 470	30	75	10	2	1	X	8'		70	25			3		2	
180		6L 471	15	55	5	2	1	X	3'		76	20	2				2	
181		6L 472	30	60	10	3	1	X	5'		98				1		1	
182		6L 473	35	85	15	2	1	X	7'		80	10		5	3		2	

Map No.	Rept. No. 24 Map No.	Field No.	Concentration (ppm) (b)				Field test ml. dz. (b)	Stream sed. sample	Stream width	Soil Sample (depth below moss)	Float at the sample site						Remarks	
			Copper	Zinc	Lead	Molybdenum					Schist	Marble	Greenstone	Dolomite	Vein quartz	Gossan		Granite to diorite
182a		6C 730	10	25	10	1				X-2			100					
183		6L 474	30	85	10	3	1	X	8'		92		5	2		1	Arctic Cr.	
184		6L 382	20	70	15	2	3	X	2'		flows over moss							
185		6L 379	30	90	15	1	1	X	6'		74			1		25	Bowhead Cr.	
186		6L 378	30	100	20	2	1	X	4'		86	4					calcite-10%	
187		6C 619	25	100	15	2	2	X	4'	fines- medium- coarse-	100							
											100					100		
188		6L 376	20	70	20	1	1	X	3'		90	10						
189		6L 375	25	85	20	1	1	X	5'		X flows over moss							
190		6L 374	25	100	20	3	2	X	4'		"	"	"					
191		6L 373	15	90	15	3	1	X	10'		93	7						
192		6L 372	30	145	20	2	2	X	2'		94	5			1			
193		6L 480	30	95	15	2	1	X	3'		99				1			
194		6L 481	25	100	15	2	1	X	3'		95			5				
195		6L 483	20	80	15	1	3	X	1'		flows over moss							
196	134	5L 249	35	120	20	2	2	X	2-8'		100							
197	135	No sample																
198	136	5L 250	35	90	15	2	0	X	2-8'		100							
199	137	5L 251	25	120	15	3	2	X	1-2'		100							
200		6C 623	30	110	10	2	2	X	5'			100						
201	138	No sample																
202	139	5L 253	15	65	10	2	0	X	2-8'		85	10		5				
203	140	5L 254	30	105	15	3	0	X	1-2'		90	10						
204	143	5L 257	30	115	10	3	4	dry	1-2'	marble blocks							on hillside on sch. bedrock.	
205	141	5L 255	65	135	15	4	3	X	2-8'		X							
206	142	5L 256	35	675	115	2	3	X	20-60'		89		1		5			
207		6C 709	40	120	20	7		X	2'		70	25			5			
208		6L 550	85	130	25	5	1	dry			75	25						
209		6C 889	60	130	25	3	1	X	2'		90	10						
210		6L 548	65	140	20	3	1	X	3'		98				2			
211		6L 553	35	100	15	3	3	X	12'		85	13			2			
212		6L 555	40	115	30	3	1	X	8'		91	5			2		calcite-2%	
213		6L 556	60	160	25	6	1	X	2'		90				10		drains marble sch. contact	

Map No.	Rept. No. 24 Map No.	Field No.	Concentration (ppm) ^(b)				Field test ml. dz. (b)	Stream sed. sample	Stream width	Soil sample (depth below moss)	Float at the sample site						Remarks	
			Copper	Zinc	Lead	Molybdenum					Schist	Marble	Greenstone	Dolomite	Vein quartz	Gossan		
214		6L 557	45	125	25	4	1	X	4'		99				1			
215		6L 558	50	430	80	5	4	X	4'		98				2			
216		6L 559	45	120	25	3	2	X	12'		99				1			
217		6L 561	40	115	30	2	1	X	6'		97		2		1			
218		6L 562	60	120	20	1	1	X	6'		97				3			
219		6L 569	40	105	25	3	1	X	6'		99				1			
220		6L 563	35	70	15	1	1	X	5'		98				2			
221		6L 570	40	110	30	5	1	X	5'		99				1			
222		6L 574	40	120	30	4	1	X	7'		99				1			
223		6L 576	55	125	40	6	1	X	5'		99				1			
224		6L 578	40	105	25	5	1	X	4'		98				2			
225		6L 579	30	100	25	5	1	X	4'		95				5			
226		6C 918	75	205	35	6	4	X	4'		X	X						
227		6C 916	45	115	25	2	1	dry			X	X			X			
228	87	5L 191	25	85	10	2	3	X	2-8'			90				10		
229	88	5L 192	20	45	10	1	2	X	2-8'		10	88	2		X		lim. marble boulders	
230	89	5L 193	45	105	15	2	2	dry			10	88	2					
231	98	5L 199	35	100	15	2	1	X	1-2'		10	90						
232	101	5L 194	15	65	10	2	2	X	2-8'			100						
233	103	5L 196	20	60	10	2	2	X	1-2'		50	50						
234	104	5L 197	30	135	20	2	2	X	2-8'		10	80	10					
235	105	5L 198	35	140	15	2	4	X	20-60'		80	10	10					
236		6C 644	15	85	15	1	2	X	6'		45	50			5		rusty stain on gravel	
237	102	5C 347	15	65	5	2	15	X	2-8'		fine mud							

** possible interference, bismuth ? (high iron content)

lim.m. limonitized marble

brec. breccia

sch. schist

congl. conglomerate

Table 2. Analyses of geochemical samples from Aurora Creek, Sinuk area

Map No.	Field No.	Field test (ml.)*	Concentration (ppm)					Stream Sediment Creek (Cr.) hillside seepage (seep width)	Soil sample depth below moss	Float at sample site						Remarks
			Copper	Zinc	Lead	Molybdenum	Schist			Marble	Greenstone	Dolomite	Quartzite	Vein quartz	Gossan	
130	L406	+20	30	340	20	3	Cr. 4'		70	15	5					Aurora Cr.
131	L408	18	30	310	20	2	Cr. 15'		30	44	18	5		3		"
132	L409	10	50	540	45	2	Cr. 10'		49	30	20			1		"
133	L410	15	20	350	40	2	Cr. 2'		60	30	10					Aurora Cr. trib.
134	C678	(Creek float)			assay sample,		see table 3									zinc-10%
	L411	+20	75	2600	425	5	Cr. 5'		43		50			2	5	Aurora Cr. outcrop: chlorite, muscovite, quartz schist with rusty spots
135	L412	4	75	125	15	4	Cr. 6'		23		75			2		Aurora Cr.
A	L424	+20	40	340	25	2	Seep 8"		100							
B	L423	+20	30	670	35	2	Seep 6"		100							from 14 to 15: no gossan float, 1 block(3'x10')
C	C673	assay sample,			see table 3											white vein quartz
																Northernmost ore float seen
D	L422	20	20	290	25	3	Seep 3"		99							
E	L421	15	55	410	35	3	Seep 6"		100							
F	C675	assay sample,			see table 3			X								2.3% zinc
G	C674	assay sample,			see table 3											3.7% zinc
H	L420	19	35	420	45	2	Seep 1"		100							
I	L426	5	40	95	30	1	Seep 1'		70			30				
J	L419	8	75	120	20	2		4"	100							
K	L415	18	50	155	20	3		8"	100							
L	L413	4	80	120	15	2		10"	100							
M	L414	+20	60	630	65	4		8"	100							
N	L416	+20	50	4300	450	5		10"	65			20			15	
O	L417	+20	75	6000	750	3		4"	100							
P	L418	5	60	210	60	4	Cr. 6'									Aurora Cr.
Q	L427	3	70	105	25	2		2"	100							taken just above ditch on left limit of Aurora Cr.

Table 2. Continued

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Map No.	Field No.	Field test (ml.)*	Concentration (ppm)			Molybdenum	Stream Sediment Creek (Cr.) hillside seepage (seep) width	Soil sample depth below moss	schist	Marble	Greenstone	Float at sample site				Remarks
			Copper	Zinc	Lead							Dolomite	Quartzite	Vein quartz	Gossan	
R	L428	10	65	540	50	3		8"	99					1		"
S	L430	20+	130	2300	1000	3		10"	94					1	5	"
T	L431	20+	80	1900	200	5		10"	79					1	20	"
U	L432	+5	40	1000	150	1		10"	95			5				(dolomite breccia with calcite filling)
V	L433	20+	45	780	200	2		8"	90			5		2	3	"
W	L434	+20	40	790	210	2		8"	100							"
X	L435	+20	40	600	220	2		10"	100							"
Y	C676	+20	35	1500	180	3		6"	88				10	2		one 4' block quartzite
Z	C677	+20	45	1000	145	4	Seep		100							
AA	C679	assay sample, see table 3														float blocks: crackled dolomite boudins with 1/8" quartz vein filling, in banded dolomite-quartzite, Blocks to 6ft. long
8B	C680	15	65	860	370	3	Seep 3"		80			5	10		5	seepage near upper side of mineralized silicified schist replacement zone 400 ft. wide.

(a) Analyses of -80 mesh fraction by Rocky Mountain Geochemical Laboratories

(*) Field test by Hawkes' cold extractable heavy metals method.

Table 3. Assay data from the Sinuk area

Sample	Field No.	Ounces / ton**		Copper	Lead	Zinc	Antimony	Weight percent***	
		Gold	Silver					Arsenic	Other
97 fig 1	6L518	nil	nil	nd	nd	trace	nd	nd	
97 * fig 1	6L519	0.01	trace	nd	nd	trace	nd	nd	
227 fig 1	6C915	trace	nil	nd	trace	trace	0.2 $\pm$.05	trace	
227 * fig 1	6C662	0.1	nil	nd	trace	trace	nd	trace	
162 * fig 1	6C718	nil	nil	nd	nd	trace	nd	trace	
C fig 2	6C673	-	-	0.06 $\pm$.05	0.3 $\pm$.1	0.7 $\pm$.2			trace barium, manganese, cadmium, chromium
F fig 2	6C675	-	-	nd	0.3 $\pm$.1	2.3 $\pm$.5	-	trace	trace chromium
G fig 2	6C674	trace	nil	nd	nd	3.7 $\pm$.7	nd	trace	
134 fig 2	6C678	0.01	nil	nd	nd	10 $\pm$ 1.0	nd	nd	
AA fig 2	6C679	nil	0.40	nd	0.3 $\pm$.06	3.4 $\pm$.6	nd	trace	

All samples have less than 0.0002% Molybdenum, except F which was not run.

* location keyed to this geochemical sample site

** fire assays by Donald R. Stein, assayer, Division of Mines and Minerals

*** X-ray spectrometric and analyses by Namok Cho, x-ray mineralogist, Division of Mines and Minerals

Sample	Description of sample
97 fig. 1	Monarch gossan, east end of large trench extending west from saddle. Goethite surface rubble
97*fig. 1	Monarch gossan, west end of large trench extending west from saddle (300 Ft. west of 6L518). Goethite surface rubble
227 fig. 1	Antimony prospect in Last Chance Cr. drainage. Gossan from prospect pit about 300 ft. north of upper adit
227*fig. 1	Saddle about 200 ft. northeast of #227 (6C915). Vein quartz float ($\pm$ 1mm) from 60 ft. wide zone of porous silicified black slate. Saddle marks location of Penny River fault.
162*fig. 1	Knob of black slate containing deformed quartz veins located 0.8 mile east of #162
C fig. 2	Float in tundra: silicified schist ore, northernmost ore seen on Aurora Cr.
G fig. 2	Float in tundra: schist with quartz, sphalerite vein bordered with pyrite and sphalerite
F fig. 2	Float in tundra: silicified schist with disseminated pyrite and pale yellow sphalerite
134 fig. 2	Float in Aurora Cr.: granular carbonate rock with scattered quartz and sphalerite grains
AA fig. 2	Float blocks: crackled, dolomite boudins in a matrix of banded dolomite, quartzite rock with disseminated pyrite, sphalerite, and leucoxene