

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ANALYSES OF SAMPLES AND PRELIMINARY GEOLOGIC SUMMARY
OF BARITE-SILVER-BASE METAL DEPOSITS NEAR GLACIER CREEK,
SKAGWAY B-4 QUADRANGLE, SOUTHEASTERN ALASKA

By

E. M. MacKevett, Jr.

Open-file report

1971

This report is preliminary
and has not been edited or
reviewed for conformity with
Geological Survey standards

Analyses of samples and preliminary geologic summary of barite-silver-
base metal deposits near Glacier Creek, Skagway B-4 quadrangle,
southeastern Alaska

By

E. M. MacKevett, Jr.

Introduction

This report gives analytical data on samples collected during a 1 1/2 day examination of barite-silver-base metal deposits near Glacier Creek, Skagway B-4 quadrangle, Alaska, in July 1971. It is supplemented by a preliminary geologic description of the deposits, which is subject to additions and modifications following completion of pertinent laboratory studies.

The barite-rich deposits are in the northern extremities of southeastern Alaska a few miles from the Alaska-British Columbia boundary and 5 1/2 to 7 miles southwest of Porcupine, a former placer gold camp (fig. 1). The deposits include one north of the head of Glacier Creek that was discovered in 1969 and another that crops out in a nunatak in the Sakasia Glacier that was discovered in 1971. The deposits are exposed at altitudes between 3,000 and 5,000 feet approximately 4 to 6 miles southwest of the Haines Highway, but separated from the highway by the Klehini River. Claims covering the known deposits are held by prospectors Merrill Palmer and Doug Morlan and their associates.

**Figure 1. Index map showing location of barite-rich deposits near
Glacier Creek.**

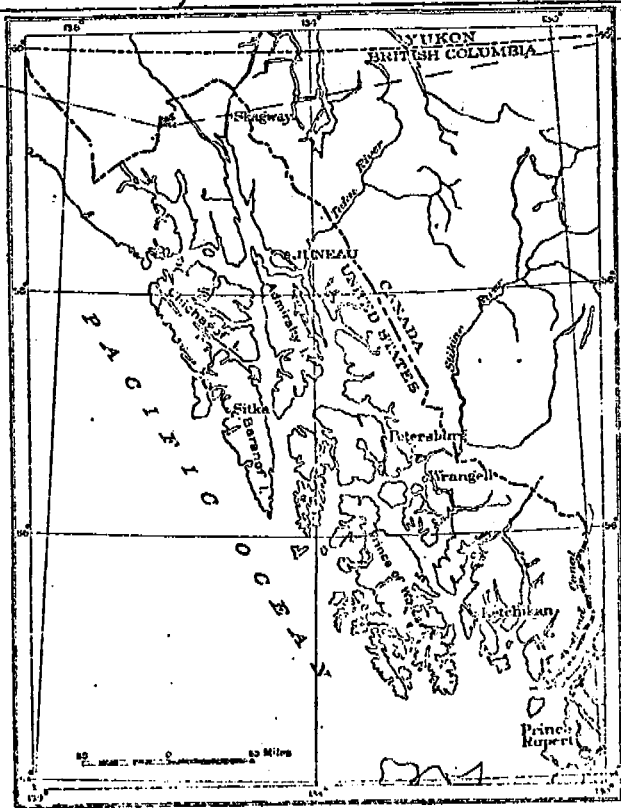
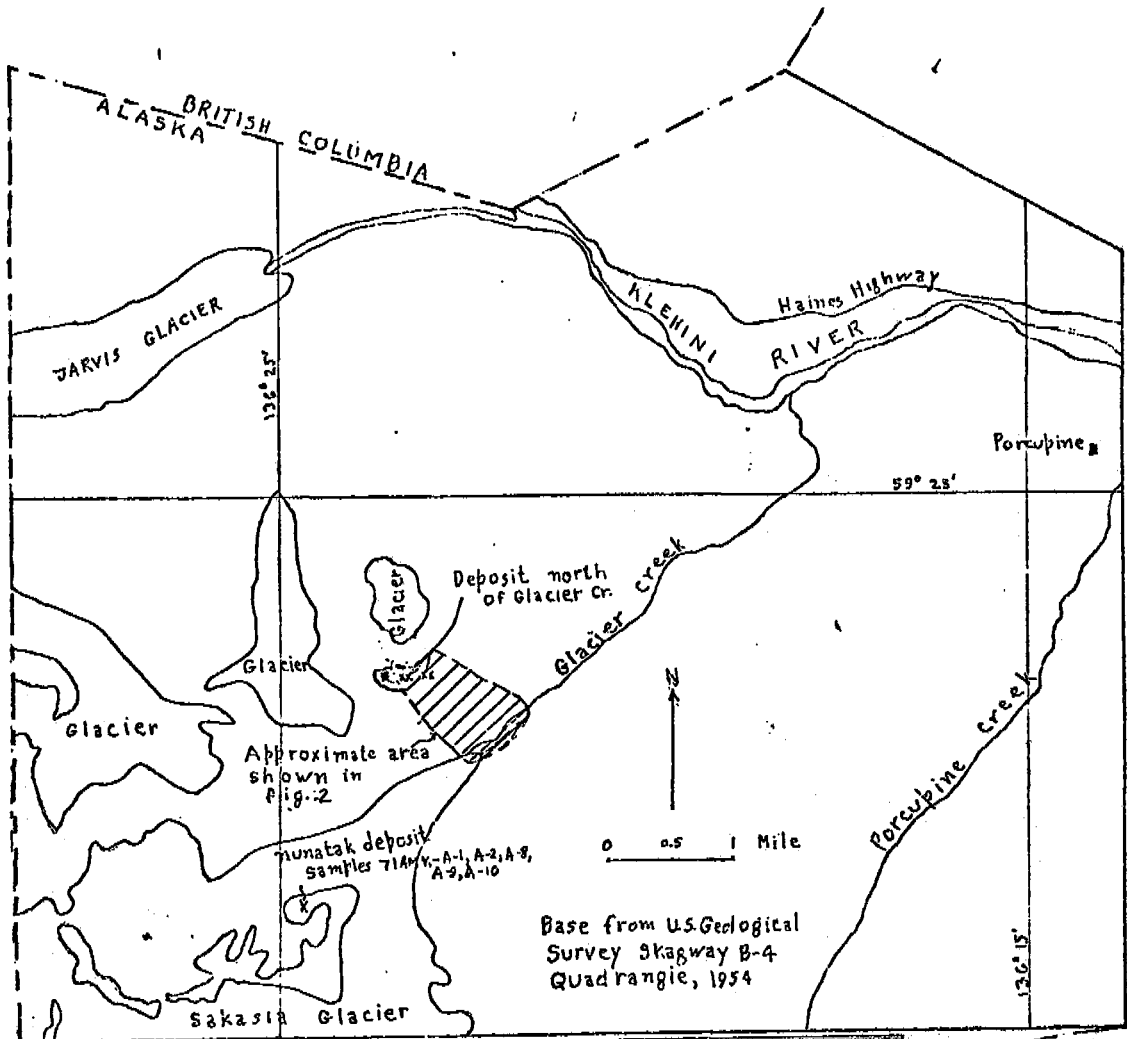


Figure 1. Index map showing location of berite-rich deposits near Glacier Creek

Geologic summary

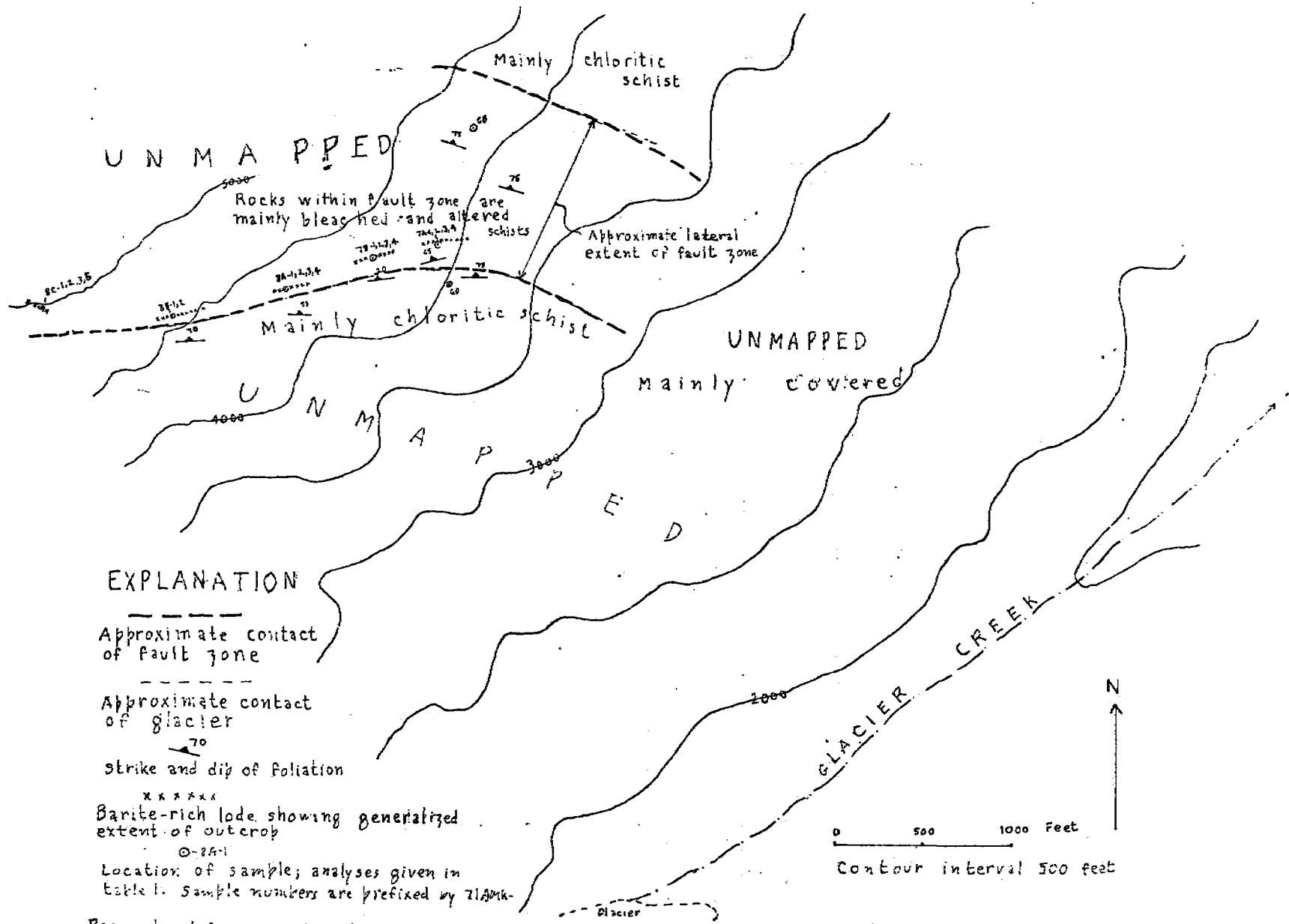
Published descriptions of the geology near Glacier Creek are meager and are adjuncts of investigations that focused on the Porcupine placer gold deposits (Wright, 1904, and Eakin, 1919). The following summary is based on geologic investigations by MacKevett and G. R. Winkler during short periods in 1969 and 1970.

The deposits are in a topographically rugged region whose physiography strongly reflects glaciation and glacier-related processes. The bedrock geology is characterized by a sequence of metamorphosed Paleozoic sedimentary and volcanic rocks and local granitic plutons, chiefly quartz diorite, of probable Mesozoic age. The metamorphic rocks mainly reflect greenschist facies regional metamorphism with local overprints of thermal metamorphic effects near most plutons.

Mineral deposits

The deposit north of Glacier Creek, the best known and, apparently, largest of the deposits, is localized in a steep fault zone that mainly cuts chloritic schist. The fault zone, which in places is several hundred feet wide, strikes from N. 60° W. through east-west to about N. 85° E. It contains discrete fault strands marked by breccia, gouge, and sheared surfaces, and several interspersed blocks of intensely altered and bleached schist (fig. 2). The barite-rich lode is as much as 30 feet wide and intermittently traceable for about 1/2 mile along strike throughout a vertical extent of more than 1,000 feet. The lode generally strikes parallel to the fault zone and appears to dip steeply northward. However, most outcrops of the lode are separated by sizable areas covered by snow or talus, and the lode's continuity has not been conclusively established.

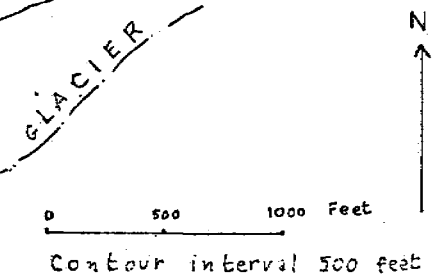
Figure 2. Geologic sketch map showing sample locations at deposit
north of Glacier Creek.



EXPLANATION

- Approximate contact of fault zone
- · - · -
Approximate contact of glacier
- 70
strike and dip of foliation
- xxxxxx
Barite-rich lode showing generalized extent of outcrop
- 25-1
Location of sample; analyses given in table 1. Sample numbers are prefixed by 21AMk-

Base enlarged from U.S. Geological Survey
Skagway B-4 quadrangle, 1954



Mapped by E. M. Mackevett, Jr., July 18, 1971

Figure 2. Geologic sketch map showing sample locations at deposit north of Glacier Creek

The highest lode outcrop deviates from the general trend and may represent a faulted offset or a bifurcation of the main lode, or a separate lode. Both the northwestward and the southeastward on-strike projections of the barite-rich lode are concealed by ice or surficial deposits.

Mainly on the basis of megascopic identifications, the lode consists dominantly of barite along with small amounts of quartz; calcite; pyrite; chalcopyrite; galena; sphalerite; secondary zinc, iron, or copper minerals; and probably sulfosalts. Some of the minerals, particularly those containing copper or zinc, appear to be localized in zones near margins of the lode.

The writer's examination of the nunatak deposit was curtailed by fog, and information on the deposit is sketchy. This deposit forms a northwest-striking, probably fault-controlled, lode about 20 feet thick that mainly cuts metavolcanic rocks. According to the claim holders the lode extends across the nunatak, a distance of at least 1,000 feet. The deposit's mineral assemblage is similar to that of the deposit north of Glacier Creek.

Analytical data

Analytical data given in table 1 include semiquantitative spectrographic analyses for 30 elements made by K. J. Curry and quantitative barium analyses by gravimetric methods made by J. C. Negri and Z. C. Stephenson. In addition all samples were analyzed for gold by atomic absorption methods by D. G. Murrey, A. L. Meier, and R. L. Miller. Results of the gold analyses were negative and are not reported in table 1. All the analysts are members of the U.S. Geological Survey. The samples include 20 from the deposit north of Glacier Creek, whose locations are shown in figure 2, and 5 from the nunatak deposit, whose locations are shown in figure 1. Descriptions of the samples follow table 1.

A report by Winkler and MacKevett (1970) gives analyses of stream sediment and bedrock samples from the Haines-Porcupine region, including the environs of Glacier Creek.

Table 1. Analyses of samples from barite-silver-base metal deposits near Glacier Creek.

Analyses by semiquantitative spectrographic methods except as indicated in footnotes. Fe, Mg, Ca, Ti, and the gravimetric barium analyses are reported in percent. All other elements are in (ppm) parts per million to the nearest number in the series 1, 0.7, 0.3, 0.2, 0.15, 0.1, etc. N = not detected; L = detected but below limit of determination; G = greater than the amount shown in parentheses, precise amount not determined; n.d. = not determined. Besides the elements listed in the table the following were looked for but not found: Au, Be, La, Nb, Sn, and W; exceptions: Be, 1.5 ppm in 71AMK-8A-4; La, 30 ppm in 71AMK-7A-1 and 71AMK-A-1.

Sample Number	FeZ	MgZ	CaZ	TiX	Mn	Ag	As	B	Ba	BaZ	Bi	Cd	Co	Cr	Cu	Mo	Ni	Pb	Sb	Sc	Sr	V	Y	Zn	Zr
71AMK-6B	15	3	0.5	0.7	300	3	N	10	1500	L(0.1)	N	N	70	700	70	7	70	70	N	50	100	500	30	N	150
-6D	G(20)	0.2	0.07	0.3	70	1	N	L	700	n.d.	N	N	L	70	300	7	15	70	N	20	L	300	20	1000	30
-7A-1	10	0.07	1.5	0.1	300	70	700	N	G(5000)	19.9	70	300	N	70	15000	L	20	15000	300	10	5000	300	30	G(10000)	30
-7A-2	2	0.03	0.07	0.07	L	70	L	N	G(5000)	39.2	L	20	N	30	3000	15	N	3000	150	5	G(5000)	150	L	1000	L
-7A-3	15	0.3	L	0.3	30	5	N	10	G(5000)	0.8	N	N	20	30	700	30	70	150	N	30	L	300	N	L	L
-7A-4	G(20)	0.03	L	0.1	L	2	N	L	3000	L(0.1)	N	N	70	L	150	10	7	50	N	10	L	50	L	N	L
-7B-1	1.5	L	L	0.015	N	70	300	N	G(5000)	42.3	L	N	N	20	70	15	N	500	1000	L	G(5000)	100	N	200	N
-7B-2	7	0.03	L	0.1	L	70	700	N	G(5000)	43.9	20	N	N	30	150	100	N	1500	300	5	G(5000)	150	L	L	L
-7B-3	0.3	0.03	L	0.15	N	30	N	N	G(5000)	46.9	L	N	N	30	70	10	N	1500	100	L	G(5000)	150	L	200	20
-7B-4	10	0.7	L	0.5	30	3	N	30	G(5000)	n.d.	N	N	30	100	70	L	70	200	N	30	100	500	20	N	50
-8A-1	20	1.5	0.05	0.5	300	7	L	10	G(5000)	n.d.	N	N	L	300	3000	10	7	700	N	30	150	300	L	3000	50
-8A-2	10	L	L	0.007	L	70	N	N	G(5000)	43.0	N	N	N	20	1000	70	N	20000	300	L	G(5000)	150	N	700	N
-8A-3	3	L	L	0.005	N	30	N	N	G(5000)	47.9	30	N	N	10	150	30	N	1500	L	N	G(5000)	100	N	300	N
-8A-4	10	1.5	0.15	0.3	1500	3	L	30	G(5000)	n.d.	N	N	70	150	3000	7	200	200	N	20	L	300	30	5000	100
-8B-1	15	3	0.2	0.3	1500	15	N	15	3000	L(0.1)	N	300	70	70	20000	L	100	1500	N	30	L	300	50	G(10000)	70
-8B-2	15	0.3	L	0.15	70	70	200	N	G(5000)	35.1	100	N	N	30	3000	50	L	15000	500	7	G(5000)	150	L	7000	L
-8C-1	10	0.3	15	0.07	3000	300	L	L	G(5000)	n.d.	150	150	L	50	G(20000)	L	30	20000	L	L	700	50	30	G(10000)	L
-8C-2	10	0.7	3	0.15	2000	300	N	L	G(5000)	28.9	L	300	L	150	15000	20	20	G(20000)	150	5	G(5000)	300	20	G(10000)	70
-8C-3	10	L	0.2	L	30	700	N	N	G(5000)	35.2	N	100	N	10	10000	15	N	G(20000)	1500	N	G(5000)	500	10	7000	N
-8C-5	1	L	0.3	L	N	300	N	N	G(5000)	35.6	N	N	N	30	3000	20	N	G(20000)	200	N	G(5000)	300	10	700	N
-A-1	5	1	2	0.05	2000	15	N	N	G(5000)	38.5	N	N	10	70	150	L	30	1000	L	15	G(5000)	700	70	700	70
-A-2	0.7	L	0.05	0.2	15	200	N	N	G(5000)	53.1	N	N	N	30	70	150	N	5000	1000	L	G(5000)	70	L	700	70
-A-8	2	L	L	0.15	50	500	3000	N	G(5000)	48.1	N	150	N	L	3000	70	10	15000	1500	N	3000	150	N	G(10000)	L
-A-9	0.7	L	L	0.1	N	15	L	N	G(5000)	49.8	N	N	N	15	50	30	N	500	150	N	G(5000)	150	N	300	L
-A-10	2	L	L	0.02	L	300	300	N	G(5000)	50.4	N	N	N	10	700	7	N	7000	1500	L	G(5000)	30	N	700	L
Limit of detection	0.05	0.02	0.05	0.002	10	0.5	200	10	20	0.1	10	20	5	10	5	5	5	10	100	5	100	10	10	200	10

Analyzed by gravimetric methods. Results given in percent.

Descriptions of samples

(Sample intervals for all chip samples are about 6 inches)

<u>Sample number</u>	<u>Type</u>	<u>Description</u>
71AMk-6B	Chip	Across 6-foot-wide altered zone
" -6D	Grab	Representative of 6-inch-wide breccia zone
" -7A-1	Grab	Representative of 15-foot-wide lowermost exposed barite-rich lode
" -7A-2	Chip	Across 15-foot width of barite-rich lode
" -7A-3	Selected	At south contact of barite-rich lode
" -7A-4	Selected	Pyrite-rich vein a few inches thick in hanging wall
" -7B-1	Chip	Across northernmost 6 feet of barite-rich lode
" -7B-2	Chip	Across intermediate 6 feet of barite-rich lode
" -7B-3	Chip	Across southernmost 6 feet of barite-rich lode
" -7B-4	Grab	Representative of 30-foot-thick zone of altered schist at south margin of barite-rich lode
" -8A-1	Chip	Across northernmost 6 feet of barite-rich lode
" -8A-2	Chip	Across intermediate 10 feet of barite-rich lode
" -8A-3	Chip	Across southernmost 8 feet of barite-rich lode
" -8A-4	Grab	Representative of 12-foot-thick altered schist bordering footwall of barite-rich lode
" -8B-1	Chip	Across 5-foot-wide copper-stained zone bordering footwall of barite-rich lode
" -8B-2	Chip	Across 4-foot-wide barite-rich lode
" -8C-1	Grab	From sulfide-rich lenticular? mass 5 feet wide
" -8C-2	Chip	Across 25-foot-wide barite-rich lode
" -8C-3	Grab	From near south contact of barite-rich lode of 71AMk-8C-2
" -8C-5	Selected	From barite-rich zone of 71AMk-8C-2

Descriptions of samples (Continued)

<u>Sample number</u>	<u>Type</u>	<u>Description</u>
71AMk-A-1	Grab	Near lower contact of nunatak lode
" -A-2	Grab	4 feet above lower contact of nunatak lode
" -A-8	Grab	7 feet above lower contact of nunatak lode
" -A-9	Grab	12 feet above lower contact of nunatak lode
" -A-10	Grab	Near top of nunatak lode, 18 feet above lower contact

References

- Eakin, H. M., 1919, The Porcupine gold placer district, Alaska: U.S. Geol. Survey Bull. 699, 27 p.
- Winkler, G. R., and MacKevett, E. M., Jr., 1970, Analyses of bedrock and stream-sediment samples from the Haines-Porcupine region, southeastern Alaska: U.S. Geol. Survey open-file rept., 91 p.
- Wright, C. W., 1904, The Porcupine placer district, Alaska: U.S. Geol. Survey Bull. 236, 35 p.