UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

GEOCHEMICAL DATA FROM THE NABESNA A-1 QUADRANGLE, ALASKA

By

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Open-file report

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

MAP EXPLANATION

Nabesna A-1 quadrangle, Alaska

Stream sediment sample locality with map number on upstream side. Darkened quadrants indicate anomalous concentrations of Ag and/or Au, Cu, Mo, Pb and/or Zn in clockwise order from top. Example 89 is anomalous in Cu and Pb. See Table 1 for analytical values.

Rock sample locality and map number. See Table 2 for analytical values and description of samples.

Altered zone characterized by limonite staining from the weathering of disseminated sulfides.

Approximate contact of Klein Creek batholith, dashed where covered.

Localities described in "Economic Geology Notes" section of this report.

TABLE 1

Analyses of stream sediments
Nabesna A-1 quadrangle, Alaska

Limits of determination shown in parentheses under element.

Map No.	Field No.	Concentration (ppm) Ag (.5)	Au (.02)	B (10)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	V (10)	Zn (200)
1	69-DW-75	N	L	70	70	70	L	70	15	200	L
2	69-PL-152	L	L	150	300	150	L	150	N	300	L
3	69-PL-149	L	L	70	150	100	L	100	L	300	L
4	69-PL-151	L	L	50	150	200	L	100	15	300	L
5	69-PL-150	L	L	300	700	150	L	150	N	300	L
6	69-PL-132	N	L	70	300	150	L	150	L	300	L
7	69-ARh-182	N	L	N	10	50	N	5	15	200	L
8	69-PL-134	N	L	150	2000	150	L	150	L	500	200
9	69-PL-135	N	L	30	150	150	L	100	L	500	L
10	69-PL-138	N	L	150	300	150	L	100	10	300	L
11	69-PL-137	N	L	50	30	150	L	20	L	300	L
12	69-PL-136	N	L	70	150	100	L	100	L	500	L
13	69-DW-72	N	L	50	70	70	L	50	10	200	200
14	69-AMn-163	L	L	50	150	70	L	100	L	300	L
15	69-AMn-173	.5	L	50	150	70	5	100	N	200	L
16	69-DW-73	L	L	100	150	100	L	70	15	300	200
17	69-PL-182	N	L	300	300	100	L	150	N	300	L
18	69-AMn-164	N	L	300	300	150	5	150	N	500	L
19	69-PL-180	N	L	300	700	70	L	200	N	300	L
20	69-PL-179	N	L	30	300	200	L	150	N	500	L
21	69-PL-178	N	L	70	300	150	L	150	N	300	L
22	69-PL-181	L	L	150	300	100	L	150	N	300	L
23	69-PL-177	L	L	70	150	70	L	70	15	300	L
24	69-PL-183	L	L	100	500	150	5	150	N	300	L
25	69-PL-176	N	L	70	70	70	L	70	20	300	200
26	69-PL-175	N	L	70	70	70	L	70	10	300	200
27	69-PL-174	N	L	20	30	70	L	15	N	300	L
28	69-PL-173	N	L	50	200	70	L	100	15	300	L
29	69-PL-172	N	L	15	30	70	N	15	N	300	L
30	69-PL-171	N	L	10	L	50	N	15	N	70	N
31	69-PL-170	L	L	70	300	70	N	100	30	200	L
32	69-PL-162	L	L	70	150	100	L	70	15	200	200
33	69-PL-163	N	L	50	150	70	5	70	15	200	L
34	69-PL-164	N	L	70	70	70	L	70	20	300	L
35	69-PL-169	N	L	70	150	100	L	70	15	300	200

TABLE 1

Map No.	Field No.	Concentration (ppm) Ag (.5)	Au (.02)	B (10)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	V (10)	Zn (200)
36	69-PL-165	L	L	100	150	70	L	100	15	300	200
37	69-PL-168	L	L	100	300	100	L	150	15	300	L
38	69-PL-167	N	L	300	200	100	5	150	20	300	L
39	69-PL-166	N	L	100	100	100	L	50	20	200	200
40	70-RL-165	N	L	70	100	100	L	70	L	300	N
41	70-RL-166	N	L	70	100	100	L	70	10	300	L
42	70-PCL-152	N	L	70	150	100	L	50	L	300	N
43	70-PCL-151	N	L	70	100	100	L	50	15	300	N
44	70-PCL-153	N	L	70	150	100	L	70	10	300	N
45	70-AMn-176	N	L	150	150	100	L	70	15	300	N
46	70-RL-158	N	L	70	100	100	L	70	15	300	L
47	70-RL-153	N	L	70	100	100	L	70	10	300	L
48	70-RL-154	N	L	30	150	100	L	70	L	300	L
49	70-RL-155	N	L	70	150	150	5	70	15	300	L
50	70-RL-156	N	L	100	100	100	L	70	15	300	N
51	70-RL-157	N	L	70	100	150	L	70	20	300	L
52	70-PCL-164	N	L	100	200	150	L	100	20	300	N
53	70-AMn-159	N	L	50	150	100	L	70	15	300	N
54	70-AMn-160	N	L	50	200	150	5	100	15	300	N
55	70-AMn-157	N	L	100	150	150	L	100	10	300	L
56	70-AMn-158	N	L	70	150	100	L	100	15	300	L
57	70-AMn-143	L	L	100	700	200	5	150	50	500	300
58	70-AMn-144	N	L	70	150	100	5	100	30	300	L
59	70-ARh-191	L	L	100	150	150	L	70	20	300	N
60	70-AMn-145	N	L	70	150	150	L	100	20	300	L
61	70-AMn-142	N	L	70	200	150	L	100	20	300	L
62	70-ARh-171	N	L	100	150	150	L	100	15	300	L
63	70-ARh-181	N	L	100	200	150	L	100	15	300	N
64	70-ARh-168	N	L	100	150	150	L	70	15	300	L
65	70-Amn-150	N	L	50	300	150	L	150	15	300	L
66	70-AMn-148	N	L	20	150	150	L	70	20	700	L
67	70-AMn-149	N	L	20	150	200	L	70	20	700	L
68	70-AMn-138	N	L	30	300	200	5	70	15	500	L
69	70-AMn-136	N	.08	30	300	500	5	70	50	300	200
70	70-AMn-137	N	.1	30	300	700	5	100	70	300	300
71	70-ABS-2	.7	.1	20	300	700	15	100	50	500	L
72	70-ABS-7	5	.1	20	200	700	30	70	500	500	300
73	70-ARh-147	L	L	30	150	300	L	70	20	300	L
74	70-ARh-145	N	.2	20	150	300	L	100	30	500	L
75	70-ARh-146	N	L	20	200	150	L	100	15	500	L

TABLE 1

Map No.	Field No.	Concentration (ppm) Ag (.5)	Au (.02)	B (10)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	V (10)	Zn (200)
76	70-ARh-142	N	.08	20	150	500	7	70	15	700	L
77	70-ABS-8	N	L	15	150	500	7	70	10	1000	L
78	70-ARh-160	N	L	70	300	150	L	150	15	500	L
79	70-ARh-192	L	L	70	500	150	L	150	15	300	N
80	70-AMn-139	N	L	150	150	150	5	70	20	300	N
81	70-ARh-156	N	L	50	200	300	5	100	L	300	N
82	70-ARh-149	N	L	15	200	300	7	100	N	300	N
83	70-ARh-150	N	.1	15	150	500	7	100	N	700	N
84	70-ARh-154	N	L	15	30	150	L	10	L	300	N
85	70-ARh-152	N	L	15	150	200	L	70	10	700	L
86	70-AMn-127	N	L	30	150	150	L	70	30	300	L
87	70-ARh-137	L	L	20	150	700	15	70	50	300	L
88	70-ARh-136	.7	L	20	700	300	5	100	30	300	300
89	70-ARh-124	N	L	30	700	150	L	150	30	500	L
90	70-AMn-151	1	.1	30	500	150	L	100	30	500	200
91	70-ARh-119	.5	L	30	150	300	L	70	50	500	200
92	70-ARh-120	L	L	30	200	150	L	100	50	300	L
93	70-ARh-121	N	L	30	700	150	5	100	70	500	200
94	70-PCL-126	N	L*	15	150	200	L	70	15	500	N
95	70-PCL-124	N	L	15	150	150	5	70	100	500	300
96	70-PCL-123	L	L	15	150	150	5	70	100	300	L
97	70-PCL-132	N	L	10	70	150	7	30	70	300	N
98	70-ARh-109	L	.06	20	100	2000	70	70	15	700	N
99	70-ARh-110	L	L	15	150	50	L	50	20	300	N
100	70-PCL-112	N	L*	15	300	200	5	150	20	500	L
101	70-PCL-116	L	L*	20	300	300	5	150	30	500	1500
102	70-PCL-122	L	.1	15	700	150	L	150	70	300	300
103	70-PCL-117	L	L	20	200	200	L	150	70	500	L
104	70-ARh-94	N	L	15	150	150	L	70	30	300	L
105	70-ARh-92	L	L	20	700	500	L	150	70	300	300
106	70-ARh-93	N	L	15	300	150	L	70	30	300	L
107	70-PCL-89	N	.04	20	150	150	L	70	70	300	L
108	70-PCL-85	N	.06	15	70	70	L	30	20	500	L
109	70-ARh-89	N	L	20	50	300	L	15	50	300	L
110	70-ARh-88	N	L	10	30	70	L	15	20	200	N
111	70-ARh-101	N	L	15	30	150	L	7	20	700	L
112	70-ARh-100	N	L	15	150	150	5	20	70	700	200
113	70-ARh-98	N	L	15	50	200	5	30	300	500	300
114	70-ARh-97	N	L	10	70	200	5	30	300	300	700
115	70-ARh-96	.5	L	15	50	200	L	30	500	300	700

TABLE 1

Map No.	Field No.	Concentration (ppm) Ag (.5)	Au (.02)	B (10)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	V (10)	Zn (200)
116	70-ARh-95	.5	L	10	70	150	L	30	200	300	700
117	70-PCL-108	N	L	15	50	150	L	30	150	300	200
118	70-PCL-109	N	.04	70	300	200	L	150	L	500	N
119	70-PCL-102	N	.04	70	150	70	L	70	15	300	N
120	70-PCL-101	N	L	20	70	150	L	50	15	300	L
121	70-ARH-85	N	L	70	500	150	L	70	10	500	L
122	70-ARh-84	N	L	15	700	100	L	100	30	300	L
123	70-ARh-81	L	IS	20	300	150	L	100	50	500	200
124	70-ARh-80	N	L	50	700	150	L	150	50	700	L
125	70-PCL-80	N	L	15	70	150	L	30	70	700	200
126	70-PCL-81	N	L	30	150	150	L	70	20	500	L
127	70-PCL-82	L	L	30	50	70	L	15	30	300	N
128	70-PCL-79	N	L	15	150	150	L	70	30	700	300
129	69-PL-200	N	L	15	70	70	L	30	30	300	L

L = detected but below limit of determination; * = usual limits of determination do not apply due to use of different sample weight; N = not detected; IS = insufficient sample.

Gold by atomic absorption. Analysts: King, H.D.; Miller, R.L.; Murrey, D.G.

Other elements by semiquantitative spectrographic analysis. Analyst: Curry, K.J.

TABLE 2

Analyses of rocks and vein material
Nabesna A-1 quadrangle, Alaska

Limits of determination shows in parentheses under elements.

Map No.	Field No.	Concentration (ppm) Ag (5)	Au (.02)	B (10)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	V (10)	Zn (200)
130	69-Amn-171	N	L	20	150	70	7	100	L	300	L
131	69-AMn-166	L	L	50	150	150	L	70	N	200	L
132	69-ARh-181	N	L	10	10	500	5	5	10	150	N
133	69-ARh-204	L	L	10	70	700	L	150	10	150	L
134	70-ABS-10	N	L	20	150	200	100	20	L	300	N
135	70-ABS-9	N	L	10	10	150	5	7	L	500	N
136	70-ABS-3a	N	L	10	20	150	L	15	N	700	N
137	70-ABS-3b	.5	L	15	15	1000	L	7	50	300	L
138	70-ABS-6	1.5	L	10	70	3000	7	15	700	150	1500
139	70-ABS-4	N	L	L	70	700	5	20	L	300	N
140	70-ABS-5	N	L	15	150	100	5	30	L	300	N
141	70-ARh-126	5	.4	L	L	300	L	L	7000	30	7000
142	70-ABS-13a	N	L	N	L	300	N	L	N	20	N
143	70-ABS-13b	7	L	15	700	15,000	L	150	N	300	200
144	70-PCL-140	.7	.2	15	30	1000	L	15	N	300	N
145	70-ARh-107	N	L	L	30	150	L	20	L	700	N
146	70-PCL-119	.5	L	10	50	300	L	30	L	700	N
147	70-PCL-113	N	L	10	150	150	L	70	15	500	N
148	70-ABS-18	L	L	10	70	1500	7	15	N	500	N
149	70-ABS-19	L	L	15	20	1500	L	15	N	500	N
150	70-ABS-20	L	L	L	50	1500	L	15	N	500	N
151	70-ABS-14	L	L	10	30	10,000	7	20	N	300	N
152	70-ABS-15	L	L	N	L	700	N	L	N	100	N
153	70-ARh-112	30	.04	L	L	10,000	L	L	7000	70	700
154	70-PCL-103	N	L	20	1500	100	L	200	N	500	N
155	70-PCL-105	N	L	70	700	150	L	150	N	700	N

L = detected, but below limit of determination; N = not detected.

Gold by atomic absorption. Analysts: King, H.D.; Miller, R.L.; Murrey, D.G.

Other elements by semiquantitative spectrographic analysis. Analyst: Curry, K.J.

Description of Samples

Map No.	Elevation	Description
130	5180'	Chip sample across 5 feet of sheared and stained conglomerate.
131	4620'	Chip sample across 5 feet of stained basalt.
132	6350'	Chip sample of stained diorite.
133	5350'	Grab sample across 200 feet of talus from pyrite-pyrrhotite-bearing hornfelsed argillite.
134	5300'	Grab sample of stained fractured diorite.
135	5000'	Grab sample of pyrite-bearing diorite.
136	5350'	Grab sample of pyrite-bearing diorite.
137	5350'	Grab sample of pyritized and epidotized diorite dike.
138	5000'	Grab sample of copper-stained, gypsiferous crushed zone along dike wall.
139	5200'	Grab sample of copper-stained dike.
140	6150'	Grab sample of fractured iron-stained diorite.
141	5200'	Grab sample of galena-chalcopyrite-tetrahedrite-bearing barite veins.
142	4000'	Grab sample of quartz-calcite vein.
143	4000'	Grab sample of copper-bearing quartz-calcite vein.
144	4860'	Grab sample of altered diorite.
145	7000'	Grab sample of copper-stained diorite.
146	6880'	Grab sample of stained diorite.
147	5040'	Grab sample of sheared and hornfelsed graded bedded sedimentary rocks.
148	5400'	Grab sample of metasomatized dark diorite.
149	5200'	Grab sample of copper-stained diorite.
150	5000'	Grab sample of breccia pipe.

Description of Samples

Map No.	Elevation	Description
151	5440'	Grab sample of copper stained monzonite.
152	5540'	Grab sample of monzonite.
153	5820'	Grab sample of a 2 foot copper-bearing quartz vein.
154	6740'	Grab sample of stained hornfels.
155	7110	Grab sample of epidotized hornfels.

ANALYTICAL NOTES

Nabesna A-1 quadrangle, Alaska

1. All stream sediment analyses performed on -80 mesh fraction.

2. In all analyses, excepting gold, the results are reported to the nearest number in the series 0.1, 0.15, 0.2, 0.3, 0.5, 0.7, 1, . . .

3. Copper, lead, molybdenum, and zinc are considered anomalous if they are reported in concentrations approximating, or greater than, 3 times their mean background. With the exception of amygdaloidal basalt terrane, mean background in the area closely approximates average crustal abundance: i.e. copper, 55 ppm; lead, 12.5 ppm; molybdenum, 1.5 ppm; zinc, 70 ppm. Background concentrations for copper and certain other elements in amygdaloidal basalt terrane are considerably higher than crustal average, hence samples 2, 4-6, 8, 18, 20, 21, 24, 57, 60-62, 104, 107, 123 and 124 from streams draining amygdaloidal basalts and with copper contents of 150 - 200 ppm probably should not be considered anomalous.

4. Gold and silver are considered anomalous for all values at or above their limits of determination since these limits are greater than 3 times the average crustal abundance for these metals.

5. As, Ba, Be, Bi, Ca, Cd, Fe, La, Mg, Mn, Nb, Sb, Sc, Sn, Sr, Ti, W, Y and Zr were also looked for and significant anomalies are as follows:

Sample No.	Anomalies (values in ppm)
113	Mn G(5000), Zr 700
138	Sr 1500
141	Ba G(5000), Sr 2000

G = greater than the value shown

ECONOMIC GEOLOGY NOTES

Nabesna A-1 quadrangle, Alaska
(numbers refer to localities on accompanying map)

1. O'Hara (Sulzer) prospect. Caved adit at 5400' in Triassic basalt and volcanic conglomerate with iron and copper sulfides scattered along joints and fractures. Referred to as O'Hara prospect by Moffit (U.S.G.S. Bull.989-D,p.204-205). Now held under a number of unpatented mining claims.

2. Reynolds prospect (approximate location) as reported in Moffit (U.S.G.S. Bull.989-D, p.205). A network of small bornite and chalcocite-bearing veins in fractured basalt.

3. Scattered lenses and layers of gypsum (var. alabaster) up to 2-1/2 feet thick occur in sheared amygdaloidal basalt over a distance of 1000' along this ridge.

4. Baultoff Creek porphyry copper-molybdenum deposit. Large mineralized area on the margin of the Klein Creek batholith discovered in the late 1960's and now held under a number of unpatented mining claims. The deposit consists of disseminated iron and copper sulfides in diorite. Extensive alteration, locally gypsiferous, and mineralization is possibly related to northwest-trending shear zones within the batholith.

5. Horsfeld Creek porphyry copper-molybdenum deposit. Large mineralized area on the margin of the Klein Creek batholith discovered in the late 1960's and now held under a number of unpatented mining claims. Contains disseminated iron and copper sulfides in granodiorite and monzonite.

6. Horsfeld Creek. Reported (as Horsfall Creek) by Cairnes (G.S.C. Mem.50, p.132) to have been worked for placer gold.

7. Eureka Creek. Reported by Moffit and Knopf (U.S.G.S. Bull.379, p.177-178) to be an argentiferous galena-sphalerite-bearing crushed zone in a porphyry dike on which a 60-foot adit had been driven.