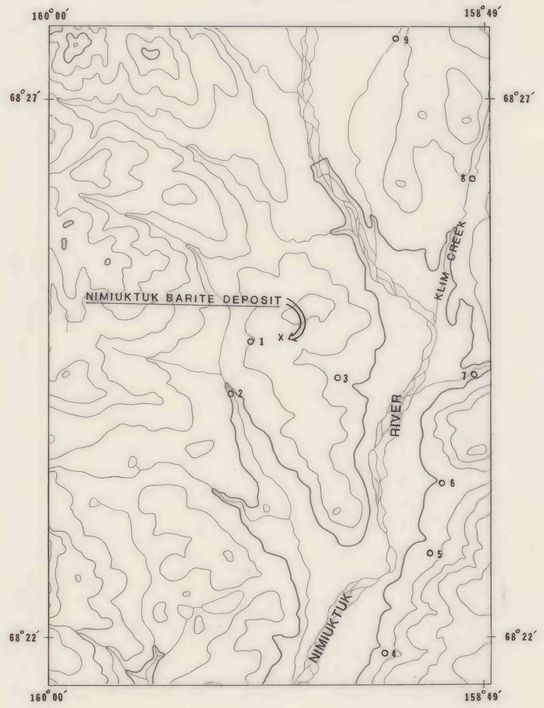
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

PLATE 2
U.S. GEOLOGICAL SURVEY
OPEN FILE REPORT 79-1092
GEOCHEMICAL SAMPLES

GEOCHEMICAL SAMPLING LOCATIONS NEAR THE GINNY CREEK Zn-Pb-Ag DEPOSIT

Base by U.S. Geological Survey 1956

GEOCHEMICAL SAMPLING LOCATIONS NEAR THE NIMIUKTUK BARITE DEPOSIT



Base by U.S. Geological Survey 1956

SCALE 1:63 360

1 ½ 0 1 2 3 4 5 MILES

1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 200 FEET
CONTOUR INTERVAL 50 FEET IN SOUTH HALF OF GINNY CREEK DEPOSIT MAP

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

INTRODUCTION TO GEOCHEMICAL ANALYSES

All the samples listed on this sheet were collected during the 1978 summer field season. The rock, soil, and a few stream-sediment samples from the Ginny Creek area were analyzed by Skyline Labs Inc., Wheat Ridge, Colorado. The other stream-sediment samples were analyzed by the U.S. Geological Survey laboratories in Anchorage, Alaska or Golden, Colorado. Stream-sediment samples are from the active alluvium collected either on gravel bars or from stream beds. Soil and stream-sediment samples were sieved, and a -80 mesh (U.S. Standard Series) fraction was analyzed. A -100 mesh fraction was analyzed from crushed rock samples. Each sample was analyzed for 31 elements by emission spectrography. Those samples from the U.S. Geological Survey analytical labs were analyzed for Th and Au, but not for Ga and Ge. Samples from Skyline Labs were analyzed for Ga and Ge, but not Th or Au. The atomic absorption method was also used on each sample to obtain more accurate values for selected important elements. Ca, Fe, Mg, and Ti are given in percent; the other elements are given in parts per million.

In the sample set from Skyline Labs, lead values appear to be 2 to 12 times lower for samples analyzed by emission spectrography compared to the same samples analyzed by atomic absorption. The reason for this difference is not known. The significance of specific samples with high values of zinc, lead, silver, or barium is discussed in the text.

EXPLANATION FOR GEOCHEMICAL SAMPLE LOCATIONS

o stream-sediment or soil sample

· rock sample

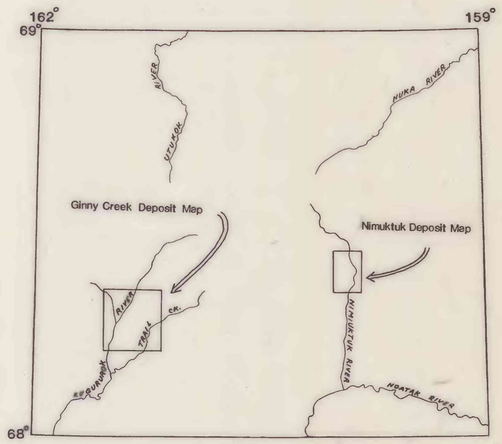
⌒ rock chips from surface float randomly taken along a linear traverse

EXPLANATION FOR TABLE OF GEOCHEMICAL ANALYSES

N not detected at lower limit of detection

< means either "not detected" or "less than" if analyzed by Skyline Labs Inc.; means "detected but less than" if analyzed by U.S. Geological Survey

> greater than



LOCATION OF GEOCHEMICAL MAPS IN THE MISHEGUK MOUNTAIN QUADRANGLE

QUADRANGLE LOCATION

TABLE OF GEOCHEMICAL ANALYSES

ANALYZED BY EMISSION SPECTROGRAPHY (PPM →) ; ANALYZED BY ATOMIC ABSORPTION

MAP NO.	FIELD SAMPLE NO.	LATITUDE	LONGITUDE	Ca%	Fe%	Mg%	Ti%	Ag	As	Au	B	Ba	Be	Bi	Cd	Co	Cr	Cu	Ga	Ge	La	Mn	Mo	Nb	Ni	Pb	Sb	Sc	Sn	Sr	Th	V	W	Y	Zn	Zr	Ag	Au	Cd	Cu	Pb	Zn	ANALYSIS LAB	SAMPLE TYPE
NIMIUKTUK BARITE DEPOSIT																																												
1	78Mi118	68°24′25″	158°59′54″	.5	7	.2	.2	N	N	N	100	5000	2	N	N	100	20	30			50	20000	N	<20	70	20	N	5	N	200	N	200	N	70	300	100				40	25	150	USGS	STREAM SED
2	78Ei103	68°24′17″	158°55′24″	.5	10	2.0	.5	N	N	N	500	15000	2	N	N	50	300	150			50	1500	N	<20	150	50	N	30	N	200	N	500	N	70	<200	300				45	25	100	USGS	STREAM SED
3	78Ei104	68°24′25″	158°52′42″	.2	7	.7	.5	N	N	N	100	5000	2	N	N	15	150	30			50	700	N	<20	100	20	N	20	N	200	N	300	N	70	<200	100				35	25	70	USGS	STREAM SED
4	78Ci149	68°21′52″	158°51′30″	1	5	1.0	.3	N	N	N	200	2000	2	N	N	20	150	30			50	700	N	<20	100	20	N	20	N	200	N	300	N	50	<200	100	.2			35	20	140	USGS	STREAM SED
5	78Ci150	68°22′47″	158°50′24″	.5	7	1.0	.5	N	N	N	300	3000	2	N	N	20	150	100			50	500	N	<20	100	100	N	30	N	200	N	300	N	50	<200	200	.2			45	30	130	USGS	STREAM SED
6	78Ci151	68°23′24″	158°50′06″	.2	5	.7	.7	N	N	N	200	5000	2	N	N	20	200	70			50	1500	N	<20	100	30	N	20	N	200	N	300	N	50	200	150	.3			45	25	150	USGS	STREAM SED
7	78Ci152	68°24′23″	158°50′24″	.3	10	1.0	.5	N	N	N	300	15000	2	N	N	30	200	100			50	1500	N	<20	100	70	N	30	N	200	N	300	N	70	200	200	.15			45	25	160	USGS	STREAM SED
8	78Ci155	68°24′16″	158°50′24″	.5	10	1.5	.5	<.5	N	N	300	>20000	2	N	N	50	200	150			50	2000	10	<20	150	70	N	20	N	300	N	300	N	70	300	200				70	25	110	USGS	STREAM SED
9	78Ci161	68°27′36″	158°51′12″	.3	10	1.5	.5	N	N	N	300	7000	2	N	N	50	150	100			50	1000	N	<20	100	50	N	20	N	200	N	300	N	70	<200	200				45	25	90	USGS	STREAM SED
GINNY CREEK Zn-Pb-Ag DEPOSIT																																												
10	78Cv207	68°18′38″	161°20′36″	1.0	3	1.0	.5	N	N	N	200	3000	1	N	N	20	150	50			50	1000	N	<20	100	30	N	15	N	200	N	200	N	30	<200	150	.2		.55	45	20	170	USGS	STREAM SED
11	78Cv208	68°18′42″	161°19′00″	.5	3	1.0	.5	<.5	N	N	150	>5000	1	N	N	20	200	100			50	2000	<5	<20	100	20	N	20	N	300	N	300	N	30	200	150	.4		3.3	70	15	240	USGS	STREAM SED
12	78Cv209	68°18′48″	161°18′42″	1.5	5	1.5	.5	N	N	N	200	3000	1	N	N	30	150	70			50	1500	10	<20	100	20	N	20	N	200	N	200	N	30	<200	150	.25		.55	50	25	170	USGS	STREAM SED
13	78Cv210	68°18′52″	161°17′18″	.5	3	1.0	.5	N	N	N	150	3000	1	N	N	20	200	50			50	1500	<5	<20	100	30	N	15	N	150	N	200	N	20	<200	100	.2		.9	35	30	180	USGS	STREAM SED
14	78Cv211	68°18′23″	161°16′30″	.5	2	.7	.3	1.0	N	N	150	5000	1.5	N	N	10	100	70			50	1000	<5	<20	100	50	N	15	N	200	N	200	N	30	700	70	1.0		7.0	80	60	800	USGS	STREAM SED
15	78Cv212	68°17′38″	161°13′48″	.7	5	1.0	.5	N	N	N	150	1000	1	N	N	20	200	50			50	2000	<5	<20	70	20	N	15	N	150	N	200	N	30	N	100	.1		.3	25	30	95	USGS	STREAM SED
16	78Cv213	68°17′29″	161°14′18″	.3	5	1.0	.5	N	N	N	200	1000	1.5	N	N	30	300	50			70	1000	<5	<20	100	50	N	20	N	150	N	200	N	30	<200	200	.15		.3	30	20	90	USGS	STREAM SED
17	78Cv215	68°17′36″	161°15′30″	.5	5	1.0	.5	.5	N	N	150	3000	1.5	N	N	20	200	50			50	3000	<5	<20	70	70	N	20	N	100	N	200	N	30	300	200	.55		1.4	35	85	350	USGS	STREAM SED
18	78Cv214	68°17′30″	161°15′30″	.3	1	.2	.2	<.5	N	N	70	5000	1	N	N	<5	100	30			50	2000	N	<20	50	50	N	5	N	100	N	100	N	15	<200	50	.6		2.0	40	75	300	USGS	STREAM SED
19	78Cv216	68°17′17″	161°15′36″	.7	5	.7	.5	N	N	N	150	1000	2	N	N	15	150	50			70	2000	N	<20	70	50	N	20	N	150	N	200	N	30	<200	200	.15		.2	30	30	80	USGS	STREAM SED
20	78Cv217	68°16′49″	161°17′30″	.5	5	1.0	.5	1.5	N	N	150	1000	2	N	N	30	200	50			70	2000	N	<20	100	70	N	20	N	150	N	200	N	50	<200	200	.20		.35	60	20	90	USGS	STREAM SED
21	78Rv1	68°16′49″	161°17′06″	.2	15	.3	.5	10	N	N	300	7000	2	N	N	<5	200	150			50	5000	N	<20	70	2000	N	20	N	200	N	300	N	50	1000	100				35	1400	780	USGS	STREAM SED
22	78Rv2	68°16′51″	161°17′12″	.1	20	.1	.3	2	N	N	100	2000	1.5	N	N	<5	100	20			50	300	N	<20	20	200	N	10	N	N	N	200	N	50	1000	70				15	200	610	USGS	STREAM SED
23	78Rv3	68°17′18″	161°17′30″	.15	15	.2	.3	2	N	N	300	5000	2	N	N	20	200	70			50	1500	N	<20	150	1000	N	20	N	200	N	200	N	70	1000	100				20	900	740	USGS	STREAM SED
24	78Rv4	68°17′05″	161°17′30″	.5	10	.7	.5	5	N	N	300	5000	2	N	N	50	300	100			50	3000	N	<20	150	3000	N	20	N	200	N	300	N	70	1000	200				35	1200	1300	USGS	STREAM SED
25	78Mi163C	68°17′06″	161°17′42″	.07	15	.07	.05	<1	<500		20	10	<2	<10	<50	7	<10	30	<10	<20	<20	10000	5	20	15	30	<100	<10	10	100		15	<50	<10	2000	20	.6	<.02	15.0	80	230	3350	SKYLINE	ROCK
26	78Mi163A	68°17′09″	161°17′30″	.02	15	.03	.015	2	<500		15	10	<2	<10	<50	<5	<10	20	<10	<20	<20	10000	5	20	10	700	<100	<10	10	100		10	<50	<10	7000	<20	8.6	<.02	20.0	65	6450	10500	SKYLINE	ROCK
27	78Mi163B	68°17′13″	161°17′24″	.02	15	.05	.015	1	<500		15	<10	<2	<10	<50	10	<10	30	<10	<20	<20	10000	5	20	20	300	<100	<10	10	100		10	<50	<10	3000	<20	4.2	<.02	20.0	75	3800	7600	SKYLINE	ROCK
28	78Ti168C	68°17′11″	161°16′42″	.1	1.5	.15	.2	1.5	N	N	100	700	2	N	N	<5	150	20			50	500	N	<20	15	300	N	15	N	100	N	100	N	30	N	100	1.1			20	350	110	USGS	STREAM SED
29	78Ti168B	68°17′16″	161°17′06″	.2	7	.15	.15	1	N	N	70	2000	2	N	N	50	150	50			50	5000	N	<20	70	500	N	10	N	<100	N	100	N	30	700	70	1.1			40	600	500	USGS	STREAM SED
30	78Ti168W	68°17′16″	161°17′06″	.5	7	.1	.02	N	N	N	30	2000	<1	N	N	100	10	20			50	>5000	N	<20	150	100	N	N	N	<100	N	20	N	10	2000	30	.4			30	120	2500	USGS	STREAM SED
31	78Ti199A	68°17′21″	161°17′06″	.03	5	.2	.1	<1	<500		50	300	2	<10	<50	10	30	50	<10	<20	50	2000	2	20	20	500	<100	10	<10	100		100	<50	10	1000	70	1.6	<.02	5.0	60	1200	1300	SKYLINE	SOIL
32	78Ti199	68°17′26″	161°17′12″	.05	20	.05	.05	<1	<500		20	10	<2	<10	<50	50	<10	<2	<10	<20	<20	10000	5	20	150	50	<100	<10	10	<100		15	<50	<10	300	<20	<.2	<.02	<5.0	10	395	610	SKYLINE	ROCK
33	78Cv257E	68°17′26″	161°17′12″	.05	15	.05	.02	1	<500		15	<10	<2	<10	<50	50	<10	150	<10	<20	<20	10000	3	20	100	500	<100	<10	10	<100		10	<50	<10	3000	<20	9.2	<.02	5.0	270	9100	3600	SKYLINE	ROCK
34	78Cv257F	68°17′25″	161°17′24″	.02	7	.03	.1	3	<500		20	200	<2	<10	<50	<5	<10	10	<10	<20	<20	1000	<2	20	<5	700	<100	<10	<10	<100		20	<50	<10	3000	50	10.0	<.02	5.0	25	2850	3750	SKYLINE	ROCK
35	78Cv257A	68°17′26″	161°17′42″	.03	15	.05	.15	2	<500		20	200	<2	<10	<50	<5	10	10	<10	<20	<20	5000	3	20	5	500	<100	<10	<10	100		30	<50	10	2000	70	5.6	<.02	5.0	20	2850	3350	SKYLINE	ROCK
36	78Cv257B	68°17′23″	161°17′36″	.02	10	.07	.2	<1	<500		30	100	2	<10	<50	5	15	10	<10	<20	<20	7000	2	20	20	300	<100	10	<10	100		30	<50	15	1500	200	1.8	<.02	5.0	20	1300	2950	SKYLINE	ROCK
37	78Cv257C	68°17′21″	161°17′36″	.02	10	.05	.2	<1	<500		30	50	<2	<10	<50	<5	<10	7	<10	<20	<20	5000	2	20	5	70	<100	<10	<10	<100		20	<50	<10	2000	100	.6	<.02	5.0	20	250	5000	SKYLINE	ROCK
38	78Cv257D	68°17′19″	161°17′42″	.03	15	.05	.1	<1	<500		20	20	<2	<10	<50	5	<10	30	<10	<20	<20	10000	3	20	10	50	<100	<10	10	100		20	<50	<10	3000	70	2.0	<.02	10.0	70	320	4250	SKYLINE	ROCK
39	78Mi161	68°17′06″	161°18′12″	.15	3	.2	.15	1	<500		20	500	2	<10	<50	<5	100	15	<10	<20	50	700	2	20	30	200	<100	10	<10	100		100	<50	10	1500	50	2.0	<.02	15.0	40	750	2550	SKYLINE	STREAM SED
40	78Mi162	68°17′01″	161°18′06″	.07	5	.2	.15	<1	<500		30	3000	2	<10	<50	7	30	10	<10	<20	50	2000	2	20	20	150	<100	10	<10	100		70	<50	10	1500	50	.8	<.02	10.0	35	580	2650	SKYLINE	STREAM SED
41	78Mi165E	68°16′50″	161°19′06″	.07	5	.1	.15	<1	<500		50	500	2	<10	<50	5	50	10	<10	<20	30	1500	2	20	30	150	<100	10	<10	100		100	<50	10	1000	50	.6	<.02	10.0	35	415	2650	SKYLINE	STREAM SED
42	78Mi165F	68°16′52″	161°19′18″	.2	2	.15	.1	<1	<500		20	100	2	<10	<50	<5	20	10	<10	<20	50	1000	<2	<20	50	100	<100	<10	<10	100		70	<50	<10	700	50	1.6	<.02	5.0	35	590	12.50	SKYLINE	STREAM SED
43	78Mi205	68°17′42″	161°19′06″	.2	15	.03	.01	2	<500		10	<10	<2	<10	<50	<5	<10	10	<10	<20	<20	10000	5	20	<5	200	<100	<10	10	100		10	<50	<10	10000	<20	9.2	<.02	105.0	50	2550	29500	SKYLINE	ROCK
44	78Cv205	68°17′33″	161°20′06″	.5	2	.5	.3	2	N	N	150	5000	1	N	N	10	200	70			50	1000	<5	<20	100	70	N	15	N	100	N	200	N	20	<200	100	1.6		1.4	50	70	260	USGS	STREAM SED
45	78Cv206	68°17′39″	161°22′42″	.1	2	.3	.2	1.5	N	N	100	2000	1	N	N	10	100	50			50	500	<5	<20	100	20	N	10	N	100	N	100	N	20	<200	50	1.7		1.5	50	25	250	USGS	STREAM SED
46	78Cv204	68°16′59″	161°22′48″	.5	2	.3	.3	3	N	N	150	3000	1.5	N	N	10	200	70			50	2000	N	<20	100	150	N	15	N	150	N	200	N	30	500	100	.3		.35	5	25	65	USGS	STREAM SED
47	78Cv202	68°16′12″	161°20′54″	1.5	5	2.0	.5	N	N	N	100	5000	1	N	N	100	700	50			50	3000	<5	<20	100	30	N	30	N	100	N	200	N	20	<200	100	.25		1.0	30	15	100	USGS	STREAM SED
48	78Cv203	68°16′06″	161°23′24″	.2	1	.1	.2	N	N	N	100	5000	1	N	N	<5	50	50			50	1000	N	<20	50	15	N	10	N	200	N	100	N	10	<200	50	.1		.35	10	5	30	USGS	STREAM SED
49	78Cv201	68°16′32″	161°18′36″	.1	5	.3	.5	.5	N	N	150	1500	1.5	N	N	150	300	50			70	3000	<5	<20	100	200	N	20	N	100	N	150	N	30	1000	200	.55		5.7	50	230	1400	USGS	STREAM SED
50	78Cv200	68°16′23″	161°18′36″	.1	3	.5	.5	1	N	N	150	5000	1.5	N	N	20	150	70			50	500	<5	<20	100	70	N	30	N	100	N	150	N	30	300	200	.8		1.8	50	65	390	USGS	STREAM SED
51	78Cv199	68°16′15″	161°19′00″	.5	2	.7	.3	2	N	N	150	>5000	1.5	N	N	10	200	70			50	300	<5	<20	70	70	N	15	N	200	N	150	N	30	200	100	1.6		1.0	45	55	260	USGS	STREAM SED
52	78Cv198	68°16′06″	161°19′42″	.5	3	.7	.5	.5	N	N	150	3000	1.5	N	N	20	150	50			50	3000	<5	<20	100	20	N	15	N	150	N	200	N	20	200	100	.6		1.2	40	20	190	USGS	STREAM SED
53	78Cv197	68°15′40″	161°20′18″	.2	3	.7	.5	.5	N	N	150	5000	1.5	N	N	20	200	70			50	1000	<5	<20	100	30	N	15	N	150	N	200	N	30	200	150	.6		.75	50	30	170	USGS	STREAM SED
54	78Cv196	68°15′15″	161°21′00″	.3	3	.7	.3	1	N	N	150	3000	1.5	N	N	20	100	50			50	3000	<5	<20	100	30	N	15	N	150	N	200	N	30	700	100	.75		3.0	50	35	660	USGS	STREAM SED
55	78Cv195	68°15′10″	161°21′00″	.3	3	.7	.3	1	N	N	150	5000	1.5	N	N	20	100	70			50	1000	<5	<20	100	30	N	15	N	150	N	200	N	30	300	150	.75		2.8	65	20	330	USGS	STREAM SED
56	78Cv194	68°14′06″	161°23′30″	.2	5	.7	.3	1	N	N	150	5000	1	N	N	20	150	70			50	2000	<5	N	100	100	N	15	N	150	N	200	N	30	700	150	.85		3.0	60	85	740	USGS	STREAM SED
57	78Cv193	68°13′17″	161°30′48″	3.0	5	2.0	.5	N	N	N	150	1000	1	N	N	30	500	100			50	1000	<5	<20	100	50	N	20	N	200	N	200	N	30	<200	150	.35		.85	70	20	130	USGS	STREAM SED
LOWER LIMIT OF DETECTION (USGS LAB)				.05	.05	.02	.002	.5	200	10	10	20	1	10	20	5	10	5			20	10	5	20	5	10	100	5	10	100	100	10	50	10	200	10									
LOWER LIMIT OF DETECTION (SKYLINE LAB)				.02	.05	.02	.002	1	500		10	10	2	10	50	5	10	2	10	20	20	10	2	20	5	10	100	10	10	100		10	50	10	200	20									

Geological Survey analyses by E.F. Cooley, A. Gruzensky, and R.M. O'Leary

RECONNAISSANCE GEOLOGY OF THE GINNY CREEK ZINC-LEAD SILVER AND NIMIUKTUK BARITE DEPOSITS, NORTHWESTERN BROOKS RANGE, ALASKA

BY C.F. MAYFIELD, S.M. CURTIS, I.F. ELLERSIECK, AND I.L. TAILLEUR

1979