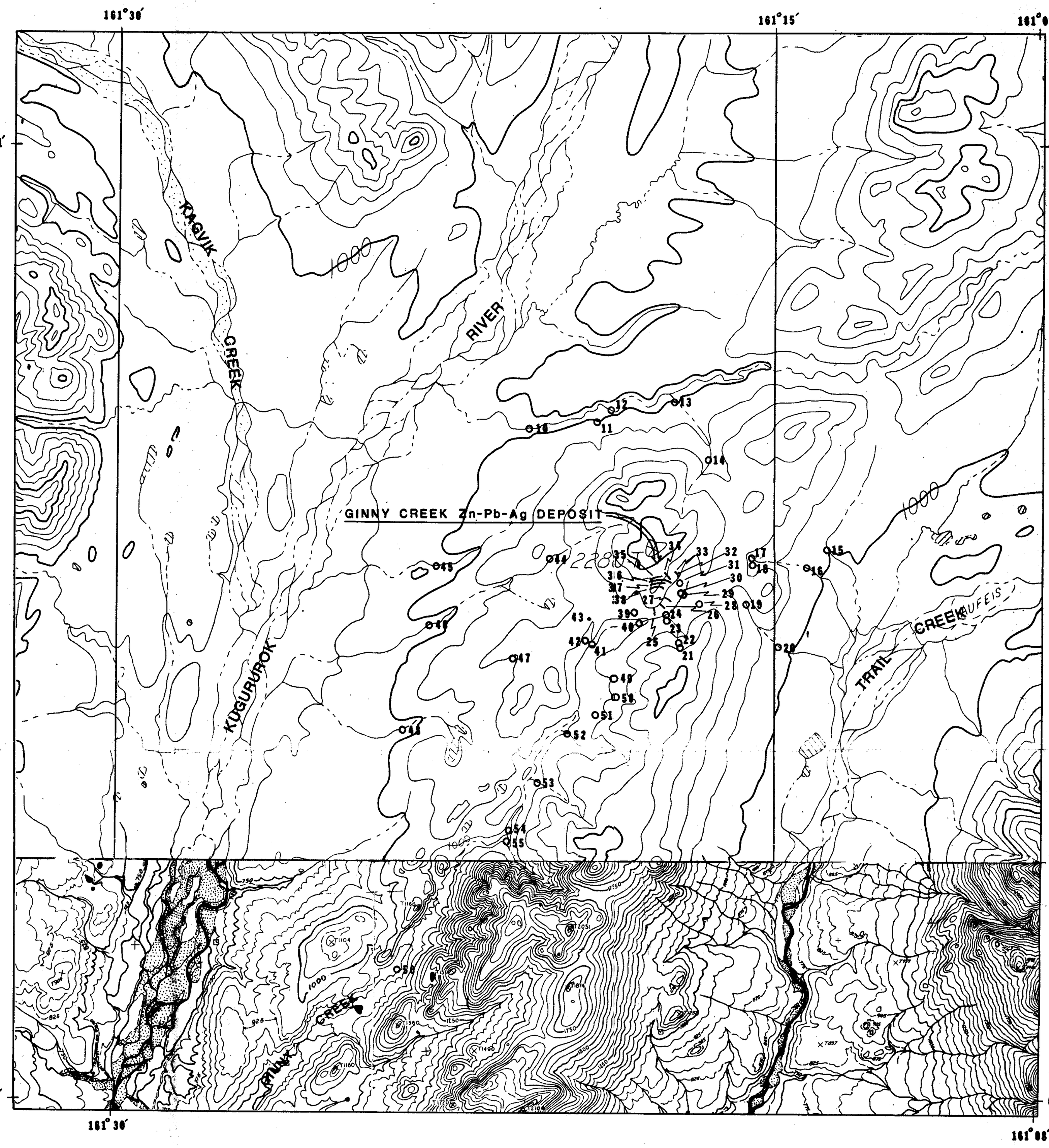
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

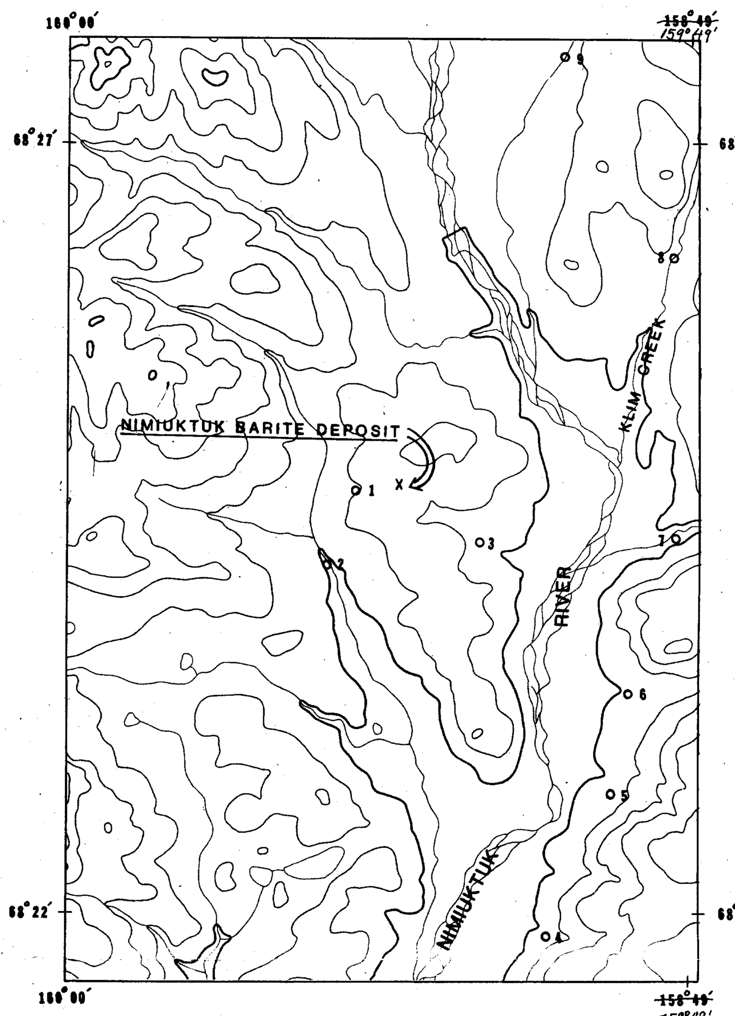
PLATE 2
U.S. GEOLOGICAL SURVEY
OPEN FILE REPORT 79-1092
GEOCHEMICAL SAMPLES

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

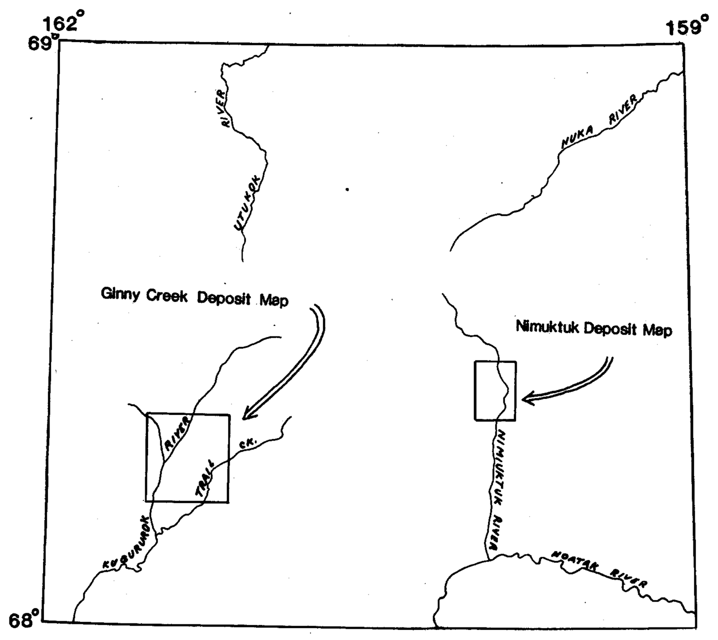
⌒ rock chips from surface float randomly taken along a linear traverse

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

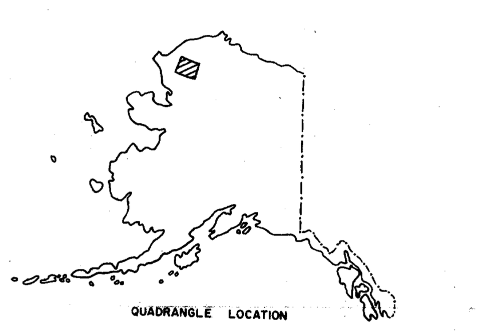


TABLE OF GEOCHEMICAL ANALYSES

ANALYZED BY EMISSION SPECTROGRAPHY (Ca, Fe, Mg, Ti in %; PPM →)

MAP NO.	FIELD SAMPLE NO.	LATITUDE	LONGITUDE	Ca%	Fe%	Mg%	Ti%	Ag	As	Au	B	Ba	Be	Bi	Cd	Co	Cr	Cu	Ga	Ge
	NIMIUKTUK BARITE DEPOSIT																			
1	78Md118	68°24'25"	158°54'54"	.5	7	.2	.2	N	N	N	100	5000	2	N	N	100	20	30		
2	78Ek103	68°24'17"	158°55'24"	.5	10	2.0	.5	N	N	N	500	15000	2	N	N	50	300	150		
3	78Ek104	68°24'25"	158°52'42"	.2	7	.7	.5	N	N	N	100	5000	2	N	N	15	150	30		
4	78Cx149	68°21'52"	158°51'30"	.1	5	1.0	.3	N	N	N	200	2000	2	N	N	20	150	30		
5	78Cx150	68°22'47"	158°50'24"	.5	7	1.0	.5	N	N	N	300	3000	2	N	N	20	150	100		
6	78Cx151	68°23'26"	158°50'06"	.2	5	.7	.7	N	N	N	200	5000	2	N	N	20	200	70		
7	78Cx152	68°24'27"	158°50'24"	.3	10	1.0	.5	N	N	N	300	15000	2	N	N	30	200	100		
8	78Cx155	68°26'16"	158°50'24"	.5	10	1.5	.5	<.5	N	N	300	>20000	2	N	N	50	200	150		
9	78Cx161	68°27'34"	158°51'12"	.3	10	1.5	.5	N	N	N	300	7000	2	N	N	50	150	100		
	GINNY CREEK Zn-Pb-Ag DEPOSIT																			
10	78Cx207	68°18'38"	161°20'36"	1.0	3	1.0	.5	N	N	N	200	3000	1	N	N	20	150	50		
11	78Cx208	68°18'42"	161°19'00"	.5	3	1.0	.5	<.5	N	N	150	>5000	1	N	N	20	200	100		
12	78Cx209	68°18'48"	161°18'42"	1.5	5	1.5	.5	N	N	N	200	3000	1	N	N	30	150	70		
13	78Cx210	68°18'52"	161°17'18"	.5	3	1.0	.5	N	N	N	150	3000	1	N	N	20	200	50		
14	78Cx211	68°18'23"	161°16'30"	.5	2	.7	.3	1.0	N	N	150	5000	1.5	N	N	10	100	70		
15	78Cx212	68°17'38"	161°13'48"	.7	5	1.0	.5	N	N	N	150	1000	1	N	N	20	200	50		
16	78Cx213	68°17'29"	161°14'18"	.3	5	1.0	.5	N	N	N	200	1000	1.5	N	N	30	200	50		
17	78Cx215	68°17'34"	161°15'30"	.5	5	1.0	.5	.5	N	N	150	3000	1.5	N	N	20	200	50		
18	78Cx214	68°17'30"	161°15'30"	.3	1	.2	.2	<.5	N	N	70	5000	1	N	N	<5	100	30		
19	78Cx216	68°17'17"	161°15'36"	.7	5	.7	.5	N	N	N	150	1000	2	N	N	15	150	50		
20	78Cx217	68°16'49"	161°17'30"	.5	5	1.0	.5	1.5	N	N	150	1000	2	N	N	30	200	50		
21	78Rtr1	68°16'49"	161°17'06"	.2	15	.3	.5	10	N	N	300	7000	2	N	N	<5	200	150		
22	78Rtr2	68°16'51"	161°17'12"	.1	20	.1	.3	2	N	N	100	2000	1.5	N	N	<5	100	20		
23	78Rtr3	68°17'18"	161°17'30"	.15	15	.2	.3	2	N	N	300	5000	2	N	N	20	200	70		
24	78Rtr4	68°17'05"	161°17'30"	.5	10	.7	.5	5	N	N	300	5000	2	N	N	50	300	100		
25	78Md163C	68°17'06"	161°17'42"	.07	15	.07	.05	<1	<500		20	10	<2	<10	<50	7	<10	30	<10	<20
26	78Md163A	68°17'09"	161°17'30"	.02	15	.03	.015	2	<500		15	10	<2	<10	<50	<5	<10	20	<10	<20
27	78Md163B	68°17'13"	161°17'24"	.02	15	.05	.015	1	<500		15	<10	<2	<10	<50	10	<10	30	<10	<20
28	78Tr168C	68°17'11"	161°16'42"	.1	1.5	.15	.2	1.5	N	N	100	700	2	N	N	<5	150	20		
29	78Tr168DE	68°17'16"	161°17'06"	.2	7	.15	.15	1	N	N	70	2000	2	N	N	50	150	50		
30	78Tr168DW	68°17'16"	161°17'06"	.5	7	.1	.02	N	N	N	30	2000	<1	N	N	100	10	20		
31	78Tr199A1	68°17'21"	161°17'06"	.03	5	.2	.2	1	<500		50	300	2	<10	<50	10	30	50	<10	<20
32	78Tr199	68°17'26"	161°17'12"	.05	20	.05	.05	<1	<500		20	10	<2	<10	<50	50	<10	<2	<10	<20
33	78Cx257E	68°17'26"	161°17'12"	.05	15	.05	.02	1	<500		15	<10	<2	<10	<50	50	<10	150	<10	<20
34	78Cx257F	68°17'25"	161°17'24"	.02	7	.03	.1	3	<500		20	200	<2	<10	<50	<5	<10	10	<10	<20
35	78Cx257A	68°17'24"	161°17'42"	.03	15	.05	.15	2	<500		10	200	<2	<10	<50	<5	10	10	<10	<20
36	78Cx257B	[illegible]	[illegible] 17'36"	.02	10	.07	.2	<1	<500		30	100	2	<10	<50	5	15	10	<10	<20
37	78Cx257C	68°17'21"	161°17'36"	.02	10	.05	.2	<1	<500		30	50	<2	<10	<50	<5	<10	7	<10	<20
38	78Cx257D	68°17'19"	161°17'42"	.03	15	.05	.1	<1	<500		20	20	<2	<10	<50	5	<10	30	<10	<20
39	78Md161	68°17'06"	161°18'12"	.15	3	.2	.15	1	<500		20	500	2	<10	<50	<5	100	15	<10	<20
40	78Md162	68°17'01"	161°18'06"	.07	5	.2	.15	<1	<500		30	3000	2	<10	<50	7	20	10	<10	<20
41	78Md165E	68°16'50"	161°19'06"	.07	5	.1	.15	<1	<500		50	500	2	<10	<50	5	50	10	<10	<20
42	78Md165F	68°16'52"	161°19'18"	.2	2	.15	.1	<1	<500		20	100	2	<10	<50	<5	20	10	<10	<10
43	78Md205	68°17'42"	161°19'06"	.2	15	.03	.01	2	<500		10	<10	<2	<10	<50	<5	<10	10	<10	<20
44	78Cx205	68°17'33"	161°20'06"	.5	.2	.5	.3	2	N	N	150	5000	1	N	N	10	200	70		
45	78Cx206	68°17'19"	161°22'42"	.1	2	.3	.2	1.5	N	N	100	2000	1	N	N	10	100	50		
46	78Cx204	68°16'59"	161°22'48"	.5	2	.3	.3	3	N	N	150	3000	1.5	N	N	10	200	70		
47	78Cx202	68°16'12"	161°20'54"	1.5	5	2.0	.5	N	N	N	100	5000	1	N	N	100	700	50		
48	78Cx203	68°16'06"	161°23'24"	.2	1	.2	.2	N	N	N	100	5000	1	N	N	<5	50	50		
49	78Cx201	68°16'32"	161°18'36"	.1	5	.3	.5	.5	N	N	150	1500	1.5	N	N	150	300	50		
50	78Cx200	68°16'23"	161°18'36"	.1	3	.5	.5	1	N	N	150	5000	1.5	N	N	20	150	70		
51	78Cx199	68°16'15"	161°19'00"	.5	2	.7	.3	2	N	N	150	>5000	1.5	N	N	10	200	70		
52	78Cx198	68°16'06"	161°19'42"	.5	3	.7	.5	.5	N	N	150	3000	1.5	N	N	20	150	50		
53	78Cx197	68°15'40"	161°20'18"	.2	3	.7	.5	.5	N	N	150	5000	1.5	N	N	20	200	70		
54	78Cx196	68°15'15"	161°21'00"	.3	3	.7	.3	1	N	N	150	3000	1.5	N	N	20	100	50		
55	78Cx195	68°15'10"	161°21'00"	.3	3	.7	.3	1	N	N	150	5000	1.5	N	N	20	100	70		
56	78Cx194	68°14'06"	161°23'30"	.2	5	.7	.3	1	N	N	150	5000	1	N	N	20	150	70		
57	78Cx193	68°13'11"	161°30'48"	3.0	5	2.0	.5	N	N	N	150	1000	1	N	N	30	500	100		
LOWER LIMIT OF DETECTION (USGS LAB)				.05	.05	.02	.002	.5	200	10	10	20	1	10	20	5	10	5		
LOWER LIMIT OF DETECTION (SKYLINE LAB)				.02	.05	.02	.002	1	500		10	10	2	10	50	5	10	2	10	20

ANALYZED BY EMISSION SPECTROGRAPHY (continued) and ANALYZED BY ATOMIC ABSORPTION

MAP NO.	La	Mn	Mo	Nb	Ni	Pb	Sb	Sc	Sn	Sr	Th	V	W	Y	Zn	Zr	AA Ag	AA Au	AA Cd	AA Cu	AA Pb	AA Zn	ANALYSIS LAB	SAMPLE TYPE
NIMIUKTUK BARITE DEPOSIT																								
1	50	20000	N	<20	70	20	N	5	N	200	N	200	N	70	300	100				40	25	150	USGS	STREAM SED
2	50	1500	N	<20	150	50	N	30	N	200	N	500	N	70	<200	300				45	25	100	USGS	STREAM SED
3	50	700	N	<20	100	20	N	20	N	200	N	300	N	70	<200	100				35	25	70	USGS	STREAM SED
4	50	700	N	<20	100	20	N	20	N	200	N	300	N	50	<200	100	.2			35	20	140	USGS	STREAM SED
5	50	500	N	<20	100	100	N	30	N	200	N	300	N	50	<200	200	.2			45	30	130	USGS	STREAM SED
6	50	1500	N	<20	100	30	N	20	N	200	N	300	N	50	200	150	.3			45	25	150	USGS	STREAM SED
7	50	1500	N	<20	100	70	N	30	N	200	N	300	N	70	200	200	.15			45	25	160	USGS	STREAM SED
8	50	2000	10	<20	150	70	N	20	N	300	N	300	N	70	300	200				70	25	110	USGS	STREAM SED
9	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	50	1000	N	<20	100	30	N	15	N	200	N	200	N	30	<100	150	.2		.55	45	20	170	USGS	STREAM SED
11	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	50	1500	10	<20	100	20	N	20	N	200	N	200	N	30	<200	150	.15		.55	50	25	170	USGS	STREAM SED
13	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	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	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	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	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	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	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	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	50	5000	N	<20	70	2000	N	20	N	200	N	300	N	50	1000	100				35	1400	780	USGS	STREAM SED
22	50	300	N	<20	20	200	N	10	N	N	N	200	N	50	1000	70				15	200	610	USGS	STREAM SED
23	50	1500	N	<20	150	1000	N	20	N	200	N	200	N	70	1000	100				20	400	740	USGS	STREAM SED
24	50	3000	N	<20	150	3000	N	20	N	200	N	300	N	70	1000	200				35	1200	1300	USGS	STREAM SED
25	<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	<20	10000	5	20	10	700	<100	<10	10	100		10	<50	<10	7000	<20	8.6	<.02	20.0	65	6650	10500	SKYLINE	ROCK
27	<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	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	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	50	>5000	N	<20	150	100	N	N	N	<100	N	20	N	10	2000	30	.4			30	120	2500	USGS	STREAM SED
31	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	<20	10000	5	20	150	50	<100	<10	10	<100		15	<50	<10	300	<20	<.1	<.02	<5.0	10	395	610	SKYLINE	ROCK
33	<20	10000	3	20	100	500	<100	<10	10	<100		10	<50	<10	3000	<20	4.2	<.02	5.0	270	4100	3600	SKYLINE	ROCK
34	<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	<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	<20	7000	2	20	20	300	<100	10	<10	100		30	<50	15	1500	100	1.8	<.02	5.0	30	1300	2950	SKYLINE	ROCK
37	<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	<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	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	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	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	50	1000	<2	<20	50	100	<100	<10	<10	100		70	<50	<10	700	50	1.6	<.02	5.0	35	540	1250	SKYLINE	STREAM SED
43	<20	10000	5	20	45	200	<100	<10	10	100		10	<50	<10	10000	<20	9.2	<.02	105.0	50	2550	29500	SKYLINE	ROCK
44	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	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	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	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	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	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	50	500	<5	<20	100	70	N	20	N	100	N	150	N	30	300	200	.8		1.8	50	65	390	USGS	STREAM SED
51	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	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	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	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	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	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	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)	20	10	5	20	5	10	100	5	10	100	100	10	50	10	200	10								
LOWER LIMIT OF DETECTION (SKYLINE LAB)	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