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STATE OF ALASKA
DIVISION OF MINES AND MINERALS

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PRELIMINARY GEOCHEMICAL INVESTIGATION TRACY AND ENDICOTT ARM AREA

by

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INTRODUCTION

The Tracy and Endicott Arm area was chosen for geological and geochemical investigation because it is a continuation of the famous Juneau gold belt, contains several base metal prospects, and is readily accessible to ocean transportation. It therefore appeared to be a good area to investigate the regional geology of the Coast Range mineral belt.

The old known prospects and mines in the area were investigated as time permitted. The stream sediments and water-shed soils were sampled in the course of the investigation.

MINES AND PROSPECTS IN THE AREA

The Jingle-Jangle, or old Neglected Prize deposit on Tracy Arm has been prospected by trenching and a shaft 16 feet deep. The U.S. Geological Survey Bulletin 998-A estimates 40,000 tons of ore present for every 100 feet of depth. Assays taken by various engineers average 3.2 percent zinc, 1.5 percent copper, 0.013 ounces of gold, and 0.75 ounces of silver per ton.

The Sumdum Deposit on Endicott Arm has been drilled and mapped by one of the large mining companies. Their report is still confidential but it is understood that this deposit is similar to the Jingle-Jangle but somewhat larger and of lower grade.

The Portland Group on Endicott Arm was evidently an old gold prospect.

The Sumdum Chief mine produced about $500,000 worth of gold before the deposit was exhausted.

The Pt. Astley deposit has been prospected for gold, lead, and zinc by two tunnels and two shafts. The deposit is at high tide level so the shafts are flooded. The extent of underground development is unknown.

PHYSICAL FEATURES

The mountains of Tracy and Endicott Arms rise abruptly from sea level in most places. Timberline attains an altitude of about 2500 feet and glaciers occupy most of the valleys above 4500 feet. The valleys and streams are fed by melting snow, glaciers, or rain. The stream flow fluctuates widely with variances of rainfall and temperatures that affect the rate of melt.

The overburden consists of sand or sandy clay on bedrock, very little gravel, sandy soil, and top soil. It was found that the soil cover in Endicott Arm was thicker than that in Tracy Arm where in places it was difficult to find a sample adjacent to a stream.

METHOD

Geochemical samples were dug by shovel, placed in marked plastic freezer bags and sent to Mr. Denny, Assayer at the Division of Mines and Minerals office in Ketchikan. Mr. Denny determined the amount of metal by two methods. He used the cold extraction method developed by the University of Alaska and the fusion method perfected by the Geological Survey of Canada. The results compared favorably, though the fusion method seemed to show wider variations. However, either method would detect the presence of an anomaly.

U.S.G.S. Bulletin 1000-F, designates the sequence of soil horizons as follows:

"A" - the uppermost horizon or topsoil containing the humus.

"B" - the middle layer or subsoil containing no humus.

"C" - the lower layer composed of residual weathered bedrock.

The "B" zone was used in this investigation because in some places there were only the "A" and "B" zones available, so it was

concluded that the samples would be more consistent by taking them all from the same horizon.

Samples were taken of the sandy "B" zone adjacent to streams. In some instances samples were dug from a depth of 3 or more feet in order to reach the "B" zone underlying muskeg. Some stream sediment samples were dug adjacent to "B" zone samples and compared.

Because of the large fluctuation in stream flow, no attempt was made to determine the metal content of water samples.

The results of the assays were plotted on an overlay of aerial photos of the area that were pinpointed at the time of sampling. In this manner, all sample points could be returned to for further investigation.

A total of 139 soil samples were taken and analyzed. These are presented in the Appendix with sample maps of the area investigated.

OBSERVATIONS

1. The Jingle-Jangle and Sumdum deposits were not discernible from samples taken near sea level.
2. The Sumdum deposit was not discernible from samples taken a mile from the beach.
3. The Jingle-Jangle deposit was discernible when sampled within a few hundred feet of the outcrop.
4. The highest zinc values, other than on the Jingle-Jangle, were found on the west side of Tracy Arm opposite the Jingle-Jangle; on the west side of Endicott Arm near the Sumdum Chief; and near Pt. Astley.
5. The highest copper values were found on the west side of Tracy Arm.

6. The highest lead values were found south of the Portland Group.

CONCLUSIONS

1. The Jingle-Jangle deposit likely extends several hundred feet further south than is indicated by trenching.

2. It is apparant that orebodies cannot be detected at any great distance by geochemical sampling in this particular area. An interval of more than 800 feet is unreliable for systematic prospecting in this area.

3. Stream sediment samples did not vary greatly from "B" zone samples taken adjacent to streams.

EXPLANATION OF APPENDIX

The list of samples is presented for those readers who may wish to compare them with other geochemical samples. Sample numbers prefixed with C1, C2, and C3 were taken in the Endicott Arm area. C4 prefixed samples were from Pt. Astley, C5 and C6 from Tracy Arm and the Jingle-Jangle deposit. C7 samples were taken in the Sanford Cove area.

Sample Number C2-28 was taken near the Portland Group and assumed to be contaminated since rock samples did not indicate the presence of a great deal of mineralization.

Sample C5-5 was taken about three hundred feet below the outcrop of the Jingle-Jangle and is indicative of results obtainable near a deposit of this type. It is interesting to note that Sample 10 is quantitatively nearly the same as Sample 9 which was taken from on top of the deposit, and both are higher in ppm than Sample 12 which was also taken on top of the deposit.

Sample C6-11 may have been contaminated but more sampling should be done in the immediate vicinity.

The background mineral content apparently varied from 0 to 50 parts per million for copper, 0 to 20 ppm for lead, and 10 to 90 ppm for zinc. Background determined by Chapman and Shacklette, U.S.G.S. Professional Paper 400-B, varied from 20 to 100 ppm for copper, 20 to 50 ppm for lead, and 20 to 50 ppm for zinc on samples taken of the "C" horizon at Mahoney Creek and Yakobi Island. That background is easily discernible from an anomaly as apparent from sample C5-5, ie., 150 ppm copper, 40 ppm lead, and 1300 ppm zinc.

Map I indicates graphically the approximate amounts (ppm) of copper, lead, and zinc found during the course of this investigation. Not all the samples are shown because of lack of space.

Map II is a copy of a U.S. Geological Survey map of the Jingle-Jangle deposit on which some of the geochemical samples are shown. Samples prefixed with a 6 are C6 samples and those without prefixes are C5 samples. Many more samples would be necessary to delineate the orebody. This investigation was primarily done to determine what could be accomplished aerially by geochemical samples and no attempt was made to delineate the orebody.

State of Alaska
Department of Natural Resources

Division of Mines and Minerals

Form M-1-8-62—3M

Assay Office Ketchikan

Date June 8, 1962

REPORT OF ASSAY

On samples received from Bill Race

Address Division of Mines and Minerals, Juneau

Assay No.	Sample Marked	OUNCES PER TON		Value per Ton	Percentage of
		GOLD	SILVER		

Soil Samples

	PPM		
	Cu	Pb	Zn
C1-1	3	1	100
C1-2	27	nil	50
C1-3	7	1	85
C1-4	nil	nil	65
C1-5	5	3	70
C2-1	nil	3	30
C2-2	nil	nil	10
C2-3	nil	64	150
C2-4	3	2	40
C2-5	nil	nil	30
C2-6	nil	1	25
C2-7	nil	1	25
C2-8	2	47	150
C2-9	nil	nil	50
C2-10	2	2	40
C2-11	nil	nil	25
C2-12	1	nil	50
C2-13	1	1	35
C2-14	2	nil	40
C2-15	2	nil	25
C2-16	1	2	35
C2-18	nil	1	40
C2-19	2	5	25
C2-20	nil	2	40
C2-21	nil	24	110
C2-22	nil	6	35
C2-23	2	27	75
C2-24	2	62	80
C2-25	1	58	50
C2-26	nil	11	35

Assayer.

Soil Samples

	PPM		
	Cu	Pb	Zn
C2-27	nil	14	25
C2-28	3	185	3000
C2-29	2	nil	100
C2-30	nil	2	40
C2-31	1	5	40
C2-32	nil	9	60
C2-33	2	3	50
C2-34	1	2	35
C2-35	16	1	45
C3-1	15	2	50
C3-2	5	nil	115
C3-3	25	2	125
C3-4	8	1	50
C3-5	2	nil	25
C3-6	nil	nil	40
C3-7	nil	6	25
C3-8	3	1	60
C4-1	42	8	33
C4-2	20	6	42
C4-3	55	5	40
C4-4	65	10	27
C4-5	50	11	30
C4-6	90	3	21
C4-7	13	13	11
C4-8	45	7	38
C4-9	87	6	37
C4-10	75	3	134
C4-11	45	15	47
C4-12	75	6	250
C4-13	72	nil	150
C4-14	52	5	80
C4-15	47	3	72
C4-16	100	17	100
C4-17	40	14	62
C4-18	57	13	48
C4-27	91	nil	57
C5-1	60	10	145
C5-2	51	12	130
C5-3	95	9	87
C5-4	97	12	250
C5-5	150	40	1300
C5-6	89	10	52

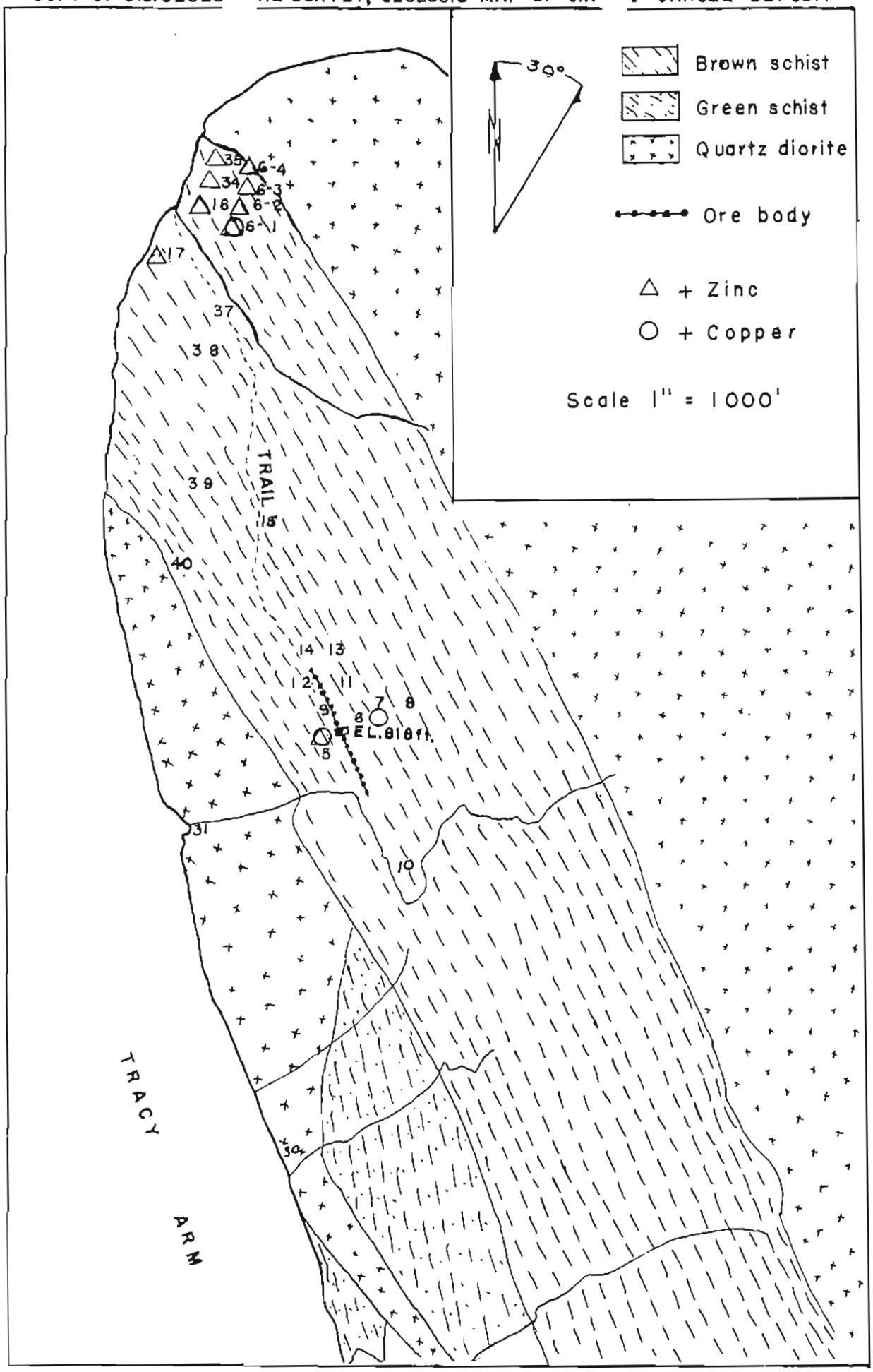
Soil Samples

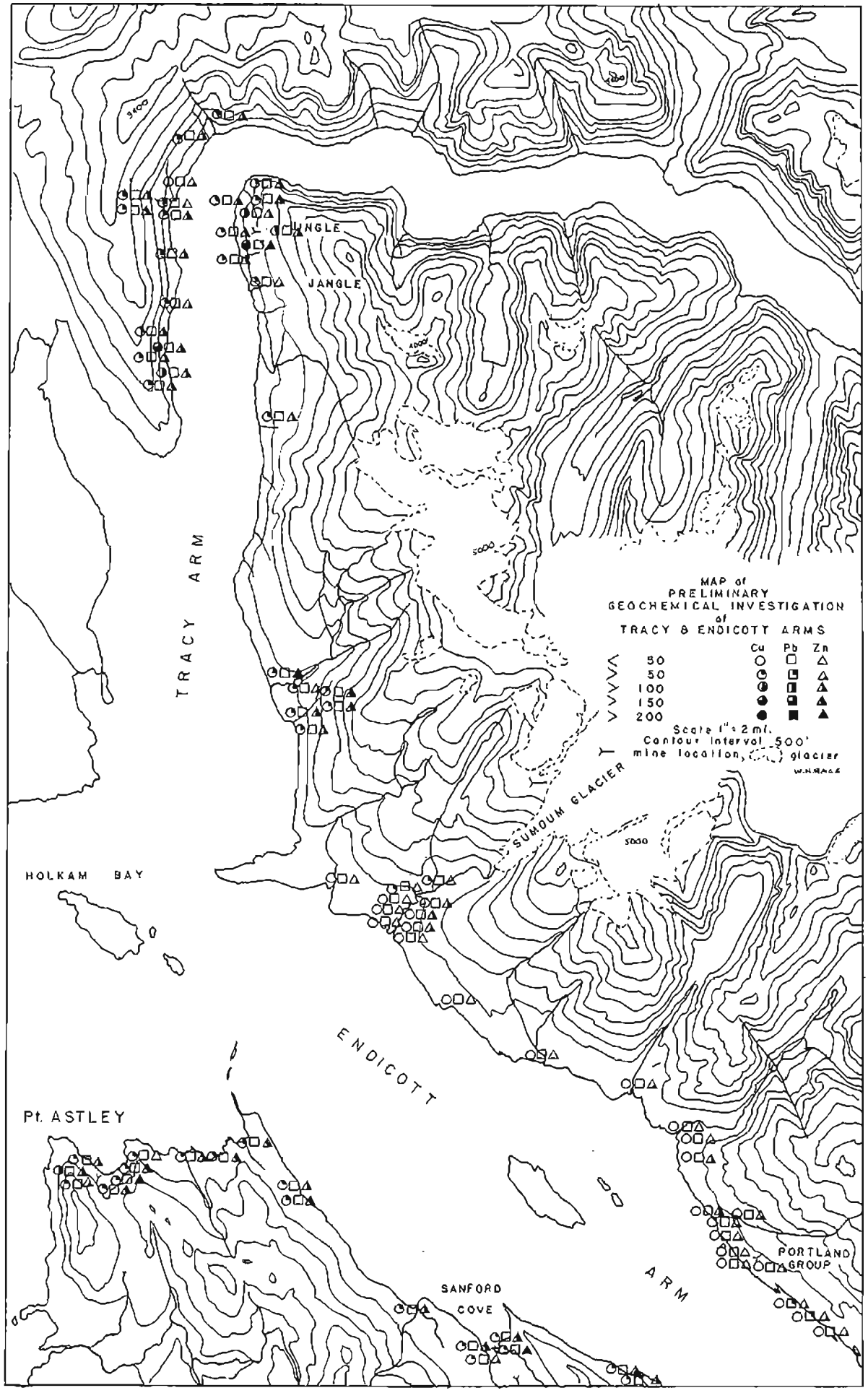
	PPM		
	Cu	Pb	Zn
C5-7	100	17	70
C5-8	43	13	38
C5-9	97	21	72
C5-10	92	22	30
C5-11	55	15	48
C5-12	73	13	42
C5-13	43	16	35
C5-14	40	21	40
C5-15	21	18	32
C5-16	55	12	125
C5-17	60	13	125
C5-18	40	1	78
C5-19	83	nil	35
C5-20	93	nil	118
C5-21	52	2	50
C5-22	92	nil	100
C5-23	57	nil	95
C5-24	180	nil	138
C5-25	94	nil	142
C5-26	50	nil	58
C5-30	33	nil	20
C5-31	55	nil	38
C5-32	88	nil	140
C5-33	97	6	100
C5-34	88	nil	122
C5-35	57	nil	118
C5-37	38	nil	52
C5-38	90	nil	50
C5-39	85	2	45
C5-40	60	40	50
C6-1	100	16	125
C6-2	85	nil	60
C6-3	50	nil	65
C6-4	55	nil	55
C6-5	50	nil	75
C6-6	55	nil	75
C6-7	60	nil	70
C6-8	55	nil	100
C6-9	90	nil	95
C6-10	85	nil	80
C6-11	55	nil	5200
C6-12	50	1	100

Soil Samples

	PPM		
	Cu	Pb	Zn
C6-13	55	4	125
C6-14	75	4	85
C6-15	55	nil	75
C7-1	80	nil	45
C7-2	90	nil	50
C7-3	75	8	105
C7-4	57	14	150
C7-5	50	1	35
C7-6	67	4	40
C7-7	45	40	55
C7-8	62	20	95
C7-9	55	20	80
C7-10	55	6	65
C7-11	57	8	75
C7-12	55	8	20
C7-13	62	12	35
C7-14	57	4	125
C7-15	60	6	80

COPY OF U.S. GEOLOGICAL SURVEY, GEOLOGIC MAP OF JIN E-JANGLE DEPOSIT




MAP of
PRELIMINARY
GEOCHEMICAL INVESTIGATION
of
TRACY & ENDICOTT ARMS
Cu Pb Zn
50
50
100
150
200
Scale 1" = 2 mi.
Contour interval 500'
mine location, glacier
W.N.RACE
TRACY ARM
JANGLE
JANGLE
SUMDUM GLACIER
HOLKAM BAY
ENDICOTT
Pt. ASTLEY
SANFORD
COVE
PORTLAND
GROUP
ARM