

94E/6W

REPORT ON THE GEOLOGY AND GEOCHEMISTRY

OF THE
MET, SAN & TAN GROUPS

(PUT 1 - 38, HUMP 1 - 16, 21 - 52, 69 - 72,
77 - 80, 85 - 88, 90, 92 - 100)

LIARD MINING DIVISION

THIRTY TWO MILES E.S.E. OF HYLAND POST

127° 25' E, 57° 28' N

FOR

SUMAC MINES LIMITED

BY

T. RODGERS, P. ENG.

JUNE 1 to AUGUST 1, 1972

4060

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Department of
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ASSESSMENT REPORT

NO. 4060 MAP

JUNE 1 to AUGUST 1, 1972

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- #4 (i) Index map Sampling Grid Location 1"=1000'



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H-M 0204

Introduction

Anomalous amounts of copper and molybdenum were found on the east side of Alberts Hump during the 1971 field season.

As the anomalous areas appeared to be related to a circular structure clearly visible on aerial photographs one hundred claims were consequently staked to cover both.

At the beginning of the 1972 field season a grid was cut on the property whereupon the soil cover was systematically sampled and the geology mapped.

This report describes the work done in 1972.

Location and Access

The Hump claims are about thirty miles east south, east of Hyland Post, in the headwaters of the Stikine River. They centre approximately on 127° 25'E, 57° 28'N.

The nearest water suitable for small float planes is Metsantan Lake. Access from there is by helicopter or foot.

Topography and Climate

The property is on the east side of the Spatzizi Plateau and is characterised by rolling rather than rugged terrain. The maximum elevation of Alberts Hump is slightly over 5250'. This, together with moderate annual precipitation, means that most of the property is above tree-line. Snow stays on the ground until June and begins to fall again in September reaching a maximum depth of five feet.

Claims

One hundred claims were staked in March 1972 (Hump 1 - 100 inclusive) and a further thirty eight in July of that year (Put 1 - 38 inclusive). These were later grouped as follows :-

Met Group	Put 1 - 6, 27 - 38, Hump 1 - 4, 90, 92 - 100.
San "	Put 7 - 26, Hump 5 - 8, 21 - 32.
Tan "	Hump 9 - 16, 33 - 52, 69 - 72, 77 - 80, 85 - 88.

Geology

The property is underlain entirely by igneous rocks, chiefly extrusive in character and intermediate to acid in composition. Although outcrop is not plentiful there is sufficient to enable

reasonably exact mapping of rock types and contacts. This is shown on the accompanying map at a scale of one inch equalling four hundred feet.

The age of the volcanics is not known but, from extrapolation of formations outcropping a few miles to the west, are most likely pre-Sustut (i.e. Lower Cretaceous or older). In general they dip flatly to the south.

Quartz-carbonate and carbonate alteration is widespread and there are minor areas of gossan. The latter is due largely to alteration of pyrite, and limonite transportation and precipitation.

No mineralisation other than pyrite was found in the claims but, as the grid spacing suggests, prospecting has not been exhaustive.

The presence of breccias and the circular structure suggests that the claims cover a volcanic vent and that either the tuff-breccia is plugging the old volcano or that the syenite (?) was extruded through ring vents and that we are dealing with a caldera.

Geochemistry

Starting from a baseline coincident with the initial claim location line cross-lines were laid out at 800' intervals. Soil samples were taken along these cross-lines at 400' intervals and analysed for copper, lead, zinc, silver and gold by Chemex Labs. of North Vancouver. Including check re-sampling, profile sampling and rock sampling three hundred and fifty four samples were taken and analysed.

The soil samples were normally taken from the B1 horizon with a mattock and packaged in standard high wet-strength kraft bags.

Because of the early date at which work commenced, residual ice in the ground only permitted the A horizon to be sampled. Therefore at

a later date some thirty eight sites were sampled at greater depth. There were no significant changes in the values obtained from such re-sampling.

Geochemical Results

- (i) Copper Background values for copper are low, with a mean of 15 p.p.m. Values above 60 p.p.m. are clearly anomalous but, if they reflect any mineralisation it is very unlikely to be of economic grade.
- (ii) Lead Background values for lead have a mean of 24 p.p.m. Amounts greater than 60 p.p.m. are anomalous and those in excess of 500 p.p.m. probably reflect sulphide mineralisation.
- (iii) Zinc Background values for zinc have a mean of 93 p.p.m. Taking 300 p.p.m. as a threshold amounts greater than 600 p.p.m. can be expected to indicate sulphide mineralisation in bedrock.
- (iv) Silver Because the detection limit is 0.5 p.p.m. the distribution is so skewed that background values could not be determined. However, taking 1.0 p.p.m. as a threshold 2 p.p.m. is anomalous and areas with soils containing in excess of 5 p.p.m. are of considerable interest.
- (v) Gold As for silver, normal statistical techniques cannot be applied to the data, but, taking 80 p.p.b. as a threshold, areas with soils containing greater than 200 p.p.b. are clearly of interest.

Anomalous areas are shown on the accompanying plan. It will be noted that while the different anomalies do not always coincide they tend to form an annular ring, which is coincident with the structural feature noted earlier.

T. R. Ryan
30. XI. 72

DECLARATION OF COSTS

(a) Personnel

D. Hopper	15 days @ \$30.00	450.00
M. Ramalingaswamy	15 " \$21.66	324.90
C. Stannus	17 " \$15.00	255.00
S. Mathews	18 " \$17.50	315.00
R. Britten	16 " \$22.50	360.00
W. Kirkpatrick	16 " \$22.50	360.00
W. Morton	2 " \$30.00	60.00
	Total	<u>2,124.90</u>

(b) Field Expenses

99 man-days at \$82.00 8,118.00
(see appended schedule of costs)

(c) Laboratory Expense

Soil and rock geochemistry 1,357.82

(d) Office Expense

Drafting, reproduction, typing, etc. 100.00

11,700.72

T. R. Allen
20.11.72

SUMAC 210 PROJECTS

Allocable costs - 1972	\$
Camp equipment & supplies	6,825
Equipment rental	977
Fuel	1,739
Commissariat	4,415
Communications	594
Transportation	10,462
Helicopter charter (pro-rated)	14,838
Total	<u>39,850</u>

Man-days

<u>Property</u>	<u>Period</u>	<u>Max. No. of Men</u>	<u>Man-days</u>
Alberts Hump	June 1 - Aug. 1	7	99
McLair	June 18 - July 6	8	152
Moosehorn	July 7 - Aug. 10	8	166
A.D.W.	Aug. 11 - Aug. 22	4	44
Moosehorn	Aug. 23 - Aug. 28	4	24
	Total		<u>485</u>

Cost per man-day

$$= \frac{39,850}{485} = \$82.00$$

T. Royent
30-XI-62

CHEMEX LABS LTD.

212 Brooksbank Avenue, North Vancouver, B.C.

Description of preparatory and analytical procedures.

PREPARATION PROCEDURE FOR ROCK GEOCHEM SAMPLES - Weighing less than 450 gms.

- (1) Samples are sorted, recorded and dried @ approx. 120°F.
- (2) Dried samples are processed to -1/8" through geochem crusher only.
- (3) The entire crushed sample is pulverized to -100 mesh using rotary pulverizer.
- (4) Pulverized sample is rolled 100 times to produce a homogeneous pulp.
- (5) 0.5 grams of pulp is weighed into test tube for $\text{HClO}_4\text{-HNO}_3$ digestion and final analyses of ppm Cu, Mo, Pb, Zn, Ag etc. A 5 gram sample is digested to dryness with aqua-regia for the ppb gold analyses.

The Pulverizer and crusher are thoroughly cleaned between samples to reduce contamination problems.

PROCEDURE FOR THE ANALYSIS OF TRACE GOLD IN SOIL AND SILT MATERIALS.

- Step 1. The sample is dried at 110°F, sieved to -80 mesh and stored in a coin envelope.
- Step 2. A 2 gm sample is weighed into a 100 ml beaker.
- Step 3. 15 ml of aqua regia (3 parts HCl to 1 part HNO_3) is added to the pulp.
- Step 4. After sitting for 15 minutes, the sample is heated to dryness.
- Step 5. More aqua regia is added and the sample is again evaporated to dryness.
- Step 6. The soluble salts are dissolved in 25% HCl and mixed.
- Step 7. The gold is extracted as the bromide in 5 ml. of methyl isobutyl ketone.
- Step 8. The organic layer is then analysed on the Atomic Absorption Spectrophotometer against prepared standards.

GEOCHEMICAL LABORATORY PROCEDURE FOR THE HANDLING AND ANALYSES OF SOIL AND SILT MATERIALS CONTAINING TRACES OF Cu, Mo, Pb, Zn, Ni, Co and Ag.

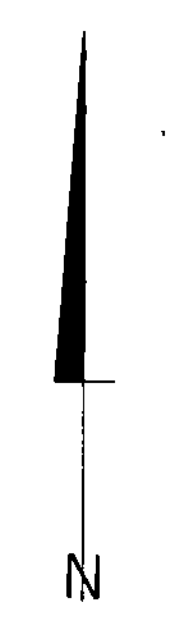
- Step 1. Samples are dried @ 110^oF and then sieved to -80 mesh consistency through a nylon and stainless steel sieve. Presieved materials are processed starting at Step 2.
- Step 2. 0.50 grams of the dry pulp is weighed into a calibrated test tube.
- Step 3. 3 mls. of perchloric acid and 1 ml. of nitric acid is added to sample.
- Step 4. Samples are digested at low heat initially and then the temperature is raised to 203^oC. Digestion time 2 to 3 hours.
- Step 5. Digested samples are cooled, made up to 25 ml. volume with distilled water and solutions are thoroughly mixed.
- Step 6. Analyses for Cu, Mo, Pb, Zn, Ni, Co and Ag by Atomic Absorption procedures. Detection limits as per our brochure.

Bruce W. Brown,
Manager Laboratory Division.



LEGEND

- I** Syenite (contains porphyritic felspar, could be extrusive.)
- II** Tuffs and volcanic breccia.
- III** Dacite (contains porphyritic felspar and hornblende.)
- (i)** Heavy alteration to Quartz-Carbonate.
- (ii)** Carbonate alteration of brecciated felspathic rock.
- (iii)** Gossan.
- Contact defined
- - - - - Contact approximate
- ~~~~~ Fault
- Swamp
- Geochemical grid
- Bedding
- Joint vertical
- Joint inclined

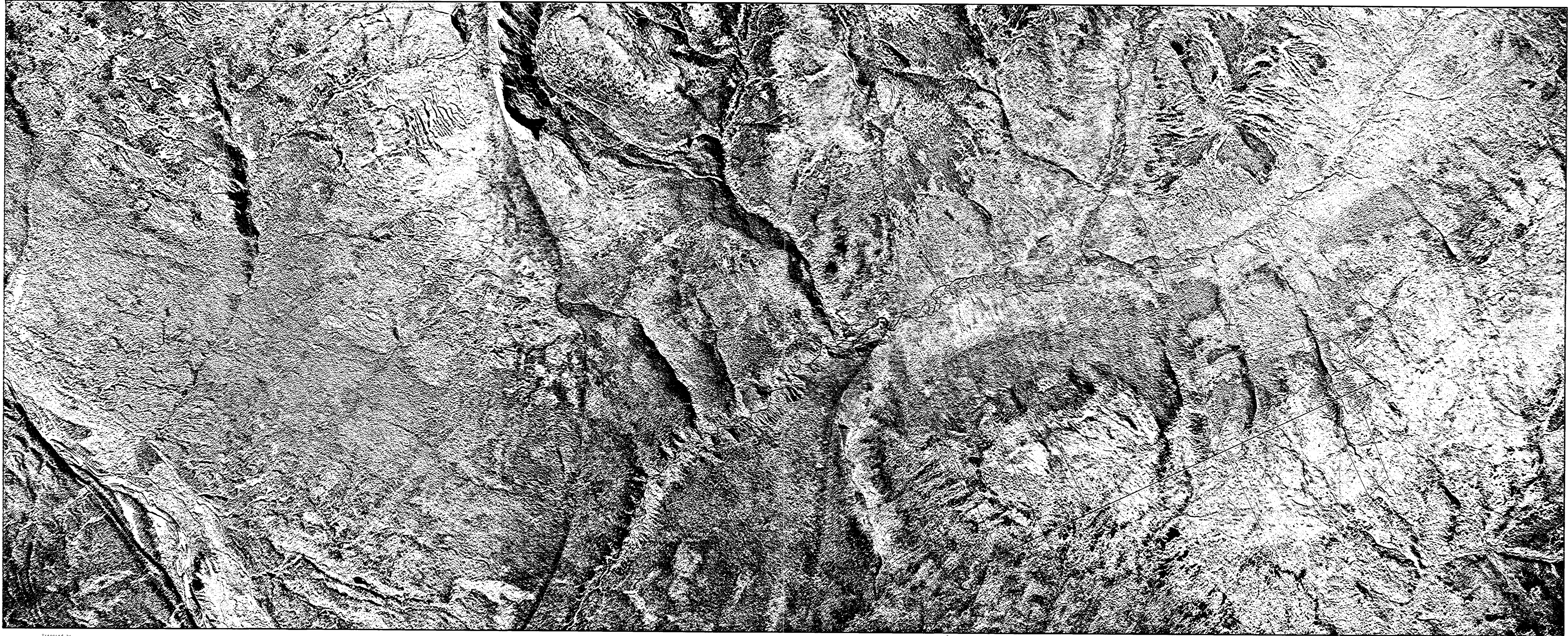


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SULLIVAN RODGERS
SUMAC - 213
Alberts Hump Property
Geology

To accompany "Report on the Geology and Geochemistry of the MET, SAN and TAN Groups."
By T. Rodgers, P. Eng.



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MCELHANNAY SURVEYING & ENGINEERING LTD
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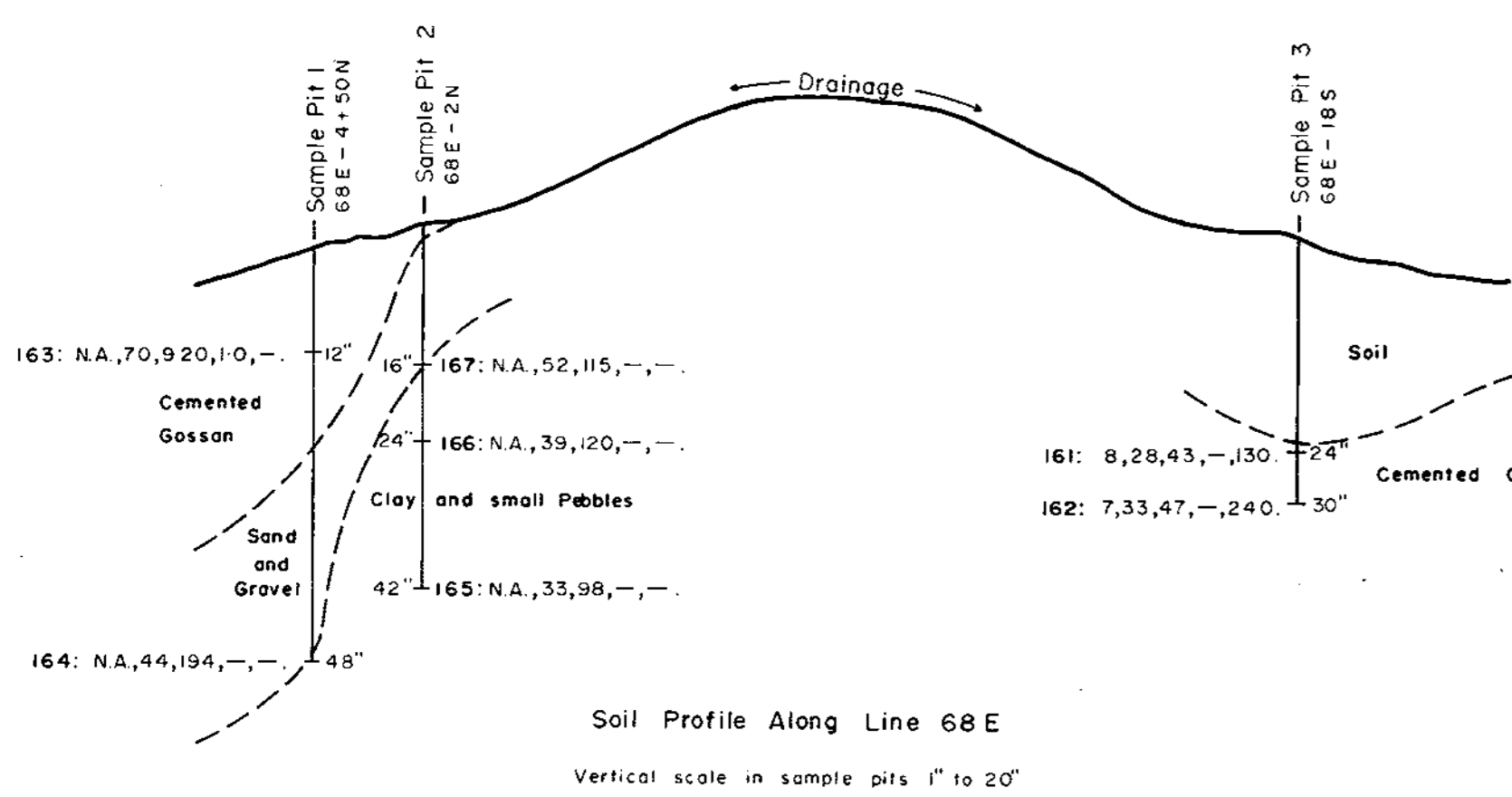
To Accompany "Report on the Geology and
Geochemistry of the Met, San and Tan
Groups"
By T. Rodgers, P. Eng.

M-3

MET, SAN and TAN GROUPS
Sampling Grid Location
1" : 1000'

Department of
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Section "A"



INSET: Resampling of lines BE and 16E.

- △ Soil Sample
 - Rock Sample
- Metals in order listed:
1. Copper
2. Lead
3. Zinc
4. Silver
5. Gold



H 325 - Sample Number

Department of
Mineral and Petroleum Resources

ASSESSMENT REPORT

NO. 4060 MAP #2

SULLIVAN HODGERS

SUMAC - 213

Alberts Hump Property
MET, SAN and TAN Groups

Soil Geochemistry

To accompany "Report on the Geology and Geochemistry of the MET, SAN and TAN Groups" By: T. Rodgers, P. Eng.

Date: October 1972 Scale: 1" to 400' N.T.S. 84E/6 Map No. 213-C-1