

MEMORANDUM TO: G. H. Huntley

DATE: May 1st, 1970

FROM: W.D. Tompson

812769

SUBJECT: Property of Senate Mining and Exploration Ltd., Tchentlo Lake, Omineca M.D., British Columbia.

Senate Mining and Exploration Ltd., owns 83 claims near Tchentlo Lake, 65 miles northwest of Fort St. James, B.C.

The claims lie at the southern end of the Hogem batholith and are underlain by diorite and syenite.

Chalcopyrite is exposed in several trenches on the claims. It occurs in northwest striking shear zones in the diorite, and as disseminated grains in the syenite.

Broad geochemical anomalies (plus 150 ppm copper) strike northeasterly across several of the claims.

Senate Mining and Exploration Ltd., is anxious to enter into an exploration agreement with a major company and would like for Quintana to consider participating in the exploration program.

It is recommended that Quintana personnel examine the property when snow conditions permit.

Respectfully submitted,

W.D.T.

Willard D. Tompson,
Consulting Geologist.

WDT/cme

R. H. SERAPHIM ENGINEERING LIMITED
Geological Engineering

93N
2W 1/2
3E 1/2
6E 1/2
7W 1/2

Telephone: Office 685-2914
Res. 224-7309

427 - 470 GRANVILLE STREET
VANCOUVER 2, B.C.

*May 18, 1972
Phoned Clint Snell.
Deed available on this property
He will contact me in a few days
NTS 93N-2W 1/2, 3E 1/2, 6E 1/2, 7W 1/2
See index 4 for maps*

REPORT
on the
HEATH and N.S. CLAIMS
TCHENTLO LAKE - OMINECA M.D.
for
SENATE MINING AND EXPLORATION LTD NPL
of
1300 Marine Bldg - 355 Burrard St.,
Vancouver, B.C.

by
R.H. Seraphim, Ph.D. P.Eng.
427 - 470 Granville St.,
Vancouver 2, B.C.

January 2, 1970.

*Call Clint Snell 536-8286
Jim Snell 587 mine dept 684-7311*

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HEATH and N.S. CLAIMS

TCHENTLO LAKE

OMINECA M.D. B.C.

SUMMARY and CONCLUSIONS

The Heath and N.S. groups, totalling 83 claims, are located near Tchentlo Lake, sixty-five miles northwest of Fort St. James B.C. The claims are on or near a contact or contacts between coarse-grained grey-green diorites, pink syenite, and Triassic 'Takla' andesitic volcanics. Pink feldspathic alteration was found in several outcrops.

Chalcopyrite is exposed in several groups of trenches which explore mineralized shear zones in the diorite. A sample from the widest of the known shear zone exposures assayed 3.25% copper across seven feet. Chalcopyrite is also found disseminated in the syenite in several localities. A reconnaissance geochemical survey has been completed over the Heath 1 to 16 claims, and confirms the widespread nature of the copper mineralization there.

Although none of the mineralized exposures which have been found to date are considered to be of sufficient size and grade to be economic, none have been explored to their limits. The numerous copper occurrences in an environment which is typical of the 'porphyry' deposits makes exploration of the large areas covered by overburden an attractive venture.

RECOMMENDATIONS

Further exploration on the claims might best be arranged as follows:

- (1) Prepare a topographic map, preferably at 400 feet to the inch, from aerial photographs.
- (2) Cut grid lines at 400 foot spacing across the claims.
- ✓ (3) Map the geology, and the suspected fault and fracture zones determined from a photo-study. Particular attention should be paid to the areas of feldspathic alteration as well as to the copper mineralization.
- ✓ (4) Complete a magnetic survey.
- ✓ (5) Complete a geochemical survey in the areas where outcrop is sparse.
- (6) Complete an induced polarity survey over the areas which are shown to be of interest by the geology, magnetics, and geochemistry.

- (7) Investigate the ways and means of moving a bulldozer into the area, and trench the anomalous areas where overburden depth permits.
- (8) Drilling, either percussion or core, would follow but the amount and location is necessarily contingent on the results of the basic surveys and trenching. Approximately 5,000 feet of drilling is allowed for in Stage 2.

COSTS

Stage 1

(1) Base Map - topographic - 400 ft = 1 inch	\$ 1,500
(2) Grid cutting - approx 80 line miles @\$100	8,000
(3) Geological mapping	3,000
(4) Magnetic survey	2,500
(5) Geochemical survey - approx 4,000 samples	9,000
(6) I.P. survey	10,000
(7) Moving bulldozer in and out	10,000
(8) Bulldozing 1,000 hours @\$30	30,000
(9) Supervision	6,000
(10) Expedition, communication, transportation	10,000
(11) Camp supplies, equipment, subsistence	7,500
(12) Contingency at approx 15%	12,500
	<u>\$110,000</u>

Stage 2 - contingent

Drilling 5,000 feet at \$20 per foot
(overall cost) \$100,000

Total \$210,000

INTRODUCTION

The Heath copper prospect was examined on October 8, 1969, under the guidance of E. Livgard of Senate Mining. The copper and lead mineralization in several groups of hand trenches and outcrops on the Heath 1 to 16 claims was examined, and some was sampled. A couple of new copper showings were found during the examination of some of the geochemical anomalies. The geochemical anomalies and the favorable host rocks were found to extend beyond the boundaries of the 16 claims, thus Senate Mining was advised to acquire more ground. Senate Mining subsequently staked the Heath 17 to 52 claims, and optioned 31 of the adjoining N.S. claims to complete the subject claim block.

Information obtained during the October 8, 1969 examination, information obtained from Senate Mining, and Geological Survey of Canada information is all used in this report.

LOCATION and ACCESS

The property is on the west slope of Mount Nation, and on the east shore of Tchentlo Lake, at 55°15' N. latitude and 125°15' W. longitude. Access at present is easiest by helicopter or float plane from Fort St. James, which is 65 air miles to the southeast. The P.G.E. railroad



HEATH PROSPECT

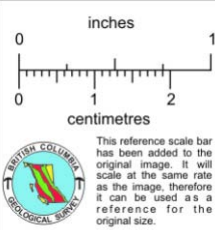
55°

To Smithers 79 miles

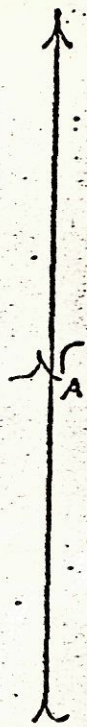
54°

125 10 20 30

VANDERH



	H 30	H 29											
H 32	H 31	H 27	H 28			N.S. 40	N.S. 41	N.S. 22	N.S. 23	N.S. 24	N.S. 26	N.S. 28	
H 34	H 33	H 25	H 26	H 19	H 20	N.S. 38	N.S. 39	N.S. 20	N.S. 21	N.S. 25	N.S. 27	N.S. 29	
H 36	H 35	H 23	H 24	N.S. 46	N.S. 47	N.S. 36	N.S. 37	N.S. 18	N.S. 19	N.S. 34	N.S. 32	N.S. 30	
H 38	H 37	H 21	H 22	N.S. 44	N.S. 45	H 5	H 6	H 9	H 10	N.S. 35	STAKED		
H 46	H 45	H 40	H 39	N.S. 42	N.S. 43	H 1	H 2	H 7	H 8	N.S. 2	STAKED		
H 48	H 47	H 42	H 41	H 12	H 17	H 3	H 4	H 11	N.S. 1	N.S. 3	STAKED		
H 50	H 49	H 44	H 43			H 14	H 15	H 12	H 16		STAKED		
H 52	H 51										STAKED		



TCHENTLO
LAKE

HEATH & N.S.
CLAIMS
TCHENTLO LAKE
OMINECA M.D.
1" = 3000'
Jan/70 R.S.

extension to Takla lake will pass about 20 miles west of the property. The old Sylvester Creek road, which leads from the Fort St. James - Germansen road, is about 30 miles to the east of the property.

CLAIMS

The 16 Heath claims examined originally and reported under option from C.J. Campbell by Senate Mining, are listed in the B.C. Department of Mines Records, all in the name of C.J. Campbell, as follows:

<u>Name</u>	<u>Record No.</u>	<u>Expiry Date</u>
Heath 1	61647	Aug. 6, 1972
Heath 2	61648	Aug. 6, 1973
Heath 3	61649	Aug. 6, 1973
Heath 4	61650	Aug. 6, 1971
Heath 5-6	62461-62462	Aug. 17, 1971
Heath 7-11	68407-68408	Sept. 13, 1970
Heath 12-14	78882-78884	Aug. 21, 1970
Heath 15 Fr.	78885	Aug. 21, 1970
Heath 16 Fr.	78886	Aug. 21, 1970

The further 36 Heath claims staked by

E. Livgard of Senate Mining are listed as follows:

<u>Name</u>	<u>Record No.</u>	<u>Expiry Date</u>
Heath 17-52	82115-82150	Nov. 12, 1970

The 31 N.S. claims reported now under option by Senate are listed as follows:

<u>Name</u>	<u>Record No.</u>	<u>Expiry Date</u>
N.S. 1-3	77757-77759	July 21, 1970
N.S. 18-30	77774-77786	July 21, 1970
N.S. 32	77788	July 21, 1970
N.S. 34-47	77790-77803	July 21, 1970

The above claims are contiguous, and located approximately as shown on the accompanying sketch.

TOPOGRAPHY and TIMBER

The claim groups are located on a south-west to west facing hillside, at 3000 to 4000 feet elevation. Timber is thick and some swamps exist on the lower claims. Rock outcrop makes less than 10% of the area, and is most abundant at the higher elevations.

HISTORY

The copper mineralization on the property is reported to have been discovered initially by geochemical prospecting in 1968. Work since that date includes digging some hand trenches, and a widespaced geochemical survey coupled with outcrop mapping, on the Heath 1 to 16 claims.

REGIONAL GEOLOGY

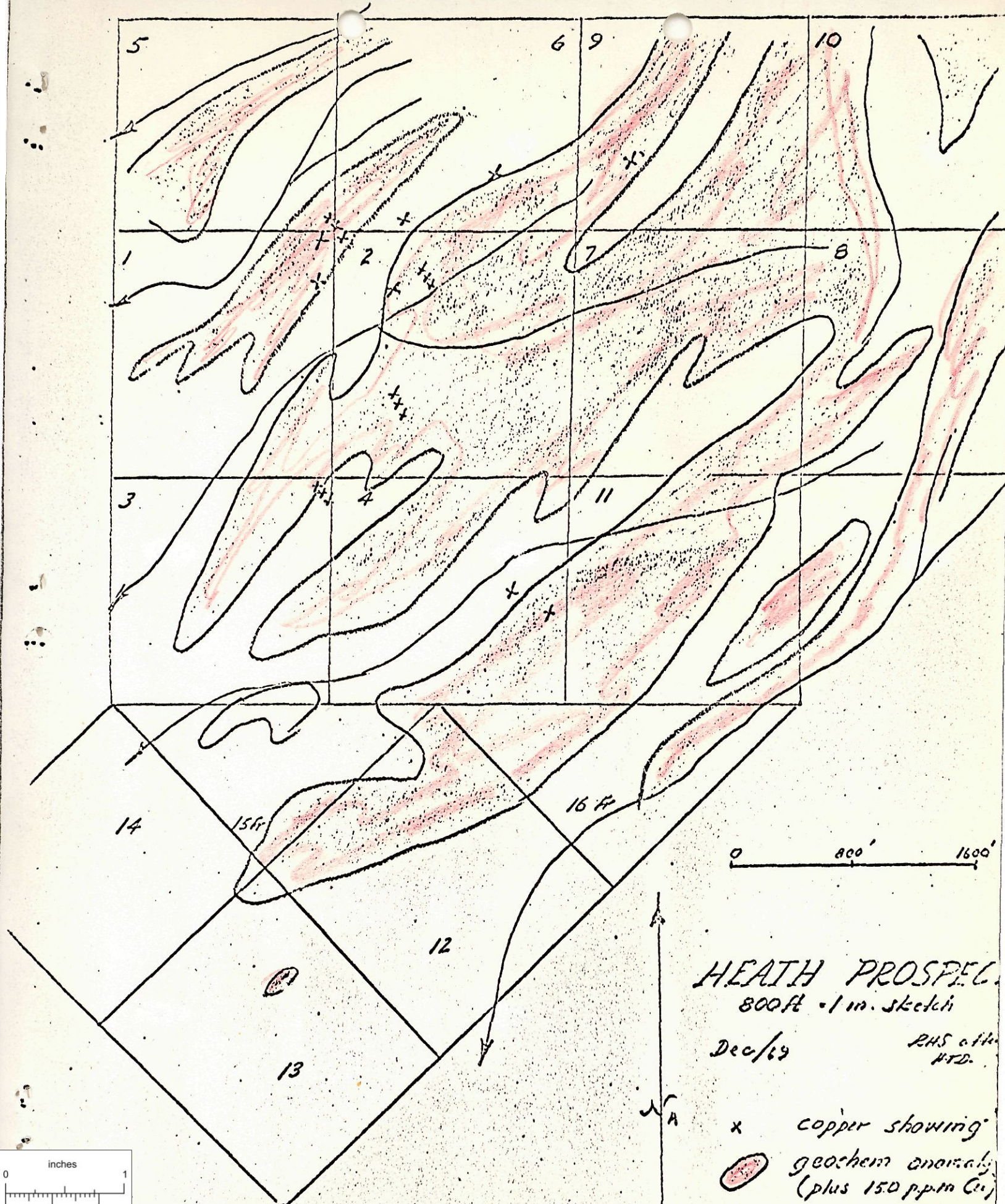
Geological Survey of Canada Maps 907 A and 42-11 A show that the property lies on or near the contact of the Omineca Intrusions with Triassic 'Takla' andesites. The Pinchi Fault, one of the major fault zones in British Columbia, trends northwesterly near the west boundary of the property.

LOCAL GEOLOGY

The rock types observed on the Heath 1 to 16 claims include hornblende biotite diorite, syenite, and andesitic volcanics. The diorite is locally very coarse grained, dark green to grey in color, and locally contains unusually abundant magnetite. The syenite is medium to fine-grained, pink to grey, and apparently intrudes the diorite. Only one small outcrop of andesite was observed; it is massive, dark-green, and typical of the Triassic Takla and Nicola andesites found in most of the copper belts in the province. The distribution of these rock types is not yet determined, but the diorite was found chiefly in the south-west and the syenite in the north and east parts of the claims. Pink feldspathic alteration was noted in several areas.

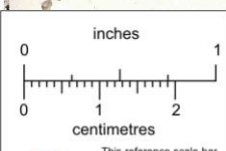
MINERALIZATION

Chalcopyrite was observed in a dozen or more areas on the part of the claim group examined. It occurs in northwest striking shear zones in the diorite, and as a sparse dissemination (in the order of 0.1% Cu) in some exposures of the syenite. A sample across seven feet, one of the widest mineralized shear zones showing in a trench, assayed .03 oz gold, 1.3 oz silver, and 3.25% copper.



HEATH PROSPECT
 800ft - 1 m. sketch
 Dec/19 RHS of the
 HTD.

- x copper showing
- geochem anomaly (plus 150 ppm Cu)
- ↘ drainage




Minor galena and sphalerite were found with chalcopryrite in another hand trench, and a character sample of this mineralization assayed 0.02 ounces gold, 3.4 ounces silver, 0.16% copper and 0.3% lead.

GEOCHEMISTRY

A geochemical survey had been completed on the northmost eleven claims, with soil samples taken at 200 foot intervals along lines at 800 foot spacing. Analyses showed more than 150 parts per million copper in more than half of the samples. These anomalous readings are as abundant in topographic 'highs' as they are in the drainages and swamps. Thus they tend to confirm the widespread nature of the copper mineralization described above.

January 2, 1970.


R.H. Seraphim, Ph.D. P.Eng.