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PRELIMINARY
REPORT

ON

ALICE ARM (COLLISON)

NICKEL

1965

SKEENA

MINING DIVISION

J. J. McDougall
Geologist

ALICE ARM (COLLISON) NICKEL
by J. J. McDougall March 31/66

103-P-5
B. C.

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ALICE ARM (COLLISON) NICKEL

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C O N T E N T S

	<u>Page</u>
PROPERTY & OWNERSHIP	1
LOCATION & ACCESS	1
ORE	2
HISTORY & DEVELOPMENT	2
GENERAL GEOLOGY	3
LOCAL GEOLOGY	4
DESCRIPTION OF PROPERTY	4
ASSAYS & RESERVES	5
RESULTS OF S.P. SURVEY	6
SUMMARY & CONCLUSIONS	7
RECOMMENDATIONS	8
REFERENCES	9

MAPS:

307A - Location and Generalized Geological Map	Frontispiece
CN 2/65 Magnetometer Map 1" = 200'	In pocket
CN 3/65 Self Potential Map 1" = 200'	"
CN 4/65 Copper Geochem 1" = 200'	"
CN 5/65 Nickel Geochem 1" = 200'	"
<u>GEOCHEMICAL REPORT</u> - Alice Arm - I. L. Elliott	Bound



130°00'

45'

30'

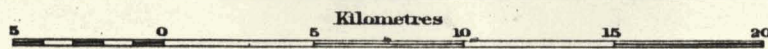
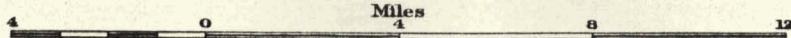
MAP 307 A

PORTLAND CANAL AREA

CASSIAR DISTRICT

BRITISH COLUMBIA

Scale, $\frac{1}{253,440}$ or 1 Inch to 4 Miles



Contour interval 500 Feet

Road.....
 Trail.....
 Mine rail.....
 Aerial tra.....
 Pipe line.....
 Telegraph.....

PRELIMINARY REPORT ON
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1965

The following short preliminary report is prepared to accompany geophysical and geochemical maps and reports prepared following work done late in the fall of 1965. The writer visited the property twice and outlined the work done to date.

PROPERTY & OWNERSHIP

Property was optioned in 1965 from Dwight Collison of Alice Arm, B.C. Included are the Haywire #1 to 4 located claims held by Collison and the Haywire #5 to 12 claims located by Mickle as agent for Falconbridge as per agreement.

LOCATION & ACCESS (See Map CN 1/65)

The property is located at Davies Point on the west side of Alice Arm in north coastal B.C. The location is 10 miles southwest of the old "but now being revitalized" mining community of Alice Arm and 5 miles east of the old Anyox mine and smelter in which C. M. & S. continues to show interest. B.C. Molybdenum (Kennecott) is developing a molybdenite property on Lime Creek a few miles southeast of Alice Arm, while Newmont and Sileurian Chieftain are actively exploring molybdenite occurrences north and southeast respectively of the same community.

Access to Alice Arm is provided twice daily by P.W.A. float or amphibian planes from Prince Rupert or by frequent Northland Navigation boats. The property is reached by boat (or plane if available) but the writer used the helicopter which is able to land on the narrow rocky beach near the showing.

Alice Arm is too small to be relied on for anything but fuel and limited food supplies, but with development in the area proceeding as it is, this situation should improve.

Elevations in the claim area probably do not exceed 1000 feet with the area of immediate interest being less than 150 feet above sea level. The peninsula in this vicinity consists of rolling relatively low tree-covered but once partially logged-off hills contrasting with the steep mountains commencing a mile or so to the north. In the vicinity of the showing a dense tangle of undergrowth typical of semi-logged areas on the coast is the rule and outcrop is restricted to the sea coast and occasional creek courses - i.e. outcrop less than 5%.

Although near salt water and not affected by temperature extremes, the area is nevertheless "inland" and snowfall can remain within a few hundred feet of the beach all winter. Precipitation is probably in the 100 inches per year range with some of the heaviest rainfall occurring in October and November.

ORE

Nickel and minor copper in pyrrhotite.

HISTORY & DEVELOPMENT

The property was first brought to our attention by Standard Oil agent, Dwight Collison (once a Falconbridge-Sudbury employee) while fueling the helicopter with gas on our way through the area in early July. Accompanied by Collison, the writer and Roy Hepworth examined the nickel-copper showing of which some impressive samples were on hand, as well as a molybdenite occurrence also owned near Anyox. Collison and his partner had just completed some testing on the old

pyrrhotite copper property, and, although no nickel assays had reportedly ever been made, Collison had noticed strong reaction to DMG "nickel-test" powder. The prospect is an old one and probably the same as, or closely related to, one described in the area by Hanson in 1935 as the "Anyox Extension Claim" as believers in east-west structure could extend to Anyox with little argument.

A reasonable deal was drawn up with Collison on the grounds that although the known prospect was of little interest in itself, the geology was such that a copper or even a nickel prospect of interest could be present in the largely overburdened area.

During very rough weather in mid-October, Steve Presunka, Bob Mickle, John Stinson and Collison carried out geochemical and geophysical surveys of a 700' x 1500' westerly trending section centered around the known showing and the main east-west structure. The former involved testing for copper, nickel and molybdenum while the latter consisted of an E.M. survey, a torsion wire magnetometer survey plus a self potential ground survey. The geochemical work is plotted on Map CN 4/65 and CN 5/65 while the S.P. is shown on Map CN 3/65 and the magnetic work on CN 2/65. A few test pits were put in on S.P. highs scattered throughout the zone but these in all cases where bedrock was exposed turned out to be pyritic argillite. Some fill-in soil samples required proved too difficult to obtain during mid-winter.

GENERAL GEOLOGY

The prospect is within one of the better mineralized sections of B.C. with copper, molybdenum and gold-silver being the chief products. It is generally considered as being on the erratically defined eastern

contact area of the Coast Range Batholith. Intrusive rocks - granite to diorite - range in probable age from late Jurassic to possible Tertiary. Rocks intruded are mapped as Hazelton Group (Triassic-Lower Cretaceous). Rock types within this group include sediments and igneous rock - the latter consisting largely of massive and fragmental rhyolites and dacites.

LOCAL GEOLOGY

As shown on Hanson's G.S.C. Map #307A, Collison's prospect is located in Lower Cretaceous (Hazelton) sediments, here described as "mica schist", immediately south of an east-west contact with a large body of Coast Range Granite. The prospect has not been geologically mapped although prospectors' sketches of the geology are shown on Map CN 2/65. Banded rocks on the beach a few hundred feet to the east consist of thin bedded, somewhat schistose cherty metasediments which locally strike northwesterly and dip steeply. At least one 10-20 foot wide feldspar porphyry sill occurs in the beach area as do weathered boulders of pyroxenite gabbro (?) suggesting the ultrabasic extension to this point. A sharp east-west valley running for about 3/4 mile is the most prominent structural feature and in the writer's view represents a fault contact with the granite rock to the north. It was along this contact that the writer felt more detailed prospecting was required.

DESCRIPTION OF PROPERTY

The one known mineralized showing occurs 400 feet inland and 200 feet south of the main creek and is at an elevation of about 100 feet. It is questionably exposed in a steep walled north-south cut in the northerly sloping hillside. The cut, about 25 feet long, 4 feet wide and

about 10 feet deep at its southern end, is in rusty weathering "rubble" or hardpan consisting of rounded, boulder-like bodies of medium to coarse grained pyrrhotitic olivine (?) gabbro. Fragments plus the occasional cabbage-size piece of cupriferous pyrrhotite can be found but are not too common as through oxidation rapid crumbling has occurred. The lower face of the cut has outlined a bench-like, relatively fresh body of pyrrhotitic gabbro which no attempt was made to penetrate.

Attitude is somewhat unknown although banding of the oxidized rubble parallels the hill (east-west) and dips moderately to the north. As the hill slope referred to somewhat resembles a scarp, the rubble may actually be 'breccia' within a fault zone related to the contact. No usable outcrop has yet been noted within a radius of several hundred feet of the cut and none occurs for a much greater distance along the scarp-like area.

Visible mineralization consists of extremely coarse pyrrhotite (with parting faces commonly up to 3 inches across) cut by numerous fine stringers of chalcopyrite. The nickel mineral is not yet known as no examination of the ore has been made but pentlandite is suspected.

ASSAYS & RESERVES

Samples of the near-massive pyrrhotite ran a consistent Tr. gold, 0.2 silver, 1.58% copper and 2.12% nickel. A 6-sample grab including oxidized material and country rock (?) ran Tr. gold, 0.2 silver, 1.30% copper and 1.70% nickel, while several of the gabbroic boulders containing only minor amounts of visible pyrrhotite ran 0.02 copper and 0.17% nickel. Sulphur was not checked as it is obviously in the +30% range judging from the pyrrhotite present.

Test pit samples taken generally on S.P. highs in the Creek area showed no trace of copper, nickel or molybdenum.

RESULTS OF S.P. SURVEY

East-west trending self potential anomalies of up to 4-500 millivolts appear to be a "dime a dozen" in the zone. The better and more accessible of these, when blasted into, returned nothing more than pyritic argillite. An assay of one such specimen showed 1.89% carbon, which, in the form of graphite, would account for the great S.P. activity. (Immediately prior to the Alice Arm work, a similar survey at Tofino showed a complete lack of such activity except where related to the known sulphide mineralization). Thus the high background renders the search for sulphide bodies difficult in this environment. Readings taken in the main cut were about 300 mv which was about three times regional background but only 100 mv above local background. Those remaining should be evaluated only in conjunction with other methods showing coinciding targets not produceable by graphite.

Magnetometer results are not too readily explainable with numerous anomalies of up to a high of nearly 15,000 gammas having been outlined (Map CN 2/65). As expected, an east-west trend is evident. Most are probably due to a small magnetite content in the unexposed (?) basic rock which would overshadow anything contributed by the generally low to non-magnetic pyrrhotite or higher grade copper-nickel sulphide veins. If the method does outline the former, then it could be quite valuable in the tracing out of basic zones. Readings obtained in the cut were in the order of 7000 gammas

Soil sampling, done under extremely trying conditions, has been only partially completed. However, work plotted to date appears to have outlined at least the known occurrence better than the geophysical methods. Nickel values (atomic absorption assay method) in the cut area are 1800 ppm. If values down to 80 ppm are considered anomalous, then a "boomerang" shaped zone as shown on map CN 5/65 is depicted. This extends westerly along the scarp for about 300 feet, and northeasterly from the pit for 250 feet to the present limit of sampling. Other anomalies of up to 115 ppm occur further west; when compared to much weaker ones found in a similar environment at Tofino, these probably are significant as a background of below 10 ppm is suggested. An appraisal by our geochemist, I. L. Elliott, is enclosed.

Copper values do not depict anomalies nearly as well as those of the nickel and appear more scattered and erratic. In the cut, 3700 ppm was obtained but the "nickel" anomaly to the northeast could not be substantiated for more than 200 feet. Toward the west, as shown on Map CN 4/65, some of the scattered nickel values are substantiated, however.

Molybdenum values are insignificant and not plotted. However this element is just as well kept in mind as the property is in molybdenum country.

SUMMARY & CONCLUSIONS

Preliminary soil sampling has outlined a target area in the search for copper-nickel in the prospect. Self potential and magnetometer work have produced too many anomalies to be of value unless such coincide with the geochemical highs, as is the case in several instances.

Rocks, as exposed, do not reflect favourably on the possibility of there being a large occurrence of copper-nickel ore buried in the

immediate vicinity. However, the area, being in a probable fault contact zone of regional scale, is probably more complicated than will allow simple projection of the one section on the beach where persistent outcrop does occur. A broad drag fold and cross faults are suggested.


RECOMMENDATIONS

Although the nickel so far found is too intimately tied up with excessive pyrrhotite to be extracted economically by any known process, this is not to say that the copper cannot be of importance or that the zone as a whole should be condemned because the one outcrop found is highly pyrrhotitic; the Tofino area is proof positive that high grade nickel can occur in a different, more acceptable form within a general but admittedly small area containing nickeliferous pyrrhotite. It is with these aspects in mind that the well-located property was picked up as a prospecting bet.

Geological features such as exist should be mapped and soil sampling extended as long as anomalous conditions exist. An attempt should be made to test bedrock by pitting in the better defined anomalous areas. Should further soil sampling extend the possible limits, a couple diamond drill holes would be in order if the anomalies have not been discounted by that time.

We have until next December to do this work which should cost a minimum, time and money-wise.

VANCOUVER, B. C.
March 31, 1966


J. J. McDougall,
Geologist.

REFERENCES:

1. Monthly Reports - J. J. McDougall - July, 1965
August, 1965
September, 1965
October, 1965
November, 1965 On file
2. G.S.C. Memoir #175 and included Map 307A On file
3. G.S.C. Memoir #159 On file
4. B.C.M.M. Annual Report 1916 On file

504 - 1112 West Pender, Vancouver, B.C.

INTER-OFFICE MEMORANDUM

File #E-623

DATE: November 24, 1965

TO: J. J. McDougall

COPIES TO:

FROM: I. L. Elliott

SUBJECT: Geochemical Sampling at Alice Arm

General range of values suggests linear zone of basic rock in more acidic country rock rather than linear zone of mineralization.

The linear SP anomaly is the main support for a linear source of the geochem values since the geochem sampling pattern is narrow and lack of outlying samples amplifies the tendency to think in terms of a linear source.

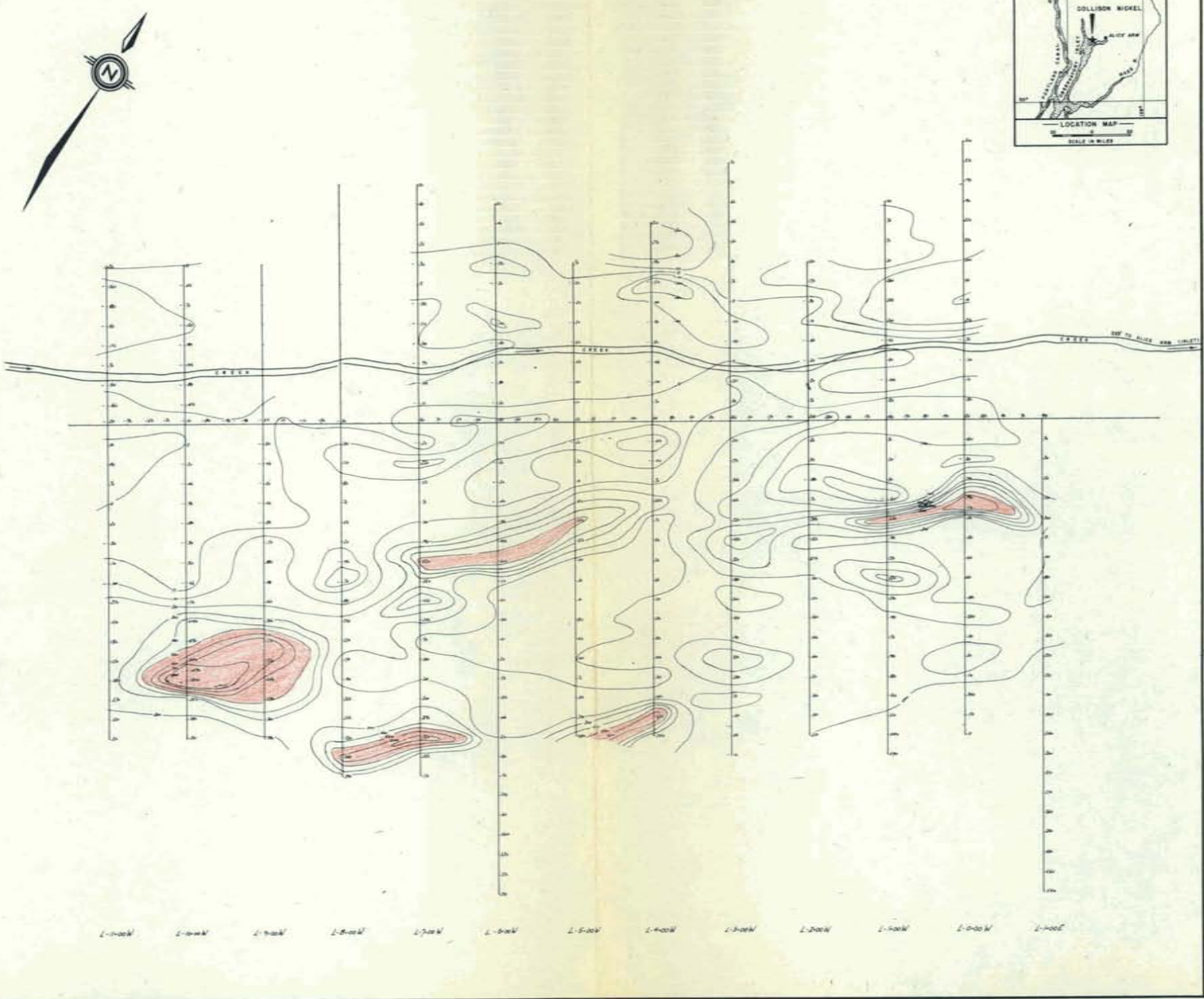
Copper values are generally less than nickel which suggests a basic rock with minor copper mineralization rather than a vein in acidic country rock carrying Cu which would normally carry little Ni.

A significant anomaly occurs on the eastern end of the grid. This could be due to (1) contamination from the existing trench via blasting debris or road to trench? (2) additional mineralization near trench; (3) normal strong dispersion pattern from known mineralization in trench. Contamination is not considered to be a likely cause unless samples were picked up from a road or path or by chance the sample came from blasted debris.

From the general topography it seems unlikely that this is a normal dispersion halo since a fairly strong Ni anomaly extends uphill to the SW from the trench (also less strongly indicated by Cu values). Furthermore, the anomaly downslope from the trench is displaced to the east. This displacement could possibly be due to ground water movement but is considered unlikely. It seems likely that more minor mineralization extends NE and SW from the existing trench, the extent of which would best be sought by trenching.

Molybdenum figures are generally insignificant and the few anomalous values are erratic.

ILE:MH



*Note: All readings are in lines of gammas with respect to a background of 5000 gammas.
 All readings are positive except where noted.
 Contour Interval - 100 gammas*

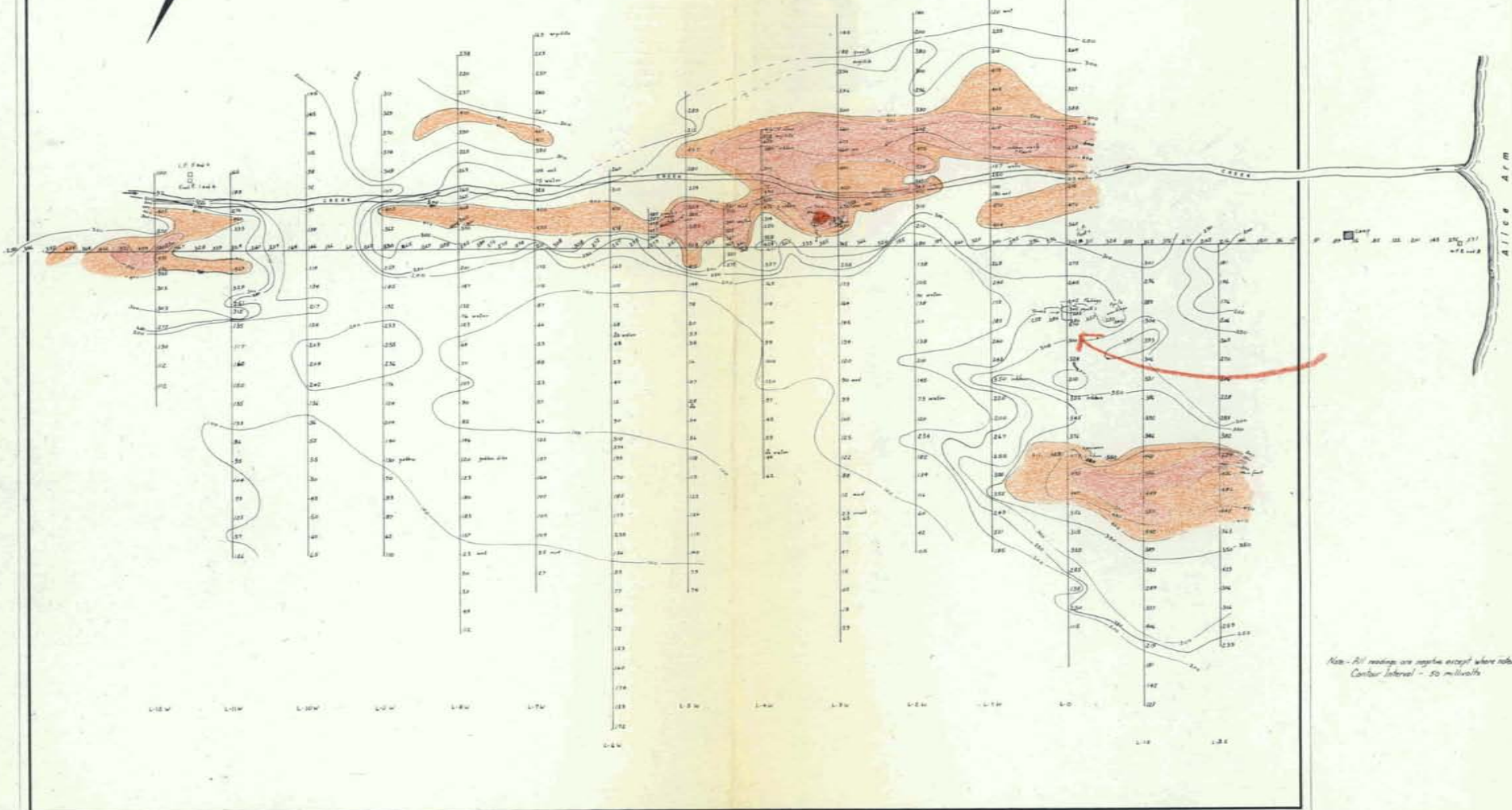


COMPANY .. FALCONBRIDGE NICKEL MINES LTD.
 PROPERTY .. COLLISON NICKEL
 LOCATION .. Alice Arm B.C.

WORKING PLACE ..
 TYPE OF MAP .. Magnetometer - ABEM
 BASED ON .. Survey by S. Proulx

DATE .. October 27, 1964
 DRAWN BY .. J.M.
 DATE OF WORK ..

J.M.



Note - All readings are negative except where noted
Contour Interval - 50 millivolts

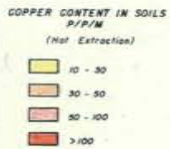
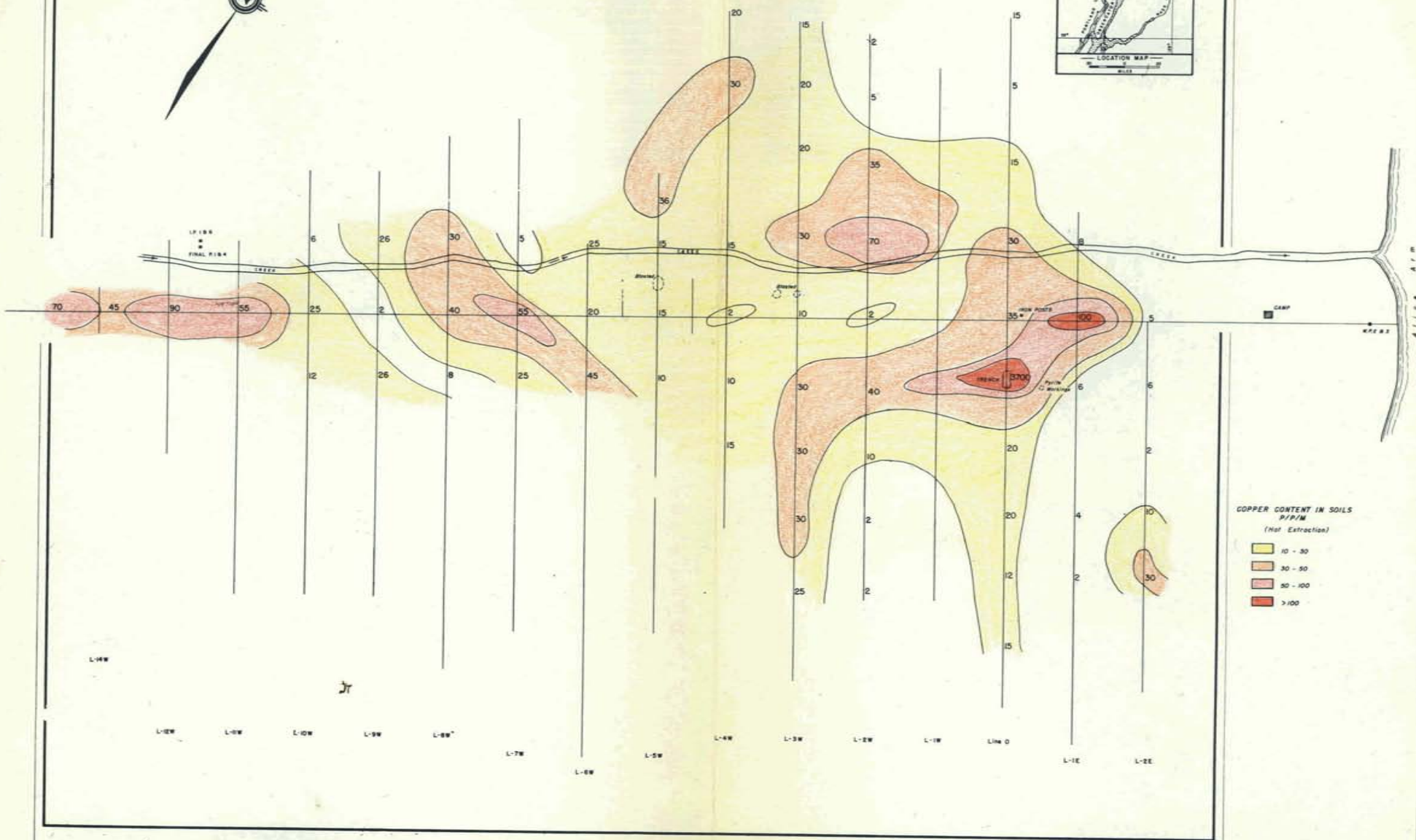


COMPANY - FALCONBRIDGE NICKEL MINES LTD.
PROPERTY - COLLISON NICKEL
LOCATION - MILICY ARMY B.C.

WORKING PLACE ...
TYPE OF MAP - SELF POTENTIAL
BASED ON ...

DATE - Oct. 25, 1945
DRAWN BY - J. S. FRESVANA
DATE OF WORK ...

JSM

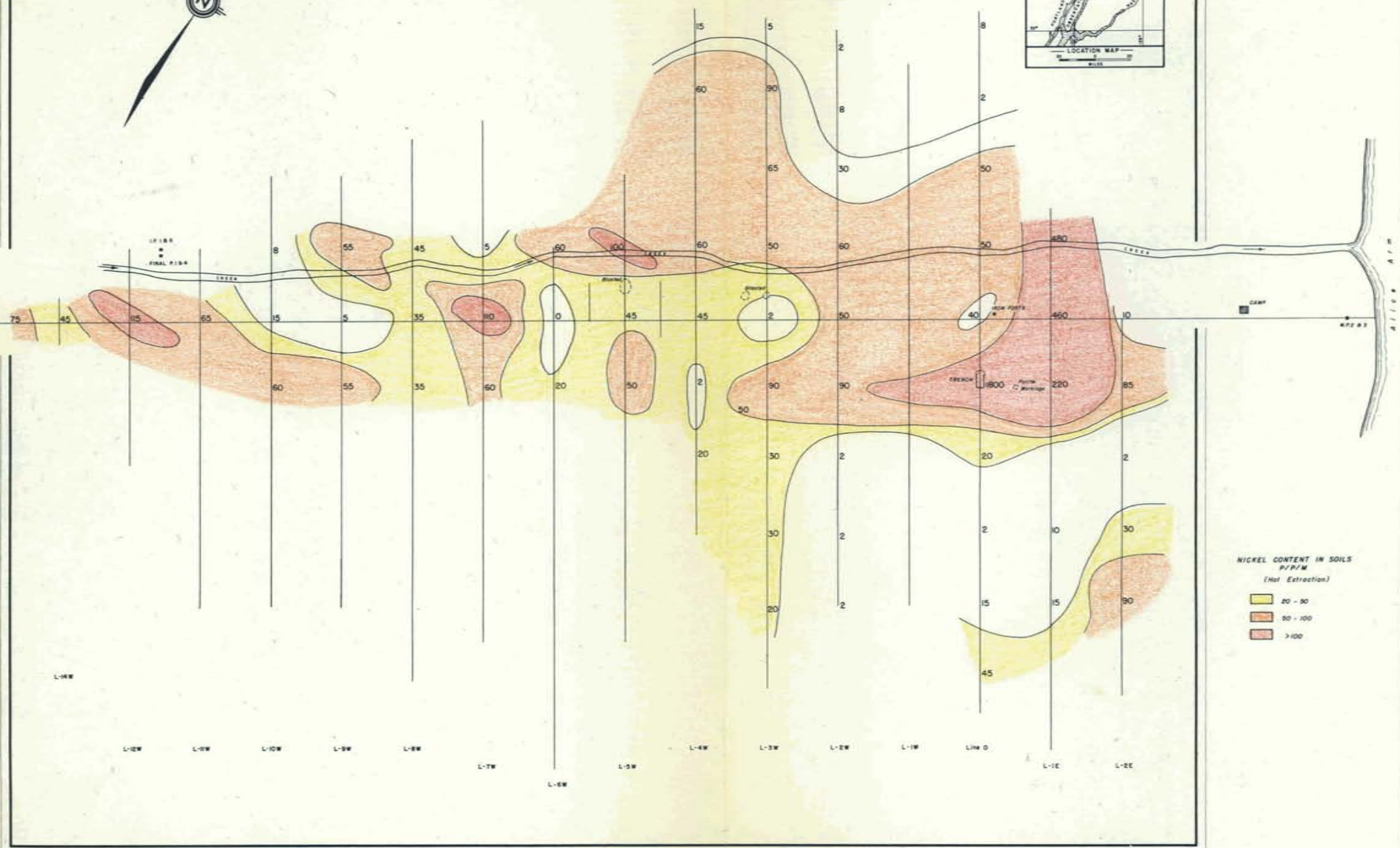


COMPANY . . . FALCONBRIDGE NICKEL LINES LTD.
PROPERTY . . . COLLISON NICKEL
LOCATION . . . ALICE ARM, B.C.

WORKING PLACE . . .
TYPE OF MAP . . . SOIL SAMPLE (COPPER)
BASED ON . . .

DATE . . . DEC 28/64
DRAWN BY . . . S. MIDDLE (FINAL DRAFT)
DATE OF WORK . . .

JDM



NICKEL CONTENT IN SOILS
P/P/M
(Not Extraction)

- 20 - 50
- 50 - 100
- >100



COMPANY . . . FALCONBERG NICKEL MINES LTD.
PROPERTY . . . COLLISON RICKEL
LOCATION . . . ALICE ARM, B.C.

WORKING PLACE . . .
TYPE OF MAP . . . SOIL SAMPLE (NICKEL)
BASED ON . . .

DATE . . . OCT 25/68
DRAWN BY . . . S. NICKLE (FINAL DRAFT)
DATE OF WORK . . .

Signature