

GEOPHYSICAL(VLF-EM) REPORT ON THE ART CLAIM

PENDER HARBOUR AREA, SECHELT PENINSULA

VANCOUVER MINING DIVISION, B. C.

Long. 124°00' W, Lat. 49°40' N.
- NTS: 92 F/9E and 92 G/12W -

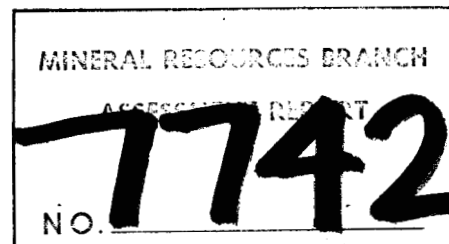
BY:

S. S. TAN, P.Eng.

February 25, 1980

Claim Owner & Operator: Mr. Art Hewitson

Consultant and Author: S. S. Tan, P. Eng.



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February 25, 1980.

INTRODUCTION:

The ensuing report is based upon the results of a geophysical survey, utilizing the Ronka VLF-EM 16 unit, conducted on the Art Claim situated in the Pender Harbour area, Sechelt Peninsula, Vancouver M.D. The writer performed the work at the request of Mr. Art Hewitson, owner of the property. Field work was carried out during the period from May 8th. 1979 to May 16th. 1979. The purpose of the survey is to attempt to locate electromagnetic conductors that may contain possible mineralization of economic interest.

The Art claim consists of 20 units. The record number is 173, Vancouver Mining Division. The claim is approximately 77 air Km. from Vancouver. At approximate 2.4 Km. from the turn-off on Highway 101 into Irvines Landing a gravelled road heading north provides access to the centre of the property. This unimproved road is passable with a pick-up truck.

Elevations on the property range from sea level to 800 feet. The terrain is moderate to flat. Overburden is extensive in the lowlands. The vegetation is characterised by local dense secondary undergrowth amongst good sized coast type forest conifers.

The main showing is known as the King Midas, which is well documented in the B.C. Minister of Mines Annual Report for 1937, page F 31. It has been reported that a 95 tons shipment made in 1940 returned an average grade of 2.72%Cu and 1.0 oz.Ag/ton (BCDM Bulletin 39, pp.38). Numerous old claim posts indicate the showing area had been staked and abandoned in the past few years. The writer geologically mapped the claim area during May 1978.

GENERAL GEOLOGY AND MINERALIZATION:

An older intrusive phase quartz diorite underlie about one third of the southeast segment of the property while the balance of the area is underlain by a younger phase granodiorite. A 100 meters wide limestone and skarn stratum at 45° Az. in strike occupies the approximate center of the property. Two normal faults and a thrust fault were mapped.

The Main Showing consists of a skarn hosted chalcopyrite-pyrite-magnetite replacement and porphyry copper affinity type mineralization in the adjoining granodiorite. It is sited along the east end of the boundary line between unit no.14 and 15 of the modified grid numbering system. The showing has been exposed by five trenches in a total strike length of 80 meters.

SURVEY CONTROLS:

A 2.2 Km. north-south base line was established at the center of the property through chain and compass survey. Nineteen east-west grid lines at 400 foot line intervals were turned-off from the base line. The grid lines were chain and compass surveyed and flagged at 100 foot stations. This grid was tied in to the previously surveyed access road and topographic map for closer controls. The surveyed area totalled 19.1 Km. of grid lines and 2.2 Km. of base line.

VLF-ELECTROMAGNETIC SURVEY PROCEDURE:

The Ronka EM-16 receiver manufactured by Geonics Ltd. was utilized in the survey. The principal of operation and instrument specifications is attached to this report as page 5.

For this survey, the tilt angle of null was recorded at each 100 foot station along the grid lines. The Seattle transmitting station (Frequency @ 18.6 kHz) was selected because the direction of the survey lines are approximately along the lines of primary magnetic field, about at right angles to the direction of the Seattle station.

The receiver is held upright in a vertical plane and swung back and forth until a signal null or minimum sound intensity is obtained in the head-phone. The dip angle of the null is read on the inclinometer of the receiver at each station and recorded as either positive or negative percent slope which is the in-phase component. The angles are positive in the in-phase component when approaching conductors. The writer has determined from past experience that the quadrature is seldom useful and thus it was not recorded in this survey. In order to avoid reversal in polarity instrument reading was always read by facing the same direction.

A total of 19.1 Km. of grid lines were completed in this survey.

RESULTS AND INTERPRETATIONS:

The results of the survey are plotted in a property area plan scaled at 1:6,000. Drawing 2 illustrates the recorded dip angle plotted in profile along each grid line at a vertical scale of 1 inch = 50%. The cross-overs of the profiled data indicate the conductors within the surveyed area. Since the topography is fairly moderate the data was not filtered according to the method developed by D. C. Fraser (Geophysics, vol. 34, No. 6, Dec. 1969, pp. 958-967).

Two categories of conductors were identified in this survey as shown in Drawing 2. The Main Showing consists of a skarn replacement mineralization containing disseminated and massive pods of pyrite-chalcopyrite-magnetite exposed in trenches for a 80 meters strike length at 45° Az. Anomaly 'A' corresponds to this showing and appears to have extended the conductor zone for a total distance of 420 meters. Conductors 'A-1', 'A-2' and 'A-3' all lie along the same skarn-limestone zone and may reflect separate pods

of similar mineralization at a smaller dimension. Conductor 'B', sited in a flat and overburdened area may represent a sub-parallel zone of underlying mineralization similar to the Main Showing.

Conductors 'F-1' and 'F-2' are coincident to two faults that were previously geologically mapped. Both faults contain some gouge and may be also water bearing to give such electromagnetic response. Conductor 'F-3' may be caused by an unmapped fault or may be due to the sudden topographic change in the steep slope at this location. Conductor 'F-4' is inferred to be a fault in this overburdened and flat location.

CONCLUSIONS AND RECOMMENDATIONS:

The VLF-EM survey has successfully outlined and extended the Main Showing skarn replacement pyrite-chalcopyrite-magnetite mineralization and indicated three smaller possible similar pods along the same skarn-limestone stratum. A new sub-parallel zone of possible similar mineralization is indicated by a conductor to the northwest.

It is recommended that the vicinity of the conductor reflecting possible underlying mineralization be geochemically soil surveyed for copper. Trenching should follow upon obtaining positive soil geochemical results.

Respectfully Submitted,



S. S. Tan, P. Eng.

February 25, 1980.

PRINCIPAL OF OPERATION (RONKA 16)

The VLF-transmitting stations operating for communications with submarines have a vertical antenna. The antenna current is thus vertical, creating a concentric horizontal magnetic field around them. When these magnetic fields meet conductive bodies in the ground, there will be secondary fields radiating from these bodies. This equipment measures the vertical components of these secondary fields.

The EM 16 is simply a sensitive receiver covering the frequency band of the new VLF-transmitting stations, with means of measuring the vertical field components.

The receiver has two inputs, with two receiving coils built into the instrument. One coil has normally vertical axis and the other is horizontal.

The signal from one of the coils (vertical axis) is first minimized by tilting the instrument. The tilt-angle is calibrated in percentages. The remaining signal in this coil is finally balanced out by a measured percentage of a signal from the other coil, after being shifted by 90°. This coil is normally parallel to the primary field.

Thus, if the secondary signals are small compared to the primary horizontal field, the mechanical tilt-angle is an accurate measure of the vertical real-component, and the compensation $\pi/2$ -signal from the horizontal coil is a measure of the quadrature vertical signal.

SPECIFICATIONS

Type	EM 16
Designer	Vaino Ronka
Manufacturer	Geonics Limited
Primary Field	Horizontal from any selected VLF transmitting station.
Station Selection	By plug-in units. Two stations selected by a switch on front panel
Measured Field	Vertical field, in-phase and quadrature components.
Accuracy of Readings	$\pm 1\%$ resolution.
Range of Measurements	In-phase $\pm 150\%$ or 90° , quadrature $\pm 40\%$.
Output Readout	Null-detection by an earphone, real and quadrature components from mechanical dials.
Batteries	6, size AA penlight cells. Life about 200 hours
Size	16 x 5.5 x 3.5 in. (42 x 14 x 12 cm).
Accessories	1 earphone & cord 1 carrying bag 1 set of batteries 1 manual of operation 3 plug-in units for station selection — additional units available.

A P P E N D I X

ITEMIZED COST STATEMENT
(Geophysical Survey, Art Claim)

The following expenditure was incurred by Mr. Art Hewitson in carrying out a geophysical survey (VLF-EM) on the Art Claim, Vancouver Mining Division.

1. ENGINEERING FEE & WAGES:

- Field Time: May 8-16,79 = 9 days @ \$150 = \$1,350
- Report Time: May 20-21,79 = 2)
Feb.23,24,80 = 2) 4 @ \$150 = 600
- Field Helper, Phillip Lum, Surrey.
May 8-16,1979 = 9 days @\$30 = 270

TOTAL FEE(S.S.TAN) & WAGES \$2,220.00

2. MOTEL, MEALS & TRANSPORTATION:

- Motel: May 8-15 = 8 nights @ \$21 = \$168.00
- Meals: 18 man days @ \$20 plus tips = 361.65
- Car Rental: 9 days @ \$18 = 162.00
- Gas and Ferry 62.80

TOTAL ROOM AND BOARD AND TRANSPORTATION 754.45

3. MISSCELLANEOUS:

- Field Supplies: flagging tapes, etc. \$32.17
- Report xerox, typing etc. 56.20

TOTAL MISSCELLANEOUS 88.37

TOTAL COST OF GEOPHYSICAL SURVEY \$3,062.82

CERTIFIED CORRECT

S. S. Tan


S. S. Tan, P. Eng.

CERTIFICATE OF QUALIFICATIONS

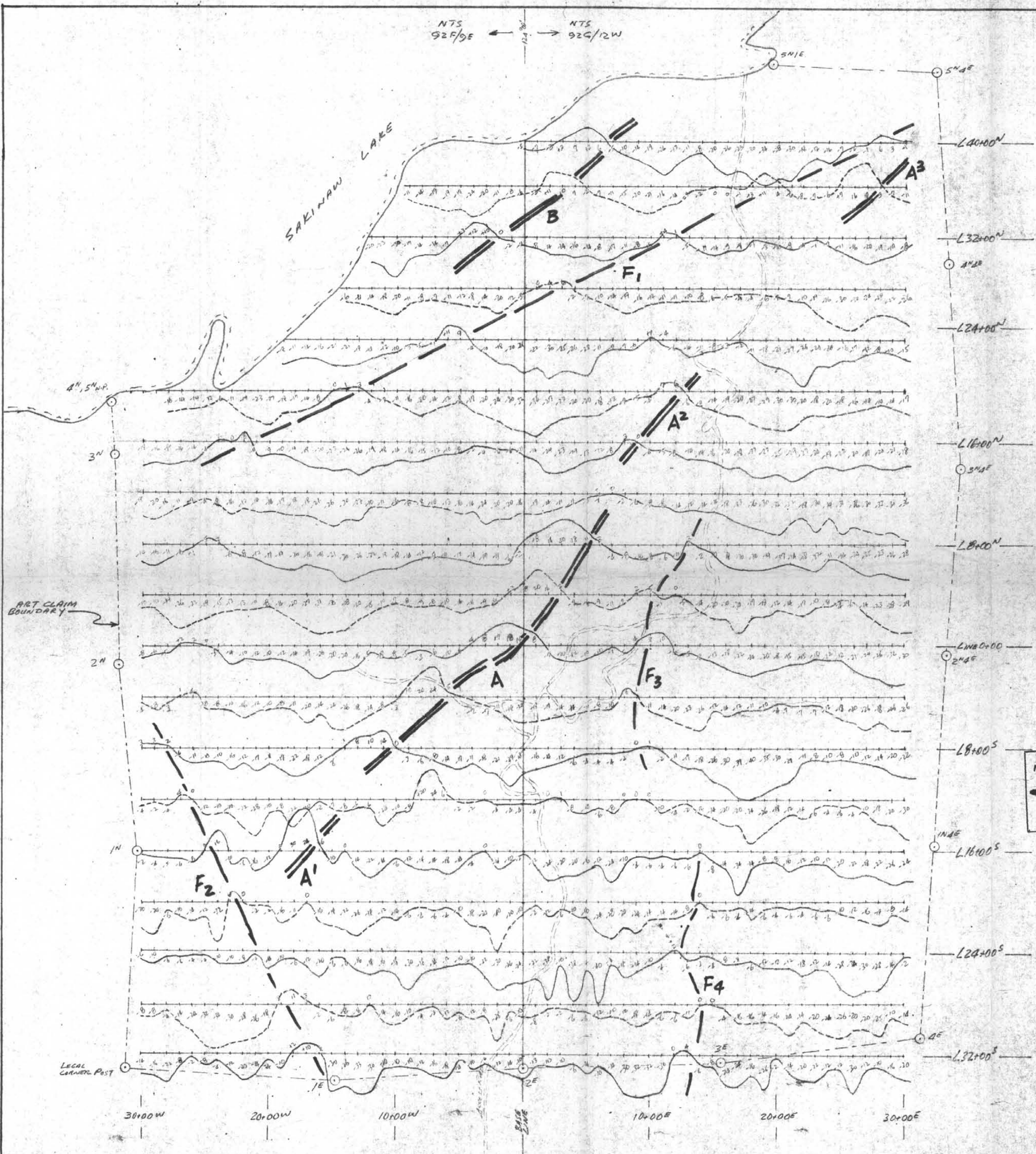
I, Siak S. Tan, residing in the City of Vancouver, Province of British Columbia, hereby certify that:

1. I am a consulting geological engineer with offices at 310 - 1965 West 8th. Avenue, Vancouver, B.C. V6J 1W2.
2. I was graduated in Geology, B.Sc., 1964, from Carleton University, Ottawa and had completed one year of post-graduate studies (1964/65) at the University of Toronto and have been practicing my profession since that date.
3. I am a registered member of the Association of Professional Engineers of the Province of British Columbia.
4. I have been engaged in my profession for the past 15 years, having been employed by various mining companies and engineering firms in my capacity as an engineer in various mineral explorations and mining projects.
5. My background and experience in geophysics include several years of supervision and participation in numerous geophysical surveys, additionally, I had university credits in exploration geophysics and one post-graduate course in geophysics while at Carleton University.
6. The attached report on the Art Claim is based on my personal field work conducted during the period of May 8th. 1979 to May 16th. 1979.

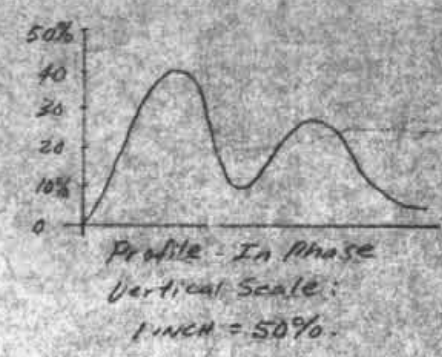
Dated at Vancouver this 25th. day of February 1980.


S. S. Tan, P.Eng.

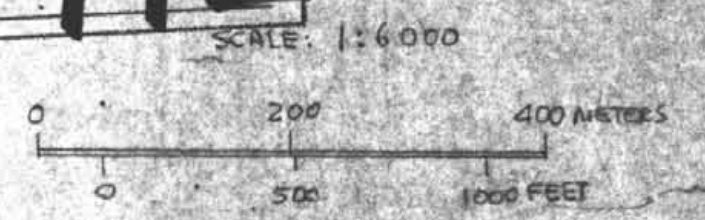
NTS 92F/9E ← → NTS 92G/12W



NOTE
 - Property boundary and claim post location based on pace and compass survey
 - Grid lines chain and compass surveyed.



MINERAL RESOURCES BRANCH
 ASSESSMENT REPORT
7742
 NO. 7742



To Accompany:
 Geophysical Report (VLF-EM) on the
 ART CLAIM By S.S. TAN, P. Eng.
 Dated February 25, 1980.

VLF-EM SURVEY PROFILES	
READINGS - DIP ANGLE OF NULL IN % SLOPE	
ART CLAIMS VANCOUVER MINING DIVISION	
SURVEYED BY: S.S. TAN NTS: 92F9E & 92G12W DATE: FEB. 23, 1980	DRAWING NO. 2