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10,261
PART
1 & 2

LIST OF ILLUSTRATIONS

SUMMARY

In late August 1981, VLF-EM and magnetic surveys were carried out over a 500 X 1250 m area centered over the Captain Vein on the Swing Peak Property, Tahtsa Lake Area, B.C.

Silver-lead-zinc mineralization is present in shear zones on the property; the VLF-EM was intended to trace these shear zones and the magnetics was designed to assist the geological mapping of the claims, and to detect any magnetite/pyrrhotite mineralization directly.

The total field magnetic readings were plotted in numerical and profile form; the VLF-EM dip angle readings were Fraser-filtered, plotted and contoured.

CONCLUSIONS

1. The magnetic survey has revealed an area with a rapid fluctuation of values over a range in excess of 2,500 ɣ. This is likely to represent a magnetite-rich volcanic sequence outcropping across the valley wall. There is little apparent correlation between rock types and magnetic response elsewhere on the property.

2. The VLF-EM survey anomalies showed good correlation with some of the shear zones defined by the geological mapping. Most of the anomalies were fairly weak, apart from several in the east of the survey area.

RECOMMENDATIONS

1. Two of the VLF-EM anomalies should be investigated by trenching, along line 100S between 4+25E and 6+00E.

2. If positive results are obtained, then further VLF-EM should be run, as 50 m infill lines in the area already covered, and at 50 m line spacing on selected areas elsewhere on the property.

GEOPHYSICAL REPORT

ON

VLF-EM AND MAGNETIC SURVEYS

OVER SWING PEAK PROPERTY

TAHTSA LAKE AREA

OMINECA MINING DIVISION

BRITISH COLUMBIA

INTRODUCTION

This report discusses the instrumentation, field procedure and results of VLF-EM and magnetic surveys carried out over part of the Swing Peak Property, near Tahtsa Lake, British Columbia.

The survey work was completed during the period August 20th to September 1st, 1981, by two geophysical technicians, under the direction of David G. Mark, Geophysicist.

A grid system, comprising six east-west lines, was set up and readings of total magnetic field and VLF-EM dip angle, were taken at intervals of ten meters. The total distance surveyed was about 7.5 line kilometers.

The geophysical grid was centered on the Captain shear zone which contains significant silver-lead-zinc mineralization. The purpose of the work was to check the geophysical response

of the known veins, and locate other similar zones elsewhere on the property.

PROPERTY AND OWNERSHIP

The Swing Peak Property comprises the following claims:

Claim Name	Record Number	No. of Units	Expiry Date
SAM 3	2732	20	April 25, 1989
SAM 3	2444	20	January 30, 1989
SWING 1	3967	20	April 4, 1982
SWING 2	3968	20	April 4, 1982
SWING 3	4263	20	September 8, 1982
SWING 4	4264	20	September 8, 1982
LONG	4369	20	August 17, 1982
SHORT	4370	20	August 17, 1982
DEUCE 1	4367	1	August 17, 1982
DEUCE 2	4368	1	August 17, 1982

The claims are owned by Tatsa Resources Ltd., of Vancouver, British Columbia. Note that the old SAM Claim (record no. 797), has been completely overpegged by SAM 3 (2732), and will therefore be allowed to lapse.

LOCATION AND ACCESS

The claims lie on a north facing slope on the south side of Swing Creek, which flows into Tahtsa Reach. Access is from Houston, some 110 km to the northeast, via gravel road to the north side of Tahtsa Reach, then by launch across the Reach, and finally by foot or vehicle 4.3 km to the surveyed area, along a recently-constructed four-wheel drive road.

PHYSIOGRAPHY

The property lies in the Tahtsa Ranges, part of the Hazelton Mountains, on the western edge of the Central Plateau and Mountain Area of the Canadian Cordillera.

Elevation in the geophysical survey area varies from about 1,230 to 1,670 meters a.s.l., giving a range of 450 m.

HISTORY OF PREVIOUS WORK

The Captain Vein has been the subject of development by aditing, trenching and drilling since the 1920's, to try to trace the extent of the sulphide pods.

A geological survey of the SAM Claims was carried out in 1979 by L. Sookochoff[4], and a more detailed geological survey of the entire Swing Peak Property carried out in the summer of 1981 by Goldsmith and Kallock [6].

GEOLOGY

The claims are underlain by Upper Cretaceous volcanics (andesites and rhyolites) overlying Lower Cretaceous sediments of the Skeena Group. These have been intruded by andesitic to dioritic stocks, of Late Cretaceous to Eocene Age.

Steeply-dipping, north-trending shear zones transect all rock types; these zones carry clay, carbonate and sulphide mineralization.

INSTRUMENTATION AND THEORY

VLF-EM Survey

The Sabre Instruments Ltd., model 27, VLF-EM receiver was

tuned to the Seattle transmitting station, to take readings of the dip angle of the field.

In all electromagnetic prospecting, a transmitter produces an alternating magnetic field (primary) by passing a strong alternating current usually through a coil of wire. If a conductive mass such as a sulphide body is within this magnetic field, a secondary alternating electric current is induced within it which in turn induces a secondary magnetic field that distorts the primary field. It is this distortion that is measured by the VLF-EM receiver.

Most EM instruments employ frequencies ranging from a few hundred to a few thousand Hertz. The VLF-EM method uses a frequency range from 16 to 24 KHz and is therefore more sensitive to bodies of lower conductivity. VLF-EM anomalies are therefore often caused by one or more of the following: electrolyte-filled fault or shear zones, clay beds, porous horizons, carbonaceous sediments (e.g. graphitic), low conductivity sulphide bodies and lithological contacts. The precise cause of an anomaly is consequently difficult to determine and VLF-EM surveys preferably should not be interpreted without a good geological knowledge of the property and/or the assistance of other geophysical and geochemical surveys.

A survey line crossing a buried conductor will record dip angle values that are negative (upward dipping) before the conductor and positive after it, as the magnetic component of the field is deflected up over the body. The inflection point (zero crossing) on the profile should lie directly over the causative body.

Magnetic Survey

The magnetic survey was carried out with a model MP-2 proton precession magnetometer, manufactured by Scintrex Ltd. of Concord, Ontario. This instrument reads out the total earth's field in gammas, over a range of 20,000 to 100,000 ɣ to an accuracy of ± 1 ɣ .

Only two commonly occurring minerals are strongly magnetic; magnetite and pyrrhotite. Hence, magnetic surveys are used to detect the presence of these minerals in varying concentrations. Magnetic data are also useful as a reconnaissance tool for mapping geologic lithology and structure since different rock types have different background amounts of magnetite and/or pyrrhotite.

SURVEY PROCEDURE

The magnetic and VLF-EM readings were taken every 10 m on east-west lines 100 m apart. The magnetic diurnal variation was monitored in the field by the closed loop method, and its effect removed from the raw data before plotting.

COMPILATION OF DATA

VLF-EM

The dip angle readings were reduced by applying a numerical filter (the Fraser-filter). This is a 4-point difference operator that reduces the inherent high frequency spatial noise in the data and phase-shifts the reading such that a zero crossing becomes a peak, thereby permitting easy contouring. The filtered values were plotted at 1:2,000 on a base map showing geological information from the report by Goldsmith and Kallock (1981).

Magnetics

The diurnally-corrected magnetic values, less an arbitrary background value of 57,000 ɣ , were plotted along the survey lines, and profiles drawn.

RESULTS

Magnetics

The magnetic results have been presented in numerical and profile form on Sheet 1. The spacing of the survey lines (100.m) is such that it is not possible to draw a meaningful contour plan.

The profiles along 100N, 0+00, 100S and 200S are similar in form, with values scattered in an envelope about 200 ɣ wide. Over the eastern part of lines 300S and 400S, however, there is considerable rapid fluctuation of magnetic readings. The geological mapping shows andesite-diorite volcanics in these areas; presumably this rock type contains varying amounts of magnetite.

There is an apparent trend of positive anomalies on lines 100N, 0+00, 100S and 200S, at 4+00E, 5+00E, 5+50E and 6+50E respectively, however the feature intersects several rock types so its cause is uncertain.

VLF-EM

The filtered data figures have been plotted along the survey lines on Sheet 2. An attempt has been made to trace the anomalies from line to line, by sketching in contours, however the distance between survey lines makes this procedure somewhat subjective. Infill lines would be necessary before the trend of the anomalies could be definitely established.

Each of the anomalous zones will represent relatively conductive areas, such as fault or shear zones that may contain more moisture, clay and conducting minerals than the surrounding rock. The trend of the anomalies is generally north-south, and in certain places there is good correspondence between the VLF-EM and shear zones mapped by Kallock and Goldsmith. Low amplitude anomalies are present near the lower adit, along the Captain Vein, and along the extrapolation of the Bennett lead. The strongest anomalies occur in the east of the area. Anomaly "a" intersects lines 100N and 0+00 and runs through a zone of exposed galena pods on line 100S. The extension of the anomaly is not clear, as readings were not possible in a gully along parts of the lines 200S and 300S, however it seems likely that the conductive lineation may pass through the mineralized zone on lines 200S, and extend through to intersect line 400S at about 1+75E. Anomalies "b" and "c" are the strongest recorded, with "b" following the trend of geologically-mapped shear zones. There are no surface features to help explain the cause of anomaly "c".

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

J.M. Anderson,
Geophysicist

November 26, 1981

SELECTED BIBLIOGRAPHY

(1) Bullis, A.R., Report on Captain Group Swing Peak, B.C., Private report 1953.

(2) Duffel, S., Whitesail Lake Map-Area, B.C., GSC Memoir 299, Map 1064A 1959.

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(4) Sookochoff, L., Geological Report on the Sam Claim for Tahtsa Mines Ltd., Pan American Consultants Ltd. 1980.

(5) Woodsworth, G.J., Geology of the Whitesail Lake Map-Area 93 E B.C., GSC OF 708, 1980.

(6) Goldsmith, L.B. and Kallock, P., Geological Investigation of the Sam, Swing et al Mineral Claims, Arctex Engineering Services, 1981.

GEOPHYSICIST'S CERTIFICATE

I, J.M. ANDERSON, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geophysicist of Geotronics Surveys Ltd., with offices at #403-750 West Pender Street. Vancouver, British Columbia.

I further certify:

1. That I am a graduate of the University of Tasmania (1971), and hold a B.Sc. degree in Geophysics.

2. That I have been practising my profession for the past ten years.

3. This report is compiled from data obtained from VLF-EM and magnetic surveys carried out under the direction of David G. Mark, Geophysicist, and the field supervision of H. Richardson.

4. I have no direct or indirect interest in the Swing Peak Property, nor in Tatsa Resources Ltd., nor do I expect to receive any interest as a result of writing this report.

J.M. Anderson,
Geophysicist

November 26, 1981

AFFIDAVIT OF EXPENSES

The VLF-EM and magnetic surveys were carried out on the Swing Group and the Peak Group of Claims, Tahtsa Reach Area, Omineca Mining Division, British Columbia to the value of the following:

FIELD: (August 20th to September 1st, 1981)

Geophysical technician and helper, 94 hours at $40/hour	$ 3,760
Air freight	77
Airfare and taxi	545
Float plane	750
Room and board, 26 man days at $50/man day	1,300
Survey supplies	88
Instrument rentals, 1 magnetometer, 1 VLF-EM, 2 1/2 weeks at $100/week/instrument	300
	$ 6,820

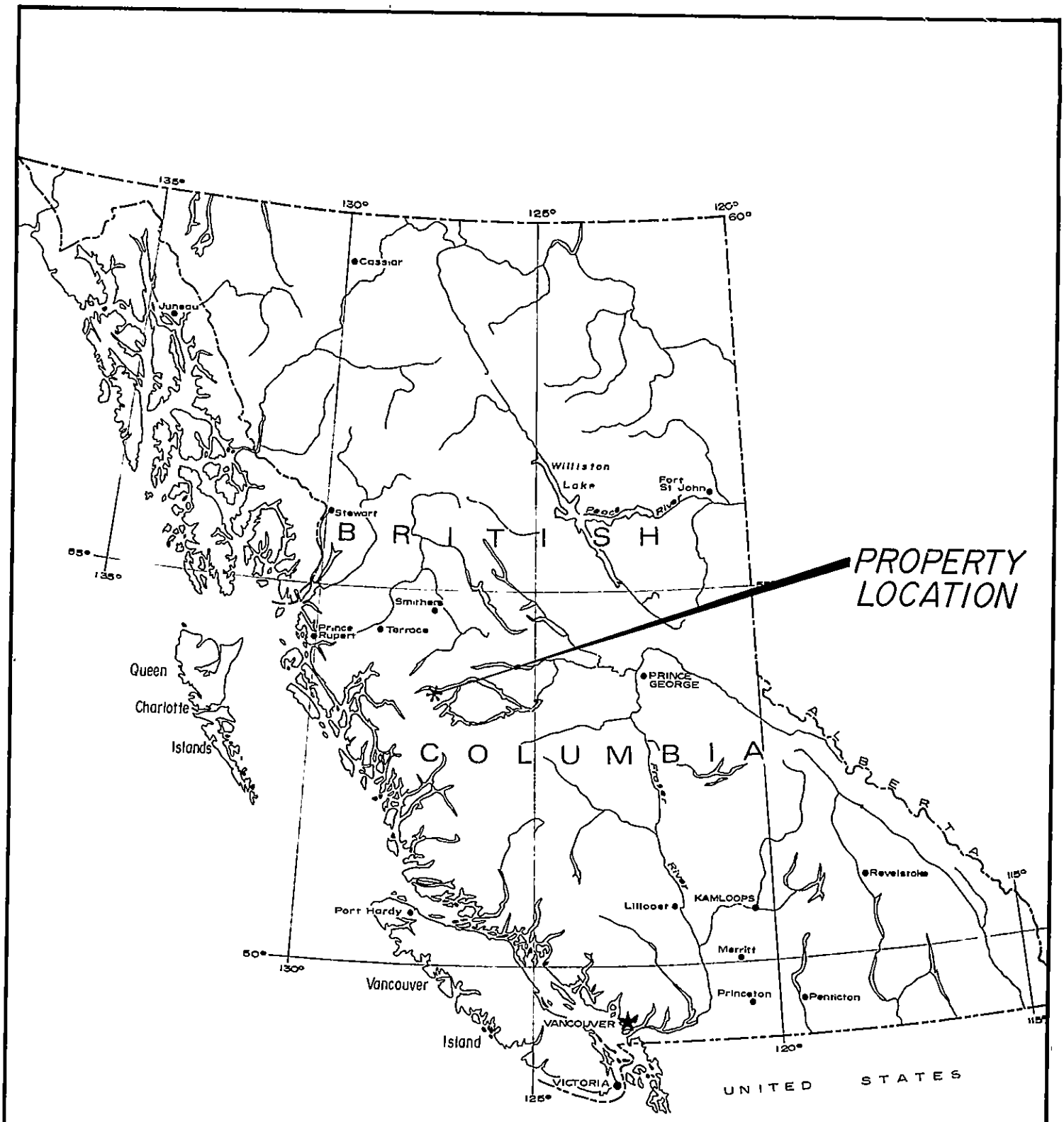
OFFICE:

Geophysicist, 38.5 hours at $40/hour	$ 1,540
Geophysical technician, 40 hours at $20/hour	800
Drafting and printing	777
Typing, photocopying and compilation	150
	$ 3,266
TOTAL	$10,087

85% prorated to Swing Group of Claims - $8,574
15% prorated to Peak Group of Claims - $1,513

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

David G. Mark, Geophysicist
Manager



To accompany report by J.M. Anderson, geophysicist.

GEOTRONICS SURVEYS LTD.

TATSA RESOURCES LTD.

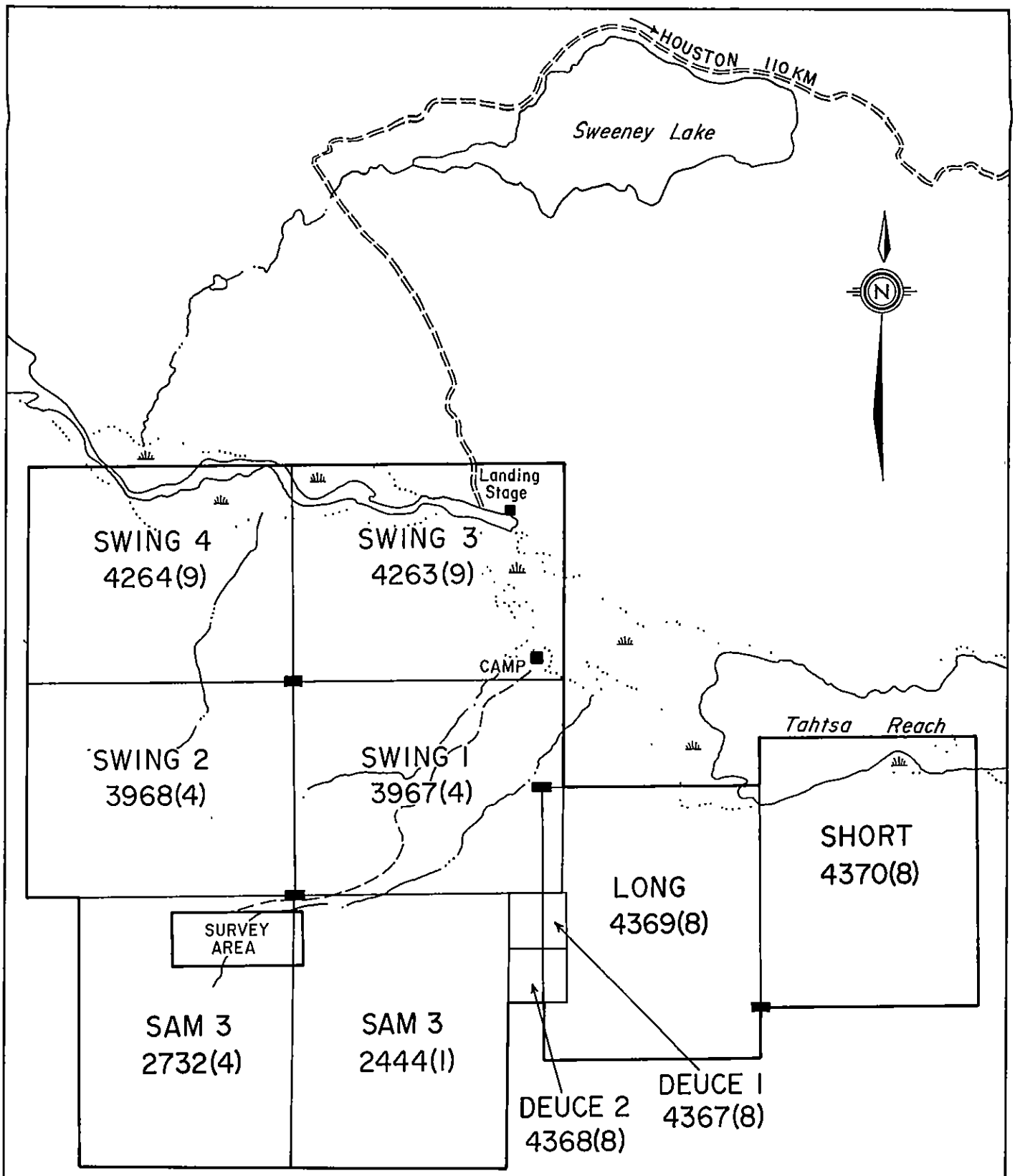
SAM CLAIMS

TAHTSA LAKE AREA, OMINECA M.D., B.C.

MAGNETIC AND VLF-EM SURVEY

LOCATION MAP

SCALE:	DATE:	JOB No:	FIGURE No:
1: 8,600,000	NOV. 1981	81-44	1



To accompany report by J.M. Anderson, geophysicist.

GEOTRONICS SURVEYS LTD.

TATSA RESOURCES LTD.

SAM CLAIMS

TAHTSA LAKE AREA, OMINECA M.D., B.C.

MAGNETIC AND VLF-EM SURVEY

CLAIM MAP

SCALE:	DATE:	JOB No:	FIGURE No:
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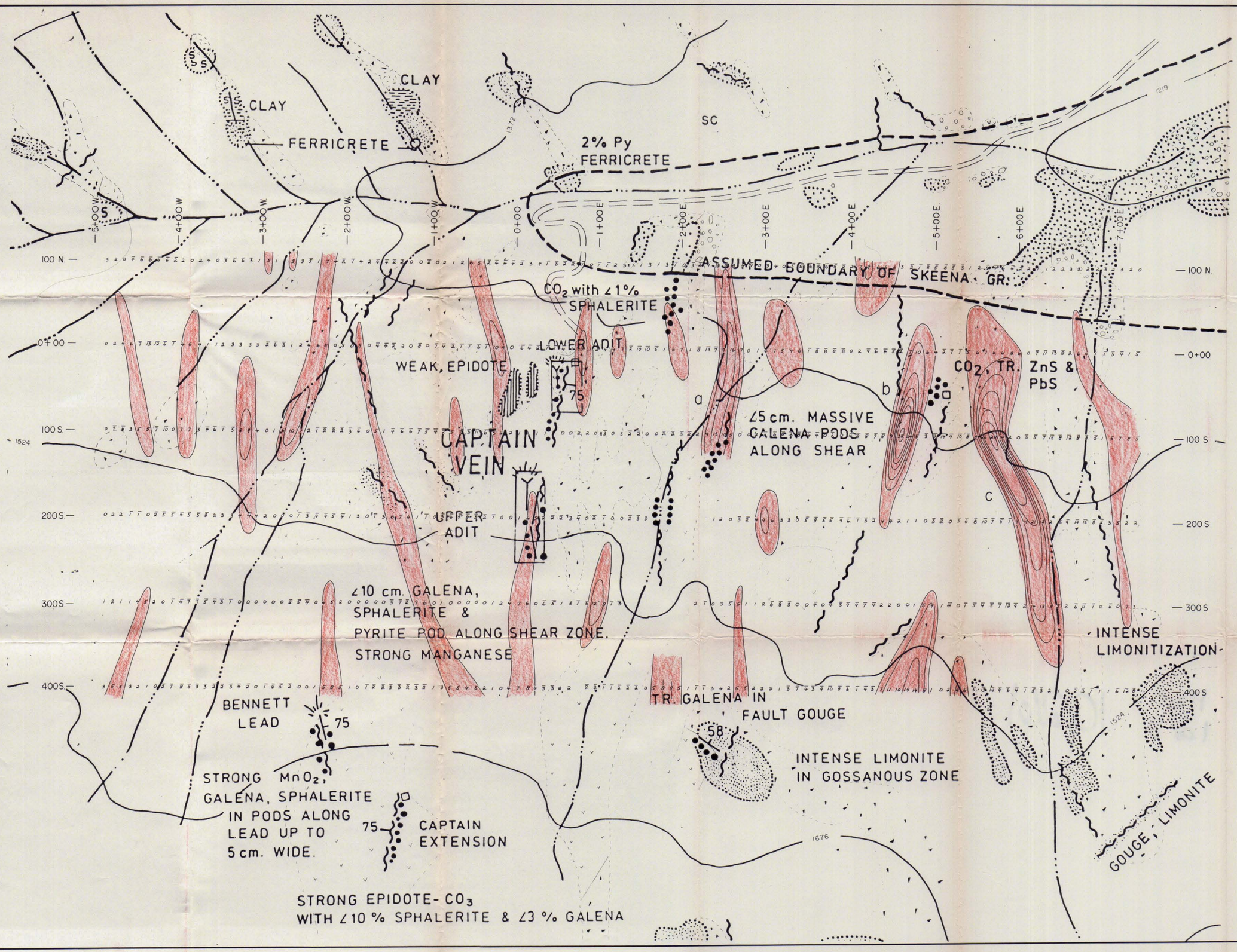

LEGEND

- ROAD
- CREEK
- ANDESITE - DIORITE
- ANDESITE OR DACITE BRECCIA
- RHYOLITE
- CONGLOMERATE
- 75 SHEAR ZONE, WITH ATTITUDE.
- SURFACE MINERALIZATION
- 6 DIP ANGLE IN DEGREES OF VLF-EM FIELD
- T NEGATIVE DIP ANGLES
- b VLF-EM ANOMALIES

CONTOUR INTERVAL = 4% FOR POSITIVE VALUES

PART 1 of 2

10,261

METRES

0 50 100 150 200

TO ACCOMPANY REPORT BY J. M. ANDERSON, GEOPHYSICIST.

GEOTRONICS SURVEYS LTD.

TATSA RESOURCES LTD.

SAM CLAIMS

TAHTSA LAKE AREA, OMINECA M.D., B.C.

VLF-EM SURVEY
DATA AND CONTOURS
FRASER FILTERED

SCALE:	DATE:	JOB No.	SHEET No.
1:2000	NOV. 1981	81 - 44	2