

REPORT

ON THE

SILVA 2 GROUP

NAHWITTI LAKE

(18 miles west of Port Hardy, B.C.)

(127° 45' : 50° 41')

by

IRA S. ROTE, B.Sc., (Geologist)

endorsed by

W.E. CLARKE, B.Sc., P. Eng. Department of December 21, 1972 name Mines and Petroleum Recources ASJESSING T REPORT for,

GIANT EXPLORATIONS LIMITED (N.P.L.)

P.O. Box 10010 - 700 West Georgia Street

Vancouver 1, B.C.

Dates: November th, - December 5th, 1972.

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MAPS ACCOMPANYING REPORT

With Text:

MAP NO.

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Nahwitti Lake

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In Pocket:

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INTRODUCTION

During the first week of October, 1972, a geophysical and geochemical survey¹ was conducted over the Dorlon workings on Giant Explorations Nahwitti Lake property. The above investigation resulted from previous airborne work, which indicated a coincident mag high and E.M. anomaly near the workings. It was also known from previous reconnaissance soil sampling, that high values in total heavy metals occurred to the northwest of the Dorlon open cuts.

The October work disclosed a mag high, and a weak E.M. conductor in the northwest portion of the grid.

 Geochemical & Geophysical Report on the Silva 2 Group, by I.S. Rote dated October 15, 1972. This latter anomaly was drilled in late November, and a body of magnetite-chalcopyrite mineralization was indicated (drill hole NLR-1).

Soil sampling in October revealed an area anomalous in zinc, situated in the western part of the grid. The zinc anomaly was open to the west, and centered on a vein of sphalerite exposed in a small outcrop. The vein was drilled in early December, 1972.

Coincident with the above-mentioned diamond drilling, intermediate lines were put in on the October grid in order to have cross lines spaced 100 feet apart. In addition, the grid was extended 2,000 feet west, and 1,600 feet east, to cover other portions of the 1969 air-mag anomaly. The survey work described in this report was initiated to explore for other anomalous conditions comparable to those on which drill hole NLR-1 was spotted and to determine the westerly extent of the zinc anomaly.

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LOCATION & ACCESS

Giant Explorations' Nahwitti Lake property is located 18 miles west of Port Hardy, a small town in north-central Vancouver Island. The Holberg road transects the northern most Nahwitti Lake claims, and provides easy access to the property. A network of logging roads allows one to drive into the survey area.

PROPERTY

The claims covered by the survey described

in this report are:

Name	Record No.		
Rain 1 - 4 inclusive	18213 - 16, inclusive		
Silva 7	18269		
Silva 8	18270		
Alvis 1	18525		
1			

GENERAL GEOLOGY

The Nahwitti Lake property is underlain by sediments and volcanic rocks of the Vancouver Group, subdivisions of which are: the Karmutsen Group, the Quatsino Formation and the Bonanza Group.

The Karmutsen Group occurs in the northern part of the property and consists mainly of andesite.

The Quatsino Limestone is a light to dark-

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grey rock which serves as a marker horizon, and is found in the central portion of the property.

All the known mineral showings in the Nahwitti Lake area are located in, or near, the Quatsino Limestone.

<u>The Bonanza Group</u> is made up of interbedded argillites and limestones, which contact the Quatsino Formation. The argillites and limestones are overlain by andesites comparable to those of the Karmutsen Group.

Faulting is widespread in the Nahwitti Lake area and trends WNW to NW. The bedded rocks generally dip 20 - 50[°] south and may represent the south limb of a broad, westerly-trending anticlinal fold.

SURVEY GRID (7.2 line miles)

Intermediate lines, and the extension of the October grid, are depicted on Map, NLS-00-3.

Additional lines, between XL8W and XL8E, were put in with chain and compass in order to complete the main grid with cross lines every 100 feet. Stations were blazed and flagged at each 50' mark on the cross lines.

The baseline was blazed and flagged along a bearing of 285° (true), and cross lines put in every 200 feet, from XL10W throught to XL30W. The baseline was also extended 1,600 feet east to XL22E, with cross lines every 200 feet, and 50 foot stations.

The detailed grids on mag anomalies C & D consisted of 20 foot stations on crosslines spaced 25 feet apart.

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MAGNETOMETER SURVEY (7.2 line miles)

The ground magnetometer survey was carried out using a McPhar M 200, flux-gate magnetometer with readings taken every 50 feet on the cross lines. The elevation of each station was also recorded.

Detail work over the anomalous zones consisted of readings taken on 20 foot stations and 25 foot crosslines.

The magnetometer measures the vertical component of the earth's magnetic field to 5 % on the lowest scale. The scale ranges vary progressively from a mininum of 1000 % to a maximum of 100,000 %.

Temperature compensation is built directly into the instrument so that the only corrections necessary are those for diurnal variation. The variation for each day's readings was assumed to be linear, and was determined by subtracting initial and final readings taken on the base line and/or control station. The correction added (or subtracted) with respect to each station is the product of the time elapsed up to the moment of the reading, over the total time for the loop times the total diurnal variation.

At the beginning of the day, the magnetometer was set to read $5100 \,\text{V}$ at a control station picket situated near XL3W 4½N. This latter control station was established after having set the instrument to $5000 \,\text{V}$ on the original base station near Rain 1 & 2 I.P. (see October report).

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During the day cross line readings were tied into the base line so as to form a loop traverse.

The diurnal variation encountered during the survey was nil on most days, with only two occassions when a variation was observed (1-200 % only). <u>GEOCHEMICAL SURVEY</u> (5.3 line miles)

The extensions of the Dorlon grid were soil-sampled every 100 feet on cross lines spaced 200' apart. All samples were taken from the C-horizon of the soil profile.

The samples were assayed by Fraser Laboratories Limited, 1175 West 15th, Street, North Vancouver, B.C. A one half gram portion of the dried and screened sample (-80 mesh).was digested for 2 hours in a mixture of perchloric and nitric acid. Following, cooling, mixing and settling the sample was diluted and run on a Techtron AA-5 atomic absorption spectrometer against matrix standards. Results were reported in PPM with $\pm 2\%$ error.

Samples were labelled in the field with the station identity as per the established grid, e.g., the sample collected at cross line three west 50 feet north, was marked $XL3W-\frac{1}{2}N$, and so on.

Metal values in PPM are shown on Maps NLS-00-4, 5 & 6.

GEOLOGICAL MAPPING

Rock exposure in the Dorlon grid area is greatest on and near a scarp face which strikes WSW across the grid. Outcrops occur sporadically over the remainder of the surveyed zone, and are found in creek gulleys, roadcuts and in the bank of Nahwitti River. Rock outcrops in the Dorlon grid aggregate approximately 10 % of the total area mapped.

Rock types and structural features are shown on Map NLS-00-7.

DESCRIPTION & INTERPRETATION OF RESULTS

Magnetometer Survey

. The corrected magnetometer values were contoured, and the resulting pattern does not generally differentiate between rock types in the area.

However, in the extreme eastern portion of the grid a prominent mag high (Anomaly D) was discovered, and is characterized by values up to 17,000¥, or three times the general background.

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Detail work (readings every 20 feet on 25 foot crosslines) was conducted over Anomaly D and revealed an anomalous zone striking E-W over a distance of 250 feet and having an average width of 40 feet. The anomaly is centered on crossline 14E-4N.

A detail grid, comprised of 20 foot stations, was put in over Anomaly C (discovered in October, 1972), and this work indicated that the anomalous condition is centered on crossline 4W-5N, is slightly elongated in an eastwest direction and has a diameter of 50 feet.

An isolated high value (10,000¥) immediately south of anomaly C, was read directly over the logging road, and could possibly reflect the magnetic road ballast.

An examination of the local topography, and an inspection of the above described mag results, indicates that anomalies C and D both occur adjacent to major faults.

A single drill hole was spotted on Anomaly C in November of 1972; massive magnetite-chalcopyrite and skarn mineralization was cored over an interval of 45.5 feet.

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Geochemical Survey

Values plotted on Maps NLS-00-5,-6 & 7 commonly reflect known mineralization in the Silva-Grid area.

The most anomalous values in PPM lead are centered on the Dorlon showings. Threshold plus, and moderately anomalous values occur northeast and southwest of the workings.

The highest values in PPM zinc occur in the immediate vicinity of the showings, and near the Bonanza-Quatsino contact to the west-southwest.

<u>Anomaly A</u> (Pb & Zn) results from the mineralization in the Dorlon workings. The west-northwest trend of the anomaly is due to drainage.

<u>Anomaly B</u>, delineated by zinc values in the "most anomalous" category, is elongated west-northwest, and sub-parallel a scarp face coincident with the Bonanza-Quatsino contact.

All of the above information was outlined in the assessment report dated October 15th, 1972.

In November 1972, the grid was extended, and soil sampling carried out to determine the western terminus of anomaly B, as well as to reconnoiter ground even further to the west. Soil sampling was also carried out on an eastern extension of the grid.

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The geochemical survey conducted on the extended grid during November, 1972, closed off Anomaly B to the west (at crossline 14W) and revealed only sporadic high values in Pb & Zn at other locations in the grid extension. The significance of the isolated high values is difficult to determine; however, their proximity (in some cases) to the mag anomalies might encourage one to do detail soil sampling in these latter areas.

All samples collected in October, as well as those from the November survey, were assayed for copper the results of which are plotted on map NLS-00-5 and are submitted with this report. Copper values are higher-than-background near the Dorlon workings, and coincide with high values in zinc occurring in Anomaly B. The most striking value in copper is 800 PPM at station 6 south on crossline 14W; however, this location is underlain by Bonanza sedimentary rocks containing conspicuous pyrite (and possibly minor copper mineralization as well) such that a single high value may not have appreciable significance.

The western extension of the grid covered an area which could not be adequately soil-sampled due to frequent beaver ponds, and the generally boggy nature of the ground. Values from this sector, where reported, are low for lead and zinc, and for copper.

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Geological Survey

Rock Types

Mapping on the Silva-2 Grid in the vicinity of Soil Anomaly B has shown that the Bonanza-Quatsino contact strikes WNW, and is situated 450 to 500 feet south of the baseline.

The contact area is a geologically complex zone wherein Upper Bonanza, Lower Bonanza, and possibly Quatsino Limestone have been faulted into close juxtaposition.

The Lower Bonanza rocks consist of

thin-bedded argillites, chert horizons and banded limestone, all of which strike S 80° E and dip 40°-60° SSW. Intercalated andesites and rhyolites are found in the Lower Bonanza and contain disseminations of pyrite, as do the sediments. All of the above rocks are generally limonite-stained.

<u>Upper Bonanza</u> rocks, occupying the southern portion of the grid, consist of massive flows of andesite, and not infrequently, flows of rhyolitic composition. These rocks also contain disseminations of pyrite, and are limonite-stained.

<u>Diorite</u> is intruded at the contact between Bonanza and Quatsino rocks, and is probably a cupola related to some deep-seated igneous body. Contacts between the diorite and adjacent country rock are quite abrupt.

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<u>A siliceous skarn</u> is commonly developed at the diorite contact, and occurs as a peripheral shell within the body of the intrusive. The skarn contains disseminations of pyrhotite, pyrite, sphalerite, occasionally chalcopyrite. The rock is fine-grained, light-buff in color, and extremely tenacious.

Quatsino Limestone underlies the northern part of the grid area. The limestone is usually darkgrey in color with poorly developed bedding. Chert nodules are frequently seen in the rock, and the limestone contains tension joints quite variable in attitude. The limestone is usually recrystallized-especially near the diorite body.

Andesite bodies, at times porphyritic,

intrude the limestone. The bodies are dyke-like in configuration make sharp contacts with the limestone and are probably apophyses of some intrusive at depth, or indeed, the diorite plug. The andesite dyke-forms are probably of the same generation as the volcanic rocks of the Lower Bonanza Group.

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<u>A garnet-diopside skarn</u> frequently occurs near contacts between the andesite dykes and the Quatsino Limestone. The skarn is expecially apparent in the vicinity of the NLR-I-72 drill site, and in fact, skarn was encountered in the drill hole. The configuration of the skarn zone, or zones, cannot be determined at this time; nevertheless, taking into account the irregular configuration of the andesite dykes, one might suppose that the skarn bodies are also irregular and possibly discontinuous.

<u>Mineralization</u>

Sphalerite is found in a vein-like

structure which conforms to the strike and dip of the Bonanza sediments. The vein occurs immediately south of the diorite plug. The footwall consists of Bonanza Limestone near surface, and siliceous skarn at depth. Bonanza sediments constitute the hanging wall. The vein contains pyrite and minor amounts of chalcopyrite. Galena has not been identified, nor were silver minerals observed.

The zinc vein has been traced on surface over a strike length of 90 feet, and may average two feet in width. The best assay in silver was reported for a chip sample taken over a 2 foot width, and amounted to 0.86 oz/ton silver (accompanied by 6.40% zinc). The highest zinc assay was 17.27%, with 0.75 oz/ton silver.

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The tenor of the vein material in the surface opencut is 14.5% zinc and 0.75 oz., silver.

Diamond drilling, consisting of two steep x-ray holes, was carried out to test the vein at depth. Stringers of sphalerite were encountered in both holes in the interval 60 to 70 feet, with the best assay reported being 11.2% zinc in one foot of core. Silver values were generally low. Both drill holes intersected siliceous skarn in the footwall of the vein.

Magnetite-chalcopyrite mineralization

was encountered in DDH NLR-1-72 at a depth of 51.5 feet. The magnetite is hosted by a garnet-epidote skarn, closely associated with andesite. The mineralized section aggregated 45.5 feet and gave a weighted average of 0.28% copper.

CONCLUSIONS & RECOMMENDATIONS

Zinc Vein

There is evidence to suggest that the zinc vein is offset by faulting both to the east and to the west. However, diamond drill holes recently put in to test the structure have disclosed that the vein has vertical continuity, and that conditions at depth are favourable for the deposition of mineralization comparable to that exposed on surface.

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Soil samples taken NW of the zinc vein gave high values in zinc and this sector forms part of the B soil-anomaly. The anomalous condition indicated by the geochemical survey may result from material mass-wasted down-slope from the zinc vein, or indeed, the high values could represent continuation of the vein to the west.

In the main, all of soil anomaly B serves to denote that the zinc-vein portion of the mapped area constitutes favourable ground for the occurrence of zinc mineralization.

Diamond drilling is recommended to further test the zinc vein. Two x-ray holes should be drilled into the side hill to intersect the western part of the vein at depth. Moreover, a number of test holes, using a larger drill machine, should be spotted below the scarp face and drilled into the sidehill so **as to test** the **ground** at an even greater depth.

Magnetite-Chalcopyrite Body (Anomaly C)

The diamond drill hole spotted on mag anomaly C intersected interesting magnetite-calcopyrite mineralization. The shape of the magnetic anomaly is such as to suggest an isolated body of limited dimensions.

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Nevertheless, if the mineralized body does occur along a fault-skarn zone, for which there is some evidence, then further testing of the ground is warranted. Drill holes should be put in to test the continuation of the structure and/or mineralization to the north-northeast and to the east.

Magnetic Anomaly D

The anomaly outlined by the magnetometer survey conducted over the eastern part of the grid is comparable in intensity to the mag high explored by D.D.H. NLR-1-72. Anomaly D should be drilled in order to intersect rock beneath grid location 14½E-4N. The setup should be located so as to drill a -45° hole in the vicinity of the last-named station, or possibly a hole could be directed toward the anomaly from the Nahwitti River gorge to achieve even greater depth.

I.S. Rote, Geologist

Endorsed by:

W.E. Clarke, B.Sc., P.Eng.

CERTIFICATE

I, Ira S. Rote, of the City of Vancouver in the Province of British Columbia hereby certify:

- That I am engaged in work as a Geologist and reside at #205 -1717 Comox Street, Vancouver 5, British Columbia.
- That I am a graduate of the University of Guelph with an Honours Bachelor of Science degree.
- That I have done two years work towards an M.Sc. in Geology at the University of British Columbia.
- That I have practiced as an exploration Geologist for three years.
- 5. That I have personally done work on the claims mentioned in this report.
- 6. That I am presently employed by Giant Mascot Mines Limited.

DATED this 21st Day of December, 1972.

Signe

S. Rote, Geologist

APPENDIX 1

PERSONNEL & EXPENDITURES

PERSONNEL

From November 29th to December 5th, 1972, work on the Silva-2 Grid was carried out under the writer's supervision. The personnel were as follows:

Ira S. Rote #205-1717 Comox St. Vancouver 5, B. C.

R. A. Gonzalez #1-1621 St. Georges, N. Vancouver, B.C.

J. M. Courtney #182 Main St. West, Windsor NFLD.

W. H. Fairbairn Box 1183 Port Hardy, B.C.

A.Kerr General Delivery, Port Hardy B.C.

R. Kohn Box 583, Grand Forks, B.C.

J. Mather RR #2, Vernon, B.C.

EXPENDITURES

A cost statement with regard to work done on the Silva-2 Group is given below:

Crew

1.	Rote	Period: November 29th - December 3rd incl. December 1th - December 6th incl.	
		Days Worked: 8 days @ \$60/day	\$480.00
R.	A. Gonzalez	Period: November 29th - December 5th incl. Days Worked: 7 days @ \$55/day	\$385.00
J.	M. Courtney	Period: November 30th - December 4th incl. Days Worked: 5 days @ \$36/day	\$180.00
₩.	H. Fairbairn	Period: November 30th - December 3rd incl. Days Worked: 4 days @ \$36/day	\$144.0 0
A.	Kerr	Period: November 29th - December 5th incl. Days Worked; 7 days @ \$36/day	\$252.00

continued p.2

R. Kohn	Period: November 30th - December 4th incl. Days Worked: 5 days @\$36/day	\$180.00
J. Mather	Period: November 30th - December 2nd incl. Days Worked: 3 days @ \$36/day	\$108.00
INSTRUMENT REP	<u>VTAL</u>	ФТ (5 3 •00
	McPhar M-200 16 days @\$10/day	\$160.00
VEHICLE RENTAL	& OPERATION	1.
	Chev 3/4 ton truck with canopy 7 days A \$12/day	\$84.00
CAMP OPERATION	AND ACCOMMODATION	
	7 men for 39 man days @\$15/man day	\$585.00
ENGINEERING SU	IPPLIES	\$ 50. 00

GEOCHEMICAL ASSAYING

137	samples	0	\$1.25/sample	\$171.25
150	samples	0	\$0.40/ sample	 60.00

TOTAL EXPENDITURES

\$2839.25

APPENDIX I page 2.

Declared before me at the Vancouver/ , in the

Province of British Columbia, this 22nd

February, 1973

day of

of

s. Rote, Geologist ITE

A Complissioner for taking Affidavits within British Columbia or Endorsed by: A Notary Public in and for the Province of British Columbia.

, A.D.

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W. E Clarke, B.Sc., P. Eng.

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 - Anomaly
- Topographic contours (a) 50' intervals
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To Accompany Geophysical, Geochemical & Geological Report by 1.5 ROTE, B.Sc. on the SILVA-2 Gp at Nahuitti Lake in the NANIAMO Mining Division, dated Dec. 21,1972

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