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Report on Arvela Magnetometer Survey

Snowbird Antimony Property

Stuart Lake, B.C.

N54° W124° Centre

by

D. H. James, M.Sc., P.Eng.

October 18th, 1963.

93 K / ZE, 8W

Geophysical Survey covering the Shaft Fraction owned by J. T. Mandy; the Snowbird, Graybird, Topside, Campsite, and Ebba owned by T. E. Neilson; and the Bob 3-10, 14-15, and 17 owned by Bralorne Pioneer Mines Limited (N.P.L.) for whom the survey was performed between May 7th and August 15th, 1963.

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Map at 1" = 400'

In pocket

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<p>Department of Mines and Petroleum Resources ASSESSMENT REPORT NO. <u>520</u> MAP</p>

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Introduction

This report is prepared for the purpose of recording as assessment work an Arvela Magnetometer survey performed on claims covering the Snowbird Antimony Property. The work was done by employees of Bralorne Pioneer Mines Limited, 320-355 Burrard Street, Vancouver 1, B.C. under the supervision of the writer.

Ownership

The property consists of six mineral claims: Snowbird, Graybird, Topside, Campside, Ebba and Shaft Fraction. It is owned by Mr. Edward Nielson, R.R. #1, Ladner, B.C. and Dr. Joseph Mandy, 3880 Imperial Street, Burnaby, B.C. It is at present under option to Bralorne Pioneer Mines Limited 320-355 Burrard Street, Vancouver 1, B.C. This Company has staked 16 adjoining claims: Bob 1-12 and 14-17.

Location and Access

The claims are along the southwest side of Stuart Lake north of Sowchea Bay approximately in the centre of quadrilateral $54^{\circ}N$ $124^{\circ}E$. They can be reached by $12\frac{1}{2}$ miles of road from the Vanderhoof - Fort St. James highway. The last half of this road is not useable in wet weather. The claims can also be reached by boat or airplane from Fort St. James.

History

The property has been known for many years. It is mentioned as the McMullin group in the 1929 Minister of Mines Report and is described under Stuart Lake Antimony Mines Limited in G.S.C. Memoir 252.

In 1940 Pioneer Gold Mines Limited optioned the property and carried out surface trenching, driving an adit, and sinking a 140-foot inclined shaft. Some stibnite was mined, but proved very difficult to sell.

In 1942 Consolidated Mining and Smelting Company Limited optioned the claims and drilled seven holes.

The property has been retained by the owners both because of the antimony and because of gold which occurs in the same structure.

Bralorne Pioneer Mines Limited optioned the property late in 1962 and retains the option at this date.

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Geology

The claims are to a large extent covered by clay overburden except for a ridge on which the known showings occur. The G.S.C. regional map includes all the area of the claims in the paleozoic Cache Creek series of "ribbon chert, argillaceous quartzite, argillite, slate, greenstones, limestone, minor conglomerate and greywacke". The regional strike is northwesterly. This strike is partly true strike and partly the effect of faults parallel to the Pinchi Lake fault.

On the claims outcrops are principally of argillite and slaty argillite with some quartzite, striking northwest and dipping at various angles, mostly to the northeast. Within the sediments are greenstones, probably originally andesitic flows and tuffs. Diorite cuts the sediments, but it is not determined whether it is related to the volcanics or later than them.

On the southwest side of the area of sedimentary rock outcrops is a north-west-striking zone of altered rocks consisting of carbonate, serpentine, altered greenstone, and quartz. This zone may have developed on the contact of greenstones and sediments or along a fault which brought these rocks into juxtaposition. A small outcrop of similar material on the boundary of claims Bob 16 and 17 may be on a similar contact on the northeast side of the area of sediments.

Known showings on the claims consist of quartz veins which angle across the altered zone, due to a west-northwest strike. Gold appears largely restricted to veins within the altered zone and is associated with pyrite. Antimony appears to be somewhat later. It occurs as lenses in some of the gold-bearing veins and also in apparently later veins. The best of these extended some distance into the hangingwall slaty argillite.

Alteration appears largely to have affected volcanic rocks. The presence of serpentine in the altered zone indicates the possibility that basic to ultra-basic rocks may occur in or along it. The magnetometer survey was carried out in an effort to locate and trace any such zones.

Magnetic Survey

The survey was performed in the field by Mr. T. Kalnins, a third-year geology student who was instructed on the ground by the writer. The instrument employed was the Arvela Magnetometer, a small hand-held torsion-type instrument reading directly to 100 gammas in its lower range. Readings obtained with this instrument are approximately the quality obtainable with a dip needle, but the instrument is more easily used.

Lines were cut at 400-foot intervals from a central baseline parallel to the regional strike. Readings were taken each 100 feet at previously chained and marked stations. Results are presented in thousands of gammas on the accompanying map which also shows claim boundaries, workings, roads, and principal outcrop areas.

Interpretation

Readings obtained in the survey vary from a high of 5100 gammas to a low of 2200 gammas. Excluding the two extreme readings the variation is from

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4700 to 2700 gammas, giving a range of 2000 gammas. Contours have been drawn at 4500, 4000, 3500 and 3000 gammas. Closer contouring does not appear justified by the distribution of readings within the intervals selected.

In the north half of the area surveyed magnetic trends confirm the northwesterly strikes observed in outcrops. In the south half there is an indication of the same trend, but it may arise solely from the survey line pattern which is oriented so as to accentuate any such trend.

It is possible that deeper overburden on the southern claims diffuses and obscures the magnetic pattern but the possible cross-structure indicated by the two high areas on the west part of line 36 may indicate a change in bedrock geology in this area.

The altered zone containing the antimony and gold does not have any distinctive magnetic characteristics, nor does there appear to be any great magnetic contrast between rocks on either side of it. Serpentine in this zone is apparently derived from the alteration of intermediate volcanic rocks without formation of much magnetite.

The area of higher readings at the north end of the baseline is reported associated with somewhat higher topographic elevations, volcanic rock float, and presumably shallow overburden. It has acquired additional significance since the release of air magnetometric maps indicating a considerable anomaly immediately to the north.

Conclusions and Recommendations

It is concluded that this magnetometer survey does not have direct significance related to the known showings. It does conform in a general way with known geology, and indicates on line 36 a possible cross structure which should be further investigated by additional lines both parallel and perpendicular to existing ones.

High readings at the north end of the baseline should be investigated by trenching and extension of the survey in this direction.

Assessment work statement

This survey was carried out under the supervision of the writer, a professional engineer registered in British Columbia. It was conducted by a third-year student, Mr. T. Kalnins, whom the writer instructed, observed at work, and considers competent to operate the instrument used. The writer contoured and interpreted the readings.

As set out in the accompanying affidavit expenditures as carried on the books of Bralorne Pioneer Mines Limited total \$2,864 for wages and salaries applicable to this survey, exclusive of interpretation. As board costs are lumped with travel costs in Company accounts, they are omitted herein.

Work is applicable to claims: Snowbird, Graybird, Topside, Campside, Ebba, Shaft Fraction and Bob 3-10, 14, 15, 13 - a total of 17 claims. The survey did not cover enough of claims Bob 1, 2, 11, 12, 16 to warrant assessment credit, but all results obtained on these claims and on open ground are shown on the survey plan.

Within the claims on which assessment credit is requested, a total of

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72,000 feet of line was cut, chained and surveyed. Total line surveyed amounted to 92,000 feet. The amount of survey costs applicable to the claims for which assessment credit is requested has been arrived at by using the proportion of line footage on them. It amounts to \$2240 (rounded).

Details

Line cutting on this job was fitted in at several periods in order to employ student assistants most efficiently and the job as a whole occupied parts of May, June, July and August 1963.

<u>Employee</u>	<u>Category</u>	<u>Rate</u>	<u>Period</u>	<u>Total</u>
P. Weishaupt	Prospector	\$400 /m	May 7-23 June 1-7	\$ 400
T. Adamson	Labourer	\$275	May 7-31 June 1-14	350
D. Rimmer	"	\$275	May 7-23 June 1-14	330
J. Benson	"	\$275	May 17-31 June 7-14 July 8-Aug.15	625
S. B. Fulton	Party Leader	\$500	May 17-24	125
T. Kalnins	Operator	\$350	July 8-Aug.15 Sept. 1-7	525
T. Joseph	Labourer	\$325	July 8-Aug.15	245
				<u>\$ 2,600</u>
Approx. 10% holiday time and compensation				260
				<u>Total</u> <u>\$ 2,860</u>

D. H. James, P.Eng.
Chief Geologist,
Bralorne Pioneer Mines Limited.



Bralorne Pioneer Mines Limited,
320-355 Burrard Street,
Vancouver, B.C.

October 18th, 1963.

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DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.

In the Matter of the Geophysical Description below.

To Wit:

SUB-MINING RECORDER
RECEIVED
OCT 18 1963
M.R. # _____ \$ _____
VANCOUVER, B.C.

I, D. H. James

of 320-355 Burrard Street, Vancouver 1, B.C.

in the Province of British Columbia, do solemnly declare that the labour cost of a geophysical survey on 17 mineral claims: Snowbird, Graybird, Topside, Campsite, Ebba, Shaft Fractional, Bob 3-10 inclusive, Bob 14 and 15 and Bob 17 is \$2,860. This figure is a proper proportion, based on line footage surveyed, of the total cost set forth below in detail. These costs are as shown on the books of Bralorne Pioneer Mines Limited.

<u>Employee</u>	<u>Category</u>	<u>Rate</u>	<u>Period</u>	<u>Total</u>
P. Weishaupt	Prospector	\$400 /m	May 7-23 June 1-7	\$ 400
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				<u>\$ 2,600</u>
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Total				<u>\$ 2,860</u>

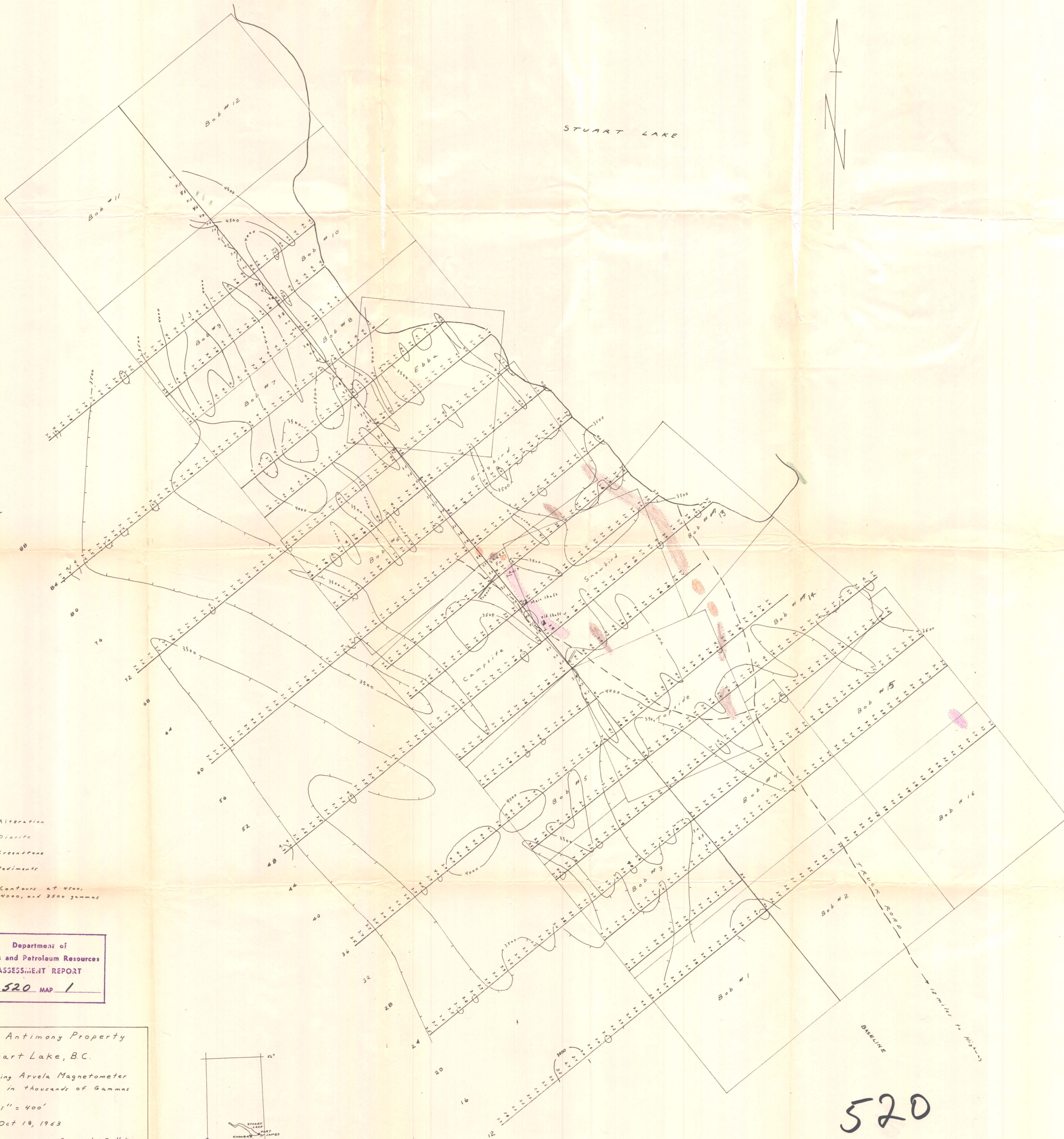
And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City
of Vancouver, in the
Province of British Columbia, this 18
day of October, 1963, A.D.

D.H. James

Shirley Penzance
A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia.
Sub-mining Recorder

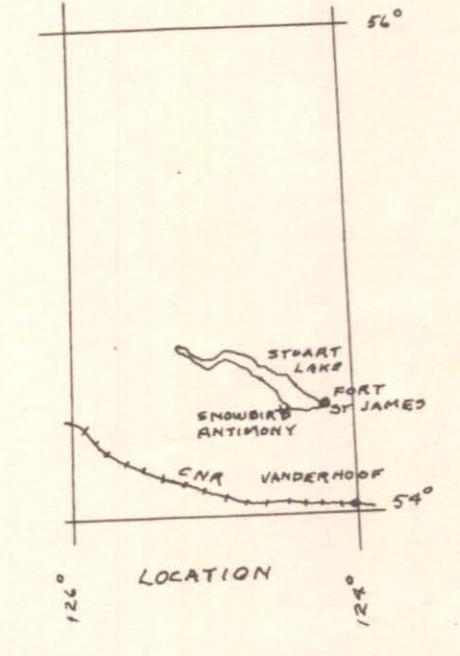
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- Alteration
- Diorite
- Greenstone
- Sediments
- Contours at 4500, 4000, and 3500 gammas

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. **520** MAP **1**

Snowbird Antimony Property
 Stuart Lake, B.C.
 Plan Showing Arvela Magnetometer
 Readings in thousands of Gammas
 Scale 1" = 400'
 Date Oct 18, 1963
 Drawn by: R. Nrkac



To accompany report, by D.H. James P. Eng.,
 on the Snowbird Antimony Property, Stuart
 Lake B.C. Oct. 18, 1963. *D.H. James*

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