800617

WINDY PROJECT

SUMMARY

In August of 1979, a drill program for skarn hosted scheelite-molybdenite mineralization was used to evaluate the Windy property lying 10 kilometres north of the town of Cassiar in north central British Columbia. The project was based on preliminary mapping and sampling carried out by consultant geologist, R. D. Westervelt, in August of 1978. A crew of ten were used during August 1 through 19 to determine the property's potential by diamond drilling 7 holes, doing geophysics, limited trenching and soil sampling.

In drilling the property it was found that considerable thicknesses of calc-silicate skarn were in evidence at depth and that a thick banded magnetite skarn was also present. Within this magnetite skarn scheelite mineralization was encountered having 0.37% WO_3 across 24.9 metres including 0.49% WO_3 across 16.7 metres. Using a projection based on geophysical magnetic data a strike length of 330 metres is indicated. An estimated 1.7 million tons of 0.4 - 0.5% WO_3 is thought to lie in a trough adjacent to the limestone-quartz monzonite contact.

Based on this projection of geophysical data and soil sampling results, it is recommended that an additional 6 holes be drilled along the limestone-quartz monzonite contact to further evaluate the property.

9W-4

INTRODUCTION

A series of 7 diamond drill holes were drilled to evaluate a lower Cambrian calc-silicate skarn horizon for scheelite-molybdenite mineralization 10 kilometres north of the tow[illegible]f C[illegible]iar in nor[illegible] A crew of ten was used to soi[illegible] sa[illegible]ple [illegible] geophysics and [illegible] property over the period August 1 to August 19, 1979. In conjunction with this

property areas of interest were examined in the immediate area.

Location and Access

The property M1 - M4 claims is situated 10 kilometres north of the town of Cassiar in northwestern British Columbia. A tractor road has been put through from the mine valley road below to the showing on top of Lamb Mountain, see figure 1. The road may be travelled by 4-wheel drive vehicle only.

Previous Work

In 1960, 1961 Fort Reliance Minerals of Vancouver, did a significant amount of work on the property evaluating the cirque north of Lamb Mountain for molybdenum. The property consisted of 17 claims Star 1 - 17.

During 1960 several trenches were excavated along the west side of the granite stock - limestone contact - but only five reached bedrock. These trenches had variable amounts of molybdenum over widths of 8.5 metres. Table below indicates some of their results.

Trench	Width Sampled	% MoS_2
1	1.2m	0.48
	2.1	.58
	3.3m	0.54
2	1.5	0.93
	1.2	1.20
	0.9	0.26
North Channel	3.6m	1.05%
	1.2	1.44
	0.9	0.32
South Channel	2.1m	0.96
3	No significant values	
4	4.0m	1.65% MoS_2

1960's work.

hand @ $50.00 per hour, as well as clear and maintain road, do trenching and prepare drill sites.

A base line was initially put in with lines being turned off with use of an alidade survey instrument. Line 0° was located on top of the main ridge [illegible]ntain and extended south to 9+00S and 4+00N, just north of the cr[illegible]e cutting was required south of 6+00S to 9+00S. Geophysics was then carried out using Geonics VLF EM-16 unit and a proton magnetometer. A base station proton magnetometer and chart recorder was used for diurnal corrections. Soil sampling was further carried out with samples panned for scheelite grain count as well as having fraction analysed for molybdenite.

Geology

The [illegible]ro[illegible]t[illegible] onsists mainly of Lower Cambrian calcareous units of the [illegible]an Formation in contact with a cretaceous quartz monzonite st[illegible]. The calcareous units (see figure 2) include sucrosic marble argillaceous limestone, calc-silicate hornfels and skarn, dolomite and andalusite schist.

The marble is generally quite coarse grained, grey to grey white in colour having sucrosic texture, massive and generally barren of any mineralization.

The calc-silicate zones were noted to be quite diverse ranging fron actinolite hornfels, fine grained pale green in colour to coarse grained garnet rich skarn; varieties included banded actinolite garnet skarn and calc-silicate skarn with up to 10% pyrrhotite present. Minor calcite was often evident through the core while silicification was noticeably absent. Diopside was not present as this stage of metamorphism was not developed.

Minor epidote alteration was noted.

The general trend of the units was NW in strike having a general dip of 75° east into the intrusive. Underlying the calc-silicate zones and marble was a pink coarse grained marble which proved a good marker horizon. Underlying the pink marble was a greyish pink ribboned dolomite in turn being underlain by argillaceous linestone and "Swiss Cheese" limestone. Underlying this package was a thick succession of phyllites - the lower Atan ion.

The quartz mc onite itself outcrops for about a kilometre with a northerly strike and has an exposed width of about half a kilometre with apparently several phases of activity. Away from the contact, approximately 200 metres east, a definitely porphyritic phase exists while zone to the west is nonporphyritic and mafic deficient. Within the porphyrite phase, quarts grains were observed penetrating large feldspars and along margins of many of these grains clay minerals have formed and since weathered. Biotite, the major mafic mineral, was found to be less than 3% in many selected samples. From a gossanous area on the north side of the stock a sample was analysed with the following percentages of major elements.

Element %	<.003	.003-.01	.01-.03	.03-0.1	0.1-0.3	0.3-1.0	1.0-3.0	3.0-10	>10.0
SiO_2									X
Al_2O_3							X		
Total Fe(Fe_2O_3)								X	
MgO			X						
CaO				X					
Na_2O					X				
K_2O				X					
TiO_2		X							

From K - Ar dating an age for the satellite stock has been 73.9 ± 2.5 million years, personal communication - An B. C. Department of Mines geologist.

The andalusite schist or siltstone present invariably was observed having a spotted texture and often revealed the presence of fluorescent pale yellow andalusite.

A magnetite zone was observed in drill hole 9W 4 but this may represent a pod of original syngenetic banded iron formation as very good banding was found to be in evidence. Nevertheless good magnetite skarn was noted with Fe_2O_3 forming blotches seen in outcrop near the base line at 4 + 50S.

Regional Geology

Regionally there are two calcareous units found within the area and both are in contact with quartz monzonite intrusives. [redacted] Group (Lower Cambrian) hosts the favourable actinolite-garnet skarn formations in contact with the satellite stock. To the west of this group lies th[redacted]roup. This group is in contact with the [redacted] Batholith itself. Here coarse grained marble predominates while there are minor pods of sulfide skarn - pyrrhotite garnet skarn having only minor chalcopyrite and trace $CaWO_4$. Separating the two units are the lower [redacted] phyllitic quartzites and andalusite hornfels.

To the north of the satellite stock is th[redacted] Cambrian) limestones and calcareous shales. There is considerable question whether this unit is in fact [redacted] the B.C. Department of Mines, had been working in the area to disprove that theory.

To the south of the M1 - M4 claims lies property belonging to W. Kuhn. His Windy 2 property lies within the Upper Atan group and here coarse grained scheelite was observed in sulfide rich skarn.

Further south is the Cassiar open pit mine itself where an ultramafic stock is being mined for asbestos.

Structural Geology

Faulting induced through granitic emplacement is indicated within the property and best explains the displacement of some of the units. Faulting is responsible for cutting off the skarn zone to the north.

It is thought, from drill information, that a trough or an embayment may exist (see figure 5) along the intrusive contact providing a channel-way for scheelite mineralization.

Mineralization

There appears to be a zonation of mineralization on th[redacted] claims. On the ridge, L 00 there is little scheelite mineralization present mainly powellite and yellow fluorescent molybdonite-scheelite, while mineralization present within the magnetite rich skarn at 4 + 50S is scheelite mineralization predominently.

While mineralization was erratic and low grade in drill holes - 9W 1 through 9W 3 - there was some erratic coarse grained mineralization detected (up to 2cm in length). In drill hole 9W 4 mineralization was generally very fine to fine grained with only minor medium grained mineralization. Magnetite ranged from massive in texture to well banded (indicative of sedimentary iron formation) and blotchy - that of typical magnetite skarn formations. The magnetite zone observed in drill hole 9W 4 was well banded but quite contorted with banding ranging from 50^{o} - 15^{o} to core axes.

The property falls into the W, Mo category of skarn hosted mineral deposits as outlined in L. Dick's G.S.C. paper "Tungsten and Base Metal Skarns in the Northern Cordillera" 1. The property therefore seems analogous to the Stormy Mountain deposit. Both areas show a zonal arrangement whereby molybdenite and yellow fluorescent scheelite are mutually incompatible. At Windy coarse grained rosettes of molybdenite were found in the Fort Reliance drilling in skarn and altered granite, but holes lamped contained little visible scheelite. In holes 9W 1 through 9W 7, drilled in 1979, there was no compatability between $caWO_4$ and MoS_2 as the minerals never occurred together. One reason for this lack of compatability is the lack of silicification at the Windy property during skarn formation.

As mentioned above, sampling results undertaken in August of 1978 could not be duplicated in drilling results indicating that podlike mineralization may exist onl

Geophysics

Work carried out over the property included use of VLF EM-16 and proton magnetometer. A base station magnetometer was used to compensate for diurnal drift. Magnetic data may be seen on figures 9 and 10 while VLF EM-16 is shown on figure 11. Figure 10 shows contoured magnetometer data while figure 9 shows cross section magnetic data.

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The contoured magnetometer results indicate a zone of 340 metres in length trending northward between section 5 + 75S and 2 + 75S. Within this zone, drill hole 9W 4 intersected the banded magnetite skarn of 24.9 metres thickness (18 metres true thickness). Another magnetic anomaly was out-

lined between 1 + 25S and 2 + 00S east of the base line so potential may exist along the entire limestone - quartz monzonite contact for scheelite mineralization.

Soil Sampling

Soil sampling was carried out by UCEX crew on a spacing of 25 metre intervals. In figure 12 coding of sampling is shown. Where the magnetite skarn is present in outcrop the sampling indicated same with scheelite grain counts up to 20,000 grains from panned concentrates.

A fraction of the soil samples was also analysed for molybdenum and results are shown in figure 13. Results from the molybdenum geochem data points out that most of the molybdenum is found closer to the contact or within the quartz monzonite stock itself.

Appendix II further shows the results of panning.

Diamond Drilling The core is stored on site

A total of seven holes were drilled on th[redacted] See figure 2 indicating where holes were drilled. Drill holes 9W 1 through 9W 3 (figures 3 & 4) encountered large thicknesses of calc-silicate skarn containing significantly thick pyrrhotite but had little accompanying mineralization. 9W 2 had an interesting intersection of 0.5% WO_3 across 4 metres, otherwise was discouraging.

Drill holes 9W 4, 5 and 6 were drilled based on geophysics. Drill hole 9W 4 intersected, as mentioned earlier, a large thickness of banded magnetite skarn which evidently developed in a trough near the contact. As the magnetite skarn was observed on surface and intersected zone further west from contact, folding is presumed as cause.

Drill hole 9W 5 intersected only minor calc-silicate pyrrhotite skarn

with only trace scheelite.

Drill hole 9W 6 again was drilled on another magnetic anomaly but only traces of pyrrhotite skarn and minor calc-silicate hornfels were encountered. It is presumed the calc-silicate hornfels is derived from the "Swiss Cheese" limestone unit. Here only traces of scheelite were detected. While argillaceous limestone overlying the Swiss chees unit was essentially unaltered, at depth when it is in contact with the quartz monzonite it could be a very favourable unit.

Diamond drill hole 9W 7 was drilled to test the magnetic projection north. Although it intersected a significant thickness of pyrrhotite rich calc-silicate skarn, it was collared too far west and therefore failed to intersect the magnetite rich zone projected along the contact. It should be noted as well that considerable molybdenite was observed in actinalite rich core from 10.1 - 18.8 metres depth in same hole.

The logs for each of these drill holes f ows in Appendix I.

Drill Costs

Mobilization from Vines Lake

Labour 149 man hrs. @ 15.05	2,242.45
Truck (travel and unloading at Cassiar)	
July 29, 1979 18 hrs. @ 40.00	720.00
30 miles @ 2.75	82.50
	$3,044.95

In 1961 Fort Reliance drilled 16 holes during the field season to assess their previous year's work. Drill holes are plotted in figure 2. Three interesting molybdenite intersections were outlined in the drilling, but produced little tonnage potential. There was no mention of any scheelite present in the drill logs.

The property was allowed to lapse in 1976. At this point Bill Kuhn picked up the prospect and staked it as Windy 1 for Union Carbide Canada Limited as part of a grubstake agreement with Union Carbide. The Windy 1 property was then enlarged to include the M1 - M4 claims. (total 64 units)

Claims Data

Claims	Units	Record No.	Recorded	Expiry Date	Owner
M-1	20	538 (4)	April 21, 1978	April 20, 1980	Union Carbide Canada Ltd.
M-2	12	539 (4)	" "	" "	" "
M-3	20	540 (4)	" "	" "	" "
M-4	12	541 (4)	" "	" "	" "

Word Done

Work done on the M1 - M4 claims was initiated in August of 1978. During the period August 15 - August 26, 1978, consulting geologist R. D. Westervelt and assistant R. Cook, mapped property and sampled the different skarn units. Sampling of the main trench gave a value of 0.74% WO_3 across 10 metres while representative samples of best grade material assayed 2.20% just north of the trench. With these favourable results Union Carbide budgeted for a diamond drill program for the following year.

During August of 1979 seven diamond drill holes were put down totalling 1041.8 metres (3451 feet) of BQ core. To move drill a D-6 bulldozer was on