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GEOLOGICAL SURVEY ON A GROUP OF CLAIMS

SILVER SUMMIT MINING CO. LTD. (M.P.L.)

Claims Surveyed:

PAK	Φ	1	-	16	ino.	9779 - 9794
TMA	0	1	-	8	inc.	9429 - 9436
MARI	ø	1	*	12	ing.	9437 - 9448
SPARKLE	ě	1	-	12	inc.	8435 - 8346
T	0	1	-	4	inc.	8024, 8023, 8025, 8026

which are located in the Tenderfoot and Mobbs Creeks Area, Slocan Mining Division, Province of British Columbia.

The survey was conducted during the period July 4 to August 18, 1966.

The report is written by I. E. Thurber, B.Sc.

SULMAC EXPLORATION SERVICES LIMITED

SEPTEMBER 1966

8=HW





REPORT

ON GEOLOGICAL SURVEY

PROPERTY OF

SILVER SUBSIT MINING CO. LTD. (N.P.L.)

TROUT LAKE AREA
SLOCAN MINING DIVISION
PROVINCE OF BRITISH COLUMBIA

SULMAC EXPLORATION SERVICES LIMITED

September 12, 1966

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REPORT

ON GROLOGICAL SURVEY

PROPERTY OF

SILVER SUBMIT HINING CO. LTD. (N.P.L.)

TROUT LAKE AREA SLOCAN MINING DIVISION PROVINCE OF BRITISH COLUMNIA

INTRODUCTION

A geological survey was conducted over the properties of Silver Summit Mining Co. Ltd. (N.P.L.) occurring at the headwaters of Tenderfoot and Mobbs Creeks in the Trout Lake area, Slocan Mining Division, Province of British Columbia. The survey was carried out during the period July 4 to August 18, 1966 under the direction of I. E. Thurber, B.Sc. Geographical control over the accessible areas was provided by a surveyed grid consisting of baselines and crosslines. Two main baselines running up the Mobbs and Tenderfoot valleys formed the backbone of the control grids. These grids with crosslines at four hundred foot intervals were laid out for a concurrent Electromagnetic Survey. Due to the extreme topography, three successive campsites were used to facilitate access to the various parts of the property.

Property and Location

The mining property primarily concerned with consists of the following contiguous unpatented mining claims:

PAK # 1 - 16 inc. 9779 - 9794

ANT # 1 - 8 inc. 9429 - 9436

MARI # 1 - 12 inc. 9437 - 9448

SPARKLE # 1 - 12 inc. 8435 - 8346

T # 1 - 4 inc. 8024, 8023, 8025, 8026

The property lies some nine miles south westerly of the abandoned village of Gerard, B. C. at the south end of Trout Lake. The area encompassed by the property consists of the headwaters of the south fork of Nobbs Creek and the headwaters of Tenderfoot Creek separated by a high ridge hereinafter called the Summit.

At present the only feasible access is by helicopter. Okanagan Helicopters Ltd. maintain a base at Revelstoke, approximately one hour's flying time from the property. A foot trail exists along Mobbs Creek, however, it is badly overgrown and would require a major expenditure to facilitate any sort of vehicular traffic.

The topography can only be described as extreme with elevations in the range of 5400 to 8000' above sea level. A small portion of the property i.e. PAK # 15 extends down to 4600'. As a result only accessible areas i.e. valley floors and walls were geologically examined with occasional excursions up and over the summit areas.

Vegetative cover over the upper areas is slight to non-existent and increasing to good spruce timber and alder scrub at the lowest elevations.

GENERAL GEOLOGY

Upper Cretaceous Kuskanan Batholith

Intrusive Contact

Lower Cretaceous Helson Plutonics

Unconformity

Late Precembrian Windermore Lardeau Series Badshot Formation

Hamil Series

Tenderfoot Area: Following the centre of Tenderfoot
Valley in a north-south direction, and disappearing
under the Tenderfoot Glacier to the south, is a band of
green peridotite approximately 500° in width. Occasionally
in the immediate vicinity of quarts veining, pyrite and
chalcopyrite were observed. The peridotite is somewhat
schistose, especially along its margins. The dip of
schistosity is 60° to 70° west. On Tenderfoot Creek an
exposure of peridotite schist occurs, and is garnetiferous,
with minor pyrite. The Creek flows down a possible fault
trending southward through the centre of the peridotite
body, the peridotite disappearing from view under the
Tenderfoot Glacier.

To the east of the peridotite body lies a large sericite schist formation belonging to the Hamil Series.

It trends north-south and dips 60° to 70° to the west. This formation has the same attitude as the peridotite band which intruded in an interformational manner. This formation of schist is largely composed of sericite and is light grey in colour, with a pearly lustre and a silky texture. The schist has weathered to a rusty brown colour due to the widespread occurrence of disseminated pyrite. Nodules resembling concretions stand out of the weathered surfaces in many localities. These were found to contain concentrations of pyrite. No other significant mineralization was noted in the schists in general.

On line 8 south, at 700' east a narrow hand of surprisingly fresh grey and white limestone was found. Sericite schist occurred on each contact. The pyrite mineralized nodules described above were abundant in this formation. The schist is believed to be derived from a clay-like sediment. The limestone is a remnant of calcareous sediment enclosed in the schist.

On line 00 at 600' east an outcrop of banded schist occurs which may correspond to the formation just described. Lying between lines 12 south and 16 south, some 600' east of the baseline is a granite intrusion 15' in width. A small fault occurs to the north of this body and carries massive blebs and large orystals of pyrite and pyrrhotite.

To the east of the Hamil schist formation lies

a large body of grey, fine grained granite. This is
the typical Euskanax granite, with inclusions of black
mica, and small particles of magnetite sprinkled throughout. These particles and inclusions are oriented and
give evidence of flow directions in the granite. In
proximity of other formations, the trend of the particles
parallel the direction of the contacting formation. The
schist-granite contact exhibits "lit par lit" structure.
The granite has intruded the schist in bands, lifting
whole sections of the schist away from the main body,
and including them as "islands" in the granite itself.
The schist-granite contact dips to the west, and has
then been influenced greatly by the attitude of the
westerly dipping formations of the area.

Ing with it, lies a coarsely banded light and dark limestone. This formation is some 400° to 500° thick and has
many small zones of sulphide mineralization coursing through
it. The mineralization mainly consisted of pyrite, but
small quantities of visible argentite and chalcopyrite were
noted. The strike of this formation is north-south and the
dip is 55° to 65° west. The mineralization seen was in
association with moderate silicification due to folding
within the formation and no major quartz veining was noted.

Cutting the coarsely banded limestone is a granite tongue which pinches out in a southerly direction. This formation underlies much of Tenderfoot Lake and appears to he a part of a larger granite body which lies to the north. Again, this is a part of the Euskanax Batho-lith structure. Immediately west of Tenderfoot Lake, are outgrops of altered, rusty sedimentary schists intensely folded, and intruded by granite-epidote formations. To the southwest of Tenderfoot Lake, two separate granite-epidote intrusions were examined. In each case a core of almost pure epidote was found in the structures.

A single traverse was run from the south end of Tenderfoot Lake westward to the summit ridge to where so "lime dyke" outcrops. This is a band of white and grey limestone which stretches for a long distance across the map area and has been called a marker horizon. This 100' to 150' limestone band trends north and south along the summit ridge.

Formations of banded metasediments, interformational grey granite, grey slates and biotite schists
occur between the Tenderfoot Lake banded limestones and
the "marker horison" on the west slope of the summit
ridge. No significant mineralisation was noted, however,
large areas of snow prevented complete examination of
these formations.

The formations trend in a north-south direction and dip 60° to 70° to the west, thus conforming with the attitudes of the formations previously described.

Mobbs Valley Area: The central part of the Mobbs Valley from Eay Lake to the summit ridge is underlain by a green peridotite intrusive structure.

In the vicinity of Kay Lake, the peridotite strikes northwest - southeast and has very flat dips of 20° to 40° southwest. The same formation, in the vicinity of summit ridge, which the peridotite crosses, strikes nearly north-south and dips 60° to 65° west. No significant mineralisation was observed in this formation in the Nobbs Valley.

Contacting the peridotite on the south and southwest is a large granite body which forms the south wall of Mobbs Valley. Extensive scree slopes and moraine obscurs the contact for the most part. However, the fact that the granite overlies the peridotite was observed in a gully some 2000' southeast of Kay Lake, 200' south of the baseline. The contact between peridotite schist and granite was observed to dip 45° to the southwest. Again, a long cliff face southwest of the Upper Mobbs Valley camp showed the same relation with large slabs of the peridotite schist engulfed by granite in the upper contact.

The peridotite body of Nobbs Valley exhibited a central, more massive phase which was of a coarser grain. Nerrow bands of tale schists were common on the granite contact, and pyrite cubes were disseminated throughout. The schists resulted from alteration of the peridotite body. Lenticular bodies of granite were observed in the

peridotite formation in Mobbs Valley.

north, are sediments of Windermers age. These rocks wary greatly in composition. Near the contact with the peridotite body, silicified limestones predominate. It is in this formation that the Ruby Silver workings are found. To the north lie small pure limestone beds, dark argillaceous hands and thinly bedded siltstones. These finer clastics grade into quartaites in the vicinity of the Grand Solo workings. Nore massive quartaite was observed in the footwall of the Grand Solo adit, Conditions of overburden and topography prevented further examination, however, some observation was made from the air.

The rocks underlying Mobbs Creek Falls,
Matterhorn Peak and the Upper Mobbs Valley east of the
peridotite formation are believed to represent the Lardeau
Series of Windermere age.

Hobbs Valley in the Lardeau Series. The granite outs the razorback northwest of Gaston Peak, and follows through to the summit, which it outs, as do many other smaller granite bodies of dyke-like character. In this major granite body, at the summit, is found a 30° quarts vein which cross-outs the formations found here. At this elevation, the vein contains broken fragments of wall rock, a peculiar red stain, and no visible sulphides. The vein strikes nearly

east-west, dips 70° to the north in Hobbs Valley, and changes dip to 73° south on the Tenderfoot side of the valley. 100° east of the marker horizon is a 2° to 3° quarts wein which exhibits brecolation of wall rock within the quarts.

The widespread silicification occurring in the area, thought to be semi-contemporaneous, or immediately post-granite intrusive stage, carried with it varying amounts of sulphide mineralisation. Silicification manifests itself primarily in two ways: where the invaded rocks are amenable, an incipient impregnation has taken place, yielding a highly siliceous rock, regardless of its former composition. Secondly, highly siliceous solutions traversing fractures, faults, bedding planes, etc. have formed massive quarts veins. Further this silicification with its sulphide mineralisation owes its origin to the later stages of the cooling history of the granite.

Granite bodies from several inches to several hundreds of feet were occasionally found in the Windermere and Helson Plutonic rocks. A pronounced narrowing with increase in elevation was observed. Granite occurs in massive dimensions, as well as sheet-like, lenticular masses of finite dimensions. These lenticular masses are concordant, or very nearly so.

The rocks of Windermere age are mainly metasediments, composed of limestone, argillites, slates, biotite schists, sericite schists, siltstones and quartities. They have been highly folded, faulted and heavily injected by acidic rocks, both granitic (Aplitic) and siliceous in nature.

Peridotite of the Helson Plutonic formation has intruded the rocks of Windersers age.

The Nelson Plutonics have in turn been intruded by the younger Kuskanax Granite Batholith.

The formations trend north-south in the Tenderfoot Valley and near the gumnit. In the vicinity of Eay
Lake, the same formations strike northwest - southeast.
Thus, a gentle folding towards the south takes place in
the Hobbs Valley. With this folding, a steepening of dip
occurs as one traverses to the east. Dips of rock
formations are flat and southwesterly near Eay Lake. They
are steeper and dip to the west near the summit. Dips
near Eay Lake are 20° to 40°, at the summit they are
50° to 70°.

Quartz veins occur in the granite in two localities: 1. The Ruby Silver vein has a granite footwall (in part). 2. A 30° quartz vein occurs in granite at the summit. Ho significant mineralization was found in the granite itself.

ECONOMIC GEOLOGY

Quarts veining carrying significant sulphide mineralisation was found in two locations on the property, separated by approximately 5500°. These are the Grand Solo and Ruby Silver workings respectively. Observations of some structures visible from the air and studies of air photographs would seem to indicate that the workings are related by being on a common vein system. The vein is controlled largely by the attitude of the Windersere metasediments and generally follows concordantly within them.

horisontal adit in Windermere metasediments in the mountainside above Nobbs Creek Falls. It is 145' in length and has an elevation of 5850' above sea level. The adit follows a 2' to 4' quarts vein mineralized with galena, sphalarite and argentite. The face or heading was examined and sampled. Seems of high grade ore were noted in the lower part of the yein at the face. No apparent diminishing of ore quality occurred along the length of vein examined. The vein dips 31° to the southwest at the portal. The hanging wall is composed of thinly bedded metasediments, while the foot wall is of quartzite.

Three additional showings occur on the same vein below the Grand Solo. Two of these are short adits and one is an open cut, exposing 15' of silicified meta-sediments. A 30' quartz vein occurs here, along with several smaller veins. Immediately below the Grand Solo is a 12' adit in which an 8' quartz vein is exposed.

Lead and silver mineralization is visible. The lower 8' adit exposes a quartz vein 24" wide, with 3.5' of yellow

silicified well rock in the hanging wall. The vein and wall rock showed visible lead and silver mineralisation. These three showings did not exhibit mineralisation as strongly as the Grand Solo main adit.

In the Upper Mobbs Valley on Line 48+00 east, two old tranches were found. Very near the first trench is an old mine dump. Nuch brecciated quarts and ganque material was found containing silver, lead, minc and copper mineralization of ore grade. The quartz veining has been broken and infiltrated with a calcite-barite gangue material which carries the mineralization. At the top of the second trench the vein was examined and was found to be highly oxidised. Sampling was difficult, hovever, lead and silver mineralization was observed. This mineralisation occurred most strongly near the contacts of the 4' vein with the wall rock. The hanging wall is silicified limestone and carried visible sulphides finely disseminated. The foot wall was composed of granite. The vein appeared to be in two sections, with yellow silicified material forming a nucleus. Mineralization was noted in this material, however, not as strong as the contact regions of the vein. This vein was followed for several hundred feet to the east and was found to become narrower. The vein carried many black graphitic bands and mineralization was observed to decrease in the above direction.

The large amount of material on the dump immediately west of the first of two trenches indicates underground workings which have either been filled in, or covered by caving and scree material.

In the resorback ridge. Examination in this slit showed mineralization and the presence of silicification with much yellow stain towards the top. Heavy pyrite mineralization occurs in a dark sedimentary band adjacent to the veining. This feature marks the entrance of the mineralized vein into the Nobbs Valley at the highest point on the vein. The sone described above was observed to exist along the ridge closer to the Grand Solo workings at a high elevation. It has been noted that veining follows the strike and dip of formations quite closely in several key localities. It is reasonable to assume that the Grand Solo and Buby Silver workings occur on the same vein system, although they differ somewhat in character along strike.

SAMPLING

Channel sampling was conducted wherever possible over mineralized sones. Due to extensive weathering, samples taken from surface showing will tend to have lower values than would be expected at depth.

			V M A COURT			
Number	Location	Type of Sample	Gold	Silver	Lead	Zinc
8002	L. 52E 12+30M	Selected Sample	Trace	6,4	0.12	0,25
8003	L. 51E 12 +50H	I' across quartz vein	•	0.8	0.07	0.38
8004	Sumit tranch	30' voin-selected sample		0.3	0.05	0.34
8005	Below Grand Solo adit	8" vein channel	•	0.1	0.06	0.34
8006		24" wein channel	10	Tr.	0.10	0.30
8007	14 HO 6 H	42" wein channel	*	0.3	0.07	0.38
8008	Summit vein	Selected sample		0.8	0.07	0.38
8009	L. 48E 14N	Mall rock		0.3	0.05	0.30
8010	Grand Solo	Hanging wall rock		0.6	0.15	0.40
8011	• •	1' quarts voin		1.5	0.10	0.34
8012	Grand Solo dump	Assorted selected samples	Ĩ.	25.0	4.25	2,50
8013	Summit-isolated 1" vein	Selected sample		1.3	0.15	0.38
8014	Quarts voin in peridotite	: •		0.4	0.05	0.34
8015	Ruby Silver		•	57.3	3.01	7.65
8016	Summit-Tenderfoot side	Black argillite Selected sample	*	1.4	0,14	0.72
8017	Grand Solo-main adit	18" vein at face - channel	•	96.0	6.42	0.85
8018	 -hanging wall rook 	Selected sample		5.0	0.64	0.59
8019	Ruby Silver tranch	4' channel sample		8.2	0.10	0.38
9020	Ruby Silver wall rock	1 channel	*	0.1	0.15	0.34
8021	(4a) 1991 (a) (4a)	2' channel	•	1.2	0.07	0.40
No Tag		Selected sample		0.1	0.12	0.28

SUMMARY AND CONCLUSIONS

in the form of massive quarts veins varying from a few inches to three feet in thickness. Further, there is a good deal of incipient silicification "soaking" the country rook especially near the more massive quarts veins. Primarily these quarts veins are concordant or very nearly so with the metasediments and have made entry along bedding planes. On occasion discordant entry was made along faults and fractures, however, it would appear that there is an immediate connection with concordant quarts veins.

It is this silicification, probably penecontemporaneous with the late granitic intrusive stage, that has carried with it sulphide mineralization in the form of galens, argentite and pyrite. Tetrahedrite and chalcopyrite have been observed but are of only secondary interest. The favourable mineralization observed tends to show a preference for metasediments of Windermere age as portrayed by the mineralized quarts vein running from the Grand Bolo adit along the north side of the summit ridge and crossing the ridge to run across the Mobbs cirque and then over the summit again. The Ruby Silver showing and newly found adit occur along this structure. It would appear that this structure could be projected across the Kay Lake Falls depression and relate in some way to the Lenison View showings, however, the exact relationship is not known at this time.

Surface sampling probably is not representative

of values to be encountered below weathering and leaching so that the only recourse with regard to an estimate of a projected ore reserve picture would be an intensive diemond drill sampling program. Two assumptions, not wholly justified at this time, may be made with a view to estimating the extent of the favourably mineralized material present; (a) that the structure is continuous over the purported length between the summit and the Grand Solo adit (b) that the values encountered along this structure do not deteriorate below those known todate. On the above basis one can estimate the immediate ore reserve of 1 - 2 million tons. The above is a conservative figure due to the fact that the granite contact relationship along Nobbs Valley with the metasediments is obscured and until this information is obtained by means of drilling, it must be assumed that mineralization at depth is out off.

The sporadic mineralization and weak electromagnetic conductors encountered in the Tenderfoot Valley are thought to be best placed in abeyance for the present. The main objective should be to vigorously explore the main structure referred to above by means of diamond drilling.

RECOMMENDATIONS

 The location and characteristics of the mineralized wein running along the north side of the summit ridge should be accurately surveyed and tied in to prominent topographical features. Due to the extreme topography, this

1

will necessarily be done with helicopter support.

- 2. A dismond drilling program should be initiated to sample the above structure along strike and dip. Some 6000' of drilling will be necessary for the initial stage and dependent upon current results a more substantial program to conclusively block out one reserves to be carried out at a later stage.
- In view of the extreme topography and increased interest in the area a legal survey of the claims to delineate the boundaries of the property should be carried out.

A program such as outlined above would necessitate an expenditure of some \$112,500.00.

Respectfully submitted,
SULMAC EXPLORATION SERVICES LIMITED

I.E. Thurber, B.Sc.

JEThule

ESTINATE OF EXPENDITURE

biamond drilling - 6000' at \$10.00 per foot		60,000.00
Camp and Pacilities (installation and operation)		10,000.00
Engineering supervision and Consulting		7,500.00
Claim Survey 0 \$100.00 per claim		5,000.00
Transportation Helicopter		20,000.00
Contingency		10,000.00
	_	

\$ 112,500.00

CHRYLFICATION

- I. I. MDINOM THURBUR, of the City of Toronto in the Province of Ontario, hereby certify:
 - That I am a Geologist and reside in Toronto, Ontario.
 - 2) That I am a graduate of Acadia University of Wolfville, Nove Scotia, with a B.Bc., and that I have been practising my profession as a geologist for eight years.
 - 3) That this report was prepared from personal knowledge of the property obtained by carrying out geological mapping, the iladings of which are discussed herein.
 - 4) That the writer does not have nor does he expect to receive, either directly or indirectly any interest in the above property or in the securities of Silver Summit Mining Company Limited.

Dated this day of 1966

I.E. Thurber, B.Sc.

DE. Thurber

PERSONNEL EMPLOYED ON GEOLOGICAL REPORT AND DATES:

G. Laurin	Geophysical Assistant	July 3 - August 19, 1966
L. Parrault	Geophysical Operator	July 3 - August 19, 1966
T. Gowing	Geological Assistant	July 20 - July 30, 1966
I.E. Thurber	Geologist	July 3 - August 27, 1966
C.T. Pasieka	Consultant	July 3 - 5, 9 - 11, 18 - 20, 31, August 2, 1966
D. Grant	Drafteman	September 1 and 2, 1966
N. Failes	Typist	September 7, 1966

STATEMENT OF COST

to "SILVER SUBMIT MINING COMPANY LIMITED, (M.P.L.)

RE: Lardeau Property Slocan Mining Division British Columbia

2-man Geophysical Crew and Equipment:	<u></u>		
and oquagment	period July 3-15 @ \$100/day period July 16-31 "" period August 1-15 "" period August 16-19 ""	9 8 8	1,300.00 1,600.00 1,500.00 400.00
Geological Supervision			
(Services: (Services) (Supervision) (Services) (Supervision) (Services) (Supervision) (Services) (Supervision) (Supervision) (Supervision) (Supervision)	period July 3-15 @ \$50/day 7 days @ \$100/day period July 16-31 @ \$50/day 7 days @ \$100/day period August 1-15 @ \$50/day 3 days @ \$100/day period August 16-27 @ \$50/day 4 days @ \$100/day 3 days @ \$100/day 4 days @ \$100/day	*******	650.00 700.00 800.00 700.00 750.00 300.00 400.00 400.00
Travelling and		\$	511,35
Preparation of Topographical Map			2,438.53
Assay Costs:			263.25
Board, Communication, Drafting and Miscelland Expenses:	nous.	•	826,98
			14,440.11
		-	

The above was invoiced to and paid by *SILVER SUMMIT MINES LTD., (N.P.L.)*

