

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT

2513

NO. 2513 MAP

GEOLOGICAL SURVEY

CARIBOO M.D.

53° - 120° S.W.

for

93 A/2W

EXETER MINES LTD (N.P.L.)

Alfred R. Allen, P.Eng.

18-6-70 : 29-6-70

THE BIG TIMOTHY MOUNTAIN CLAIMS

SILVER BOSS; SB & GUS GROUPS

ALLEN GEOLOGICAL ENGINEERING LTD.,

507 - 789 West Pender Street  
Vancouver, B.C.

C O N T E N T S

	<u>Page</u>
INTRODUCTION.....	1.
LOCATION AND ACCESSIBILITY.....	2.
TOPOGRAPHY.....	2.
CLIMATE, TIMBER AND POWER.....	3.
HISTORY.....	3.
PROPERTY.....	4.
GENERAL GEOLOGY.....	5.
GEOLOGICAL SURVEY.....	5.
Introduction.....	5.
Intrusive Rocks.....	6.
Volcanic Rocks.....	8.
Structure.....	8.
Mineral Showings.....	9.
SUMMARY AND CONCLUSIONS.....	11.

REFERENCES

MAP: Geological Map      Scale 1" = 800'

\* \* \* \* \*

GEOLOGICAL SURVEY  
THE EXETER MINES PROPERTY  
ON  
BIG TIMOTHY MOUNTAIN  
CARIBOO M.D.  
B.C.

INTRODUCTION

A geological survey was conducted over the holdings of Exeter Mines on the summit of Big Timothy Mountain, June 19th to 27th, 1970. The area surveyed is a short distance north of the molybdenum mine of Noranda-Brynnor Mines.

The survey was under the supervision of Alfred R. Allen, P.Eng., and the field party was made up of E.M. Wilson, P.Eng., H. Meixner, geologist, Clifford Gunn, prospector, and J.G. Wilson, geological assistant.

The work was conducted from tent camps located at convenient sites on Big Timothy mountain. Pace and Brunton compass traverses were closely spaced over the area. All available geological data was noted and later transferred onto field maps. This report is based upon the data acquired and upon government and private reports and maps available on the area.

### LOCATION AND ACCESSIBILITY

The property is located in south central British Columbia on the summit of Big Timothy Mountain. The molybdenum mine of Noranda-Brynnor Mines is located two miles southeast. One Hundred Mile House is located 35 miles to the southwest. Geographic location is  $52^{\circ}-06'$  north latitude and  $120^{\circ}-56'$  west longitude.

Access is from One Hundred Mile House and Highway 97, easterly to Forest Grove on a paved road, and thence by gravel surfaced road 75 miles to Hendrix Lake and the Noranda-Brynnor mine. A two-mile trail leads from the mine to the claims area.

### TOPOGRAPHY

The property is located on the summit of Big Timothy mountain, elevation 6,000 to 7,000 feet above sea level. The slopes are gentle and much of the surface is upland meadows.

The area is known as the Quesnel Highlands and it is mountainous but not rugged. The main drainage pattern is composed of the Tisdall-Moffat Lakes system to the west, Boss Creek to the south and Molybdenite Creek to the north.

Local features are two sizeable cinder cones and a crater.

CLIMATE, TIMBER AND POWER

Year-round mining and logging operations are carried on in this region of British Columbia. The winter season is long and the snowfall is moderate to heavy. The summer is pleasant with moderate rainfall.

Timber line is at 6,000 feet and there are only scattered stands of scrub growth on the property. The lower areas to the west, however, are well timbered and lumber is available from local sawmills.

Hydroelectric power may be acquired if a large operation is developed. In the prospecting and development stages it will be necessary to use portable diesel-electric generators.

HISTORY

Prior to 1917, W.J. Ryan and J. Foster had prospected the area and staked claims on Big Timothy Mountain. They and others had discovered sulphide mineralization and had exposed quartz veins containing copper, molybdenum, silver and gold. The higher grade zones were explored by trenches, pits, short shafts and small adit tunnels.

On the southeast slopes of Big Timothy Mountain the molybdenum deposits are being mined by Noranda-Brynnor Mines (Boss Mountain Division).

In 1969, prospecting and geochemical surveying was completed over the summit of Big Timothy Mountain and part of Exeter Mines property by T. Tough and Associates of Vancouver, B.C.

The 1970 field programme has to date included road construction and geological mapping.

#### PROPERTY

The property of Exeter Mines on Big Timothy mountain is made up of the following mineral claims:

<u>Claims</u>	<u>Record No.'s</u>	<u>Expiratory Dates</u>
GUS 1-14	52738-52751	June 30, 1971
SILVER BOSS 1-24	47858-47881	October 4, 1970
SB 25-36	52792-52803	June 26, 1971
SB 37-48	52804-52815	June 27, 1971

The claims are staked in accordance with the B.C. Mineral Act.

### GENERAL GEOLOGY

Northeast of Quesnel Lake Proterozoic and Palaeozoic rocks range from the Kaza quartzites, schists and phyllites through Lower Cambrian and later Cunningham Limestone, Yankee Bell shales and quartzites, Yanks Peak quartzites, to Snowshoe schists, phyllites, quartzites, gneiss and marble.

Structural trends in these groups are strong north-westerly with strong but fewer northeasterly faults.

By contrast, southwest of Quesnel Lake, these Mesozoic volcanic and sedimentary formations have been extensively intruded by granitic rocks.

Cappings of Tertiary volcanic rocks with minor associated tuff, breccia and conglomerate, as well as lesser scattered pre Pleistocene olivene basalt and minor tuff, gravel and cinder material are common but not extensive.

### GEOLOGICAL SURVEY

#### Introduction

The claims area was traversed by pace and Brunton compass, on an irregular spacing which included all known outcrops.

Working in pairs or singly, the field crew consisted of E.M. Wilson, geological engineer, H. Meixner, graduate geologist, C. Gunn, prospector and J.G. Wilson, geological assistant. Geological data was

recorded in note books and on field maps on scales of 200 and 400 feet per inch. The field data was compiled into final map and report form by E.M. Wilson and Alfred R. Allen.

The property is underlain by Juro-Cretaceous granodiorite, quartz diorite and related igneous rocks. Shearing, faulting and brecciation, along with foliation is strongly evident.

An irregularly shaped mass of olivine basalt, measuring approximately one mile east-west by one half mile north-south overlies the igneous complex. The basalt is capped by two cinder cones.

Associated with the shear zones are quartz veins and sulphides of iron, copper, lead, zinc and molybdenum. Some of the porphyritic phases of the igneous complex also carry disseminated sulphides.

#### Intrusive Rocks

The property lies within a batholith which, although not exactly defined, appears to extend 60 miles northeasterly and measure about 30 miles across. Big Timothy Mountain lies within a few miles of the northeastern contact.

The igneous rocks of the batholith are chiefly hornblende-biotite granodiorite, hornblende-quartz diorite, hornblende-biotite monzonite, hornblende quartz monzonite and hornblende-biotite syenite.



The Silver Boss 1-24 and SB 25-36 claims are underlain by light grey fine-to-medium grained hornblende-biotite monzonite and hornblende quartz monzonite. These alkaline rocks grade into hornblende granodiorite and quartz diorite in irregular patches difficult to outline precisely.

The SB 37 to 48 claims are underlain by fine-to-medium grained diorite, and there is a clearly defined contact between the diorite and monzonite-granodiorite in a southeast by east direction. This zone is almost wholly medium-grained biotite diorite.

On the southerly portion of Gus 1, and most of Gus 3, 11 and 13, the diorite is similar except that it is coarse grained.

On the northern half of Gus 1, Gus 2 and most of Gus 4 and 14, the diorite is coarse grained and porphyritic. Phenocrysts of feldspars up to  $1\frac{1}{2}$  inches long are common. Disseminated chalcopyrite was noted sparsely evident in some of the porphyritic diorite outcrops.

Lamprophyre, quartz porphyry, aplitic and pegmatitic dykes intrude the above described igneous rocks.

### Volcanic Rocks

The SB 25, 26, 28, 29, 30, 31, 32 and Silver Boss 9 and 10 are partially covered with olivene basalt. This Pleistocene volcanic rock extends from two cinder cones on the Silver Boss 9 and 10 claims northwesterly for approximately 3,000 feet. The cinder cones are made up of volcanic ash, fragments of basalt, and rounded pillow-shaped boulders of vesicular olivene basalt.

The flows are black to dark green or purple olivene basalt. Crystalline olivene is well developed and most of the crystals are fractured or intergrown with plagioclase and other minerals. Some olivene is, however, a dark green transparent to translucent and free of fractures, classing it as the semi-precious gem stone peridot. The flow surfaces and lines dip gently away from the cones which rise to about 300 feet above the general flattish surface of Big Timothy Mountain. Several angular igneous rocks similar to those underlying the irruptive complex are included in the basalt.

### Structure

To the north and west of the olivene basalt deposit there are a series of shears and faults. The strongest is a fault which strikes just south of east and dips steeply south. It has been mapped for over a mile from the SB 33 on the west across the Silver Boss 5, 6, 7 and 8 and the 11 and 13 on the east.

South of it there are weaker parallel structures. A set of northeasterly striking faults appear to be of the tension variety.

On the boundaries between Silver Boss 5 and 6 and 7 and 8, along with some brecciation, there are quartz veins carrying sulphide mineralization. One shaft, an adit and several pits and trenches have partially exposed this zone. Extending across Silver Boss 8, 21 and 23 there is a fault striking north 10 degrees east.

The faulting and shearing has a general radial pattern which appears to converge in an area near the northwest terminus of the Olivene basalt cover. An airborne magnetometer survey indicated a low over this area not dissimilar to the one over the Boss Mountain mine to the southeast.

Jointing is prominently developed in the general area north and west of the Olivene basalt deposit. The trends are north 55 degrees east with a 60 degree dip southeast, and north 30 degrees west and a dip of 40 degrees southwest.

#### Mineral Showings

Just southeast of the boundary between the Silver Boss 5 and 6 claims there is a northeasterly striking fault zone which dips steeply southeast. Along a 700 foot length of this zone on the Silver Boss 5 claim there is metallic mineralization through-

out the 15 to 30 foot width of faulted, sheared, brecciated and altered quartz monzonite. By trenches, pits, a shaft and an adit tunnel, this zone has been partially explored for copper, silver lead, zinc and gold.

Pyrite is the most abundant mineral in the quartz, and it is also disseminated throughout the sheared and altered rock and the wallrock.

In addition there is, in order of abundance, chalcopryrite, arsenopyrite, pyrrhotite, galena, sphalerite, limonite, malachite and azurite.

Within the strong east-west fault system, from the intersection with the above-described zone easterly to and into the cirque, there are zones of weak sulphide mineralization with and without quartz.

Within porphyritic diorite, on the boundary between the Gus 1 and 2 claims, 900 feet from the initial posts, there is some disseminated chalcopryrite and pyrite.

No exploratory work has been done in this area and the grade and extent of the mineralization is at present unknown.

SUMMARY AND CONCLUSIONS

The Exeter Mines property, 2 miles northwesterly from the Boss Mountain molybdenum mine on Big Timothy Mountain is composed of sixty-two mineral claims known as the Silver Boss, S.B., and Gus groups.

Geological mapping has shown the area to be completely underlain by a complex of Juro-Cretaceous igneous rocks. These are sheared, faulted, brecciated, and in places veined with quartz and sulphide mineralization.

The top of the mountain, over an area of about 200 acres, is masked by olivine basalt and two cinder cones of late Pleistocene age.

There is an indicated radial pattern to the faulting and shearing.

There may be an unexposed breccia zone near the northwest extremity of the basalt capping.

On the Gus 1 and 2 mineral claims, very coarse porphyritic diorite contains disseminated chalcopryrite and pyrite. On the Silver Boss 5 and 6 claims a zone of shearing contains pyrite, chalcopryrite, arsenopyrite, pyrrhotite, galena, sphalerite, limonite, malachite and azurite.

It is concluded that the geology of the Exeter property is favourable for the occurrence of mineral deposits and should be investigated by geophysical methods.

Respectfully submitted,

ALLEN GEOLOGICAL ENGINEERING LTD.

Per Alfred R. Allen P. Eng.

Alfred R. Allen

REFERENCES

British Columbia Minister of Mines, Annual Report, 1918,

pp. F 133-135

" " " " " Annual Report, 1957

pp. 18-22

" " " " " Annual Report, 1959,

pp. 24

British Columbia Department of Mines, Bulletin#9, 1940,

pp. 34-37

Reinecke, L., Trans Can Min. Inst., Vol#22, 1919, pp.357-360

Volkes, F.M., G.S.C. Economic Geology Report #20, 1963,

pp.246-256

Tough, T.R., Report on Property, October 1969.

Campbell, R.B., G.S.C. Map 3 - 1961, Quesnel Lake, W. Half

" " " " 1 - 1963, " " , E. Half

Airborne Magnetic Survey, McKinley Creek, 52356, 1968.

\* \* \* \* \*

DOMINION OF CANADA  
PROVINCE OF BRITISH COLUMBIA

IN THE MATTER OF  
THE MINERAL ACT

TO WIT:

I, Alfred R. Allen, of the Province of British Columbia,  
City of Vancouver

Do Solemnly declare that:

1. I am a consulting geological engineer, member of the Association of Professional Engineers of B.C. AND that the geological survey over the S.B., Silver Boss and Gus claims, Big Timothy Mountain, Cariboo M.D., was under my supervision.
2. The statement hereto annexed and marked "Exhibit A" to this my declaration is a true and accurate statement of expenditures made by me on behalf of Exeter Mines on the geological survey of the S.B., Silver Boss and Gus claims between the dates of June 18-29th. 1970.
3. The listed expenditures in connection with the survey are exclusive of transportation and accommodation from Vancouver to the property.

AND I make this solemn declaration, declaring it to be true and correct statement of the same force and effect as if made under oath, by virtue of the Canadian Evidence Act.

DECLARED before me at  
THE CITY OF VANCOUVER  
in the Province of British Columbia  
this \_\_\_\_\_ day of \_\_\_\_\_ 1970 A.D. \_\_\_\_\_

Declared before me at the *City*  
of *Vancouver*, in the  
Province of British Columbia, this *26*  
day of *August* 1970, A.D.

*John Turner*  
A Commissioner for taking Affidavits within British Columbia or  
A Notary Public in and for the Province of British Columbia.

*John Turner*  
Sub-Mining Recorder

ALFRED R. ALLEN

EXHIBIT "A"

August 18th. 1970.

GEOLOGICAL SURVEY

A geological survey was conducted over the Silver Boss, S.B. and Gus groups of claims on Big Timothy Mountain, Cariboo M.D.

Close traverses were made by pace and Brunton compass from tent camps located on and adjacent to the claims area.

Alfred R. Allen, P.Eng.,	Supervision and Report and Maps,	
	June 15th - August 17th	\$1,295.00
E.M. Wilson, P.Eng.,	June 18th - June 29th	1,800.00
H.M. Meixner, Geologist	June 20th - June 26th	1,400.00
C. Gunn, Prospector and Geological Assistant		
	June 18th - June 23rd	200.00
J.G. Wilson, Geological Assistant,		
	June 18th - June 29th	200.00
Supplies, transportation on property, maps and reports		351.51
		<hr/>
		\$5,246.51

Declared before me at the City  
of Vancouver, in the  
Province of British Columbia, this 26  
day of August 1970, A.D.

Jan Turner  
A Commissioner for taking Affidavits within British Columbia or  
A Notary Public in and for the Province of British Columbia. Sub-Mining Recorder



GEOLOGICAL SURVEY

SILVER BOSS, SB and GUS Groups  
Big Timothy Mountain

SURVEY PARTY

A.R. Allen, P.Eng.	Geological Engineer
E.M. Wilson, P.Eng.	Geological Engineer
J.G. Wilson,	Assistant
H.M. Meixner,	Graduate Geologist
C. Gunn,	Assistant