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A

GEOLOGICAL REPORT

ON

A PORTION OF THE SUMMIT-TASEKO GROUP

IN

THE TROPHY MOUNTAIN AREA

OF

BRITISH COLUMBIA

LAT: 51°

LONG: 119°

JULY TO NOVEMBER, 1969

BY

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SCURRY-RAINBOW OIL LIMITED

CALGARY, ALBERTA

NOVEMBER 25, 1969

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INTRODUCTION

The purpose of this report is (a) to describe the surficial geology and (b) to evaluate the economic mineral potential of the following claims:

Summit #1 to #26	-	Record #61558 to 61567 and #61628 to 61643 inclusive
Anne	-	Record #15587
Mary	-	Record #16001
June	-	Record #16002
Grace No. 1	-	Record #15989
Grace No. 2	-	Record #15990
Grace No. 4	-	Record #15994
Isobella No. 1	-	Record #15991
Isobella No. 2	-	Record #15992

These above claims are currently under option to Scurry-Rainbow Oil Limited.

LOCATION AND ACCESS

The claim block described occupies about three square miles of rough mountainous terrain in the approximate location of Lat: 51° - 50' - 00"; Dep: 119° - 50' - 00".

The property is roughly 1½ miles east-northeast of Summit Lake (Mool) on the north side of Trophy Mountain, 1⅞ miles ~~northwest~~ east of Clearwater Station.

Access to the property was gained by travelling by road from Kamloops to Clearwater via Highway #5 and from there by helicopter (out of Kamloops) from Clearwater to the property.

TOPOGRAPHY

The property is centered on Discovery Hill (elevation peak - 7,279'). The top of this hill is relatively bare with better than 40% outcrop and a few stunted trees. The sides of the hill are well forested and the valley floor around the hill is swampy and fairly open with almost no outcrop. Trophy Mountain (elevation - 8,459') dominates the southern edge of the property, while to the west a series of small creeks and ponds drain down the valley floor to Summit Lake. East of the property, the West Raft River has cut a deep gulch through which it flows to the southeast. Rather flat (4,500') forested country lies to the north toward Battle Mountain in the direction of the center of the Wells Gray Provincial Park.

FACILITIES

The property lies on the southern boundary of Well's Gray Provincial Park. This fact renders the use of local water for mining purposes or for generating hydroelectric power very difficult from a possible contamination standpoint. Also, any future tailings disposal site would have to be located very carefully.

The nearest source of public electric power is located at Clearwater Station, a distance of 12 miles across heavily wooded, rough terrain.

A good gravel road runs north from Clearwater into the Wells Gray Park, and it would be possible to construct a new access road from this road to the property, provided, of course, that permission could be obtained from Park officials.

HISTORY

Several attempts were made to evaluate the mineral potential of the property over at least the last thirty years. None of the records of this work is available to the author except for a portion of the work done by Ormsby Mines Limited and Goldcrest Mines Limited in 1956. These companies drilled over one hundred holes and covered a portion of the property with a dip needle survey. Based on this work, an estimate was made of 268,800 tons of material grading 0.61 ounces silver, 0.60% copper, 1.15% lead and 4.64% zinc.

To the author's knowledge, at no time during the past thirty years has there been any production from any property in the vicinity of Trophy Mountain.

A report was filed with the B.C. Department of Mines in November, 1967, by Scurry Rainbow Oil Limited covering geophysical surveys which were done on this property during that year. For reference purposes, a copy of the maps covering the magnetometer survey are included in this report. The survey was done using an Askania intrument with station intervals of 50 feet.

GEOLOGY OF THE AREA

The general area of Discovery Hill - Trophy Mountain is underlain by metasediments and granitic migmatites which have been subjected to several (?) stages of later pegmatite and diabasic intrusions.

To the south of the property, on Trophy Mountain, the rocks are dipping mainly to the south with some evidence for local overturned folding of several hundred feet amplitude.[1] Since the same belt of rocks underly Discovery Hill and apparently dips between 10^{o} and 40^{o} north and northwest, the axis of a anticline must lie in the valley between Trophy Mountain and the property.

No evidence of vulcanism is apparent within the immediate area,[2] but west of Trophy Mountain, apparently a Pleistocene (or earlier) basalt flow overlies the metasediment - migmatite complex.

1. Minister of Mines Report 1956, Page 69
2. Map 48, 1963 Adams Lake (82M-W)

GEOLOGY OF THE PROPERTY

Introduction

The surficial mapping was done on a scale of 1 inch to 200 feet by the author and a party under his direction during the months of July and August, 1969. The same grid system used for the geophysical surveys in 1967 was rechained and provided the control for mapping purposes. Outcrop positions were placed by tape and compass or by pace and compass and are believed reliable within 10 feet.

General Geology

The area mapped is underlain by a complex sequence of paragneisses and semi-crystalline limestones roughly equivalent in metamorphic intensity to the Grenville subprovince of the Canadian Shield. The bedded series is generally shallow dipping and is extensively intruded by a series of irregular and discontinuous diabase dykes, irregular granite and coarsely crystalline (pegmatitic) granodiorite masses.

TABLE OF FORMATIONS

PLEISTOCENE OR RECENT

Unconsolidated Sediments

Glacial deposits - till, sand, and gravel

PALEOZOIC OR EARLIER

4. Diabase

   - magnetic, dark green, inclined to be porphyritic in feldspars (possibly Pleistocene)

3. Grantie, Granodioritic Pegmatites, Granomigmatites

   - some intrusive relationships, injection gneiss complexes and migmatitic partial melts forming layering

2. Quartzite

   - discontinuous, some diffusion to migmatites, uniform appearance.

1. Metasediments

   (1a) Quartz-Biotite Gneiss

   - well foliated with well developed planes of quartz and biotite.

   (1b) Semi-crystalline Limestone

   - discontinuous, thin, some wollastonite

GEOLOGICAL HISTORY OF THE PROPERTY

ERA	AGE	DESCRIPTION
PALEOZOIC OR EARLIER	Shushwap Metamorphic Complex (Age uncertain)	- Deposition of sediments, shallow marine deposition - Uplift of sediments - Folding, lithification and alteration, intrusion by granite - Continued folding and shearing - thermal and dynamic metamorphism, gneissocity formed. - Selective remelting - granitization - Uplift and erosion - Intrusion of diabase (possibly pleistocene)
CENOZOIC	Pleistocene	- Glaciation - tills, sand and gravels deposited in valley floots
	Recent	- Erosion

DESCRIPTION OF FORMATIONS

(1a) Quartz-Biotite Gneiss

This unit varies in colour from black to white depending on the impurities within the quartz. The banding or layering of the quartz ranges from a fraction of an inch to two feet in thickness, but the biotite layers seldom exceed two inches. The darker gneiss (black quartz) is generally very fine grained and exhibits clearer layering with very fine grained quartz and fine dark scales of biotite. The lighter coloured gneiss has a coarser mineral texture and the layering is less distinct. On occasion, this variety approaches quartzite, as the quartz content coarsens and the layering becomes indistinct. A minor amount of fine ground feldspar appears in the biotite layers of the darker variety and is erratically distributed in the lighter coloured member. Fine grained pyrite is a minor constituent being scattered throughout both phases of this unit. It would appear that there were slight concentrations of pyrite in the darker phases and possibly on a microscopic level pyrite might account for the darkening of the so-called "black quartz".

(1b) Semi-crystalline Limestone

This unit is directly related to the gneissic portion of the meta-sediments and on the present scale of mapping, due to its discontinuity, it is nearly impossible to separate it from this unit. These bands of limestone would appear to have two phases; a recrystallized banded phase, and a fine grained uniform phase.

The recrystallized limestone shows strong development of wollastonite which tends to form in layers with fluorite and small brown garnets. Biotite also appears as a minor constituent in layers or segregations concentrated in the lower half of the bed.

In the fine grained phase of this unit, fluorite and garnet also are present as scattered disseminations. However, their presence is not immediately obvious because of the lack of banding in this phase.

(2) Quartzite

This unit is somewhat difficult to differentiate from both unit 1a and unit 3 becuase it tends to be discontinuous along strike and, as in the case of most migmatites, it exhibits "pinch and swell" structures which appear to grade from the quartzose members of these other units. However, in some sections of the map area the unit is too distinct and separate from the other gneisses to be included as a phase of them.

The colour on a weathered surface is a light limonite yellow stain as opposed to the darker brown to black colour associated with the other rocks in outcrop. On a fresh surface the quartzite is a clear white colour with minute flecks of disseminated pyrite in a quartz matrix. Only rarely was feldspar noted as a minor constituent.

(3) Granite, Granodioritic Pegmatites, Granomigmatites

This unit underlies the greatest part of the map area and is possibly the most interesting, as it exhibits a variety of structures common to an injection gneiss - migmatite complex.

It would appear that during metamorphism a rock type not unlike Unit 1 was injected with granitic fluids, possibly derived from selective remelting in the metamorphic process. In some outcrops it is obvious that this process has been carried to its extreme.

Definite pegmatitic dykes break out from a "lit par lit" situation and slice across the bedding or gneissocity, and across irregular granitic masses. These granitic masses frequently exhibit good intrusive relationships but occasionally seem to emanate gradationally from banded granomigmatites. White plagioclase and phlogopite are present in the granitic phase along with the standard quartz and orthoclase in a medium grained, equigrandular texture. The pegmatites are mainly coarse grained and mineralogically simple, being composed of orthoclase, quartz and a minor amount of biotite.

(4) Diabase

Suprisingly, the diabase dykes on the property tend to be discontinuous, and appear to occupy pre-existing fractures or faults. These dykes do not tend to follow any obvious pattern, however, further detailed mapping might reveal a fracture system that is not immediately obvious. Occasionally, small movements (maximum 10 feet) were noted along the dyke planes.

These dykes are uniformly fine grained and dark green in colour, but occasionally some outcrops show a slight porphyritic texture. Magnetite appears as a minor constituent.

ECONOMIC GEOLOGY

The following chip - channel samples were taken from the trenches on the property:

Trench No.	Width	(Oz/ton) Au	(Oz/ton) Ag	(%) Cu	(%) Pb	(%) Zn
1A	10'	Tr	1.78	.48	2.68	4.94
1A	10'	Tr	1.94	.45	1.99	6.82
1A	10'	Tr	2.64	.13	3.26	3.32
1A	5'	Tr	3.24	.15	3.28	5.60
1B	5'	Tr	.18	.19	.08	.32
1C	10'	Tr	.30	.06	.10	1.76
4	10'	Tr	2.56	.76	4.13	6.67
4	8'	Tr	2.48	.31	1.36	3.58
6	10'	Tr	.24	.03	.18	.05
5	10'	Tr	.20	.48	.10	5.68
3	10'	Tr	.18	.59	.15	10.80
2	7'	Tr	.26	.05	.04	.10
2A	40'	.010	.82	.04	.40	.05
2	10'	.010	.78	.06	.47	.02
2	10'	Tr	Tr	.05	.04	.02
2	10'	.010	1.04	.08	.64	.02

These trenches were initially opened by Ormsby Mines Limited in 1956 and were re-opened and cleaned up for the purpose of this examination. In some cases the size of the trench was extended.

The economic mineralization occurred as coarse grained massive sulphides, predominantly pyrite, pyrrhotite, and sphalerite with minor amounts of galena and chalcopyrite. For the most part, samples were taken along strike as the sulphides appear as elongated flat lying lenses generally conformable to the bedding. However, it was noted in at least two locations that the sulphides did not follow bedding and in fact stood exposed in the trench as a steeply dipping irregular lens. In both cases, the sulphides appeared discontinuous along strike. Certainly, there was nowhere noted any continuity of thickness. In other words, the sulphides exhibited the same characteristics as the metasediments, lack of continuity in thickness and strike length, and irregularity in form.

The sulphides appeared almost entirely in and related to the Quartz-Biotite gneiss and in the areas where the sulphides were exposed, the gneiss is strongly fractured but relatively unaltered. Calcite would appear to be the only gangue or alteration mineral.

CONCLUSIONS AND RECOMMENDATIONS

The ore estimate by Ormsby Mines is directly based on the assumption that the ore horizon in continuous and relatively uniform. However, great difficulty was encountered in an attempt to correlate gneissic beds above and below intersections in the drill holes. This places grave doubt on the possibility that the ore material in fact does form a sheetlike intrusion.

In the author's opinion, the lenses of sulphide tend to form in pre-existing fractures in the Quartz-Biotite gneiss. These form a complex pattern and have only a preferential direction parallel to the gneissic bedding.

Furthermore, the volume of favourable host rock (the Quartz-Biotite gneiss) is relatively small in comparison to the amount of intrusive complex. From careful examination of the cliff faces on the north side and east side of Discovery Hill, the quantity of intrusives or unfavourable rocks appears to increase with depth.

Thus, the author is of the opinion that the property has very little potential of becoming even a small producer. There is no evidence that there is a possibility any major lenses yet unfound on the property, and it would seem that those lenses which have been uncovered are unmineable.

The favourable host rocks are contained within a bowl of unfavourable intrusives thereby limiting the possibility of any great downward or lateral extensions.

Furthermore, because of the location of the property adjacent to the Wells Gray Park, the problems to overcome, before any orebody could be brought into production, would likely render anything but a large tonnage proposition, uneconomic.

The maps and field procedures were examined and approved by A. Allen, P. Eng. The report and map were prepared by and under the direction of R. Somerville whose qualifications are attested to by Mr. A. Allen.

Respectfully Submitted,

R. Somerville

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APPENDIX

Map 1 Magnetic Contour Map
Scale 1" = 100'

Map 2 Geological Plan of a portion of the Summit Claims

STATEMENT OF QUALIFICATIONS

This work was done by Mr. R. Somerville, with the assistance of others in the field.

He was graduated from Queen's University at Kingston, Ontario in 1959 with a degree of Bachelor of Arts, after majoring in geology, physics and mathematics. In 1962, following two years of further study in the geological sciences, he graduated with a degree of Bachelor of Science With Honours.

Since that time, Mr. Somerville has worked in the mining industry. He held various positions at an operating mine, and finally that of chief geologist. He is presently employed as a Senior Exploration Geologist by the Mining Division of Scurry-Rainbow Oil Limited.

While doing the work covered by this report, Mr. Somerville was directly supervised by Mr. A. Allan, P. Eng., over whose seal the work is submitted.

A. Allan P. Eng. B.C. #5733

/ad

A. Allan, P. Eng.