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IMMEDIATE EXPLORATION POTENTIAL

COPELAND MOUNTAIN MOLYBDENITE PROPERTY

REVELSTOKE MINING DIVISION

BRITISH COLUMBIA

by

M. C. Robinson, Ph. D., P. Eng.

M. C. R. EXPLORATIONS LTD.

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INTRODUCTION

General Statement

The following notes summarize available data relating to the immediate exploration potential of the Copeland Mountain property of King Resources Company of Calgary, Alberta. The property is located some 15 miles north-northwest of Revelstoke in southeastern British Columbia (Figure 1).

During recent years, King Resources has developed and has commenced underground production from a molybdenite ore zone known as the "Glacier Zone". Concurrently and particularly during the field seasons of 1969 and 1970, the Company has undertaken exploratory work designed to locate and evaluate additional surface showings of molybdenite ore in the vicinity of the present "Glacier Zone" workings. It was hoped that the exploratory program would be successful in defining objectives within comparatively easy reach of established underground facilities. The program was successful and the objective zones located are described in the following summary. An additional and more comprehensive report covering the above showings and the property at large is in preparation.

Location, extent and access

The property is made up of a mineral lease and located mineral claims which are situated approximately 15 miles to the north-northwest of Revelstoke in southeastern British Columbia (Figures 1, 2). Revelstoke is situated on the Trans-Canada Highway and on the main line of the Canadian Pacific Railway. It is also served by scheduled and charter aircraft. Ground access to the property from Revelstoke is provided by a logging and mining road constructed in part by King Resources Company and leading to the Company's main camp on the southern part of the property. The northern area of the Company's ground can be reached by helicopter or by recently created underground workings.

Geography

The property is situated in rugged alpine terrain of the Monashee Mountain system. It straddles a major west-northwesterly trending ridge which reaches elevations in excess of 8,000 feet. The ridge slopes downward to the north into the valley of Copeland Creek which flows easterly into the Jordan River, a southerly flowing tributary of the Columbia which it joins at Revelstoke. The north slope is characterized at moderate to high elevations by steepwalled cirques containing glaciers and permanent snow and ice fields. At lower levels, and on somewhat more moderate slopes, ridges of outcrop and fans of intervening and sparse vegetation on thin and poorly developed soil cover characterize the landscape. The south slope is less ominous in appearance than the north and is pleasant alpine terrain dotted with small lakes and scattered forest growth. It falls downward into the valley of Hiren Creek in which the Company's south camp access road is located. Hiren Creek also flows easterly into the Jordan River.

History and production

The history of the Company's Copeland Mountain property dates from the summer of 1964 with the discovery by prospectors of showings of molybdenite on the north slope of Copeland Ridge. The Company entered into an agreement covering the original claims late in that year. Additional claims were staked by the Company in subsequent years.

Prospecting, geological mapping, diamond drilling, sampling and other exploratory activities have been conducted on various sectors of the property during the field seasons of each year since the initial discovery in 1964. Early work was conducted from helicopter-supplied tent camps on the north slope and was directed towards the evaluation of a zone containing the discovery showings and now known as the "Peripheral Zone" (See Figure 2).

In 1966 a second and distinctly separate zone also containing molybdenite was found to crop out on the north slope and was named the "Glacier Zone" because it passes beneath a glacier from its outcrop. The grade and metallurgical characteristics of material contained within the "Zone" were so outstanding as to cause work in 1967 and subsequent years to be directed largely towards its exploration and development. In 1967, a permanent base camp was constructed on the north slope and underground tunneling was initiated. This work was completed in 1968 and operations were served entirely by helicopter because of extreme difficulties, hazards and costs involved in creating ground access. The work proved sufficiently encouraging to warrant the creation of underground access to the "Glacier Zone" from the south slope of Copeland Ridge. This major undertaking involved included the construction of an access route up the Hiren Creek valley,

the building of a permanent operations camp and the construction of a combined 6,000 foot tunnel and 505 foot connecting raise through Copeland Ridge (Figure 2). This work together with follow-up development work was completed in 1969, a concentrator was constructed in the south camp area and the property is now in production.

Concurrent with the major development, construction and other pre-production operations associated with the "Glacier Zone" deposit, some exploratory geological mapping and sampling and diamond drilling were conducted on the property during the field seasons of 1968 through 1970. This work was designed to further evaluate the "Peripheral Zone" which contained the initial discoveries and in part to search for new deposits of molybdenite. The work within the "Peripheral Zone" has not yet demonstrated the presence of economic mineralization, although the zone has by no means been thoroughly evaluated through its exposed length, which is in excess of 40,000 feet. At the same time, the work has defined new and interesting zones of mineralization which may be conveniently explored from mine workings to and in the "Glacier Zone". The fact of the presence of such additional zones containing molybdenite would tend to suggest that the Copeland Mountain property may, indeed, produce ore from various localities for several years to come.

GENERAL GEOLOGY

In its simplest form, bedrock of the Copeland Mountain property may be considered to be made up of an elliptical-shaped core of foliated syenite and of a flanking or wrap-around sequences of metamorphic rocks which, in succession outward from the core syenite, have locally been subdivided in the field as follows:

Core syenite

Green diopside schist member

Quartzose syenite member

Quartzite-gneiss member

Biotite gneiss member

All rocks including the core syenite have been assigned on a regional basis to the Shuswap Terrain, once thought to be of Precambrian age but now believed to be Mesozoic.

The succession in the area has undergone severe dynamo-thermal alteration during two and possibly three periods of structural activity. This has resulted in very complex isoclinal folding and folded folding which is susceptible to resolution only through detailed structural mapping on a large scale. The general strike through the area is northwesterly to west-northwesterly and the dip is southwesterly.

MINERAL DEPOSITS

General Statement

The economic mineral deposits of the area contain molybdenum as their metal of value which is in the form of molybdenite, the sulphide of the metal. Various sulphides and oxides of iron are also present as metallic minerals in the deposits.

In general, the deposits containing molybdenite occur in three different geological settings. The most important to date is represented by the "Glacier Zone" which is a folded tabular or vein-like deposit with its walls in syenite. The bulk of the material contained in the deposit is light coloured to greenish cast feldspar which is granular to coarsely crystalline. The molybdenite occurs as patches, masses, veinlets and sparse to abundant disseminated fine to coarse grains and crystals in the tabular feldsparthic host rock. The deposit has been folded so that it presents a complex geometric picture which is interesting geologically but which present difficulties in mining.

The second type of deposit is similar in composition and form to the "Glacier Zone" but is contained within the altered sedimentary or metamorphic rocks which encompass the core of syenite. Two groups of such deposits have been mapped in areas known as the "Sub-Glacier Area" and the "Glacier Zone East Area". The "Sub-Glacier Area" deposits are discussed in greater detail in the pages which follow and future exploration directed towards their evaluation is recommended.

The third type of deposit is found in altered or metamorphosed limey rocks which are now interbedded lime silicates and crystalline limestones and which are wrapped around or envelop the core syenite. The zone which is mineralized is therefore called the "Peripheral Zone". Within it, molybdenite is present as disseminated grains of varying size and as fine to coarse grains, crystals, veinlets, lenses, etc. in medium to coarsely crystalline pegmatitic phases. Work which has been done on deposits within the "Peripheral Zone" has not yet indicated areas of economic interest.

Sub-Glacier Area

Introductory Statement

The Sub-Glacier area is located topographically and structurally below the "Glacier Zone" mine area and is in fairly close proximity to underground workings which have developed the "Glacier Zone" and from which producing operations are now being conducted. The 6150 and 6670 levels are of particular interest in terms of the future exploration of deposits which crop out in the Sub-Glacier area.

The Sub-Glacier area is characterized by steep to very steep slopes some of which are inaccessible without the aid of ropes. Rock and ice falls hamper surface work somewhat.

Several aplitic and/or pegmatitic zones containing molybdenite have been mapped in the Sub-Glacier area. The more significant surface exposures have been sampled and are contained within the following zones:

1. Sub-portal zone
2. 6420 pegmatite zone
3. Quartzite - gneiss zone.

Sub-Portal Zone

The Sub-Portal zone crops out in an area between 130 feet northeast and 430 feet east of the north ventilation portal of the present 6670 level (Figure 3 - 1). It is involved in complex folding as shown on the accompanying plan. The total intermittently exposed mineralized length of the zone is approximately 350 feet and the thickness varies between limits of a few and 14 feet. The greater thicknesses and most attractive mineralization are in the crestal area of a fold in which the zone is involved.

The Sub-Portal zone possesses a general northwesterly strike and a southwesterly dip at approximately 40 - 45 degrees, except in the fold crest area referred to. The plunge of the fold crest is towards the east-southeast at an apparent low angle.

The zone has been sampled at and drilled from the surface where access has been possible. In the case of shallow drilling from the surface, only two set-ups safe from rock and ice falls were available.

The surface sample results are shown in Figure 4 - 1 which shows a range between limits of 0.02 and 9.10 precent MoS_2 over varying lengths. The zone was penetrated by shallow E core holes by holes 570-1 and 570-2 from a western set-up and by holes 570-3 through 570-6 from an eastern set-up (Figures 4 - 2, 4 - 3). Almost all core obtained was split and assayed. Samples from within the zone at down dip depths up to 120 feet from the surface returned metallic Molybdenum as opposed to MoS_2 values between limits of trace and 0.89 percent.

The mapping and sampling at and drilling from the surface have served to demonstrate that the Sub-Portal zone is one of modest dimensions and that it contains values in molybdenite wherever sampled. Because of limited surface access and of the possible effects of near-surface leaching, no firm evaluation of the zone can be made. Furthermore, additional surface work is neither safe nor practical.

It is worthy of note that the Sub-Portal zone projects down-dip some 700 feet to points within a short distance of the faces of the 6150 or main haulage level of the Copeland Mountain mine (Figures 3 - 2, 3 - 3). It is of further interest to note that small showings of molybdenite are present in the northern and eastern 6150 level faces along a west-northwesterly trend which parallels the regional strike. Those showings may reflect the proximity of the down-dip projection of the Sub-Portal zone. As a result, the future underground exploration of the zone should include drilling from and/or driving of 6150 level and, possibly, drilling from higher levels to intersect the zone above 6150 might be considered.

6420 Pegmatite Zone

The 6420 Pegmatite zone islocated 190 feet northeast of and 250 feet below the 6670 level ventilation portal (Figure 3 - 1). It is an irregular-shaped mineralized pegmatite-aplite body apparently contained within the crestal region of a fold which plunges southeasterly to southerly. The exposed dimensions of the core or crestal area of the zone are approximately 40 by 60 feet.

The zone is exposed in a particularly difficult spot in terms of access so that mapping and sampling can only be partially accomplished with the aid of ropes. Chip samples taken along the lines shown in figure 5 - 1 have returned interesting surface values which range between limits of 0.15 and 2.37 percent metallic Molybdenum (as opposed to percent of molybdenite). These values together with surface observations make the 6420 pegmatite zone the most attractive of those exposed in the Sub-Glacier zone. The flank of the zone has been penetrated in drill hole 570 - 8 (Figure 5 - 2).

Further work on or drilling from the surface to the 6420 Pegmatite zone is not possible. A review of the spatial relationships between existing underground workings and the outcrop of the zone indicates that it can be further explored by through the drilling of 300 to 400 foot diamond core holes from the 6670 level (Figures 3 - 2, 3 - 3). Because the zone is apparently contained within the crestal area of a fold which plunges south-easterly, it may be necessary to fan holes from 6670 in order to follow it down plunge. Depending upon the fold configuration at depth, the plunge may carry it within reasonable drilling and/or driving distance from the face of 6150 level.

Quartzite-gneiss Zone

The Quartzite-gneiss zone is a stratigraphic interval which is located approximately 250 feet north of and some 300 feet below the north ventilation portal of 6670 level (Figure 3 - 1). Work some 2000 feet to the east beyond the Sub-Glacier area has indicated that the "Glacier Zone East" mineralized zones are contained within the same stratigraphic interval.

The Quartzite-gneiss zone is made up of aplitic and minor biotitic and pegmatitic phases contained within a mappable quartzite-gneiss member. Within the Sub-Glacier area it is fairly well exposed and can, with varying degrees of safety, be examined over much of its length.

The zone strikes west-northwesterly and dips at angles between 35 and 50 degrees to the southwest towards the present mine workings. It is involved along its exposed length in open to tight and complex folds which plunge to the southeast.

Molybdenite mineralization has been found in the zone over a total strike length of some 1400 feet and an average width of ten feet. Visual inspection shows that the sulphide is present in only scattered outcrops in the western 700 feet of exposure. The eastern 700 feet are better mineralized and, where possible, have been sampled at the surface (Figures 5 - 1, 6 - 1). In addition, it was possible to drill one hole, 570 - 7, through the zone. The surface samples returned values ranging between limits of 0.004 and 1.52 percent metallic molybdenum (as opposed to MoS_2). The one drill hole intersection at a point 60 feet on dip below a trench at the surface indicated grades between 0.03 and 0.39 percent metallic molybdenum (Figure 6 - 2).

The Quartzite-gneiss zone is positioned with respect to present underground workings in such a way that exploratory holes from the upper levels must be on the order of 500 feet in length in order to intersect it (Figure 3 - 2). However, the zone projects downward on dip to the 6150 main haulage level at points some 600 feet to the north of the present face. Accordingly, it is best explored through drilling and/or driving on that level.

Glacier Zone - Plunge Projection

Apart from the immediate objectives in the Sub-Glacier area, it is considered that potential reserves of molybdenite ore may well be present down plunge to the southeast in the "Glacier Zone" proper. The zone crops out immediately up plunge from the present mine area but is open down plunge. A preliminary combined isopach and structural study of the zone indicates a rather complex geometric relationship between the aplite-pegmatite mineralized zone and the folds which affect it. The resolution of these combined patterns has indicated that down-plunge exploration can be accomplished through:

1. a limited program of cross-cutting into the hanging wall and drilling down from the upper levels and

2. southeasterly extension of workings on the 6150 level and drilling upward therefrom.

SUMMARY AND RECOMMENDATIONS

In summary, exploration potential in the area immediately surrounding the present mine workings of the Copeland Mountain Molybdenite Property is contained within the following mineralized zones:

1. "Sub-Glacier Area"
   a) Sub-Portal zone
   b) 6420 Pegmatite zone
   c) Quartzite-gneiss zone

2. "Glacier Zone" - down plunge.

It is recommended that a future exploration program involving the following be considered by King Resources Company:

1. the drilling of approximately 4000 feet of diamond drill hole from 6670 level in order to further evaluate and determine the configuration of the Sub-Portal and 6420 Pegmatite zones.

2. the drilling of approximately 3000 feet of diamond drill hole from 6150 level in order to evaluate and determine the positions at that level of the Sub-Portal, 6420 Pegmatite and Quartzite-gneiss zones.

3. the driving of 500 feet of cross-cut northerly from the face of 6150 level in order to intersect the zones defined through drilling.

4. possibly, the driving of 1000 feet of drift along the zones intersected in (3) above.

5. the driving of 500 total feet of hanging wall cross-cuts on 6600 and 6550 levels and the drilling of 1000 feet of diamond core hole therefrom in order to evaluate and determine the down plunge configuration of the "Glacier Zone" proper.

6. the driving of 1000 feet of tunnel to the southeast on the 6150 level towards the down-plunge projection of the "Glacier Zone" and the drilling of 3000 feet of exploratory hole upward therefrom.

The total program referred to above amounts to 3000 feet of underground driving and 11000 feet of diamond drilling. This is estimated to carry a total cost of approximately $250,000.00 utilizing average unit costs of $60.00 per foot for tunneling and $6.00 per foot for underground diamond drilling.

It is to be noted that the program is exploratory only and that, if successful, it will carry a requirement for additional development and other pre-production capital.

M. C. R. EXPLORATIONS LTD.

M. C. Robinson, Ph.D., P.Eng.