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EXPLORATION
NTS: 103 P/5

WESTERN DISTRICT
November 29, 1984

GEORES ORE RESERVE STUDY

HIDDEN CREEK DEPOSITS

ANYOX

REPORT BY:

STEPHEN B. BUTRENCHUK

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of attachments*

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INTRODUCTION

The Anyox property, located on Observatory Inlet, has a history of exploration and production dating back to the early 1900's. Mineralization is of a volcanogenic massive sulphide type with similarities to the Besshi deposits of Japan and to the Windy-Craggy deposit in northwestern British Columbia.

During the period 1914-1935 Granby Mining, Smelting and Power Company operated a mine and smelter on the property. A total of 24,010,235 tons grading 1.56% Cu was produced from the Hidden Creek deposits. An additional 714,192 tons grading 2.15% Cu were produced from the Bonanza Creek mine. At the time of shut-down of mining operations ore reserves were estimated to be 2,204,280 tons at 0.9% Cu for the Hidden Creek deposits. Subsequent work by Cominco during the late 1930's in the area of the number 2-3 zone added an additional 20,200,000 tons grading 0.46% Cu to these reserves.

In 1981 Mitsui and Co. Ltd. optioned the property from Cominco and became managers of the property. Hidden Creek Mines Ltd. was subsequently incorporated by Mitsui as a vehicle for exploration which would conform with Canadian Acts and Regulations. Work by Mitsui included a review and compilation of the old data and the drilling of 16 diamond drill holes in 1982. As a result of their work, Mitsui estimated ore reserves to be 77,000,000 tonnes grading 0.55% Cu-equivalent. There appeared to be some doubt as to the reliability of these ore reserves and a decision was made to computerize the available data and attempt to calculate a new ore reserve for the property.

SUMMARY

Commencing in September, 1983, available diamond drill geological and assay data were computerized using Cominco's GEORES program. Previously mined areas were outlined, digitized and incorporated in the computer data file. From this work a potential Mineralized Ore Reserve was calculated. Potential Reserves for the Hidden Creek area, calculated to a maximum depth of -200 feet, are estimated to be 50,000,000 tons at 0.60% Cu using a peripheral cut-off grade of 0.2% Cu and a tonnage factor of 10.5 (equivalent to a Sp. Gr. of approximately 3.1).

LOCATION AND ACCESS

Longitude: 129°50' W Latitude: 55°25' N
Mining District: Skeena

The Anyox property is located on Granby Bay approximately 80 miles north of Prince Rupert and 18 miles west of Kitsault. Access to the property is by fixed-wing aircraft, boat or helicopter from Prince Rupert, Kitsault or Stewart.

REGIONAL GEOLOGY

The Anyox area is underlain by an assemblage of generally north trending basic volcanic and sedimentary rocks of probable Jurassic age. These rocks form a large roof pendant in the Coast Range Batholith.

PROPERTY GEOLOGY

On the property, in the area of the Hidden Creek deposits, basic volcanic rocks consisting of pillowed basalt and basalt flows and tuffs form the core of a northerly trending and plunging overturned anticline. The east limb of this anticline is overturned and the west limb dips moderately to the west.

The upper approximately 300 feet of the volcanic sequence consists of a series of tuffs and flows. This sequence is characterized by a distinct banded appearance due to an alternating sequence of chert rich and chlorite + biotite + sulphide rich layers varying from a fraction to greater than an inch in thickness. West of the Number 3 zone and in the vicinity of the Number 6 zone, agglomerate is locally present. This unit is significant in that it may host a portion of the potential reserves contained in the Number 3 zone.

Overlying these volcanic rocks is a sedimentary sequence consisting primarily of argillite and siliceous argillite with few limestone or quartzite layers. Some intercalated tuff bands occur immediately above the volcanic contact. These tuff bands may have been the host for massive sulphide lenses that were mined from the argillite sequence.

The volcanic-sedimentary contact is marked by a chert or quartz-sericite schist band of variable thickness. For most of its length this unit is 10 feet or less thick. In the vicinity of the Hidden Creek deposits this unit attains thicknesses in excess of 100 feet. Locally it contains abundant pyrite and/or chalcopyrite. Some reserves are contained in this unit.

All volcanic and sedimentary rocks on the property have undergone lower greenschist regional metamorphism with the result that most of the rocks have a weak foliation and locally there has been the development of chlorite + actinolite schists.

Intruded into the volcanic-sedimentary sequence are late stage dykes of varying composition. These dykes have intruded along fractures generally in a north-south direction or northeast-southwest direction. They vary in thickness from less than one foot to greater than 50 feet but generally are 5 to 15 feet thick. Locally there has been two phases of dyke intrusion.

STRUCTURAL GEOLOGY

The dominant structural feature in the Hidden Creek area is a northerly plunging anticline-syncline pair of folds. Mineralization is most abundant in the eastern limb of the anticlinal structure. The east limb of the anticline dips 60°-70° westward and the west limb is shallow dipping to the west. At depth it appears that the east limb changes to an easterly dip. The northerly plunge of the folds is also reflected in the mineralization as it too appears to have a northerly plunge.

Two faults of some significance occur along Hidden Creek and through the Number 3 zone (2-3 fault). The 2-3 fault is a northerly trending near vertical fault that has a displacement of approximately 200 feet of dextral movement and approximately 300 feet of vertical movement (East side down).

Minor faulting is present throughout the mineralized zones but does not appear to have had a major disruptive influence on the mineralization.

MINERALIZATION

In the Hidden Creek area sulphide mineralization consisting of pyrite and pyrrhotite with lesser chalcopyrite and very minor sphalerite occurs both in the upper volcanic sequence and chert horizon. Most of the original production was from a series of overlapping massive sulphide lenses. Some production also came from massive sulphide lenses within the lower section of the sedimentary sequence. The average grade mined was 1.56% Cu but, locally, grades in excess of 10% Cu were obtained.

Most of the mineralization remaining on the property is of a banded or stringer nature although some massive sulphide mineralization remains from the original mining operations. The average sulphide content is estimated to be approximately 15%, primarily as pyrite and/or pyrrhotite. There appears to be a pyrite-pyrrhotite zonation with pyrrhotite more abundant lower in the volcanic sequence (Number 2-3 Orebody) and pyrite more abundant in the uppermost part of the volcanic sequence (Number 1-5 Orebody). Pyrite is ubiquitous to the chert unit.

Although minor mineralization is present in late stage quartz veins, it does not contribute to the overall ore reserve.

ORE RESERVES

In calculating the ore reserve for the Hidden Creek area, the following parameters and assumptions were used:

1. We assumed that the information contained on the Granby sections and level plans was complete to the end of the mining operations.
2. A peripheral cut-off grade of 0.2% Cu was used; a tonnage factor of 10.5 was used. (Equivalent to a Sp. Gr. of approximately 3.1).
3. Ore reserves were delineated on the premise that an open pit mining method would be used.
4. Reserves were calculated to a maximum depth of -200 feet for the 1-5 zone and -150 feet for the 2 and 3 zones.
5. Ore reserves were calculated on east-west sections spaced at 50 foot intervals. For the 2-3 zone data was supplemented by level plans.
6. Only diamond drill data was used; assays from underground workings, drifts or cross-cuts were not used in the ore reserve calculation. Those portions of the holes used for the reserve calculation are designated by the symbol Orin on the accompanying sections. A complete listing of the holes used are given in Appendix I.

7. Only assays within the ore reserve outline were used. Assays from within stoped areas were excluded from the calculation.

The area included in the ore reserve calculation was from 6850N to 9300N and included the Number 1-5, 2, 2-3, 3 and 4 orebodies. Ore reserves were not calculated for the Numbers 6, 7 and 8 orebodies as the data is too sparse to enable a reliable reserve to be calculated.

Assay data from approximately 600 diamond drill holes were key punched and placed into Cominco's GEORES computer program. Sections at a scale of 1 inch = 40 feet orientated east-west and spaced at 50 foot intervals were then generated to correspond with sections retained from the Granby operations. For each section stoped areas and mineralized blocks were outlined. Within each reserve block a grid average assay was calculated to the center of a 20 x 20 foot grid block. A search ellipse with the following dimensions was used in the calculation of the average value:

100 feet	north-south
100 feet	vertical
30 feet	east-west

Where there were insufficient data the search ellipse was expanded to: 300 by 300 by 100 feet. The dimensions of the primary search ellipse used were based on the ranges obtained from three directional variograms calculated for the deposit. Ore Reserves were then computed for each grid block using an inverse-weighted-average technique and a copper cut-off grade of 0.2% Cu. The grade for the entire block is the arithmetic average of all the grid blocks. Where no assay data is available the average for the entire reserve block is assigned to the particular grid block. Details of these calculations are appended and shown on the accompanying sections.

Ore reserves for the Hidden Creek area are calculated to be 50,000,000 tons at 0.60% Cu. These are Potential Reserves and probably represent the best scenario for the Hidden Creek area. Minor additional tonnage is present in the Numbers 6 and 7 zones but it is low grade and will not significantly improve the deposit.

CONCLUSIONS

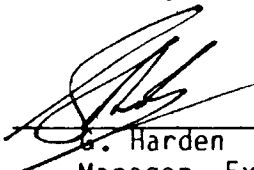
A mineral potential of 50,000,000 tons of 0.6% Cu has been calculated for the Hidden Creek Deposits, but it appears that less than one-third could be mined by open pit methods with reasonable strip ratios. In the area of the 2-3 zone there is approximately 8,000,000 tons of good grade material (approximately 0.70% Cu) that may be amenable to open pitting. An additional 3-5 million tons of open pitable material may be present in the hanging wall of the 1-5 zone.

Reported by: _____

Stephen B. Butrenchuk
Geologist III

SBR/cgs

Approved for
Release by: _____


G. Harden
Manager, Exploration
Western District

Copies

Mitsui

Western District

Administration

SBB