REPORT ON
THE RED HILL PROPERTY
OF
DELKIRK MINING CO. LTD.
BY
JOHN W. HOGAN, P.ENG.
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L. J. Manning & Associates Ltd., 610 - 890 West Pender Street, Vancouver 1, B. C. February 9, 1970

# L. J. MANNING & ASSOCIATES LTD.

CONSULTING MINING ENGINEERS

610-890 WEST PENDER STREET

VANCOUVER 1. B.C.

February 9, 1970

OFFICE PHONE: 683-5861

RESIDENTIAL PHONE: L. J. MANNING - 985-5690

The President and Directors, Delkirk Mining Co. Ltd., Vancouver, B. C.

Dear Sirs:

The following report on the Delkirk Mining Co. Ltd. Red Hill property is based on a visit to the property on February 1, 1970; on personal knowledge of the areal geology and on a study of all available data from earlier work on the property.

## SUMMARY AND RECOMMENDATIONS:

Delkirk Mining Co. Ltd. holds 54 claims in the Spences Bridge Area of B. C. They are located over an area where Ceche Creek Volcanics have been intruded by small stocks of the Guichon Creek Batholith which outcrops to the east as the main Highland Valley intrusive complex.

Earlier exploration on adverse claims in the center of the property in 1962 by a major mining company consisted of geochemical and magnetometer surveys with limited diamond drill follow-up. Later drilling was done by Delkirk. Induced Polarization surveys have not been run over the property.

Two drill holes returned values of 1.03%  $Cu/20^{\circ}$  core length (DDH N-2 -  $10^{\circ}$ - $30^{\circ}$ ) and 0.58%  $Cu/30^{\circ}$  core length (DDH N-3 -  $70^{\circ}$ - $100^{\circ}$ ).

The known copper mineralization in association with shearing in the volcanics; the occurrence of dykes and small irregular bodies of granodiorite in the area; and the drilled values in primary sulphides suggests that possible structural controls may exist on the property which will provide loci for copper mineralization of better economic potential than that located to date.

The Delkirk Mining Co. Ltd. Red Hill property is favourably located for the occurrence of copper deposits and a phased exploration program is recommended to cost \$92,000. It is also recommended that the adverse claims be acquired.

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Claim	Record	Expiry
Name	Number	Dates /
		/
Dunbar 1A-2A	54121-54122	March 7/70 - 2 +
Dunbar 3A-8A	54123-54128	March 7/70 - 6 +
Phillips ID-3D	55460-55462	April 26/70 -3
Gordon 1E-3E	55466-55468	April 26/70 - 3
Loring IF	54253	March 14/70 - 1+
Loring 2F-9F	54380-54387	March 21/70 - 8
Loring 13F-15F	54391-54393	March 21/70 - 3
Loring 19F	54519	April 5/70 - 1
Loring 20F	55454	April 26/70
Loring 27F-29F	54521-54523	April 5/727, -3
Babkirk 1G	54254	March 14/70 - 1+
Babkirk 2G-6G	54366-54370	March 21/70 - 5 (Nov 2)
- Babkirk 11G	54375	March 21/70
- Babkirk 13G	54377	March 21/70
Babkirk 15G	54379	March 21/70 - 1
Babkirk 19G	54541	April 5/70
Babkirk 29G-32G	54545-54548	April 5/70 - 4
Babkirk 38G-41G	54554 <b>-</b> 5455 <b>7</b>	April 5/70 - 4
Delkirk 10	57332	June 24/70
Delkirk 13	57335	June 24/70
Delkirk 15	54337	June 24/70
Delkirk 17	57339	June 24/70
Delkirk 19	57341	June 24/70

L. J. Manning & Associates staff have examined claim staking on previous dates and have found them to be staked in accordance with the Mineral Act of B. C. The Head Head

Adverse claims are located inside the general holdings, and are listed as follows:

Claim Name	Record No. & Owner	Expiry Date
M No. 1 M No. 1 Fr	40004 - H. Reynolds	June 29/70
M No. 2	40005 - H. Reynolds	June 29/70
M No. 3	40006 - H. Reynolds	June 29/70
M No. 4	40007 - H. Reynolds	June 29/70
M No. 4 Fr	64829 - H. Reynolds	July 5/70
M No. 5	40101 - H. Reynolds	July 9/70
M No. 6	40102 - H. Reynolds	July 9/70
M No. 7	40103 - H. Reynolds	July 9/70
M No. 8	40104 - H. Reynolds	July 9/70

## LOCATION:

The claims are in the Kamloops Mining Division at approximately 50°39' - 121°20'. They are centered east of Highway 1 and west of the Thompson River about 9 miles south of Ashcroft, B. C.

# TOPOGRAPHY AND ACCESS:

The area is in a dry belt with annual rainfall reported as 8 inches in Ashcroft. Relief is moderate.

Access is by good paved highway. Both C.N.R. and C.P.R. railways are readily accessible.

### **HISTORY:**

Previous to 1962 no record of work could be found. Undoubtedly the hill was prospected because of its obvious red and brown outcroppings containing copper oxides, specimens of which will return high assays. The hill itself was explored by a major mining company in 1962. The major part of the hill (area of adverse claims) was prospected and surveyed by geochemical and magnetic methods. A junior Electromagnetic survey and Self Potential survey were also run over the same area. Seven small core holes were drilled for a total of 587 feet and one A.X. hole was drilled to 303 feet. Trenching and open cutting were conducted simultaneously.

In 1966 some additional trenching and prospecting was completed by Delkirk Mining Ltd. (N.P.L.) followed by three additional small holes for a total of 312-1/2 feet. These holes confirmed reports of previous drilling as to grade and difficulty of core recovery in the more pyritic zones.

In. 1968 Delkirk Mining Ltd. drilled 550. These holes were drilled mainly for assessment work.

#### GEOLOGY:

In general, the area is mapped by the G.S.C. as being comprised of the Cache Creek series intruded by stocks of the Guichon Batholith. Locally the Cache Creek series consists of green and brown igneous porphyritic flows regionally sheared at about N 50 W with shear dips nearly vertical. Two stocks of granodiorite have been noted in the area, one in the northwest and one in the southeast; others may be inferred from the magnetometer survey. Alterations of the flow to chlorite and sericite silicified schists is directly related to the amount of shearing. The granodiorite stock is green colored due to epidote.

Mineralization occurs in the shears and generally consists of pyrite carrying some gold and silver values. Chalcopyrite is scarce. Values of copper as high as 3.0% have been obtained from the plentiful red and rusty gossans. A variety of secondary copper minerals have been reported from the area.

Most of the obvious mineralization appears around the northwestern intrusive, little or none has been reported near the southeastern stock.

Soil sampling in the area confirmed the visual observations, and the magnetometer survey outlined one edge of each of the two observed plugs and indicated the probable location of other small ones. The self potential method was not successful due to instrument breakdowns. The junior E. M. Survey indicated that the pyrite zones were not responsive to Junior E.M. methods.

Trenching on one zone has indicated that oxidation may be minimal and confined to the upper few feet of bedrock.

## CONCLUSIONS AND RECOMMENDATIONS:

The known copper mineralization in association with shearing in the volcanics; the occurrence of dykes and small irregular bodies of granodiorite in the area; and the drilled values in primary sulphides suggests that possible structural controls may exist on the property which will provide loci for copper mineralization of better economic potential than that located to date.

The most favourable target type is postulated as a large tonnage situation with open pit potential, although the occurrence of vein type copper mineralization must not be ignored. The most useful exploration tool for disseminated copper zones is induced polarization. Since this technique has not been used on the property to date, this approach is recommended. Although the 1.P. Survey will respond to possibly many barren pyritic zones, the use of low cost percussion drilling will easily assess any indicated anomalies.

The internal adverse claims are not considered to be too great a negative factor, since the present approach is on a more regional basis. However, an attempt should be made to acquire these claims.

Costs based on 46 line miles of surveying:

# Phase 1:

Line preparation - 4001 interval - 1001 stations including claim tie in - \$80.00/line mile	\$ 3,680
1. P. Survey @ \$500/line mile, includes detail work	23,000
Percussion Drilling - 2,000 @ \$3/ft.	6,000
Assaying	1,000
Engineering, supervision, transportation, Room and Board, program preparation, reports, etc.	5,000
Contingencies	3,320
	\$ 42,000

Holes for phase must be drilled as laid out, as visual assays cannot be estimated from sludge. The 2,000' of drilling will be completed before assay results are available.

# Phase II:

Follow-up percussion and diamond drilling. This phase will be dependent upon the results of Phase I 5,000 at \$10/ft. (all supervision and assay charges, etc. included).

\$ 50,000

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# CERTIFICATE OF QUALIFICATIONS

I, John W. Hogan, P.Eng., Geological, of 859 Prospect Avenue North Vancouver, B. C., certify as follows:

- 1. That I graduated from t e University of British Columbia in 1953 with a Bachelor of Applied Science Degree in Geological Engineering.
- 2. That I have been a professional engineer since 1956.
- 3. That I have been engaged in the profession of Geological Engineering for 15 years.
- 4. That from 1954 to 1956, I was employed as a geologist at Pronto Uranium Mines and Rix Athabasca.
- 5. That from 1956-1960, I was Mine Geologist at Can-Met Explorations Ltd.
- 6. That from 1960-1966 I was a Project Geologist for Denison Mines Ltd. in Ireland and Maine, U. S. A.
- 7. That from 1966-1969 I was Western Representative for Denison Mines Ltd.
- 8. That I am presently an Associate in the firm of L. J. Manning & Associates Ltd., Vancouver, B. C.
- 9. That the report on the Red Hill Property of Delkirk Mining Co. Ltd. is based on a visit to the property on February 1, 1970; on personal knowledge of the areal geology and on a study of all available data from earlier work on the property.
- 10. That I do not hold any financial or any other interest in the properties or stock of Delkirk Mining Co. Ltd. (N.P.L.) or any of its affiliates, nor do I expect to do so in the future.

Dated at Vancouver, British Columbia this 9th day of February

Hogan,

Waltion

1970.



