

ADDENDUM REPORT ON THE  
RAINBOW MOUNTAIN CLAIM GROUP  
NEAR ALTA LAKE, B.C.

925/2u

925-90

011658

50°09.3' North Latitude

122°57.7' West Longitude

For

BATTLE CREEK MINES LIMITED

c/o 1880-1055 West Hastings Street  
Vancouver 1, B.C.

By

C. M. Armstrong, P.Eng.

4085 West 29th Avenue  
Vancouver 8, B.C.

September 30, 1971

See ASS. R.  
3947

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## INTRODUCTION

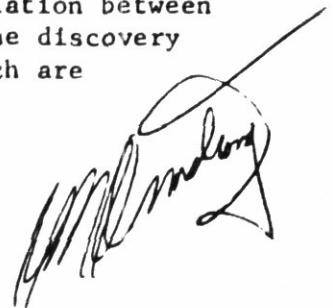
Following the recommendations outlined in my report of October 5, 1970, reviewed on June 9, 1971, initial work on the RM claim group in August and September 1971 comprised air photo interpretation, prospecting, geological mapping, line-cutting/chaining, and soil sampling. Of the \$41,300 expenditure recommended in Phase I, approximately \$10,000, or 24%, had been expended by September 30 on the continuing exploration program.

This progress report, an addendum to my original report of October 5, 1970, briefly describes the work completed to date. For the sake of brevity, data contained in the earlier report are not repeated.

## CONCLUSIONS & RECOMMENDATIONS

1. The Cheakamus Lake/Alta Lake pendant has good potential for hosting economic lode-type copper mineralization, and, while it must be assumed that mineralization tested to date is sub-economic, particularly that on the London and Azure claims adjoining south of the RM group, extensively explored and drilled by New Jersey Zinc and Noranda Explorations, respectively, there is no doubt that the proportion of copper mineralization is significant.
2. On the RM claims, both prospecting/mapping and geochemistry have outlined a 1000' by 2000' weakly anomalous zone of low grade copper values within which two distinctly anomalous, parallel lodes of higher, but unknown, copper grade are indicated.
3. I strongly recommend that the \$41,300 Phase I exploration program recommended in my report of October 5, 1970, of which approximately \$10,000, or 24%, has been expended to date, be carried to completion, principally, but not exclusively, to evaluate the copper anomalies defined to date.
4. Involved are: fill-in soil sample lines at 400-foot spacings with 100-foot sample intervals to confirm the continuity of the higher grade lodes; combined mag and EM surveys to pinpoint sulphide-rich zones for follow-up testing; and detailed geological mapping to establish copper mineralization controls.

5. Additionally, I strongly recommend that the strike extension of the favourably mineralized area to the north beyond the RM claims, be explored for several claim lengths by low cost, definitive, reconnaissance soil sampling techniques. A well-defined mantle of podzolic soil in this outcrop-deficient area, and proven good correlation between copper values in the soil and underlying bedrock, ensure the discovery of other significant zones of copper mineralization, if such are present.

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#### MINERALIZATION

Prospecting in 1970 disclosed a broad zone of visually anomalous copper mineralization, principally chalcopyrite, with lesser malachite, sparsely distributed over an area several hundred feet in width and a few thousand feet in length, extending northerly along the west claim location line on claims RM 49-54, inclusive. Potential for economic mineralization was stated to lie in the possible occurrence of higher grade lodes within the low grade zone. Strong shear and schist zones conforming to the regional trend exposed in infrequent outcrops support the hypothesis, and exploration efforts are being directed to the discovery of a high grade lode deposit. Pyrite, ubiquitously disseminated throughout the dioritic host rock, also occurs with the chalcopyrite mineralization in heavy disseminations.

There is some evidence to suggest that the best copper grades are found in fine grained lithologies, which may be volcanic in origin, within the generally dioritic host. Beyond the obvious control of foliation and shearing in localizing copper mineralization, origin and overall control are inadequately understood, and mapping to date has not advanced sufficiently nor been sufficiently detailed to shed much light on the matter.

The zone appears to lie on the strike extension of significant copper mineralization drilled by Noranda Exploration approximately 2 miles to the south on the adjoining Azure claims, and there is good potential for additional repetitions of mineralization on the unexplored northerly extension of the claims.

### AIR PHOTO INTERPRETATION

Employing 1"=1000' enlargements of aerial photography commissioned and flown by Lockwood Survey Corporation for BattleCreek over the RM claims in August 1970, a map at the same scale depicting all photo linears was prepared. Objective of the study was to establish the correlation, if any, between known copper mineralization and topographically apparent structural features.

Although inadequate detailed geological mapping has been completed to date to permit drawing firm conclusions, it is apparent that the 330° trend of foliation and shearing, along which copper mineralization is localized, has been masked largely by later geologic events such as glaciation (azimuth 0°-35°), and faulting and fracturing unrelated to mineralization.

Pyritic bleached and altered shears and faults in diorite close to the contact with a sedimentary assemblage of siltstone and pyritic slate along Nineteen Mile Creek conform approximately to the regional trend, and maybe contemporaneous with copper-bearing shears within the zone of anomalous copper mineralization.

### PROSPECTING

No other significant zones of copper mineralization were found on the claim group, although considerable additional work remains to be done. In general the eastern half of the property appears to be less favourable, from an exploration standpoint, because the intrusive rocks, diorite to granodiorite in composition, are coarser grained, more massive, and less pyritized than those on the western half.

The siltstone/pyritic slate assemblage on the west bank of Nineteen Mile Creek has been found in very sparse rock exposures on the east ridge of Rainbow Mountain, and small, but interesting-looking outcrops of bleached, altered, sheared and heavily pyritized diorite both west and east of the assemblage merit further attention. No in situ copper mineralization was found. Shallow overburden, good soil development, and very little rock exposure, favour application of geochemical techniques to locate copper-anomalous areas.

### MAPPING

Semi-detailed geological mapping at a scale 1"=400' of selected areas in the south, centre, and north portions of the claim group was carried out using air photo enlargements. Approximately 40% of the property had been completed, and plotted on a 1"=400' plan, at the time of writing.

Beyond locating additional small copper occurrences within the previously defined zone of visually anomalous copper mineralization, no other significant showings were found. Swamp and overburden cover the extension of the favourably mineralized area to the south boundary of the RM claims, adjoining the Azure claims explored and drilled by Noranda Explorations.

Heavy pyrite mineralization in sheared and altered diorite on the east bank of Fitzsimmons Creek in the clearing of the southernmost of two B.C. Hydro Transmission lines maybe significant, occurring as it does on the east fringe of the south extension of the copper-bearing zone.

### SOIL SAMPLING

Cutting and chaining of 10.37 miles of line preceded B-horizon soil sampling at 100-foot intervals on 800-foot line spacings on the south, central, and northern portions of the claim group where podzolic soil was well developed. A 2" diameter post-hole auger was found to be the best overall sampling tool, followed by a small grub-hoe in areas of shallow B-horizon development. Samples, numbering 265, were plotted on a 1"=400' base map.

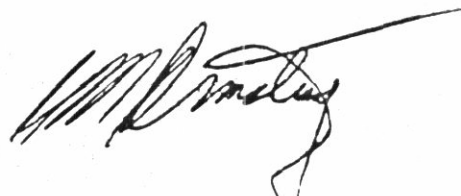
Statistical analysis yielded for: background - 30 ppm copper; weakly anomalous - 65-130 ppm copper, and anomalous - greater than 130 ppm copper. Distribution was approximately lognormal, but positively skewed, indicating a slight excess of high values.

The previously defined low grade zone of visually anomalous chalcopryite mineralization was well defined by "weakly anomalous" copper values in the soil; and two higher grade lodes, delimited by "anomalous" values, are indicated.

Rock exposure over both of the "anomalous" zones is minor, providing no good indication of the copper grade of source mineralization. The narrow footwall

zone at 6W, extending between lines 8N and 16N, and open to the north, borders a small outcrop of schist displaying medium pyrite mineralization, minor chalcopyrite, and substantial surface leaching. Attitude closely parallels the regional trend: azimuth 335° and dip 85° easterly.

The larger anomaly which extends approximately from 1E to 3E and from 10N to 24N is equally outcrop deficient, and is also open to the north. A small, weathered outcrop on the anomaly at 14N - 1+50E contains coarse stringers and patches of pyrite/chalcopyrite mineralization in fine grained, sheared and silicified diorite or andesite. Float at 24N-1+50E also contains coarse patches of chalcopyrite in an altered, very fine grained andesitic host.

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CERTIFICATION

I, CHRISTOPHER MACKENDRICK ARMSTRONG of the City of Vancouver, Province of British Columbia, do hereby certify:

1. THAT I am a practicing Geological Engineer residing at 4085 West 29th Avenue, Vancouver 8, British Columbia.
2. THAT I am a registered Professional Engineer in the Provinces of British Columbia and Ontario.
3. THAT I received the degree of B.Sc. in Geological Engineering from Queen's University, Kingston, Ontario, in 1960. and practiced my profession continuously in the period between leaving university in 1959 and returning to university in 1966.
4. THAT I enrolled in the Department of Mineral Engineering at the University of British Columbia in 1966, and in the period to 1969 completed course work and research work requirements for an M.A.Sc. program, specializing in bacterial/acid leaching systems; thesis writing was not completed.
5. THAT since leaving university in 1969, I have practiced my profession both as a Geological Engineer and as a Specialist/Advisor in bacterial/acid leaching systems.
6. THAT the following is a true record of my employment and experience:

1957	4 mos. Junior Geologist. Noranda Mines Ltd. Quebec.
1958	4 mos. Party Chief. Hollinger North Shore Exploration Co. Ltd. Montreal, Quebec.
1959-1961	27 mos. Assistant Geologist. Pickle Crow Gold Mines Ltd. Pickle Crow, Ontario. Keevil Mining Group.
1961-1962	9 mos. Assistant Geologist. Willroy Mines Ltd. Manitouwadge, Ontario.
1962-1964	28 mos. Chief Geologist. Metal Mines Ltd. Werner Lake, Ontario. Consolidated Canadian Faraday Ltd.
1964-1966	24 mos. Chief Geologist. Tegren Goldfields Ltd. Kirkland Lake, Ontario. Keevil Mining Group.
1967	6 mos. Resident Engineer. McLeese Lake property. Geophysical Eng'g & Surveys Ltd. Keevil Mining Group.
1969-1970	13 mos. Laboratory Manager, Chief Geologist, & Consultant. S. M. Industries Ltd., Vancouver.
1970-1971	16 mos. Independent Consulting Engineer.
7. THAT I do not have any interest in the securities or properties of BATTLECREEK MINES LIMITED, nor do I expect to receive such interest.

DATED AT VANCOUVER THIS  
30th day of September, 1971

  
C. M. Armstrong, P.Eng.