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1981-1973

CRANBROOK, B.C.  
MINING RECORDER

4829

MOUNT EVANS COPPER CORP. INC.

82F/9W

REPORT

4829

ON

INDUCED POLARIZATION, GEOCHEMICAL SOILS

JAG

AND

82F/9W

GEOLOGICAL EXAMINATION

CLAIMS JAG 19 to 22 inclusive

JAG 39 to 44 inclusive

JAG 51 to 56 inclusive

17.4 MILES SOUTHWEST OF KIMBERLY, B.C.

Quadrangle Corners 49°, 116°, 117°

Fort Steele Mining Division

Author: Tom Gledhill, P.Eng. (B.C.)

For: Mount Evans Copper Corp. Inc.

Work Period: September 10 to  
October 31, 1973

Dated November 15, 1973.

Department of  
Mines and Geotechnical Services  
ASSESSMENT REPORT  
NO. 4829 M.P.

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Mount Evans Copper Corp. Inc.  
Report  
on  
Induced Polarization, Geochemical and Geological  
Examination  
of  
JAG Claims, St. Mary Lake Area., B.C.

SUMMARY

The property comprises 18 contiguous claims totalling about 927 acres, the northeastern corner of the group being the peak of Mount Evans. Access is difficult. The property is 17.4 miles southwest of the Sullivan Mine at Kimberly, B.C. Fiddler Creek, which lies just west of the west boundary of the group, is at 5000 feet and the terrain slopes upward to the east boundary, the peak of Mount Evans, at 8951 feet. Timber line is at 6000 feet.

The exploration program involved the locating of the two old adits and sampling, a geochemical traverse through the main area of interest and an induced polarization traverse across the lower adit. The results were encouraging. Several anomalous geochemical values occur in copper, no anomalous molybdenum values were

detected. At the lower adit, claim JAG 19, a sample of the vein ran 0.55% Cu over 14 feet feet while at the upper adit, JAG 44, ran 1.24% Cu over 4 feet. The induced polarization traverse located an anomaly at 3+50N from the creek and a possible anomaly at 2+00S.

It is recommended that further work should be considered for the property. This would be drilling in the area of the lower adit to check the geochemical anomaly and the induced polarization anomaly. Such a program is estimated to require \$60,000 of which \$50,000 would be for an access road.

## Mount Evans Copper Corp. Inc.

## Report

on

Induced Polarization, Geochemical and Geological

Examination

of

JAG Claims, St. Mary Lake Area, B.C.

I. INTRODUCTION

The property is located 17.4 miles southwest of Kimberly, B.C. Two old adits were driven into copper bearing veins. A program that was designed to assess the claim group is described here.

II. PROPERTY, LOCATION AND ACCESS

This group consists of 18 contiguous unpatented mining claims comprising 927 acres (approx.). The claims are as follows:

<u>Names</u>	<u>Metal Tags</u>
JAG 17 to 22 inclusive	214127 to -32 inclusive
JAG 39 to 44 inclusive	214149 to -54 inclusive
JAG 51 to 56 inclusive	214161 to -66 inclusive

The property is 3 claims north-south and 6 claims east-west. The high peak of Mount Evans (8,951 feet) is at the northeast corner of the claim JAG 52.

The central part of the group is 6 miles southwest of the west side of St. Mary Lake and 17.4 miles southwest of Kimberly, B.C. in the Fort Steele Mining Division. The Mining Recorder's Office for this Division is at Cranbrook, B.C.

Access to the property was by helicopter from Cranbrook to the upper pond claim JAG 56 above treeline where a base camp was established. Access is also possible by road southwest from Meachams, on the St. Mary River, to Fiddler Creek and then 2 1/2 miles south by trail to the adit on JAG 19.

### III. TOPOGRAPHY

Topography will be a major consideration in all work done on the property. Fiddler Creek, which lies just west of this property, is at about 500 feet. Proceeding east across the group, the land rises upwards to the peak Mount Evans at 8,951 feet, a rise of 3,151 feet in 1.8 miles. The wooded sections of the property lie below 6000 feet. During July and August the entire property is usually snow free but by late September the snow has moved down to the treeline.

### IV. GENERAL GEOLOGY

According to G.S.C. Map 15-1957, St. Mary Lake, Kootenay District, B.C., the property is underlain

by Middle Albridge Formation intruded by the Moyie meta-diorites both of Upper Pre-Cambrian age. The metasediments comprise grey weathering massive quartzite and siltstone with argillite partings; rusty weathering quartzites, siltstone and argillite.

The property was staked to include some of the known copper showings and most of the favourable Moyie meta-diorite and meta-quartz-diorite outcrops.

On this property there are three or more main meta-gabbro or meta-diorite sills from 200 to 600 feet or more in thickness which strike through the property intruding the Aldrige Formations and conformable to them in a north-northwesterly direction for a total aggregate length of 2.5 miles. According to Map 15-1957, there are 3 mineral (copper) showings on this property all of which are in the Moyie meta-diorite sills or on the contact thereof.

#### V. ECONOMIC GEOLOGY

Copper deposits associated with the Moyie intrusions are quartz calcite veins or lenses in the diorite in and adjacent to which occur pyrrhotite, pyrite, and chalcopyrite and less commonly minor amounts of galena and sphalerite. The high-grade concentrations occur

characteristically in the upper parts of diorite sills, pinch out upwards at or near the sill roof.

## VI. CURRENT EXPLORATION PROGRAM

Access to this claim group is a key factor. There are only two months during the summer that it is possible to explore the property above treeline.

The exploration crew landed at the frozen pond on JAG 56 in September with a helicopter and walked down to the lower portions of the property to carry out their work. This is the only location currently available for a helicopter landing on or near the property. Access to the lower claim for drilling is considered possible by an estimated \$50,000 expenditure on the trail up Fiddler Creek or by clearing a helicopter pad at the drill site, and slinging the drill in at the same approximate cost. The former might be eligible for a B.C. government grant for 50%.

Soil and stream sediment samples were taken over most of the claim group, the soil indicated by a closed or open circle and the results plotted Cu in ppm/Mo in ppm at each location. Samples were taken at each of the adit locations and assayed for copper and gold. The lower adit on JAG 19 ran 0.55% Cu across



14 feet and the upper adit on JAG 44 ran 1.24% Cu across 4 feet. The third location described in the literature near the upper adit was not located.

An induced polarization traverse of the trail area at the lower adit located an anomaly 350 feet north of the adit and a possible anomaly at 3+00 feet south of the adit.

The soil and stream sediment copper/molybdenum values in part per million (ppm) gave 3 copper values of interest around the lower adit (values underlined on map) and on value on the west boundary of JAG 17 at the trail.

## VII. CONCLUSIONS AND RECOMMENDATIONS

The exploration program involved the locating of the two old adits and sampling, a geochemical traverse through the main area of interest and an induced polarization traverse across the lower adit. The results were encouraging. Several anomalous geochemical values occur in copper, no anomalous molybdenum values were detected. At the lower adit, claim JAG 19, a sample of the vein ran 0.55% Cu over 14 feet while at the upper adit, JAG 44, ran 1.24% Cu over 4 feet. The induced polarization traverse located an anomaly at 3+50N from the

creek and a possible anomaly at 2+00S.

It is recommended that further work should be considered for the property. This would be drilling in the area of the lower adit to check the geochemical anomaly and the induced polarization anomaly. Such a program is estimated to require \$60,000 of which \$50,000 would be for an access road.

Respectfully submitted,



Tom Gledhill, B.A., P.Eng.

November 15, 1973.



Exp. Date: June 24, 1974

## Induced Polarization

### Theory and Method of Survey

Induced Polarization (I.P.) surveys refer to a measurement of the blocking or back voltage - polarization of metallic conductors in a medium of ionic solution conduction.

This electro-chemical relationship occurs whenever metallic-type minerals such as base metal sulphides have an electrical current pass through them. In ordinary resistivity surveys, the current travels by conduction through the ions present in the water content of the ground. This is possible because almost all of the minerals have a much higher resistivity than the aqueous portion of the ground. A group of "metallic" type minerals have specific resistivities much lower than the ground water.

The I.P. effect occurs at the interfaces, where the mode of conduction from ionic in solutions to electronic in the metallic minerals is present in the rock.

The blocking action or induced polarization which depends on the energies necessary to allow ions to give up or receive electrons from the metallic surface, increases with the time that a direct current is allowed to pass through the rock. Thus as ions accumulate against the

metallic interface the resistance to current flow increases. In time these excess ions reduce the amount of current flow through the metallic particle. This phenomena is repeated at each of the infinite number of solution-metal interfaces present in the metallic rich rock.

When the direct current voltage that is used to cause a direct current is cut off, then the charged ions forming the polarization return to their normal position. This movement of charge creates a small, but measurable current flow on the surface of the ground.

Using an alternating current source, the effective resistivity of the system will change with the frequency of the switching.

The recorded values of the per cent frequency effect or F.E. are a measurement of the polarisation in the rock mass. An often more useful quantity is the metal factor (M.F.) which is obtained by normalizing the F.E. for varying resistivities.

I.P. is used in the search for disseminated metallic sulphides of less than 20% by volume.

Field procedure in most I.P. surveys is as follows.

Current is applied to the ground at two points x feet apart. The potentials are measured at two other

points  $x$  feet apart in line with the current electrodes and the separation of the near current and potential electrodes is  $nx$  where  $n=1, 2, 3$ , etc.

The measurements are made along a picket line with constant distance  $nx$  feet employed between the nearest current and potential electrodes and several values of  $n$  may be employed ( $n=1, 2, 3$  etc.).

In plotting the results, the values of the apparent resistivity, metal factor, the percentage frequency effect measured for each set of electrodes are plotted at the intersection of two imaginary lines drawn from the centre of the current and potential electrodes at  $45^\circ$  to the surface to meet at a mid point below the electrode array. Each of the three quantities are plotted in upright psuedo-sections.

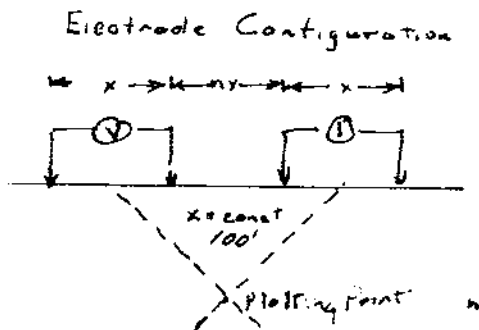
Instrument: McPhar 660

Frequency: 5 c.p.s and 0.3 c.p.s.

Province: *British Columbia*

Township:

Claims: *JAG 19-22, 39-44, 51-56*



# X-RAY ASSAY LABORATORIES

LIMITED

46 LESMILL ROAD

DON MILLS ONTARIO M3B 2T8

445-5756

## Certificate of Analysis

NO. 10329 PAGE

TO: Mr. Tom Gladhill, P.Eng.,  
21 Sandalwood Place,  
Don Mills, Ont.

RECEIVED Oct.12/73

INVOICE NO. 10329

SAMPLE(S) OF 2 Rock

SUBMITTED TO US SHOW RESULTS AS FOLLOWS:

<u>Sample</u>	<u>% Cu</u>	<u>Au.oz/ton</u>	
A	0.55	Trace	14
B	1.24	Trace	4



X-RAY ASSAY LABORATORIES LIMITED

DATE Oct.16/73

CERTIFIED BY

A handwritten signature in dark ink, appearing to be "T. P. Gladhill", written over a horizontal line.

# X-RAY ASSAY LABORATORIES

LIMITED

45 LESMILL ROAD

DON MILLS ONTARIO M3B 2T8

445-5755

## Certificate of Analysis

NO. 10349 PAGE

TO: Mr. Tom Gledhill, P.Eng.,  
21 Sandalwood Place,  
Don Mills, Ont.

RECEIVED Oct. 12/73

INVOICE NO. 10349

SAMPLE(S) OF 25 Soils

SUBMITTED TO US SHOW RESULTS AS FOLLOWS:

<u>Sample</u>	<u>Cu ppm</u>	<u>Mo ppm</u>
J1961	16	2
62	25	X
63	68	2
64	56	3
65	67	4
66	58	6
67	120	4 ✓
68	13	X
69	23	X
J1970	86	2 ✓
71	19	X
72	40	X
73	59	2
74	43	2
75	200	3 ✓
76	35	X
77	65	X
78	145	2 ✓
79	27	X
J1980	52	X
81	100	2 ✓
82	53	X
83	62	X
84	60	3
J1985	45	2



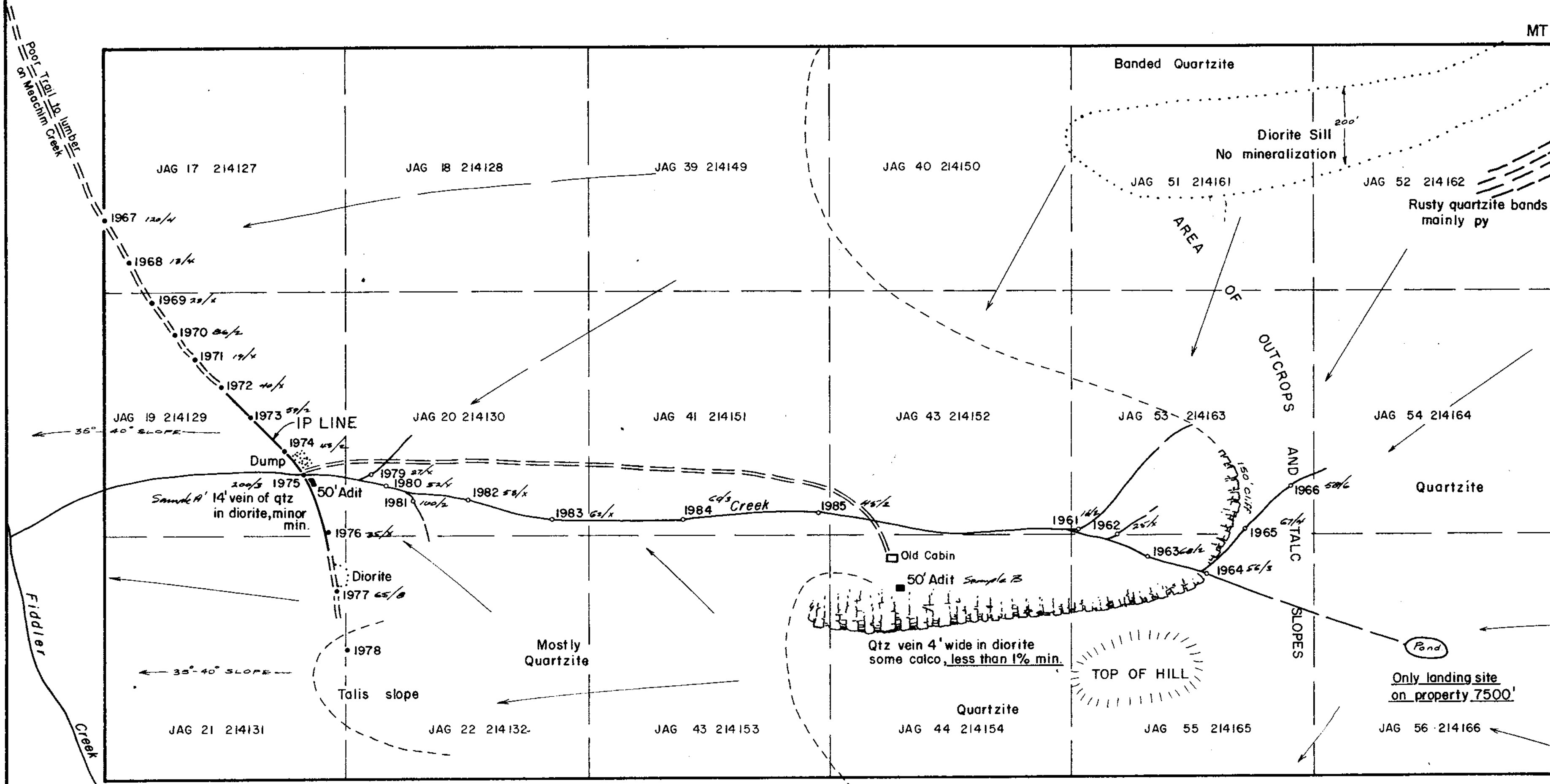
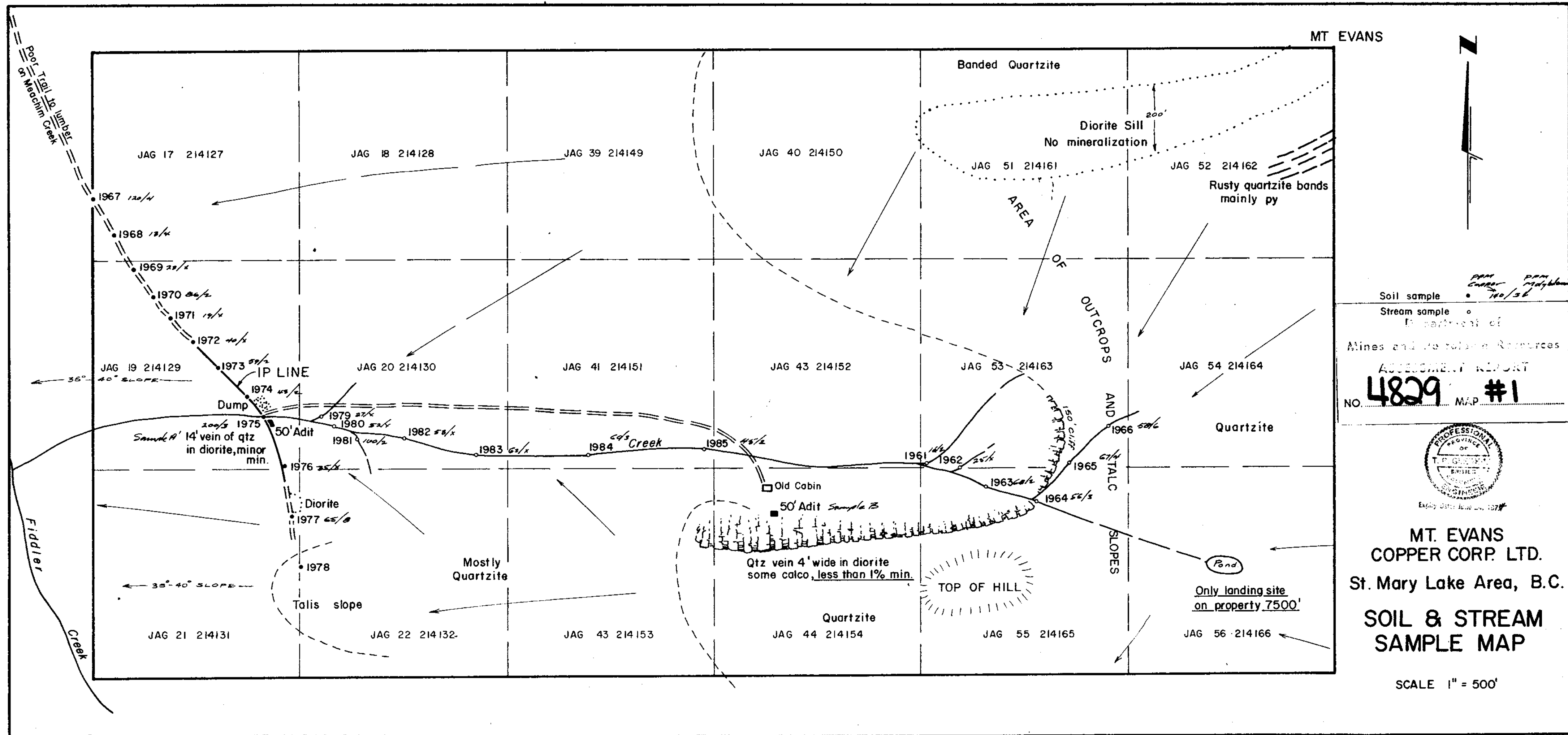
Expiry Date: June 24, 1979

Note: X = less than 1 ppm Mo

X-RAY ASSAY LABORATORIES LIMITED

DATE Oct. 18/73

CERTIFIED BY 

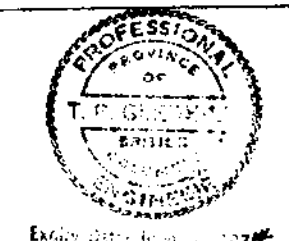


Soil sample PPM  
Copper PPM  
100/26 100/26

Stream sample PPM  
Copper PPM  
100/26 100/26

Department of  
Mines and Geotechnical Resources

**ASSESSMENT REPORT**  
**NO. 4829 MAP #1**



**MT. EVANS**  
**COPPER CORP. LTD.**  
**St. Mary Lake Area, B.C.**  
**SOIL & STREAM**  
**SAMPLE MAP**

SCALE 1" = 500'