REPORT DATED

October 12, 1976



# R E D  M I N E R A L  C L A I M

Kamloops Mining Division

by

J.M. BLACK, P.ENG., PHD.

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## INTRODUCTION

An uncommon type of mineral occurrence was discovered by John Spelay about ten years ago. At that time lead, zinc and silver prices were much lower than now. After some bulldozing, work was stopped. Mr. Spelay located the Red Claim (Record #5246) of six units, this season and, subsequent to the writer's examination on September 18th and 19th, located some more units which are designated the Pat Claim (Record #5962) and Fir Claim (Record #5623), all of which are shown together with the Adams Plateau property of Orell Copper Mines Ltd. on the Map attached as Figure 1.

## LOCATION & ACCESS

The mineral occurrences are on the north ridge of the mountain known locally as Little Lichen. It is about seven miles southwest of Lichen Mountain and is about one and one quarter miles southwest of Snuff Box Creek (a major tributary of Scotch Creek). It is at Latitude 51° 05 min. North and Longitude 119° 24 min. West.

It is on a sheep trail that was used to lead sheep to and from alpine meadows on Lichen Mountain. It is reached by fair roads to the points shown on the sketch map attached as Figure 2. From the end of the east road, a flag trail leads to

the sheep trail, which is still well-defined. Quartz veins in the southwest part of the property are on a road that branches from the first road near the crest of the ridge.

Outcrops are scarce near the gentle crest of the ridge. They are more abundant on the flanks of the ridge where the ground slopes more steeply. The area is well-treed except where it has been logged recently. The elevation is between 5,500' and 6,000'.

GEOLOGY

The geoligical map of the area shows no outcrops near the showings. The following comments are based on observations made when examining the property.

A short distance south of the end of the east road, thin and thick beds of light colored limestone are exposed in several large outcrops. These beds strike northeast and dip moderately northwestward.

Above these beds are thin, dark argillaceous beds. Abundant shiny black flakes commonly occur as float. Good exposures are seen in the southwest in road cuts. The beds generally dip northwestward and are apparently conformable with the underlying limestone, In some of the road cuts the beds are crumpled

and dragged and faulted.

Above this argillaceous sequence is a group of dark, thin-bedded limestones. Some of these occur at the main mineral occurrence and there, large blocks have been disturbed by bulldozing. Nearby limestones strike north 50° east and dip moderately northwestward and appear to be conformable with the underlying sequence.

Separated from these dark limestones by a covered interval of about 50', are rusty, slighty schistose volcanics, probably of intermediate composition. They also strike north 50° east and dip 30° northwestward and also appear to be conformable. Corrugations on the bedding plains pitch a little north of west.

This volcanic sequence is about 200' thick and is overlain by grey limestone that has about the same attitude as the underlying beds. These are the uppermost beds seen. The northwest corner of the claim was not examined.

Outcrops of dark grey dykes are common. They are more resistant to erosion than the bedded rocks.

## ECONOMIC GEOLOGY

Two types of mineralization occur on the property. The

one of greatest interest is a lens or possibly a cylinder at the base of the volcanic sequence. Blocks of mineralization, not in place, are abundant within an area of about 20' X 30'. It comprises fine-grained, almost black material, irregular white quartz veinlets, fragments of dark limestone, white oxides and some galena and sphalerite. A sample that comprised numberous large fragments (#48593) assayed as follows: lead 1.13%, zinc 3.95%, silver 3.1 oz/ per ton.

30 element spectrographic analysis of this material assayed as follows:

| ELEMENT | | ELEMENT | |
|---|---|---|---|
| Aluminum | 0.3 | Manganese | * |
| Antimoney | 0.01 | Molybdenum | 0.001 |
| Arsenic | trace | Nickel | 0.1 |
| Barium | ND | Niobium | ND |
| Beryllium | ND | Potassium | ND |
| Bismuth | ND | Silicon | major |
| Boron | ND | Silver | 0.03 |
| Cadmium | 0.05 | Sodium | 2. |
| Calcium | major | Strontium | 0.03 |
| Chromium | 0.01 | Tantalum | ND |
| Cobalt | ND | Thorium | ND |
| Copper | 0.07 | Tin | 0.07 |
| Gallium | ND | Titanium | 0.1 |
| Gold | trace | Tungsten | ND |
| Iron | 2. | Uranium | ND |
| Lead | * | Vanadium | 0.01 |
| Magnesium | 5.+ | Zinc | * |

major - abover normal spectrographic range
trace - detected but minor amounts
ND - not detected
* - suggest assay (above 0.3%)

The mineralogy of the near black material is unknown.

It contains a considerable proportion of manganese and manganese oxides may account for much of the dark color. Some of the manganese may have come from the material that darkened the limestone that was being deposited just before vulcanism. The magnesium probably had the same source. The attitude of the occurrence is also not known.

From its location, appearance and composition, it is likely that it formed from exhalations from vulcanism that ended the deposition of the dark limestone beds. If so, it is of considerable interest and similar mineralization may occur at other points at the base of the volcanics.

A sample (#48591) comprising many chips from the volcanic rocks assayed 0.12 oz. silver per ton. The presence of appreciable silver in the volcanics may be considered as additional evidence that the source of the volcanics was also the source of the mineralization.

The other type of mineralization includes quartz veins, some of which are mineralized with galena and tetrahedrite.

Several veins occur near the dark mineralization. Some are in the volcanics and some are in the limestone. Some of those in the limestone are conformable to the bedding and others cross

it. They are not mineralized.

In the volcanics several veins less than 1" wide, strike slightly east of south toward the dark mineralization. They also are unmineralized. A parallel vein about 2" wide contains abundant galena and tetrahedrite. A sample (#48592) ran 44.25% lead and 86.8 oz. per ton silver.

The ratio of silver to lead is much the same as in the dark material and this may indicate that they have a similar source. If the dark mineralization was formed by exhalation, possibly subsequent pressure caused fracturing and remobilization of sulphides into somewhat younger veins.

Other quartz veins are exposed near road cuts in the southwest. Some of them are unmineralized. One, 18" wide, dips steeply eastward. It contains galena and tetrahedrite and much red and yellow rust. A sample (#48589) from it ran 4.92% lead and 12.5 oz. silver per ton. This ratio is somewhat similar to that at the other occurrences and suggests the possibility that this mineralization also is related to the vulcanism.

The relationship of these veins to the base of the volcanic sequence is unknown. The volcanics are striking toward this area and may be fairly close.

## CONCLUSIONS

A mineralized lens or cylinder, possibly of exhalative origin, occurs at the base of a volcanic sequence. It was found because it happens to outcrop. Other similar occurrences at the base of the volcanics could be of considerable interest.

## RECOMMENDATIONS

That the base of the volcanic sequence be prospected to look for similar or related mineralization.

## PROSPECTING PROCEDURE

This can be done by traversing along lines run across the trend (southwesterly and northeasterly) of the base of the volcanics. Possibly other outcrops exist and may be found. If none or insufficient is found, recourse can be made to geophysics or geochemistry.

The volcanics are probably more magnetic than the underlying and overlying limestones and probably their extent can be delineated by a ground magnetic survey. Alternatively or in addition, an electro-magnetic survey could be run to detect any masses of mineralization that contain sulphides.

The composition of the black lens indicates that it will cause anomalous readings for zinc, silver and lead. A survey for these elements probably would locate any similar occurrences that are close to the surface. Also the volcanics contain silver and this could be used to distringuish between limestone and volcanics.

COST

This cannot be estimated closely until preliminary surface prospecting is done. If mineralized outcrops are found, the prospecting may be accomplished at low cost. If few or no outcrops are found, then geochemistry or geophysics will be necessary. If anomalies are found, they will need to be trenched or drilled.

The estimated costs of a two stage exploration program are as follows:

Stage 1. Systematic Prospecting of Area

Estimated Costs:

| | | |
|---|---|---|
| (a) | Administration and Travel | $4,000 |
| (b) | Engineering | 2,000 |
| (c) | Surveying grid baseline and lateral lines | 2,500 |
| (d) | Prospecting along grid lines and search for outcrops on areal photographs | 3,000 |
| (e) | Interim report with recommendations | 1,000 |
| (f) | Contingencies @ 10% | 1,250 |
| | | $13,750 |

Stage 2. Geophysics, Geochemistry & Stripping

Estimated Costs:

| | | |
|---|---|---|
| (a) | Geochemical surveys, assays, interpretation and report | $5,000 |
| (b) | Magnetic, geological and electromagnetic surveys and reports | 5,000 |
| (c) | Assaying | 2,000 |
| (d) | Report on results and recommendations | 2,000 |
| (e) | Bulldozer trenching and stripping | 5,000 |
| (f) | Detailed geochemical and geological studies and assays | 6,000 |
| (g) | Report | 2,500 |
| (h) | Contingencies @ 10% | 2,750 |
| | | $30,250 |
| | Stage 1. Cost | 13,750 |
| | TOTAL ESTIMATED COST | $44,000 |

If drill targets are obtained it would be necessary to drill these as the next stage of exploration.

J.M. Black, P.Eng.
Consulting Geologist
October 12, 1976

# C E R T I F I C A T E

I, J.M. Black, of 843 Prospect Avenue, North Vancouver, B.C., do hereby certify that:

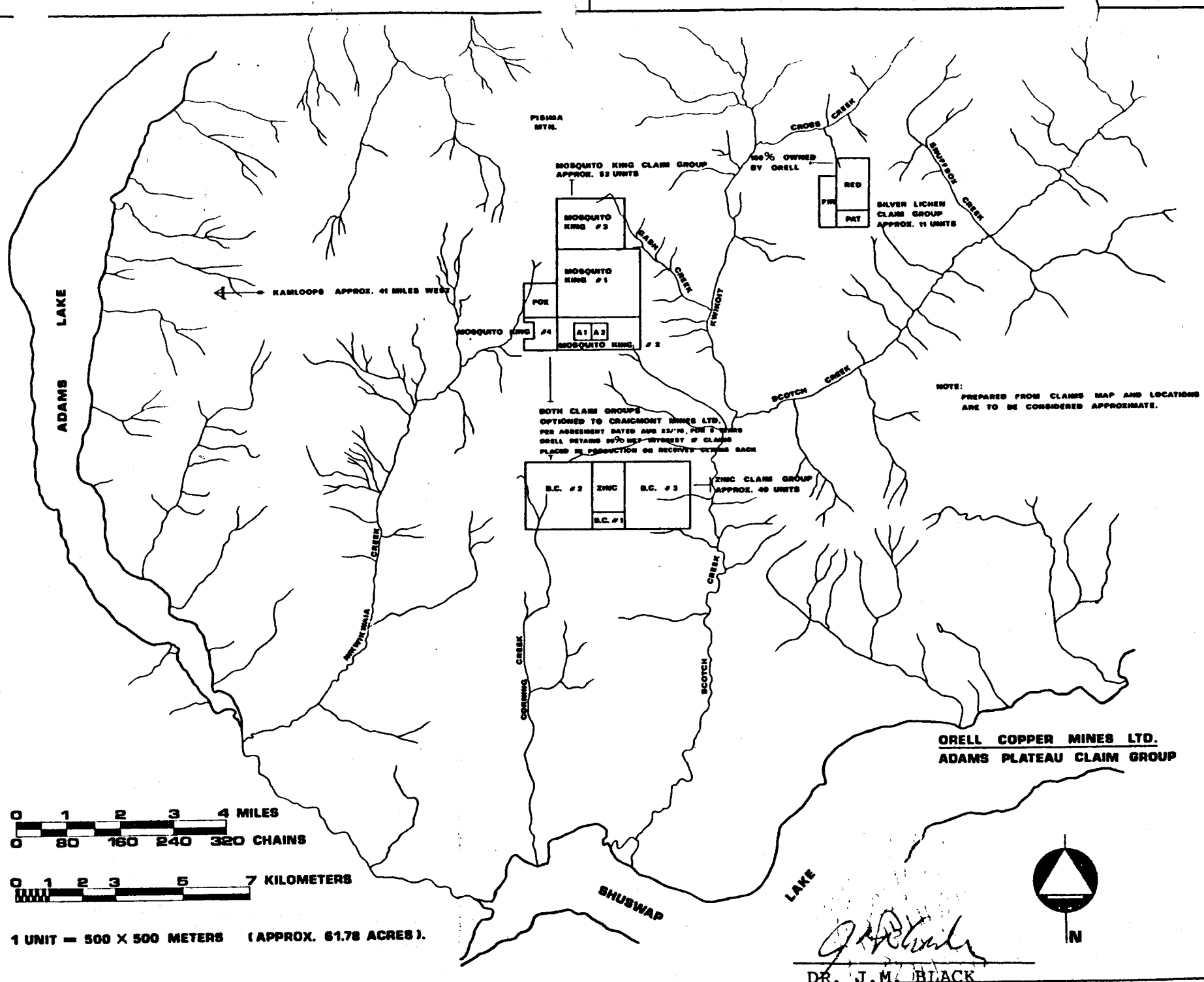
1) I am a graduate of U.B.C. in geological engineering with degrees of B.A.Sc and M.A.Sc., and a graduate of McGill University with degree of PhD. in economic geology.

2) I am a consulting geologist with broad experience in examination of mineral occurrences.

3) I examined the mineral occurrences reported in the accompanying report.

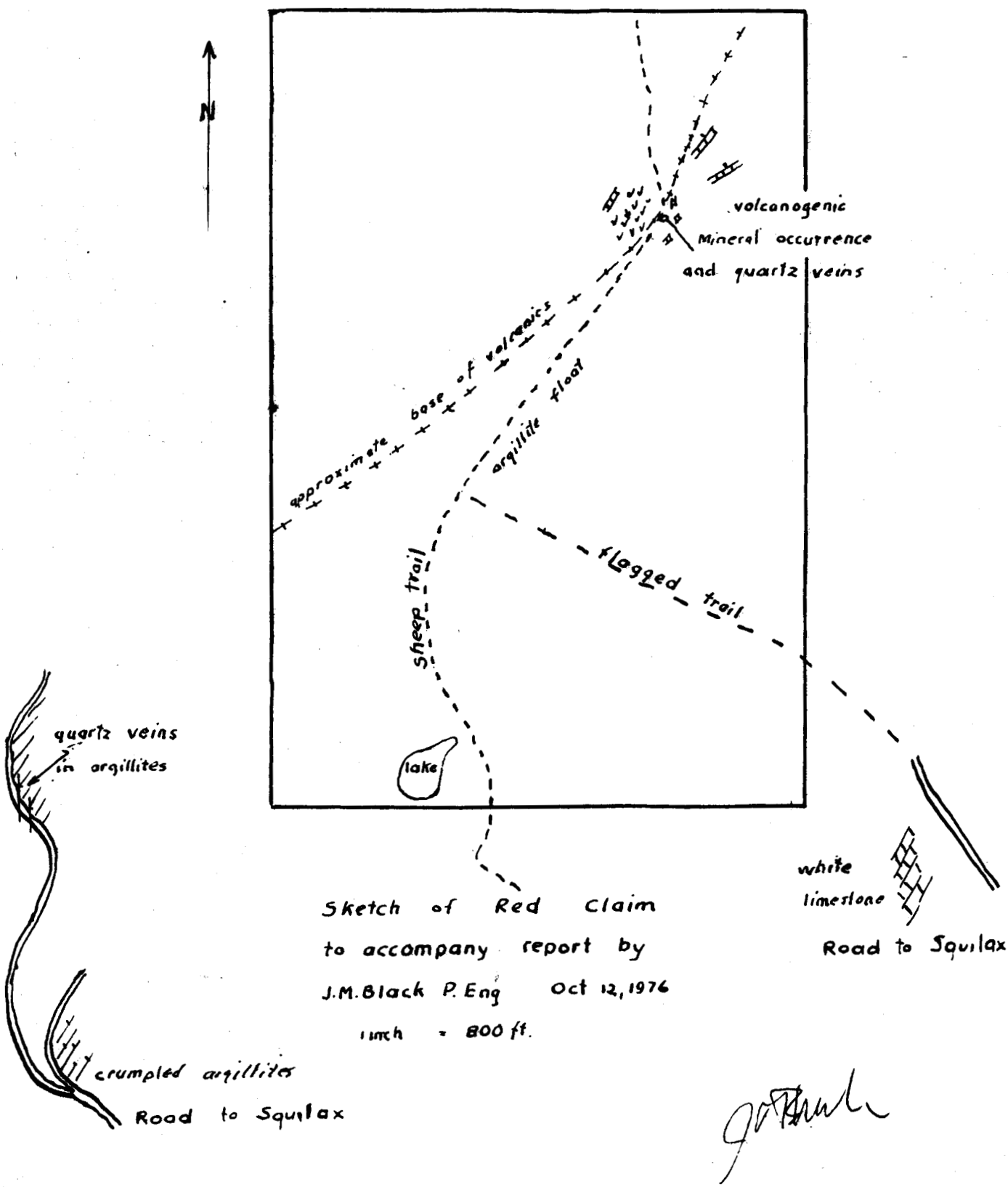
4) I have no beneficial interest in the property described in this report nor do I expect to receive any.

J.M. Black, P.Eng.
Consulting Geologist
October 12, 1976


ADAMS LAKE
FISHMA MTN.
CROSS CREEK
SILVER BOX CREEK
MOSQUITO KING CLAIM GROUP
APPROX. 52 UNITS
100% OWNED BY ORELL
RED
PIN
PAT
SILVER LICHEN CLAIM GROUP
APPROX. 11 UNITS
MOSQUITO KING #3
MOSQUITO KING #1
RAM CREEK
KAMLOOPS APPROX. 41 MILES WEST
POE
MOSQUITO KING #4
A1
A2
MOSQUITO KING #2
KWHOIT
SCOTCH CREEK
NOTE:
PREPARED FROM CLAIMS MAP AND LOCATIONS ARE TO BE CONSIDERED APPROXIMATE.
BOTH CLAIM GROUPS OPTIONED TO CRAIGMONT MINES LTD.
PER AGREEMENT DATED AUG 23/'70. POE 3 YEARS
ORELL RETAINS 50% NET INTEREST IF CLAIMS PLACED IN PRODUCTION OR RECEIVES CERTAIN SUMS EACH
B.C. #2
ZINC
B.C. #3
B.C. #1
ZINC CLAIM GROUP
APPROX. 40 UNITS
CREEK
CORNING CREEK
SCOTCH CREEK
SHUSWAP LAKE
ORELL COPPER MINES LTD.
ADAMS PLATEAU CLAIM GROUP
0 1 2 3 4 MILES
0 80 160 240 320 CHAINS
0 1 2 3 5 7 KILOMETERS
1 UNIT = 500 X 500 METERS (APPROX. 61.78 ACRES).
N

DR. J.M. BLACK

Figure 2.




Sketch of Red Claim
to accompany report by
J.M. Black P. Eng Oct 12, 1976
1 inch = 800 ft.

Dr. J.M. Black

BONDAR-CLEGG & COMPANY LTD.

764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110 TELEX: 053-3548

8912

INVOICE: No 8912

DATE: Sept 20, 1976

REPORT NO: A76 - 694

PROJECT:

W.O.No. A 6104

Orell Copper Mines Ltd.
P.O. Box 457
Salmon Arm, B.C.
V0E 2T0

| | | | | |
|---|---|---|---|---|
| 1 | Gold and Silver | Assay | @ $ 8.50 | $ 8.50 |
| 1 | Silver | Assay | @ $ 5.00 | 5.00 |
| 1 | Copper | Assay | @ $ 4.50 | 4.50 |
| | | | | $ 18.00 |

jlm

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ACCOUNTS DUE WHEN RENDERED

To: Orell Copper Mines Ltd.

PAGE No. 1

REPORT No A26 - 694

DATE: September 20, 1976

# BONDAR-CLEGG & COMPANY LTD.

## CERTIFICATE OF ASSAY

P.O. Box 457
Salmon Arm, B.C.
V0E 2T0

Samples submitted: September 14, 1976
Results completed: September 20, 1976

I hereby certify that the following are the results of assays made by us upon the herein described pulp & ore samples.

| MARKED | GOLD | | SILVER | Cu | | | | | | | TOTAL VALUE PER TON (2000 LBS.) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ounces per Ton | Value per Ton | Ounces per Ton | Percent | Percent | Percent | Percent | Percent | Percent | Percent | |
| Lichen #5 | - | | 2.6 | - | | | | | | | |
| #6 | 0.01 | | 0.49 | 0.05 | | | | | | | |

Registered Assayer, Province of British Columbia

BONDAR-CLEGG & COMPANY LTD.

764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110 TELEX: 053-3548

INVOICE: No 8977 8977

DATE: Sept 24, 1976

REPORT NO: A26 - 716

PROJECT:

Orell Copper Mines Ltd.
P.O. Box 457
Salmon Arm, B.C.
V0E 2T0

W.O.No. A 6130

| | | | | |
|---|---|---|---|---|
| 1 | Gold and Sivler | Assays | @ $ 8.50 | $ 8.50 |
| 1 | Lead | Assay | @ $ 5.50 | 5.50 |
| 1 | Zinc | Assay | @ $ 5.50 | 5.50 |
| | | | | $19.50 |

jlm

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To: Orell Copper Mines Ltd.

PAGE No. 1

REPORT No A26 - 716

DATE: Sept 24, 1976

# BONDAR-CLEGG & COMPANY LTD.

## CERTIFICATE OF ASSAY

P.O. Box 457
Salmon Arm, B.C.
V0E 2T0

Samples submitted: Sept 17, 1976
Results completed: Sept 24, 1976

I hereby certify that the following are the results of assays made by us upon the herein described ore samples.

| MARKED | GOLD | | SILVER | Pb | Zn | | | | | | TOTAL VALUE PER TON (2000 LBS.) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ounces per Ton | Value per Ton | Ounces per Ton | Percent | Percent | Percent | Percent | Percent | Percent | Percent | |
| Lichen # 7 | 0.010 | | 18.3 | 10.90 | 0.22 | | | | | | |

Registered Assayer, Province of British Columbia

BONDAR-CLEGG & COMPANY LTD.

764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110 TELEX: 053-3548

8818

INVOICE: № 8818

DATE: September 14, 1976

REPORT NO: A26 - 637

PROJECT:

W.O. No. A6046

O'Brell Copper Mines Ltd.
P.O. Box 457
Salmon Arm, B. C. V0E 2T0

| | | | | |
|---|---|---|---|---|
| 4 | Silver | Assays | @ $ 5.00 | $ 20.00 |
| 4 | Copper | Assays | @ $ 4.50 | 18.00 |
| 3 | Lead | Assays | @ $ 5.50 | 16.50 |
| 3 | Zinc | Assays | @ $ 5.50 | 16.50 |
| 1 | 30 Element Spec. | Assays | @ $20.00 | 20.00 |
| | | | | $ 91.00 |

vm

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ACCOUNTS DUE WHEN RENDERED

To: Orell Copper Mines

PAGE No. 1

REPORT No A26 - 637

DATE: September 9, 1976

**BONDAR-CLEGG & COMPANY LTD.**

P.O. Box 457
Salmon Arm
V0E 2T0

# CERTIFICATE OF ASSAY

Samples submitted: September 1, 1976
Results completed: September 9, 1976

I hereby certify that the following are the results of assays made by us upon the herein described ore samples.

| MARKED | GOLD | | SILVER | Cu | Pb | Zn | | | | | TOTAL VALUE PER TON (2000 LBS.) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ounces per Ton | Value per Ton | Ounces per Ton | Percent | Percent | Percent | Percent | Percent | Percent | Percent | |
| Lichen 1 | 0.01 | | 112.9 | 0.65 | 3.64 | 3.58 | | | | | |
| 2 | 0.01 | | 5.6 | 0.05 | 2.85 | 6.78 | | | | | |
| 3 | L0.002 | | 0.58 | 0.01 | - | - | | | | | |
| 4 | 0.01 | | 127.9 | 0.88 | 47.3 | 0.94 | | | | | |

L denotes 'Less than'

Spec to follow

Registered Assayer, Province of British Columbia

BONDAR-CLEGG & COMPANY LTD.

*geochemists ● assayers ● analytical chemists*

1500 PEMBERTON AVENUE, NORTH VANCOUVER, B. C. V7P 2S2
PHONE: 985-0681

REPORT OF: SEMI QUANTITATIVE SPECTROGRAPHIC ANALYSES REPORT No. A26 - 637

PROJECT: DATE: September 14, 1976

REPORTED TO: Orell Copper Mines Ltd.

P. O. Box 457

Salmon Arm, B.C.

V0E 2T0

| ELEMENT | Lichen #5 | ELEMENT | Lichen #5 |
|---|---|---|---|
| Aluminum | 0.3 | Manganese | * |
| Antimony | 0.01 | Molybdenum | 0.001 |
| Arsenic | trace | Nickel | 0.1 |
| Barium | ND | Niobium | ND |
| Beryllium | ND | Potassium | ND |
| Bismuth | ND | Silicon | major |
| Boron | ND | Silver | 0.03 |
| Cadmium | 0.05 | Sodium | 2. |
| Calcium | major | Strontium | 0.03 |
| Chromium | 0.01 | Tantalum | ND |
| Cobalt | ND | Thorium | ND |
| Copper | 0.07 | Tin | 0.07 |
| Gallium | ND | Titanium | 0.1 |
| Gold | trace | Tungsten | ND |
| Iron | 2. | Uranium | ND |
| Lead | * | Vanadium | 0.01 |
| Magnesium | 5.+ | Zinc | * |

major - above normal spectrographic range
trace - detected but minor amounts
ND - not detected
* - suggest assay (above 0.3%)

BONDAR-CLEGG & COMPANY LTD.

784 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110 TELEX: 053-3548

INVOICE: No 9007 9007

DATE: Sept 26, 1976

REPORT NO: A26 - 721

PROJECT:

W.O.No. A 6135

Orell Copper Mines Ltd.
P.O. Box 457
Salmon Arm, B.C.

| | | | | |
|---|---|---|---|---|
| 5 | Silver | Assays | @ $ 5.00 | $ 25.00 |
| 3 | Lead | Assays | @ $ 5.50 | 16.50 |
| 1 | Zinc | Assay | @ $ 5.50 | 5.50 |
| 1 | 30 element spectrographic analysis | | @ $20.00 | 20.00 |
| | | | | $ 67.00 |

jlm

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To: Orell Copper Mines Ltd.

PAGE No. 1

REPORT No A26 - 721

DATE: Sept 26, 1976

P.O. Box 457
Salmon Arm, B.C.

# BONDAR-CLEGG & COMPANY LTD.

## CERTIFICATE OF ASSAY

Samples submitted: Sept 20, 1976
Results completed: Sept 26, 1976

I hereby certify that the following are the results of assays made by us upon the herein described ore samples.

| MARKED | GOLD | | SILVER | Pb | Zn | | | | | | TOTAL VALUE PER TON (2000 LBS.) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ounces per Ton | Value per Ton | Ounces per Ton | Percent | Percent | Percent | Percent | Percent | Percent | Percent | |
| 48589 A | | | 12.5 | 4.92 | - | | | | | | |
| 48590 | | | 0.34 | - | - | | | | | | |
| 48591 | | | 0.12 | - | - | | | | | | |
| 48592 | | | 86.8 | 44.25 | - | | | | | | |
| 48593 | | | 3.1 | 1.13 | 3.95 | | | | | | |

cc Mr. J. Black

Registered Assayer, Province of British Columbia

BONDAR-CLEGG & COMPANY LTD.

*geochemists ● assayers ● analytical chemists*

1500 PEMBERTON AVENUE, NORTH VANCOUVER, B. C. V7P 2S2
PHONE: 985-0681

REPORT OF: SEMI-QUANTITATIVE SPECTROGRAPHIC ANALYSIS REPORT No. A26 - 721

PROJECT: DATE: Oct 6, 1976

REPORTED TO: Orell Copper Mines Ltd.

P. O. Box 457

Salmon Arm, B.C.

| ELEMENT | #48591 | ELEMENT | #48591 |
|---|---|---|---|
| Aluminum | 4. | Manganese | .1 |
| Antimony | ND | Molybdenum | ND |
| Arsenic | ND | Nickel | .003 |
| Barium | ND | Niobium | ND |
| Beryllium | ND | Potassium | .005 |
| Bismuth | ND | Silicon | Metrix |
| Boron | ND | Silver | Trace |
| Cadmium | ND | Sodium | 2. |
| Calcium | 1. | Strontium | ND |
| Chromium | .01 | Tantalum | ND |
| Cobalt | .001 | Thorium | ND |
| Copper | .01 | Tin | ND |
| Gallium | ND | Titanium | .5 |
| Gold | ND | Tungsten | ND |
| Iron | > 5. | Uranium | ND |
| Lead | .01 | Vanadium | .007 |
| Magnesium | 3. | Zinc | ND |

Matrix - major constituent
Trace - detected but minor amounts
ND - not detected

BONDAR-CLEGG & COMPANY LTD.

J. German
Registered Assayer
Province of British Columbia

cc Mr. J. Black
JG/jlm