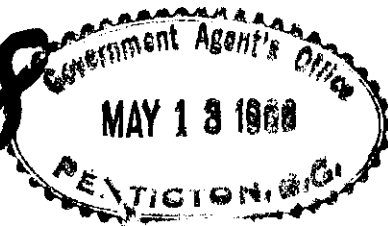


PEN 1-24, PAL 1-12, AXE 1-12  
Geological and Geochemical Report  
On Part Of  
"Osoyoos" Group  
Osoyoos Mining Division, B.C.  
10 Feb 68 R. E. Renshaw, P. Eng  
OWNER: MULTIPLE MINING LTD (NPL)  
490 1190 SW 82 F4E

1228

1228



GEOLOGICAL AND GEOCHEMICAL REPORT ON THE

"OSOYOOS" GROUP

OSOYOOS, B. C., OSOYOOS MINING DIVISION

by

R. E. Renshaw, P. ENG.

49° - 00' N

119° - 35' W

10 February 1968

R. E. RENSHAW P.ENG.

## TABLE OF CONTENTS

Introduction -----	1
Location -----	1
Access -----	1
Topography -----	2
Timber -----	2
Water -----	2
Power -----	2
Supplies -----	2
Accommodation -----	3
Climate -----	3
History -----	3
Claims -----	3
Adjacent Claims -----	5
Field Procedure -----	5
Geology -----	6
Mineralization -----	7
Geochemical Surveys and Results -----	8
Economic Considerations -----	9
Recommendations -----	9
Estimated Costs -----	9

## MAPS

Location Map - # 1 -----	Front
Claim Map - # 2 -----	Pocket
Geology Map - # 3 -----	Pocket
Geology and Geochemical Detail - # 4 -----	Pocket

## APPENDICES

Estimated Costs -----	A
Certificate of Qualification -----	B

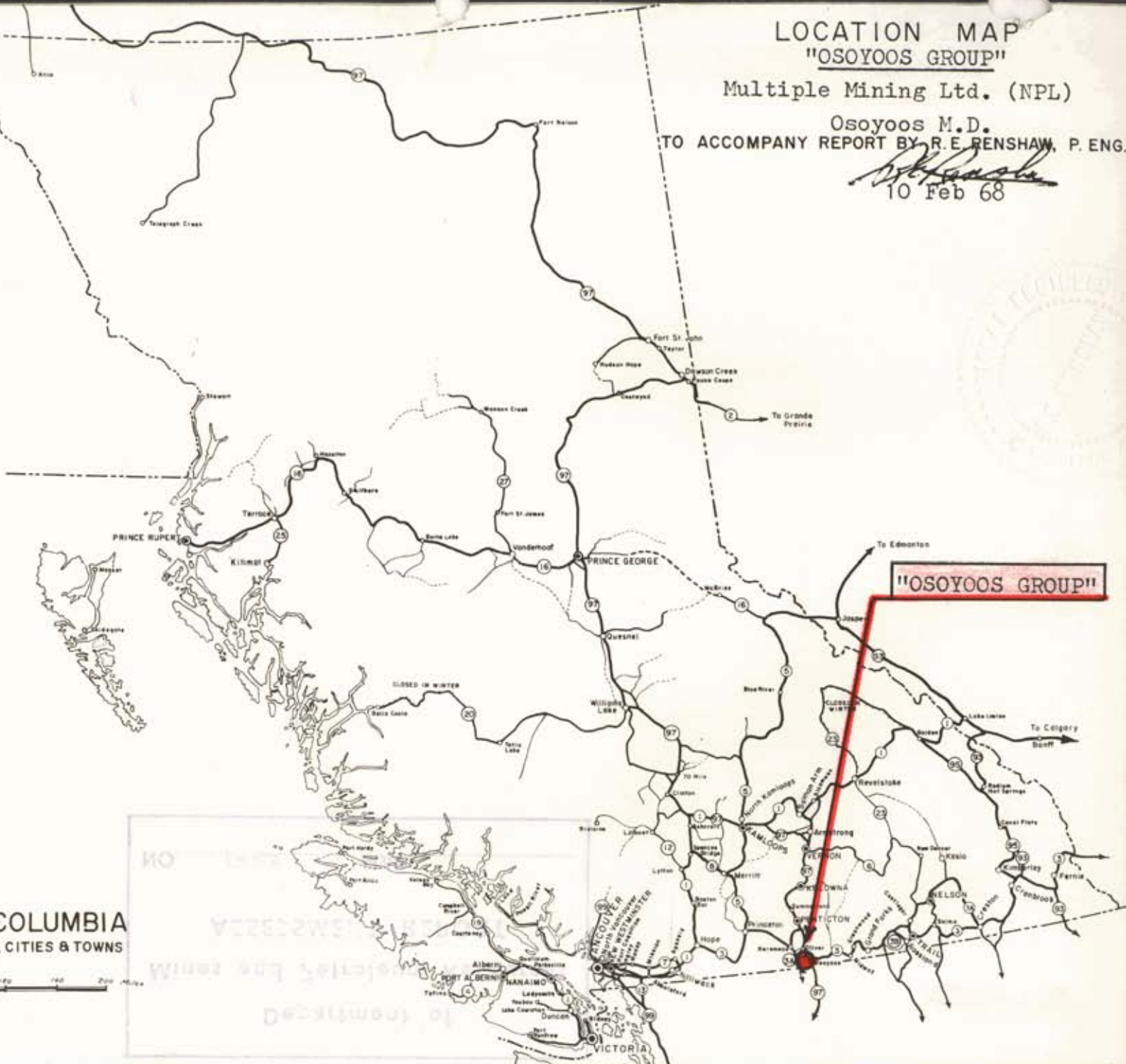
LOCATION MAP  
"OSOYOOS GROUP"

Multiple Mining Ltd. (NPL)

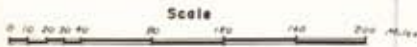
Osoyoos M.D.

TO ACCOMPANY REPORT BY R. E. RENSHAW, P. ENG.

*R. E. Renshaw*  
10 Feb 68



BRITISH COLUMBIA  
MAIN HIGHWAYS, CITIES & TOWNS



R. E. RENSHAW P. ENG.

R. E. RENSHAW P.ENG.  
GEOLOGICAL ENGINEER  
MINING GEOLOGIST

GEOLOGICAL AND GEOCHEMICAL REPORT ON THE  
"OSOYOOS" GROUP  
OSOYOOS, B. C., OSOYOOS MINING DIVISION

INTRODUCTION

This report is prepared at the request of Multiple Mining Ltd. (NPL) of 33 - 10th Avenue, South, Cranbrook, B. C. Its purpose was to check the validity of the staking of the claims, map the geology, make a partial geochemical survey of a portion of the claims, and to recommend and lay out an exploration program for its development.

A total of 3-1/2 months were spent on the line cutting, 21 days for field examination of geology, and three weeks for the geochemical assays and report preparation.

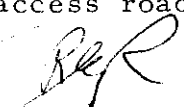
LOCATION

The claims are located 6 miles northwest from Osoyoos, B. C. and 3/4 mile north of the International border. Their approximate geographical position is 49-00 north latitude and 119-35 west longitude.

ACCESS

Access to the claims is from the paved Southern Transprovincial Highway 3 about 6 miles north from Osoyoos and thence by good gravel, all-weather logging and ranch roads which lead to all parts of the claims.

Little or no money will be required to build access roads through the claims.



TOPOGRAPHY

Topography is not extreme. It ranges from 900 feet at Osoyoos Lake some 6 miles to the east to a maximum of 4500 feet on the higher portions of the claims. The average elevation is about 3500 feet. The hillsides are gentle rolling, modified by glaciation, and have a few gullies formed by arid erosional conditions. A thin mantle of glacial debris covers almost 90% of the claims and outcrops are limited in extent, mainly on the higher portions of the claims.

TIMBER

Timber is relatively scarce on the claims and most of the commercial fir and pine has been logged. However, sawn timbers and lumber can be purchased locally from numerous sawmills in the vicinity.

WATER

No permanent flowing streams are present on the claims. However, there are numerous small lakes which can supply ample water for all mining, milling, diamond drilling, and domestic use.

POWER

No hydro-electric power source is available on the claims. The closest source is at Osoyoos, B. C. At least 6 miles of transmission line would be required to connect with that source.

SUPPLIES

Nearly all supplies can be purchased locally in Osoyoos or Penticton. If they are not available there they can be shipped in from Vancouver within hours by good daily motor freight or air express. *RE*

R. E. RENSHAW P.ENG.

### ACCOMMODATION

No accommodation is available on the property with the exception of a few old sheds and barns from long abandoned homesteads. No provision for a bunkhouse or cookery need be made as it is less than 30 minutes travel time from Osoyoos. Ample accommodation is available at that center.

### CLIMATE

The climate is arid to semi-arid with a total precipitation of about 10 inches per year or less and falls mostly in the form of snow from December to March. Summer temperatures may reach a high of 80-85 degrees while winter lows may reach 20-25 degrees below zero for 1 or 2 weeks in January or February. The usual winter temperatures are seldom below the zero mark. Climatic conditions are such that year round mining and exploration can be carried out with little or no lost time from inclement weather.

### HISTORY

No previous history of the claims is known but several very old location posts were found indicating that staking had been done 50 or 60 years ago in the area. Several test pits were also dug at that time on various copper showings on the claims.

### CLAIMS

The "Osoyoos" group consists of 96 claims all held by the right of location and comprises some 4800 acres, more or less.

All claims are properly staked and have the correct tags and inscriptions on the posts. The claims are recorded in the Mining Office of the Osoyoos Mining Division of British Columbia at Penticton and are shown on Government Map 82E/4E-M.

  
R. E. RENSHAW P.ENG.

The group consists of the following claims.

Pen 1 to 24	Record Numbers 14985 to 15008 Tag Numbers 686823 to 686846 Staked 11 May 66 Recorded 25 May 66
Pal 1 to 12	Record Numbers 15009 to 15020 Tag Numbers 686879 to 686890 Staked 13 May 66 Recorded 25 May 66
Axe 1 to 12	Record Numbers 15021 to 15032 Tag Numbers 704317 to 704328 Staked 16 May 66 Recorded 25 May 66
Hen 1 to 16	Record Numbers 15033 to 15048 Tag Numbers 686847 to 686862 Staked 13 May 66 Recorded 25 May 66
Old 1 to 16	Record Numbers 15049 to 15064 Tag Numbers 686863 to 686878 Staked 13 May 66 Recorded 25 May 66
Joe 1 to 16	Record Numbers 15065 to 15080 Tag Numbers 704301 to 704316 Staked 16 May 66 Recorded 25 May 66

No apparent contraventions are shown on the records but Map 82E/4E-M indicates several contraventions which fall into two categories: valid or invalid.

A. INVALID

This category includes 4 claims, Orva 14 to 17. These claims are shown on the staking map as covering Old 11 and 12 and Joe 7 and 5. An on-the-ground search revealed that these claims are incorrectly plotted on the map as the Orva posts were found to lie north of Old 1 and 2.

R. E. RENSHAW P.ENG.



## B. VALID

The staking map shows claims Cal 7, 8, 9, 10, 16, 19 and Buck 1 to 3 covers all or parts of Pen claims 3 to 6, 8, 10, and 18 to 22. The location lines for the Cal claims were found slightly east of their plotted positions. No Buck posts were found. These claims have been located since 1963 and have had considerable research done on them for the nepheline content of the underlying syenite stock, hence it is considered that they are properly staked and take precedence over the Pen claims.

## ADJACENT CLAIMS

Utica Mines Ltd. which lie to the northwest of the "Osoyoos" group has developed a silver-lead property and is currently operating a 200 ton per day flotation mill. Coin Silver Mines Ltd. which are located to the south and east are actively engaged in a program of geophysical exploration, bulldozing and diamond drilling to prove large tonnages of low grade copper mineralization. Cayum Mines Inc. and Cambri Mines Ltd., both of which are situated to the south in the United States, are similarly engaged in developing large low grade copper types of deposits.

## FIELD PROCEDURE

The general geology of the area was compiled and plotted from pace and compass traverses of the claim location lines as well as traverses along the numerous roads through the claims and adjoining ground.

Based upon the results of the general mapping, a grid covering an area approximately 7500 feet east-west and 8800 feet north-south was laid out on a grid spacing of 400 feet with stations every 100 feet. One hundred and seventy one thousand, nine hundred feet (171,900) of line were cut and chained.

R. E. RENSHAW P.ENG.

All outcrops were plotted on a scale of 1 inch to 400 feet, and 1700 soil samples taken and tested for the presence of copper by the rubianic acid method.

## GEOLOGY

The area has been partially mapped by the Geological Survey of Canada, , 38 Daly, "North American Cordillera, 49th parallel, 1912", and by a Preliminary Map by Little, Kettle River, West Half. In addition, an air-borne magnetometer survey of the 49th parallel has been flown by the Geological Survey of Canada.

In general the northeast and southwest section of the claims is underlain by granitic rocks of the Nelson Intrusives of Jura-Cretaceous age. The central portion is underlain by quartzite, phillite, argillite, and greenstone of the Kobau group of Carboniferous age.

The following formations are present:

### MESOZOIC

Jura-Cretaceous  
 Nelson Intrusives  
 Quartz diorite, granodiorite  
 Syenite, Nepheline Syenite

### PALEOZOIC

Carboniferous  
 Kobau Group  
 Quartzite, phillite  
 Argillite, Greenstone

The Kobau group is a highly altered series of sediments and greenstones which form a roof pendant between two stocks or bosses of granitic rocks.

Folding and metamorphism has obliterated structures but in a general way they appear to have a northwesterly strike and a southwesterly dip.

R. E. RENSHAW P.ENG.

Alteration in the quartzite and phillite consists largely of recrystallization of the silica along with the introduction of some carbonate.

Alteration in the argillite consists mainly of minor silicification and some carbonate.

In general the quartzite, phillite, and argillite are buff weathering and highly fractured.

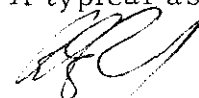
The greenstones show the most alteration. Chlorite, epidote, carbonate, and feldspar are common. In some of the bands enough feldspar has been formed to give a porphyritic texture to the rock. Other bands merely exhibit a recrystallization to form a medium grained dioritic texture.

The quartz diorite is commonly light coloured, medium grained and rich in feldspar and plagioclase. Minor quartz, biotite, and hornblende form the balance of the minerals. A few narrow bands of biotite gneiss are present parallel to the regional structure of the area.

The syenite is a light coloured, medium grained rock rich in feldspar and a fairly high ferromagnesian content. Certain phases of the syenite grade into nepheline syenite which may contain as high as 20% nepheline, 15% to 20% ferromagnesian minerals as pyroxene and biotite and the balance orthoclase and microcline. This is the area largely covered by the Cal and Buck claims.

#### MINERALIZATION

Low grade copper mineralization has been found in all rock types except the syenite and nepheline syenite. Malachite staining has been found in three old pits on Joe 5 and 7 associated with regional northwesterly shearing in the sediments. No apparent walls are present. A typical assay from



R. E. RENSHAW P.ENG.

these sheared and altered sediments is: silver, 0.50 oz/ton; copper, 0.373% and 0.04% molybdenum.

Fine grained chalcocite has been found in the quartz diorite in the northeastern and southwestern section of the claims.

A few almost barren quartz veins of the tension type are present in the quartz diorite and also in the sediments.

The general type of mineralization is typical of low grade porphyry copper deposits prevalent in, or associated with Jura-Cretaceous intrusions and Carboniferous or Triassic rocks of British Columbia.

#### GEOCHEMICAL SURVEY AND RESULTS

At each of the stations along the grid lines and base line a soil sample was taken from just below the grass roots so that no organic matter was present.

The sample was dried and screened to minus 80 mesh. Approximately 1 cc of soil was taken and dissolved in 2 to 3 cc of purified acetic acid which had been buffered with ammonium acetate. After shaking, the solution was filtered on to rubianic acid reaction paper. The presence of copper is determined by the size and tensity of a black dot appearing on the paper. The test is sensitive to 6 parts per million of copper ions. Standards were set up whereby the background, traces, fair, good, and excellent copper content of the soil were established and the results plotted on the accompanying map.

Positive reactions were found present in both the sediments and quartz diorite. Numerous elongated lenticular anomalies are present, several of which are 2800 feet or more in length and 100 to 500 feet wide. The anomaly that is considered to be the most promising lies between Lines 36 and 52 south and covers an area of about 35 acres.

  
R. E. RENSHAW P.ENG.

ECONOMIC CONSIDERATIONS

The "Osoyoos" group is geologically and structurally well located for the presence of porphyry copper type of mineralization. Copper has been found in all rock types except the syenite.

Soil sampling has indicated numerous target zones for exploration.

Little or no prospecting has been done on the other large proportion of the claims and it is considered that they have an equal chance of finding mineralization.

The "Osoyoos" group warrants an exploration program as outlined under the heading of RECOMMENDATIONS.

RECOMMENDATIONS

1. Cut a grid over balance of claims on a spacing of 400 feet with stations every 100 feet.
2. Take soil samples and also make a magnetometer survey using a flux gate type of instrument.
3. Bulldoze anomalous areas located by surveys.
4. Percussion drill targets found by surveys.

ESTIMATED COSTS

My table of estimated costs to carry out the above program is shown as Appendix "A" of this report.



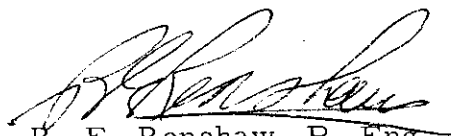
R. E. Renshaw, P. Eng.  
 Consulting Geologist  
 Vancouver, B. C.  
 10 February 1968

R. E. RENSHAW P.ENG.

APPENDIX "A"

TABLE OF ESTIMATED COSTS

1.	Picket lines, balance of claims -----	\$ 8,000.00
2.	Soil samples, magnetometer survey -----	5,000.00
3.	Geochemical and other assays -----	1,000.00
4.	Bulldozing -----	2,000.00 +
5.	Percussion drilling, 5,000 feet -----	30,000.00
6.	Transportation -----	1,000.00
7.	Supplies -----	2,000.00
8.	Engineering and supervision -----	4,000.00
9.	Reserve for contingencies -----	7,000.00 x
	TOTAL -----	\$60,000.00

  
R. E. Renshaw, P. Eng.  
Consulting Geologist  
Vancouver, B. C.  
10 February 1968


R. E. RENSHAW P.ENG.

APPENDIX "B"

CERTIFICATE OF QUALIFICATION

I, Rodney E. Renshaw, hereby certify that:

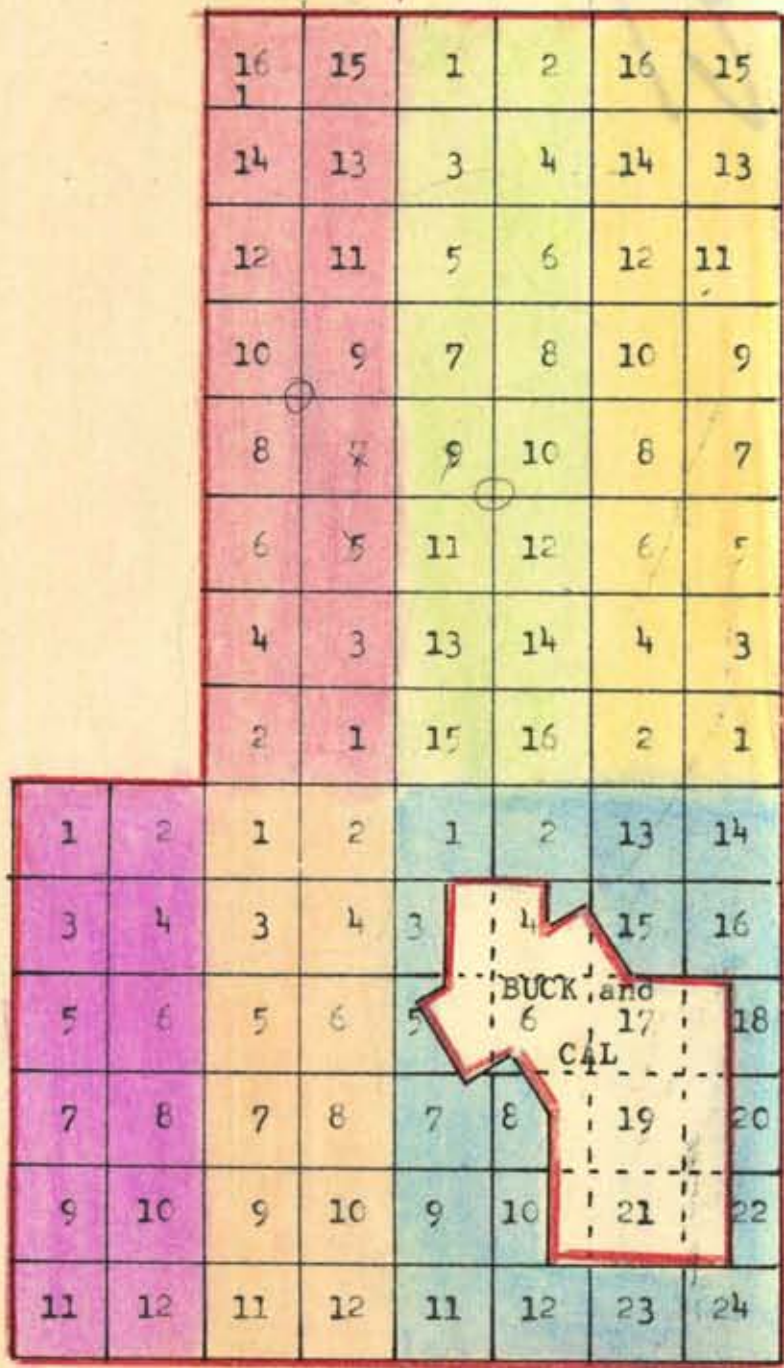
1. This report is based upon my personal examination of the "Osoyoos" group.
2. That I am a graduate of the University of British Columbia with a degree in Geological Engineering.
3. That I am a Registered Professional Engineer of the Province of British Columbia.
4. That I have been practising my profession as a Consulting Geologist during the past 20 years.
5. That I have no interest in the claims or shares of the Company, direct or indirect, nor do I expect to receive any.

  
R. E. Renshaw, P. Eng.  
Consulting Geologist  
Vancouver, B. C.  
10 February 1968

R. E. RENSHAW P.ENG.

"Osyoocs" Group

- Pen 1 to 24
- Pal 1 to 12
- Axe 1 to 12
- Hen 1 to 16
- Old 1 to 16
- Joe 1 to 16



DEPARTMENT OF MINES  
 BRITISH COLUMBIA  
 VICTORIA, B.C.

Canada

USA

119°-35'  
49-00'

CLAIM MAP OF " OSOYOOS GROUP"

OSOYOOS, B.C., OSOYOOS MINING DIVISION

Scale: 1 inch to 3000 feet

*R. E. Renshaw*  
 R. E. Renshaw, P. Eng.  
 Consulting Geologist  
 10 Feb 68

1228



JURA/CRETACEOUS

NELSON INTRUSIVES

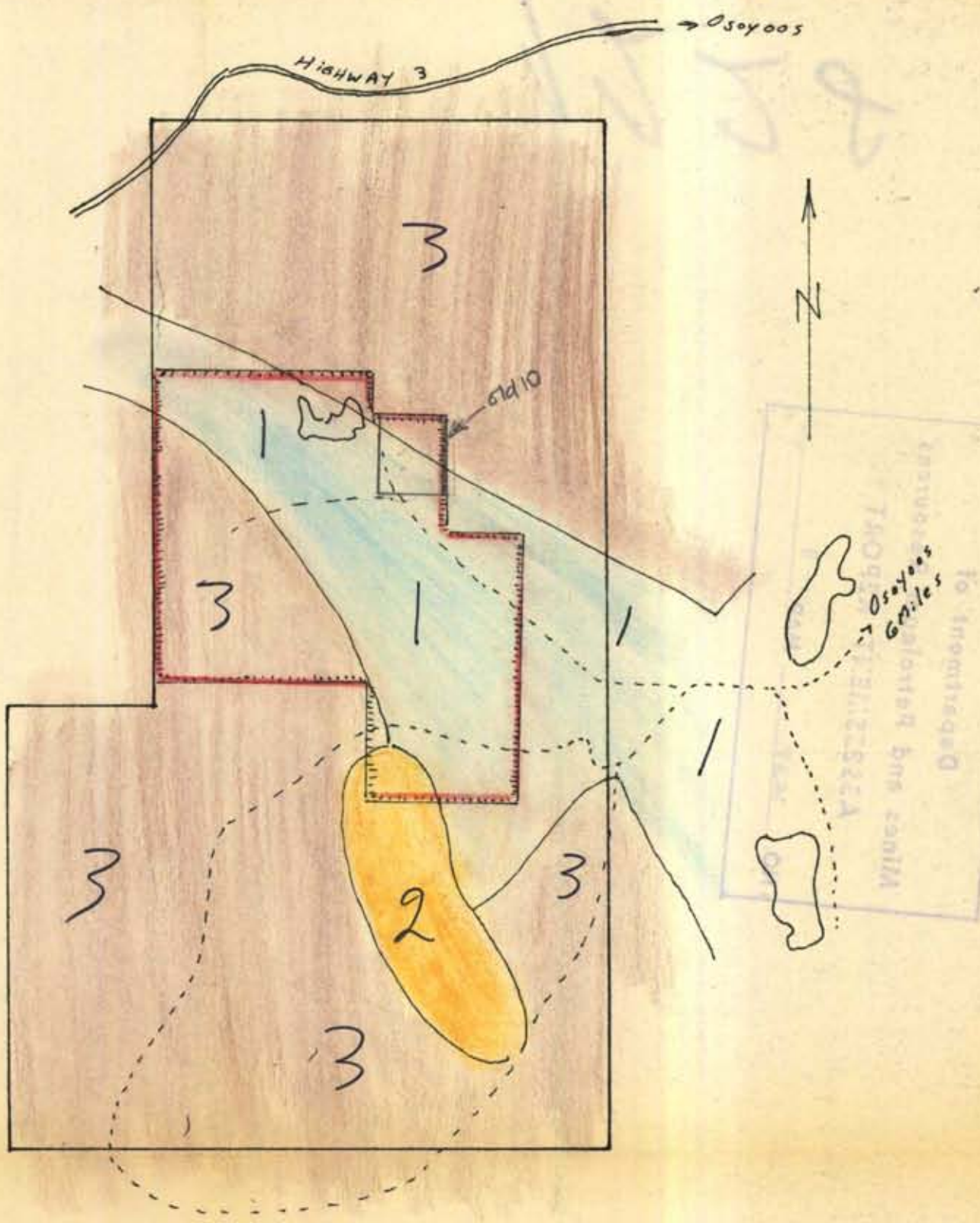
- 3  Quartz Diorite
- 2  Syenite and Nepheline Syenite

CARBONIFEROUS

KOBAU GROUP

- 1  Quartzite, Phillite, Schist, Greenstone

- Geochemical Survey



Canada  
-----  
USA

119° 35'  
49° 00'

MAP SHOWING GEOLOGY AND ROADS OF "OSOYOOS" GROUP

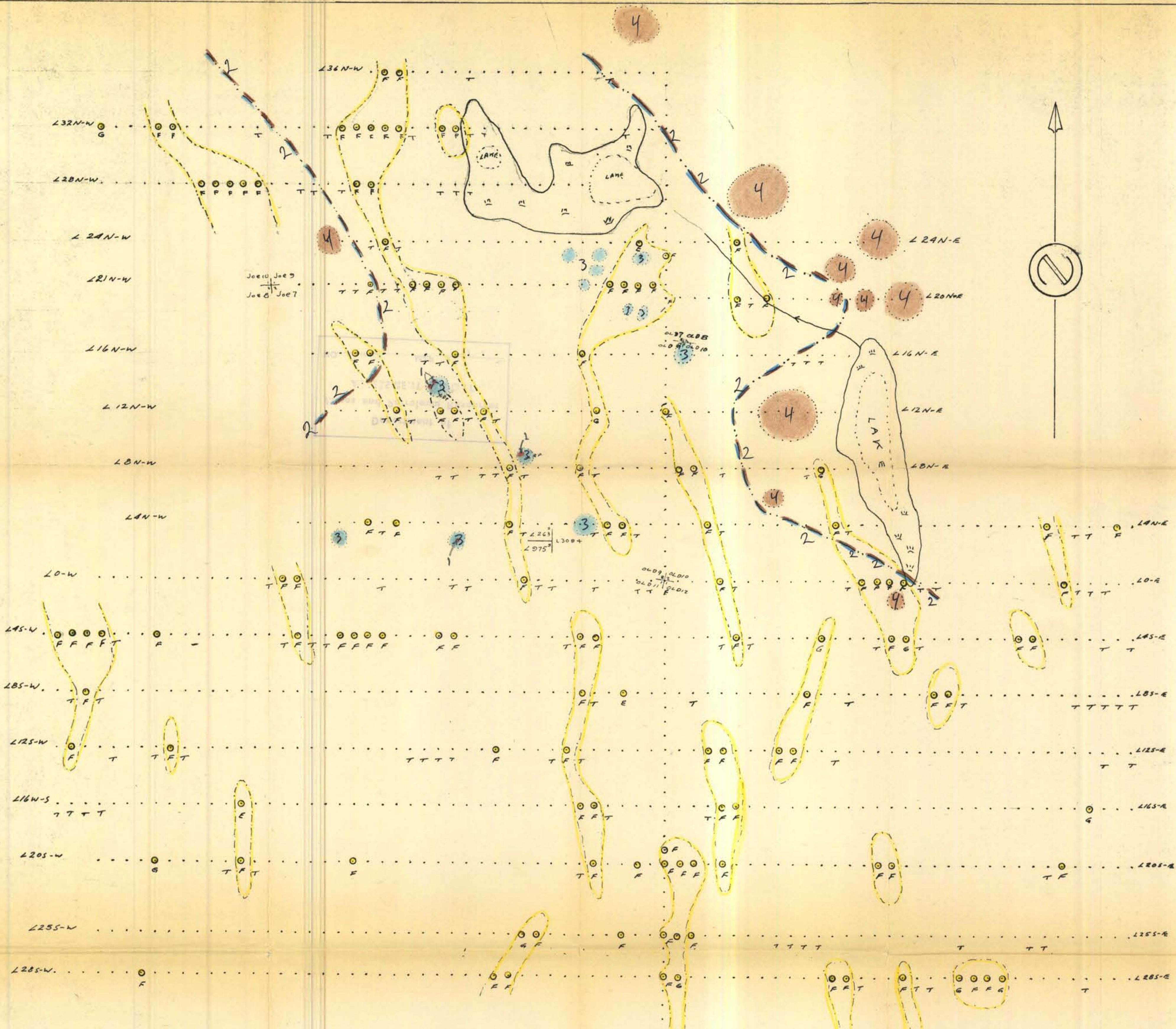
MULTIPLE MINING LTD.

OSOYOOS, B.C., OSOYOOS MINING DIVISION

Scale: 1 inch to 3000 feet

*R. E. Renshaw*  
 R. E. Renshaw, P. Eng.  
 10 Feb 68

1228



- 4 Quartz Diorite
- 3 Quartzite: Phyllite: Andesite
- 2 Assumed Contact
- Outcrop
- 1 Copper Showing
- xrp Pack Sack Drill Hole

**GEOCHEMICAL RESULTS**

- Background
- † Trace
- Fair - Good - Excellent
- F, G, E Anomaly

MULTIPLE MINING LTD - "Osyoos Group"  
 scale: 1 inch to 400 feet.

1228

Allen, P. Eng  
 10 Feb 68

