

85-98-13432

GEOLOGICAL REPORT

- on the -

MOWICH LAKE PROPERTY

Kamloops Mining Division, British Columbia

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

- for -

**13,432**

NORTHAIR MINES LTD.

1450 - 625 HOWE STREET

VANCOUVER, B. C. V6C 2T6

Covering: MER, MOW 1, MOW 2, MOW 3, CALDERA,  
CARRIE, JULES, GHOST and HUMP CLAIMS

Work Performed: October 10, 1984 - December 11, 1984

Location: (1) 51° 02' North, 120° 53' West  
(2) NTS Map Nos. 92 P/2, 92 I/15  
(3) 31 kilometres north of Savona, B.C.

Prepared by:

KERR, DAWSON AND ASSOCIATES LTD.

206 - 310 NICOLA STREET

KAMLOOPS, B. C. V2C 2P5

D. A. Leishman, B. Sc.

J. M. Dawson, P. Eng.

December 11, 1984

TABLE OF CONTENTS

	<u>Page No.</u>
SUMMARY . . . . .	1
INTRODUCTION . . . . .	2
PROPERTY . . . . .	2
LOCATION AND ACCESS . . . . .	4
PHYSIOGRAPHY AND VEGETATION . . . . .	4
HISTORY . . . . .	6
REGIONAL GEOLOGY . . . . .	7
1984 PROGRAMME . . . . .	8
GEOLOGY OF THE ROAD/TRENCH SYSTEM . . . . .	9
MINERALIZATION . . . . .	12
REFERENCES . . . . .	16

\* \* \* \* \*

LIST OF FIGURES

Figure 349-1	Property Location	1:2,500,000	3
Figure 349-2	Claim Map	1:50,000	5
Figure 349-3	Property Geology	1:2,500	in Pocket

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APPENDICES

APPENDIX I           GEOCHEMICAL AND ASSAY DATA  
                      ROCK DESCRIPTIONS

APPENDIX II           PERSONNEL

APPENDIX III          PROGRAMME COSTS

APPENDIX IV           STATEMENTS OF QUALIFICATIONS

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SUMMARY

An exploration programme of trenching and mapping was conducted on the Mowich Lake property held under option by Northair Mines Ltd. by Kerr, Dawson and Associates Ltd. in the fall of 1984. This property was optioned due to significant amounts of copper mineralization found as amygdales within a vesicular lava flow. These flows were found near the unconformable contact between volcanic units of the Triassic Nicola Group and the younger Deadman River Formation (Tertiary). The mineralization bears a striking resemblance to well known copper deposits found in the Keweenaw Peninsula, Michigan, U.S.A. where native copper and copper sulphides are found as replacements of amygdales within vesicular lavas.

However a thorough and systematic trenching of Mowich Lake prospect revealed that these mineralized vesicular lavas were not "in situ". Consequently no drill targets were developed. Suggestions are made as to the origin of these mineralized lavas and problems in locating "in situ" mineralization.

INTRODUCTION:

This report outlines the results obtained in a programme of trenching and rock sampling on the Mowich Lake property held under option by Northair Mines Ltd. This claim group is located approximately 31 kilometres north of Savona, B. C., straddling the Deadman River valley.

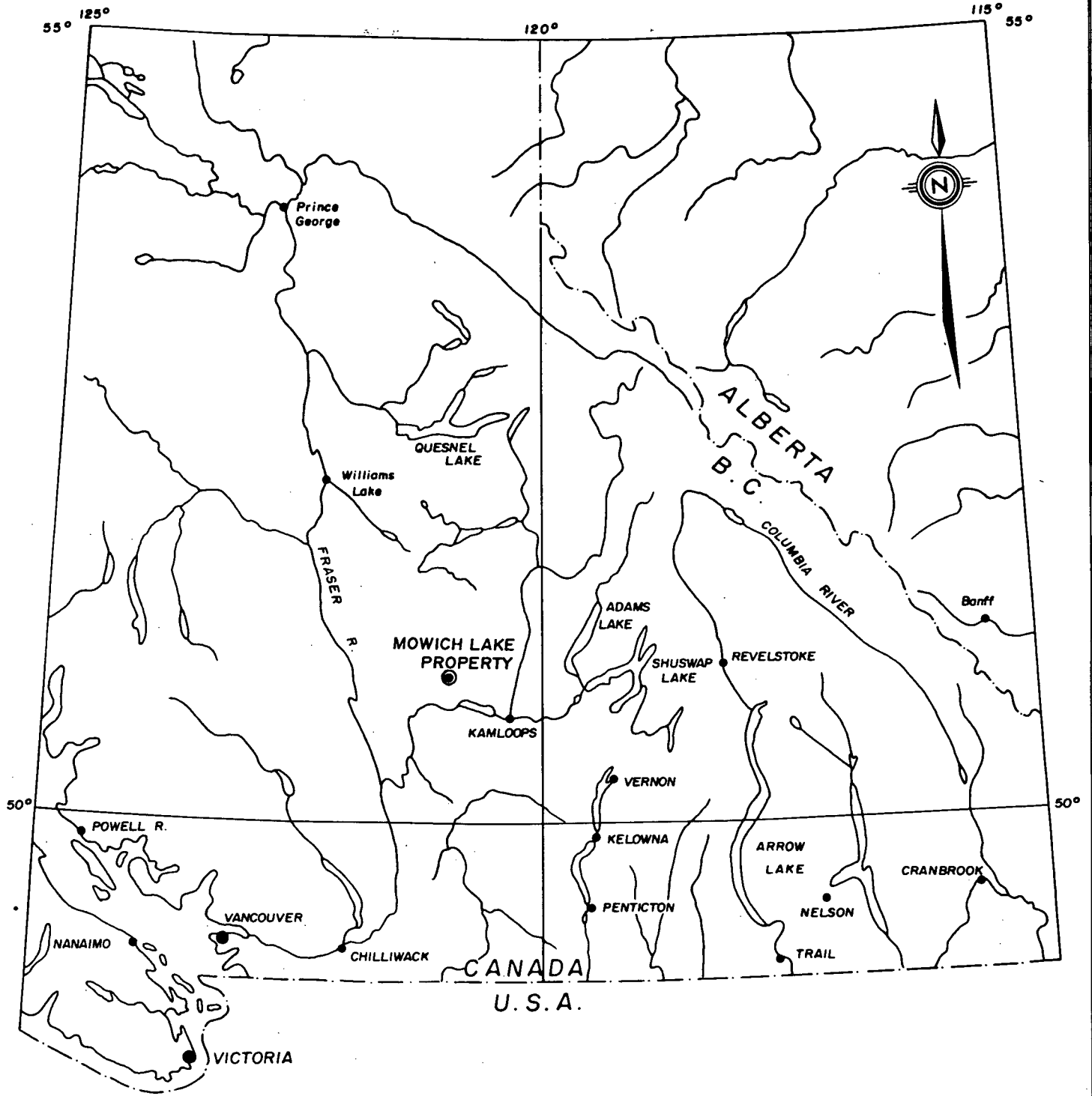
A series of maps showing claim location, geology and sample sites is included with this report.

PROPERTY:

The property consists of 9 metric claims (172 units) covering an area of approximately 4160 hectares within the Kamloops Mining Division.

<u>Claim Name</u>	<u>No. Units</u>	<u>Record No.</u>	<u>Expiry Date</u>
Mer	12	4382	March 23, 1986
Mow 1	20	4383	March 23, 1988
Mow 2	20	4404	April 22, 1986
Caldera	20	4418	May 9, 1986
Carrie	20	4419	May 9, 1986
Jules	20	4423	May 9, 1986
Ghost	20	4424	May 9, 1986
Hump	20	4434	May 9, 1986
Mow 3	20	5921	October 25, 1985

The property is presently held under an option agreement by Northair Mines Ltd. of 1450 - 625 Howe Street, Vancouver, B. C. Michael Dickens of Savona, B. C. is the registered owner of the claims.



<b>NORTHAIR, MINES LTD.</b>		
<b>LOCATION MAP MOWICH LAKE PROPERTY</b>		
<b>KAMLOOPS MINING DIVISION, B.C.</b>		
Technical Work By: Kerr, Dawson and Assoc. Ltd.	Scale: 1:2,500,000 (1cm=25km)	
Date: Dec, 1984	Drawn By: W.G.	Fig.No. 349-1

LOCATION AND ACCESS:

The Mowich Lake property is located within the Kamloops Mining Division, 31 kilometres north of Savona, B. C. The Deadman River valley is straddled by the claim group with the geographical centre of the claims located approximately one kilometre south of Mowich Lake (Figure 349-2). The southern portion of the claim group straddles the boundary between N.T.S. Map Nos. 92 P/2 and 92 I/15.

Access to the claim group is via an all weather road that leaves Highway #1 four kilometres northwest of Savona, B. C. and follows the Deadman River valley in a northerly direction for approximately 27 kilometres. Just south of Mowich Lake a road leads to the northwest (and upper elevations) of the western portion of the claim group. Approximately 1.5 kilometres north of Mowich Lake a secondary logging road gives access to the upper elevations of the eastern portion of the claim group. A cat road built by Northair Mines Ltd. leaves the Deadman River at the bridge south of Mowich Lake and leads eastwards on the Mow 1 claim to the area of the copper showings described in this report.

PHYSIOGRAPHY AND VEGETATION:

The Mowich Lake property is traversed in a north-south direction by the Deadman River valley. In places the valley walls are steep with precipitous cliffs. Forest cover consists primarily of pine and fir in the upper elevations with scattered stands of birch and poplar in the lower valley. Undergrowth is generally thin.

Outcrops are scarce with the exception of the steeper sided valley walls. Unconsolidated glacial material and slump material cover most of the claim area. Soil development is generally poor.

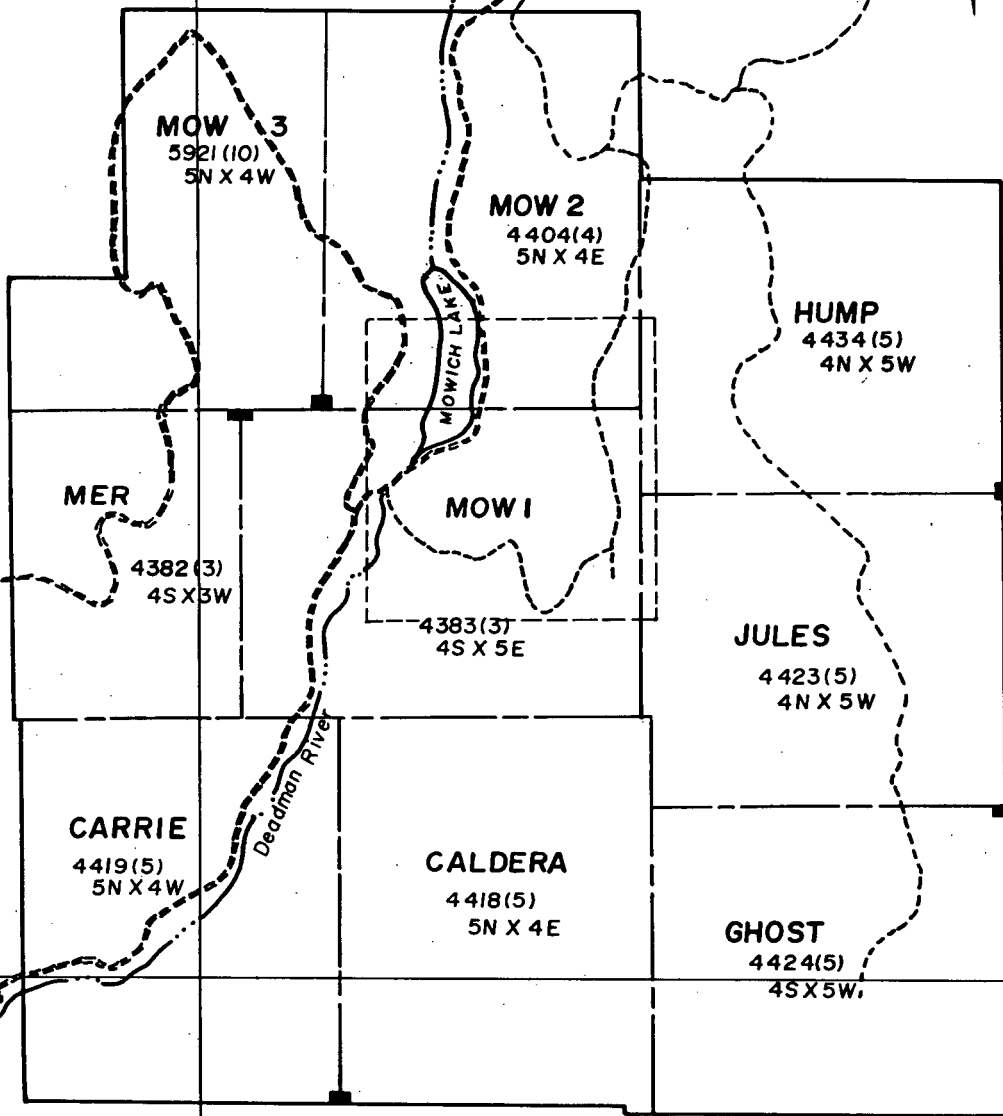
In general traversing is relatively easy with the exception of the steeper terrain.



120° 55' W

51° 00' N

App. 24 Kilometers to Hwy. No. 1



- OUTLINE OF AREA OF FIGURE 349-3
- ALL WEATHER ROAD
- - - - - SECONDARY ROAD
- LCP

To accompany a report by D.A. Leishman B.Sc.

<b>NORTHAIR MINES LTD.</b>	
<b>CLAIM MAP</b>	
<b>MOWICH LAKE PROPERTY</b>	
<b>KAMLOOPS MINING DIVISION, B.C.</b>	
Technical Work By Kerr, Dawson and Assoc. Ltd.	Scale 1:50,000
Drawn By D.C.	Date Dec, 1984
Approved By D.A.L.	Fig. No 349-2



HISTORY:

Exploration in the area of the Deadman River valley has been confined to a zone 1 to 2 kilometres either side of the Deadman River and below the cover of Tertiary plateau basalt which covers the upper elevations either side of the valley (generally greater than 1070 metres a.s.l.).

The earliest recorded work in the vicinity of the Mowich Lake property was centered around Vidette Lake (13 kilometres to the north). In the 1930's a number of companies were exploring for precious metals around Vidette Lake. In 1931, Vidette Gold Mines Ltd. located and subsequently developed a property which remained in nearly continuous operation until 1940 when it was abandoned. Quartz veins with sulphide mineralization (pyrite, chalcopyrite, tellurides with gold) were found within greenstones of the Nicola Formation.

"Maximum recorded production for 1 year from the Vidette property was in 1936 when 12,202 tons of ore yielded 8,269 ounces of gold, 13,037 ounces of silver and 27,672 pounds of copper" (Campbell, Page 87).

Approximately 2.5 kilometres southeast of the Ghost mineral claim a number of showings are found around Criss Creek where quartz veins within a shear zone carry sulphide mineralization. Small adits have been driven into the shear. One high grade sample of dump material reportedly ran 0.12 ounces/ton of gold and 16.58 ounces/ton of silver, (North Slave Exploration Ltd., 1968).

A showing of mercury is shown on the Mineral Inventory Map 92 I/NE as being located on the southeast corner of the Carrie claim. However there is no geological description or further reference.

A number of prospects of diatomaceous earth and pozzolan have been located just north of the Mowich Lake property near the road following the Deadman River. None have been developed to the extent of exploitation.

In February, 1983, high grade copper mineralization was discovered by prospector, M. Dickens, about 1 kilometre southeast of the south end of Mowich Lake. The property was optioned by Canamax Resources Inc. and a detailed exploration programme carried out during the summer of 1983. The programme consisted of geological mapping, geochemical soil sampling and magnetometer and induced polarization surveys. Canamax dropped their option in late 1983.

#### REGIONAL GEOLOGY:

The Mowich Lake property lies within the Quesnel Trough which is a belt of Upper Triassic units of the Nicola Group trending north by northwest and up to 45 kilometres in width. The Nicola Group consists of two major units, intermediate volcanic flows and breccias, with tuffs and minor interbedded argillites, greywackes and grey limestones. A second unit of mainly fine grained clastics consisting of shales, argillites, phyllites, siltstones and black limestones underlies the volcanic sequence.

The units within the Quesnel Trough lie between Permian and older volcanics and sediments to the east and Cache Creek limestones (Permian age) to the west. Intruding the units of the Nicola Group are two major batholiths of Triassic/Jurassic age (Thuya and Takomkane batholiths). A second epoch of intrusive activity occurred in the Cretaceous with the injection of numerous stocks of alkaline to calc-alkaline composition. Later volcanic activity (aerial) covered the area with a thin veneer of felsic and siliceous ashes and tuffs. Lenses of diatomaceous earth (poorly consolidated) are also found in this sequence, (Deadman River Formation).

Later in the Tertiary a veneer of plateau basalts covered the entire sequence.

1984 PROGRAMME:

The objective of the 1984 programme on the Mowich Lake property was to develop drill target(s) on the area of mineralization previously exposed by Canamax and Dickens. Two other areas of interest were also exposed by trenching with the idea to locate a suitable drill target. One area was a zone of broad, but weak, I.P. response while the other was a zone of strong mariposite, ankerite alteration.

Upon approval of the Ministry of Forests, a D-6 cat with ripper was transported to the property to construct the roads and trenches. An access road was laid out from near the baseline at 36+50E (1170 metres a.s.l.) downslope through the area of mineralization (baseline 30+00E) and finished at the bridge on the Deadman River road (770 metres a.s.l.), (Figure 349-3). Two major spurs left this main road, one of which finished near line 29+00E, 23+50S (940 metres a.s.l.) and the second near 28+00E, 17+00E. Two small ancillary trenches were also completed across the zone of mineralization.

This road/trench system was surveyed with hipchain, compass, and altimeter and tied into the existing Canamax grid. The total amount of road built was approximately 3.3 kilometres of which 400 to 500 metres of outcrop was exposed. Outcrops were mapped with samples taken of all zones where there was quartz-carbonate veining, alteration minerals (ie. mariposite, ankerite) and mineralization (copper). There are several areas on Figure 349-3 where it appears two samples were taken at the same location. However the original (lower numbered) sample was taken immediately after the first cut with the cat. The subsequent samples would have been taken deeper in the bedrock as the trench was deepened. A total of 29 samples were taken. Significant results are plotted on Figure 349-3. All geochemical and assay results are tabulated in Appendix I with sample descriptions.

GEOLOGY OF THE ROAD/TRENCH SYSTEM:

Outcrops along the roads were mapped, sampled and tied into the grid established by Canamax (1983). A slight refining of the geological units was achieved. However, due to snow conditions and time restraints no attempt was made to remap any of the Canamax work. Hence the interpreted geology (Figure 349-3) is based on the original work by Canamax in conjunction with the work by Kerr, Dawson and Associates Ltd.

Upon completion of the 1984 programme, it was realized that the mineralized lavas which constituted the mineral showing were not "in situ" and actually represented blocks of talus and avalanche flow. These mineralized blocks were deposited on older erosional surfaces of out-cropping Nicola Volcanics (Augite Porphyry). The source of these mineralized units is considered to be stratigraphically and topographically higher than the exposed augite porphyry. However a hard dense plateau basalt covers the claims from approximately the 1070 metre elevation and higher (10's of metres in thickness). This basalt capping would tend to mask any geophysical or geological response of an underlying body of sulphide mineralization.

A brief description of the individual units and their interpreted stratigraphic relationship with one another follows. The numbers given with the units corresponds to Figure 349-3.

Triassic

Nicola Group

1. Carbonate unit

- massive grey beige with intrastratified bands of fine grained clastics (highly sheared). The carbonate (mainly dolomite) horizon is recrystallized in places with veining giving a stockwork appearance. Unit consists of dolomite and minor calcite, alteration (yellow brown) indication of ankerite, distinct emerald green colour from mariposite.

This unit was exposed near line 29+50E, 16+00S and appears to be in fault contact with an enclosing (?) Polymictic Breccia. No anomalous gold/silver values were found in any samples however copper returned values from 66 to 97 ppm. These values are slightly anomalous for carbonate units.

2. Greywackes, Shales, Quartzites

- fine to very fine grained, grey to dark grey clastic sedimentary units, very hard with siliceous horizons, little or no alteration. Outcrop found on road between 32+00E and 32+50E, 25+00S.

3. Polymictic Breccia

- fragments of sediments, volcanic andesites, augite porphyry and syenodiorite in an andesitic groundmass (fragments to 10's of centimetres), epidote and hematite alteration is common. This unit has a distinctive maroon green colour with overlying subsoils exhibiting a similar colour.

4. Augite Porphyry

- massive, dark grey to grey green aphanitic groundmass with 7-8% euhedral crystals of augite (1-5 mm). Unit weathers to a distinctive green colour which is easily mapped. Also the mechanical and chemical breakdown of the units into spherical layers suggests the unit was originally a volcanic flow. Its relationship with the overlying Deadman River Formation suggests an irregular distribution and thickness. Outcrops consist of irregular "knobs" overlain unconformably by units of the Deadman River Formation and unconsolidated sediments. This unit is found between the 900 and 1000 metre (a.s.l.) elevations. No flow attitudes or directions are possible to distinguish. This unit is found in the vicinity of the showings and is brecciated in places. Considered to be the top part of the Nicola Group and is unconformably overlain by the Deadman River Formation.

Unconformity

Tertiary

Deadman River Formation

5. Volcanic tuffs, ashes, sandstones with coarser pyroclastic and conglomerate horizons. These units are characteristically pale beige and grey green colours; often poorly consolidated, soft and considered to be deposited in a lacustrine environment. Units are often calcareous (particularly the groundmass) with iron oxidation colours. Ankerite alteration is also common. Quartz carbonate veining is common, malachite stain found rarely on some fracture surfaces. One pyroclastic horizon contained rounded nodules of goethite (highly oxidized) with a core of chalcocite and chalcopyrite, dolomite and quartz as the groundmass with development of clay alteration minerals (illite and montmorillonite).
  - 5a. Intermediate tuffs
    - grey green finely crystalline, with 5-7% dark green mafic fragments (less than .5 centimetre), slightly calcareous with quartz carbonate veining with minor malachite along fracture surfaces. This unit is intrastratified with more calcareous volcanic and sedimentary units above.
6. Agglomerate
  - poorly consolidated. This unit is found northwest of the mineral showings and in the area of the broad I.P. response. Consists of fragments, larger volcanic fragments in a poorly consolidated pale coloured matrix. This unit is probably of limited thickness and equivalent to Unit 10, previously mapped by Canamax.
7. Plateau Basalt
  - massive, dark grey and very hard; lie conformably over the Deadman River Formation. Boulders of basalt were seen in the overburden along the road, however outcrops are all situated off the road constructed for this property work.

Quartz carbonate veining is seen within units of the augite porphyry and the lowermost units of the Deadman River Formation. Usually veining was narrow (less than two centimetres) and no sulphides were identified. These veins were considered as evidence of a hydrothermal system operating late in the Tertiary. All vein(s) were sampled and analysed for gold, silver and copper.

MINERALIZATION:

Three northwesterly cuts were made through the area of mineralization centered along the baseline between 30+00E and 30+50E. Bedrock was exposed (discontinuously) over a 50 metre elevation difference (Figure 349-3). This trenching revealed the irregular nature of bedrock topography. Here "knobs" of augite porphyry were exposed, separated by sections of unconsolidated overburden. This unconsolidated overburden consisted of unsorted, subrounded fragments and boulders of Deadman River Formation and the Plateau Basalt all in a matrix of clay and pale coloured soils.

Lying directly on the augite porphyry in small depressions was a thin cover (to 2 metres thick) of mineralized vesicular basalt. These fragments (centimetre to metre size) constituted the mineral showing. Only upon completion of the trenching was it possible to see the relationship of these mineralized fragments to the unmineralized augite porphyry.

Mineralization consists of blebs or knots of sulphides (primarily chalcopyrite with lesser bornite and chalcocite) partially and totally replacing carbonate amygdales in a vesicular basaltic lava. Secondary alteration of the sulphide minerals resulted in the development of malachite and azurite along later fracturing of these blocks of lava. Some fragments are totally covered with a fine film of secondary copper minerals. Native copper and cuprite were also identified.

The nature of this mineral prospect (avalanche debris), its limited extent combined with a total absence of precious metal values makes this prospect unattractive economically. It is possible that the bedrock source of the mineralization is upslope from the augite prophyry and above the unconformity (and hence within the Deadman River Formation). However as the area upslope of the mineralization is covered by a plateau basalt it would be a difficult task to locate the source of mineralization.

An interesting comparison of the mineralized unit (vesicular lava) may be made with well known copper deposits in Coppermine, N.W.T. and the Keweenaw Peninsula, Michigan, U. S. A.

In the Keweenaw Peninsula native copper and copper sulphides occur as open space fillings and replacements in amygdaloidal flow tops. Almost invariably associated with these flows are andesite dykes with trace amounts of sulphides.

Robertson in 1975 suggests that in the Mount Bohemia area, Keweenaw, Michigan, that the copper and sulphur was added to the dykes and flow tops by hydrothermal solutions moving upward along zones of structural weakness and outward along relatively permeable flow tops and broken dyke margins. The sulphur and copper is considered to be most likely of direct magmatic origin although some copper may have been derived at depth from pre-existing flows. Native copper mineralization is considered to have preceded the emplacement of the sulphides.

The description of these flow tops seems to be similar to the mineralized units found on the Mow claim. A major fault has been postulated as underlying the Deadman River Valley and in the course of mapping, Canamax has indicated numerous northwesterly striking faults within the claim boundaries of the Mowich Lake property. A traverse parallel to the Deadman River revealed numerous rock types including serpentinites which is probably indicative of major and deep fault activity.



There are several areas on the property where there is strong ankerite/mariposite alteration, an alteration type that is commonly associated with deep "plumbing" systems. One such area(L29+00E, 24+00S) was trenched and sampled in the course of the 1984 programme. A distinct "emerald green" mariposite alteration was seen within carbonate units. However sampling of this zone did not reveal any significant values in precious metals or copper. There was some shearing also associated with this alteration zone (Figure 349-3).

Quartz carbonate veining was widespread (though not necessarily large scale) in the lowermost strata of the Deadman River Formation. In places malachite was found in fractures near the veining (Figure 349-3, Sample 15.5). Again no significant precious metal values were found to be associated with this veining.

The significance of these veins and fracture fillings is they represent evidence of a hydrothermal system operating in post Tertiary times within the Deadman River Formation. It can be speculated that this hydrothermal system may have been part of a plumbing system which supplied the mineral solutions deposited within the permeable vesicular lavas. Possibly the plateau basalt which overlies the Deadman River Formation might have acted as an impermeable barrier where no solutions could penetrate. Conceivably then, a mineralized vesicular lava may be hidden under the existing plateau basalt. However it should be noted that detailed mapping of sections through the Deadman River Formation by Campbell in the area of Skookum Lake (north of the Mow claims) did not uncover any similar "vesicular lavas" within this formation. The presence of an unconformable contact further complicates the possibility of locating "in situ" mineralized lavas.

If a mineralized vesicular lava does exist hidden beneath the plateau basalt and as part of the Deadman River Formation, it can be postulated as flat lying, probably void of precious metal values and with completely unknown dimensions. Economic potential cannot be estimated.

In the area of 34+00E, 24+00S, iron rich (goethite) fragments or nodules were seen with minor amounts of chalcocite and chalcopyrite. These fragments were rare (only two identified) and probably represent fragments of a former erosional surface or gossan that have been reworked and redeposited in a pyroclastic unit. It has no economic interest.

A showing containing clasts to 5 centimetres of semi-massive to massive bornite and chalcocite in a totally weathered and broken down dark green (serpentite ?) near the Deadman Creek is of very limited extent (few metres width). It was probably emplaced due to gravity slumping. Lack of any "train" of mineralized debris would make the origin difficult to locate.

In the 1983 geochemical soil survey by Canamax an anomalous area was located between the Mer and Mow 2 legal claim posts in an area underlain by plateau basalts. This area warrants a careful ground examination.

respectfully submitted by

KERR, DAWSON AND ASSOCIATES LTD.,

*Douglas A. Leishman*

Douglas A. Leishman, B. Sc. (Hons.)

Geologist

Kamloops, B. C.

December 11, 1984

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Personal Communications:

Michael Dickens, Savona, B. C.

APPENDIX I

GEOCHEMICAL AND ASSAY DATA

ROCK DESCRIPTIONS

## ROCK SAMPLE DESCRIPTIONS

All samples located on Figure 349-3.

<u>Sample Number</u>	<u>Description</u>
15.1	selected grab sample of vein material, highly altered volcanic tuffs, fractures/shears, 350°/V.
15.3	selected vein material, quartz carbonate veining and stockworks within volcanic, sample over 3 metres.
15.4	selected grab of vein material within massive volcanic tuff, veining 352°/V, 060°/V.
15.5	selected grab sample, over 5 metres, malachite along fractures in stockworks (quartz carbonate filling), volcanic tuff, three fracture directions, 344°/V, 316°/V, 010°/V.
15.6	quartz carbonate veining, selected grab sample within volcanic tuff.
15.7	quartz carbonate veins, 150°/steep south, trace malachite along fractures.
15.8	quartz carbonate veining, grab sample in augite porphyry, veins 032°/40°NE, 020°/V.
15.9	quartz veining, grab sample, trace malachite within altered porphyry.
15.10	grab sample, mineralized vesicular lava, overlies augite porphyry, over 8 metres, selected mineralized chips.
18.1	selected grab sample, mineralized talus within augite porphyry, slump block has been sheared.
18.2	quartz carbonate veining, altered augite porphyry, minor malachite along fractures and joints, overlain by mineralized talus.
18.3	mineralized talus, volcanic flow with chalcopryrite and malachite, selected grab sample 1.0 metre vertical, overlies altered porphyry.

- 18.4 selected grab, zone of shearing 5.0 metres width.
- 18.5 selected grab, altered augite porphyry with veining, over 1 metre.
- 18.6 quartz carbonate veining in altered volcanics, 1.5 metre width.
- 20.1 chalcedony and carbonate vein within silicified volcanic tuff, selected grab sample.
- 21.1 chip sample, across shear zone (2.0 metres), strong (10%) mariposite alteration.
- 21.2 chip sample, across shear (3.0 metres) within calcareous unit (ankerite and mariposite alteration).
- 21.3 selected grab, carbonate unit with alteration.
- 21.4 silicified shear, contact zone within carbonate unit (1.0 metre width), grab sample with hematite and limonite alteration.
- 22.1 quartz carbonate veining with altered augite porphyry, selected grab sample over 7 metres.
- 22.2 quartz carbonate veining with augite porphyry, grab sample.
- 22.3 quartz carbonate veining in augite porphyry, grab sample, below mineralized talus.
- 22.4 similar to above.
- 22.5 similar to above.
- 22.6 selected grab sample (4.0 metres), highly sheared, vesicular lava, not in situ, overlies altered augite porphyry.
- 22.7 quartz veining in altered augite porphyry, selected grab sample over several metres.
- 22.8 selected grab sample over 2 metres, highly broken and mineralized vesicular lava, with chalcopyrite, malachite and azurite.
- 23.5 similar to above, selected grab sample, mineralized lava over 2.0 metres.

APPENDIX II.

PERSONNEL



PERSONNEL

J. M. Dawson, P. Eng.	Geologist	October 11, 13, 18, 28, November 1, 7, 8, 10, 12, 13, 16, 19, 20, December 5, 7, 1984. (15 days)
D. A. Leishman, B. Sc.	Geologist	October 10, 12, November 14, 15, 17, 18, 19 ( $\frac{1}{2}$ day), 20, 21, 22, 23, 27, 28, December 5, 6, 9, 10, 11, 1984. (17 $\frac{1}{2}$ days)
B. Cross	Technician	November 17, 18, 19, 20, 21, 22, 23, 24, 1984. (8 days)

APPENDIX III

PROGRAMME COSTS

PROGRAMME COSTS

LABOUR:

J. M. Dawson, P. Eng. 15 days @ \$350/day	\$ 5,250.00	
D. A. Leishman, B. Sc. 17½ days @ \$275/day	4,812.50	
B. Cross 8 days @ \$200/day	<u>1,600.00</u>	
		\$ 11,662.50

EXPENSES AND DISBURSEMENTS:

(a) Contract bulldozer costs	\$ 7,058.83	
(b) Assays and geochemical analyses	416.90	
(c) Truck rental:		
19 days @ \$40/day	\$ 760.00	
2980 km. @ \$.30/km.	<u>894.00</u>	
	1,654.00	
(d) Chain saw rental	240.00	
(e) Base map preparation, drafting	325.60	
(f) Secretarial, xerox, telepone, blueprints, etc.	287.30	
(g) Miscellaneous field equipment, and supplies	<u>399.75</u>	
		<u>10,382.38</u>
 <u>TOTAL PROGRAMME COSTS</u>		 \$ <u><u>22,044.88</u></u>

APPENDIX IV

STATEMENTS OF QUALIFICATIONS

**JAMES M. DAWSON, P. ENG.**

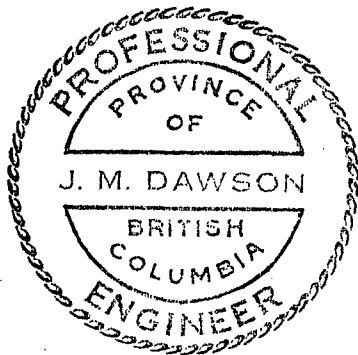
Geological Engineer

#206 - 310 NICOLA STREET • KAMLOOPS, B.C. V2C 2P5 • TELEPHONE (604) 374-0544

C E R T I F I C A T E

I, JAMES M. DAWSON, of Kamloops, British Columbia, Do Hereby Certify That:

- (1) I am a geologist employed by Kerr, Dawson and Associates Ltd. of Suite 206 - 310 Nicola Street, Kamloops, B. C.
- (2) I am a graduate of the Memorial University of Newfoundland, B. Sc. (1960), M. Sc. (1963), a fellow of the Geological Association of Canada and a Member of the Association of Professional Engineers of British Columbia. I have practised my profession for 21 years.
- (3) I am the co-author of this report which is based on an exploration programme carried out on the subject property under my direct supervision.



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*James M. Dawson*

James M. Dawson, P. Eng.

Geologist.

Kamloops, B. C.

December 11, 1984.

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

I, DOUGLAS A. LEISHMAN, of Kamloops, British Columbia, Do Hereby

Certify That:

- (1) I am a geologist employed by Kerr, Dawson and Associates Ltd. of Suite 206 - 310 Nicola Street, Kamloops, B. C.
- (2) I am a graduate of the Northern Alberta Institute of Technology, Exploration Technology (Minerals Option), 1971, Edmonton, Alberta.
- (3) I am a graduate of the Imperial College of Science and Technology, Royal School of Mines, London, England, B. Sc. (Hons.) Mining Geology, 1981. I have been actively involved in mineral exploration since 1971.
- (4) I am the co-author of this report which is based on an exploration programme carried out by myself.

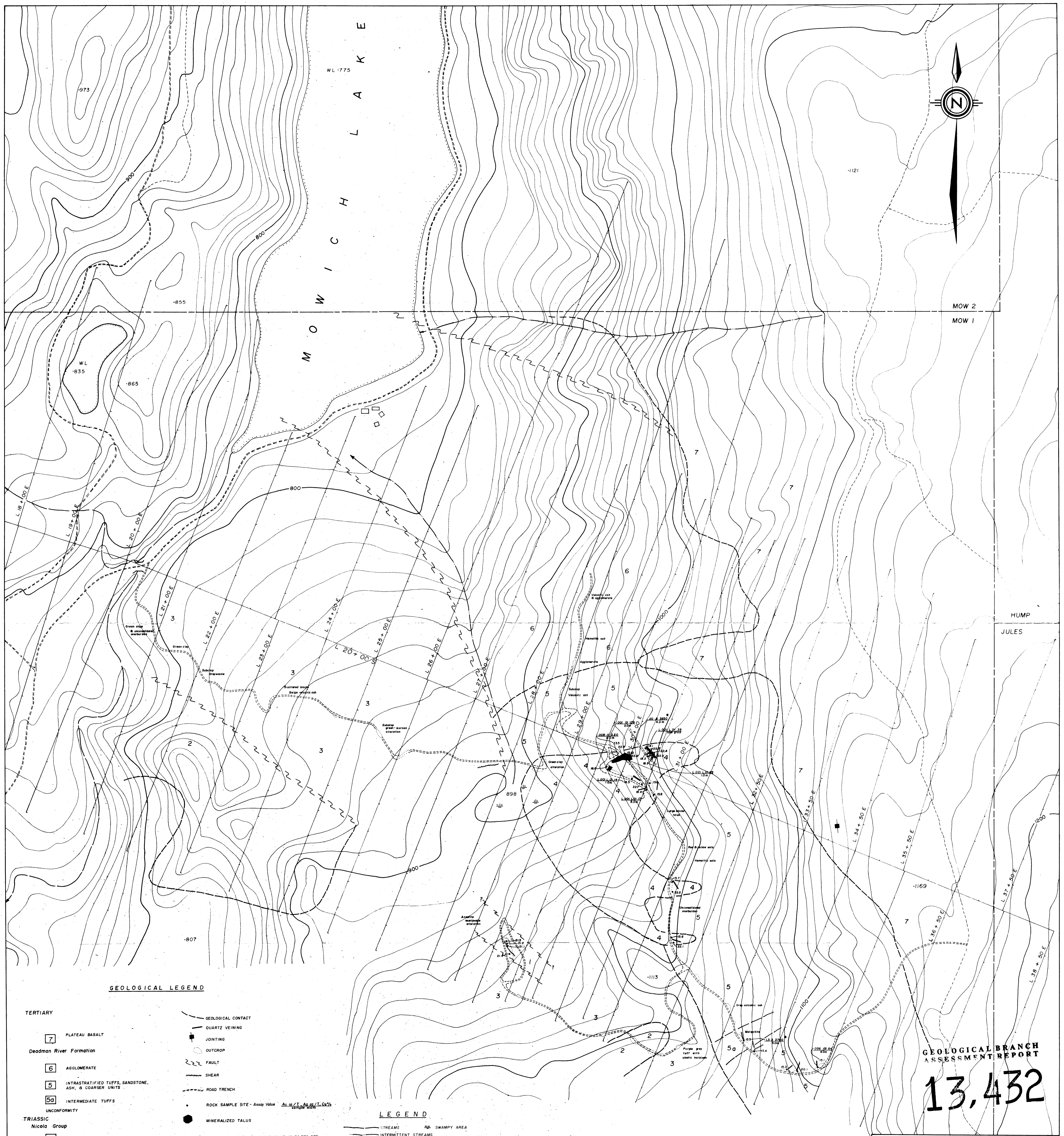
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*Douglas A. Leishman*

Douglas A. Leishman, B. Sc. (Hons.)  
Geologist.

Kamloops, B. C.

December 11, 1984.



**GEOLOGICAL LEGEND**

- TERTIARY**
- 7 PLATEAU BASALT
  - Deadman River Formation
  - 6 AGGLOMERATE
  - 5 INTRASTRATIFIED TUFFS, SANDSTONE, ASH, & COARSER UNITS
  - 5a INTERMEDIATE TUFFS
  - UNCONFORMITY
- TRIASSIC**
- Nicola Group
- 4 AUGITE PORPHYRY, BRECCIATED IN PLACES
  - 3 POLYMYCTIC BRECCIA
  - 2 GREYWACKES, SHALES, QUARTZITES
  - 1 CARBONATE UNIT  
malpaisite - onaxite alteration
- ROCK SAMPLE SITE - Assay Value**
- Au or Ag (ppb)
  - Ag or Cu (ppm)
  - Pb or Zn (ppm)
  - Tl or Cd (ppm)
- ROCK SAMPLE SITE WITH GOLD VALUE IN PARTS PER BILLION (PPB), SILVER AND COPPER IN PARTS PER MILLION (PPM)**
- Au (ppb)
  - Ag (ppm)
  - Cu (ppm)

- GEOLOGICAL CONTACT
- QUARTZ VEINING
- JOINTING
- OUTCROP
- FAULT
- SHEAR
- ROAD TRENCH
- MINERALIZED TALUS

**LEGEND**

- STREAMS
- INTERMITTENT STREAMS
- ROAD - PRIMARY, SECONDARY
- LAKE
- CLAIM BOUNDARY
- GRID LINES
- TOPOGRAPHIC CONTOURS IN METRES (as 1:1)
- SPOT ELEVATIONS
- BUILDINGS
- SWAMPY AREA

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**13,432**

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**GEOLOGICAL & TRENCHING PLAN  
MOWICH LAKE PROPERTY**

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 DRAWN BY: DC  
 DATE: DEC., 1994  
 APPROVED BY: D.A. LEISHMAN  
 SCALE: 1:500  
 FIG. NO. 349-3

To accompany a report by D.A. Leishman, B.Sc.