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Geological and Geochemical Report  
on the  
Stump 1 Mineral Claim  
Kamloops Mining Division  
British Columbia

N.T.S. 921/8W  
Latitude 50°25'~~00~~" North  
Longitude 120°17'~~18~~" West  
36"

Covering the Stump 1 Claim (12units)  
located near Napier Lake, B. C.

Work performed between May 22, 1986 - May 21, 1987

by

FILMED

*Owner/Operator:* D. A. Leishman, B. Sc.  
Kamloops, B. C.  
August 18, 1987

16345

Geological and Geochemical Report  
on the  
Stump 1 Mineral Claim  
Kamloops Mining Division  
British Columbia

N.T.S. 9218  
Latitude 50°25'20" North  
Longitude 120°17'15" West

Covering the Stump 1 Claim (12units)  
located near Napier Lake, B. C.

Work performed between May 22, 1986 - May 21, 1987

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

by

**16,345**

D. A. Leishman, B. Sc.  
Kamloops, B. C.  
August 18, 1987

## Table of Contents

	Page
Summary	1
Introduction	2
Location, Access and Physiography	2
Property and Ownership	4
History	4
Regional Geology	6
Property Geology	8
Geochemical Surveys	12
Introduction	12
Method	12
Presentation of Results	13
Discussion of Results	14
Conclusions and Recommendations	16
References	17

## Appendices

Appendix I	List of Personnel
Appendix II	Statement of Costs
Appendix III	Certificate of Qualifications

## List of Figures

Figure 1	Location Plan	after page 2
Figure 2	Claim Map	after page 4
Figure 3	Regional Geology	after page 6
Figure 4	Geochemical and Geological Plan	in pocket

## Summary

The Stump 1 mineral claim, lying approximately 35 kilometres south of Kamloops has been examined for its precious metal potential. Numerous soil samples, with anomalous gold values have been found in an area where Nicola volcanics have been extensively altered by silicification, sericitization and pyritization. This unit of Nicola volcanics outcrops within the much younger Kamloops volcanics and is in close proximity to the Early Jurassic Wildhorse Batholith. This alteration zone is also associated with a strong east-west shear zone.

A total of 247 soil samples and 34 rock samples were collected in the initial evaluation of this property for gold mineralization. Further work, including trenching, is recommended to fully evaluate the Stump 1 claim for its precious metal potential.

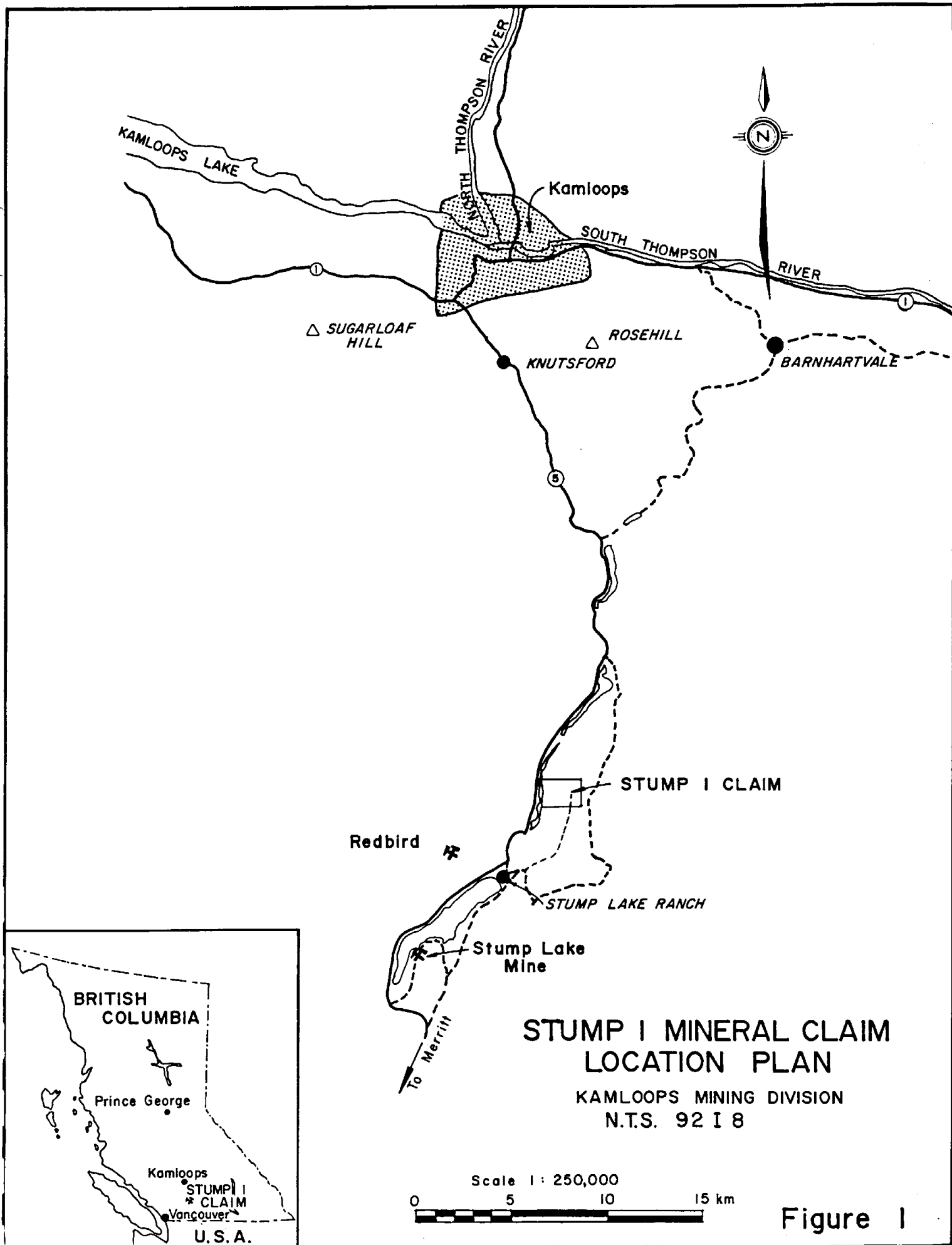
## **Introduction**

This report describes the work recently completed on the Stump 1 mineral claim, located in the Kamloops Mining Division, approximately 35 kilometres south of Kamloops, British Columbia. A series of maps and plans showing the area of completed work are included with the text. Recommendations for further exploration of this property are also included with this report.

## **Location, Physiography and Access**

The Stump 1 mineral claim is located in south central British Columbia, approximately 35 kilometres south of Kamloops on Highway 5 (the road to Merritt). The claims can be reached by one of two ways.

The first and most direct is by travelling Highway 5 south to the north end of Napier Lake where a private road follows the north end of the lake. From this point a hike along an old trail for approximately 2 kilometres leads to the north boundary of the claim group.



An alternative way is continuing south along Highway 5 past the south end of Napier Lake to the Stump Lake Ranch. From this point private roads are followed to the east and then north for approximately 10 kilometres. If the ground is dry and snow free it is possible to drive to within a half kilometre of the baseline (Figures 1 and 2).

The Stump 1 mineral claim covers an area of approximately 300 hectares and is centred on the east side of Napier Lake (N.T.S. 92 I 8 ). The claims are covered primarily by rolling grasslands where the elevation varies from 3,100 feet a.s.l. along the south east corner of the claim group to approximately 2,350 feet a.s.l. along the western boundary (Napier Lake). Precipitation is low and the claims are generally snow free for most of the year.

## Property and Ownership

The Stump 1 mineral claim consists of one contiguous MGS claim totalling 12 units. Pertinent claim data is summarized below.

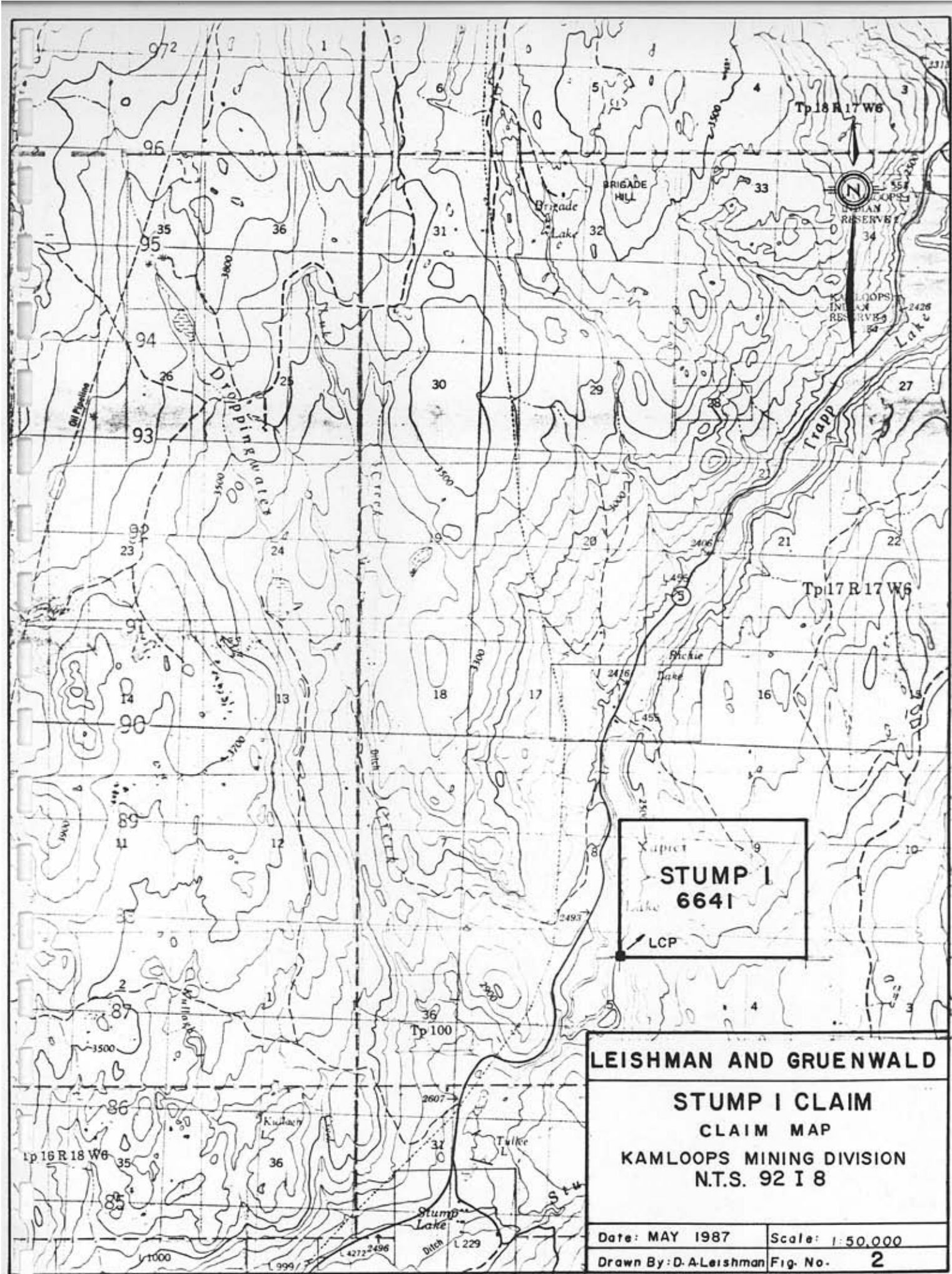
Claim Name	Units	Record Number	Expiry Date
Stump 1	12	6641	May 21, 1990

The claims are jointly owned by Werner Gruenwald of Penticton and Doug Leishman of Kamloops, British Columbia.

## History

The history of the Stump Lake area dates back to 1882 when the Mineral Hill deposit was found (Stump Lake Mine). From 1882 to 1890 several shafts were sunk on a number of separate veins but there was never any sustained production. Work resumed at this site in 1916 and continued until 1944. Production records indicate one vein (the Enterprise Vein) yielded 78,601 tons averaging 0.01 oz. Au/ton, 3.17 oz. Ag/ton, 0.07% Cu, 1.46% Pb and 0.33% Zn (B. C. Ministry of Mines, 1965, page 158). Old dumps from this mine may be seen on the east shore of Stump Lake.





**LEISHMAN AND GRUENWALD**

**STUMP I CLAIM**  
**CLAIM MAP**  
**KAMLOOPS MINING DIVISION**  
**N.T.S. 92 I 8**

Date: MAY 1987	Scale: 1:50,000
Drawn By: D.A. Leishman	Fig. No. 2

In 1973, the area presently covered by the Stump 1 mineral claim was held and worked by Newconex Canadian Exploration Ltd. The initial work by Newconex consisted of soil sampling, a magnetometer and geological survey. Their target was a porphyry copper deposit. A good copper-zinc soil anomaly was found to be associated with an area of silicified and pyritized Nicola volcanics located along an east-west shear zone. The better parts of this geochemical anomaly were drilled by percussion drill in the fall of 1973. This work was not reported. However the writer has seen the drill sections and some of the cuttings were analysed for gold and values up to 230 parts per billion gold were obtained. Due to the nature of percussion drilling it was not possible to properly correlate these values to geology.

In 1977 Newconex ran an E. M. survey over part of the property. No anomalies of any significance were detected. The property was then allowed to lapse.

There are indications (old claim posts) on the property that Noranda Exploration Ltd. staked part of the ground covered by the Stump 1 claim in the early 80's. However it appears the claims were

never recorded and there is no information of Noranda completing work on the property.

More recently Redbird Gold Ltd. has been working on the Redbird claim approximately 5 kilometres south-west of the Stump 1 mineral claim. Here, an east-west fracture system with quartz fluorite mineralization carries sub-economic values in gold.

The major structures in the area of the Stump 1 mineral claim are all north-south whereas the Redbird and the Stump 1 are associated with a definite east-west structure. It was this common feature combined with anomalous gold values which lead the writer to acquire the Stump 1 mineral claim.

### **Regional Geology**

The regional geology of the Stump Lake area was described in Memoir 249 by W. E. Cockfield (1961) and shown on the accompanying map No. 886A. More recently, Monger et al. have completed O. F. Report 980 for the Geological Survey of Canada. Figure 3 illustrates

# Geological Legend

## Quaternary

**Qd** GLACIAL DRIFT, ALLUVIUM

## Tertiary

**Tv** OLIVINE BASALTS

**Ti** INTRUSIONS INTERMEDIATE COMPOSITION

## Kamloops Group

**Ek** VOLCANIC FLOWS

## Early Jurassic

**eJgd** WILDHORSE BATHOLITH

## Triassic & Jurassic

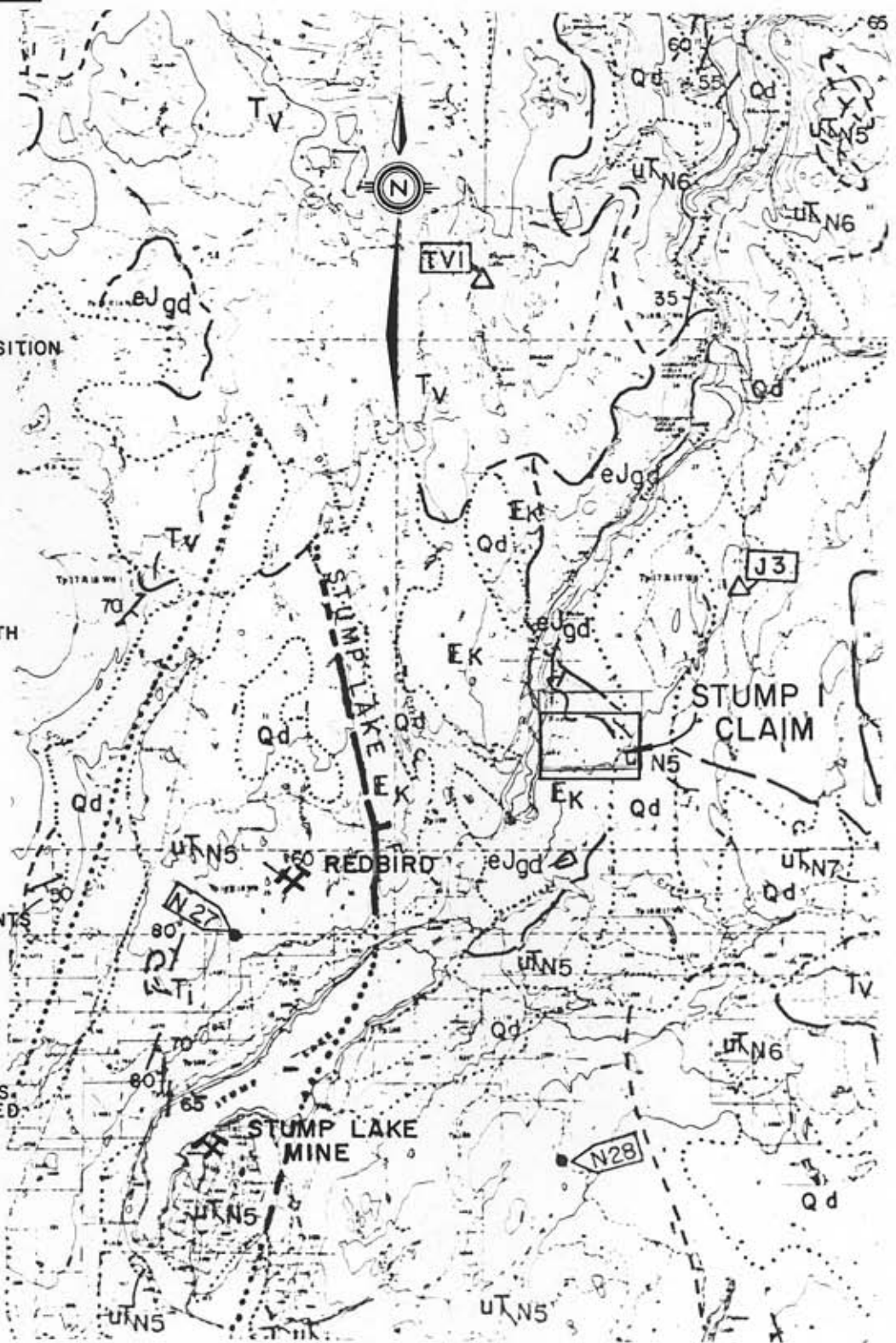
### Nicola Group

**UTN5** AUGITE PORPHYRY

**UTN6** FINE GRAINED SEDIMENTS & VOLCANICLASTICS

**UTN7** FOLIATED DIORITES, AMPHIBOLITES

----- FAULTS, DEFINED, APPROXIMATE, ASSUMED



Geology after Monger, 1982

## STUMP I CLAIM REGIONAL GEOLOGY

KAMLOOPS MINING DIVISION

N.T.S. 92 I 8

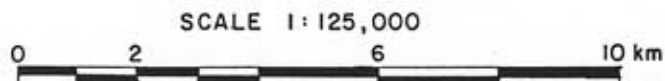


Figure 3

the geology of the area of the claim group taken from Mongers map.

The oldest units in the area of the claim group are of the Triassic and Jurassic Nicola Group and consist of amphibolites, foliated diorites, fine grained sediments/volcaniclastics and augite porphyry flows. Intruding these units is the Early Jurassic Wildhorse Batholith which in turn is overlain by the younger Kamloops Group volcanic flows, olivene basalts and minor intrusions of intermediate composition. These flows and basalts form prominent ridges and cliffs and can be seen along the highway near the Stump 1 mineral claim.

The mineralization at Stump Lake is associated with north-south striking vein structures. A major north-south fault has been postulated by Monger through the north end of Stump Lake. However the main structure on the Stump 1 mineral claim as well as the Redbird claim is east-west. It appears that this east-west structure on the Redbird and Stump 1 claims is probably later than the main north-south structures found in the area.

## Property Geology

The geological work completed by the operators on the Stump 1 mineral claim has been limited to outcrop examination and chip sampling. All chip samples were analysed for gold and plotted on Figure 4.

Outcrop examination was limited to the area of the grid as shown on Figure 4. The major contacts are also shown on Figure 4. The majority of outcrops are found west of line 4+00 West in the area of the east to west trending gully. Even here outcrops constitute less than 5% of the total area. In the area of the anomalous soils, outcrops are fewer (lines 1+75 East to 1+75 West). Here the soils vary from a rusty orange-red residual soil to a humus like glacial derived topsoil. This variation can occur over less than 25 metres and may account for the lack of uniformity and consistency in the soil values.

Previous work by Newconex and Monger has indicated that the Stump 1 mineral claim is underlain by the southern edge of the Wildhorse Batholith and Kamloops Group volcanics. None of these

units were positively identified within the area of the grid. Both units were encountered while staking the Stump 1 claim.

Units of the Wildhorse Batholith consists of a very coarse grained granite that apparently shows little real variation from one outcrop to another.

Kamloops group volcanics lie unconformably over the Nicola volcanics and consist primarily of basaltic flows and pyroclastics. They are essentially unmineralized and show no major alteration patterns. Large outcrops of these units occupy both the southern and northern portions of the Stump 1 mineral claim and form large outcrops near the eastern edge of Napier Lake. The western regions of the claim group are essentially devoid of outcrop however granitic boulders are common.

A brief description of the units identified within the grid area follows:

## Nicola Group Volcanics:

This group is made up of essentially two rock types within the grid area, altered and unaltered.

The unaltered variety consist mainly of a finely crystalline, grey to dark grey volcanic flow with no distinct mineralogy. It should be noted that small areas of very fine grained sediments (phyllites and siltstones) were also found in the same general area. Lack of outcrop and apparent continuity prevented any meaningful interpretation.

The altered variety consists of a very fine grained, pale grey volcanic with varying degrees of alteration, mainly silicification, pyritization and sericitization. Disseminated pyrite reaches up to 10% in places with the more sericitized units becoming a crumbly, friable, bleached rock. Silicification is common, particularly near the dyke units which are found along the steeply incised east-west gully that lies north of the base line. There is a strong fracture cleavage direction of north 90 to 110 degrees east dipping steeply to the south associated with this altered zone. Within this zone of alteration are found narrow quartz-carbonate (minor gypsum?) fracture fillings



with traces of chalcopyrite and malachite. One of these samples returned an anomalous value in gold (170 ppb, Line 6+00 West, Figure 4).

A massive, dense, dark grey green, fine to medium crystalline dyke rock is found in the immediate area of the east-west gully. This unit is composed mainly of short stubby hornblendes, non-magnetic, with trace to 2% disseminated pyrite. It appears to be a late structure emplaced along (or related to) the main shear zone.

## Geochemical Survey

### Introduction

A soil and rock geochemical survey was conducted over the central part of the claim group (Figure 4). An east to west base line was established and marked by survey stakes. North-south lines were established at 100, 50, and in some instances 25 metre intervals. Soil samples were collected along these lines at 25 metre intervals with rock chip samples taken where outcrops were encountered.

The soil samples were taken from the "B" horizon and placed in a waterproof kraft envelope and taken with the rock samples for analysis to Kamloops Research and Assay Laboratory Ltd.

### Method

All samples, as well as the original 5 samples taken in 1986, were analysed for gold. These original 5 samples were analysed for 8 elements (Au, Cu, Pb, Zn, Ag, As, Sb, and Hg). The soil samples were dried and sieved (-80 mesh stainless steel). An aliquot of the

minus -80 mesh fraction was used. Extraction was attained using hot concentrated aqua regia and the sample then diluted to 10 millilitres with analysis by atomic absorption spectrophotometry.

All gold values were recorded in parts per billion. Rock samples were analysed similarly however their preparation involved crushing, grinding and pulverizing to the correct mesh size.

#### Presentation of Results

Due to the relatively small data base (247 soil samples) and the lack of homogeneous soil development it was decided that a statistical treatment of the soil results would not be necessary. An arbitrary value of greater than 50 parts per billion gold was selected as anomalous (six samples fit this category which is approximately 2 1/2% of the data base) . Samples having a value greater or equal to 10 ppb and less than 50 ppb were designated as possibly anomalous. (These totalled 15 samples which made up 6% of the population). These percent figures are consistent with normally accepted interpretation for geochemical surveys. The results are plotted on

Figure 4 and anomalous and possibly anomalous values indicated by symbols.

A total of 34 rock samples were collected and anything greater than 5 ppb Au is considered of interest. Only three samples fit into this category and they are illustrated on Figure 4. One sample (170 ppb) found on Line 6 West was associated with copper mineralization and a second sample (20 ppb, Line 1+50 West) was also located near copper mineralization. Both locations are highlighted on Figure 4.

#### Discussion of Results

All of the soil samples considered anomalous in gold are concentrated in the area, Line 1+25 West to Line 1+50 East and from 0+50 South to 2+50 South (Figure 4). This area has erratic soil development varying from a true gossaneous residual soil to what appears to be a non-residual (glacial derived) cover. Bedrock is not far below the surface as oxidized outcrops were identified in several

locations.

Of the original 5 samples (3 soil, 2 rock) taken in 1986 (prior to ground acquisition) only one sample returned an anomalous value in gold (soil, 310ppb) however all samples returned high background values in copper and zinc. This one sample that returned an anomalous value in gold (310 ppb) also had an anomalous value in Hg (325 ppb). It was this sample, in conjunction with favourable geology that Leishman and Gruenwald decided to acquire the Stump 1 mineral claim. The location of this one soil value is plotted on Figure 4 and is found in the area described previously.

## Conclusions and Recommendations

The geochemical and geological work completed on the Stump 1 mineral claim indicates the presence of gold mineralization. The anomalous values associated with the quartz-carbonate vein material indicate that this mineralization may be related to later mineralizing fluids associated with the east-west shear. The lack of outcrop in the area of the anomalous soil samples hinders exploration in this area.

Therefore it is recommended that a programme of trenching, sampling and mapping be completed in this area of the anomalous soil samples. It is estimated this programme could be completed for less than \$20,000.

*Douglas A. Leishman*

Douglas A. Leishman, B. Sc.

Kamloops, B. C.

August 18, 1987

## References

Cockfield, W. E., (1961): Geology and Mineral Deposits of Nicola Map Area, British Columbia, GSC Memoir 249.

Monger, J. W. H., (1984): Bedrock Geology of Ashcroft (921) Map Area, GSC Open File Report 980.

Rebagliati, C. M., P. Eng., Geology, Geochemistry and Geophysics of the Napier Lake Property, Nap Claims, Kamloops Mining Division, Newconex Canadian Exploration Limited, July 1973.

Rebagliati, C. M., P. Eng., Percussion Drilling of the Napier Lake Property, Nap Claims, Kamloops Mining Division, Newconex Canadian Exploration Limited, unpublished report, Fall 1973 and personal comm.

Richardson, Paul, P.Eng., Electromagnetic Survey, Napier Lake Property, Kamloops Mining Division, Newconex Canadian Exploration Limited, June 1977.

## Appendix I

### Personnel

Werner Gruenwald, B.Sc.	Geologist	April 19,20,21
D. A. Leishman, B. Sc.	Geologist	April 18,19, 20, 21 May 5, Aug.16, 17, 18
Roy Stanley	Field Assistant	May 5



## Appendix II

### Statement of Expenditures

#### Labour

W. G. Gruenwald, B. Sc.	
3 days @ \$275./day	\$825.00
D. A. Leishman, B. Sc.	
7 1/4 days @ \$275./day	1993.75
Roy Stanley	
1 day @ \$100./day	100.00

#### Expenses and Disbursements

Vehicle Rental 4 days @ \$40./day	160.00
Field equipment and supplies	75.00
Geochemical analyses (Kamloops Research)	1656.90
Drafting, prints, etc.	160.00
Telephone, Binding, secretarial	85.00
Total Costs	<hr/> \$5,055.65

**Douglas A. Leishman, B.Sc., A.R.S.M.**  
**Consulting Geologist**  
Suite 2 423 First Avenue, Kamloops, B. C.


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Telephone 604-828-6150

**Certificate of Qualifications**

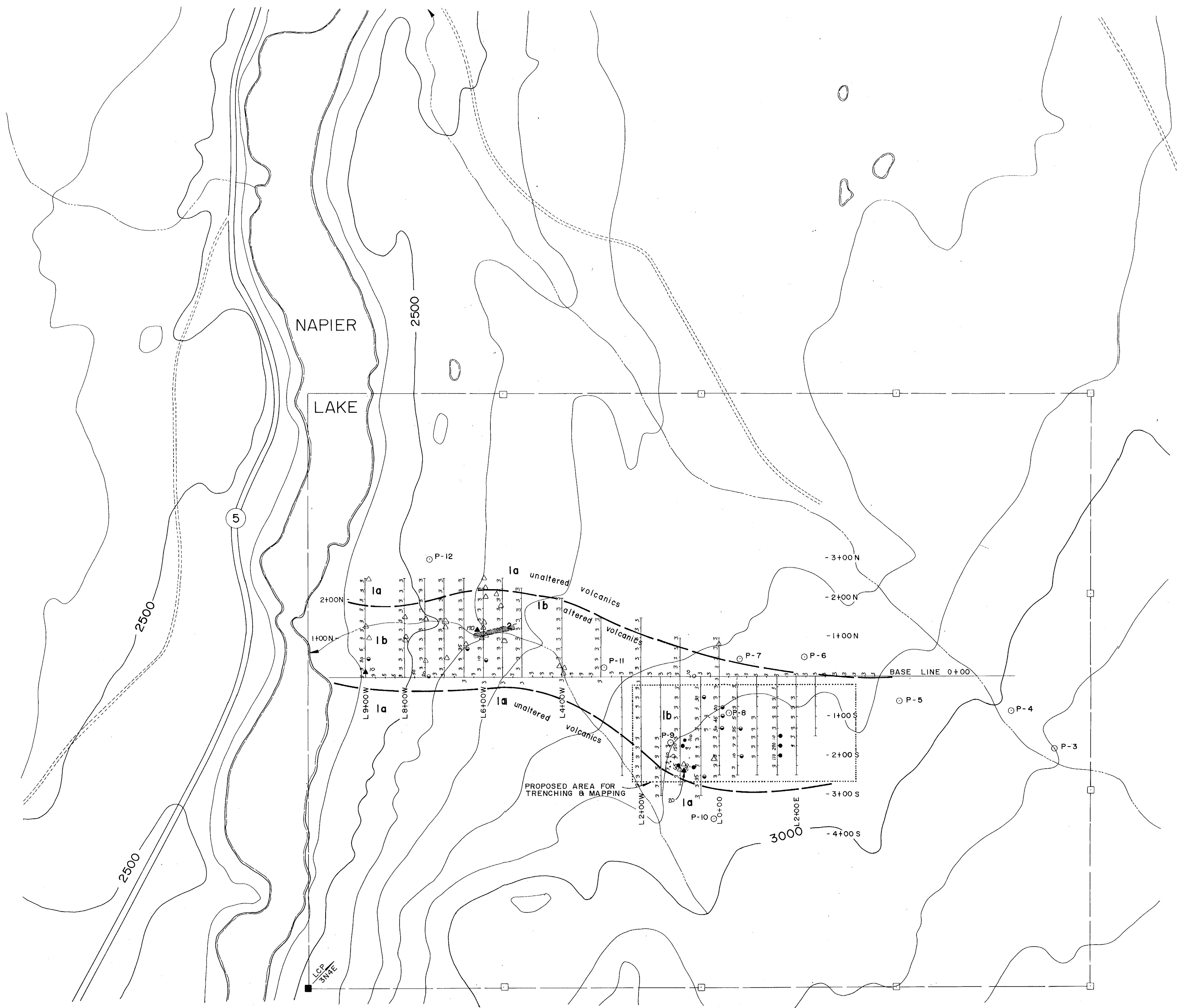
I, DOUGLAS A. LEISHMAN, of Kamloops, British Columbia, Do Hereby Certify That:

1. I am a self employed Consulting Geologist residing at the above address.
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 University of London, Imperial College of Science and Technology, Royal School of Mines, London, England, B. Sc.(Hons.) Mining Geology, 1981.
4. I have been actively involved in mineral exploration since 1971.
5. I am an Associate of the Geological Association of Canada and a member of the Institute of Mining and Metallurgy (London, England).
6. I have performed most of the work on the Stump 1 claim and accept responsibility for the report and its conclusions.

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

Consulting Geologist

Kamloops, B. C.  
August 18, 1987



**LEGEND**

- CREEKS
- LAKE or POND
- GRAVEL ROAD
- MAJOR ROAD
- LCP
- LEGAL CORNER POST
- CLAIM POST
- BOUNDARY OUTLINE
- P-1 LOCATION PERCUSSION DRILL HOLE & NUMBER (NEWCONEX 1973)

**GEOCHEMICAL SURVEY**

- SOIL SAMPLE, Parts per billion (ppb) GOLD
- POSSIBLY ANOMALOUS (10 to 49ppb Au)
- ANOMALOUS (Greater or equal to 50 ppb)
- ROCK SAMPLE SITE,  $\blacktriangle$  PLOTTED VALUES GREATER THAN 5ppb Au ONLY

**GEOLOGICAL LEGEND**

- 1** NICOLA VOLCANICS
  - a UNALTERED
  - b ALTERED, Pyritized, Silicified
- 2** MAFIC DYKE
- GEOLOGICAL CONTACT

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**16,345**

LEISHMAN AND GRUENWALD

**GEOCHEMICAL AND GEOLOGICAL SURVEY**

**STUMP I MINERAL CLAIM**  
N.T.S. 92 I 6  
KAMLOOPS MINING DIVISION

TECHNICAL WORK BY: LEISHMAN & GRUENWALD	SCALE: 1: 5,000
DRAWN BY: D. B. MIRTLE	DATE: MAY, 1987
REVISIONS:	FIG. NO. <b>4</b>

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