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GEOCHEMICAL REPORT

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M.R. # ..... \$ .....
VANCOUVER, B.C.

on the  
#15,16  
EXPO MINERAL CLAIMS

Okanagan Lake (West) Area  
Nicola Mining Division, B.C.

82L5W

near

Latitude 50 degrees 15 minutes N.  
Longitude 119 degrees 45 minutes W.  
N.T.S. Map Reference 82L4 and 82L5

50°25'; 119°47'

on behalf of

PACIFIC NORTHWEST RESOURCES INC.

by

James W. McLeod, B.Sc.

October 7, 1987  
Vancouver, British Columbia

PART 4 OF 4

16,483

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

FILMED

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<hr/>	
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Au and Ag	in back
FIGURE 29 - EXPO 15&16 - GEOLOGY AND GEOCHEMISTRY	
Ni, Co, Mn, Cr	in back

*TEH*

## INTRODUCTION

During the summer and fall of 1986 the Expo mineral claims were staked because of anomalous results revealed by a reconnaissance silt sample survey ie. GSC Open File 410.

Subsequently more detailed stream sediment (silt) and road soil sampling, as well as, detailed grid soil sampling were initiated. This follow-up geochemical sampling confirmed a number of anomalous gold values which may indicate a mineralized bedrock source and a number of nickel-cobalt-chromium anomalies which may indicate platinum group mineralization.

## LOCATION AND ACCESS

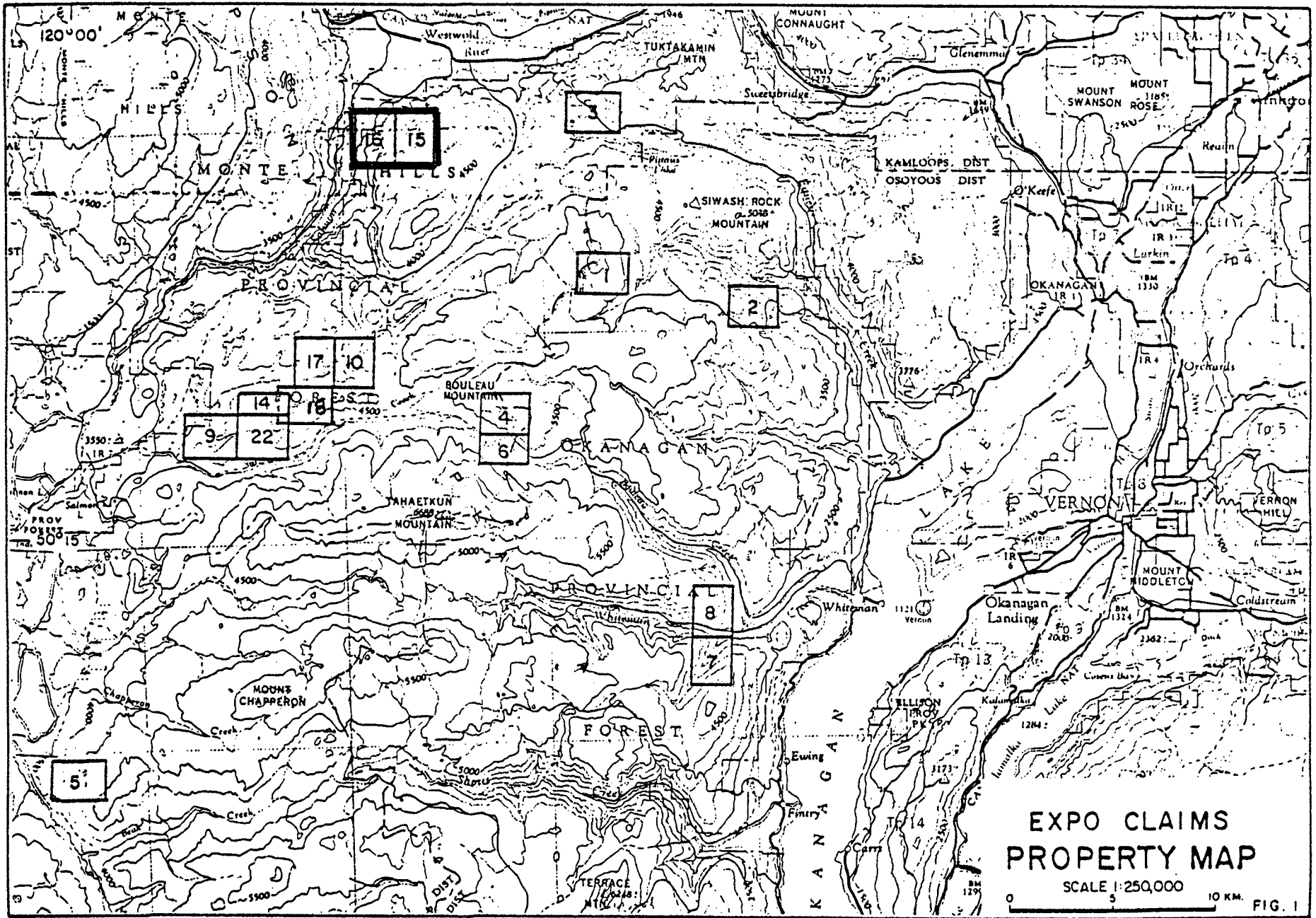
The claims are situated on the northwest and west side of Okanagan Lake in south-central British Columbia. The claim area in general can be located on N.T.S. maps 82L/4, 82L/5 and 92I/1 at the approximate location: latitude 50 degrees 15 minutes N. and longitude 119 degrees and 45 minutes W. (see Figure 1).

General access to the claim areas is provided by Highway 97 to Westwold, B.C. where claim area access is then provided by turning south on the Salmon River logging road. Access to the Expo 5 mineral claim is provided generally by Highway 97, then 3 kilometres of logging road which connects with the Douglas Lake Ranch road system. The Ranch road is then taken to the property.

## PROPERTY AND OWNERSHIP

Eleven mineral claims comprising a total of 205 units make-up the properties described herein and are listed as follows:

Claim Name	No. Units	Record Number	Record Date
Expo 4	20	1707	July 18
Expo 5	20	1708	July 18
Expo 6	15	1709	July 18
Expo 9	20	1710	July 18



Expo 10	20	1711	July 18
Expo 14	10	1732	Sept. 15
Expo 15	20	1733	Sept. 15
Expo 16	20	1734	Sept. 15
Expo 17	20	1735	Sept. 15
Expo 18	20	1744	Oct. 22
Expo 22	20	1745	Oct. 22

The claims listed above are owned 100% by Pacific Northwest Resources Inc. of Vancouver, British Columbia.

#### TOPOGRAPHICAL AND PHYSICAL ENVIRONMENT

The claims area in general may be described as mountainous plateau country which has been incised by moderate to steep dendritic drainage in the higher to lower areas of elevation, respectively.

The claim areas range in elevation from 610 metres (2000 feet) to 1615 metres (5300 feet).

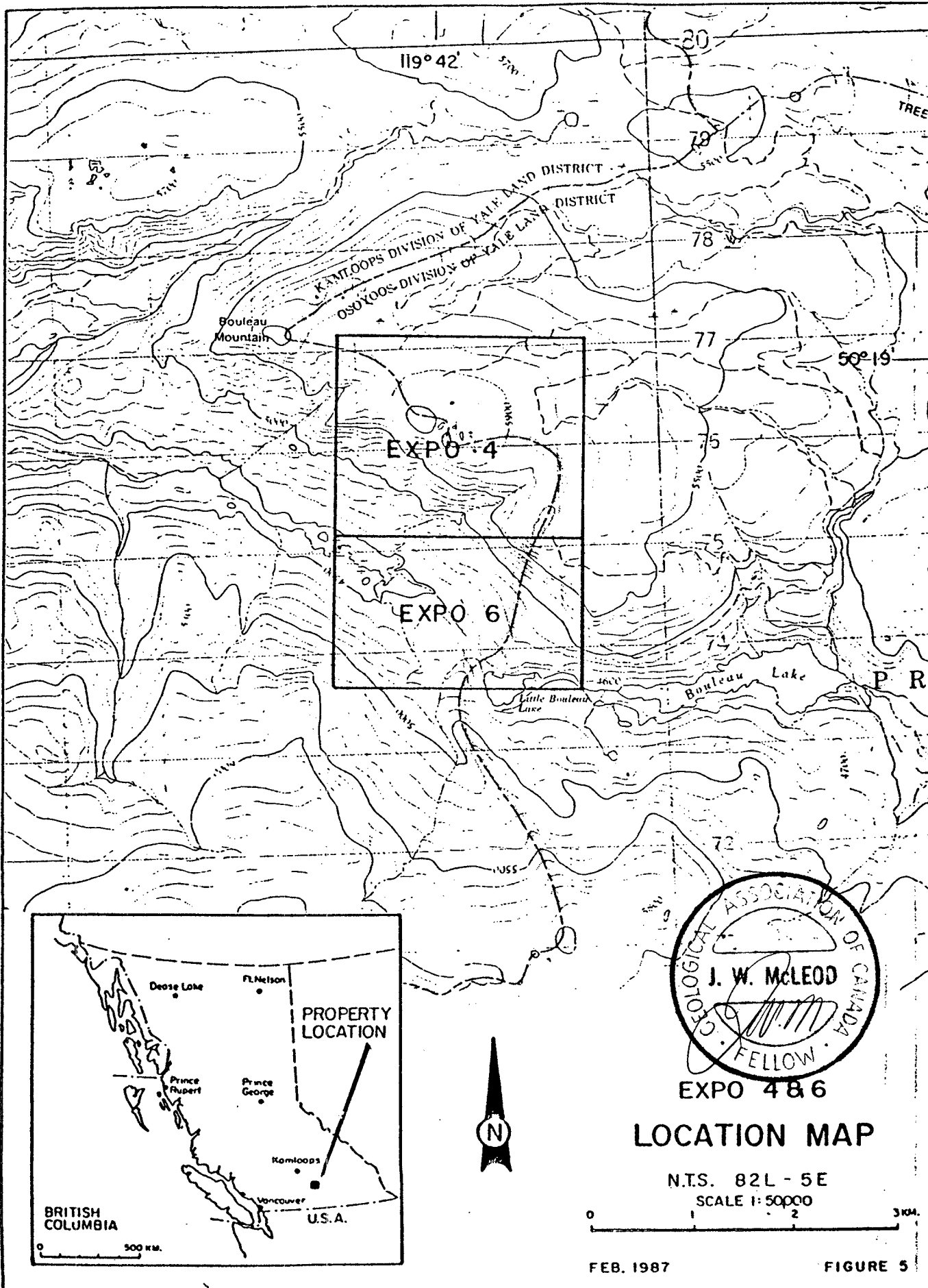
The lower areas are open grass and sage brush, pine and spruce covered while the higher ground has thicker conifer cover of spruce and balsam fir.

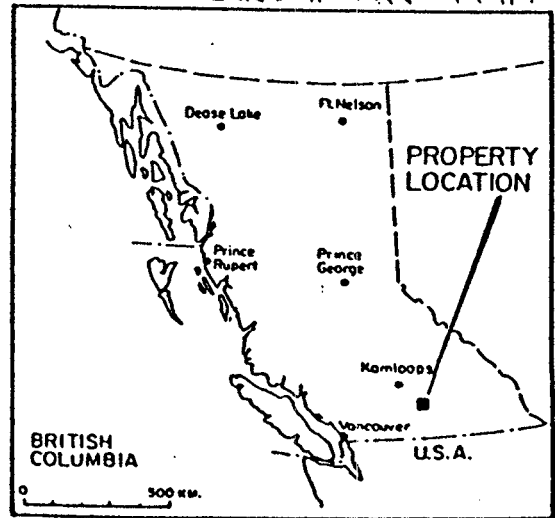
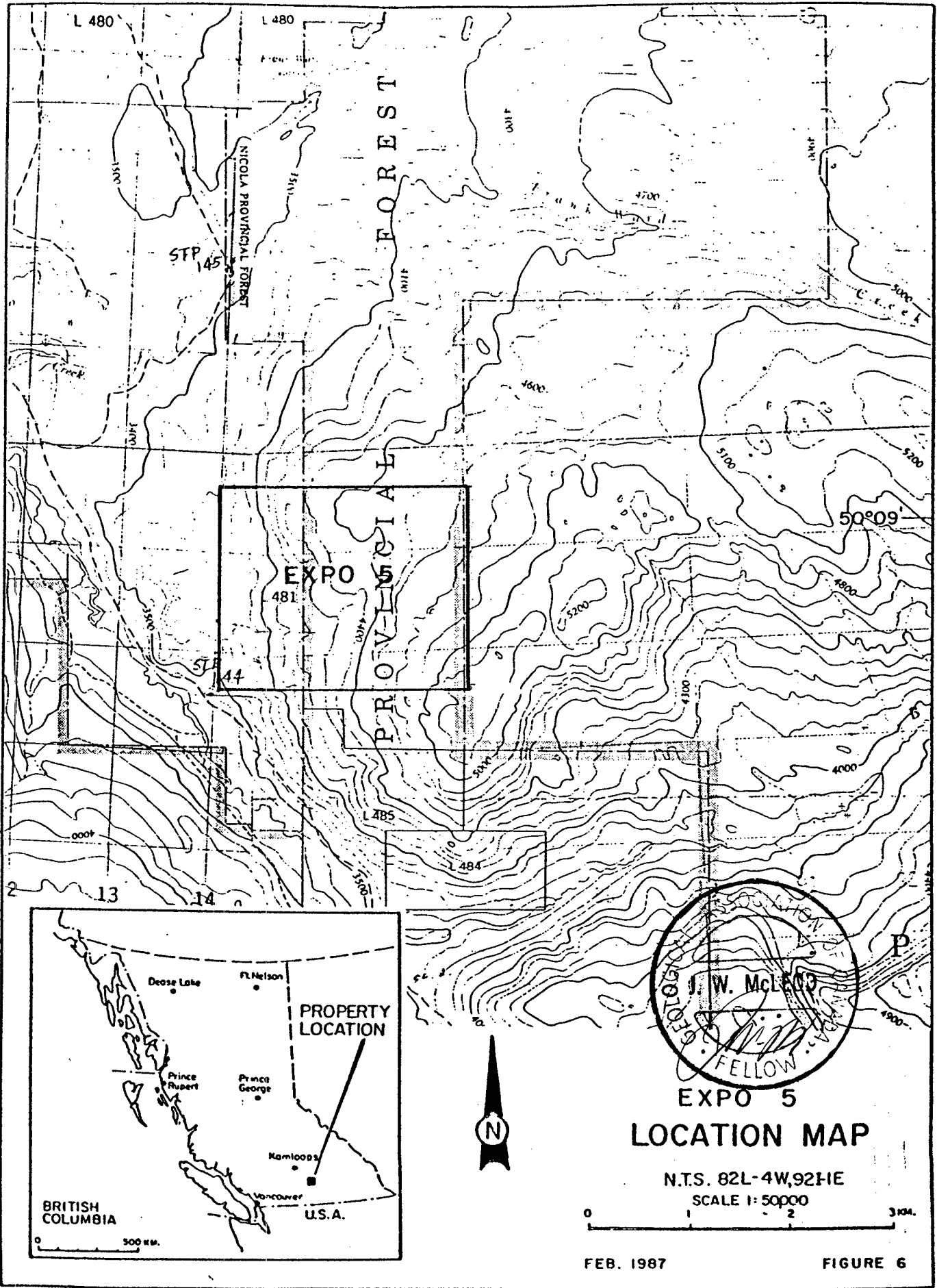
The claim areas lie in the Interior Dry Belt which receives approximately 40 cm. (15 inches) of precipitation annually with a low to moderate amount as snow in the lower to higher elevations, respectively.

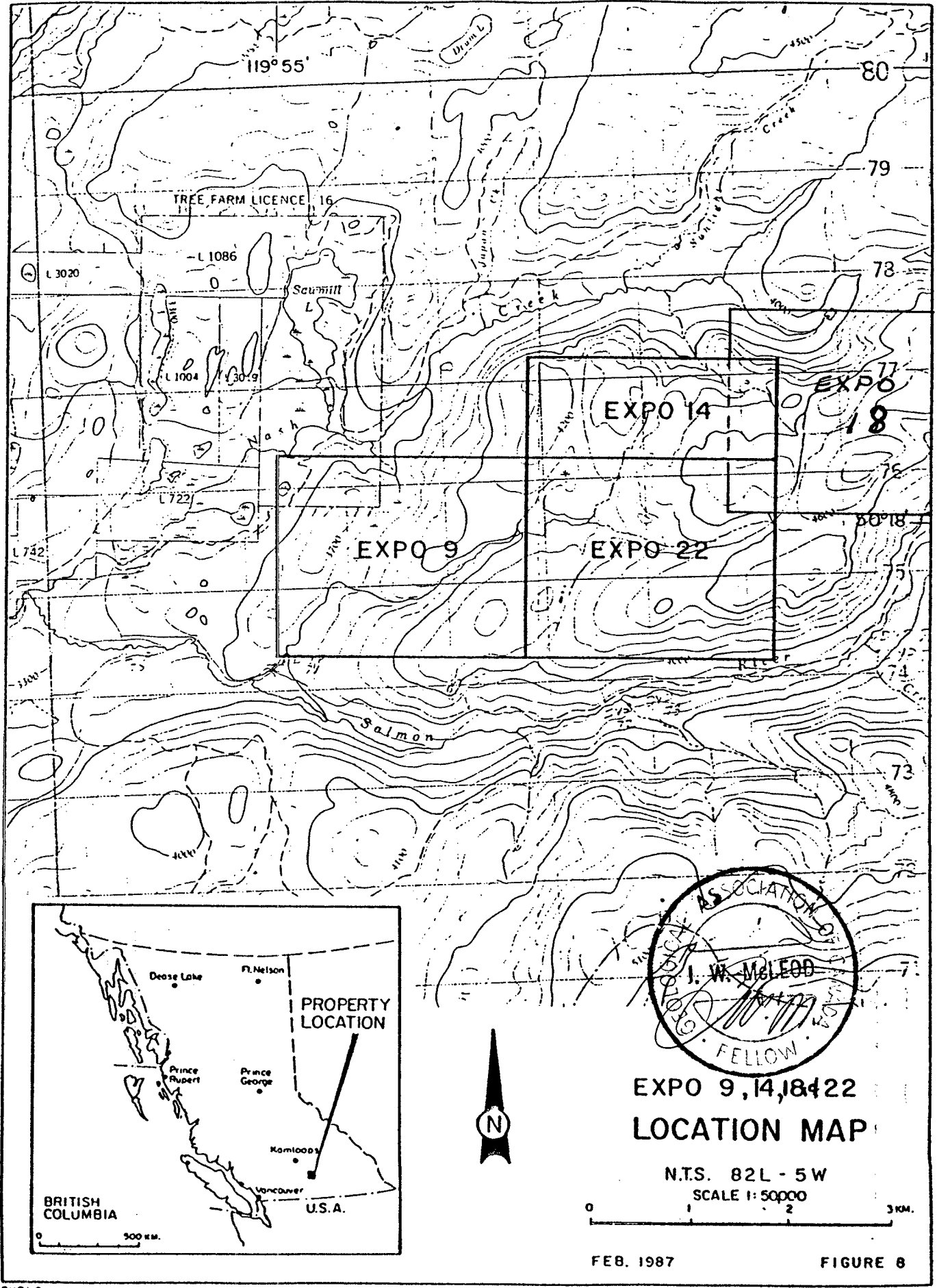
#### HISTORY AND PREVIOUS WORK

The area to the west of Okanagan Lake was prospected by placer miners in the late 1800's with minor production during the period 1889-1895.

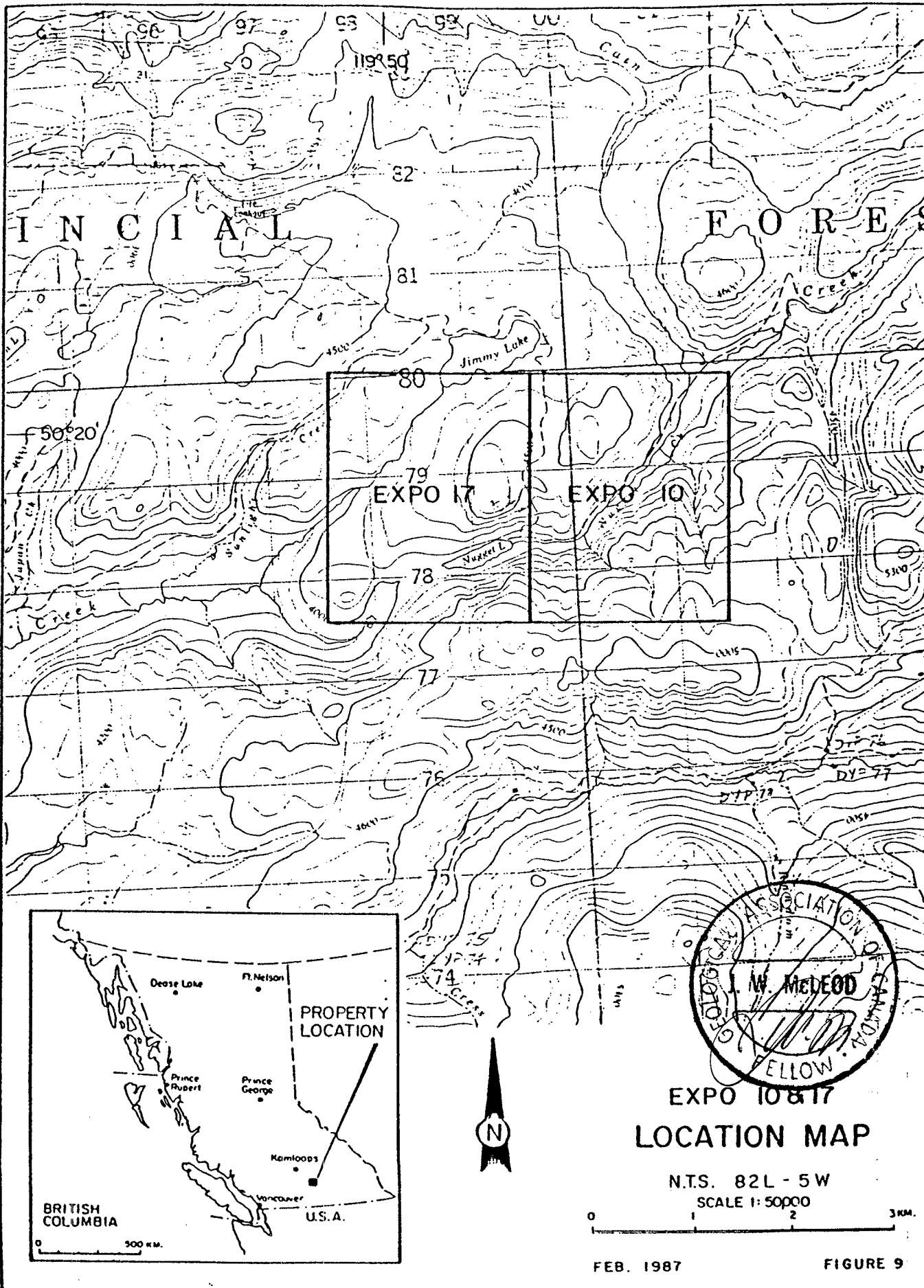
Lode gold and silver has been discovered in quite a number of prospects in the general area. Most are apparently fault or fissure vein type and may be related to Cretaceous or Tertiary age intrusions. Many of the gold occurrences contain accompanying lead and zinc. Disseminated copper - molybdenum occurs in the area. Also chromite is known to occur near the headwaters of the Nicola River area approximately 16 kilometres southwest of the Expo 7&8 claims (see Figure 1). The chromite is thought to occur as segregations in

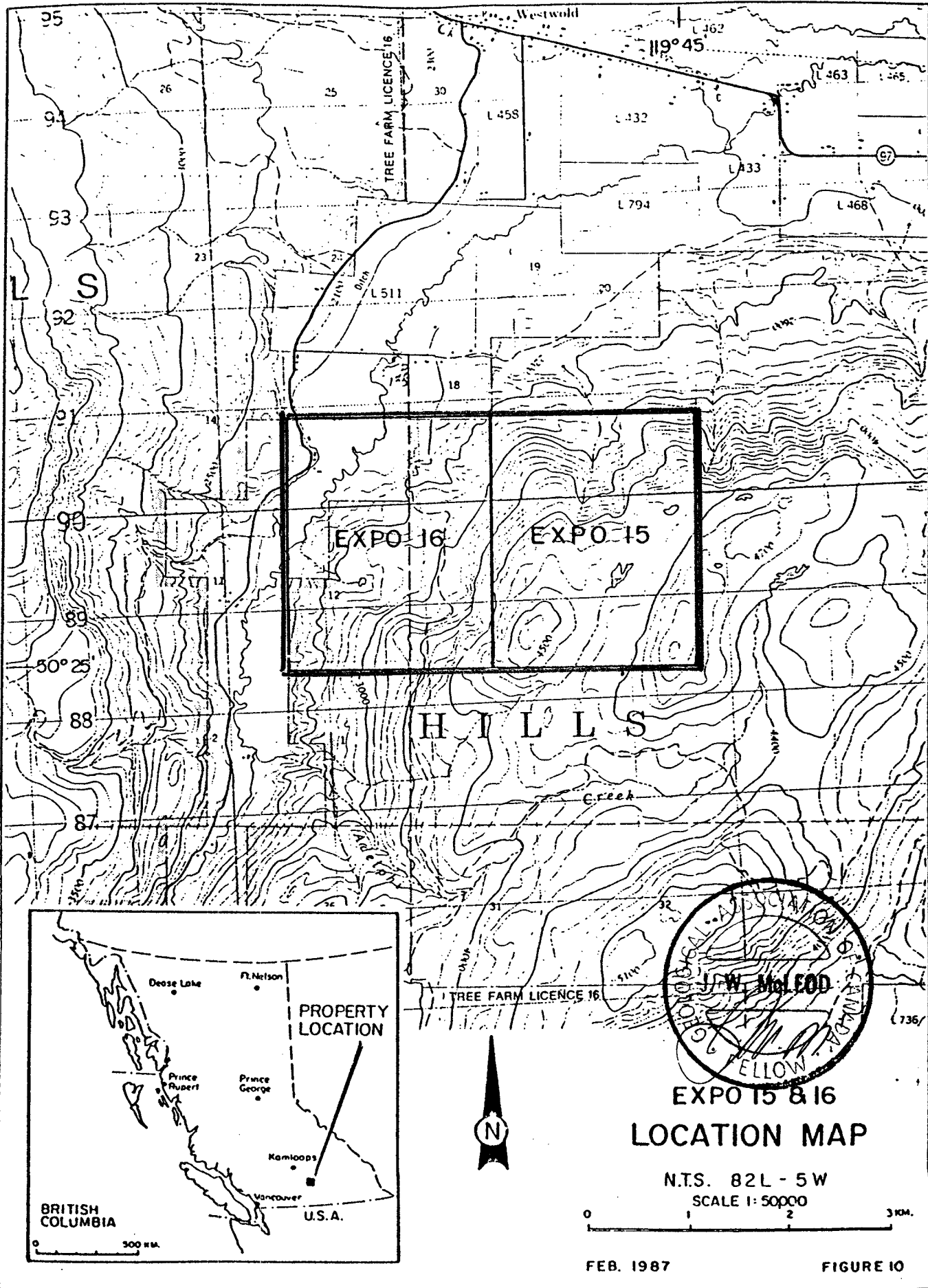












ultramafic dykes which possibly could contain platinum group mineralization.

The areas actually covered by the Expo claims are not known by the writer to have any definite mineral exploration history nor any previous work performed on them.

### PRESENT WORK PROGRAM

During the summer and fall of 1986, after the claims were staked, a soil and silt sampling program was undertaken on portions of the Expo claims. Some of the roads on the various mineral claims were soil sampled on the highside of the road bank.

The samples were placed in brown Kraft sample bags and shipped to Vancouver, B.C. The samples were analyzed by Vangeochem Lab Limited of 1521 Pemberton Ave., North Vancouver, B.C. and Acme Analytical Laboratories Ltd. of 852 E. Hastings St., Vancouver, B.C. using active creek area silt samples and 'B' horizon soils, respectively. The samples were analysed for 30 elements by the induction coupled plasma (ICP) method.

The sample results for gold, silver, nickel, cobalt, manganese and chromium are plotted on Figures 18, 19, 20, 21, 24, 25, 26, 27, 28 and 29.

### REGIONAL GEOLOGY

The claim area has been described in the Geological Survey of Canada Memoir 296 and Open File 637.

Generally the claim area is described as being underlain by the following rocks:

Intercalated volcano-sediments of the Tertiary Kamloops Group which occur as basaltic lava and flow breccia, minor rhyolitic lava and breccia, local sandstone, shale and conglomerate which may be coal bearing.

### REGIONAL GEOCHEMISTRY

The Expo silt program involved sampling 16 mineral claim groups in three Mining Divisions all in the general area for a total of 255 silt samples which rendered the following results:

Note - Values for anomalous (95th percentile) and highly anomalous (99th percentile).

<u>Metal</u>	<u>Anomalous</u>		<u>Highly Anomalous</u>	
	(ppb)	(ppm)	(ppb)	(ppm)
Au	80		350	
Ag		0.6		0.7
Cr		86		125
Ni		83		149
Co		19		25
Mn		2170		5170

With reference to GSC National Geochemical Reconnaissance (GSC Open File No. 410) survey of 3480 silt samples from the Vernon map sheet (NTS 82L) are as follows:

<u>Metal</u>	<u>Anomalous</u>		<u>Highly Anomalous</u>	
	(ppm)		(ppm)	
Ag	0.1		0.5	
Ni	40		70	
Co	15		20	
Mn	900		2100	

Examination of the respective results indicates that the claim areas are significantly more anomalous than the map sheet area as a whole.

#### LOCAL GEOLOGY AND GEOCHEMISTRY

Expo\_4  
and

Expo\_6: These claims appear to be underlain by Tertiary Kamloops Group volcano-sediments.

Several anomalous silt samples with 415 and 130 ppb gold and anomalous silver and chromium occurs within the Expo 6 claim (see Figures 18 and 19).

Expo\_5: This claim appears to be underlain by volcano-sediments of the Kamloops Group, as well as, older rocks of the Cambrian-Permian Thompson Assemblage which are composed of basaltic and andesitic lavas, greenstone, tuff, quartzite, limestone and argillite.

Just south of this claims' southern boundary is seen to occur an anomalous silt sample of 300 ppb gold (see Figure 20).

Expo\_9,  
14, 18

and\_22: These claims appear underlain by Tertiary Kamloops Group volcano-sediments and possibly Proterozoic age metamorphic rocks of the Shuswap Terrane consisting of schist, quartzite, limestone, shale and argillite.

One anomalous gold response of 140 ppb is seen to occur in the southwest corner of Expo 9 mineral claim (see Figure 24).

Several Ni-Co-Mn anomalies are seen to occur within these mineral claims (see Figure 25).

Expo\_10  
and

Expo\_17: These claims appear underlain by Kamloops Group volcano-sediments.

Several samples anomalous in Co-Mn are found to occur just to the northeast of Nugget Lake.

Expo\_15  
and

Expo\_16: These claims appear to be underlain by Kamloops Group volcano-sediments and Proterozoic Shuswap Metamorphic Terrane.

One anomalous gold sample occurs just north of the northern boundary of the Expo 16 claim (see Figure 28),

Several samples anomalous in Ni-Co-Cr are found to occur on the Expo 16 mineral claim (see Figure 29).

## CONCLUSIONS AND RECOMMENDATIONS

Expo\_4  
and

Expo\_6: The source of the anomalous gold, silver and chromium sample has not yet been determined.

The anomalous area should undergo detailed silt sampling and detailed soil sampling where possible about the anomalous area on both sides of the drainage system. The general claim area should undergo reconnaissance prospecting and geological mapping at a scale of 1:5000.

Expo\_5: The source of the anomalous silt sample which occurs just beyond the southern claim boundary on the has not been determined.

A recommendation the same as for mineral claims Expo 4 and 6 should be undertaken on this claim.

Expo\_9,  
14, 18,  
and 22:

The source of the anomalous silt samples has not been determined.

A program of detailed follow-up silts and soil grids on both sides of the drainage course should be completed, as well as, reconnaissance prospecting and geological mapping.

A general recommendation for soil sampling in the area is to try acquiring a deeper soil sample by using an auger.

Expo\_10  
and

Expo\_17: The source of the anomalous Co-Mn samples immediately northeast of Nugget Lake have not been determined.

These claims should undergo a program similar to those recommended for the previously described claims.

Expo\_15  
and

Expo\_16: The source or cause of the anomalous samples on or near these claims has not been determined.

The previously outlined exploration follow-up program, prospecting and the geological reconnaissance mapping should be undertaken.

### COST ESTIMATE

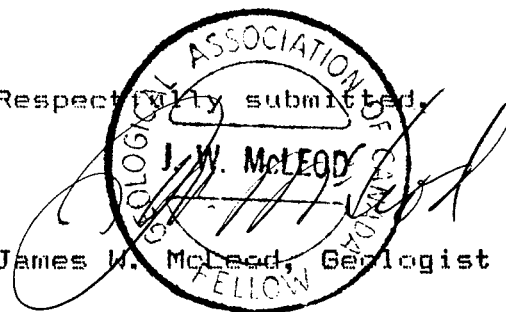
Geologist-supervisor for 2 months

\$18,000.00

4 prospector-field assistants 240 mandays @ \$150/day	36,000.00
Food and accommodation - 300 mandays @ \$40/day	12,000.00
Analyses, assays, etc. 2000 samples @ \$10/sample	20,000.00
Transportation	6,000.00
Equipment and supplies	2,000.00
Licenses and fees	3,000.00
Workers compensation, insurance, etc.	4,500.00
Report and maps	3,500.00
Contingency	10,500.00
<b>TOTAL</b>	<b>\$115,500.00</b>

Respectfully submitted,

James W. McLeod, Geologist



STATEMENT OF COSTS

Supervision	\$ 6,000.00
4 Field assistants	12,000.00
Analyses	1,290.00
Food and accommodation	10,200.00
Supplies	500.00
Transportation	2,500.00
Report and maps	1,000.00
Licences and fees	1,525.00
TOTAL	\$35,015.00

(PAC) \$4000.00 apportioned to this report.

EK



REFERENCES

British Columbia Department of Mines, Annual Report 1933.

Geological Survey of Canada, Open File 410.

Geological Survey of Canada, Open File 637.

Ikona, C.K. and Yeager, D. (1987), Report on Expo Mineral Claims, for Pacific Northwest Resources Ltd.

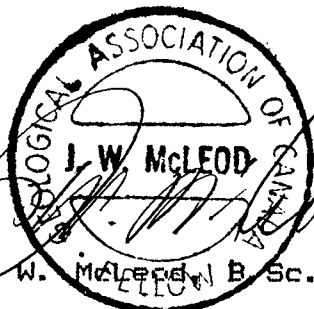
Jones, A.G. (1959): Vernon Map Area, Geological Survey of Canada, Memoir 296.

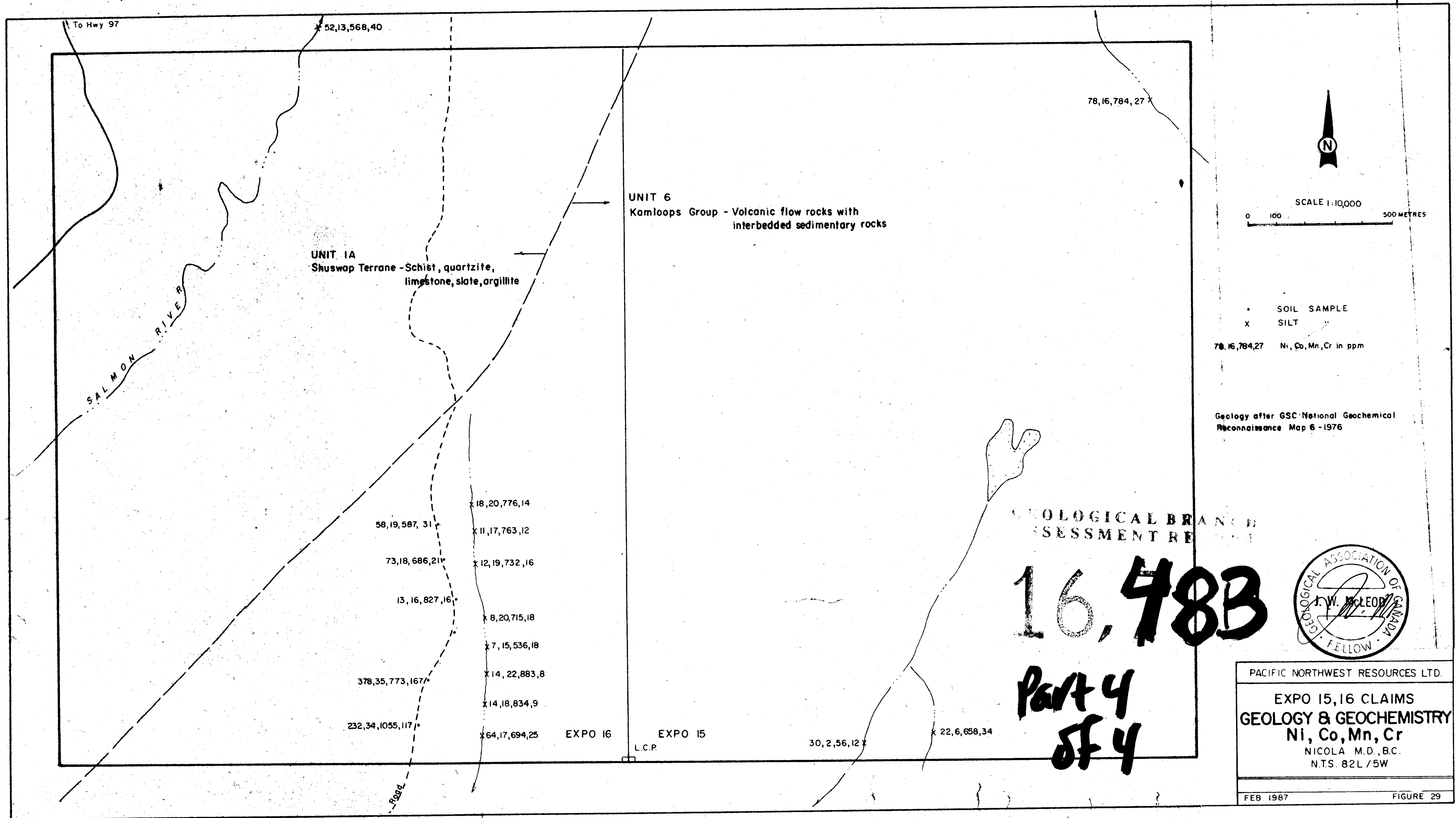
**CERTIFICATE**

I, JAMES W. McLEOD, of the Village of Ladner, Province of British Columbia, hereby certify as follows:

- 1) I am a Consulting Geologist with an office at 5303 River Road, Delta, B.C., V4K 1S8.
- 2) I am a Fellow of the Geological Association of Canada.
- 3) I graduated with a degree of Bachelor of Science, Major Geology, from the University of British Columbia in 1969.
- 4) I have practised my profession since 1969.
- 5) I do not own any direct or indirect interest in the Expo mineral claims nor do I have any direct or indirect interest in the securities of Pacific Northwest Resources Inc.
- 6) The above report is based on personal field experience in the general area, on researching available data and on personal discussions with other parties familiar with the properties.

DATED at Ladner, Province of British Columbia, this 7th day of October, 1987.

  
James W. McLeod, B.Sc.



SCALE 1:10,000  
0 100 500 METRES

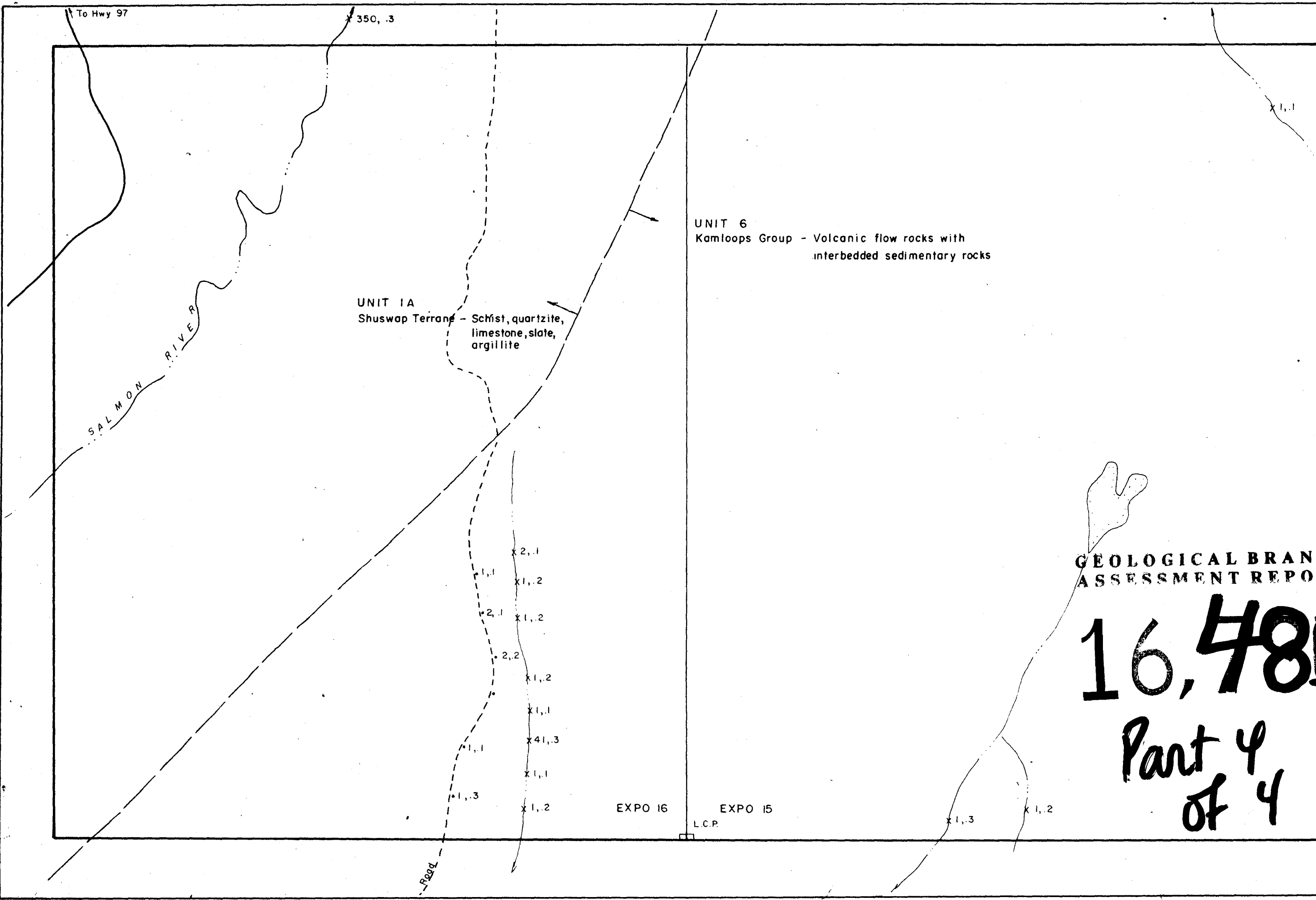
• SOIL SAMPLE  
x SILT  
78,16,784,27 Ni, Co, Mn, Cr in ppm

Geology after GSC National Geochemical  
Reconnaissance Map 6 - 1976



**PACIFIC NORTHWEST RESOURCES LTD.**  
**EXPO 15,16 CLAIMS**  
**GEOLOGY & GEOCHEMISTRY**  
**Ni, Co, Mn, Cr**  
NICOLA M.D., B.C.  
N.T.S. 82L/5W

FEB. 1987    FIGURE 29



UNIT 6  
Kamloops Group - Volcanic flow rocks with  
interbedded sedimentary rocks

UNIT 1A  
Shuswap Terrane - Schist, quartzite,  
limestone, slate,  
argillite

To Hwy 97  
350, .3  
SALMON RIVER

Road

EXPO 16

EXPO 15

L.C.P.

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

**16,483**

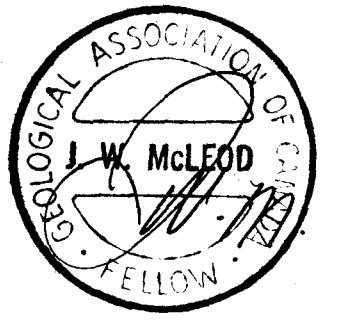
Part 4  
of 4



SCALE 1:10,000  
0 100 500 METRES

- SOIL SAMPLE
- X SILT
- 2,2 Au in ppb, Ag in ppm

Geology after GSC National Geochemical  
Reconnaissance Map 6 - 1976



PACIFIC NORTHWEST RESOURCES LTD.

EXPO 15,16 CLAIMS  
GEOLOGY & GEOCHEMISTRY  
Au, Ag  
NICOLA M.D., B.C.  
N.T.S. 82L/5W

FEB 1987

FIGURE 28