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GEOPHYSICAL REPORT  
on the  
BAYONNE/SPOKANE PROPERTY  
NELSON MINING DIVISION, BRITISH COLUMBIA

NTS 82F2W  
LAT. 49 10      LONG. 116 56W

for

NUGGET MINES LTD.  
GOLDRICH RESOURCES INC.

by

S. A. Endersby, P. Eng. (B.C.)

November 15, 1994

White Rock, B.C.

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

23,699

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## INTRODUCTION

The Bayonne/Spokane property consists of 89 claim units and is situated in the Nelson Mining Division in southeastern British Columbia. It is centered on the Bayonne and Spokane Mines. The Bayonne Mine was a significant gold producer with a recorded past production of 85,000 tons of ore averaging 0.47 ounces of gold and 1.12 ounces of silver per ton. The Spokane Mine produced 1914 tons of ore averaging 0.50 ounces of gold and 9.5 ounces of silver per ton, and approximately 11.0% lead.

This report summarizes the results of VLF - electromagnetic and self-potential surveying done in the vicinity of the Bayonne and Spokane Mines. It was conducted between August 10 and October 31, 1994. The survey was done to follow up on work done previously to determine the response of the known veins to the methods, and see whether indications of parallel veins and extensions of the known veins could be picked up.

The report also summarizes the history and the general geology of the properties.

## LOCATION, ACCESS, PHYSIOGRAPHY

The property is situated in the Nelson Mining Division in southeastern British Columbia, approximately 50 kilometres southeast of Nelson and 450 kilometres due east of Vancouver. It lies about 15 kilometres north of the U.S. boundary.

Access to the Bayonne Mine property is via about 6 kilometres of gravel road north up the valley of Bayonne Creek from the southern trans-provincial highway, about 32 kilometres west of Creston and 50 kilometres east of Salmo. The access road leaves the highway at about 1200 metres elevation and rises to about 1890 metres at the lower workings of the Bayonne Mine. The Spokane Mine area of the property can be accessed from a road up Blazed Creek from the Salmo-Creston highway.

The topography of the property is moderately rugged, with elevations ranging from about 1350 metres to 2225 metres. The country is heavily timbered where it has not been logged or burned by forest fires. Climatic conditions are not excessively severe.

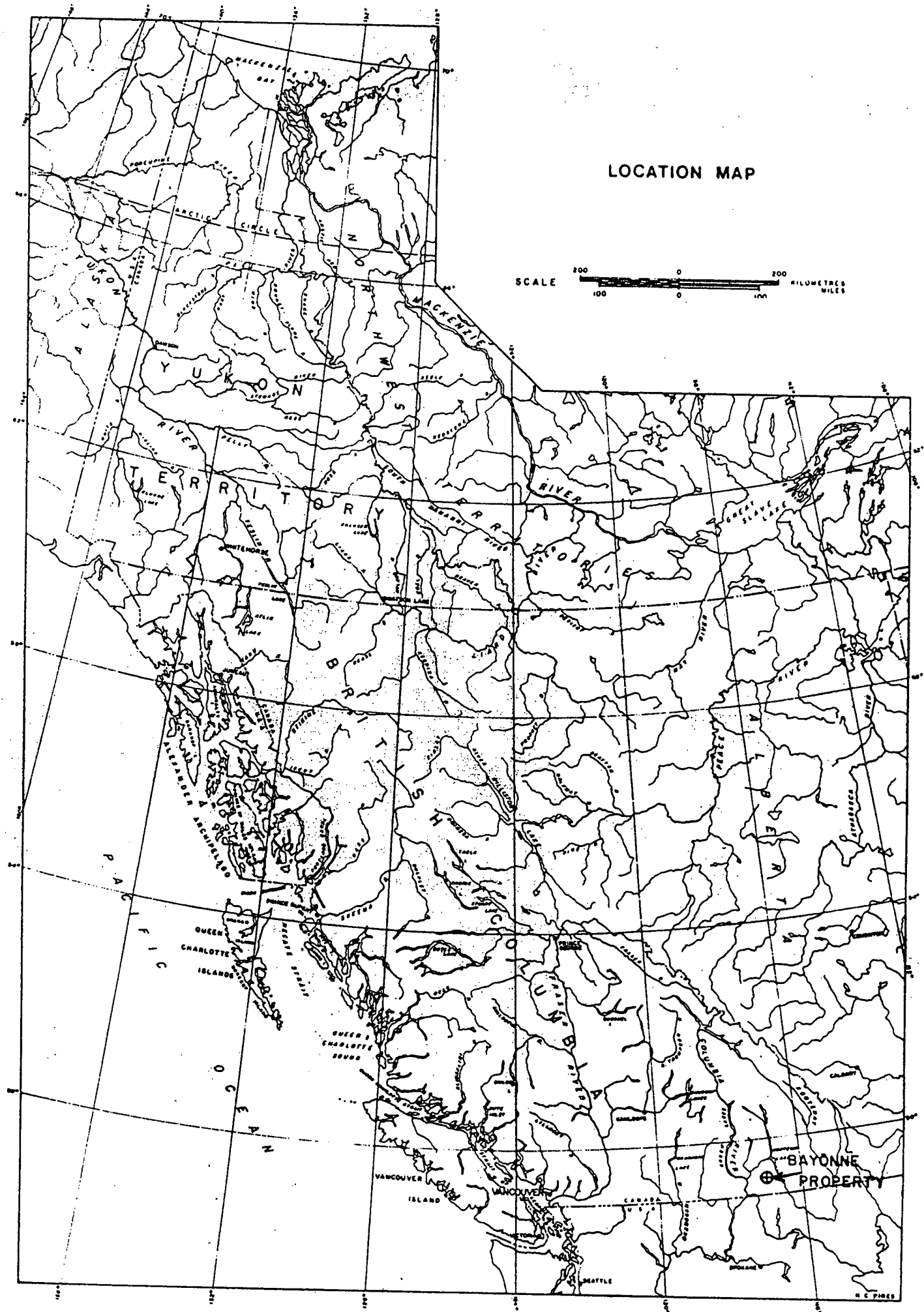
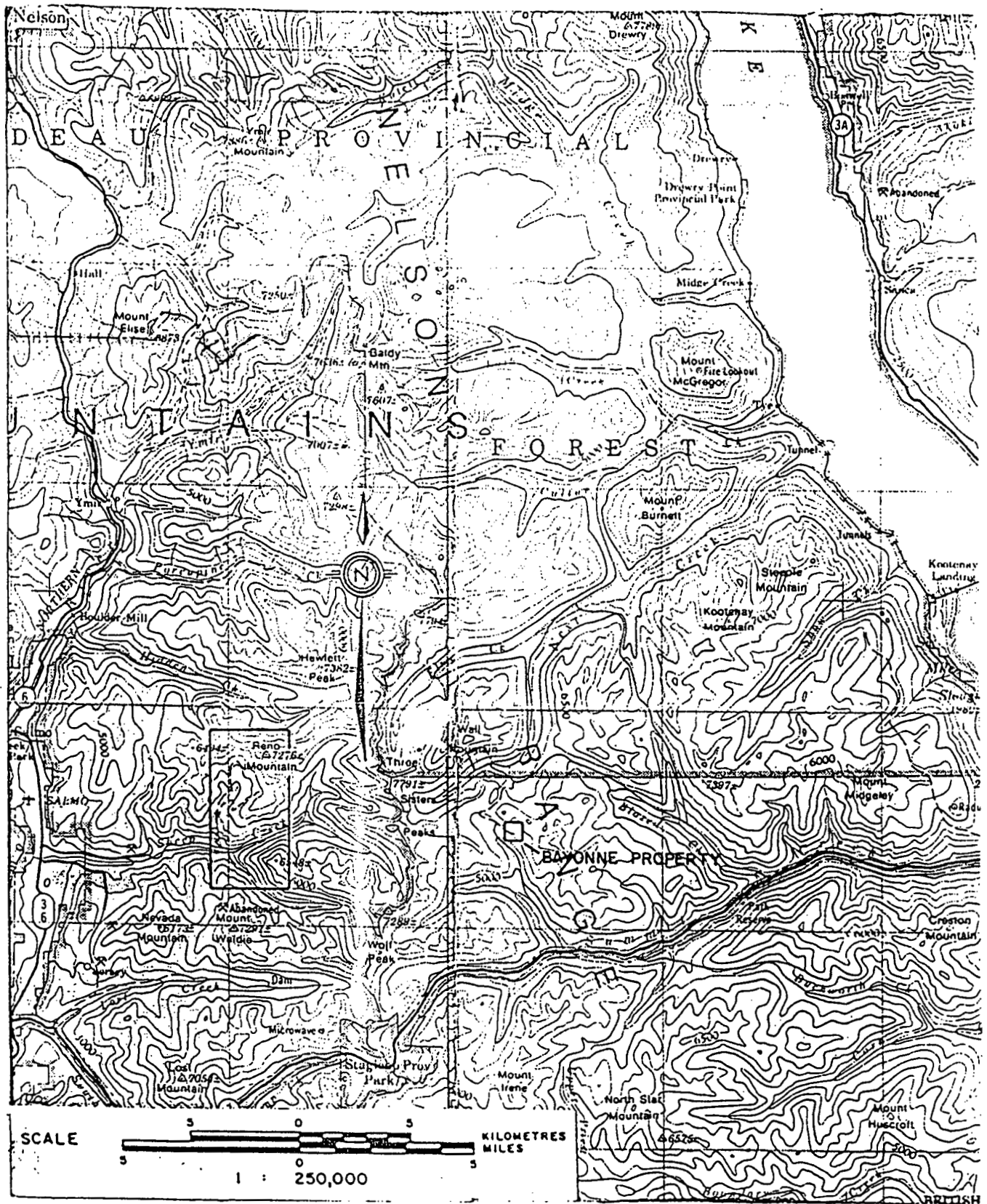
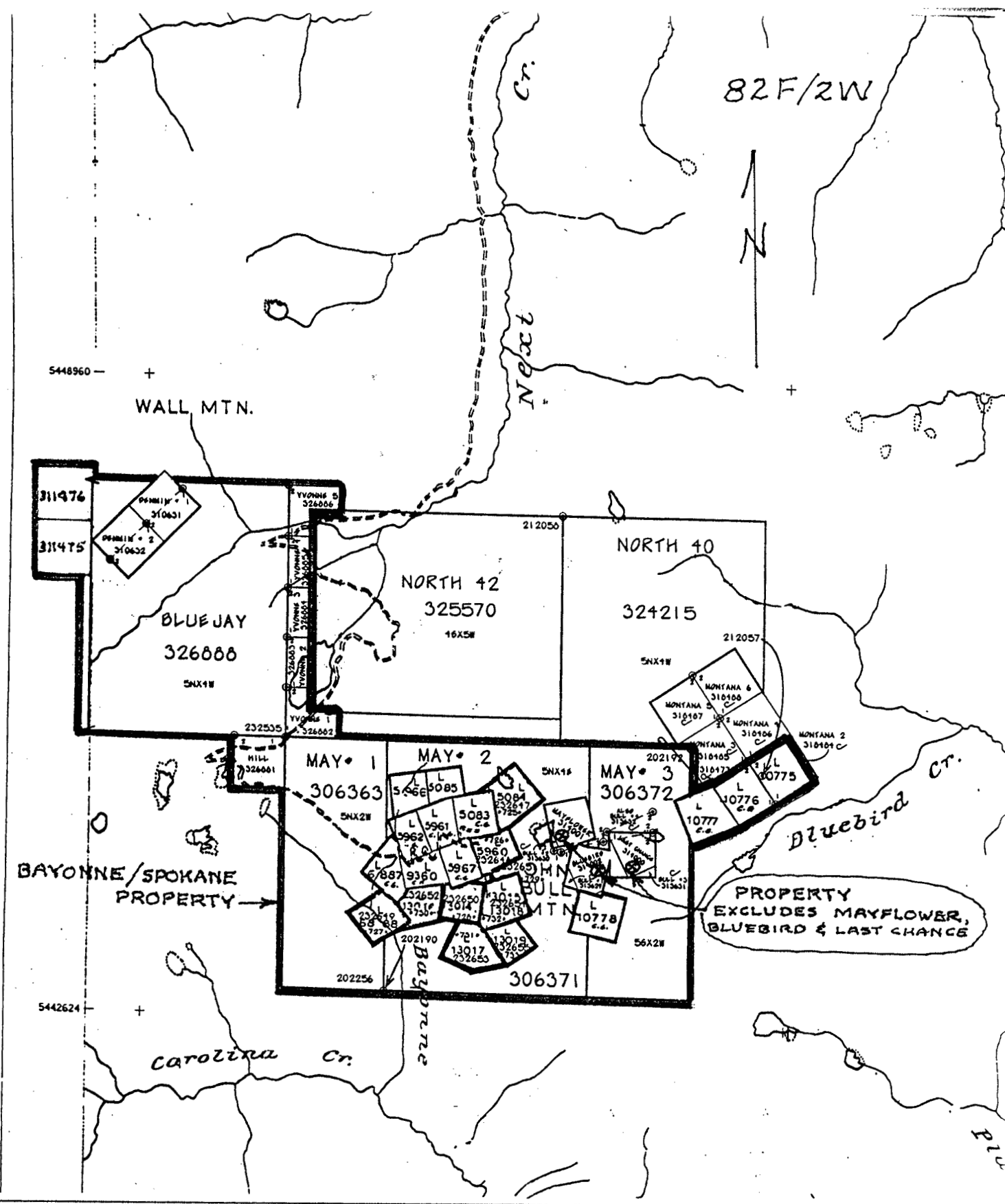


FIGURE - I



ACCESS MAP  
BAYONNE PROPERTY

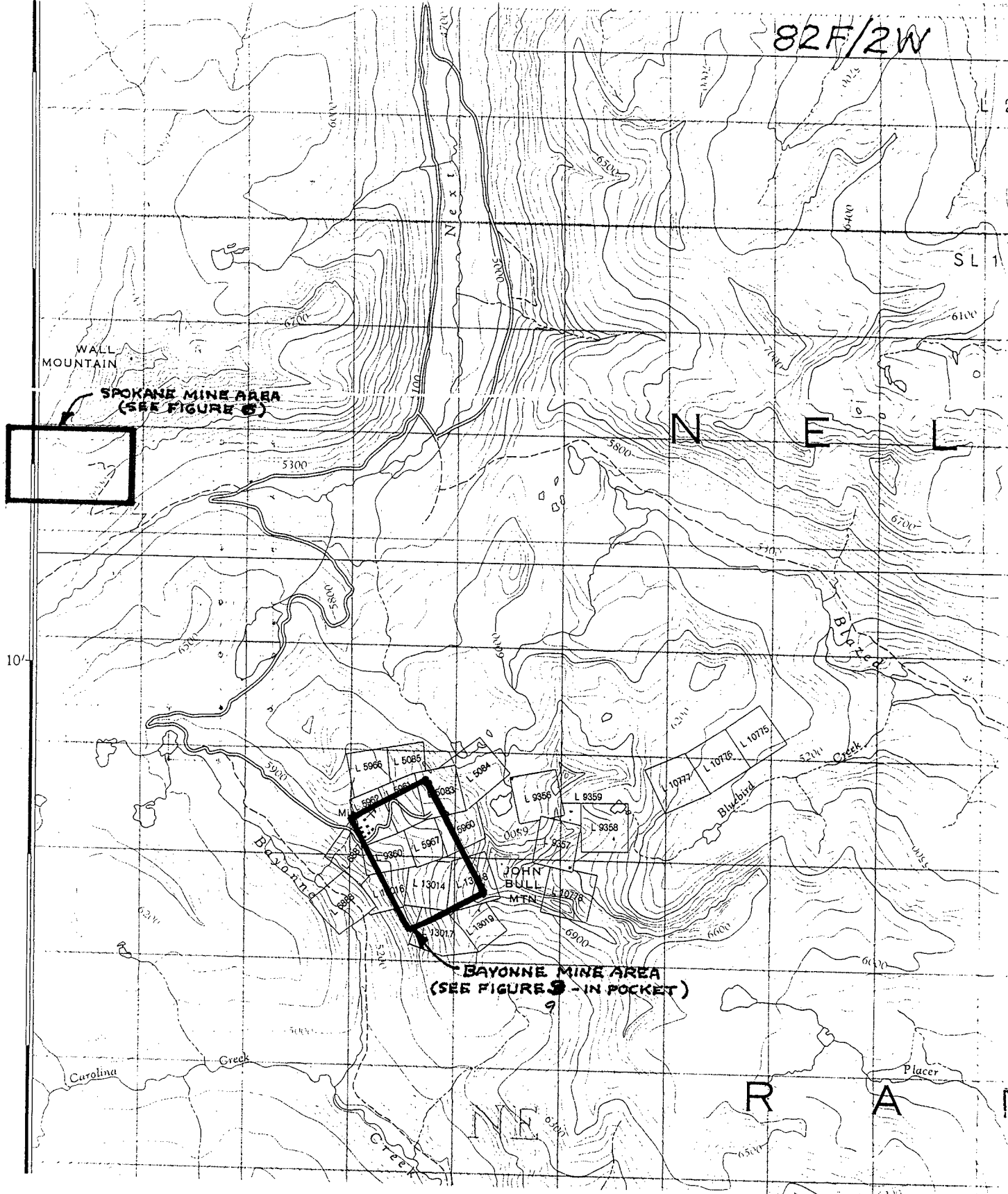


**BAYONNE / SPOKANE PROPERTY**

**CLAIM MAP**

Figure 3

82F/2W



### BAYONNE / SPOKANE PROPERTY

### TOPOGRAPHIC AND KEY MAP

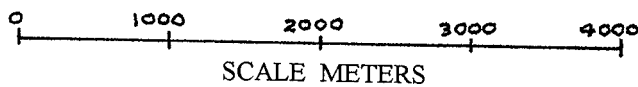
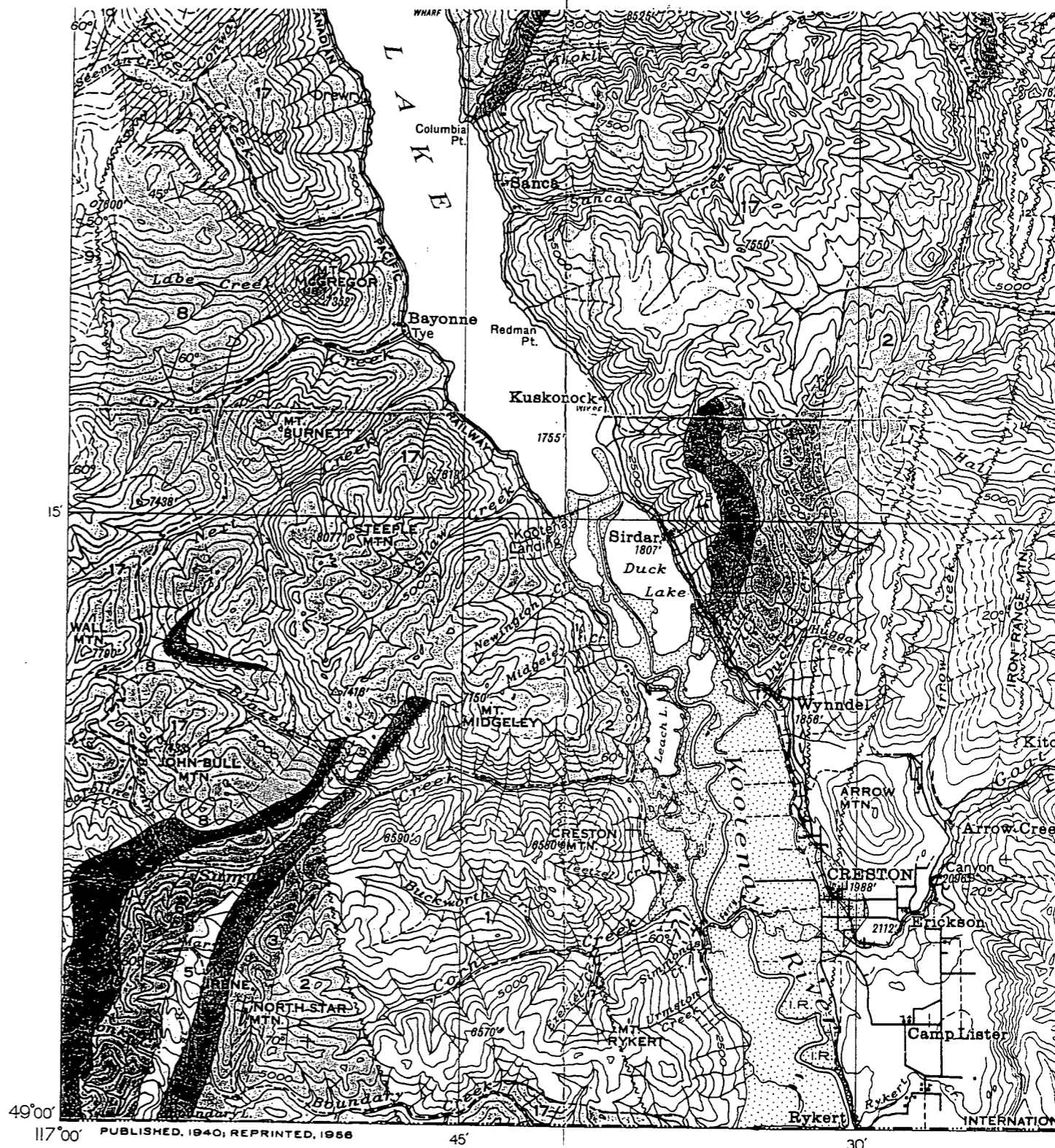


Figure 4

**LEGEND**

NOTE: Since this map was originally printed, formations that were included in the upper part of the Windermere have proved to be Palaeozoic

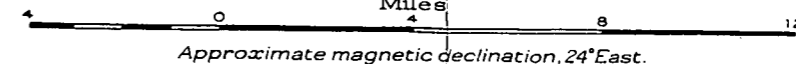
MESOZOIC AND (IN) CENOZOIC	POST-TRIASSIC	17	Syenitic intrusives; agglomerate
		17	Chiefly granite, granodiorite and quartz diorite
MESOZOIC	TRIASSIC	16	SLOCAN SERIES Slate, argillite, quartzite, limestone; schists
			KASLO SERIES Lavas, tuffs, breccias; allied intrusives; schists
PALAEOZOIC AND (IN) MESOZOIC	UPPER CARBONIFEROUS AND TRIASSIC		Slate, argillite, chert, limestone; schists; some greenstone MILFORD GROUP
	CAMBRIAN		
PALAEOZOIC MESOZOIC	LOWER CAMBRIAN	13	EAGER FORMATION: olive-green, purple and grey shale
		12	CRANBROOK FORMATION: silicious, white, rose, purple and grey quartzite and conglomerate
PROTEROZOIC (LATE PRECAMBRIAN)	WINDERMERE		
	LARDEAU SERIES	11	Micaceous and chloritic schists; quartzite and limestone; paragneiss
		10	BADSHOT FORMATION: magnesian limestone
	HAMILL SERIES	9	Grey, green and white, silicious quartzite
	HORSETHIEF CREEK SERIES	8	Green, argillaceous quartzite; blue-grey limestone, arkose, pebble conglomerate
		7	IRENE VOLCANIC FORMATION: sheared, andesitic volcanic rocks
		6	TOBY FORMATION: conglomerate
	PURCELL		
	UPPER PURCELL	5	MOUNT NELSON FORMATION: laminated argillite, magnesian limestone, quartzite
			DUTCH CREEK FORMATION: laminated argillite, magnesian limestone, quartzite
LOWER PURCELL			
	4	KITCHENER-SIYEH FORMATION: chiefly varicoloured magnesian limestone and argillite; calcareous quartzite	
	2	CRESTON FORMATION: green, purple and grey, argillaceous quartzite; some argillite	
	1	ALDRIDGE FORMATION: grey, rusty-weathering, argillaceous quartzite and argillite	



Source: Rice, H.M.A., Nelson Map-Area, East Half, British Columbia. GSC Memoir 228.

MAP 603A  
**NELSON**  
(EAST HALF)  
KOOTENAY DISTRICT  
BRITISH COLUMBIA

Scale, 253440 or 1 Inch to 4 Miles



Approximate magnetic declination, 24° East.

Figure 5



CLAIM DATA

The Bayonne/Spokane property consists of the following claims.  
(See Figure 3)

<u>Claim Name</u>	<u>Tenure No.</u>	<u>No. Units</u>	<u>Anniversary Date</u>
Oxford	232647	1	August 15
Delaware	232648	1	August 15
Illinois	232649	1	August 15
Echo	232650	1	August 15
Echo Fract.	232651	1	August 15
Ontario	232652	1	August 15
Portland	232653	1	August 15
St. Elmo Fract.	232654	1	August 15
Idaho	232655	1	August 15
May #1	306363	10	November 18
May #2	306371	20	November 18
May #3	306372	10	November 19
Denmin 1	310631	1	June 25
Denmin 2	310632	1	June 25
Silver Wall #3	311475	1	July 25
Silver Wall #4	311476	1	July 25
Hill	326881	1	June 12
Yvonne 1	326882	1	June 12
Yvonne 2	326883	1	June 12
Yvonne 3	326884	1	June 12
Yvonne 4	326885	1	June 12
Yvonne 5	326886	1	June 12
Bluejay	326888	20	June 12
Bayonne	L. 5083 (c. g.)	1	
Columbus	L. 5961 (c. g.)	1	
Ohio	L. 5962 (c. g.)	1	
New Jersey	L. 5967 (c. g.)	1	
Virginia	L. 6887 (c. g.)	1	
Skookum	L. 9360 (c. g.)	1	
Michigan	L. 10775(c. g.)	1	
Maggie Aikins	L. 10776(c. g.)	1	
Summit Belle	L. 10777(c. g.)	1	
Montana	L. 10778(c. g.)	1	
	Total units	89	

HISTORY

## A) Spokane Mine

The Spokane claims were staked by the Laib Brothers in 1911. Initially the property was reached by going over the divide from Sheep Creek, and between 1915 and 1918 six lots of ore were shipped on pack horses over the divide and down the Sheep Creek wagon road. Later a trail was constructed via Cultus Creek from the railroad on Kootenay Lake. A truck road was constructed through to the Bayonne Mine in 1935 from Tye on the railroad, and since this passed within about a mile of the Spokane Mine, it provided much easier access to this property as well. Small shipments of ore were made most years until 1956. The total ore shipped up until that time was 1914 tons grading 0.50 ounces of gold and 9.5 ounces of silver per ton, with about 10.9% lead. The Spokane workings consisted of underground development totalling about 300 meters on 5 levels, over a vertical interval of about 150 meters, plus numerous surface trenches along the westerly extension of the vein. A small program was conducted in 1980 on the No. 5 level consisting of cleaning out the old drift and advancing it about 50 metres further. No underground work has been done since that time.

## B) Bayonne Mine

The earliest recorded history of the Bayonne property was in 1901 when the Bayonne and Echo claims received some attention. Early work consisted of numerous trenches and three short adits on the 1st, 6th, and 8th levels developing the original vein exposures. Very little work was carried out between 1915 and 1935 when the 17 original crown grants claims including the Bayonne and Echo claims were acquired by Bayonne Consolidated Mines Ltd. Underground development and mining began and a 60 ton cyanide concentrator was constructed, coming into full production in 1936. Production was slowed down in 1939 in favour of an extensive development program and then continued unabated up to 1942.

The mine was at a standstill due to labour and material shortage until 1945 when it began operations again until 1946. Minor tonnages were produced by lessees between 1947 and 1951.

In 1963 Torwest Resources Ltd. optioned the property and carried out rehabilitation work, diamond drilling and a resampling program under the direction of W G. Hainsworth, P.Eng. This work continued up to October, 1964. Up to 1963 access was by a 37 kilometer gravel road from Tye Siding on the west side of Kootenay Lake but the completion of the Salmo-Creston Highway in that year provided shorter access from the south. Logging roads were constructed from the Highway and extended by Torwest to the mine in 1964. The distance to the Trail smelter is about 96 kilometers.

Torwest Resources Ltd. carried out sufficient work to their satisfaction to justify construction of a new concentrator. Reserves were considered to be 12,450 tons averaging 0.79 oz Au per ton. Site preparation for the new 50 ton per day mill was commenced, two 300 ton ore bins were constructed, the main haulageway (5 level) was retracked when Torwest dropped their interest (and the option) in favour of other exploration properties.

Total production is reported as being 85,000 tons averaging 0.47 oz Au and 1.12 oz. Ag. This includes shipments made by lessees in 1947 - 1951 that totalled 673 tons averaging 0.67 oz. Au, 4.75 oz. Ag, 4.4% Pb and 2.3% Zn.

In June 1968, the property was optioned by Liberty Mines Ltd. but no work was carried out, other than an examination by G. L. Mill, P.Eng.

In early 1980 Goldrich Resources, Inc. acquired the property and began a program of rehabilitation, retimbering, diamond drilling and resampling under the direction of R.A. Wells and F. O'Grady. A trial stope on the 8 level was begun and a shipment of 43 tons averaging 0.15 oz. Au, 1.2 oz Ag, 0.4% Pb, 0.2% Zn and 78.3% SiO<sub>2</sub> was made to the Cominco Smelter at Trail.

In 1987 Terra Mines Ltd. optioned the Goldrich claims and conducted geochemical, geophysical surveying, trenching and sampling. In July 1990, the Board of Directors of Goldrich Resources, Nugget Mines Ltd., and Gunsteel Resources, subject to shareholder and regulatory approval, agreed to amalgamate the three companies to put all the Bayonne property, along with most of the Sheep Creek gold camp about 12 Km. to the west into one ownership to provide sufficient ore for production.

## GEOLOGY AND MINERALIZATION

### A) Spokane Mine

Mineralization on the Spokane claims is contained in quartz bearing fissure in the Wall granodiorite stock not far from its southern contact with the sediments. The fissure strikes east to west and dips steeply south. The contained quartz varies from narrow stringers to lenses 0.75 meters in width. Quartz filled branch fractures diverge from the main fissure at numerous locations.

Mineralization consists of pyrite, galena, sphalerite, chalcopyrite, and associated gold values developed as lenses, stringers and disseminations in vein filling.

## B) Bayonne Mine

The area in which the Bayonne Property is located is underlain by fine to medium grained granodiorite of Mesozoic age intruding a green argillaceous quartzite, limestone and coarse sediments of the Horsethief Creek series of late Preambrian age. The property is located near the southwest end of an elongate, northeast-trending, 60 km long body of granodiorite known as the Bayonne batholith. It varies in composition from a granite to a calcic granodiorite and contains phases described as coarse grained, fine grained, porphyritic, non-porphyritic, pink and light to dark grey and is often gneissic in nature. The variety centered on John Bull Mountain and underlying the Bayonne property is referred to as the Mine Stock and H. M. Rice believes this to be a separate and older body rather than a part of the Bayonne batholith. Mineralization consists of quartz filled fissure veins striking N80E and dipping vertically. The veins vary in width from a few centimeters to 3 meters and average about 0.5 meters in width. Gold and silver are intimately associated with pyrite, galena, sphalerite and chalcopyrite.

METHOD AND INSTRUMENTATION

Reconnaissance and 3.7 km of compass and chain surveys were done to find and show on a plan where the old work done on the Echo vein and adjacent area was located relative to the main Bayonne workings, as no map was available which showed this.

A total of 2.5 Km. of VLF-EM survey on each of two VLF stations, and 0.7 Km. of self-potential survey were then conducted with emphasis on determining this response of known structures as part of ongoing work to much more extensively survey the mostly overburden covered areas.

VLF readings were taken at 15 meter intervals. The survey was conducted using Annapolis, Maryland (21.4 kilohertz), Seattle, Washington (24.8 kilohertz) and Cutler, Maine (17.8 kilohertz) as the transmitting stations. Cutler was used part of one day when Annapolis was off the air.

A Geonics EM-16 VLF-EM instrument manufactured by Geonics Limited was used for the survey. This instrument measures the in-phase and quad-phase of a vertical magnetic field as a percentage of the horizontal primary field. The instrument has a resolution of 1%.

The VLF-EM method utilizes an electromagnetic field transmitted from radio stations in the 12 to 24 kilohertz range (long range submarine communication signal). The magnetic field transmitted from the station will be horizontal. Conductive bodies (such as the presence of massive sulphides or fault structures) in

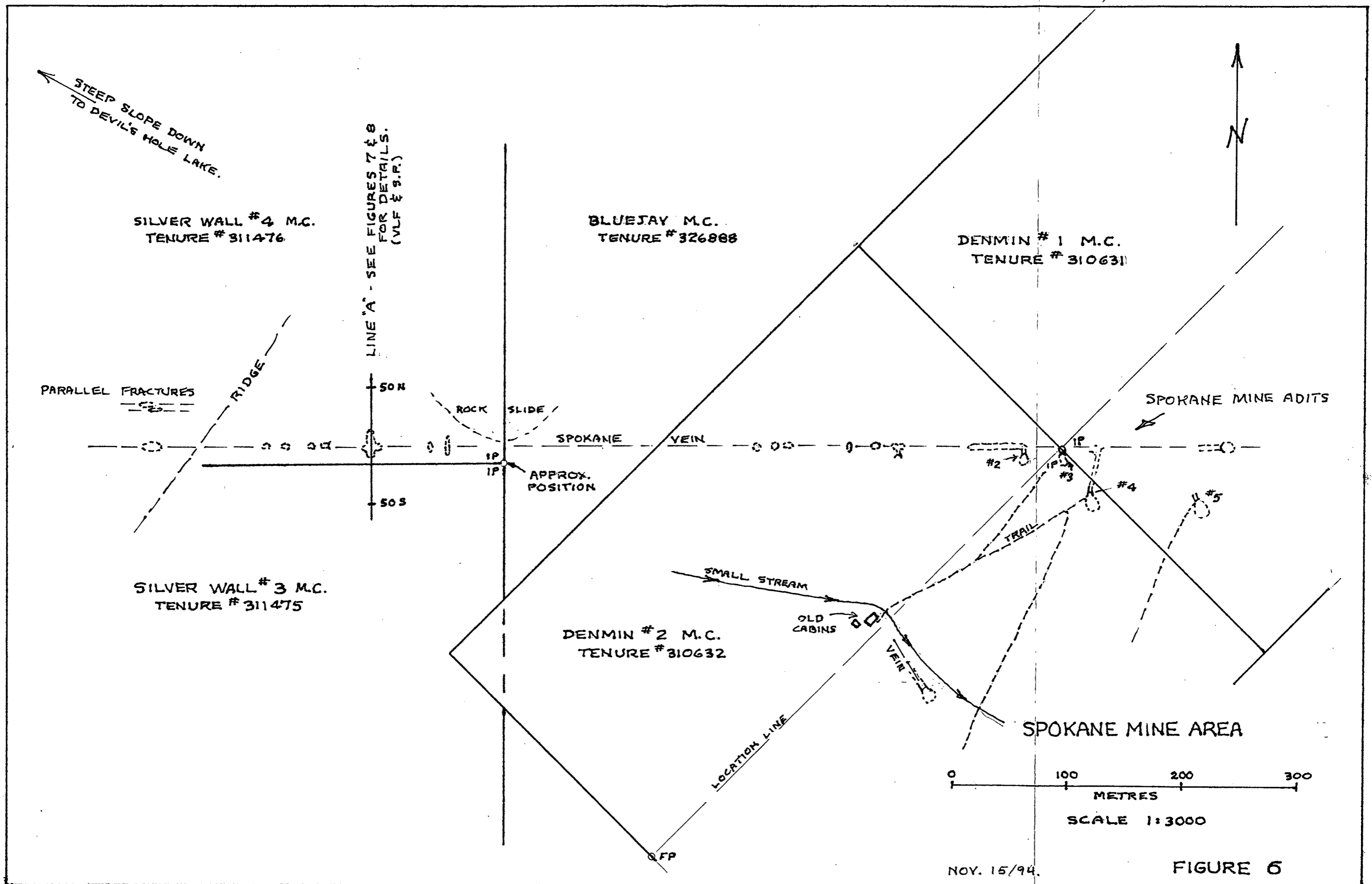
the earth's crust, will create a secondary magnetic field. By measuring various parameters of the vertical component of the secondary field, conductive zones can be located and to a degree, evaluated.

The self-potential readings were taken using non-polarizing copper sulfate electrodes and a digital readout millivoltmeter with 10 megohms of internal resistance. Readings were taken at intervals of 5 to 10 meters.

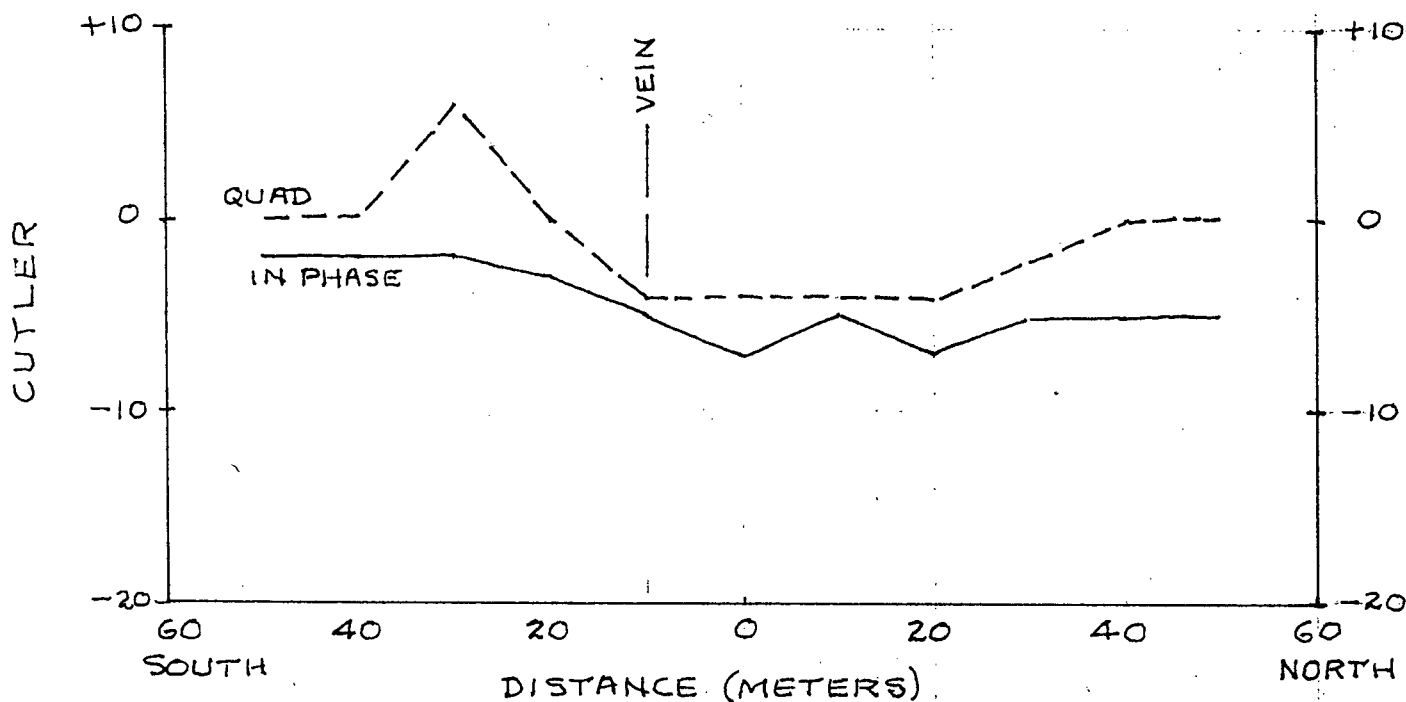
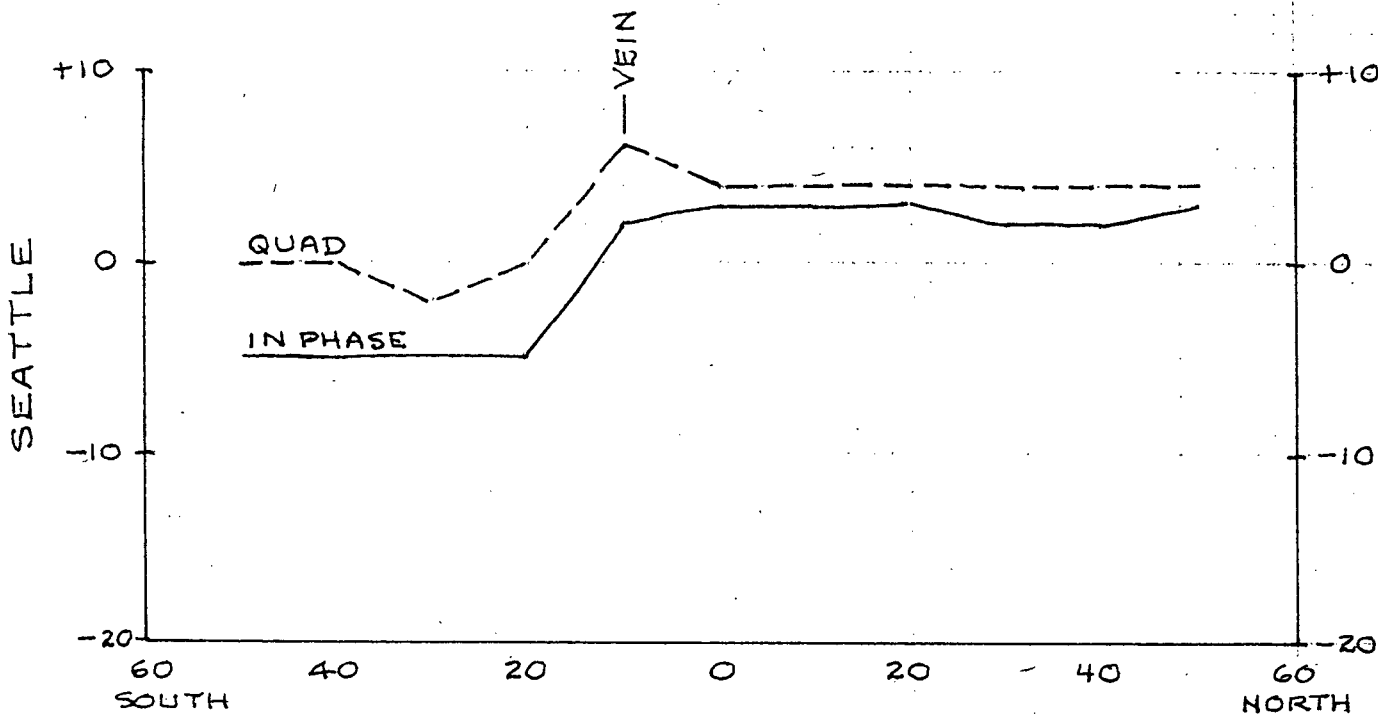
### RESULTS AND CONCLUSIONS

The VLF results at the Bayonne Mine area were somewhat inconclusive. The Echo vein at the points where the survey lines crossed it was not well mineralized, but it is a strong fracture apparently extending some considerable distance and there could be more favourable sections along the vein. It is not apparent whether the VLF will respond to these if they exist. The short VLF line at the Spokane Mine area did seem to respond to the vein but the information was quite limited.

The self-potential method seems to be an effective method of locating the vein positions in the situation near the Bayonne and Spokane Mines. At the Bayonne there appear to be a number of vein structures in the surrounding area, mostly under shallow overburden but with very little outcropping. With the veins being near vertical and in a fairly uniform host rock, the negative electrical potential at the vein stands out quite clearly. However on the basis of readings to date, the effect is only strong as one approaches the vein very closely, so that measurements must be accurate and closely spaced so as not to miss the target as one crosses it. In this particular situation, readings should be taken at not more than 5 or 10 meter intervals across the veins. The method does not lend itself to covering large areas. However in the area around the Bayonne Mine in particular it could be very effective in picking up and following hidden narrow vein structures under the light overburden.



LINE "A" - SPOKANE MINE AREA.

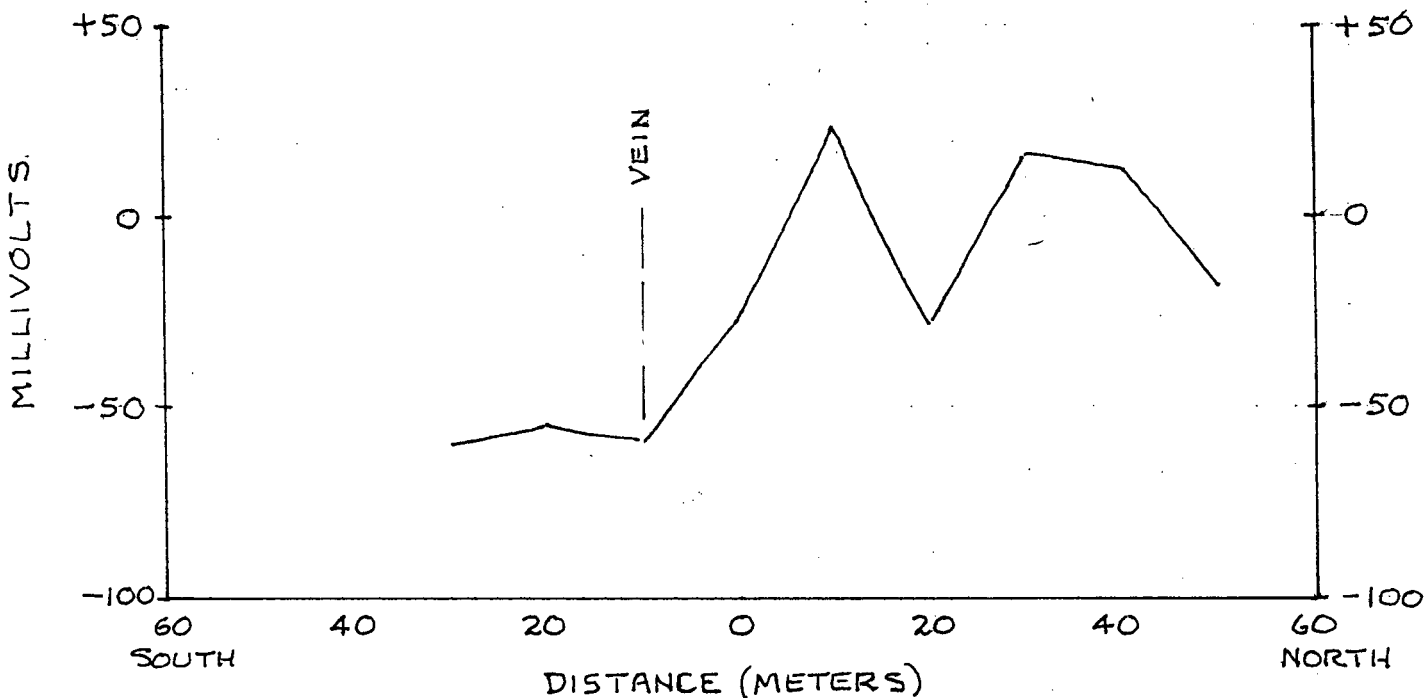


VLF-EM PROFILES

SEE FIGURE 6  
FOR LOCATION  
OF LINE

FIGURE 7

LINE "A" - SPOKANE MINE AREA

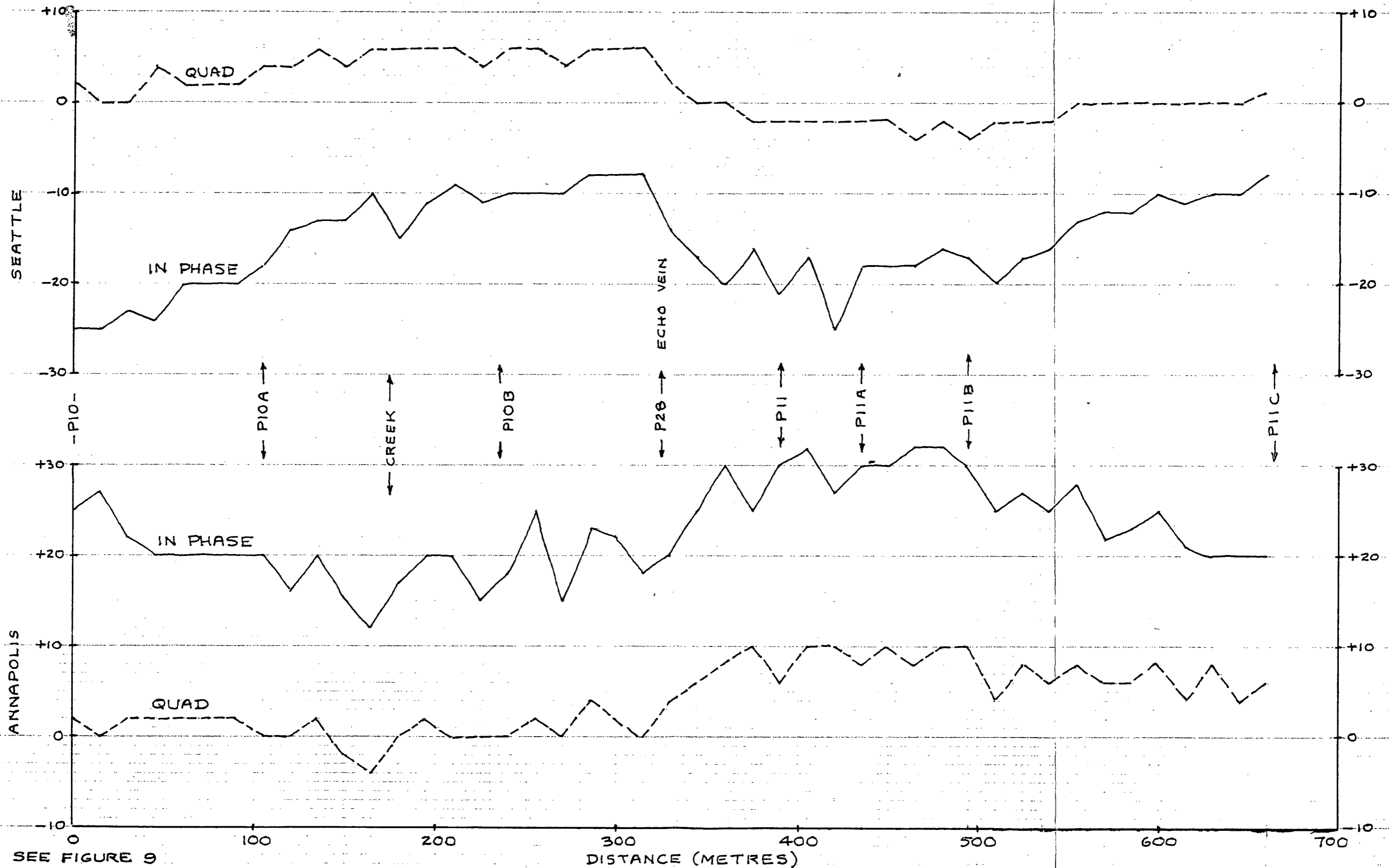


SELF-POTENTIAL PROFILE

SEE FIGURE 6  
FOR LOCATION  
OF LINE.



LINE 1 = P10-P10A-P10B-P2B-P11-P11A-P11B-P11C

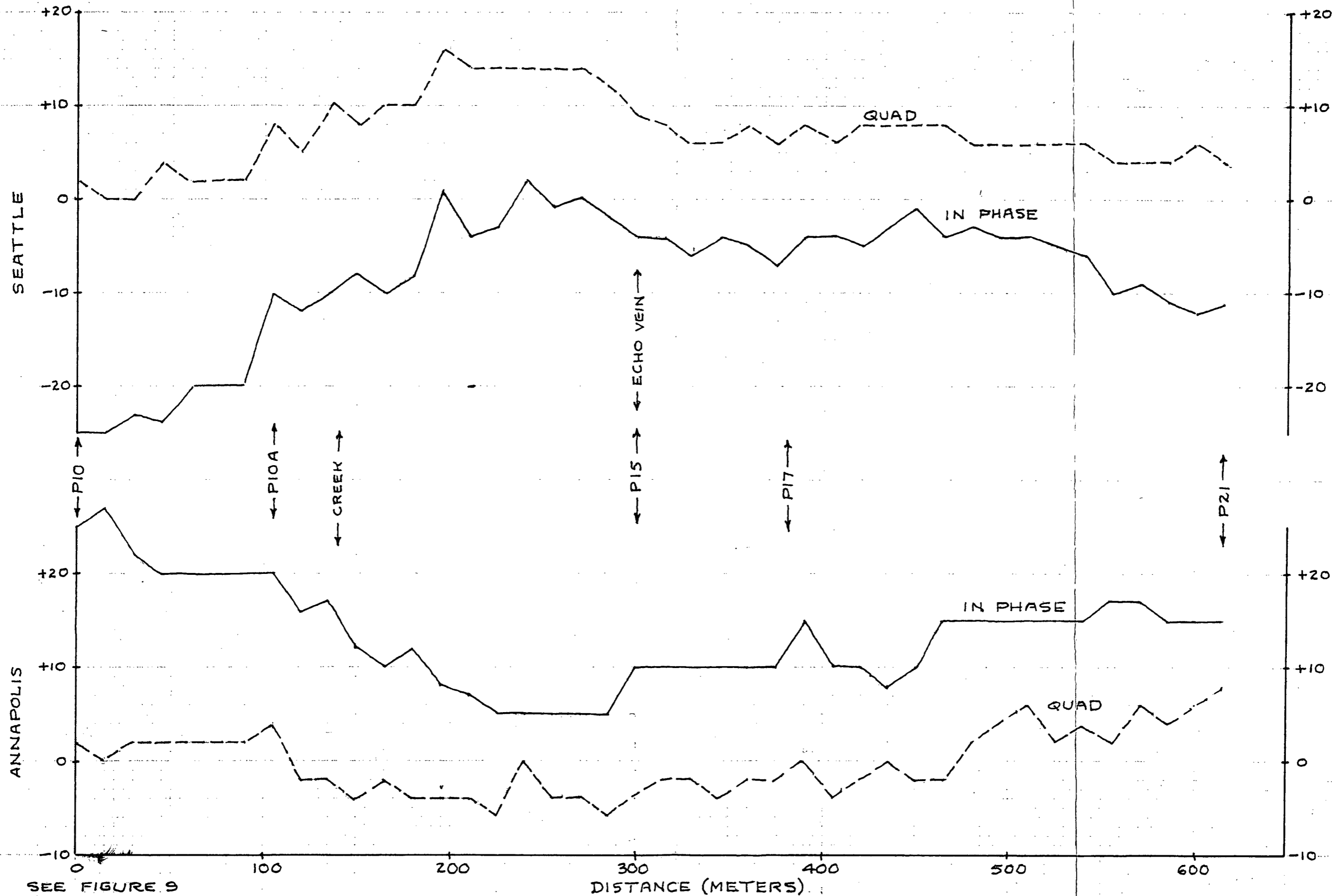


SEE FIGURE 9  
FOR LOCATION  
OF LINE

VLF-EM PROFILES

FIGURE 10

LINE 2 - P10-P10A-P15-P17-P21

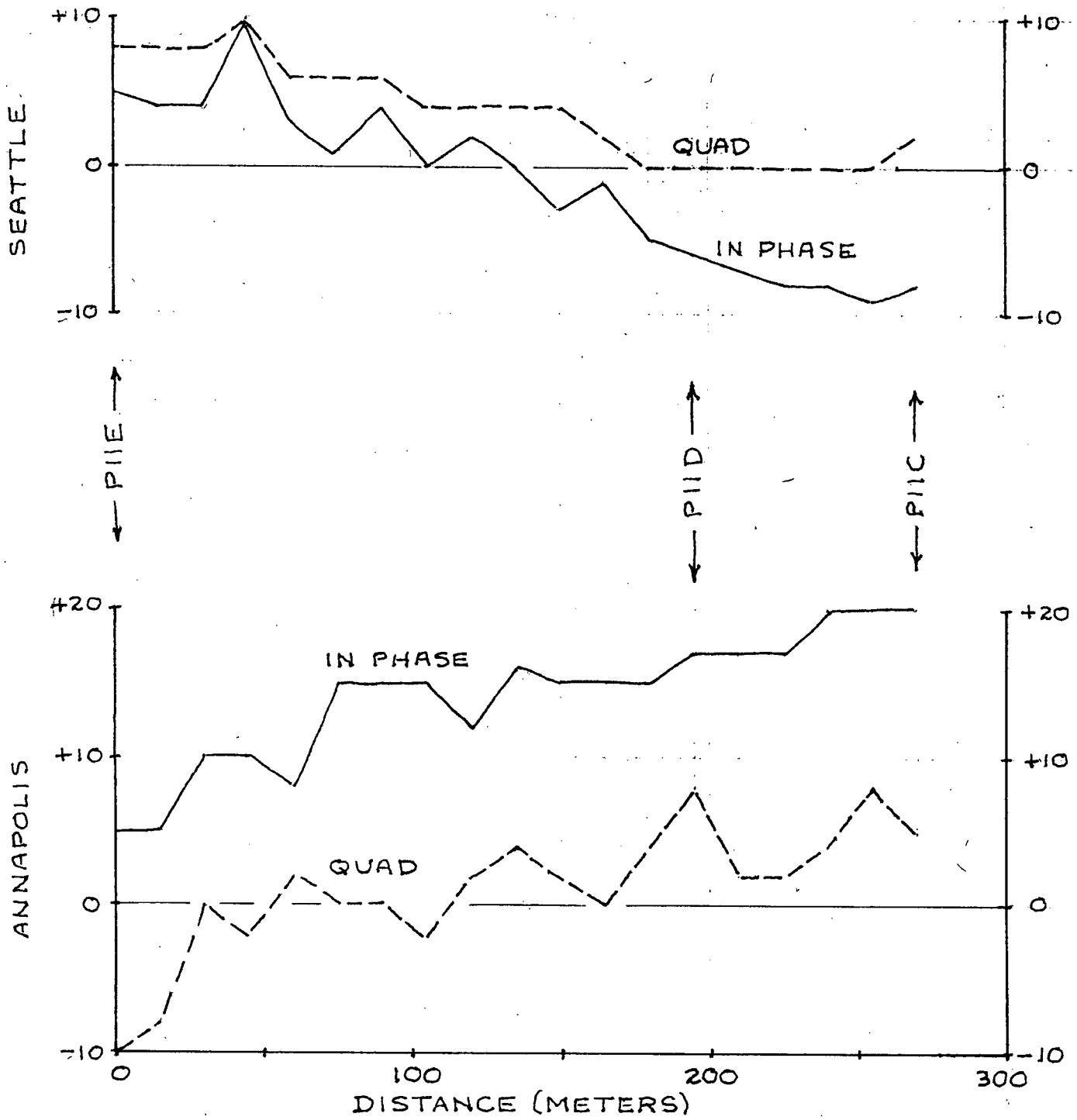


SEE FIGURE 9 FOR LOCATION OF LINE.

VLF-EM PROFILES

FIGURE 11

LINE 3 - PIIE-PIID-PIIC

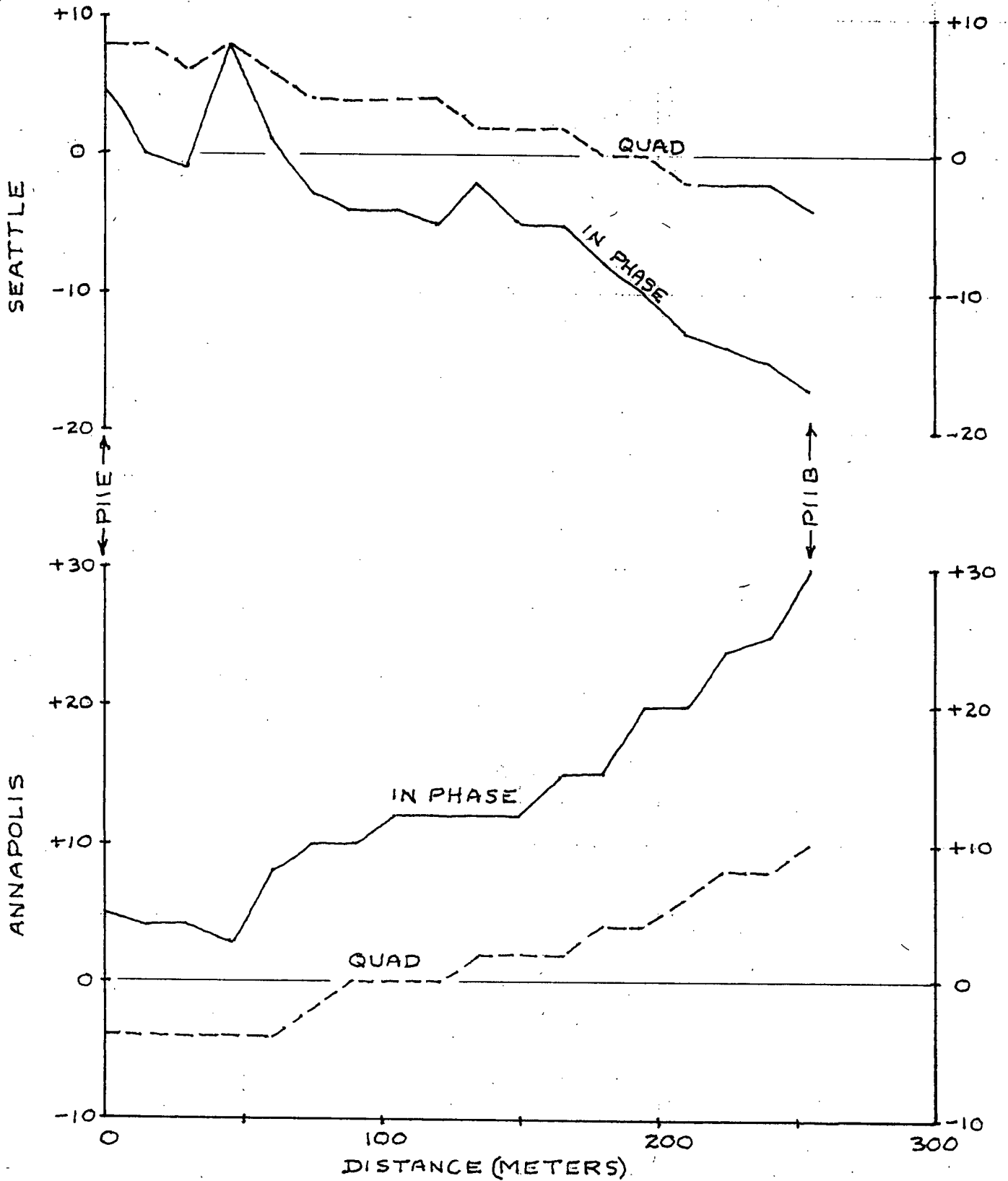


VLF-EM PROFILES

SEE FIGURE 9  
FOR LOCATION  
OF LINE.

FIGURE 12

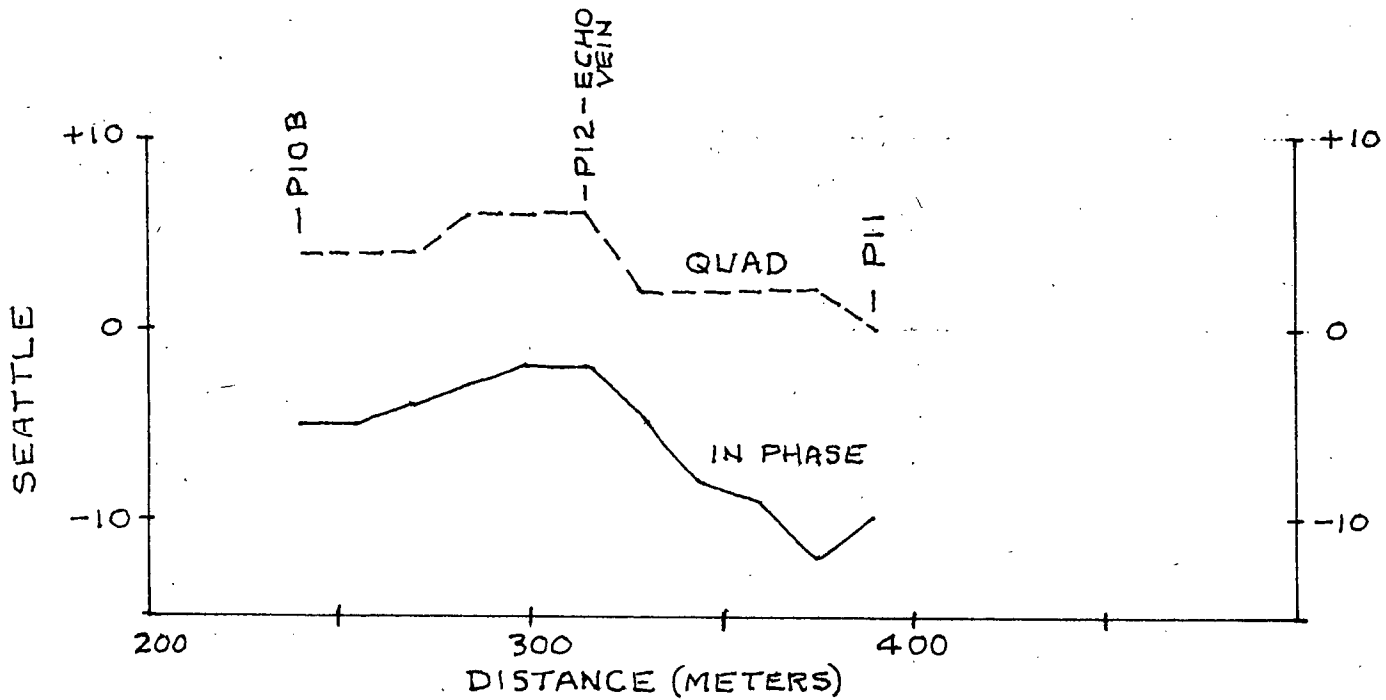
LINE 4 - P11E - P11B



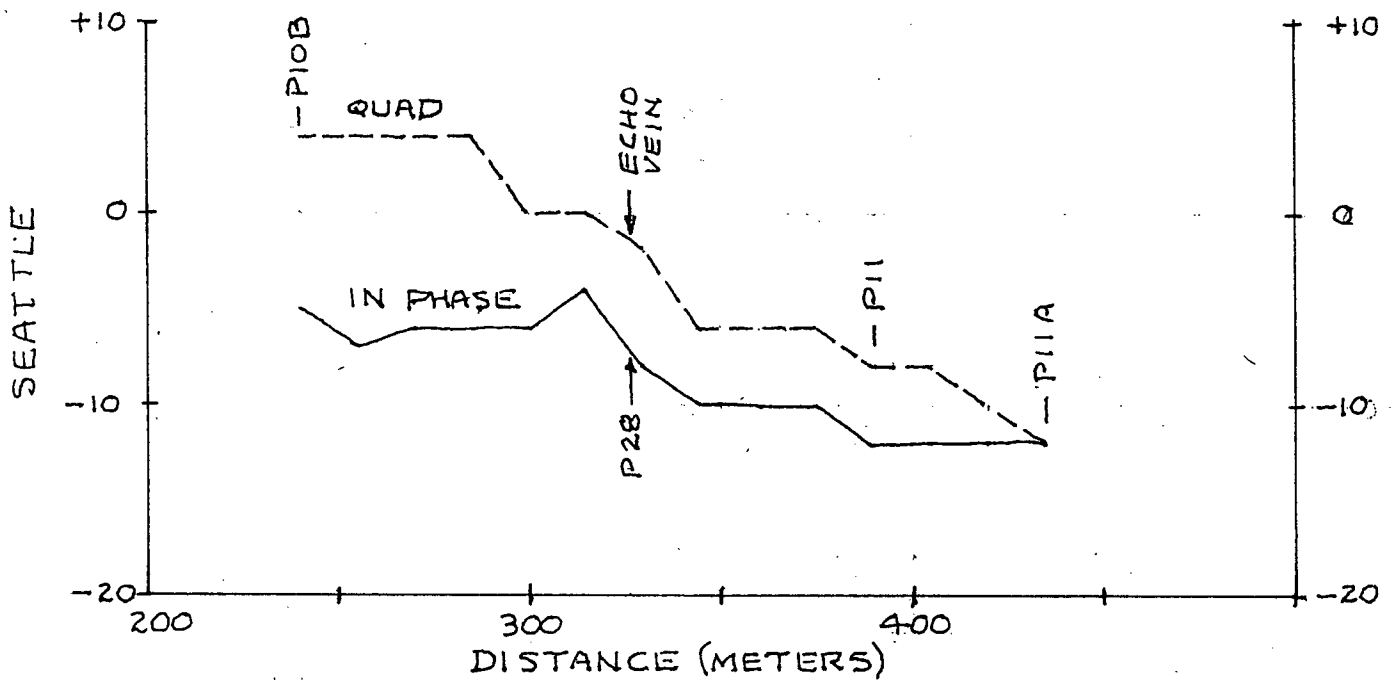
VLF-EM PROFILES

SEE FIGURE 9  
FOR LOCATION  
OF LINE.

LINE 5 - P10B - P12 - P11



LINE 6 - P10B - P28 - P11 - P11A

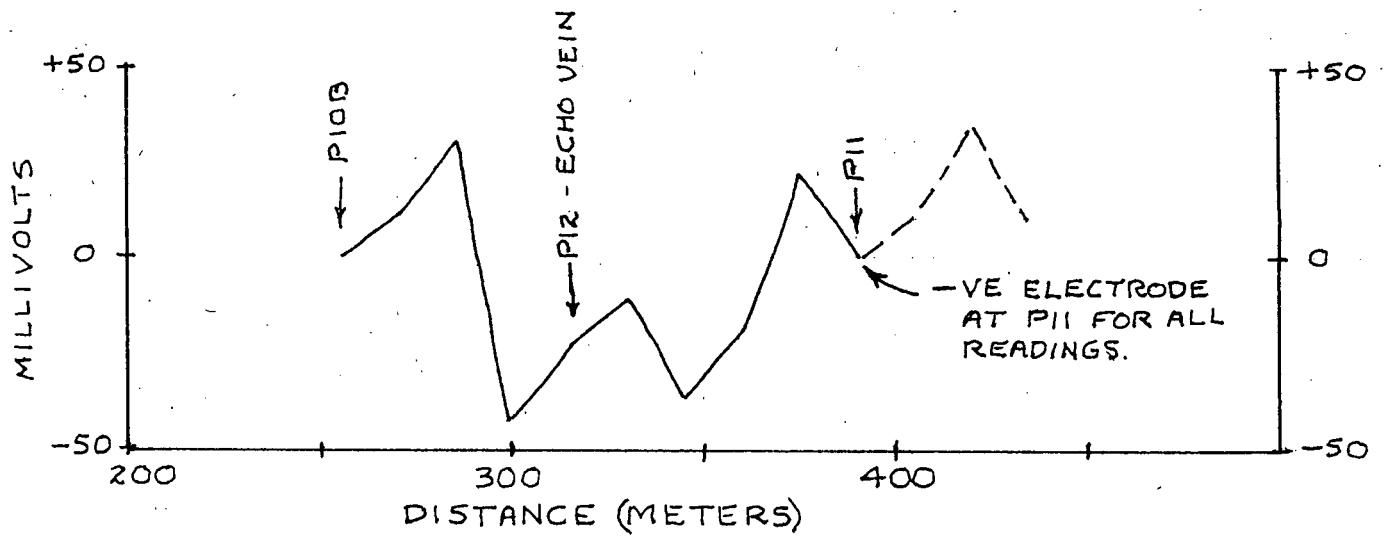


VLF-EM PROFILES

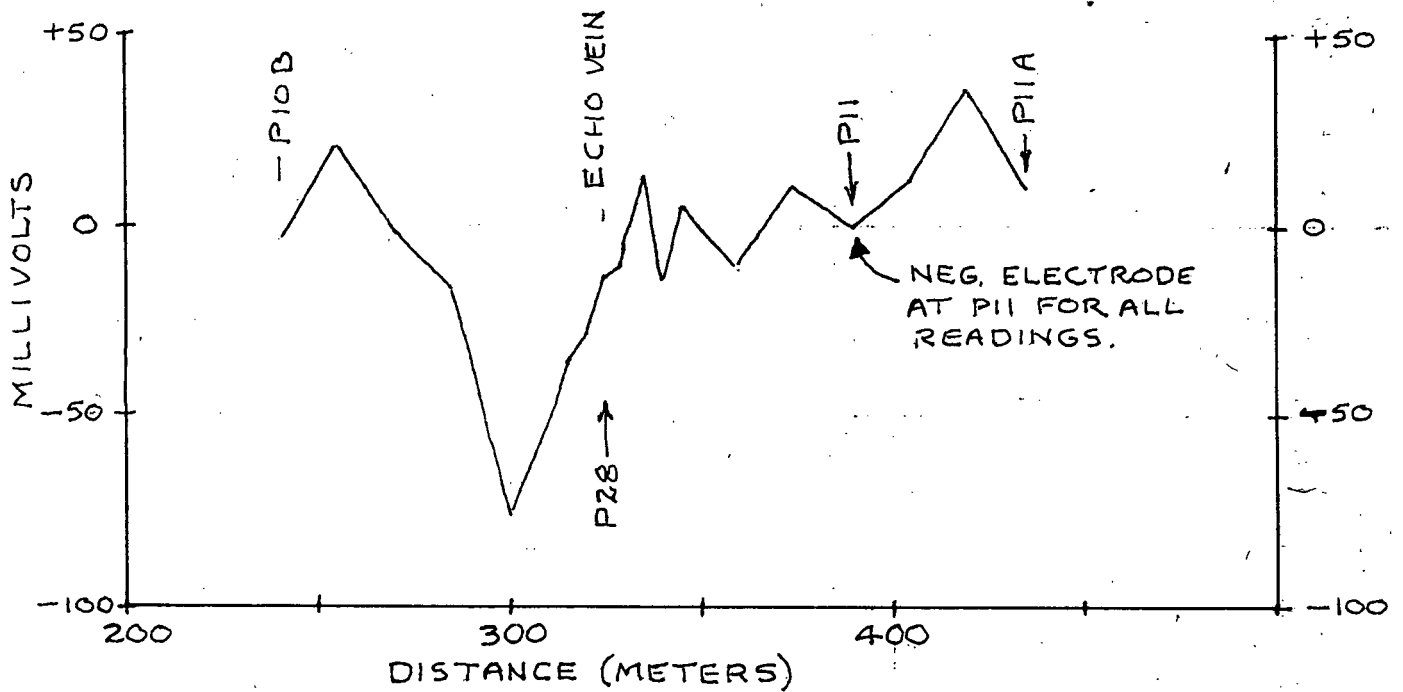
- SEE FIGURE 9 FOR LOCATION OF LINES
- ONLY SEATTLE USED AS ANNAPOLIS WENT OFF THE AIR.

FIGURE 14

LINE 5 - P10B - P12 - P11



LINE 6 - P10B - P28 - P11 - P11A



SELF-POTENTIAL PROFILES

SEE FIGURE 9  
FOR LOCATION  
OF LINES.

## REFERENCES

- Hitchins, A. (1987). Assessment Report on the Bayonne Claim Group. British Columbia Ministry of Mines, Energy and Petroleum Resources. Assessment Report for Goldrich Resources Inc.
- Rice, H.M.A. (1941). Nelson Map Area East Half. Geological Survey Canada. Memoir 228.
- Phendler, R. G. (1982) Report on the Bayonne Property. Private report for Goldrich Resources Inc.
- Wells, R.A. and OGrady, F. (1984). Exploration and Development Proposal Bayonne Mine Property. Private report for Goldrich Ressources Inc.

AFFIDAVIT OF EXPENSES

This will certify that VLF-EM and self-potential surveying was carried out between August 10th and October 31th, 1994 on the Bayonne/Spokane property in the Salmo area of the Nelson Mining Division to the value of the following:

Labour - 4 man days @ \$300/day	\$1200.00
8 man days @ \$200/day	1600.00
Pick-up rental 5 days @ \$60/day	300.00
Mileage - 890 km @ 0.20/km	178.00
VLF-EM16 rental	200.00
SP rental	75.00
Assaying	96.00
Meals & Lodging	275.00
Materials, flagging, etc.	30.00
Telephone	50.00
Report preparation	1200.00
	-----
Total	\$5,204.00
	=====

November 15, 1994

Stan A. Endersby, P. Eng.



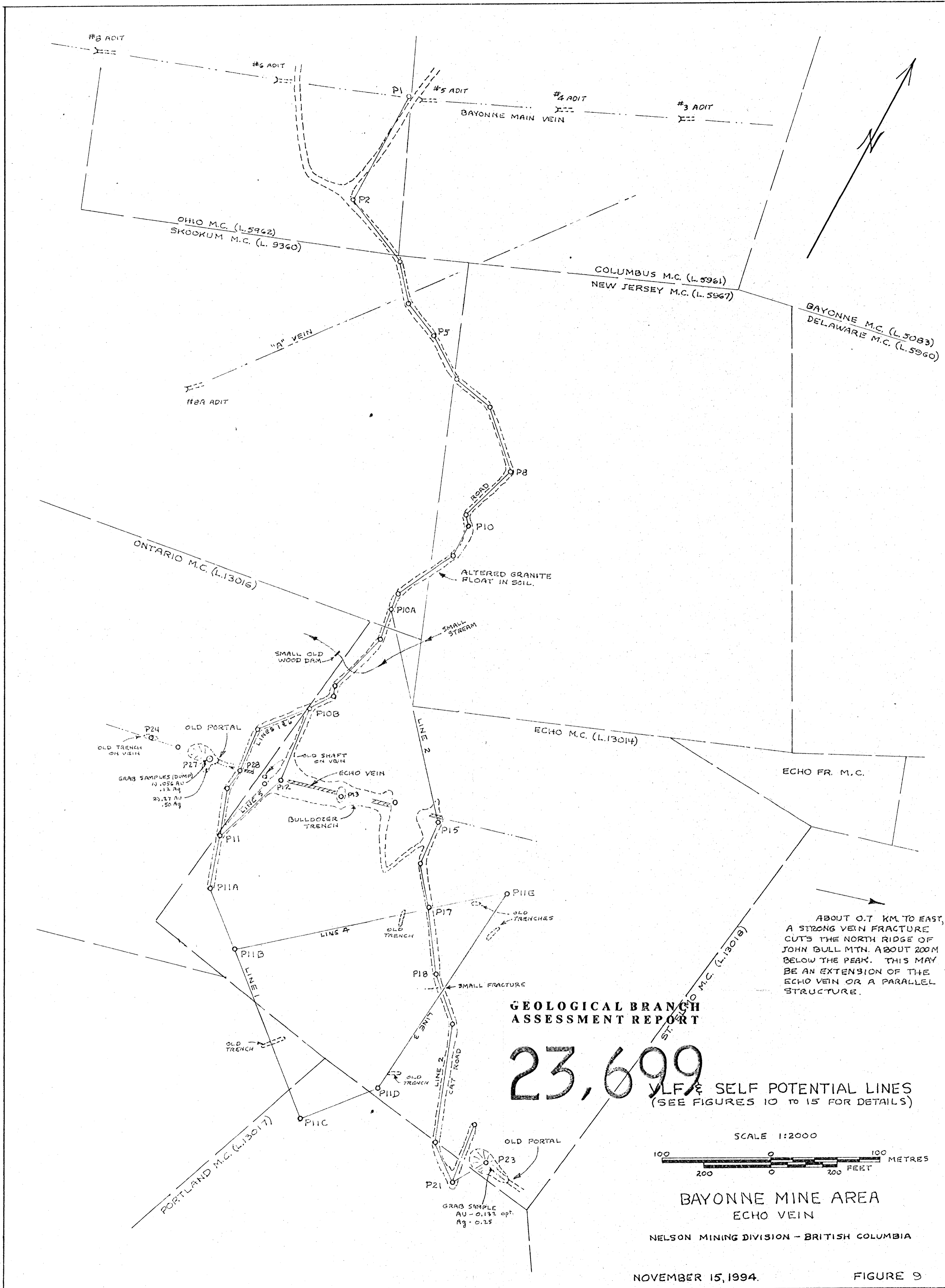
CERTIFICATE

I Stan A. Endersby, certify that:

- 1.) I am a graduate of the University of British Columbia in Chemical Engineering (BA.Sc. 1954). Also I have an M.Sc. in 1965.
- 2.) I am a member in good standing of the Association of Professional Engineers of B. C.
- 3.) This report is based on fieldwork carried out between August 10 and October 31th, 1994 on the Bayonne/Spokane property. The work was supervised by myself and I was assisted by K. Bonde (Columbia Geophysics), S.Conkin, and A.Endersby.
- 4.) I have an interest in the claims.

November 15, 1994  
White Rock, B. C.

Stan A. Endersby, P.Eng. (B.C.)



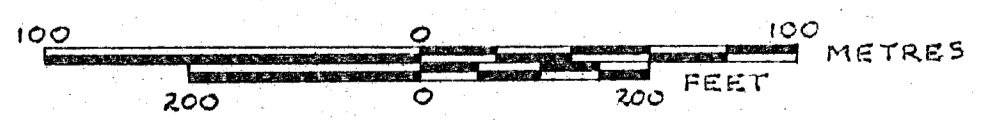
ABOUT 0.7 KM TO EAST,  
A STRONG VEIN FRACTURE  
CUTS THE NORTH RIDGE OF  
JOHN BULL MTN. ABOUT 200M  
BELOW THE PEAK. THIS MAY  
BE AN EXTENSION OF THE  
ECHO VEIN OR A PARALLEL  
STRUCTURE.

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**23,699**

VLF & SELF POTENTIAL LINES  
(SEE FIGURES 10 TO 15 FOR DETAILS)

SCALE 1:2000



**BAYONNE MINE AREA  
ECHO VEIN**

NELSON MINING DIVISION - BRITISH COLUMBIA

NOVEMBER 15, 1994.

FIGURE 9