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ASSESSMENT REPORT

on the

1992 VLF-EM SURVEY

Leases 1 to 22 Claims

RECEIVED

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Gold Commissioner's Office
VANCOUVER, B.C.

NANAIMO MINING DIVISION

NTS 92L/5W

Lat 50°25'N Long 124°53'W

Owner and Operator:

Minnova Inc.
3-311 Water Street.
Vancouver, B.C.
V6B 1B8

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

22,679

Cam DeLong.
November, 1992.

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SUMMARY

The Lemare Claim Group consists of 387 contiguous MGS Mineral claims located in the Nanaimo Mining Division (NTS 992L/5W) on northwestern Vancouver Island approximately 30 kilometres due west of Port Alice.

The claims are underlain by a southwest dipping sequence of mildly alkaline basalts and flow-banded rhyolites and rhyolite breccias as well as minor amounts of pyroclastic, epiclastic, and intermediate volcanic rocks. All these are thought to be part of the Bonanza volcanic package.

Spotty copper mineralization and potassic alteration have been documented by earlier work. An airborne geophysical survey flown in the spring of 1992 showed a possible conductive anomaly in the southwest part of the claim block.

A VLF survey was conducted to further evaluate this possible conductive horizon. The three kilometres of VLF survey carried out did not indicate a conducting horizon near surface. More work was not encouraged. **SUMMARY**

1.0 INTRODUCTION

1.1 General:

This report describes the results of geophysical work carried out on Lemare claims #3 and #13 of the Lemare Claim Group. Quest Exploration Services conducted a VLF-4 survey between August 19 and August 21, 1992. It's purpose was to further investigate an airborne EM anomaly defined by a survey flown in the spring of 1992.

1.2 Property Location and Access:

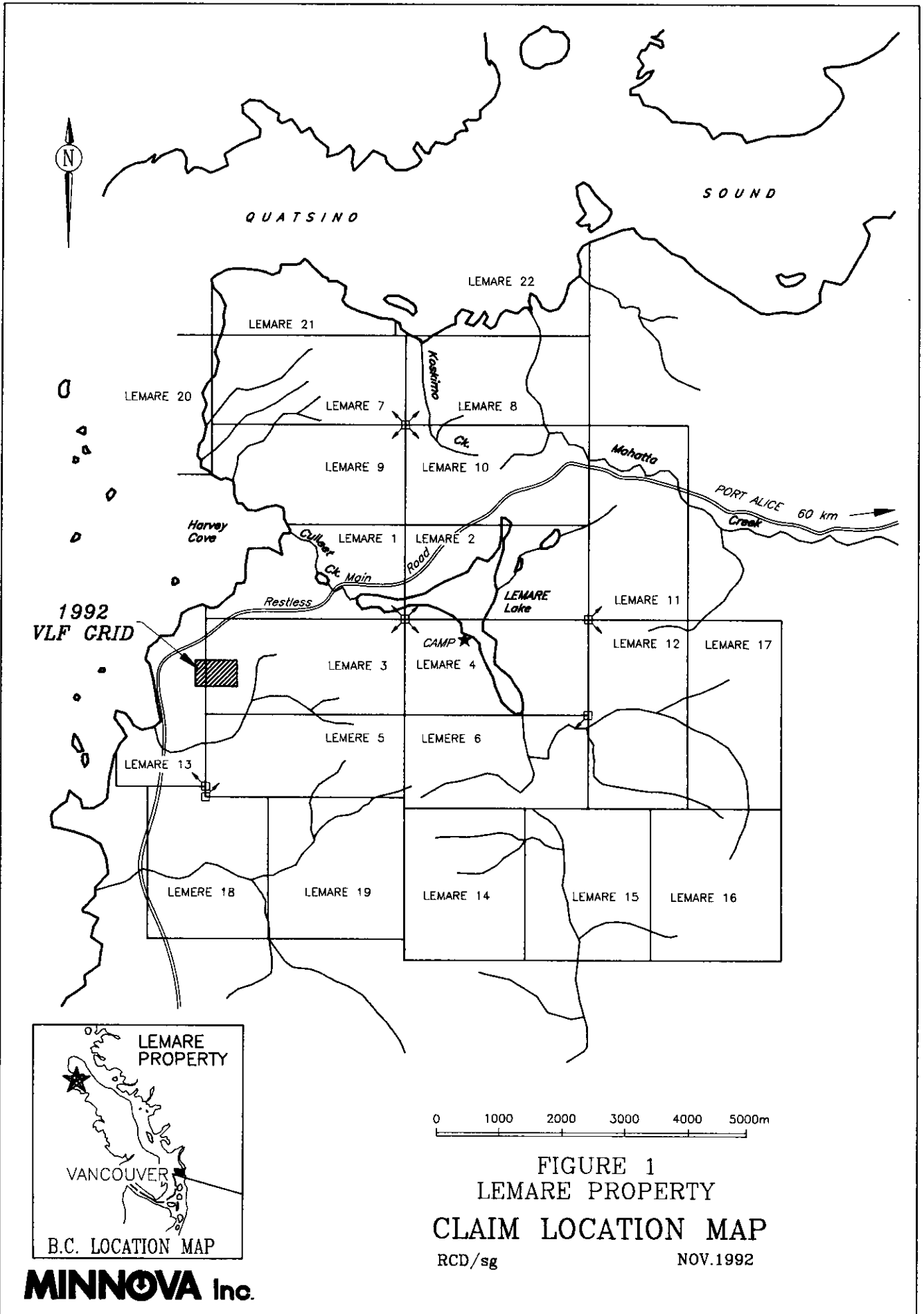
The Lemare Claim Group is located approximately 35 kilometres southwest of the Island Copper mine and 30 kilometres west of Port Alice on the northwestern coast of Vancouver Island. The property is centred at latitude 50° 25' north and longitude 127° 53' west on NTS Map sheet 92L/5W (Fig. 1).

Well maintained logging roads provide access from Port Alice, approximately 70 kilometres away. Excellent recent logging access is available throughout the claim group with a few exceptions.

1.3 Topography, Vegetation, and Climate:

The Lemare Claims lie within the Mahatta-Kashutl Mountain ranges on the northwest coast of Vancouver Island. Physiography is characterized by moderate to high relief. Elevation ranges from sea level to 750 metres in the southwestern portion of the property.

Vegetation consists of mature stands of Red Cedar and Douglas Fir with moderate to heavy undergrowth. Over 60% of the property has been logged during the past 12 years and is in various stages



of reforestation. Very dense underbrush (mainly alder and wild rose) and second growth (cedar) occur in the logged areas.

Warm wet springs and autumns and cool wet winters characterize the climate. The summers are warm and usually moderately wet, with hot, dry periods in July and August. During these times forest fire hazards may be extreme.

1.4 Property and Ownership:

The Lemare property consists of 22 MGS mineral claims, totalling 387 units. Claim information is summarized in Table 1 below.

TABLE 1. LIST OF CLAIMS

<u>NUMBER</u>	<u>CLAIM</u>	<u>UNITS</u>	<u>RECORD</u>	<u>EXPIRY</u>	<u>NTS</u>
231377	LEMARE 1	18	06-May-91	06-May-97	92L/5W
231378	LEMARE 2	18	06-May-91	06-May-96	92L/5W
231379	LEMARE 3	18	06-May-91	06-May-97	92L/5W
231380	LEMARE 4	18	06-May-91	06-May-96	92L/5W
300530	LEMARE 5	18	29-May-91	29-May-97	92L/5W
300529	LEMARE 6	18	29-May-91	29-May-97	92L/5W
300528	LEMARE 7	18	28-May-91	28-May-96	92L/5W
300527	LEMARE 8	18	28-May-91	28-May-96	92L/5W
300526	LEMARE 9	18	28-May-91	28-May-96	92L/5W
300523	LEMARE 10	18	28-May-91	28-May-96	92L/5W
300476	LEMARE 11	18	29-May-91	29-May-96	92L/5W
300475	LEMARE 12	18	29-May-91	29-May-96	92L/5W
304437	LEMARE 13	18	11-Sep-91	11-Sep-94	92L/5W
306167	LEMARE 14	20	09-Nov-91	09-Nov-94	92L/5W
306168	LEMARE 15	20	09-Nov-91	09-Nov-94	92L/5W
306169	LEMARE 16	20	09-Nov-91	09-Nov-94	92L/5W
306170	LEMARE 17	18	10-Nov-91	10-Nov-94	92L/5W
307291	LEMARE 18	20	20-Jan-92	20-Jan-95	92L/5W
307292	LEMARE 19	20	20-Jan-92	20-Jan-95	92L/5W
307295	LEMARE 21	18	21-Jan-92	21-Jan-95	92L/5W
307296	LEMARE 22	9	21-Jan-92	21-Jan-95	92L/5W
307364	LEMARE 20	8	20-Jan-92	20-Jan-95	92L/5W

1.5 Exploration History:

The discovery of BHP Utah's Island Copper deposit stimulated exploration for similar Cu-Mo-Au deposits in the late 1960's and early 1970's in the north island area. Several companies conducted programs on the west side of Vancouver Island. The earliest reference to claim staking activity in the Lemare Lake area is during 1970 when the Cam claims were recorded along the north shore of Lemare Lake. No assessment work was filed at this time. This area was later staked by British Newfoundland Exploration during 1980. Four days of prospecting, mapping, and sampling was filed as an assessment report (Prospecting Report, Lemare No.1 and No. 2 Mineral Claims, R. J. Bilquist, 20 November 1980, Assessment Report No. 8593). These claims were allowed to lapse.

Keewatin Engineering staked the property for Stow Resources in May of 1991. Mapping, soil, moss mat, and rock sampling carried out that summer, outlined two areas of interest. Minnova Inc. optioned the property in early 1992. The VLF survey described in this report was part of the exploration program conducted by Minnova Inc. on the property in the spring, summer and autumn of 1992.

1.6 Summary of Assessment Work, August, 1992:

VLF-4 Survey:	Location	(Fig. 2)
	Elevation	425m to 490m
	Kilometres	3
	Started	August 19, 1992
	Completed	August 21, 1992

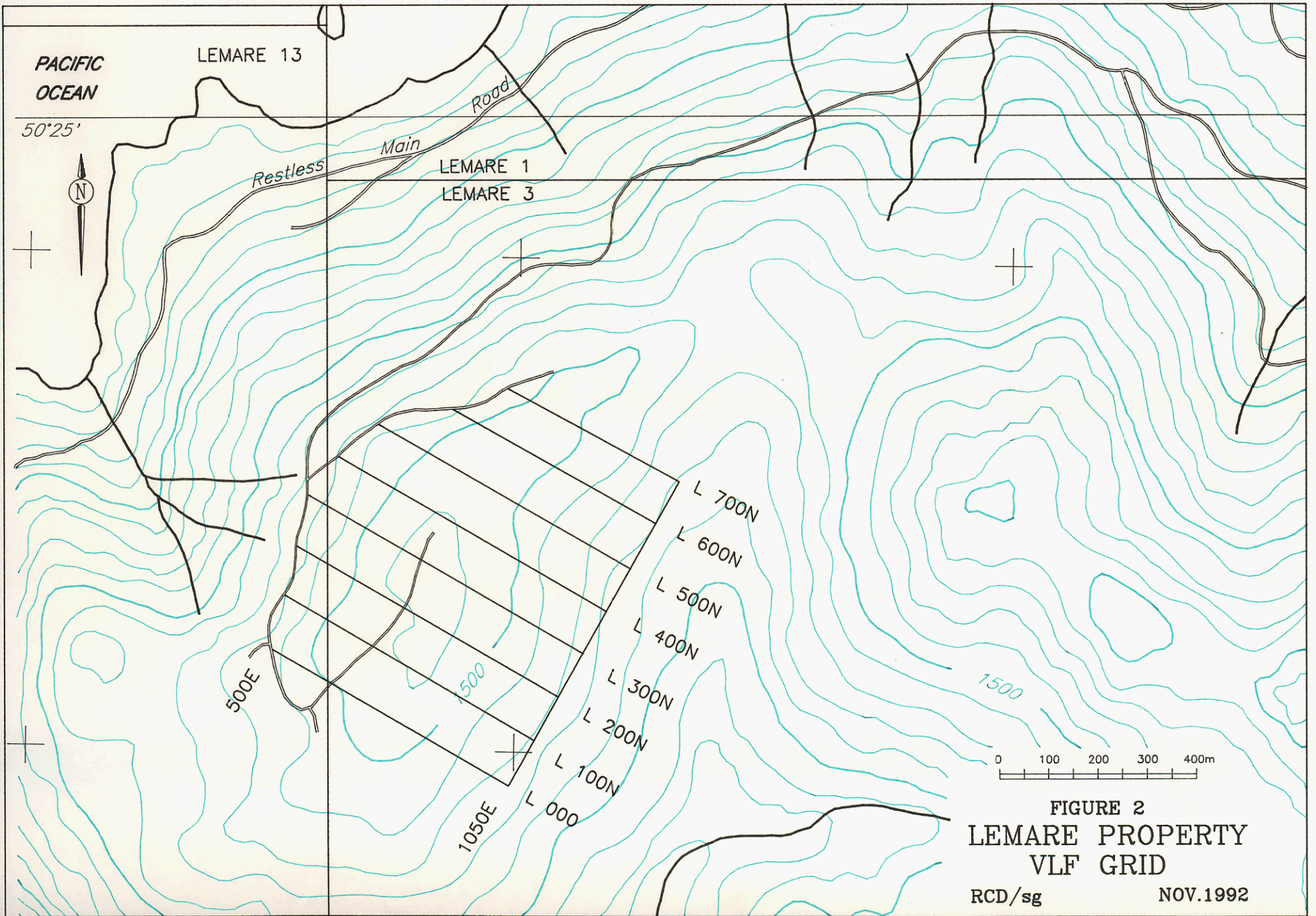


FIGURE 2
LEMARE PROPERTY
VLF GRID

RCD/sg

NOV.1992

2.0 GEOLOGY

2.1 Regional Geology:

Northwestern Vancouver Island lies within Wrangellia, part of the Insular belt of British Columbia.

Oldest rocks mapped in the region are upper Triassic tholeiitic basalts of the Karmutsen Formation. These rocks are unconformably overlain by the marine limestones, calcareous siltstones, shales and conglomerates of the Quatsino and Parsons Bay Formations.

Middle Jurassic Bonanza Supergroup rocks are exposed over much of the western part of northern Vancouver Island. In general, the basal part of the Bonanza Supergroup consists of massive, amygdaloidal and pillowed basalts to andesites with interbedded tuffs and intraformational breccias. This sequence grades upwards into a succession of andesitic to dacitic flows, tuffs, and breccias. These are in turn overlain by interbedded intraformational breccias and maroon sub-aerial flows, which may be overlain by rhyodacite flows, tuffs and epiclastic sedimentary rocks near volcanic-intrusive centres.

The Bonanza volcanic sequence can be overlain by or faulted against shallow marine sedimentary rocks belonging to the Cretaceous Long Arm Formation.

Although affected by both large and small local structures, regional bedding is relatively consistent throughout the area, striking northwest, dipping moderately to the southwest.

Intrusive rocks in the region are interpreted to be coeval with the lower Jurassic Bonanza volcanic rocks. They are known as

the Island Intrusives and are primarily of granodioritic to monzonitic composition.

All these rocks exhibit no higher than lower greenschist metamorphism and except where they are strongly altered retain primary textures.

The Lemare claims lie within a fault bounded structural block named the Cape Scott block by Muller (1977). The style of tectonism is typically brittle faulting with very little large scale folding. Muller (1977) and Jeletzky (1970) attribute this to the thick, brittle section of Karmutsen basalt that forms the basement to the Jurassic rocks.

2.2 Property Geology:

The Lemare Claim Group is underlain primarily by upper Bonanza volcanic rocks. These consist primarily of basic to felsic flows with local pyroclastic and epiclastic sections. High level dikes and sills cut the volcanic pile.

Although analytical work indicates a wide spectrum of compositions for the volcanic rocks; they can, in a general sense, be described as bimodal.

Mildly alkaline basalts and flow-banded to massive rhyolite flows to flow breccias are the dominant rock types. Bedded tuffs, pyroclastic and epiclastic rocks are volumetrically unimportant but do provide the best structural attitude information, and some stratigraphic continuity.

Although block faulting makes it difficult to estimate thicknesses of individual rhyolite and basalt units, it appears that two basaltic units stratigraphically contain a thick (300 to 450 metre) "main" rhyolitic flow sequence. Below the lower basalt

rhyolite is observed. It is possible that this is not a stratigraphically older unit but a structurally lower or repeated rhyolite section.

Units young in a westerly direction. The Lemare sequence probably represents a part of the upper Bonanza volcanic sequence.

In the extreme western part of the property, fossiliferous sandstones and conglomerates of the Cretaceous Long Arm Formation are faulted against the Bonanza rocks.

3.0 GEOPHYSICS

3.1 VLF-4 Survey:

The VLF-4 survey was part of a larger mapping, sampling, and drilling program designed to evaluate the Lemare Claim Block for porphyry copper style mineralization. It was carried out to ground test a multi-channel airborne EM identified on the Lemare 13 claim by the spring airborne survey.

The survey, conducted by Quest Canada Exploration Services, covered 3 kilometres on 6 flagged and chained lines. Azimuth of the grid lines is 120 degrees from true north. Measurements were recorded at 25 metre intervals (Figure 3,4, and 5).

Results (Figure 3,4, and 5) show a weak cross-over on lines 100N, 200N, and 600N corresponding to the top of a hill. This feature is interpreted to be a topographic response. The survey did not locate a strong, near surface conductor.

4.0 DISCUSSION AND CONCLUSIONS

Although the airborne anomaly is distinct on more than one flight line, no corroborating VLF anomaly was detected by this survey. Rock outcrops nearest to the anomaly (within 100m) are only slightly altered and show no evidence of conductive lithologies (i.e. graphitic sediments or sulphide horizons). The subaerial depositional environment of the hosting volcanic rocks, is unfavourable for volcanogenic massive sulphide mineralization. Furthermore soil samples taken over VLF grid subsequent to the survey did not detect any anomalous metal values.

The results do not justify further work.

5.0 REFERENCES

- Birkeland, A.O. 1991. Company Report on the Lemare Property. Unpublished report for Stow Resources.
- Eaton, G.P. 1982. The Basin and Range Province: origin and tectonic significance. *A. Rev. Earth Planet. Sci.* 10, 409-440.
- Eaton, G.P. 1984. The Miocene Great Basin of western North America as an extending back-arc region. *Tectonophysics* 102, 275-295.
- Jeletzky, J.A. 1970. Some Salient Features of Early Mesozoic History of Insuk Tectonic Belt, Western British Columbia, GSC Paper 69-14.
- Muller, J.E. 1977. Geology of Vancouver Island, GSC Open File 463.
- Muller, J.E. Cameron, B.E.B. and Northcote, K.E. 1981. Geology and Mineral Deposits of Nootka Sound, GSC Paper 80-16.

APPENDIX I

STATEMENT OF COSTS

STATEMENT OF COSTS

LEMARE GROUP A

Geophysics:

VLF-EM Survey (Quest Canada) Total 3km.....	\$544.50
Travel Expenses for VLF Operator.....	\$360.96

Grid:

4km of Flag and Blaze line (Lloyd Cornish) (Ed Ronyecz) 6 mandays @ \$115/day.....	\$690.00
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Supervision:

Cam Delong (Project Geologist) 2 days @ \$170/day.....	\$340.00
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Meals and Accommodation:

6 mandays @ \$25/day.....	\$150.00
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Vehicle Rental (including gas):

Redhawk 4 Wheel Drive Centre 3 days @ \$50/day.....	\$150.00
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Report Preparation:

Cam Delong 2 days @ \$170/day.....	\$340.00
Drafting and Miscellaneous Costs.....	\$220.00

Subtotal	<u>\$2,795.46</u>
Pac Withdrawal	804.54
Total	<u>\$3,600.00</u>

APPENDIX II

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Campbell DeLong of 4539 West 12th Avenue, Vancouver, B.C. certify that:

1. I graduated from Memorial University, Newfoundland with a B.Sc (Honours) Degree in Geology in 1976.
2. I am presently enroled in an M.Sc. program in geology at the University of British Columbia.
3. I have practised my profession for eight years.
4. I am a Geoscientist in Training with the Association of Professional Engineers and Geoscientists of British Columbia.
5. I am currently employed by Minnova Inc. as a Contract Geologist.
6. Work documented in this report was carried out under my direct supervision.

Date: DECEMBER 8, 1992

Signature: 

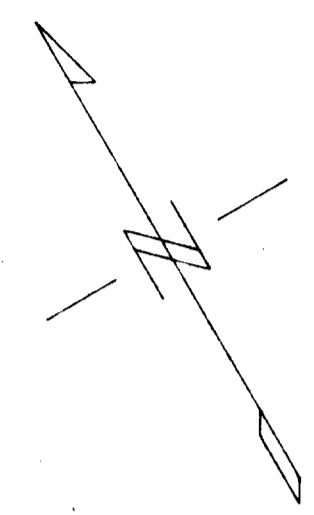
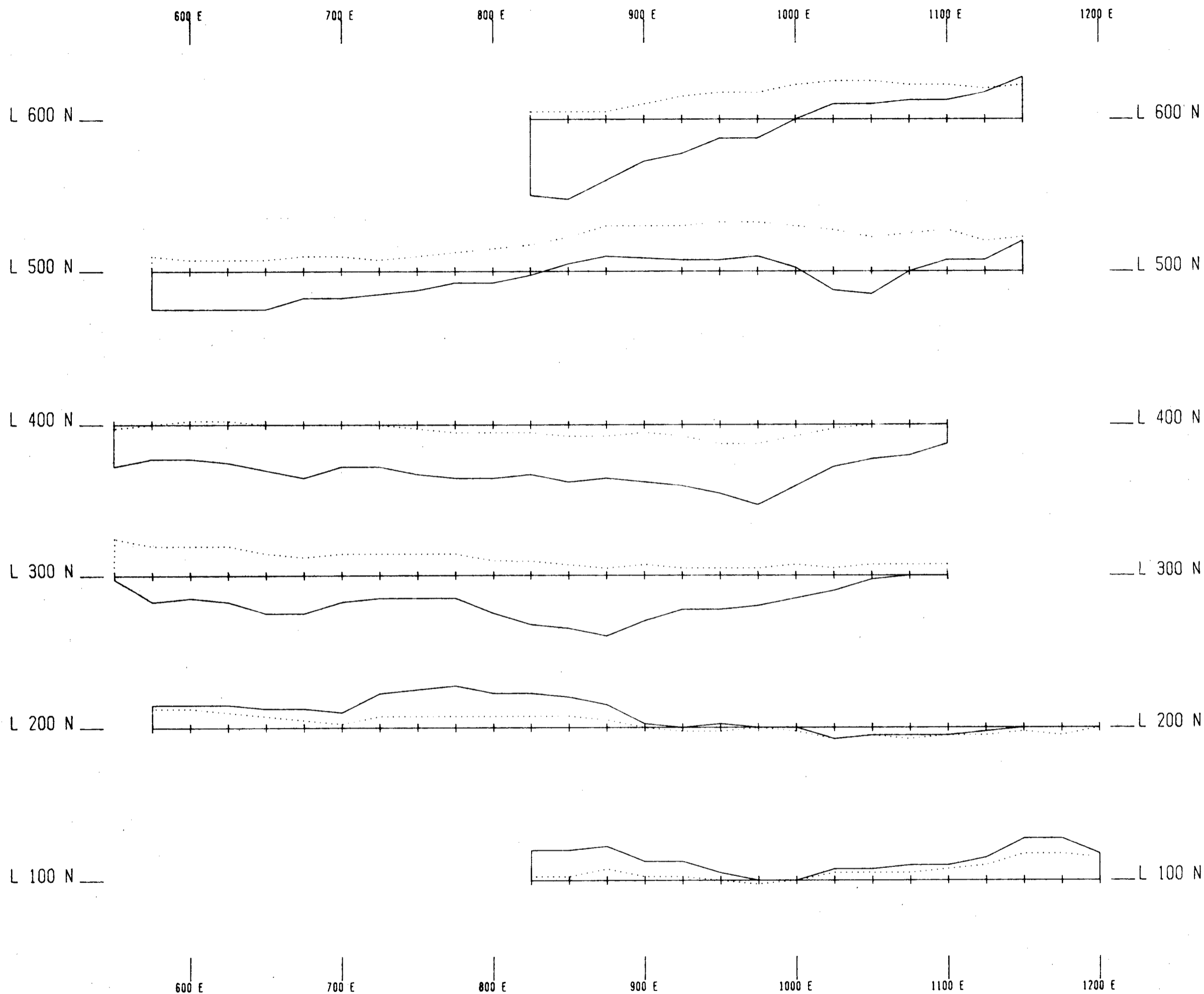
APPENDIX III
SPECIFICATIONS OF GEOPHYSICAL EQUIPMENT

Scintrex VLF-4 Electromagnetic Sensor:

1. dual coil backpack mounted sensor for VLF-magnetic measurements
2. two electric circuit boards
3. program PROM

Scintrex IGS-2 System Control Console:

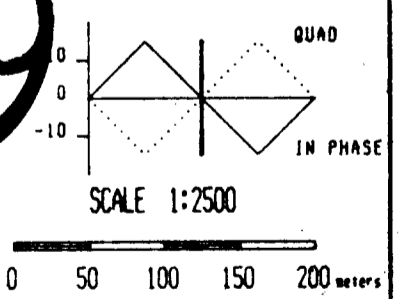
The IGS-2 is designed to digitally store data from various Scintrex sensors such as the VLF-4, MP-2 magnetometer, or the EM-2 Genie sensor. For the VLF-4 the IGS-2 can calculate resistivity and phase angle then output these values as maps or profiles to a digital printer, modem or microcomputer to plot, transmit, store or process data.



INSTRUMENT : IGS - 2 VLF

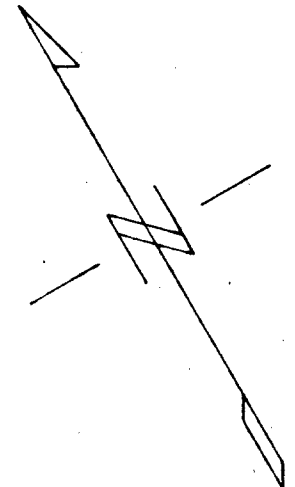
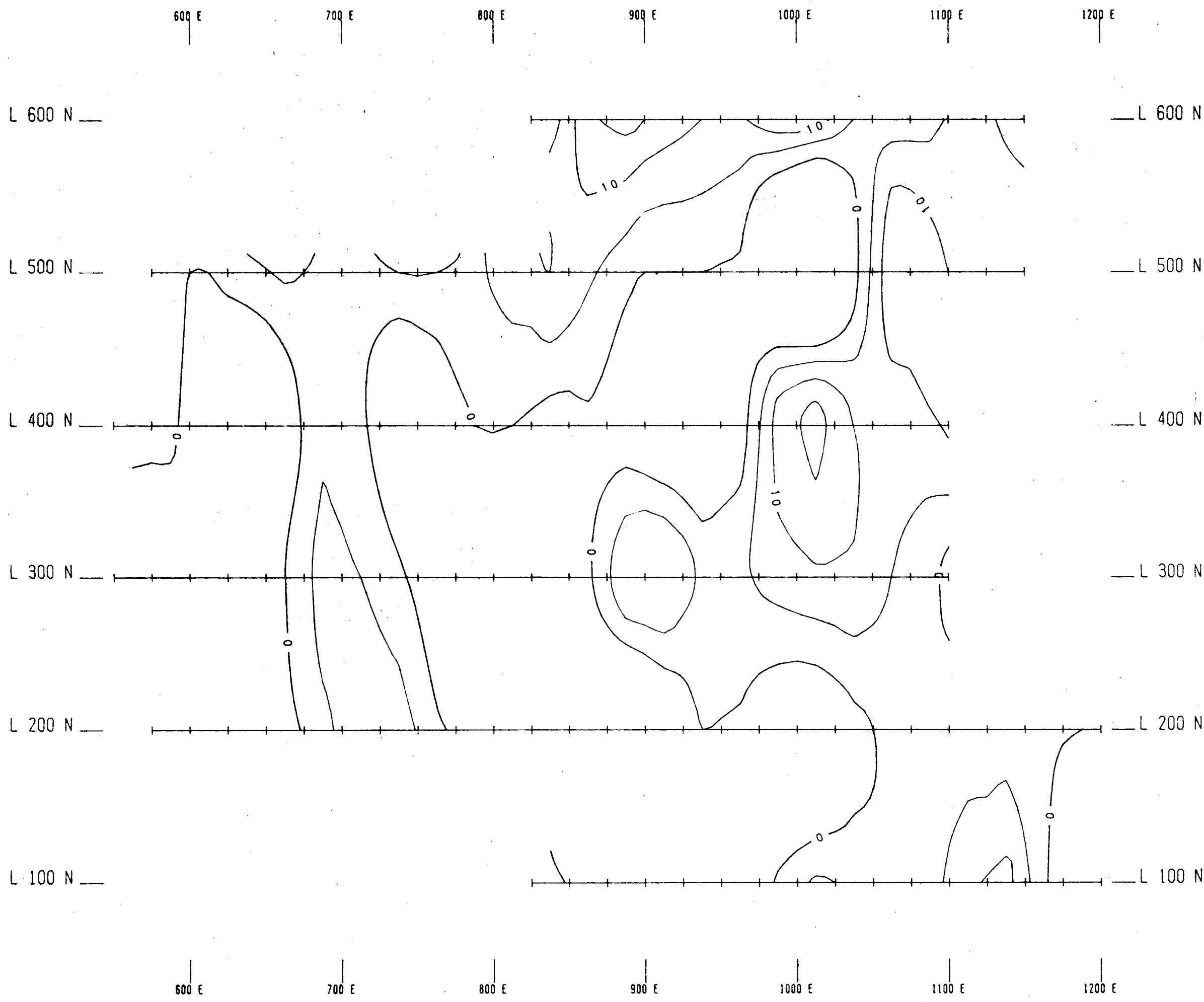
**GEOLOGICAL BRANCH
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MINNOVA INC.	
LEMARE GRID	
VLF-EH	
PROFILE MAP	
SEATTLE 24.8 kHz	
FIG 3	
To accompany a report by	
Project No:	Report No:
Drawing No:	D.T.S.:
Date: 08/92	Map No:
QUEST CANADA EXPLORATION SERVICES INC.	

REVISIONS		
By	Date	Apprv. by



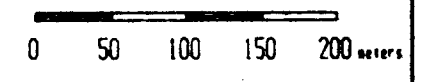
**GEOLOGICAL BRANCH
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INSTRUMENT : 1GS - 2 VLF

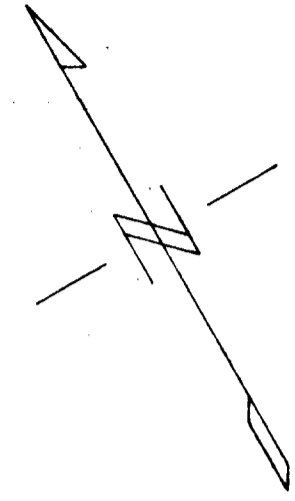
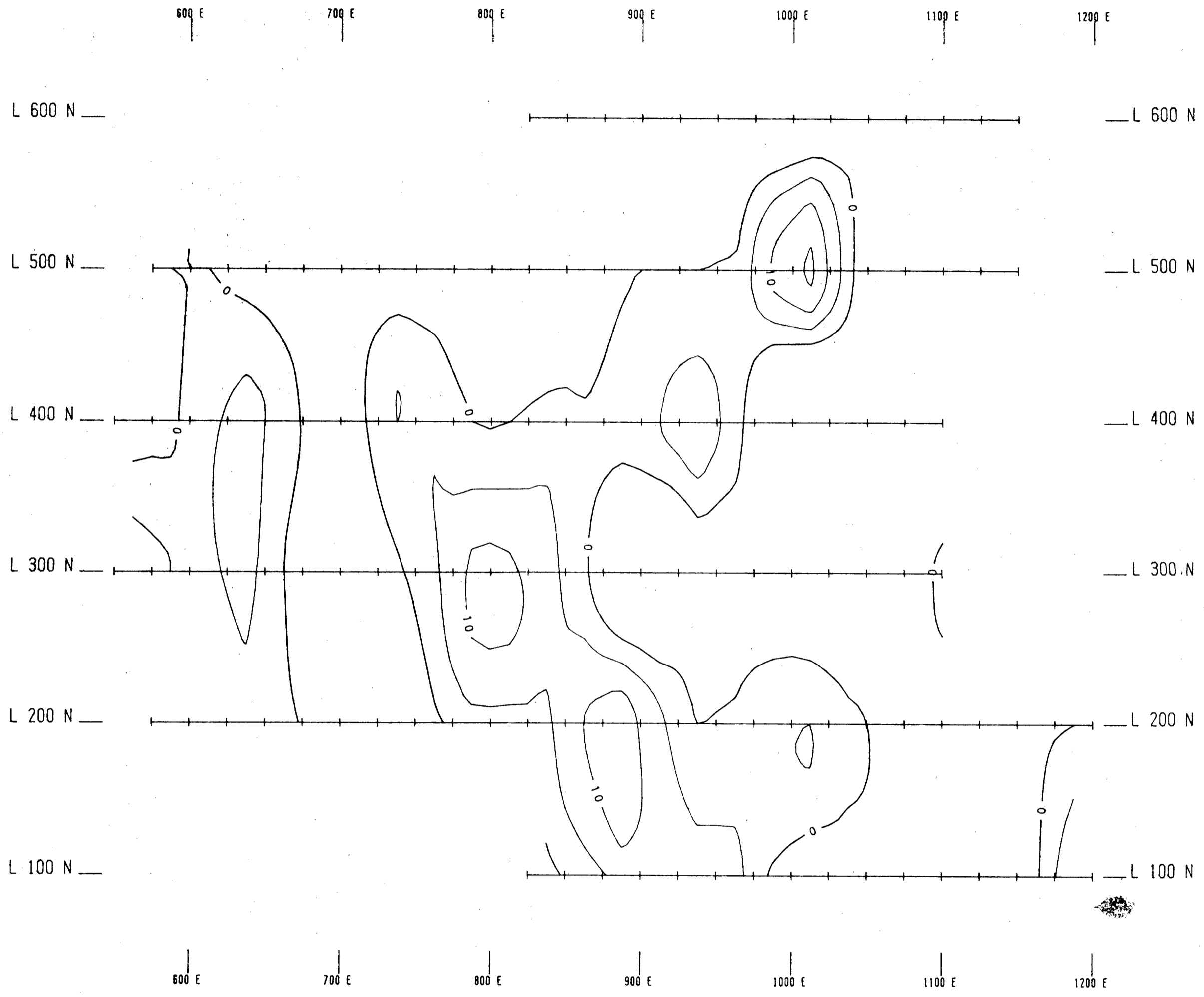
Contour Interval : 5,10

SCALE 1:2500



MINNOVA INC.	
LENARE GRID	
VLF-EH	
FILTERED CONTOUR MAP	
SEATTLE 24.8 kHz	
FIG 4	
To accompany a report by	
Project No:	Report No:
Display No:	D.T.S.:
Date: 08/92	Exp No:
QUEST CANADA EXPLORATION SERVICES INC.	

REVISIONS		
By	Date	Approved by



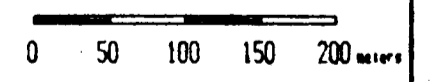
INSTRUMENT : IGS - 2 VLF

Contour Interval : 5,10

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

22,679

SCALE 1:2500



MINNOVA INC.	
LEMARE GRID	
VLF-EM	
FILTERED CONTOUR MAP	
SEATTLE 24.8 kHz	
To accompany a report by FIG 5	
Project No:	Report No:
Drawing No:	D.T.S.:
Date: 08/92	Exp No:
QUEST CANADA EXPLORATION SERVICES INC.	

REVISED		
By	Date	Approved By