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GEOPHYSICAL REPORT
ON THE
STARBUCK CLAIM
CARIBOO MINING DIVISION, B.C.

NTS 93 H/3W

Latitude: 53° 01'N

Longitude: 121° 25'W

OWNER:
Pacific Mariner Exploration Ltd.
#1000 - 675 West Hastings Street
Vancouver, B.C.
V6B 1N6

BY:
P. SOUTHAM, P. Geo. (B.C.)

August 7, 1994

GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,452

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LOCATION AND ACCESS

The Starbuck claim is located in central eastern British Columbia approximately 7 km southeast of the village of Barkerville (figure 1). It is centered on 53° 01' north latitude and 121° 25' west longitude on NTS sheet 93 H/3W and is accessible year round by the 3100 logging road south from Barkerville.

TOPOGRAPHY AND VEGETATION

The claim is located in a region transitional between the Interior Plateau of the Intermontane Belt to the west and the Cariboo Mountains to the east. It straddles the boundary between the Quesnel Trough and the Omineca Crystalline Belt in the central portion of the province within the physiographic division known as the Intermontane Plateau. The Interior Plateau is characterized by a rolling upland surface at an altitude of approximately 1825 m. Surrounding the claim, the undulations of the upland surface are related to lithology, the highest areas being underlain by quartzite, conglomerate, chert or diabase and most of the lower hills by phyllites or limestone (Tomlinson, 1993). The surface is moderately well dissected with a local relief of about 600 m.

All creeks and tributaries show a markedly irregular pattern owing to the deep dissection and various controlling factors that seem to be related to lithology and structure. The valleys are narrow and steep-sided in the upper parts, but locally have the U-shaped cross section of glaciated valleys. They broaden in the lower parts where they are deeply drift-filled and have alluvial flats with a general elevation of about 1200 m.

Tree line is at approximately 1900 m, but below this level the area is well timbered. In order of abundance the common trees are: white and black spruce, aspen, balsam, poplar, white birch, lodgepole pine, and western cedar. In wet areas and along stream courses alder, aspen and dwarf birch, as well as willow and minor stunted buckbrush are encountered.

PROPERTY STATUS

The property consists of 1 - 16 unit mineral claim (figure 2).

Table 1 - Claims List

<u>CLAIM NAME</u>	<u>RECORD NUMBER</u>	<u>EXPIRY DATE*</u>	<u>OWNER</u>
Starbuck	302136	June 4/95	Pacific Mariner

* with acceptance of this report.

PACIFIC MARINER EXPLORATION LTD.

STARBUCK CLAIM

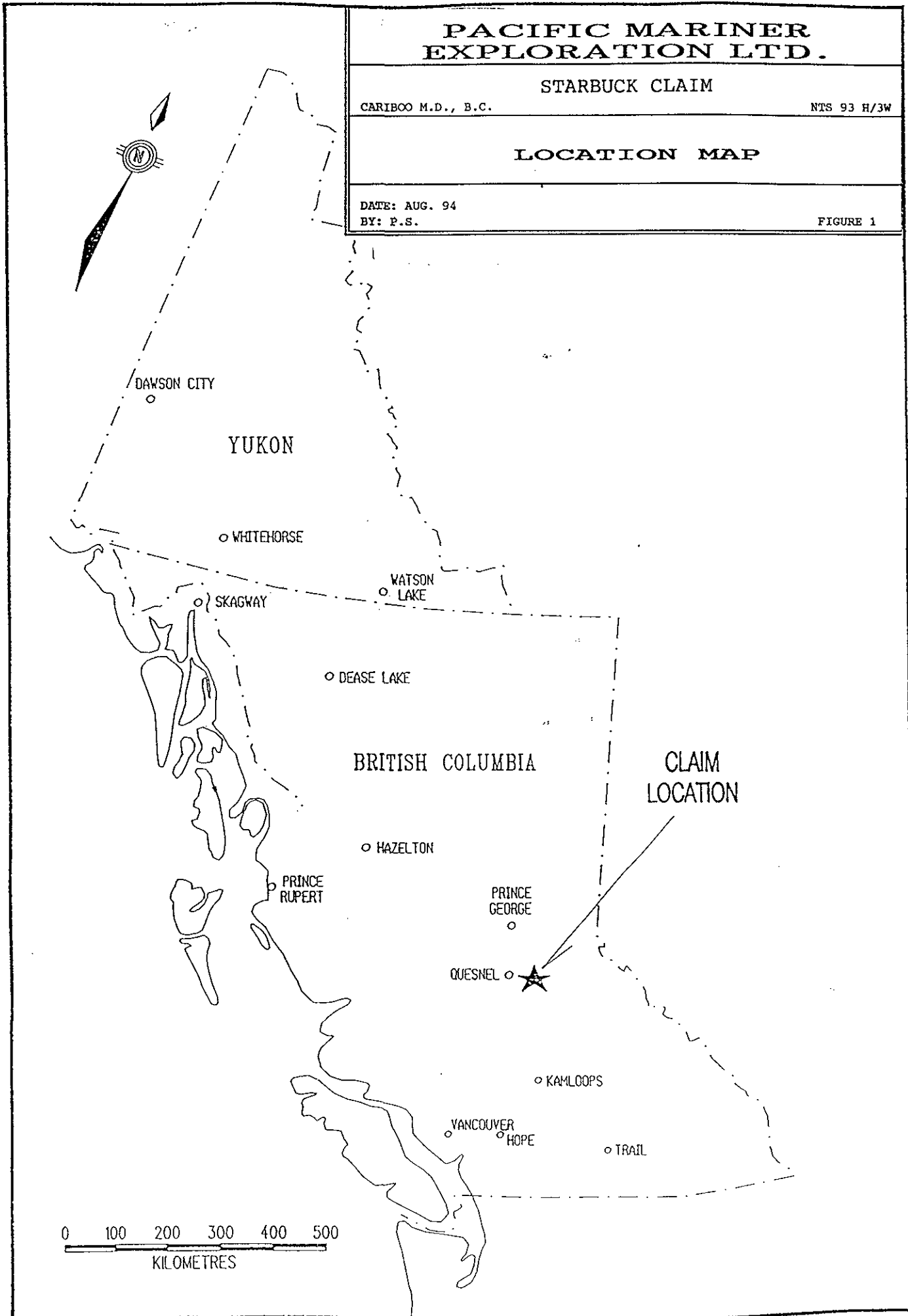
CARIBOO M.D., B.C.

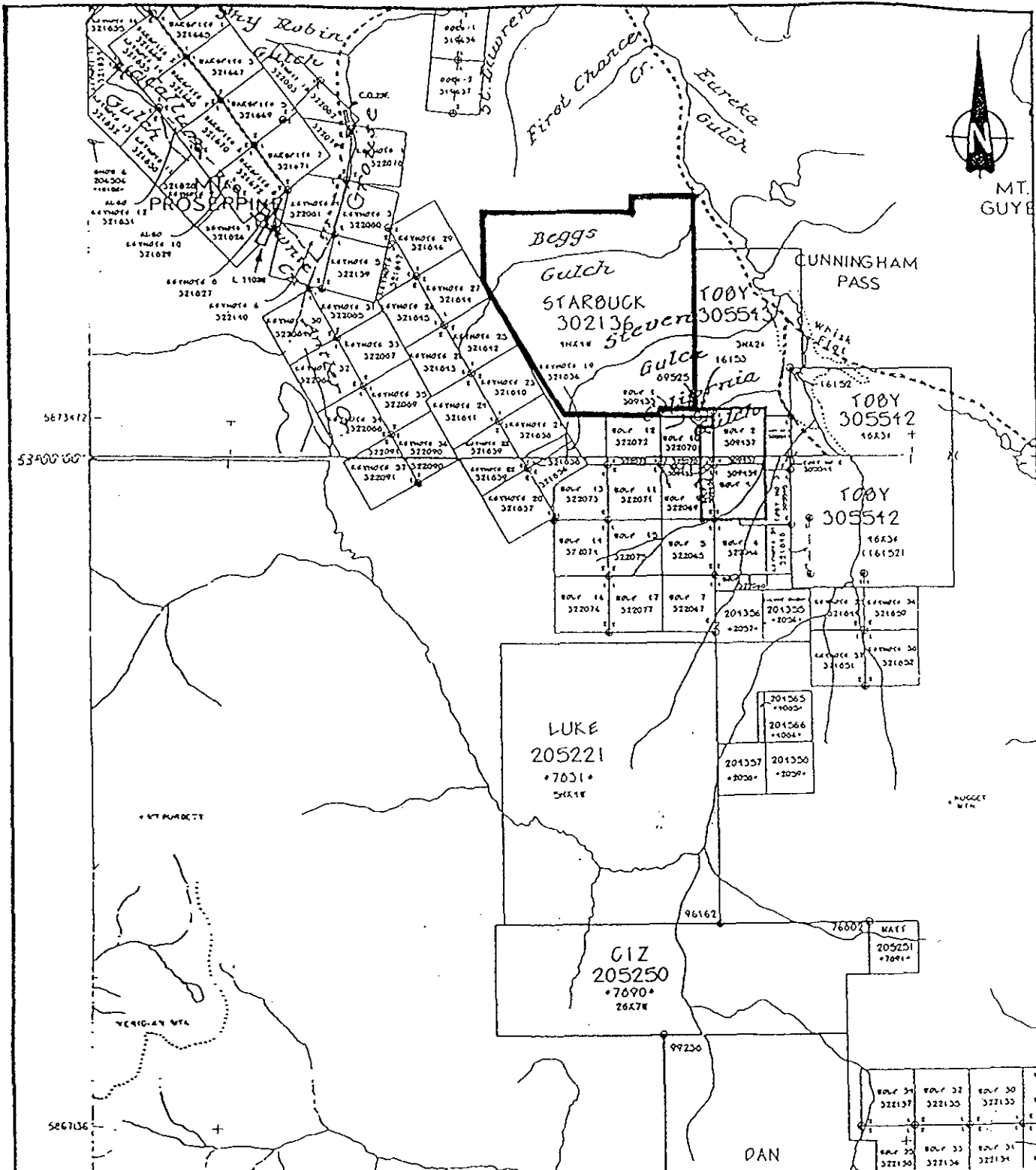
NTS 93 H/3W

LOCATION MAP

DATE: AUG. 94
BY: P.S.

FIGURE 1





**PACIFIC MARINER
EXPLORATION LTD.**

STARBUCK CLAIM

CARIBOO M.D., B.C. NTS 93 H/3W

CLAIM MAP

SCALE 1 : 50,000

DATE: AUG. 94
BY: P.S.

FIGURE 2

HISTORY

In 1859 placer gold was discovered along the Quesnel River, resulting in the Cariboo gold rush. Placer discoveries resulted in an estimated three million ounces of placer gold being mined in the Cariboo. Placer mining occurred on Antler Creek and continues today on a small scale.

Although there is no evidence of mining for lode deposits on the property, the Cariboo Gold Quartz Mine produced over 860,000 ounces of gold between 1933 and 1937 and is only 10 kilometers from the property. This deposit is a series of north striking, east dipping auriferous quartz-pyrite veins within dark clastic sediments. Associated mineralization includes bismuthinite, arsenopyrite, ankerite, scheelite, galena, sphalerite and tetrahedrite. Some gold has also been taken from stratabound massive pyrite lenses. The overall grade was about 0.40 ozs/ton.

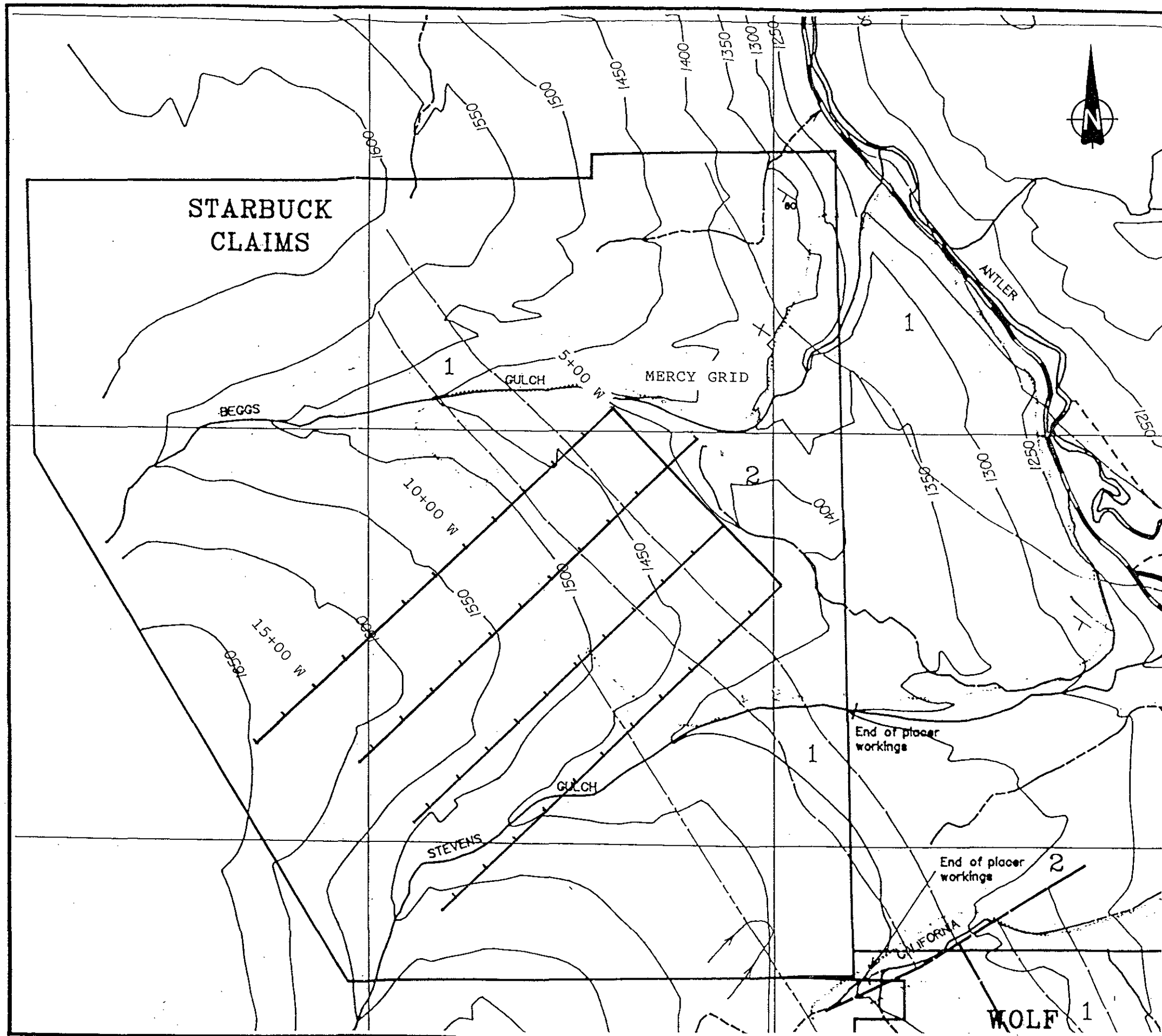
REGIONAL GEOLOGY

The Wells-Barkerville District is underlain by four major groups of rocks compressed into northwesterly trending folds of greater or lesser complexity (Newton, 1989). The oldest rocks are schist, schistose greywackes and micaceous quartzite which form the Kaza Group (Late Precambrian to Paleozoic). The Cariboo Group (Early Cambrian and Later) comprises phyllites, limestones and micaceous quartzites and conformably overlies the Kaza Group. The Slide Mountain Group (Carboniferous) comprises cherts, argillites, basic pillow lavas and conglomerates. It unconformably overlies the Cariboo Group and is much less deformed and metamorphosed. The Quesnel River Group (Jurassic) comprises shales and andesitic volcanic rocks.


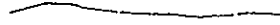
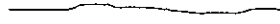






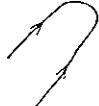
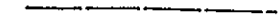
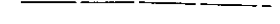
The geology of the area is not simple. Multiple deformation has rendered most of the rocks schistose and tightly compressed in complex repetitive folds. Poor exposure has further complicated attempts to make some sense of the geology.

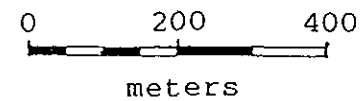
PROPERTY GEOLOGY

The Starbuck claim is underlain by the Cariboo Group, composed primarily of clastic rocks with lesser amounts of carbonate rocks. The Snowshoe Formation of the Cariboo Group occurs in the area of the claim and is defined by Holland (1954) and Sutherland-Brown (1957) as being comprised of micaceous, poorly-sorted quartzite, various metamorphic grades of pelite and conglomerate. The conglomerate occurs near the top of the formation. The quartzite and pelite are interbedded on a 0.5 to 2.5 meter scale throughout the formation's estimated minimum thickness of 300 meters.



LEGEND

-  Road
-  Rough Road
-  Creek: Definite
-  Indefinite
-  Intermittent
-  Index Contour
-  Intermediate Contour
-  1 Limestone
-  2 Argillite, phyllite
-  Overturned syncline
-  Fault
-  Geological contact



PACIFIC MARINER
EXPLORATION LTD.

STARBUCK CLAIM

CARIBOO M.D., B.C.

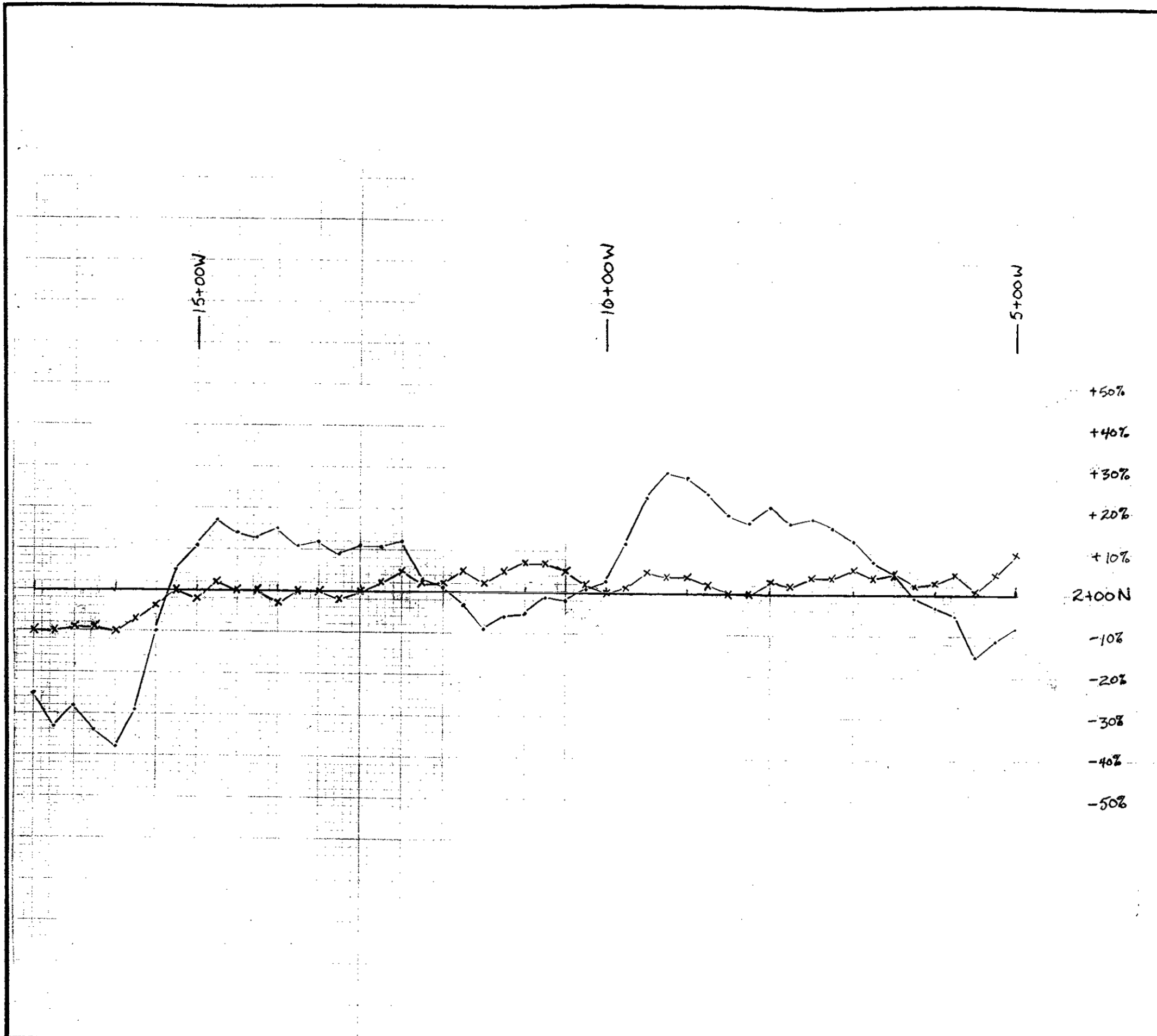
NTS 93 H/3W

PROPERTY GEOLOGY
AND
GRID LOCATION MAP

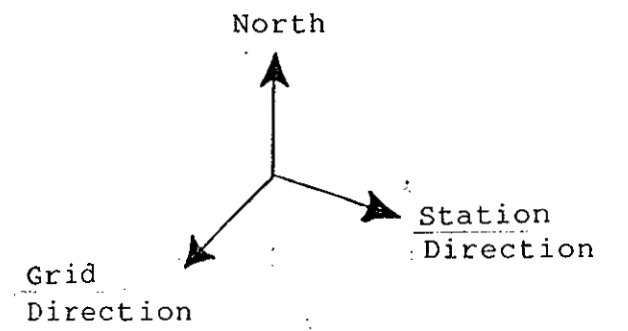
SCALE 1 : 10,000

DATE: AUG. 94
BY: P.S.

FIGURE 3

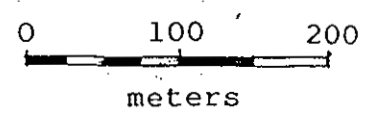


- Inphase
- x. Quadrature



Vertical Scale
1cm=10%

Station: Cutler, Maine (NAA)
Freq. 17.8 kHz



**PACIFIC MARINER
EXPLORATION LTD.**

STARBUCK CLAIM

CARIBOO M.D., B.C.

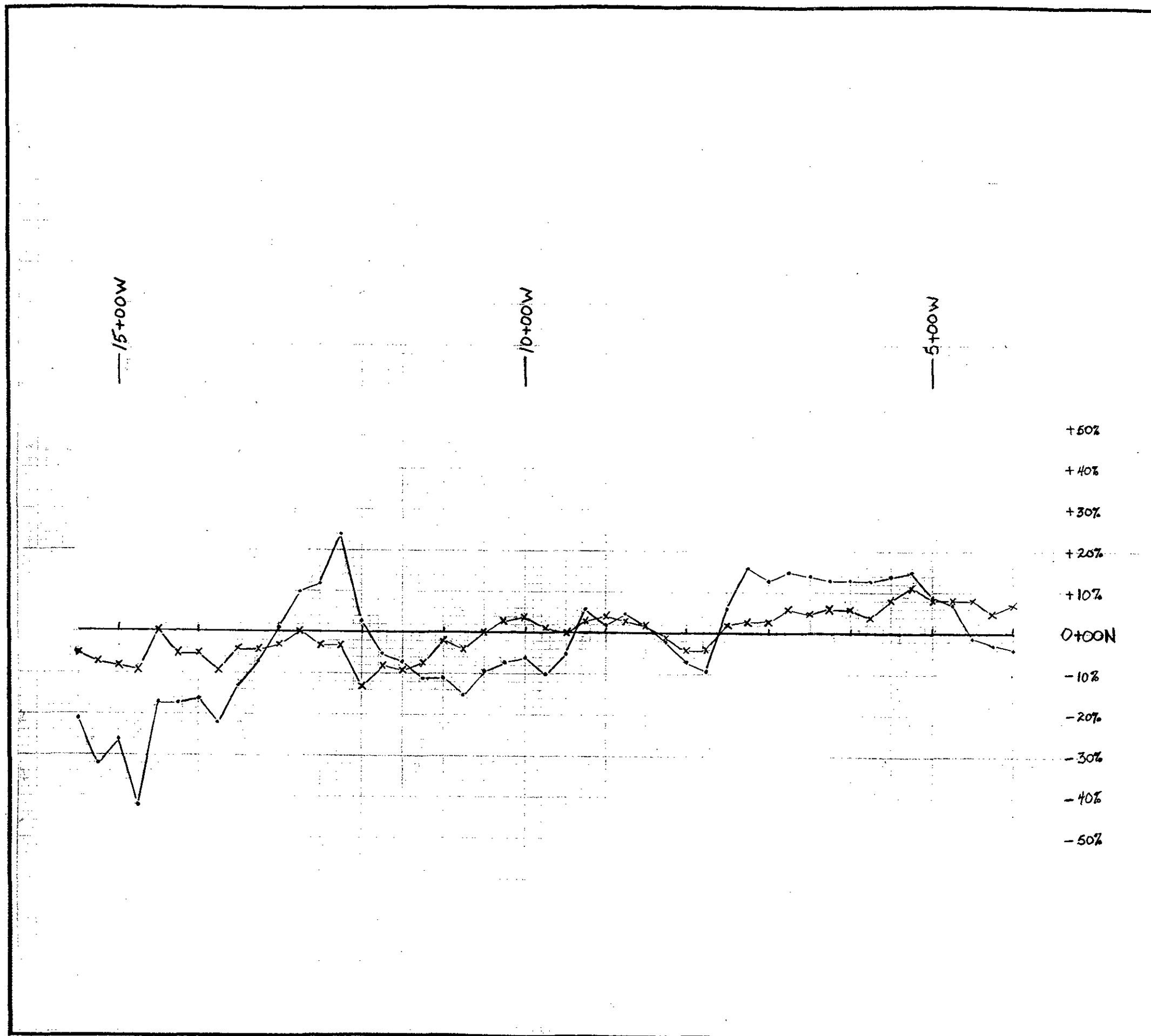
NTS 93 H/3W

**VLF PROFILES
MERCY GRID
LINE 2+00 N**

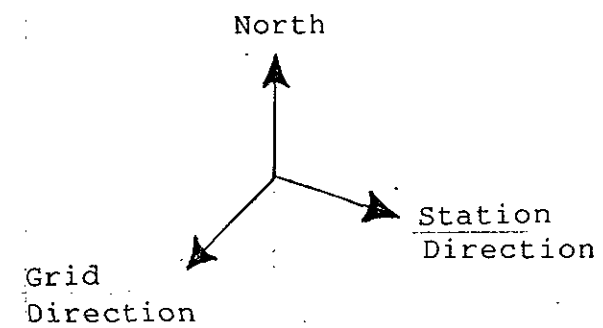
SCALE 1 : 5,000

DATE: AUG. 94
BY: P.S.

FIGURE 4

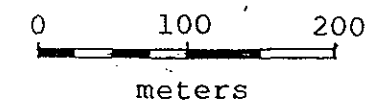


- Inphase
- x Quadrature



Vertical Scale
1cm=10%

Station: Cutler, Maine (NAA)
Freq. 17.8 kHz



**PACIFIC MARINER
EXPLORATION LTD.**

CARIBOO M.D., B.C.

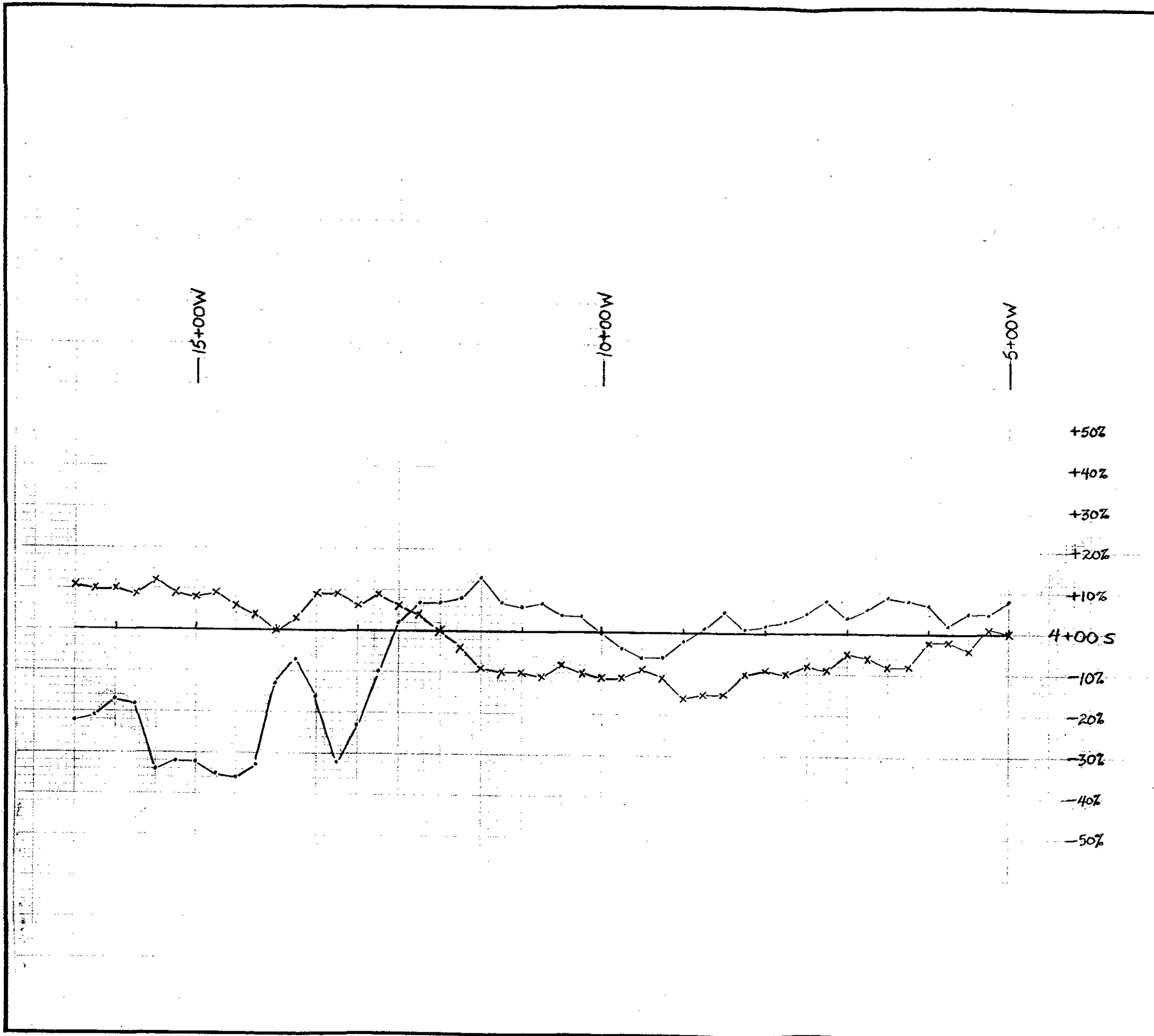
NTS 93 H/3W

**VLF PROFILES
MERCY GRID
LINE 0+00**

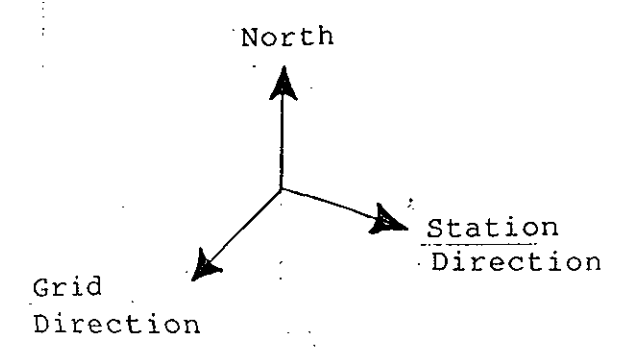
SCALE 1 : 5,000

DATE: AUG. 94
BY: P.S.

FIGURE 5

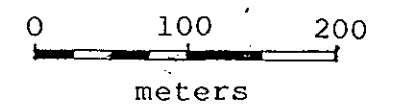


• Inphase
x Quadrature



Vertical Scale
1cm=10%

Station: Cutler, Maine (NAA)
Freq. 17.8 kHz



**PACIFIC MARINER
EXPLORATION LTD.**

STARBUCK CLAIM

CARIBOO M.D., B.C.

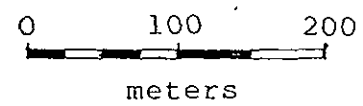
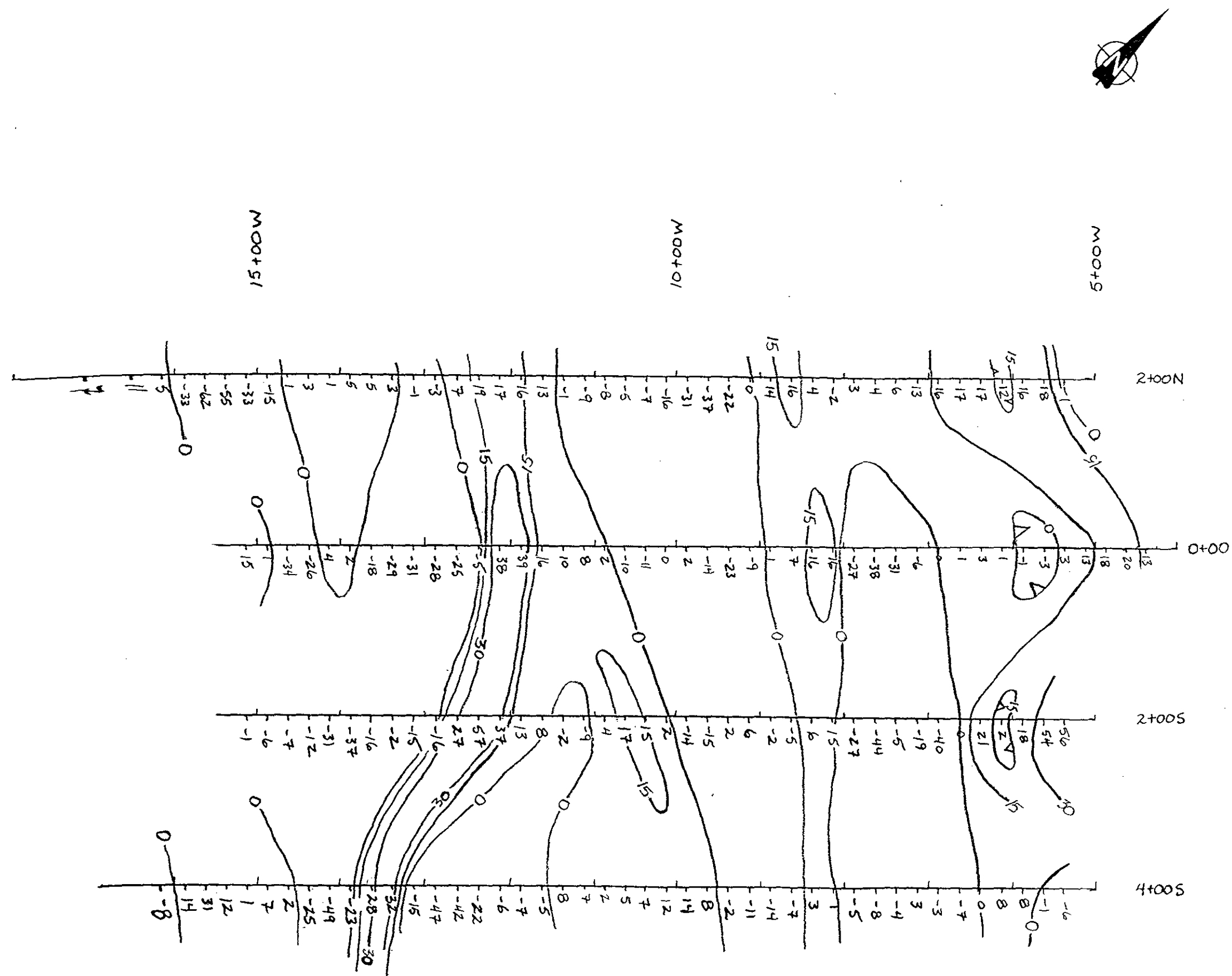
NTS 93 H/3W

**VLF PROFILES
MERCY GRID
LINE 4+00 S**

SCALE 1 : 5,000

DATE: AUG. 94
BY: P.S.

FIGURE 7



PACIFIC MARINER
EXPLORATION LTD.

STARBUCK CLAIM

CARIBOO M.D., B.C. NTS 93 H/3W

MERCY GRID
CONTOURED FRASER FILTER

SCALE 1 : 5,000

DATE: AUG. 94
BY: P.S.

FIGURE 8

WORK PROGRAM

A VLF survey was conducted over the central-southern part of the Starbuck claim on the Mercy Grid. The grid consists of four lines up to 1200 meters long and 200 meters apart striking 225°. The line direction is roughly perpendicular to the local stratigraphy and possible mineralized faults trending north to northwest. Readings were taken at 25 meter stations. Each station was marked with flagging ribbon with the station number written on the flagging ribbon.

GEOPHYSICAL SURVEY RESULTS

The survey results indentified broad zones of conductivity which may be in response to conductive graphite within the sedimentary layers. The broad zones appear to extend from line 2+00 N to 4+00 S and are roughly parallel to the regional strike direction of the sediments. Graphite was observed in subcrop in Beggs Gulch on line 0+00 near the conductive zone between 4+50 W and 7+50 W and also near 4+00 S, 9+00 W in association with quartz/sericite/iron-carbonate altered rocks.

The Fraser Filter of the data suggests a strong conductor occurs on all lines around 12+00 W except for line 4+00 S where it occurs at 13+50 W. On lines 2+00 N, 2+00 S and 4+00 S it appears to be related to the boundary of a broad conductive zone, whereas on line 0+00 it is more of an isolated conductor. A second isolated conductor occurs on line 2+00 S at 5+50 W.

SUMMARY AND CONCLUSIONS

A VLF survey was conducted over the Starbuck claim near Barkerville, BC in an effort to locate conductive zones related to mineralization. The survey identified several broad conductive zones believed to be related to locally conductive sedimentary horizons. A strong conductor on the western end of the grid warrants follow up by prospecting, soil sampling and possibly trenching. A more local conductor at the eastern end of line 2+00 S warrants further VLF survey work to determine its extent and potential.

BIBLIOGRAPHY

HOLLAND, S.S., 1954; Yanks Peak-Roundtop Mountain Area, British Columbia: B.C. Department of Mines, Bulletin No. 34, 112p.

NEWTON, D., 1989; Reverse Circulation Rotary Drilling Report on the Antler Creek Property, Cariboo Mining Division, B.C., BC Assessment Report for Rise Resources Inc.

SUTHERLAND-BROWN, A., 1957; Geology of the Antler Creek Area, British Columbia: B.C. Department of Mines, Bulletin 38, 105p.

TOMLINSON, S., 1993; Geological and Geochemical Report on the Starbuck and Wolf Properties, Cariboo Mining Division, B.C., BC Assessment Report #22,989 for Pacific Mariner Explorations Ltd.

APPENDIX I

STATEMENT OF EXPENDITURES

STARBUCK CLAIM - EXPENDITURES

SALARIES

Phil Southam - 4 mandays @ \$180/day	720
Report preparation - P. Southam - 2 mandays @ \$180/day	360

LOGISTICAL COSTS

Food and lodging	320
VLF equipment - 4 days @ \$20/day	80
Vehicle fuel and maintenance	148

SUBTOTAL	<u>1628</u>
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Administration Fee (15%)	244
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TOTAL	<u>\$1872</u>
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APPENDIX II

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Philip James Southam of 6348 Kerr Street, Vancouver, British Columbia, do hereby certify:

1. I am a geologist registered with the Association of Professional Engineers and Geoscientists of British Columbia.
2. I graduated from Brandon University in 1987 with a Bachelor of Science degree majoring in geology.
3. I have practised my profession continuously since graduation in British Columbia, Manitoba, Yukon Territory and California in the field of mineral exploration.
4. I am employed by Hastings Management Corp. to provide geological services for Pacific Mariner Exploration Ltd.
5. All work completed for the purpose of this report was done under my supervision.


Philip Southam


The seal is a circular emblem with a double-line border. The outer ring contains the text "PROFESSIONAL" at the top, "PROVINCE OF" at the bottom, and "BRITISH COLUMBIA" on the left and "GEO" on the right. The inner circle contains the name "P. J. SOUTHAM" and "GEOLOGIST" at the bottom.

APPENDIX III

EM16 SPECIFICATIONS AND PRINCIPLES OF OPERATION

EM16 SPECIFICATIONS

MEASURED QUANTITY	In-phase and quad-phase components of vertical magnetic field as a percentage of horizontal primary field. (i.e. tangent of the tilt angle and ellipticity).
SENSITIVITY	In-phase : $\pm 150\%$ Quad-phase : $\pm 40\%$
RESOLUTION	$\pm 1\%$
OUTPUT	Nulling by audio tone. In-phase indication from mechanical inclinometer and quad-phase from a graduated dial.
OPERATING FREQUENCY	15-25 kHz VLF Radio Band. Station selection done by means of plug-in units.
OPERATOR CONTROLS	On/Off switch, battery test push button, station selector switch, audio volume control, quadrature dial, inclinometer.
POWER SUPPLY	6 disposable 'AA' cells.
DIMENSIONS	42 x 14 x 9cm
WEIGHT	Instrument: 1.6 kg Shipping : 4.5 kg

PRINCIPLES OF OPERATION

The VLF-transmitting stations operating for communications with submarines have a vertical antenna. The Antenna current is thus vertical, creating a concentric horizontal magnetic field around them. When these magnetic fields meet conductive bodies in the ground, there will be secondary fields radiating from these bodies. (See Figures 3 & 4). This equipment measures the vertical components of these secondary fields.

The EM16 is simply a sensitive receiver covering the frequency band of the VLF-transmitting stations with means of measuring the vertical field components.

The receiver has two inputs, with two receiving coils built into the instrument. One coil has normally vertical axis and the other is horizontal.

The signal from one of the coils (vertical axis) is first minimized by tilting the instrument. The tilt-angle is calibrated in percentage. The remaining signal in this coil is finally balanced out by a measured percentage of a signal from the other coil, after being shifted by 90° . This coil is normally parallel to the primary field, (See instrument Block Diagram - Figure 2).

Thus, if the secondary signals are small compared to the primary horizontal field, the mechanical tilt-angle is an accurate measure of the vertical real-component, and the compensation $\% / 2$ -signal from the horizontal coil is a measure of the quadrature vertical signal.