PACIFIC GEOPHYSICAL LTD.
REPORT ON THE
CONTROLLED SOURCE AUDIO
MAGNETOTELLURIC SURVEY (CSAMT)
ON THE
MT. SICKER PROPERTY
VICTORIA M.D. B.C.
FOR MINNOVA INC.

PACIFIC GEOPHYSICAL LTD.

REPORT
ON THE

CONTROLLED SOURCE AUDIO MAGNETOTELLURIC SURVEY
(CSAMT)

ON THE

MT. SICKER PROPERTY
VICTORIA MINING DIVISION
BRITISH COLUMBIA

FOR

MINNOVA, INC.
LATITUDE: $48^{O}52'N$ LONGITUDE: $123^{O}46'W$
NTS 92B/13

OWNER: MINNOVA INC.

OPERATOR: MINNOVA INC.

BY

PAUL A. CARTWRIGHT, P.Geoph.
GEOPHYSICIST

GRANT D. LOCKHART, B.Sc.
GEOPHYSICIST

DATED: APRIL 15, 1988

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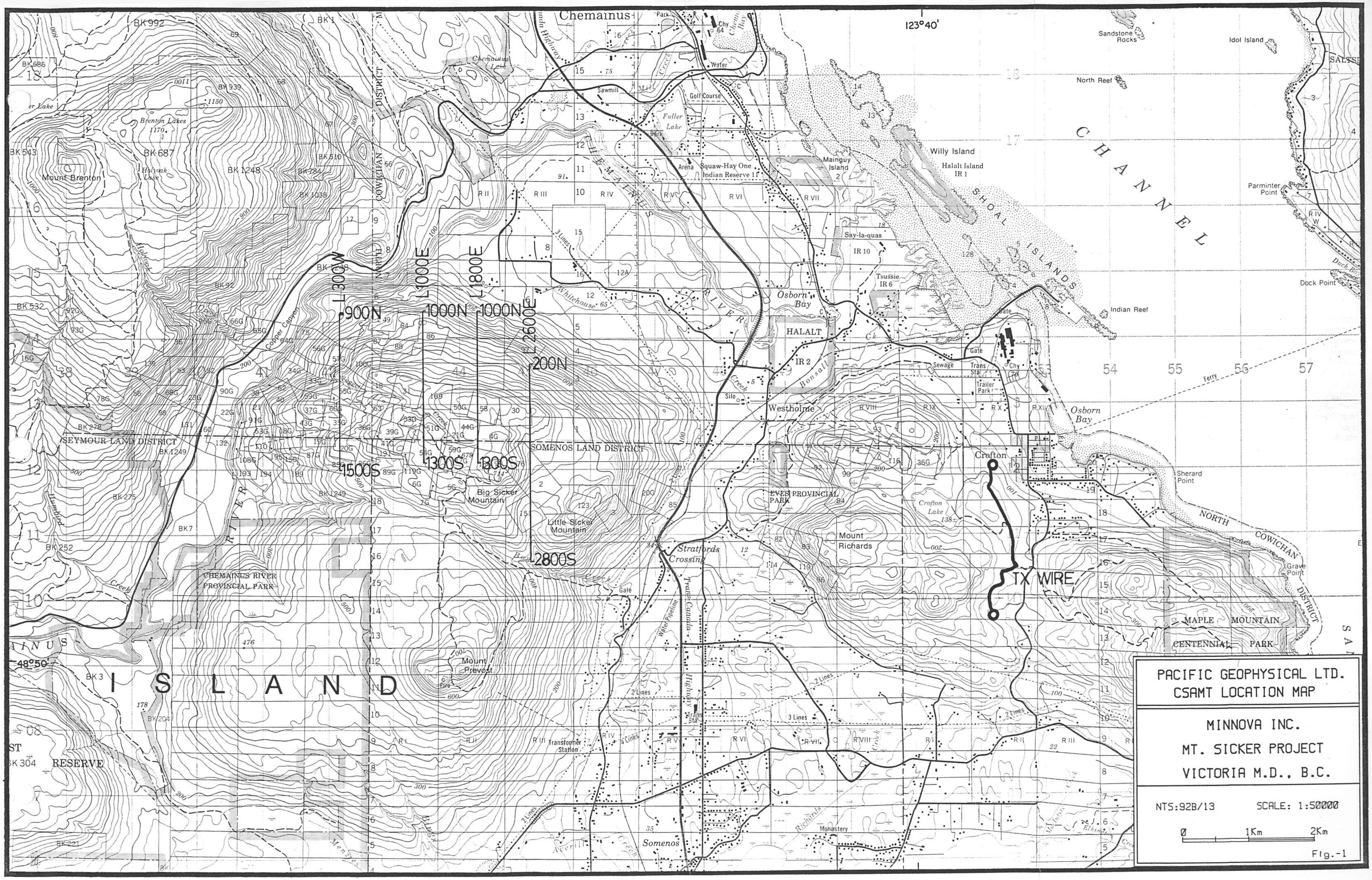

L300W
900N
1500S
L1000E
1000N
1300S
L1800E
1000N
1300S
L2600E
200N
2800S
TX WIRE
Crofton
Chemainus
Westholme
Big Sicker Mountain
Little Sicker Mountain
Mount Brenton
Mount Prevost
Mount Richards
Stratfords Crossing
Somenos
Osborn Bay
SOMENOS LAND DISTRICT
SEYMOUR LAND DISTRICT
CHEMAINUS RIVER PROVINCIAL PARK
EVES PROVINCIAL PARK
MAPLE MOUNTAIN
CENTENNIAL PARK
SHOAL ISLANDS
CHANNEL
ISLAND
123°40'
48°50'
PACIFIC GEOPHYSICAL LTD.
CSAMT LOCATION MAP
MINNOVA INC.
MT. SICKER PROJECT
VICTORIA M.D., B.C.
NTS:92B/13
SCALE: 1:50000
0 1Km 2Km
Fig.-1

PART A REPORT

1) Introduction

A Controlled Source Audio Magnetotelluric (CSAMT) survey has been completed on the Mt. Sicker property on behalf of Minnova, Inc. in the Victoria Mining Division, British Columbia.

The property is located approximately 10 km north-northwest of Duncan, B.C. Access is by wheeled vehicle over a system of logging roads leading west from the Trans-Canada Highway.

The objective of the CSAMT survey was to evaluate the property for zones of low resistivity which could be indicative of conductive sulphide mineralization similar to the Cu-Zn-Au-Ag ore of the H.W. orebody located 155 km northwest at Myra Falls, B.C.

A Phoenix Model V-3 CSAMT receiver unit was used to make the geophysical measurements in conjunction with a Phoenix IPT-1/AC 3004 transmitter powered by a 3 kw motor generator. Two parallel copper wires approximately 2.5 km in length and grounded at the ends were used as the transmitter dipole, as illustrated on FIgure 1, a 1:50,000 location map showing the survey lines and the transmitter wire.

Six electric field measurements and one magnetic field measurement were made simultaneously at each setup. The electric field measurements used an interelectrode spacing of 50 meters along Line 300W and 100 meters along Lines 1000E, 1800E, and 2600E, while a horizontal magnetic measurement was made perpendicular to the line at 300 meter and 600 meter intervals respectively. Data was recorded at 14 frequencies ranging in binary steps from 8192 Hz to 1.0 Hz.

Field work took place during March 1988, primarily under the direction of Paul A. Cartwright, P.Geoph., and completed under the direction of Grant D. Lockhart, B.Sc.

2) Presentation of Data

The CSAMT resistivity results are displayed on the data plots as apparent resistivity vs frequency pseudo-sections. It should be made clear that this presentation cannot be viewed as a true section of earth resistivity, particularly in the vertical direction, i.e., top of section to bottom of section, as the depth of penetration is dependent upon the resistivities encountered as well as the frequency employed to make measurement.

Drawing Nos. AMT 5889-1 to 4 show the uncorrected CSAMT resistivity data as well as data that has been corrected for the position of the transmitter wire relative to the survey lines.

Also enclosed with this report is Dwg. No. AMT-2030, a plan map of the Mt. Sicker Property CSAMT grid at a scale of 1:5,000. The definite, probable and possible CSAMT conductivity anomalies are indicated by bars, in the manner shown in the legend, on this plan map as well as on the corrected CSAMT pseudo-sections. These bars represent the interpreted surface projections of the anomalous zones.

3) Discussion of Results

Five separate conductivity zones are interpreted to be present in the area evaluated by the present Controlled Source Audio Magnetotelluric (CSAMT) survey. These features are marked in plan form on Dwg. No. AMT-2030, and in pseudo-section form on Dwg. No. 5889-1 to 4. Each zone is discussed below.

Zone A

Two known areas of mineralization are coincident with CSAMT Zone A, which is interpreted to strike across the northern

part of the geophysical grid.

The Fortuna showing located on Line 1800E at Station 90N suggests that the source of the conductive CSAMT response is due to the sulphide mineralization exposed at the showing. Since the conductor is detected at the highest frequency (8192Hz), the depth to the top is poorly constrained. It can be said though, the maximum depth to the top of the conductor is 100 meters - 150 meters from the surface. However, at Station 90N, the Fortuna showing places the mineralization within the first 10 meters of the surface.

Another zone of mineralized chert is mapped coincident with the position of CSAMT Zone A in the region between Line 300W and Line 1000E; however, this interpretation is made uncertain by the large distance between the adjacent CSAMT anomalies, as well as the mapped presence of cross-cutting fault structure.

Zone B

Zone B is comprised of the most conductive CSAMT anomalies detected by the present survey. This feature strikes across the central part of the geophysical grid and correlates with one area of known mineralization.

The Postuk-Fulton zone of mineralized chert apparently strikes through the central section of the Zone B CSAMT anomaly recorded on Line 300W, and therefore, it is possible that the conductive CSAMT response is caused by the mineralization.

In addition, Zone B is composed of other very conductive CSAMT responses which are measured on Line 1800E and 2600E, in areas devoid of mapped mineralization.

Depths to the sources of the Zone B conductivity anomalies are estimated to be no deeper than 50 meters - 100 meters from the surface.

Zone C

Zone C is shown to strike across the southern part of the geophysical grid. This CSAMT zone overlaps the Lenora-Tyee mine workings.

The Lenora-Tyee mineralized zone located on Line 300W suggests that the source of the conductive CSAMT response is due to sulphide mineralization. The maximum depth to the top of the conductor is estimated to be 100 meters - 150 meters from the surface.

In addition, Zone C is interpreted to be comprised of less conductive, near-surface CSAMT anomalies which are located on Line 1000E, Line 1800E, and Line 2600E.

Zone D

Zone D is a one conductor zone that is located at the southern end of Line 300W. The mapped geology suggests that the CSAMT response is due to the presence of the Yankee Fault.

Zone E

The conductive CSAMT response of Zone E is almost certainly due to the presence of the Nanaimo Sediments that are mapped as underlying the most southern part of Line 2600E.

Another aspect of the Mt. Sicker CSAMT data is the pronounced resistivity low which can be seen in all of the data at a frequency of 128 Hz. This feature is almost certainly the "near field dip" and resistivity values recorded in this region, the transition zone between the far field (frequenices above) and the near field (frequencies below), are artifically low. Extreme care should be taken when interpreting data in this frequency range.

4) Summary and Recommendations

A Controlled Source Audio Magnetotelluric (CSAMT) survey has been carried out on the Mt. Sicker property, Victoria Mining Division, British Columbia, on behalf of Minnova, Inc.

At least five relatively near-surface zones of anomalous conductivity are interpreted to be present in the data. Parts of Zone A, Zone B, and Zone C appear to be coincident with areas of known mineralization. Therefore, it is recomended that these trends be evaluated further, particularly in the vicinity of Zone B where it is marked as intersecting Line 1800E and Line 2600E. A drill hole collared so as to pass approximately 100 meters beneath Station 500S on Line 1800E is suggested. Should results of such a drill test be encouraging, additional CSAMT surveying on infill lines would be recommended to more accurately map the location of the CSAMT conductive zone, prior to further drilling.

CSAMT Zone D apparently marks the presence of the Yankee Fault, while CSAMT Zone E correlates with Nanaimo Group sedimentary rocks. There are also a number of other isolated CSAMT conductivity anomalies on Line 300W and Line 2600E, for which sources are unknown.

No deeply buried conductivity events, similar to the H.W. orebody

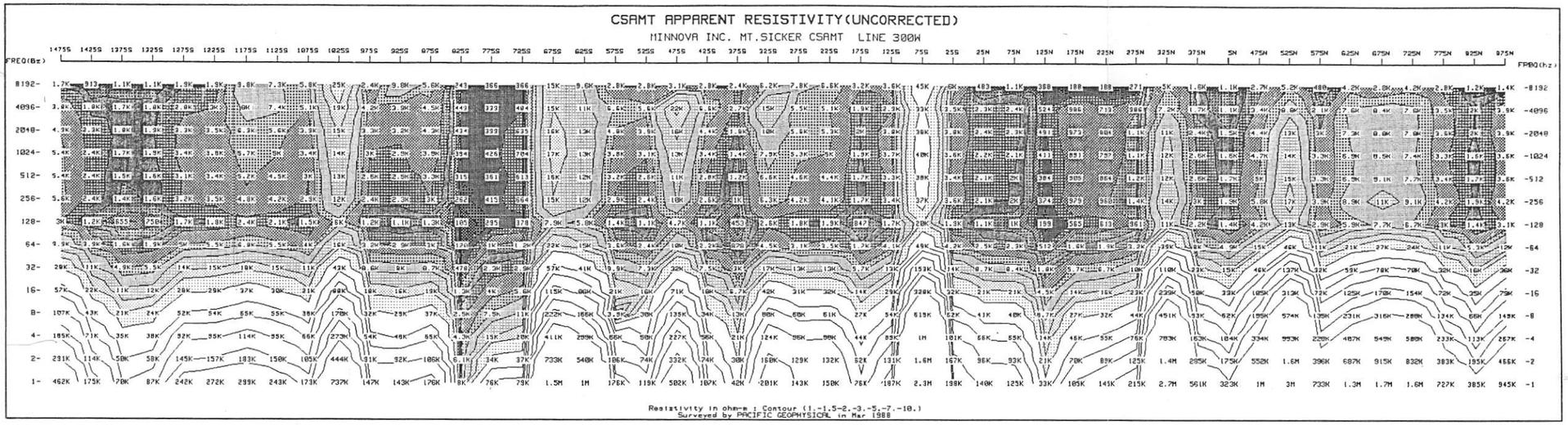
response, are interpreted in the present CSAMT data. All of the CSAMT anomalies detected appear to be caused by sources buried no deeper than 100 meters to 150 meters sub-surface.

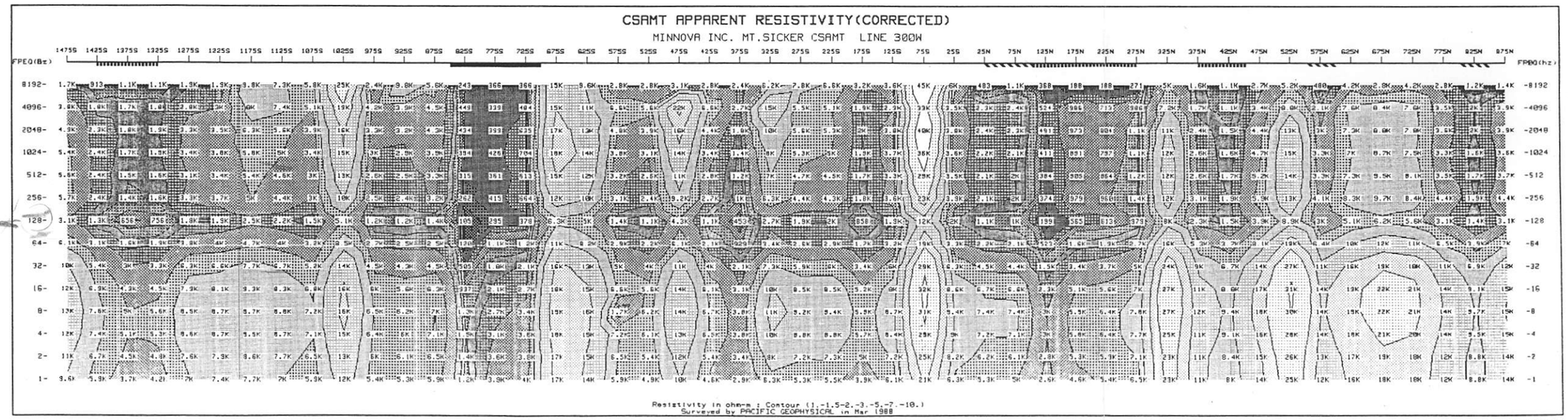
PACIFIC GEOPHYSICAL LTD.

Paul A. Cartwright, P.Geoph.
Geophysicist

Grant D.Lockhart, B.Sc.
Geophysicist.

Dated: 15 April 1988



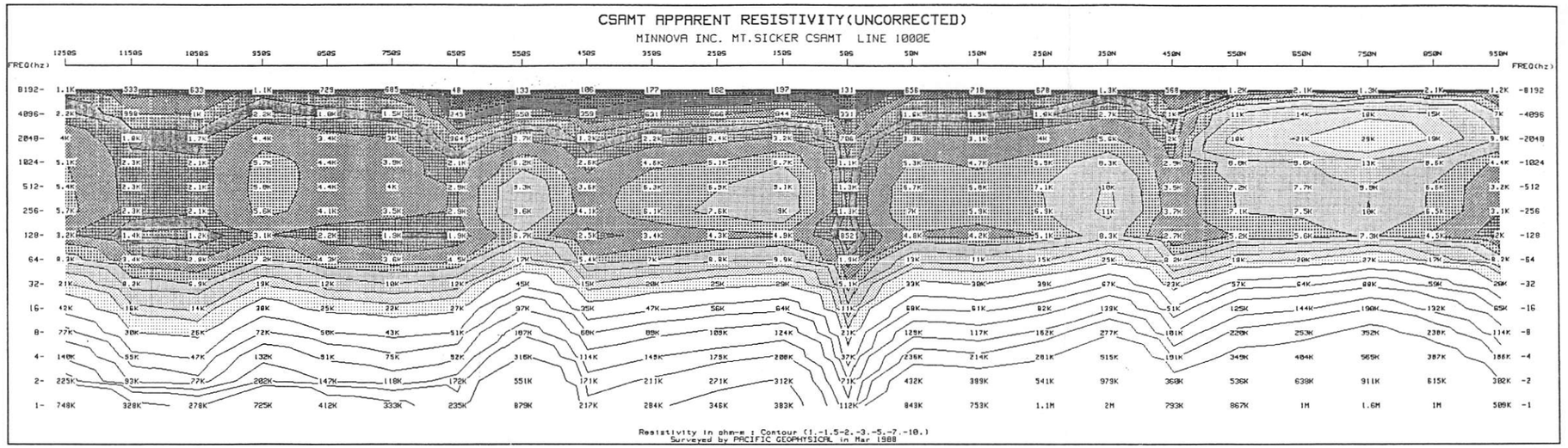


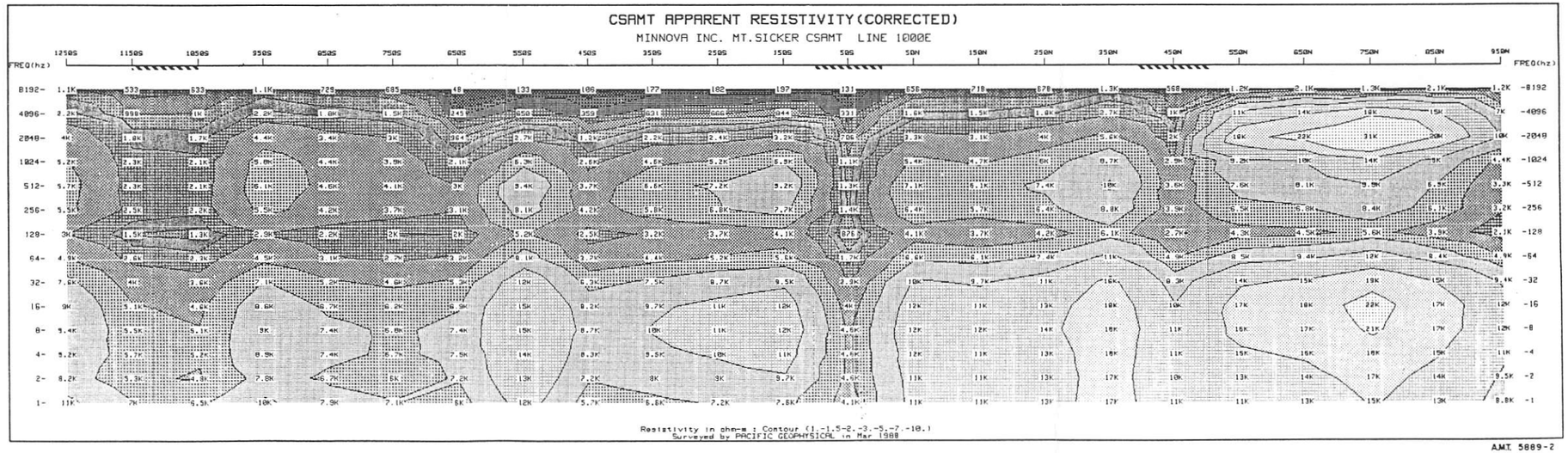
AMT. 5889-1

FF

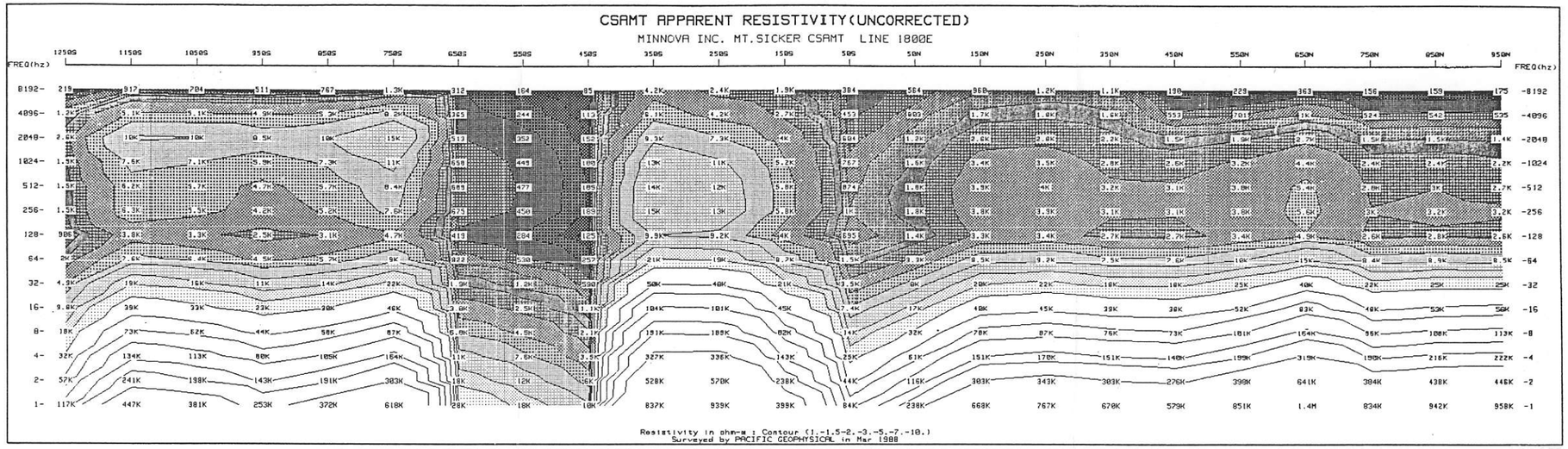
NF

HF = Far field soonest
(High Freq)


CSAMT APPARENT RESISTIVITY(UNCORRECTED)
MINNOVA INC. MT.SICKER CSAMT LINE 1000E
1250S 1150S 1050S 950S 850S 750S 650S 550S 450S 350S 250S 150S 50S 50N 150N 250N 350N 450N 550N 650N 750N 850N 950N
FREQ(hz)
8192- 4096- 2048- 1024- 512- 256- 128- 64- 32- 16- 8- 4- 2- 1-
-8192 -4096 -2048 -1024 -512 -256 -128 -64 -32 -16 -8 -4 -2 -1
Resistivity in ohm-m ; Contour (1.-1.5-2.-3.-5.-7.-10.)
Surveyed by PACIFIC GEOPHYSICAL in Mar 1988


CSAMT APPARENT RESISTIVITY(CORRECTED)
MINNOVA INC. MT.SICKER CSAMT LINE 1000E
1250S 1150S 1050S 950S 850S 750S 650S 550S 450S 350S 250S 150S 50S 50N 150N 250N 350N 450N 550N 650N 750N 850N 950N
FREQ(hz)
8192- 4096- 2048- 1024- 512- 256- 128- 64- 32- 16- 8- 4- 2- 1-
-8192 -4096 -2048 -1024 -512 -256 -128 -64 -32 -16 -8 -4 -2 -1
Resistivity in ohm-m ; Contour (1.-1.5-2.-3.-5.-7.-10.)
Surveyed by PACIFIC GEOPHYSICAL in Mar 1988

AMT 5889-2


CSAMT APPARENT RESISTIVITY(UNCORRECTED)
MINNOVA INC. MT.SICKER CSAMT LINE 1800E
1250S 1150S 1050S 950S 850S 750S 650S 550S 450S 350S 250S 150S 50S 50N 150N 250N 350N 450N 550N 650N 750N 850N 950N
FREQ(hz)
8192- 4096- 2048- 1024- 512- 256- 128- 64- 32- 16- 8- 4- 2- 1-
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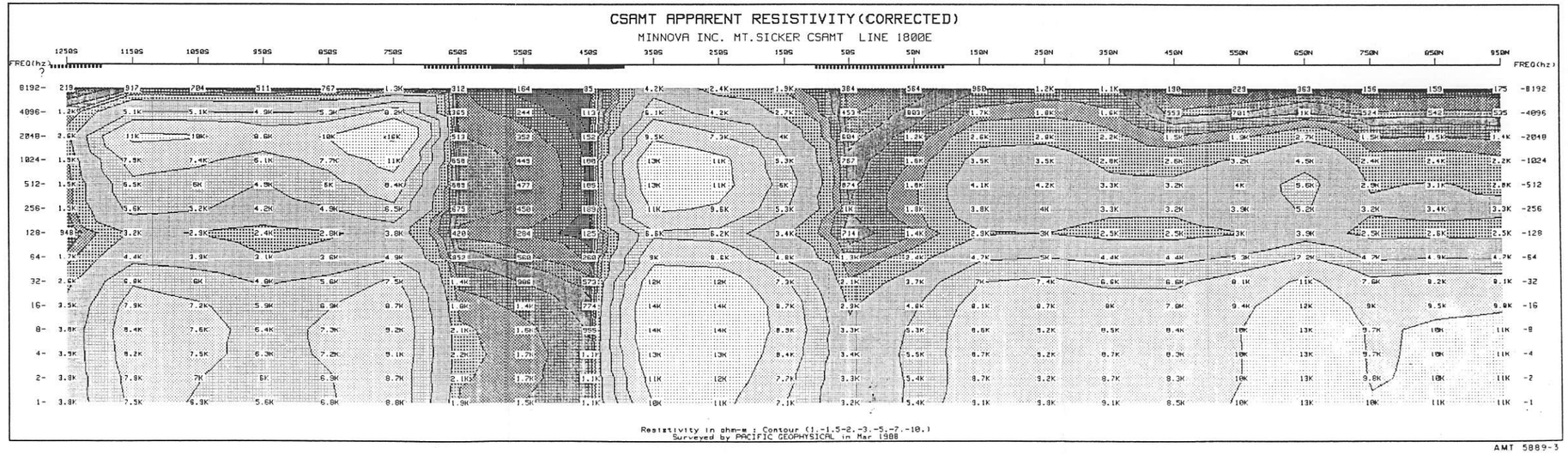
Resistivity in ohm-m ; Contour (1.-1.5-2.-3.-5.-7.-10.)
Surveyed by PACIFIC GEOPHYSICAL in Mar 1988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FREQ(hz)
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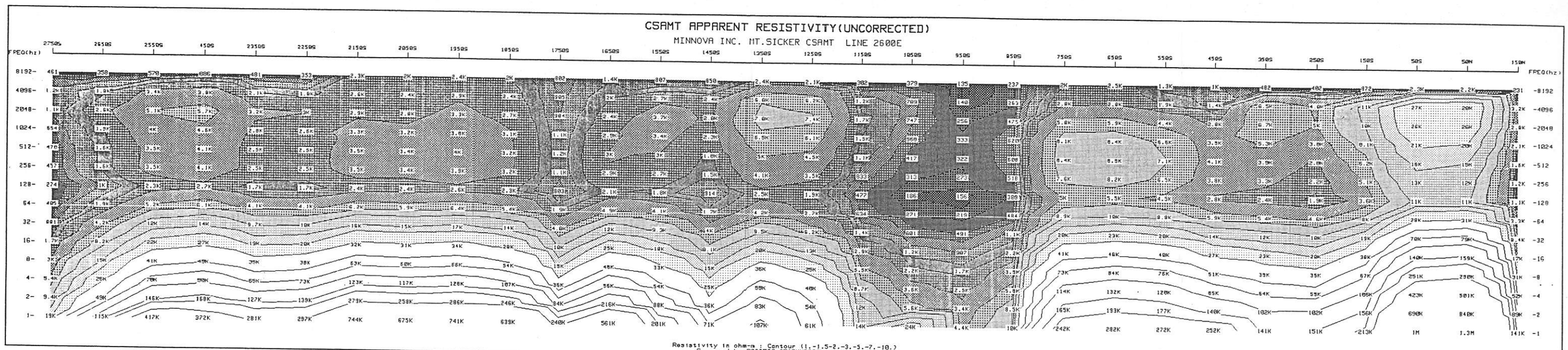
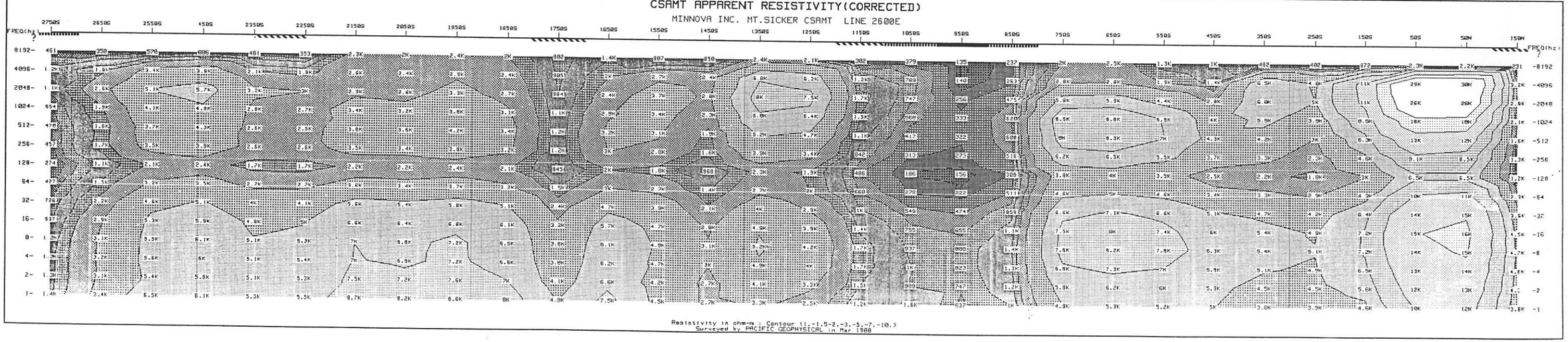
Resistivity in ohm-m ; Contour (1.-1.5-2.-3.-5.-7.-10.)
Surveyed by PACIFIC GEOPHYSICAL in Mar 1988

AMT 5889-3


CSAMT APPARENT RESISTIVITY(UNCORRECTED)
MINNOVA INC. MT.SICKER CSAMT LINE 2600E
FREQ(hz)
Resistivity in ohm-m ; Contour (1.-1.5-2.-3.-5.-7.-10.)
Surveyed by PACIFIC GEOPHYSICAL in Mar 1988


CSAMT APPARENT RESISTIVITY(CORRECTED)
MINNOVA INC. MT.SICKER CSAMT LINE 2600E
FREQ(hz)
Resistivity in ohm-m ; Contour (1.-1.5-2.-3.-5.-7.-10.)
Surveyed by PACIFIC GEOPHYSICAL in Mar 1988

AMT 5889-4

300W

1000E

1800E

2600E

900N

1000N

1000N

200N

A MINERALIZED CHERT

POSTUK-FULTON MINERALIZED ZONE B

FORTUNA MINERALIZATION

LENORA-TYEE MINERALIZED ZONE C

YANKEE FAULT D

1300S

1300S

1500S

E NANAIMO SEDIMENTS

2000S

To Accompany Report By : P.A.CARTWRIGHT, P.Geoph.
: G.D.LOCKHART, B.Sc.

ANOMALY CLASSIFICATION : Definite
: Probable
: Possible

OUTLINE OF CONDUCTIVE ZONES

PROBABLE POSSIBLE

ROAD

100m 50m 0m 100m 200m

inches
0 1 2
0 1 2 3 4 5
centimetres

This reference scale bar has been added to the original image. It will scale at the same ratio as the image, therefore it can be used as a reference for the original size.

BRITISH COLUMBIA GEOLOGICAL SURVEY

MINNOVA Inc.

CONTROLLED SOURCE AUDIO MAGNETOTELLURIC SURVEY
MT. SICKER PROJECT : VICTORIA M.D., B.C.
BASELINE AZIMUTH : 90 Deg.

SCALE = 1: 5000 DATE : 04/12/88
SURVEY BY : PAC/GDL NTS : 92B/13
FILE: M01MIN Dwg.No.: AMT-2030

Pacific Geophysical Ltd.