RADEM VLF-EM GROUND SURVEY
ASSESSMENT REPORT

on the

PENNY 5-8 MINERAL CLAIMS
PEACHLAND AREA
OSOYOOS MINING DIVISION

by

MURRAY MORRISON, B.Sc.

Claims:	Penny 5-8 (2-post claims)
Location:	The Penny property lies 1½km northwest of Peachland, B.C. Lat. 49°46'30"; Long. 119°45'; N.T.S. 82-E-13.
Owner:	Charles Brett
Operator:	Charles Brett
Date Started:	April 17, 1984
Date Completed:	April 18, 1984

Kelowna, B.C. May 1, 1984

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ILLUSTRATIONS

SUMMARY

The Penny property, located 1½ km northwest of Peachland, B.C., is comprised of four 2-post mineral claims owned by C. Brett of Kelowna, B.C. The property covers the old Gladstone mineral claim staked before the turn of the century. Considerable underground workings dating from the late 1890's were designed to exploit copper, silver, and gold ore, but only small shipments of ore were ever made. Most of the old workings are inaccessible, and the property has received little attention for eighty years.

During April 1984 a Radem VLF-EM survey was conducted over a portion of the Penny 7 + 8 mineral claims. The old Gladstone shear zones did not show up as conductors during the survey, but a limestone bed crossing most of the grid area on the property did show up as a good conductor. The conductor is thought to be caused by either graphite contained within the limestone, or buried sulphide mineralization adjacent to it.

The VLF-EM survey helped to map the limestone bed in areas where it didn't outcrop, and thus helped to illustrate that a 180 metre north-south displacement may occur along the Pincushion Mountain fault crossing the property.

Prospecting along the limestone bed and along the Pincushion Mountain fault is recommended to see if economic sulphide mineralization accompanies either the limestone bed or rocks along the Pincushion Mountain fault.

INTRODUCTION

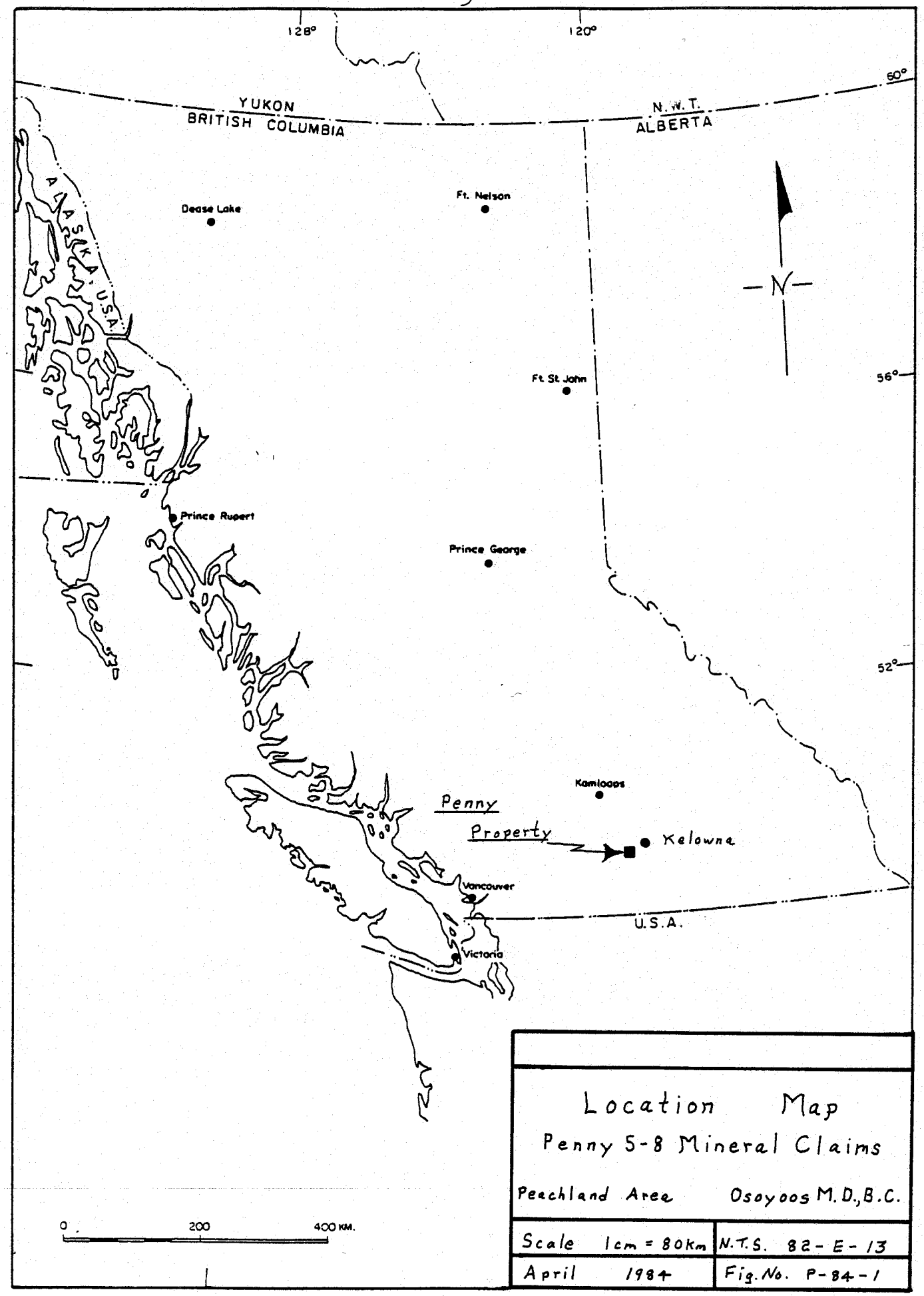
The Penny property, made up of the Penny 5-8, 2-post, mineral claims is situated 1½ km northwest of Peachland, B.C. (Lat. 49° 46'30"; Long. 119°45'; N.T.S. 82-E-13). During April 1984, at the request of the property owner, C. Brett of Kelowna, B.C., the writer carried out a Radem VLF-EM survey over 2700 metres of grid line established by Mr. Brett. Some geological observations were also made during the course of the survey.

This report deals with the geophysical and geological data obtained from the property during April, 1984. The VLF-EM data is presented in grid line profile form in Appendix "A", and also in (Fraser filtered) contoured form on Map P-84-3, while the preliminary geology is illustrated on Map P-84-4.

LOCATION, TOPOGRAPHY, VEGETATION, AND ACCESS

The Penny 5-8 mineral claims cover the east flank of a steep knoll rising above the orchards and residences of Peachland, B.C., 1½ km northwest of the Post Office, or 1 km southwest of Pincushion mountain. The property, situated in the semi-arid Okanagan Valley 350 metres above Okanagan Lake is lightly covered with pine and Douglas fir. The average elevation of the property is only 700 metres above sea level, and during winter months (November-February) snow cover rarely exceeds 30 cm.

Selective logging has taken place 20 to 30 years ago, and a good gravel road passes through the central part of the property. Use of the lower portion of this road has been restricted by some residents in the area, and for the purpose of conducting our 1984 fieldwork a trail cutting 1 km across country from another road was used. If a large exploration project is to be conducted on the property arrangements could probably be made to use the more direct route. (Please see map P-84-2 for the position of the trail and the more direct road to the property).

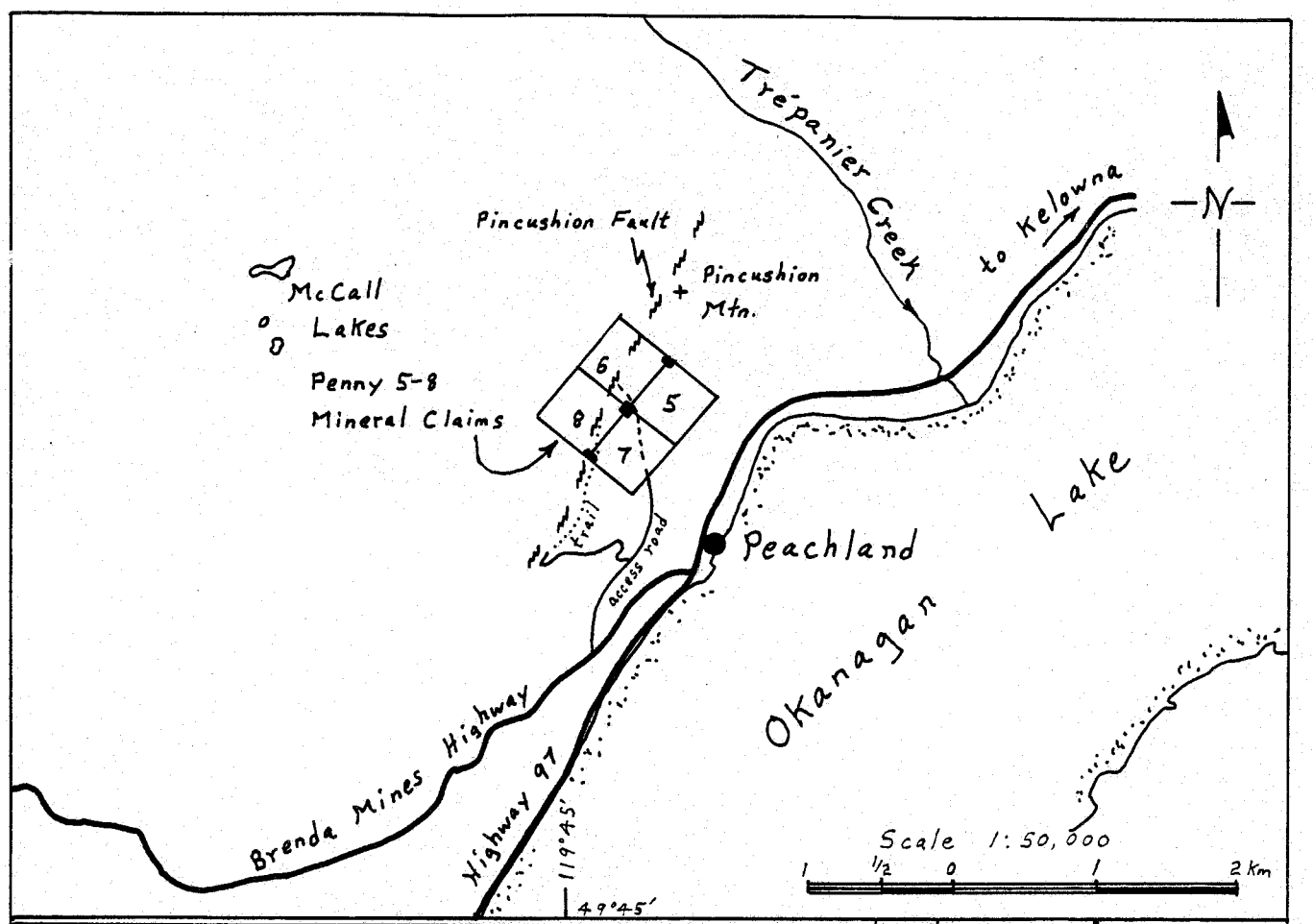


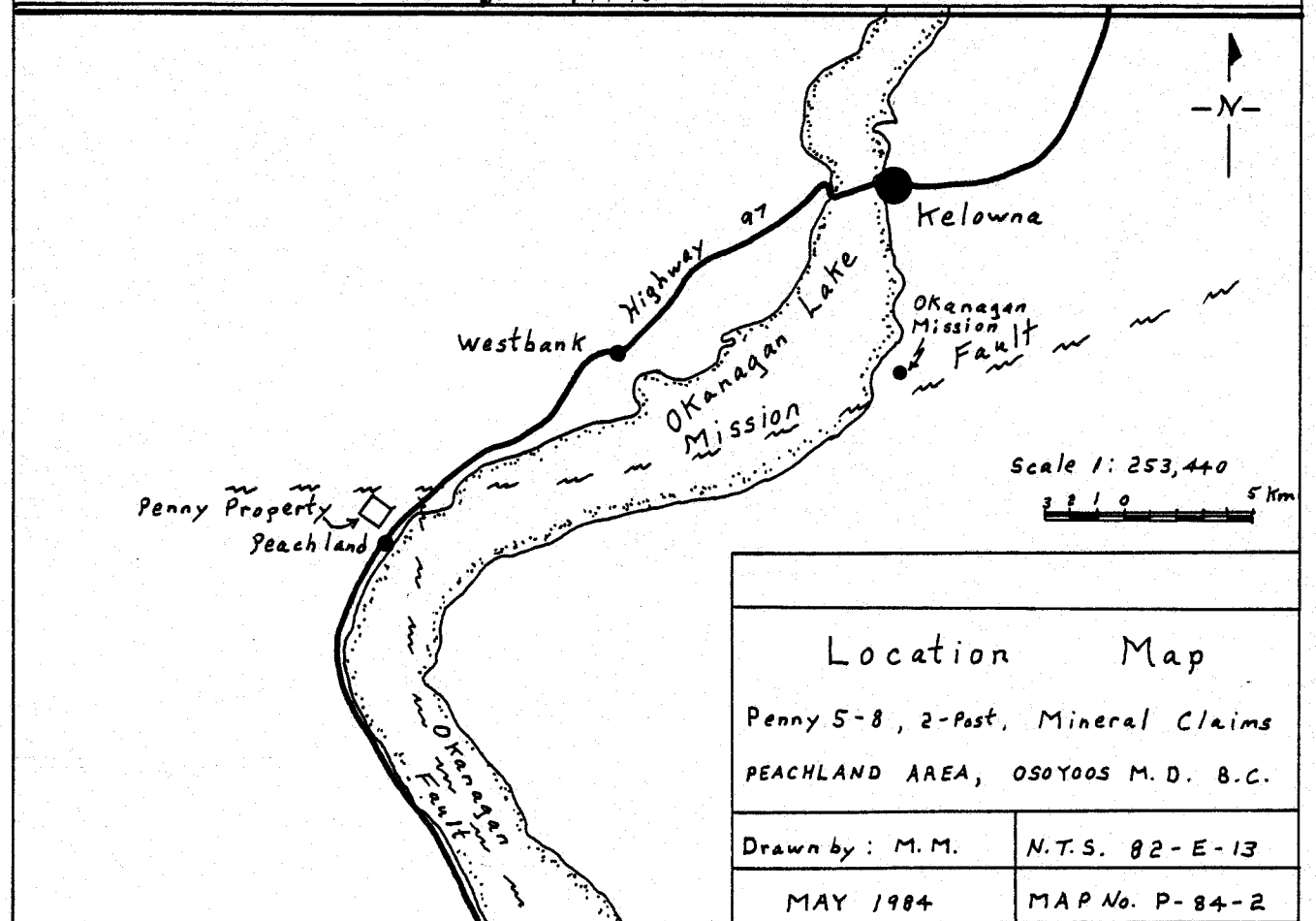
Location Map

Penny 5-8 Mineral Claims

Peachland Area Osoyoos M.D., B.C.

Scale 1cm = 80km	N.T.S. 82-E-13
April 1984	Fig. No. P-84-1





Location Map

Penny 5-8, 2-Post, Mineral Claims

PEACHLAND AREA, OSOYOOS M.D. B.C.

Drawn by: M.M.	N.T.S. 82-E-13
MAY 1984	MAP No. P-84-2

Murray Morrison

CLAIM STATUS

The Penny 5 - 8 mineral claims located in the Osoyoos Mining Division are recorded in the name of Charles Brett of Kelowna, B.C. Particulars on the four Penny claims are given below:

CLAIM NAME	TYPE	DATE OF RECORDING	RECORD NUMBER	EXPIRY DATE
Penny 5	2-post	April 19/83	1724	April 19/86
Penny 6	2-post	April 19/83	1725	April 19/86
Penny 7	2-post	April 19/83	1726	April 19/86
Penny 8	2-post	April 19/83	1727	April 19/86

HISTORY

The Penny 7 + 8 mineral claims cover workings of the old Gladstone mineral claim, one of the claims owned by the Camp Hewitt Mining and Development Company at Peachland near the turn of the century. Brief descriptions of the Gladstone prospect are given in the 1896-1899 B.C. Minister of Mines Annual Reports. A statement in the 1897 report mentions that two small shipments of ore were made to the Tacoma smelter that year yielding:

0.1 oz/T gold, 13.9 oz/T silver, and 11.7% copper, and
0.15 oz/T gold, 13.0 oz/T silver, and 10.5% copper.

A later report indicates that development work on the Gladstone property by 1899 included 130 feet (40M) of tunnelling, and a shaft 158 feet (48M) deep, with cross-cuts at the 100 foot (30M) and 150 foot (46M) levels.

The old underground workings and several surface exploration pits have been located on the Penny property. However, the underground workings are caved and generally inaccessible beyond 10 metres depth.

In 1972 the old Gladstone workings were staked by the ROHANNA mineral claims of Vega Mines Ltd. of Vancouver. Vega Mines carried out soil geochemical surveys for copper and zinc on the property and filed the work with the government (Assessment Report #3641).

HISTORY - Continued

It is believed that no work followed the geochem survey, and that the property has seen no exploration since 1972.

REGIONAL GEOLOGY

The regional geology of the Southern Okanagan is illustrated on Map 15 - 1961 entitled "Geology of Kettle River (West Half)" by H. W. Little of the Geological Survey of Canada. The map shows that Okanagan Lake follows the trace of two major faults, which intersect near Peachland, and cause the lake at this point to bend markedly from a southwest direction to a southeasterly one. The east-west fault running through the lake from Okanagan Mission to Peachland will be called the Mission Fault in this report, while the north-south fault running through the lake from Peachland to Summerland will be called the Okanagan Fault. The regional map shows that to the north of the Mission Fault there is an Eocene basin that has been infilled with Eocene sedimentary and volcanic rocks. To the south of the Mission Fault and to the east of the Okanagan Fault the rocks are largely pre-Permian Monashee gneiss suggesting that this portion of the country has also been down-faulted. On the other hand, the country south of the Mission Fault, and west of the Okanagan Fault has been uplifted exposing Cretaceous (?) Nelson and, later, Valhalla batholiths.

In the vicinity of the Penny property at Peachland there appears to be much second and third order faulting related to the major faulting mentioned above. Of particular note is the Pincushion Mountain fault discussed later in this report.

Nicola Group (Upper Triassic) volcanic and sedimentary rocks are dominant on the Penny property. These rocks have been intruded by Nelson granodiorite on the southern portion of the property, and by Oligocene (?) Coryell syenite in the form of plugs and dykes on many parts of the property. Even these late syenite intrusives have been subjected to some faulting.

LOCAL GEOLOGY

It is not the purpose of this report to go into the detailed geology of the Penny property, because the geological field data was only obtained randomly during the course of the VLF-EM survey. However, the distribution of major geological rock units and the location of old mine workings and pits are shown on a preliminary geological map (Map P-84-4) accompanying this report.

As illustrated on Map P-84-4 all of the old Gladstone underground workings and surface exploration pits are in Nicola rocks, and the most extensive underground workings follow shear zones within Nicola greenstone (altered andesite flow rocks). The main shear zone at the Gladstone shaft has an attitude of 235°/85°SE, and reaches a width of 2 metres at a depth of 10 metres, beyond which it can no longer be seen due to caving. Material on the dump from this shaft is composed of highly fractured and chlorite altered andesite. Calcite veining averages 5% of the rock, while quartz veining averages less than 1%. Pyrite, 1%, is disseminated throughout the fractured rock. Chalcopyrite and galena were seen on the dump, but most of these ore minerals appear to have been shipped from the property.

Workings at a second shear zone (330°/60°SW), 70 metres north of the main Gladstone shaft are largely caved. Rock on this dump has the same general composition as that on the main Gladstone dump, but malachite staining is more evident, and some chalcopyrite vein material up to 3 cm thick was collected from this dump during our work.

The Nicola greenstone appears to be the only rock mineralized on the Penny property, although mineralized quartz veins cutting Nelson granodiorite were observed just south of the property, and some of the Nelson granodiorite on the property is well fractured and chlorite altered.

Cont. . . .

LOCAL GEOLOGY - Continued

The Nicola limestone on the property is a dirty thin-bedded limestone that contains 2% graphite seams. The limestone contains traces of pyrite, but seems to have been ignored by early prospectors.

The syenite dykes that cut all other rocks on the property are of varied textures, ranging from fine grained to strongly porphyritic. At some locations rounded quartz eyes up to 1 cm equal up to 3% of the syenite. Locally the dykes contain traces of pyrite, but at this point it is uncertain if the dykes played a role in the Gladstone mineralization.

A major fault striking 20 degrees east of north, and believed to be roughly coincident with grid line 2+00 west appears to have displaced the Nicola limestone bed by 180 metres north-south on the property. This fault shows up topographically for 1 km south, and for 2 km north of the property, where it passes immediately to the west of Pincushion Mountain. It appears that this fault, which I have named the Pincushion Mountain Fault, is a normal fault with a dip of 70 degrees southeast towards Okanagan Lake. The fault passes close to the Gladstone workings and may be related to the mineralized shear zones.

1984 RADEM VLF-EM SURVEY

A baseline of 550 metres was measured across the Penny 7 + 8 mineral claims and a total of 2700 metres of flagged grid line were established at right angles to the baseline. Grid lines were spaced 50 metres apart and stations were marked along the grid lines at 20 metre intervals as shown on Map P-84-3 accompanying this report. The grid was established using a Silva Ranger compass and a Topolite belt chain, and required 2 man days to complete.

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1984 RADEM VLF-EM SURVEY - Continued

A Crone Geophysics Limited Radem VLF-EM instrument was used in conducting the survey over the entire grid area. Laulualei, Hawaii was selected as the signal station best fitting the geology on the Penny property. The signal was received from a southwest direction and in-phase readings were taken at right angles to the station direction, or facing southeasterly. At each grid station the field strength and in-phase dip angle were recorded.

At each grid station the instrument was positioned to obtain the maximum signal from the transmitting station to record the field strength. The operator then turned 90 degrees (facing southeast) to obtain the in-phase dip angle. The dip angle was also recorded for each grid station. The in-phase readings, Fraser filtered in-phase values, and field strength readings have all been plotted in profile form for each line surveyed, and these profiles are attached as Appendix A. The Fraser filtered data has also been plotted and contoured on Map P-84-3.

The Fraser filtering technique has had widespread use in the handling of Radom VLF-EM data for over ten years. By means of simple mathematical operations the tilt data can be transformed into contourable form, and the effects of noise and topography can be filtered from data. By averaging pairs of stations and taking differences between pairs separated by the appropriate distance, values my be plotted and contoured in plan that transform cross-overs into peaks, and a low-pass smoothing operator reduces noise.

A full explanation of the Fraser filtering technique is given in geophysical papers by Fraser, Peterson and Ronka that are listed under references at the end of this report.

DISCUSSION OF THE RESULTS OF THE RADEM VLF-EM SURVEY

Map P-84-3 clearly shows two Radem VLF-EM conductors striking northwest across the Penny 7 + 8 mineral claims. When Map P-84-3 is compared with the geological map (Map P-84-4) it becomes apparent that the VLF-EM conductors coincide very well with the Nicola Limestone beds mapped on the property. If the displacement of the Pincushion Mountain Fault, mentioned under the Local Geology title in this report, is taken into account it may be said that the two VLF-EM conductors are really faulted segments of a single conductor that is coincident with the limestone bed. It was noted that the limestone contained 1 to 2% graphite, and at this point it is not known whether there is sufficient graphite within the limestone to be responsible for the VLF-EM conductor, or whether there is another source for the conductor, such as sulphide mineralization deposited against the limestone.

The field strength readings over the limestone beds were strong in addition to the in-phase anomalies (please see line profiles).

The Radem VLF-EM instrument did not prove useful in outlining or defining the Gladstone shear zones within the Nicola greenstone. It could be that the sulphides associated with the shear zones have been largely mined out leaving nothing to conduct electricity.

CONCLUSIONS AND RECOMMENDATIONS

The Radem VLF-EM survey did not prove useful in defining the Gladstone shear zones within Nicola greenstone on the Penny property.

The VLF-EM survey, however, does seem to outline the bed of Nicola limestone even in areas covered by overburden, and thus indirectly reinforces the proof of the existence of the Pincushion Mountain fault crossing the property.

A careful prospecting of all limestone on the Penny property should be conducted in an effort to determine if the graphite content of

Cont. . . .

CONCLUSIONS AND RECOMMENDATIONS - Continued

the limestone is great enough to cause the VLF-EM anomaly that has been outlined in this survey. If the anomaly can not be explained fully by the graphite content then it is suggested that economic sulphide mineralization positioned against the limestone as a contact replacement deposit might be the cause of the anomaly, and therefore further exploration is warranted.

It is also suggested that the strong Pincushion Mountain Fault crossing the property may be the site of widespread intense fracturing and that if the fault was developed prior to the mineralizing event on the Penny property that considerable mineralization might be associated with this fault. Regional prospecting should be conducted along the Pincushion Mountain Fault in an effort to determine the extent of mineralization along it. The fault is largely drift covered where it crosses the Penny claims.

May 1, 1984
Kelowna, B.C.

Murray Morrison

MURRAY MORRISON, B.Sc.

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British Columbia Department of Mines and Petroleum Resources, Geology, Exploration and Mining in British Columbia, ROHANNA Prospect, 1972, pp. 45-46.

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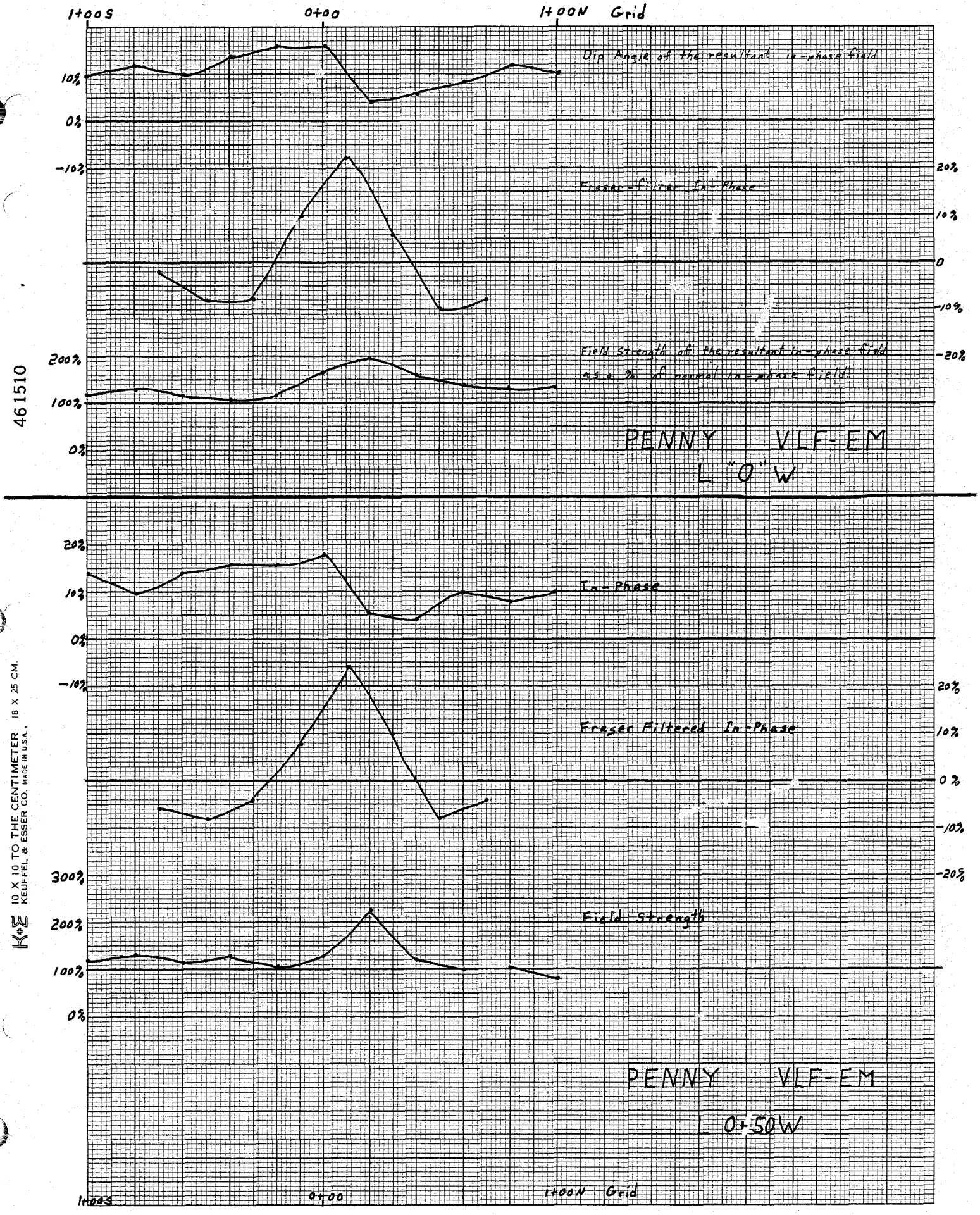

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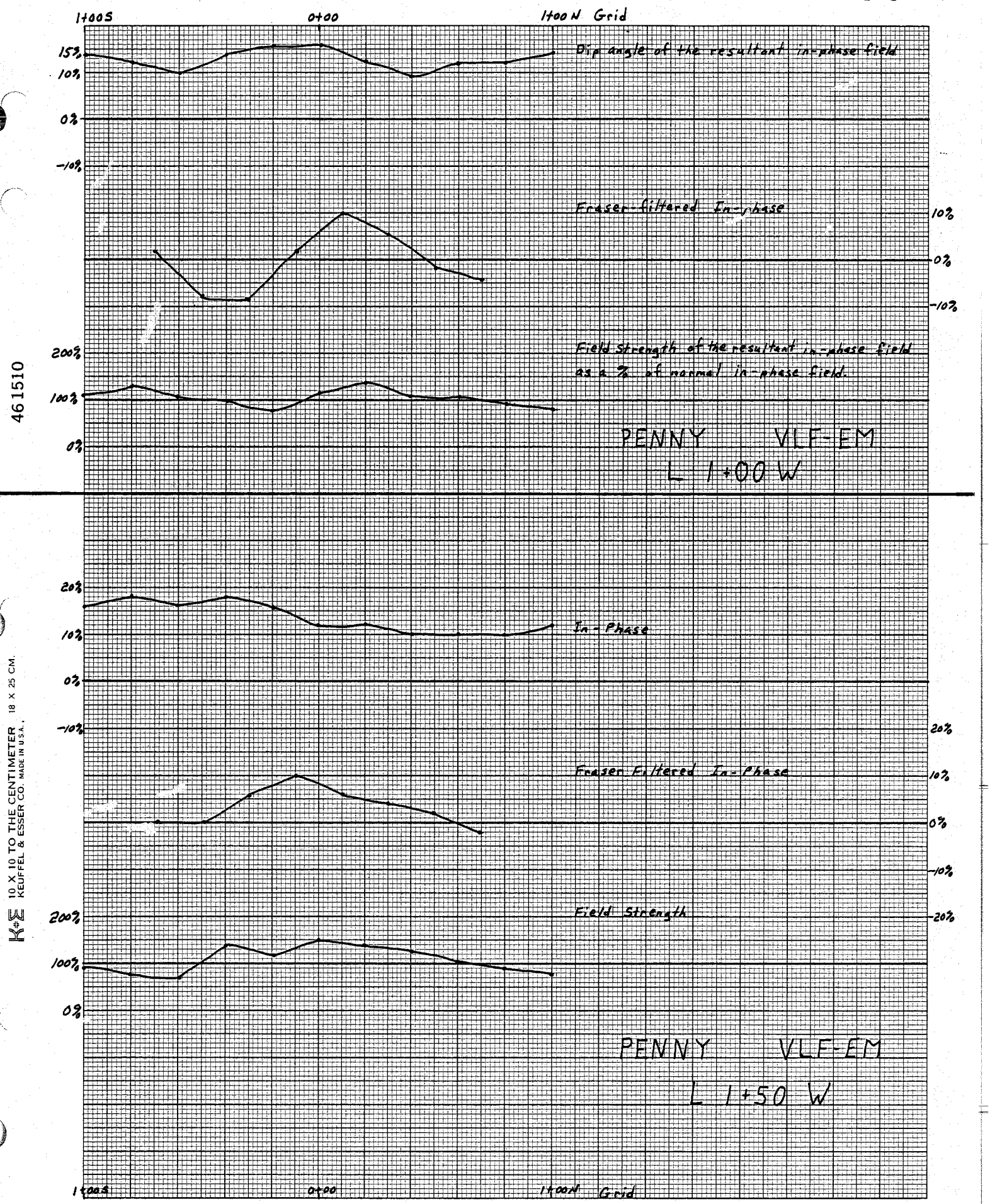
10 X 10 TO THE CENTIMETER 18 X 25 CM.
KEUFFEL & ESSER CO. MADE IN U.S.A.



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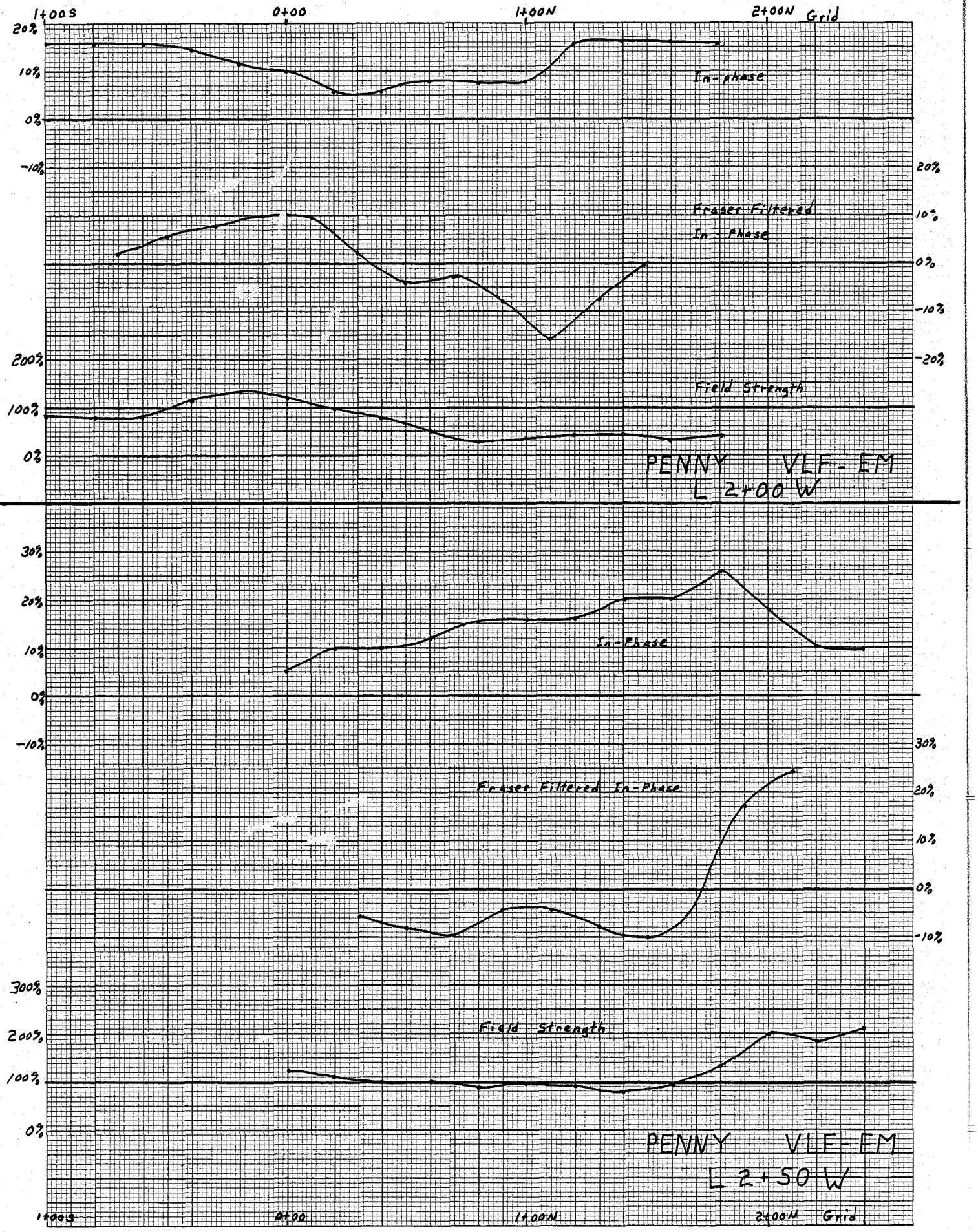

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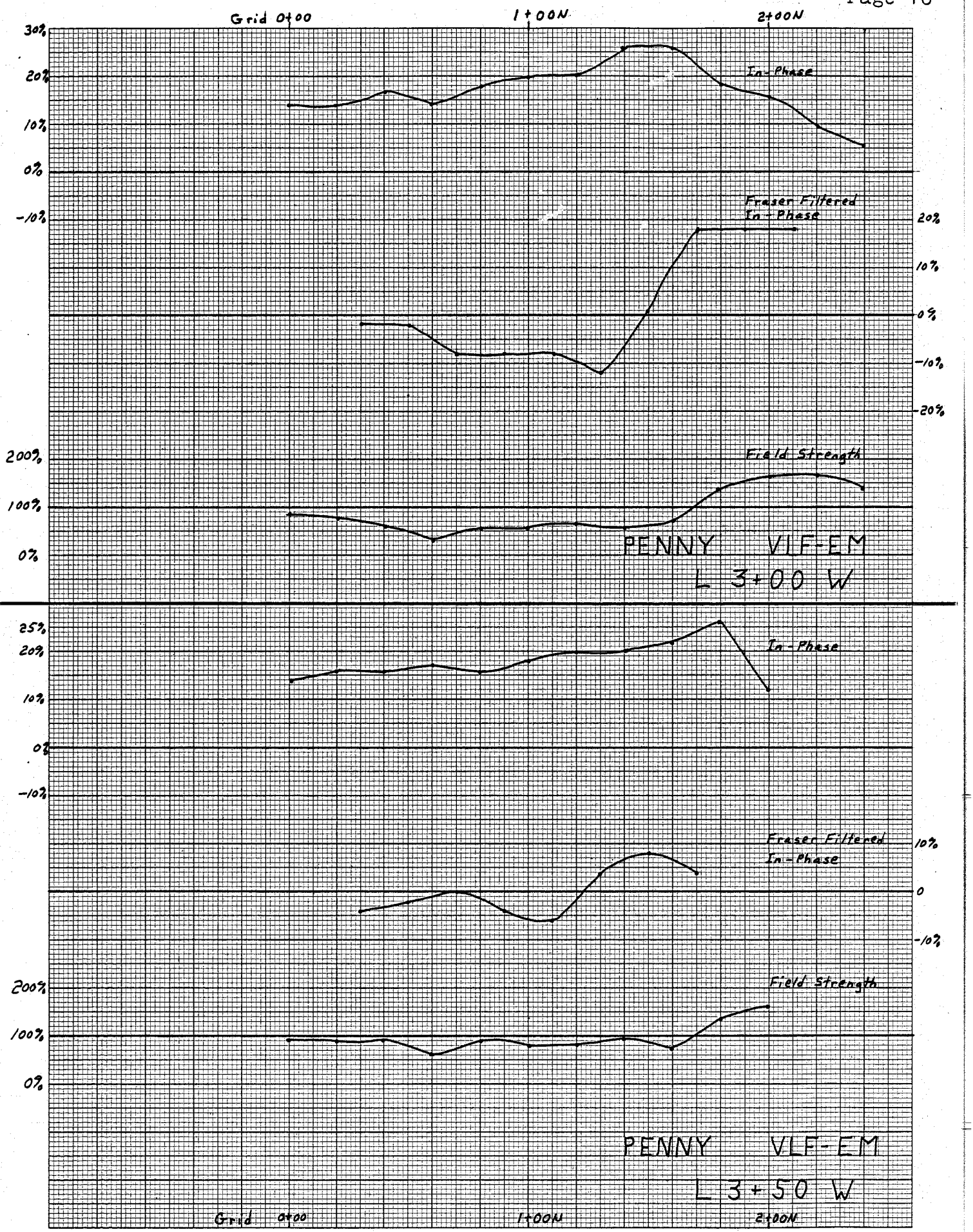

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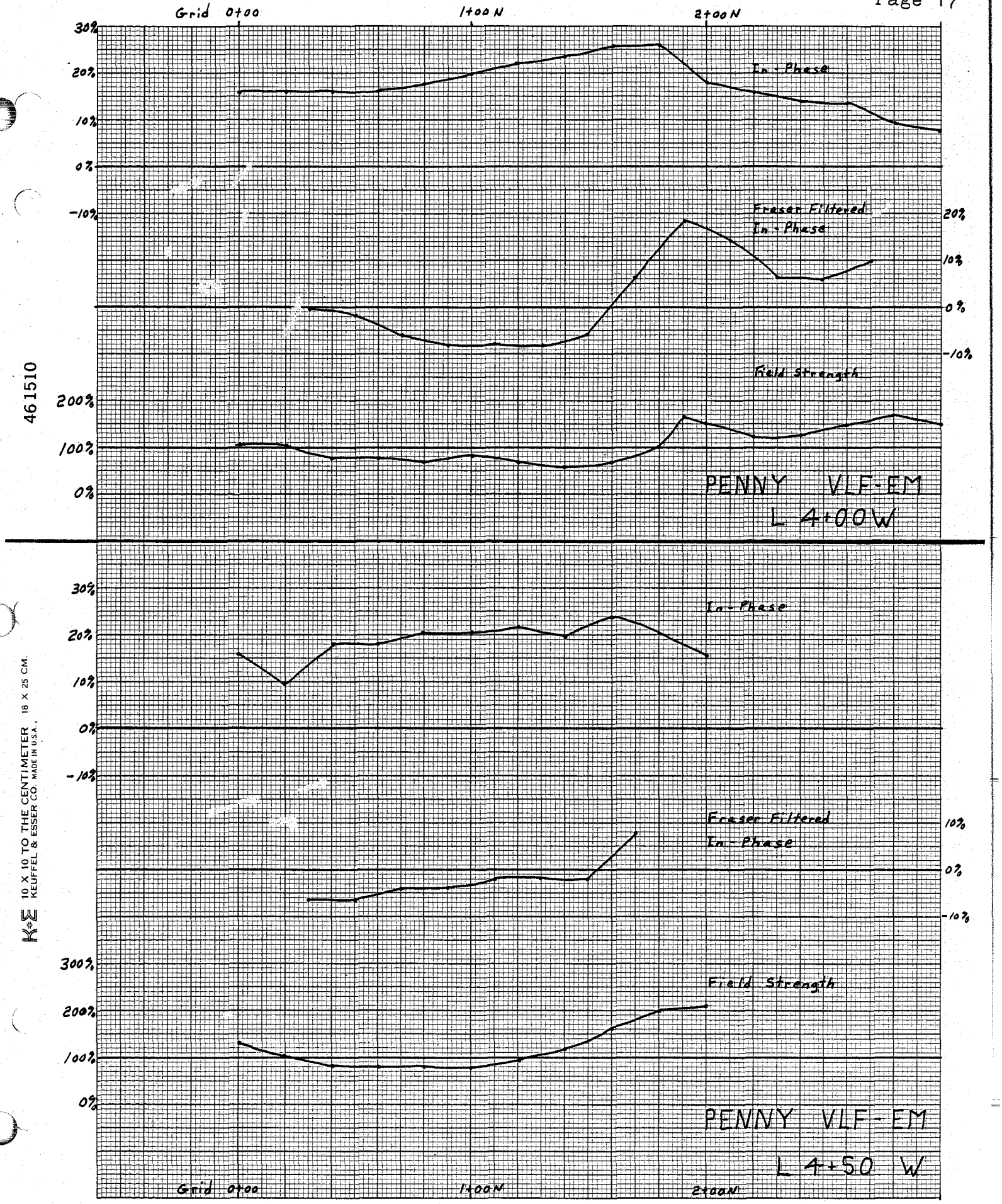

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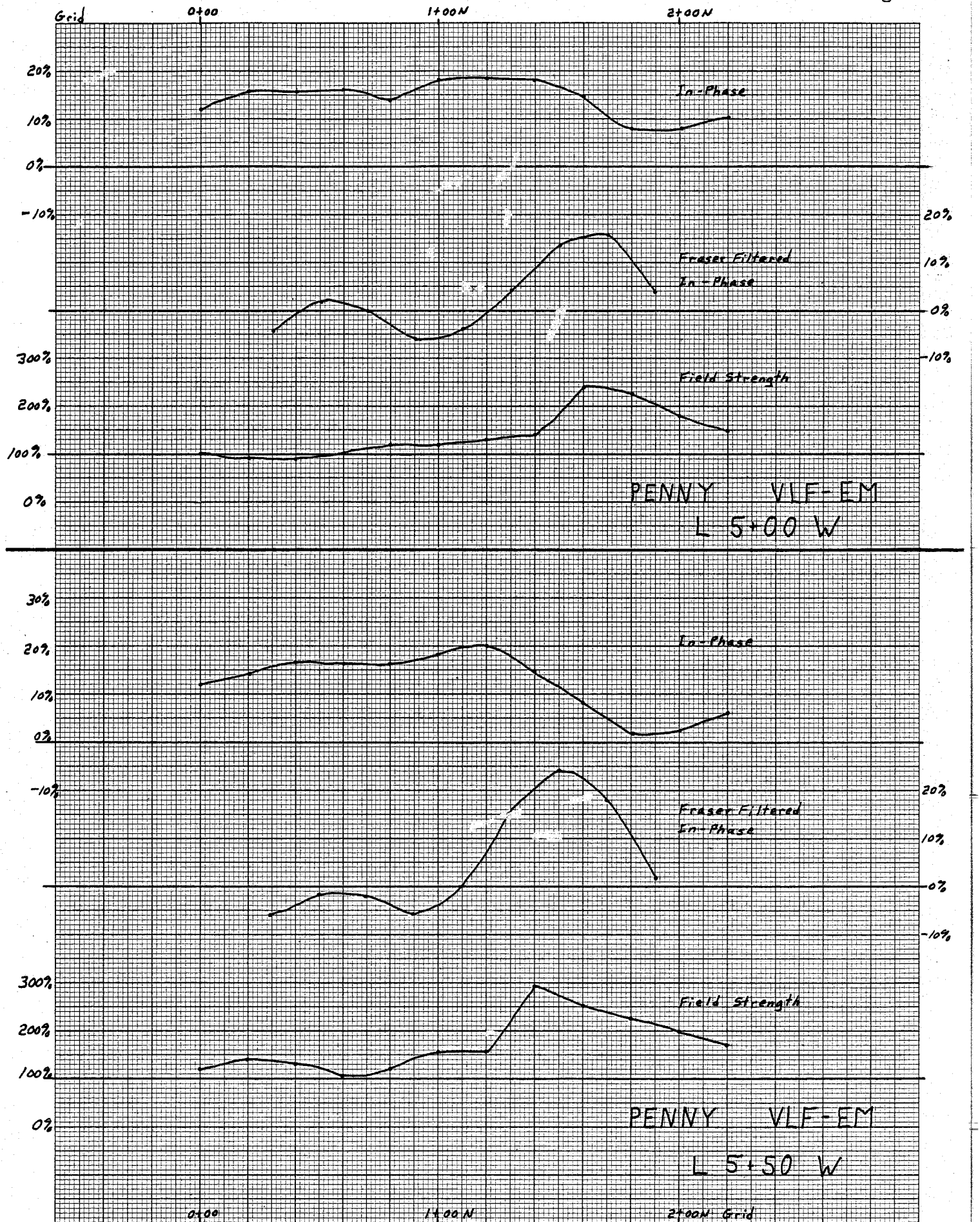

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APPENDIX B

STATEMENT OF QUALIFICATIONS:

I, Murray Morrison, of the City of Kelowna, in the Province of British Columbia, do hereby state that:

1. I graduated from the University of British Columbia in 1969 with a B.Sc. Degree in Geology.
2. I have been working in all phases of mining exploration in Canada for the past fourteen years.
3. During the past fourteen years, I have intermittently held responsible positions as a geologist with various mineral exploration companies in Canada.
4. I have examined many mineral properties in Southern British Columbia during the past fourteen years.
5. I personally carried out the Radem VLF-EM survey outlined in this report.
6. I own a one-third interest in the Penny 5-8 mineral claims described in this report.

May 1, 1984
Kelowna, B.C.

Murray Morrison, B.Sc.

APPENDIX C

STATEMENT OF EXPENDITURES - ON THE PENNY 5-8 MINERAL CLAIMS

Statement of Expenditures in connection with the Radem VLF-EM Survey carried out on the Penny 5-8 mineral claims, N.T.S. 82-E-13, Peachland, B.C. for the year 1984.

FIELDWORK - ESTABLISHING FLAGGED BASELINE (550M) AND FLAGGED GRID LINES (2.7KM).

C. Brett, Prospector	2 days @ $80/day	$ 160.00
Flagging, belt chain thread		12.00
	sub-total	172.00

FIELDWORK - RADEM VLF-EM SURVEY

M. Morrison, Geologist	2 days @ $150/day	300.00
Truck (4x4, incl. gas)	2 days @ $ 50/day	100.00
Radem VLF-EM instrument rental	2 days @ $18/day	36.00
	sub-total	436.00

REPORT PREPARATION COSTS

Geologist (calculations, profiles, maps, reports)	1 day @ $150/day	150.00
Drafting	½ day @ $ 80/day	40.00
Typing		32.00
Copying maps and reports - two copies		12.00
	sub-total	234.00
	GRAND TOTAL	$ 842.00

I hereby certify that the preceding statement is a true statement of monies expended in connection with the Radem VLF-EM survey carried out April 17 - 18, 1984.

May 1, 1984

Murray Morrison

MURRAY MORRISON - GEOLOGIST

PENNY 6

PENNY 8

PENNY 5

PENNY 7

Grid

Baseline "0"

22° magnetic declination

Signal Station Lauluolei, Hawaii

Survey was carried out with a Crone Geophysics Radem VLF-EM instrument.

10% contour intervals

axis of conductor

50 25 0 50 100 metres

To accompany a geophysical report by M. Morrison.

Please see Map No. P-84-4 for Geology.
Claim posts tied-in with compass and belt chain.

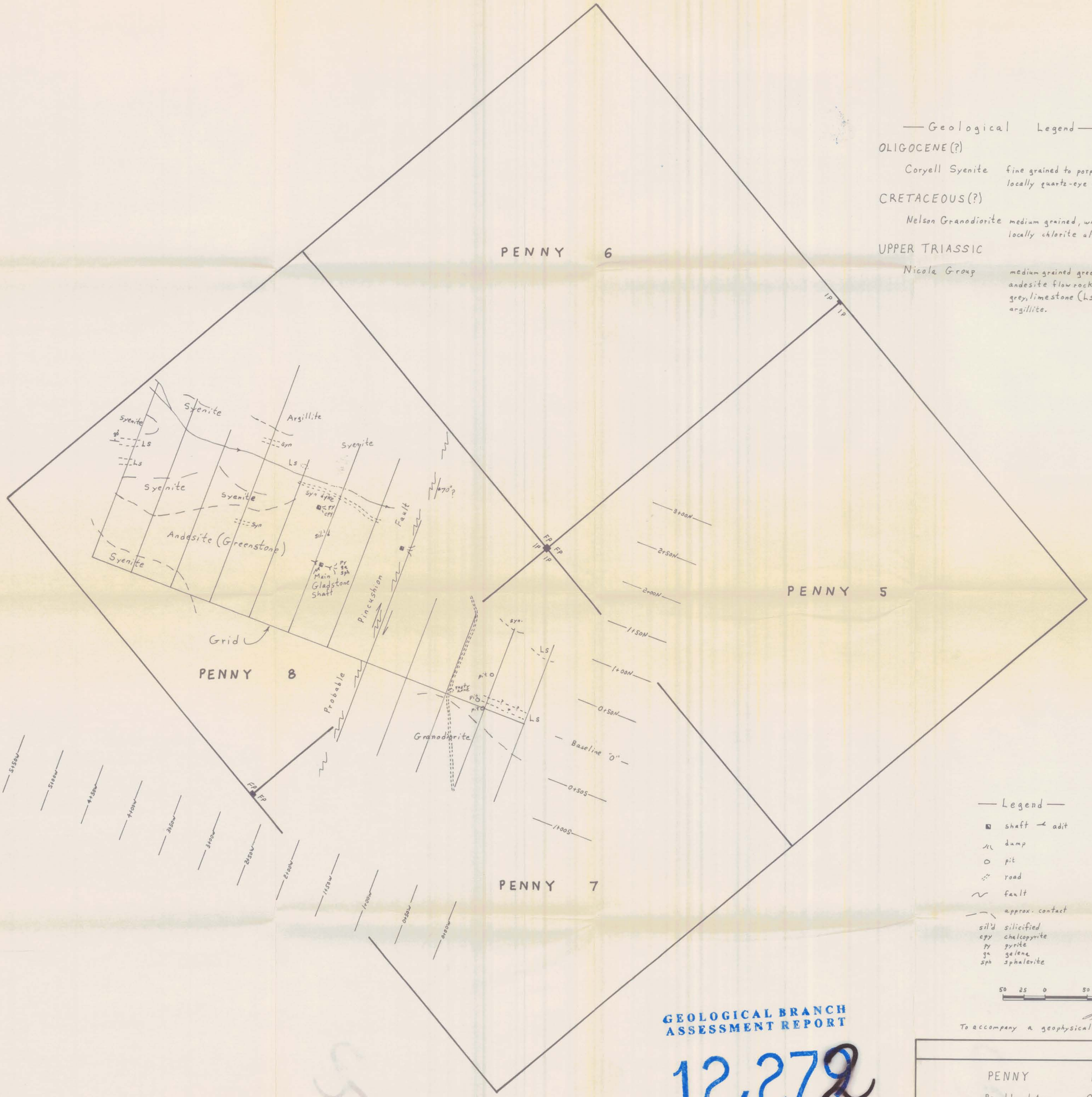
PENNY PROPERTY

Peachland Area Osoyoos M.D., B.C.

RADEM VLF-EM SURVEY

Fraser-Filtered In-Phase

Drawn by: M.M.	April 1984	N.T.S. 82-E-13
Survey by: M.M.	Scale 1:2,500	Map No. P-84-3



— N —

22° magnetic declination

— Geological Legend —

OLIGOCENE (?)

Coryell Syenite — fine grained to porphyritic, pink, syenite, locally quartz-eye crystals up to 1 cm.

CRETACEOUS (?)

Nelson Granodiorite — medium grained, white granodiorite, locally chlorite altered.

UPPER TRIASSIC

Nicola Group — medium grained greenstone (derived from andesite flow rock), thin bedded, dark grey, limestone (Ls), thin bedded, black, argillite.

— Legend —

- shaft — adit
- dump
- pit
- road
- fault
- approx. contact
- sil'd silicified
- cpy chalcopyrite
- py pyrite
- ga galena
- sph sphalerite

50 25 0 50 100 metres

To accompany a geophysical report by M. Morrison.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,272

Claim posts tied-in with a compass and belt chain.

PENNY PROPERTY

Peachland Area Osoyoos M.D., B.C.

PRELIMINARY GEOLOGY

Penny 5-8, Mineral Claims

Drawn by: M.M.	April 1984	N.T.S. 82-E-13
Geology by: M.M.	Scale 1:2500	Map No. P-84-4