



52F05NE0047 63.2331 ATIKWA LAKE (GRAPNEL

010 Age 1

63.2331

SUMMARY

Thirteen line miles of I.P. measurements were read in the period October 8th to November 3rd. The results of this work have indicated two principal anomalous zones near Denmark Lake i.e. at 600 feet west on line 0 and from 900 feet east on line 4 north to 0 + 00 on line 16 north. Another anomalous zone but considered of less immediate importance has been indicated in the central portion of the surveyed area i.e. from line 32 north at 100 feet west to line 40 at 500 feet east. A weak and less defined anomalous trend has been indicated near the eastern limits of the central portion of the surveyed area.

The principal anomalies warrant further I.P. coverage to investigate their southerly projection into Denmark Lake and also further detail coverage to define and more accurately locate drill targets.

RECOMMENDATIONS

Based on the I.P. results to date, the following recommendations in order of considered priority are made:

1. Continue the survey on the ice in Denmark Lake, amounting to approximately 7 line miles of survey. This work is planned for execution at the earliest date after freeze-up when the lake is safe for flying operations with a light ski equipped aircraft.
2. Line 0 be re-read from 200 feet west to 800 feet west using a 50 foot electrode spacing ($x = 50$ feet)
3. Line 300 north be cut and read from 400 feet east to 1,200 feet east at $x = 50$ feet.
4. Line 400 north be re-read from 600 feet east to 1,200 feet east at $x = 50$ feet.

5. Line 500 north be cut and read from 400 feet east to 1,400 feet east at $x = 50$ feet
6. Line 800 north to be re-read from the base line to 1,200 feet east at $x = 50$ feet
7. Line 1,200 north be re-read from the base line to 800 feet east at $x = 50$ feet
8. Line 1,600 north be re-read from 1,200 feet east at $x = 50$ feet.
9. Line 3200 north be re-read from 1,200 feet east to 2,000 feet east at $x = 100$ feet
10. Line 4400 north be re-read from 1,800 feet east to 2,400 feet east at $x = 100$ feet
11. Line 5600 north be re-read from the base line to 600 feet east at $x = 100$ feet
12. Line 6,000 north be re-read from 1,200 feet east to 1,800 feet east at $x = 100$ feet.
13. Line 6,400 north be re-read from 200 feet east to 1,600 feet east at $x = 100$ feet.
14. It is estimated that the survey on Denmark Lake and the detail coverage recommended in items 2 to 5 inclusive will be completed by December 20th. The new data generated should be reviewed and diamond drill targets selected for follow-up drill investigations to commence sometime in January 1968. At this time of writing a drill programme in the order of 1,000 to 2,000 feet is contemplated.

INTRODUCTION

During the period October 8th to November 3rd, 1967, an induced polarization geophysical survey was carried out in North Western Ontario for Mr. B. Nilson of Kenora, by C. C. Huston & Associates under the supervision of Mr. Harvey H. Brown assisted by Mr. Gerry Westerhof.

Mr. Huston visited the property during the survey to discuss the results and look over the property.

LOCATION AND ACCESS

The property consisting of 88 claims is in the Kenora Mining Division of Ontario in the vicinity of Denmark Lake and tied onto the southern boundary of Mayburn Mines Ltd. Denmark Lake is 28 miles east of Sioux Narrows, a resort town approximately 50 miles south of Kenora on Highway 71.

The property can be reached by small boat from Sioux Narrows or by aircraft.

TOPOGRAPHY

The area is fairly rough with some ridges as high as 400 feet above the level of Denmark Lake. A great deal of rock of the area is exposed, and the remainder appears to have very little overburden. Some small areas of muskeg were encountered. There is a fairly good portage road running north eastward through the property from Denmark Lake to Atikwa Lake. The region is used extensively as a hunting and fishing area and the Huston crew were boarded at a hunting lodge on Denmark Lake.

GEOLOGY OF THE AREA

The Denmark Lake area has been mapped by the Ontario Department of Mines. The claims are underlain by metavolcanics, basic igneous rocks (gabbro, pyroxenite, peridotite) and acid igneous rocks (granite, granodiorite, diorite). A north-east trending fault traverses the area, and numerous showings of gold, copper and nickel bearing mineralization are known in the area. Mayburn Mines Ltd. reportedly have indicated on their property at Atikwa Lake (Head Bay) 1.5 million tons at 1.59% Cu plus gold values.

INDUCED POLARIZATION METHOD

If an electric potential is applied to two points (current electrodes) on the surface of the ground some distance apart, electric current will flow between them. Most of this current is normally carried by ions in the ground water but when metallic particles are imbedded in the ground mass, the current will flow through them as well, by electronic conduction, similar to the flow of current in a wire. (Metallic particles here refers to any metallic substance which will conduct electricity). It includes the metals themselves, most of the metallic sulphides and some of the oxides, (sphalerite is a notable exception). At the interface where the mode of current conduction changes from ionic to electronic, a barrier of charges will accumulate. If the driving potential is then cut off rather suddenly, the charges will dissipate, causing a smaller current to continue to flow and decay for an appreciable length of time, something in the order of one second. The measurement of this decaying effect of the induced charge is the basis of the I.P. method which can be used to locate metallic sulphides. The magnitude of the effect is controlled by a number of independent factors, including quantity and character of metallic minerals, depth of the metallic mass, conductivity of the overburden and electrode separation. It is usually determined by measuring the potential between a second pair of electrodes called the potential electrodes, customarily in line with the current electrodes but not necessarily so.

Three distinct systems of measuring the I.P. effect are available, however we are using the McPhar variable frequency system with an electrode array known as dipole-dipole. With this arrangement the current and potential electrodes are in line at equal intervals, and are moved in tandem along the line. Frequencies of 0.3 CPS and 2.5 CPS were used.

The depth to which the survey is effective is difficult to define precisely since it is dependant on many factors; however, it can be said in general, in the dipole-dipole arrangement with equal electrode intervals, the depth of penetration is approximately equal to one quarter of the distance between the outer electrode of the dipole-dipole array, e.g. if these electrodes are 600 feet apart, the depth of penetration is approximately 150 feet. In the survey electrodes spacing; were used which would give a penetration of approximately 250 feet.

PRESENTATION OF DATA

From the values obtained in the field, three sets of data are calculated. They are apparent resistivity, apparent metal factor and apparent frequency effect. At each station on the ground, readings are taken for three different electrode spacings and are designated as N-1, N-2 and N-3, each being a multiple of a given electrode spacing. Hence for each ground station three sets of the above mentioned data are calculated and are plotted as a graph for interpretation purposes.

SURVEY

The I.P. survey covered some 19 claims, three of which are patented claims #K 17927, K 17928 and K 17930. The survey was carried out on well cut picket lines spaced 400 feet apart and extending 1/2 mile to the east and west of the base line, which is a survey line run 21° east of north.

11.6 miles were read at 200 foot stations along the lines making 302 station and 906 separate readings; 1.4 miles of detail work was carried out at 100' station with 100' electrode spacings for an additional 75 stations and 300 readings. In all 13 miles of line were covered.

A crew of 4 men were used to assist in the survey, but some delay resulted as the men were unreliable as far as being at work was concerned (for three days in a row only two helpers were available delaying the work considerably).

In all labour accounts for 83 days:

Operators and Calculations	65 man days
Mapping and Report	22 man days

RESULTS OF SURVEY

A number of anomalous areas were detected by the survey and these are shown on a separate map and have been classified as good anomalies, weaker anomalies, and less definite anomalies.

On line "0" an anomaly was found between 400 and 600 W. This was covered in detail with one hundred foot electrode spacing and the anomaly confirmed. It appears to be a relatively shallow and narrow zone which probably is a continuation of the weaker anomaly at 700 W on line 4 N. A possible continuation to the south will be looked for on the ice. A check on line "0" with 50' electrode spacing could give a better idea of the possible width of the zone.

On lines 4 N to 16 N there is a series of anomalies which trend north from 900 E on line 4 N to 0 on line 16 N which would appear to be a continuous zone on the reconnaissance lines, however with the detail work done at 100' spacings, there are three separate anomalies on line 8 N and 2 on line 12 N which would seem to indicate a series of more or less parallel trends also the variations in the indicated depth would seem to suggest a series of lenses plunging to the north. This zone also could conceivably extend further to the south in the lake. While further detail work at 50' electrodes spacing seems to be indicated, it is thought that the anomaly at 900 E on line 4 N is probably the best place for a drill hole to indicate the type and source of the anomalies.

On lines 24 N there is a weak indefinite anomaly between 1,600 and 1,800 east.

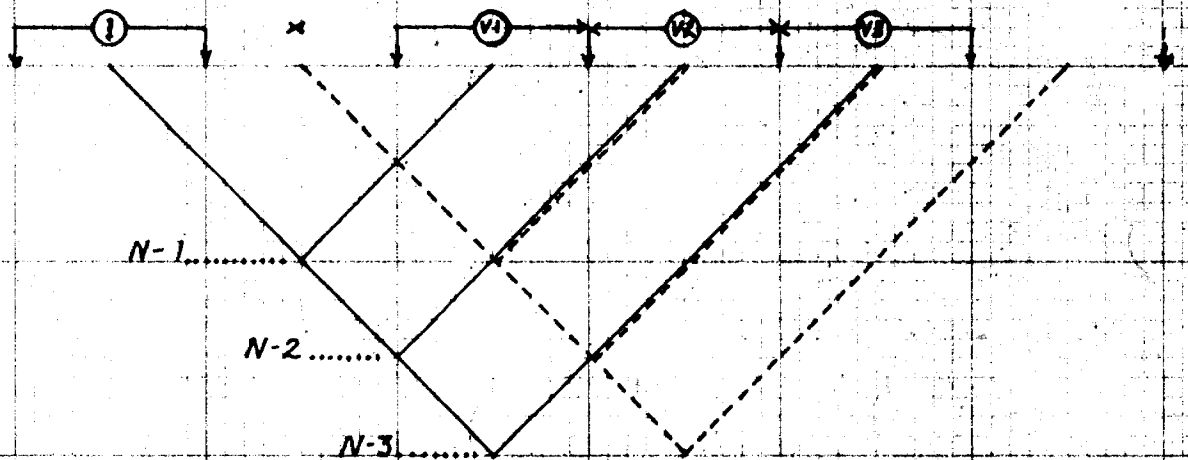
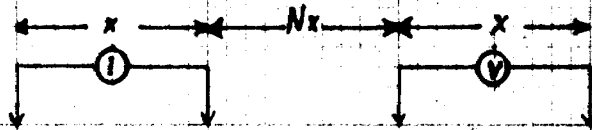
Between line 32 N and 44 N there is another series of weaker anomalies that trend north east from 1,900 east on line 32 N to 2,000 E on line 44 N. This could be another series of lenses but more detail work would be needed to confirm this. There is also a series of weak anomalies on line 32 N, 36 N and 40 N trending north east from 0 on line 32 N to 4 east on line 40. On lines 56 N, 60 N and 64 N there is another apparently continuous zone of anomalies trending north east from 300 east on line 56 N to 500 east on line 64 N. A short detail line on line 64 N is recommended.

On line 60 N at 1,800 E there is a fairly good anomaly, which should be checked in detail at a later date.

All of which is respectfully submitted
C. C. HUSTON & ASSOCIATES



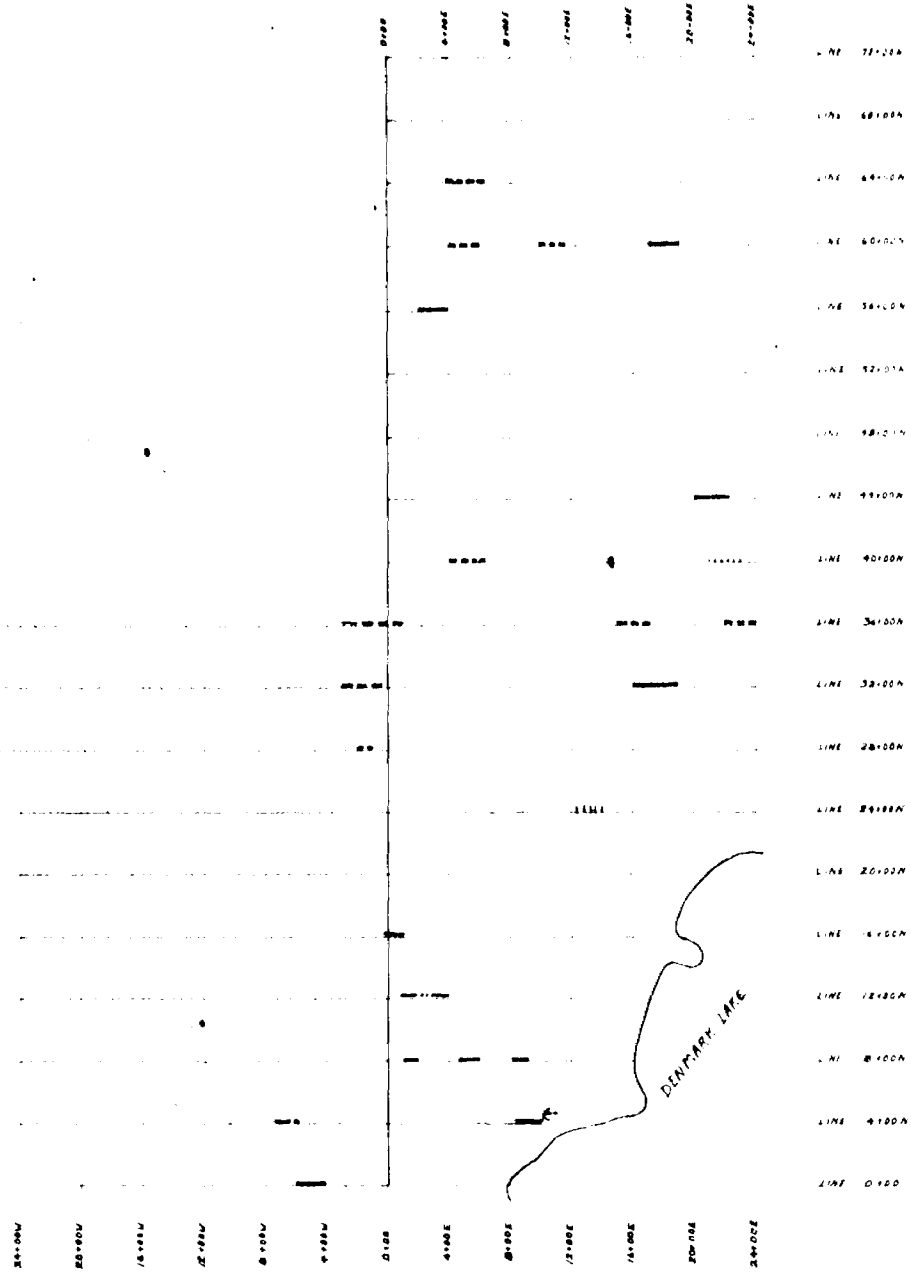
H. H. Brown



DIAGRAM

Showing
DIPOLE-DIPOLE ELECTRODE ARRAY
 and
EFFECTIVE PENETRATION
 for
N-1, N-2, and N-3 SEPARATIONS

Hertz scale: 1 inch = 200 feet
 Vert. scale: 1 inch = 200 feet



——— GMS ANOMALIES
 - - - - WEAKER ANOMALIES
 LESS DEFINITE ANOMALIES

I.P. SURVEY
 DENMARK LAKE AREA
 BRANING
 ANOMALOUS AREAS





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INTRODUCTION

In October and early November 1967, thirteen line miles of Induced Polarization Survey were completed in the Denmark Lake Area of Ontario for the account of Mr. B. Nilson of Kenora. A report covering the results obtained in that work was submitted in November 1967 under the title of "A Report on I.P. Survey of Denmark Lake Ontario".

During the period December 12th to December 20th, supplemental I. P. coverage as recommended in the November report was completed. This latter work comprised 4.5 line miles of survey work on Denmark Lake, which was feasible only when the lake was frozen. Due to the late freeze-up experienced in the area, this work was delayed until December 12th and, even at that time, there were only from 4 to 7 inches of ice on Denmark Lake. This latter work was also under the direction of Mr. H. Brown, assisted by Mr. G. Westerhof and four local labourers.

SUMMARY

With 4.5 line miles of survey completed in December, the total I.P. coverage to date on the Nilson Denmark Lake claims is 17.5 line miles.

The limited latter work completed on the ice of Denmark Lake revealed a strong anomalous zone between lines 12 South and 19 South, and this trend constitutes the strongest indication of causitive metal obtained on the property to date. The two principal anomalies obtained in the October survey i.e. 600 West on line 0 and 900 East on line 4 N were found to extend southward into the lake, but at lesser magnitudes.

RESULTS OF SURVEY

Four full lines, 4S, 8S, 12S and 16S were completed and line 19S was read from the base line to the shore line of Denmark Lake. Lines 00 and 4N were extended from the previous survey to the eastern boundary of the claim group. Line 4 South was read using an electrode spacing of 100 feet ($x = 100$), the remaining lines were read at an electrode spacing of 200 feet ($x = 200$).

The principal anomaly from the former work i.e. at 600 feet west on line 0, appears to extend southward into the lake to line 16S (300 East). This anomalous trend may continue further to the south-east, but it has not been checked beyond line 16 South. The metal factors indicated in the lake along this anomalous trend are essentially of the same magnitude as those at the "principal" anomaly, obtained on land at line 0.

The other principal anomaly obtained on line 4N at 900 East appears to be less definitive on its southern extension into the lake to 1,900 East on line 16 South with a rather shallow broad causitive source.

A new and strong anomalous zone in the lake has been indicated between lines 12 South at 1,700 West and 10 South at 1,300 West. Here the metal factors range between magnitudes of 300 and 700, which makes it the strongest anomaly obtained on the property to date. This anomaly remains open to the south and possibly to the north, although it may tie in with anomalous reading obtained on the western extremities of lines 8 South and 4 South.

RECOMMENDATIONS

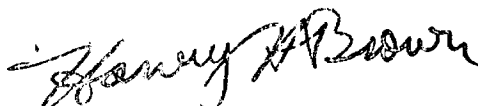
The November recommendations of further detailed I.P. investigation of the principal anomalies were not completed in the December Survey as planned (November Recommendations Items 2 to 5).

The best and most expedient drill target now appears to be the anomalous zone indicated in the lake between lines 12 South at 1,700 West and line 19 South at 1,300 West. Drill investigation of this zone can only be done from the ice and it is recommended that this be done this winter. The number one hole, without the benefit of further I.P. detail, should be located at 1,200 feet West on line 16 South and drilled at an angle of 45 degrees, bearing to the west along the line. If no mineralization is encountered in this hole by a depth of 450 feet, another hole should be drilled from the location 1,800 feet West on line 16 South at 45 degrees bearing east along the line depth to 450 feet. In this method of drilling, if the dip of the causitive source is interpreted incorrectly for the first hole, the second hole should locate it by bracketing.

The two principal anomalies described in the November report should also be investigated by drilling, and because detail I.P. coverage has not been done, the same drill bracketing technique as outlined above should be done.

All of which is respectfully submitted

C. C. HUSTON & ASSOCIATES



H. Brown



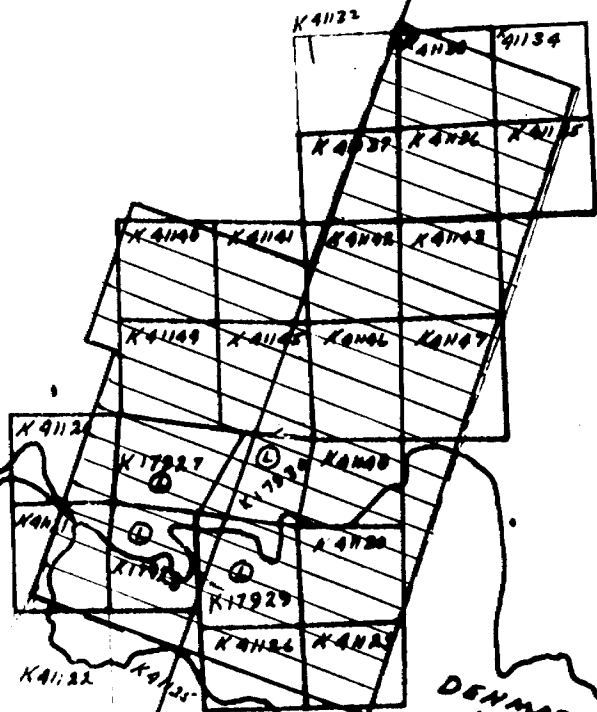
G. W. Goettler, P. Eng.

JB:jl

January 4th, 1968.

MAYBRUN
MINES LIMITED

N



DENMARK LAKE

ROWAN LAKE



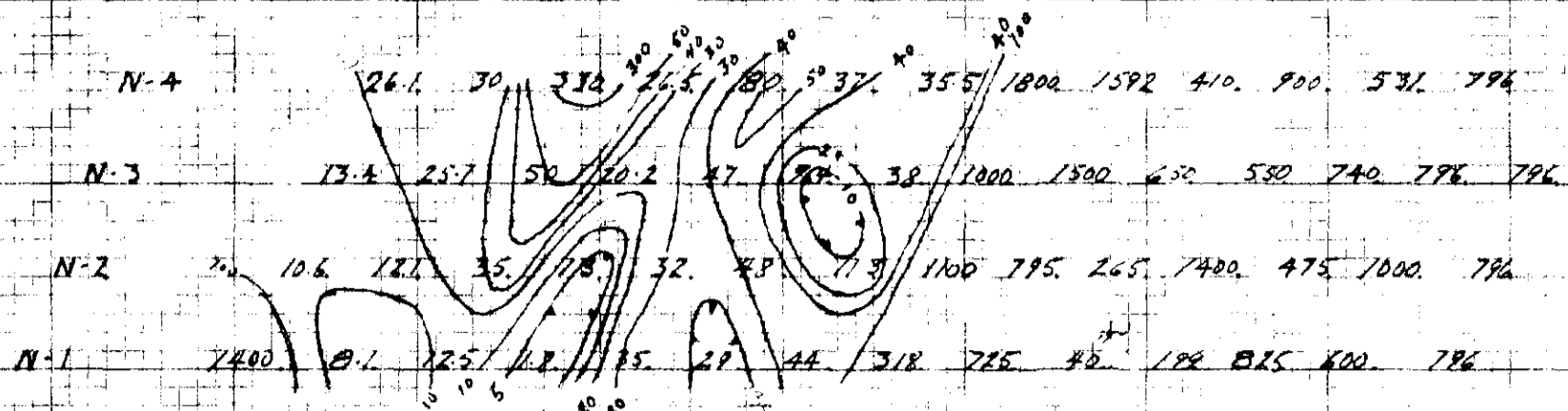
AREA COVERED WITH T.P. SURVEY

———— PICKET LINES

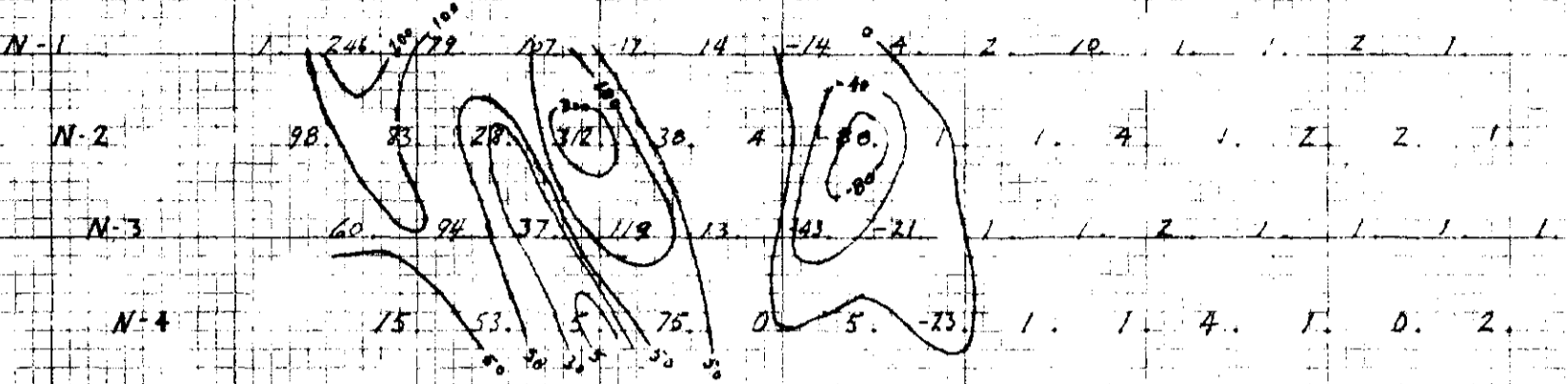
KENORA MINING DIVISION
KEY MAP

KENORA
MINING DIV.
RECEIVED
AUG 2 1968
PM 10 40 10 21 PM

SCALE 1" = 2640'

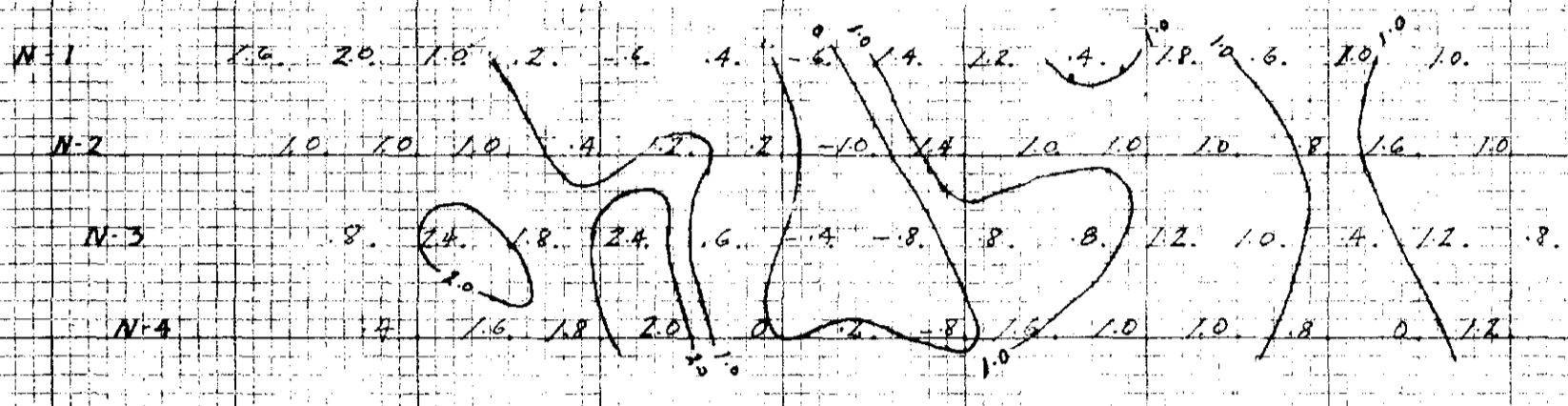


LINE 12 N

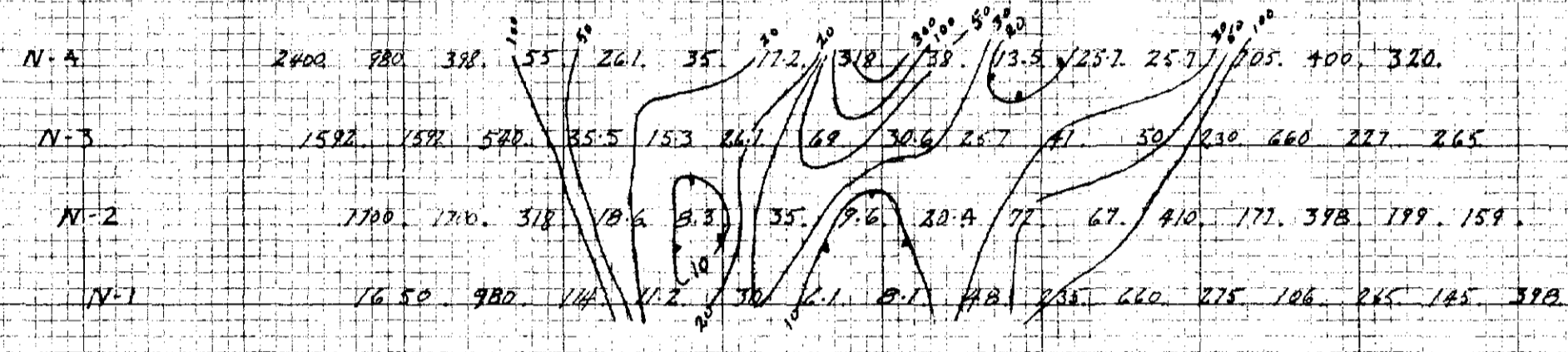


(MF)2

LINE 12 N

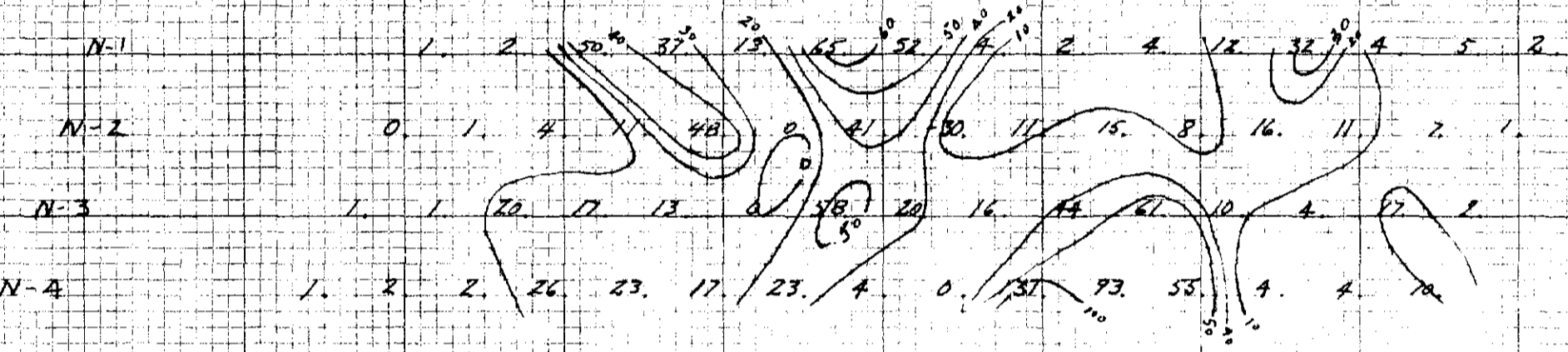


(FE)2



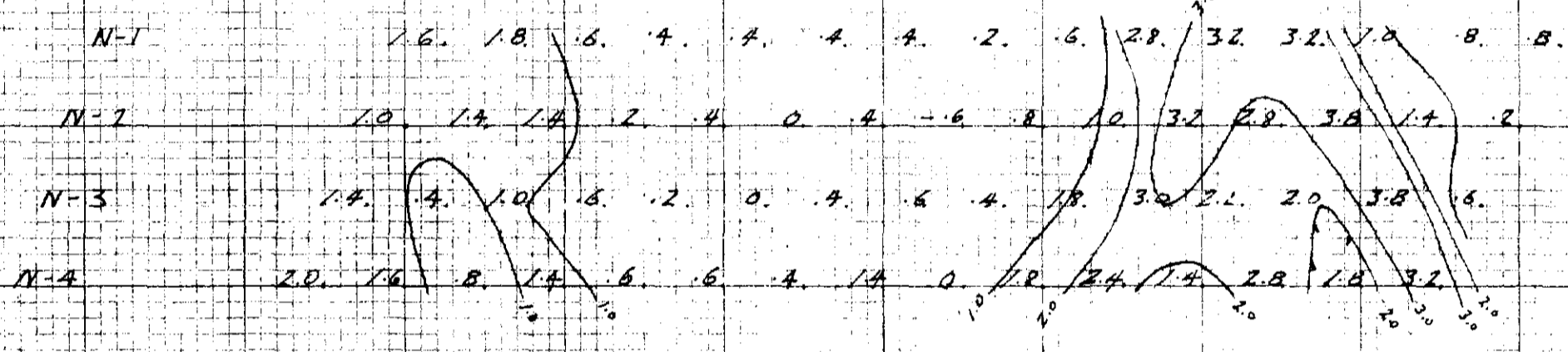
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LINE 8 N



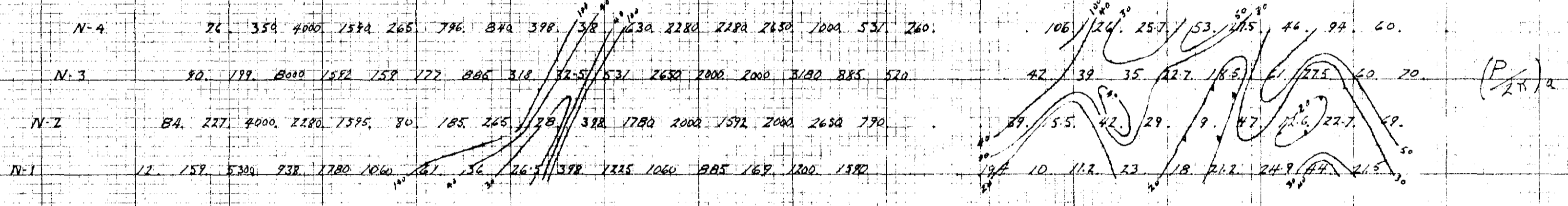
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LINE 8 N



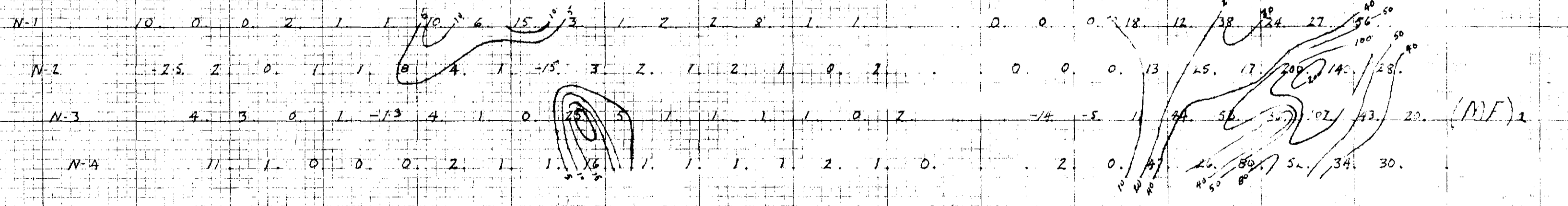
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LINE 4 N

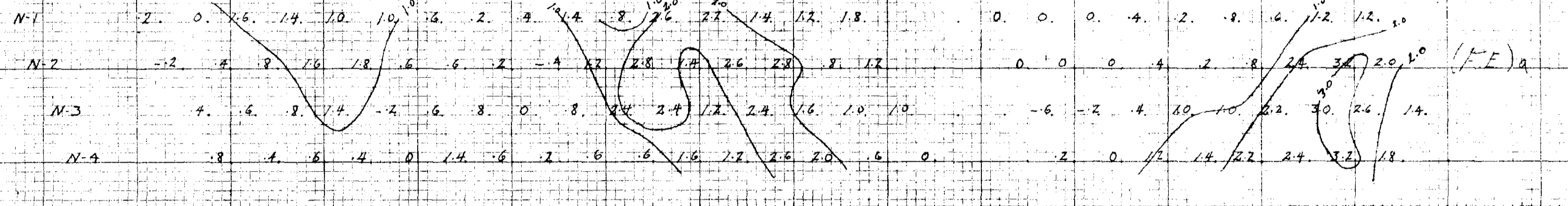


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LINE 4 N

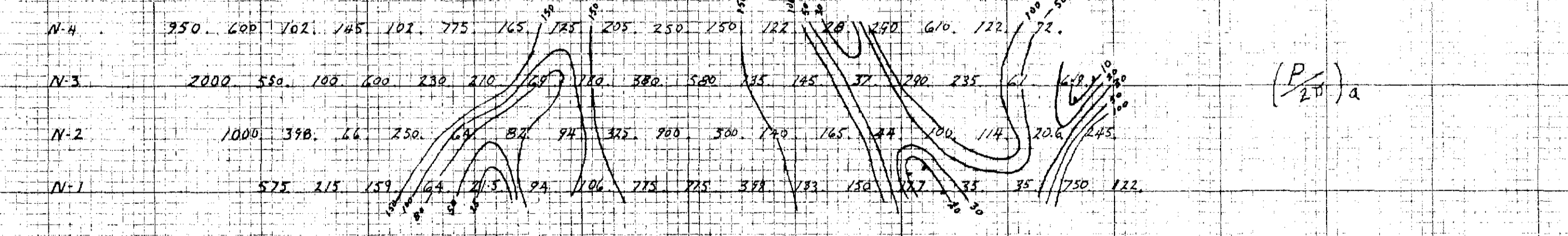


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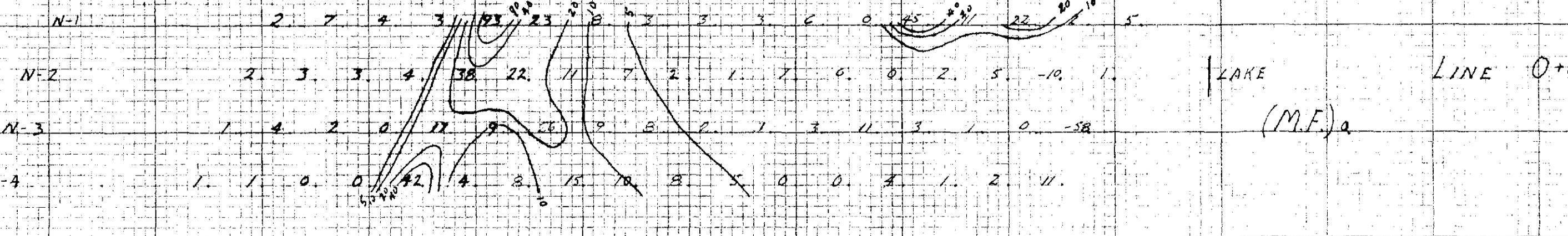


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LINE 0+00

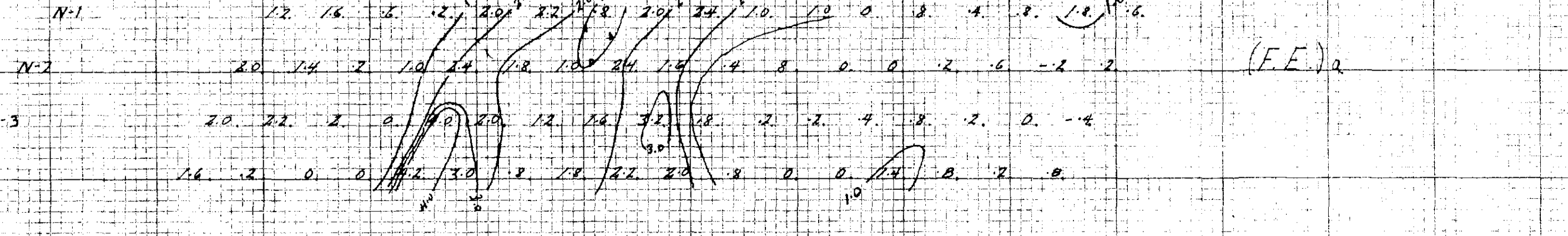


(P/2)2



(MF)2

LINE 0+00



(FE)2

DENMARK LAKE I.P. DATA

SCALE 1" = 200' REPORT BY C.C. HUSTON & ASSOCIATES FOR MR. B. NILSON

SCALE 1" = 200' [Signature]

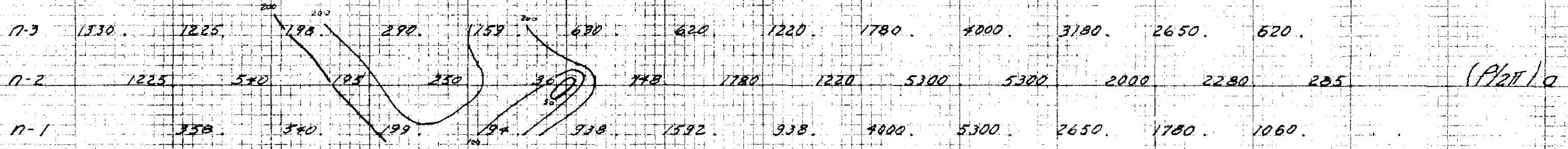


DENMARK LAKE I.P. DATA

REPORT BY C.C. HUSTON & ASSOCIATES

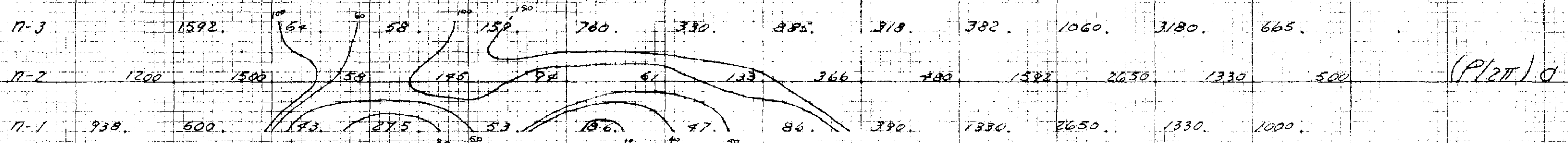
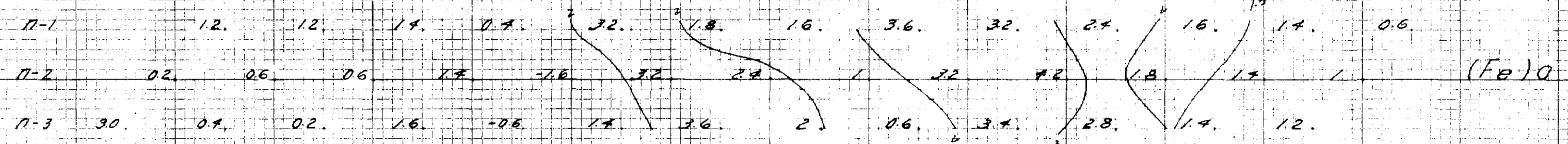
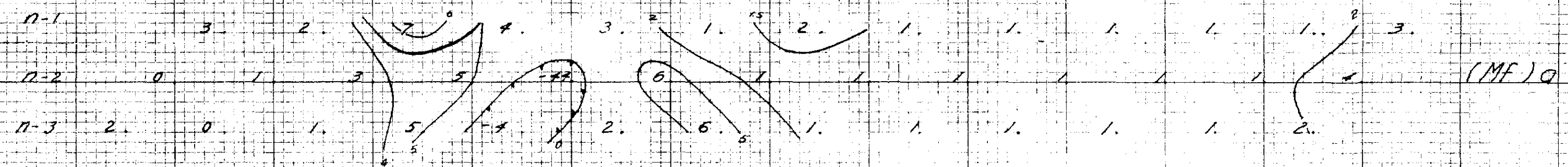
FOR H. WILSON

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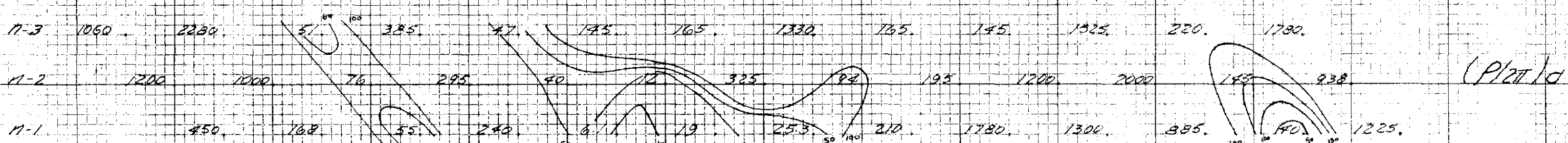
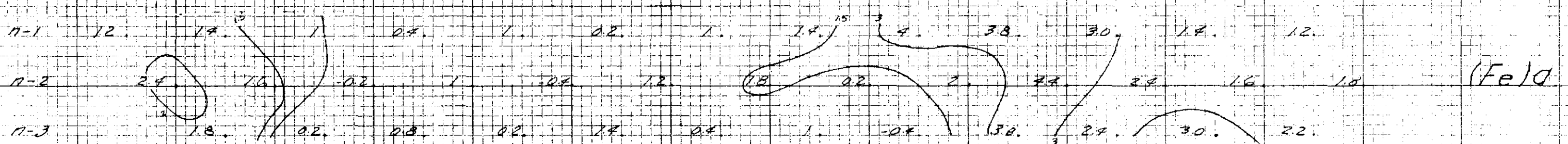
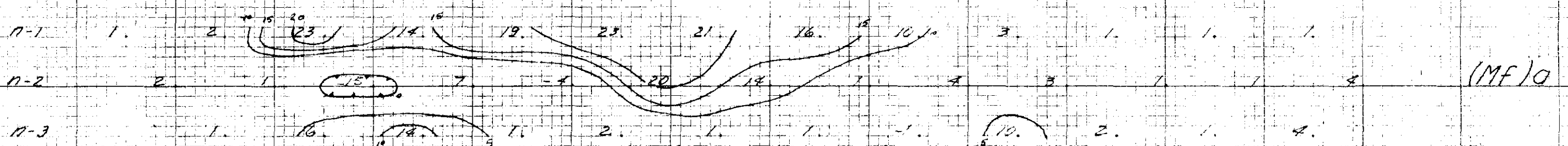
LINE 72N

LINE 72N



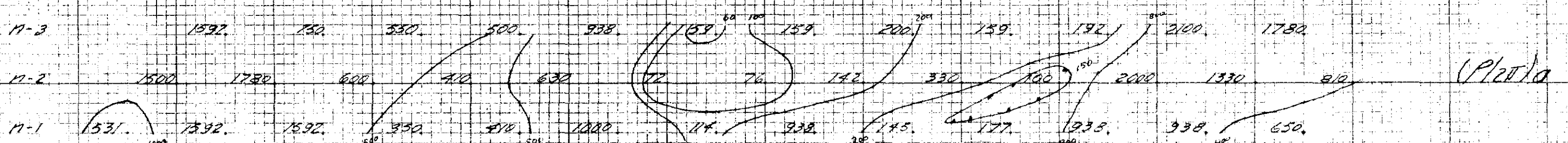
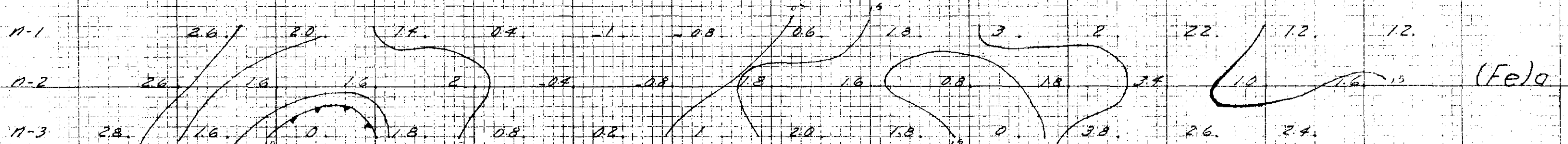
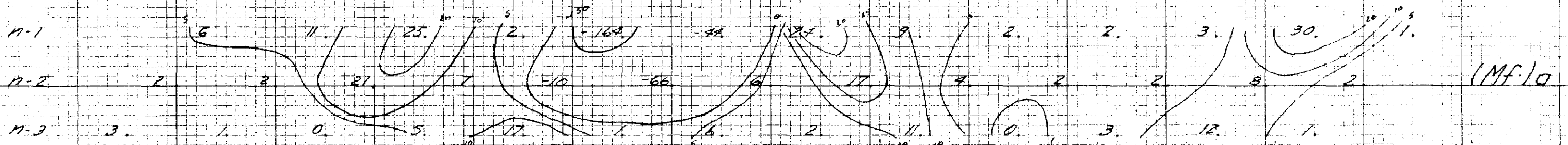
LINE 68N

LINE 68N



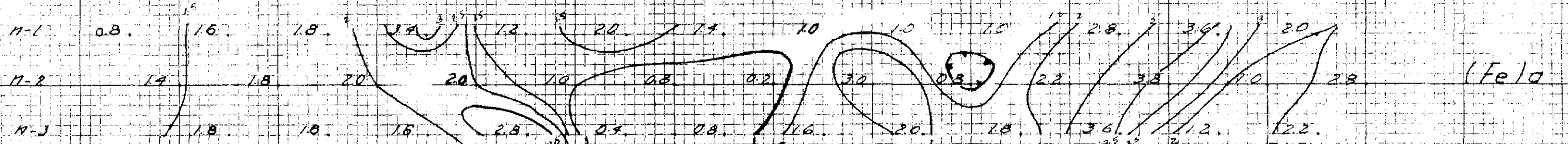
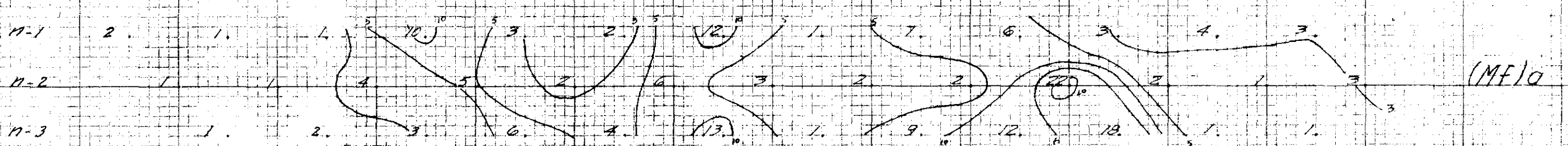
LINE 64N

LINE 64N



LINE 60N

LINE 60N



SCALE 1" = 200'
X = 200'
DATE NOVEMBER 1967



SP689847 63.231 ATIXA LAKE (GRANL)

220

0-00

1000E

2000E

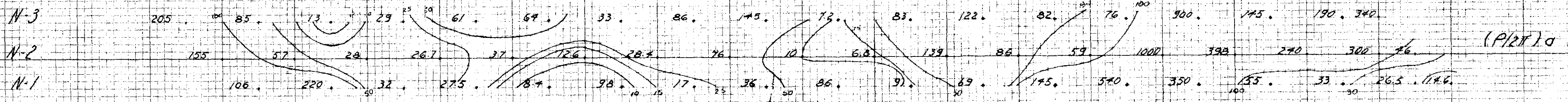
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DENMARK LAKE T.P. DATA

20W 16W 12W 8W 4W 0 4E 8E 12E 16E 20E

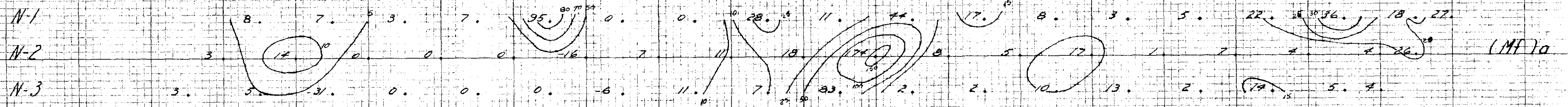
REPORT BY
C.C. HUSTON & ASSOCIATES

FOR
B. NILSON

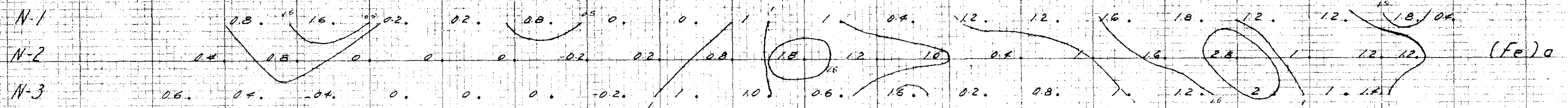


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LINE 16N

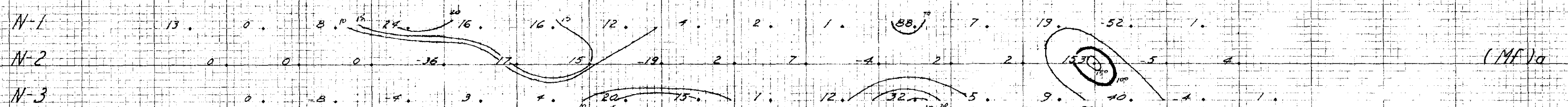


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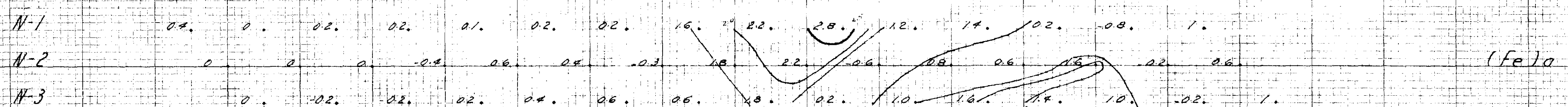


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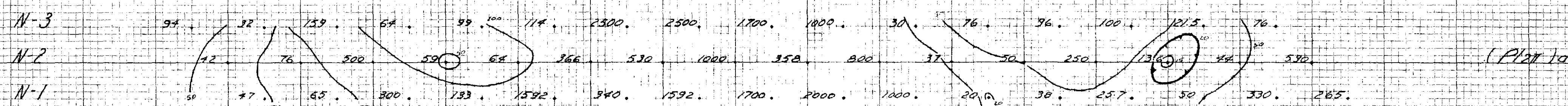
LINE 12W



(M1) a LINE 12N

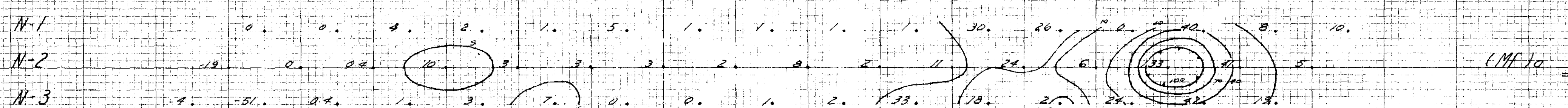


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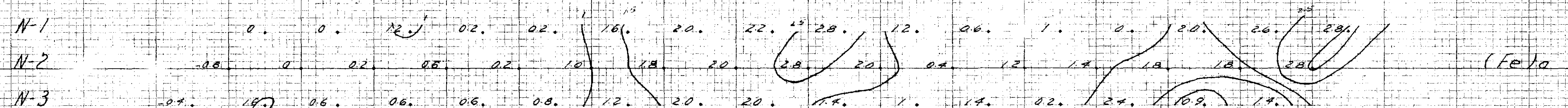


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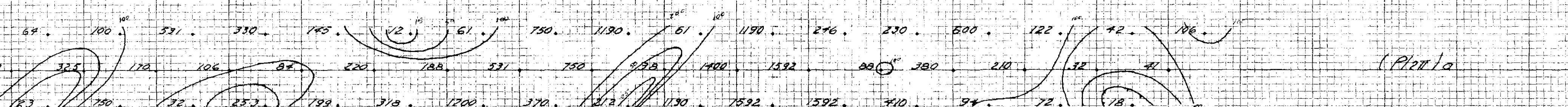
LINE 8N



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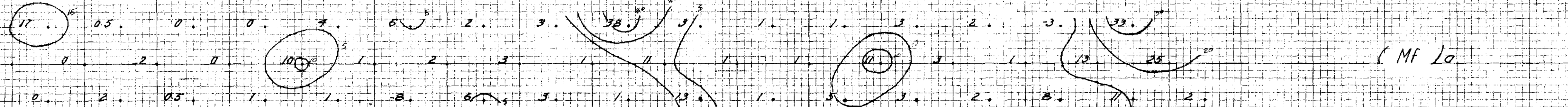


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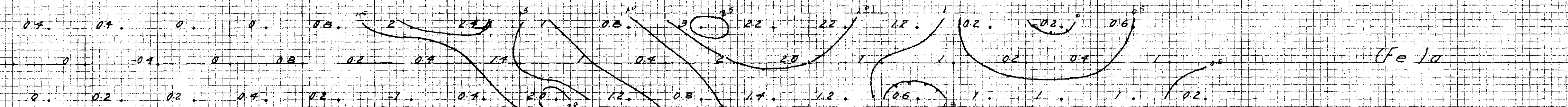


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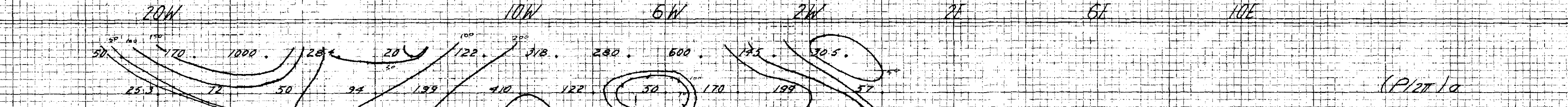
LINE 4N



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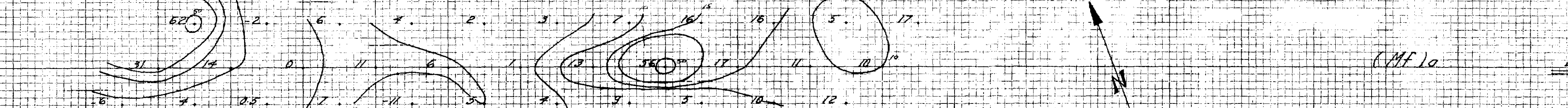


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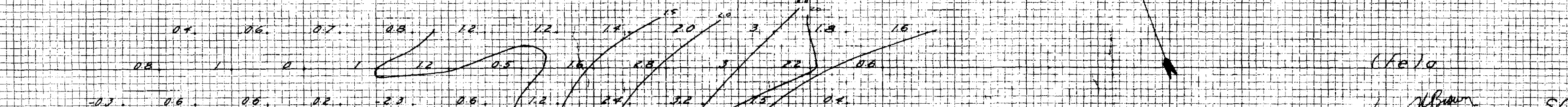


(P12) a

LINE 0



(M1) a LINE 0

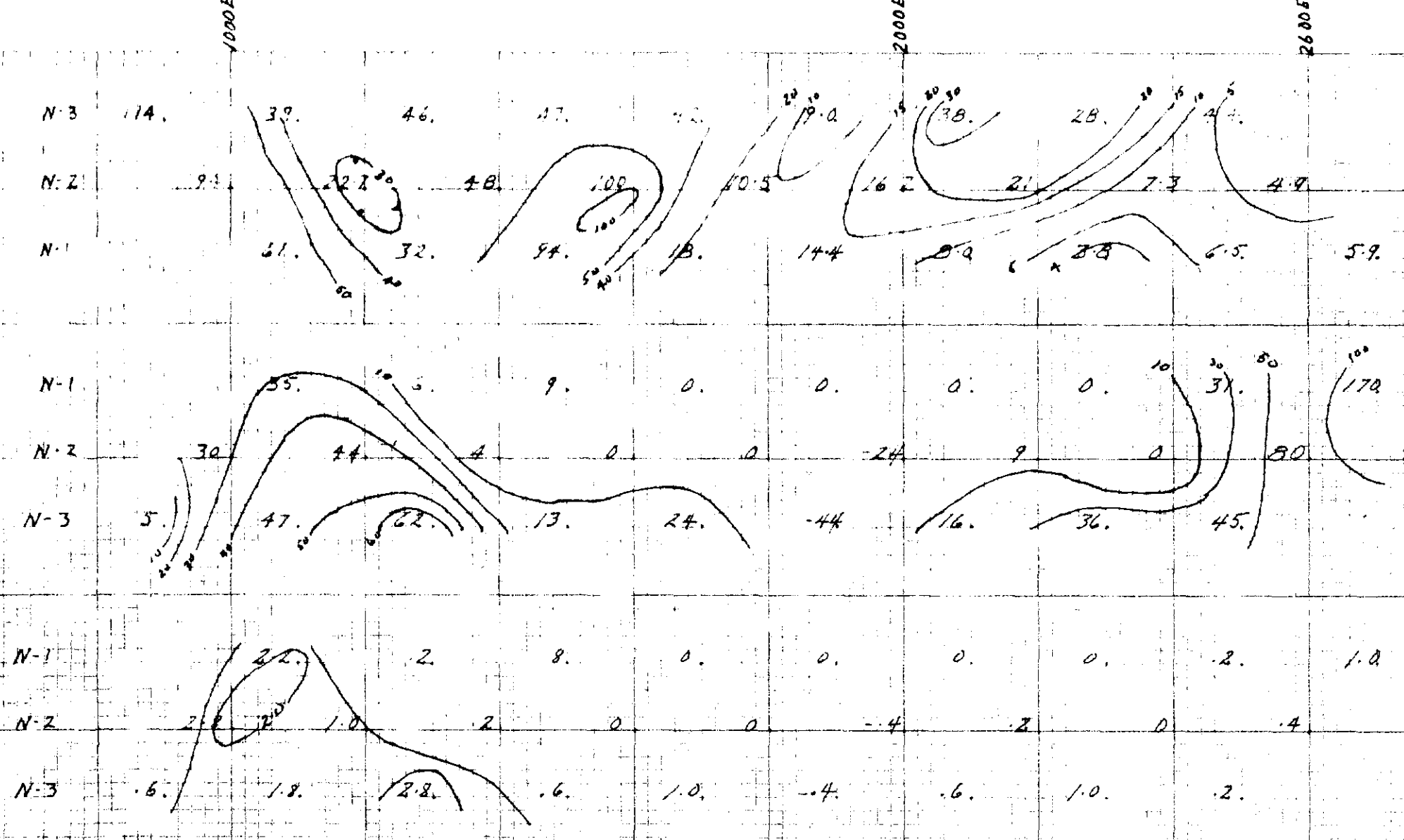


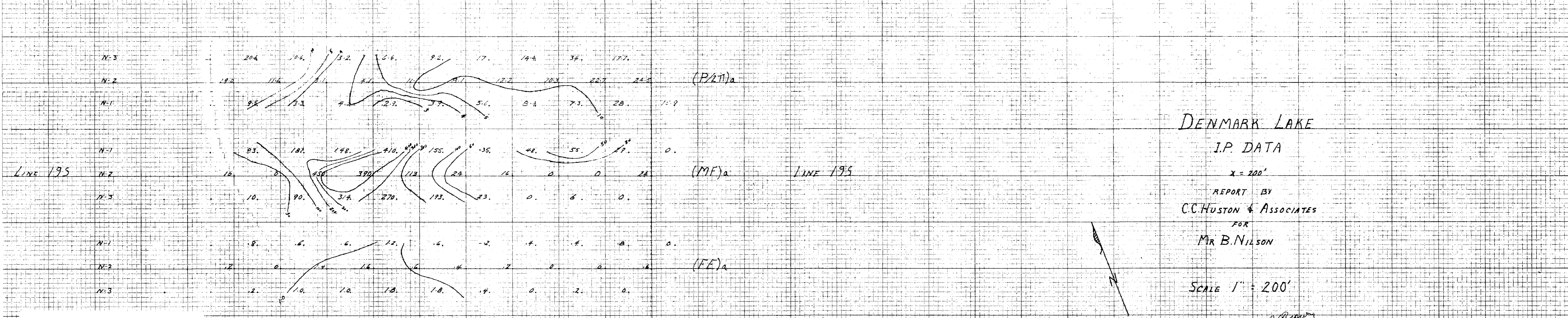
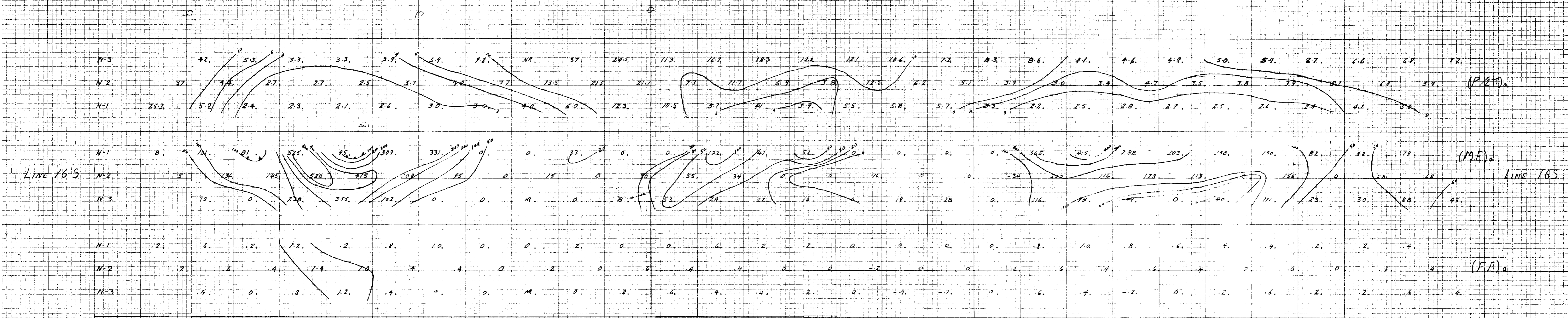
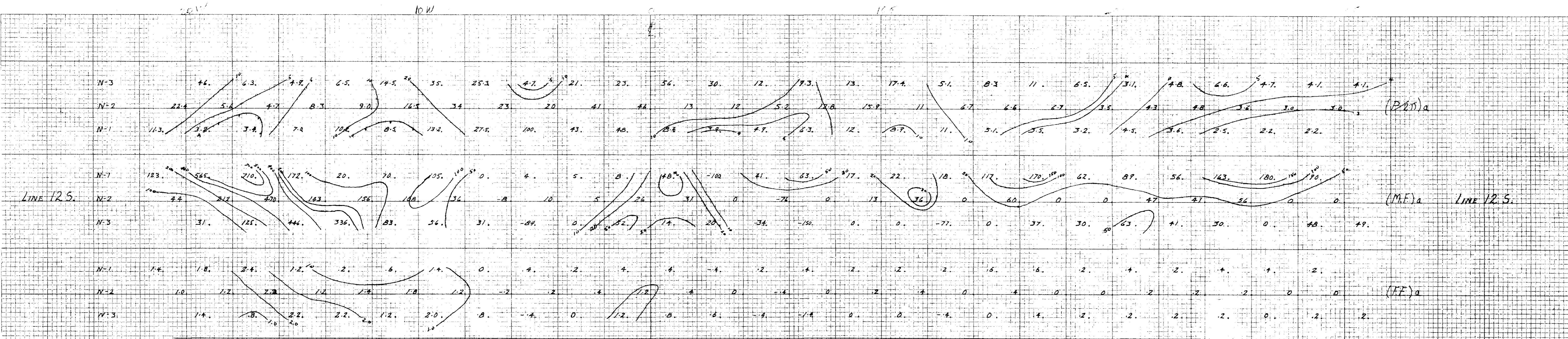
(Fe) a

SCALE 1" = 200'
DATE: NOVEMBER 1961



LINE 4N





DENMARK LAKE
 I.P. DATA
 X = 200'
 REPORT BY
 C.C. HUSTON & ASSOCIATES
 FOR
 MR. B. NILSON

SCALE 1" = 200'

[Signature]

