

INDUCED POLARIZATION SURVEY & GEOPHYSICAL REPORT

HEADS AND TAILS GROUPS

12 Miles Northwest of Peachland, 49°, 120° N.E.  
Brenda Area, B. C.

Geophys. Report: Supervisor: D.W. Smellie, P.Eng.  
Author: M.K. Lorimer, P.Eng.

Dates of Work: 18 July-19 August, 1966

Induced Polarization Survey: Author: D. W. Smellie, P.Eng.

Dated: August 24th, 1966.

Owner: Christina Lake Mines Ltd.

924/16E

850

850

DONALD W. SMELLIE, P.ENG.  
CONSULTING GEOPHYSICIST

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INDUCED POLARIZATION SURVEY

BRENDA AREA, B.C.

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8S           56S	
16S          64S	
24S          72S	
32S          80S	
 PLAN (In Pocket):   Head and Sun groups, showing	
lines covered by I.P. Survey. → /	

## INTRODUCTION

An induced polarization survey has been carried out on the Sun and Head groups in the Brenda Lake area for Christina Lake Mines Ltd.. The property is located 2½ miles south of Brenda Lake, west of Peachland, B.C.

Field work was carried out on August 10, 11 (½ day), 14, 15, 16, 17, 18, 19 and 20 by D.B. Trussell and P.J. Horn assisted by B. Wallace and by D. Kraft on August 10, 11 (½ day), 16, 18 and 19, 1966.

A test traverse was made over the main ore-body of Brenda Lake Mines Ltd. by D.B. Trussell and P.J. Horn on August 11 (½ day) and 13 assisted by B. Wallace and by D. Kraft on August 11 (½ day). The test was terminated to facilitate blasting operations.

## INSTRUMENTATION

The induced polarization equipment was manufactured by Geoscience Incorporated of Lexington, Massachusetts. The Sender supplies a preset constant current that is applied to the ground through two electrodes. The voltage between two potential electrodes is passed into the Receiver. A meter is nulled at one frequency and gives a direct reading of the percent frequency effect at a second frequency. From the applied current and received potential, the apparent resistivity of the medium may be calculated.

## FIELD PROCEDURE

The electrodes are in a collinear array, with the current electrodes separated by a distance "a". The potential electrodes are also separated by a distance "a". The nearest current and potential electrodes are separated by a distance "Na", where N = 1, 2 or 3. By varying N, the sender-receiver spacing, one obtains a depth-probing effect, since the effective depth of exploration varies with this spacing. The results are plotted at the intersection between 45° diagonal lines drawn from the midpoints of the sender and receiver dipoles. Percent frequency effect values are plotted below the reference line, resistivity values in ohm-feet above. The row of data nearest the reference line corresponds with N = 1 values, the second row N = 2 and the third N = 3.

## RESULTS

The results are plotted on the accompanying sectional diagrams. The plan shows the location of these lines with respect to the claim boundaries. All lines were surveyed with an electrode spacing  $a = 300$  feet. A high frequency of 3 cps and a low frequency of 0.1 cps was used. The symbol X denotes a noisy reading.

The resistivity shows a decreasing trend in the southerly direction. Induced polarization anomalies occur as follows:

- Line 0: A weak anomaly between 5E and 5W.
- 8S: An anomaly between 15W and 21W correlates with known disseminated pyrite mineralization at 19W.
- An anomaly between 3W and 12W correlates with known disseminated pyrite mineralization at 8W.
- 16S: A weak anomaly occurs between 15W and 18W.
- 40S: A local anomaly occurs at 18E.

The test line on the property of Brenda Lake Mines Ltd. was carried out with electrode spacings of 300 and 400 feet. A broad I.P. anomaly occurs between 15W and 6E. The spacing  $a = 400$  feet shows the anomaly more strongly than  $a = 300$  feet.

None of the anomalies on the Christina Lake property is comparable to that on the Brenda Lake test line.

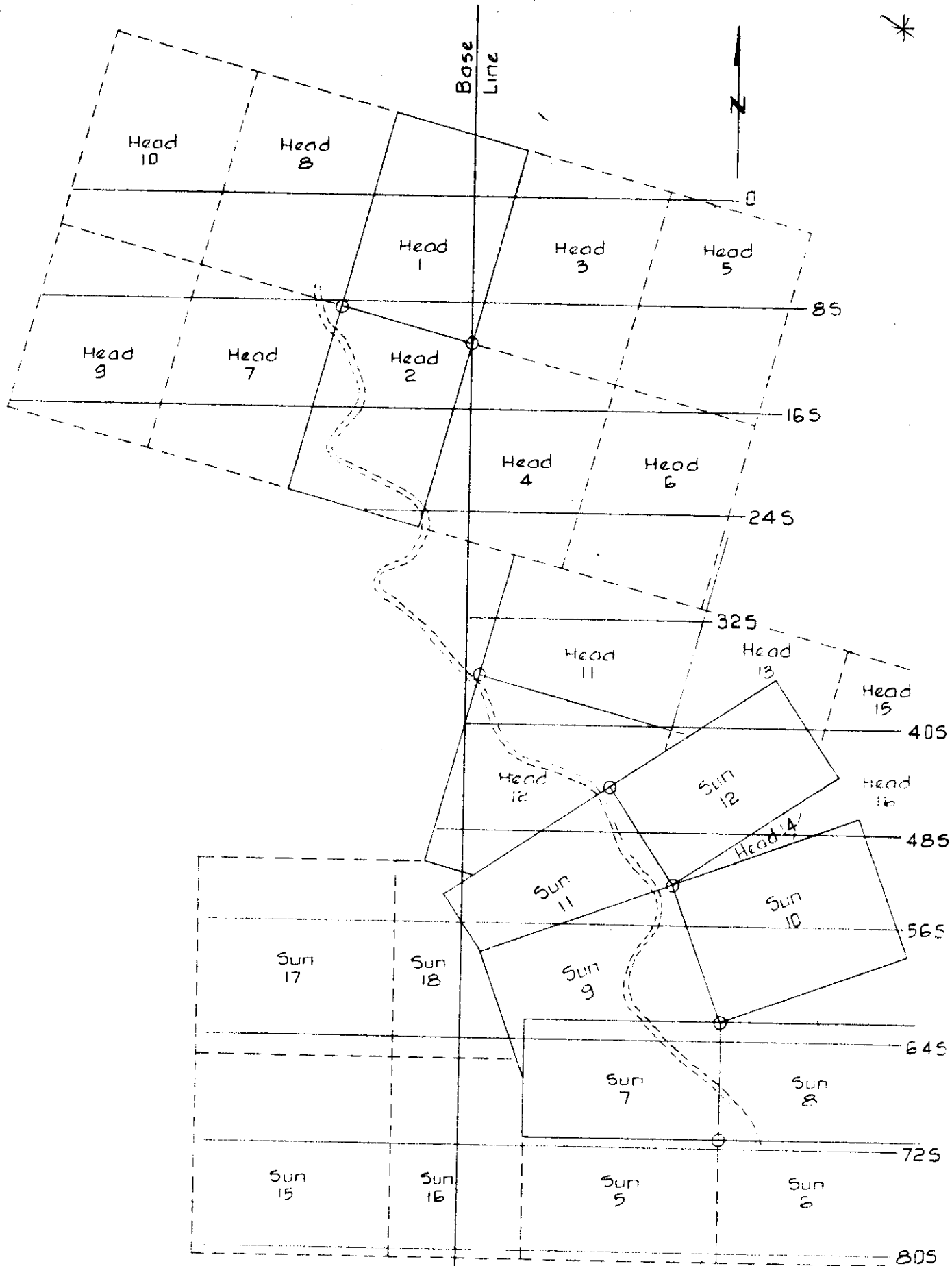
Respectfully submitted,



DWS:sd

D.W. SMELLIE, P.Eng.

August 24th, 1966



Survey Claims  
 Approx Claims

**CHRISTINA LAKE MINES LTD**  
**HEAD & SUN GROUPS**

Scale: 1" = 1000'-0"

**REPORT**  
**ON A**  
**GEOPHYSICAL SURVEY**  
**OF**  
**A PORTION OF THE HEADS AND TAILS GROUPS**  
**SIMILKANEEN M. D.**

by  
**M. K. Lorimer, B.A.Sc., P.Eng.**  
**Hill, Manning ● Associates Limited**  
**30 November, 1966**

## S U M M A R Y

Christina Lake Mines Limited Holds a block of 76 claims in the Brenda Lake Area of British Columbia.

The favourable geologic structure of the property and the fact that other companies were successful with Induced Polarization surveys in the area, led to the decision to carry out such a survey in August, 1966.

The survey was conducted by Dr. D. W. Smellie whose report accompanies this one.



## C O N T E N T S

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REPORT  
ON  
A GEOPHYSICAL SURVEY  
OF  
A PORTION OF THE HEADS AND TAILS GROUPS  
SIMILKAMEEN M.D.

**OBJECT:**

This report is submitted for the purpose of describing a geophysical survey carried out on a portion of the Heads and Tails Groups in the Similkameen Mining Division in August, 1966. The report is principally concerned with describing the location and geology and with the details and costs of the line cutting which preceded the survey. A separate report covering the technical aspects of the geophysical survey, written by Dr. D. W. Smellie, P.Eng., is attached.

**PROPERTY:**

The property is held by Christina Lake Mines Limited and consists of the following claims.

<u>CLAIMS</u>	<u>RECORD NUMBERS</u>	<u>EXPIRY DATE</u>
TAIL Nos. 1 to 18 Incl.	12819 to 12836 Incl.	30 November, 1966
HEAD Nos. 1 to 20 Incl.	12837 to 12856 Incl.	30 November, 1966
SUN Nos. 1 to 20 Incl.	12929 to 12948 Incl.	10 December, 1966
MOON Nos. 1 to 18 Incl.	13024 to 13041 Incl.	20 December, 1966

These claims are being grouped in two groups to be called the Heads Group and the Tails Group as follows:

**Heads Group:**

<u>Claims</u>	<u>Record Numbers</u>
Head Nos. 1 to 20 Incl.	12837 - 12856 Incl.
Sun No. 6	12934
Sun Nos. 8 to 12 Incl.	12936 - 12940 Incl.
Tail Nos 5 - 10 Incl.	12823 - 12828 Incl.
Tail Nos. 15 - 18 Incl.	12833 - 12836 Incl.

PROPERTY: (Continued)

Tails Group

<u>Claims</u>	<u>Record Numbers</u>
Sun Nos. 1 - 5 Incl.	12929 - 12933 Incl.
Sun No. 7	12935
Sun Nos. 13 - 20 Incl.	12941 - 12948 Incl.
Moon Nos. 1 - 18 Incl.	13024 - 13041 Incl.

LOCATION:

The property is located about 12 miles northwest of Peachland at an average elevation of 5,500 feet. The road from Peachland to Pennask Lake passes through it at a road distance of about 20 miles from Peachland.

TOPOGRAPHY:

The topography is hilly with a dense cover of spruce and pine trees. There are many small lakes and streams in the area which insure an adequate supply of water for exploration.

GEOLOGY:

The property lies in an area where Coast Intrusions of granodiorite and quartz diorite have intruded older volcanic and sedimentary rocks of the Nicola Group. In this particular area the intrusives form a narrow neck about three miles wide with Nicola rocks to the east and west. The western part of the property covers a portion of the western contact of intrusive neck.

The known copper and molybdenum showings in the area occur near the western contact of the intrusive neck and about two miles north of the property. This mineralization takes the form of fissure fillings in the granodiorite. There is a possibility of similar mineralization occurring near the contact to the south and within the boundaries of the Christina Lake claims.

GEOPHYSICAL SURVEY:

Because of the fact that other companies in the area obtained successful results from Induced Polarization surveys, it was decided to conduct such a survey over the western part of the property where the most favourable geologic features existed.

GEOPHYSICAL SURVEY: (Continued)

Before the survey commenced a grid was laid out and cross-lines cut. A north-south base line was run from the northern boundary and through the common corner of the Head Nos. 1 to 4 claims. Stakes were placed along this line at 800 foot intervals, horizontal distance. This work was done between 18th and 23rd July, and 1st and 3rd August, 1966. Labour expenditures were as follows:

<u>NAME</u>	<u>TIME</u>	<u>RATE</u>	<u>TOTAL</u>
G. Bradbury	16 hours	2.40	38.40
D. Lorimer	63 hours	2.00	126.00
M. K. Lorimer	8 days	38.00/day	<u>304.00</u>
TOTAL			\$468.40

The cross-lines were cut and stakes placed at 100-foot intervals by B. Callison, Line Cutting Contractor. This work was done in the period 1 - 11 August, 1966. The costs were as follows:

10.51 miles of line cutting @ \$135.00	\$1,418.85
Pickets and transportation	<u>256.42</u>
TOTAL	\$1,675.27

The Induced Polarization survey was done by Dr. D. W. Smellie, P. Eng. in the period 10 - 19 August, 1966. The party was under the direction of D. B. Trussel and consisted of P. J. Horn, B. Wallace and K. Kraft. The cost of this work is detailed below:

Mobilization - 2 days @ \$120.00	\$ 240.00
Operating - 10 days @ 240.00	2,400.00
Stand-by - 1 day @ 75.00	75.00
Interpretation - 2 days @ 100.00	200.00
Report preparation	150.00
Field Expense	
Travel - 500 miles @ 0.15	75.00
Hotel	233.50
Meals	137.35
Salt	<u>9.42</u>
TOTAL	\$3,520.27

Declared before me at the City of Vancouver, in the Province of British Columbia, this 30 day of November 1966, A.D.

TOTAL

\$3,520.27

*James Campbell*

*Gill Turner*

Sub-mining Recorder

Notary Public in and for the Province of British Columbia

**GEOPHYSICAL SURVEY: (Continued)**

The technical details of the Induced Polarization survey are given in the accompanying report by Dr. D. W. Smellie, P.Eng. entitled "Induced Polarization Survey, Brenda Area, B. C." and dated August 24th, 1966.

**HILL, MANNING & ASSOCIATES LIMITED**

*M. K. Lorimer*

**M. K. Lorimer, P.Eng.  
30th November, 1966**

CERTIFICATE OF QUALIFICATIONS

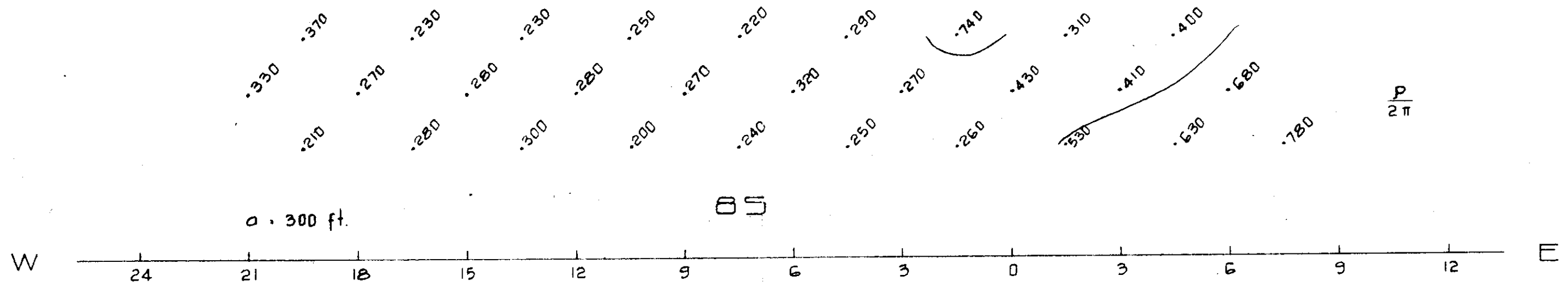
I, MALCOLM KEITH LORIMER, of the City of Vancouver, Province of British Columbia, Mining Engineer, hereby certify:

1. THAT I am practicing Mining Engineer and reside at 3082 West 27th Avenue, Vancouver, B. C.
2. THAT I am a graduate in Mining Engineering of the University of British Columbia, Bachelor of Applied Science, 1950, and have been practicing my profession for over sixteen years.
3. THAT I am a member of the Association of Professional Engineers of the Province of British Columbia.
4. THAT I am a member of the Canadian Institute of Mining and Metallurgy.
5. THAT I am an associate of the firm of Hill, Manning & Associates Ltd., consulting Mining Engineers, of 610 - 890 West Pender Street, Vancouver 1, B. C.
6. THAT the following is a true record of my employment and experience:
  - 1950 - 52 General engineering, Consolidated Mining and Smelting Company of Canada Limited, Kimberley, B.C.
  - 1952 - 56 Chief Engineer, Pioneer Gold Mines of B. C. Ltd. Pioneer Mines, B. C.
  - 1956 - 57 Chief Engineer, Buchans Mining Co. Ltd., Buchans, Nfld.
  - 1957 - 59 Chief Engineer and Mine Superintendent, Cowichan Copper Co. Ltd., Cowichan Lake, B. C.
  - 1959 - 65 General exploration work for various companies, mostly in southern British Columbia.
  - 1965 - 66 Associate, Hill, Manning & Associates Ltd., Vancouver, B. C.
7. THAT I have no direct or indirect interest in the properties or securities of Christina Lake Mines Limited nor do I expect to acquire any.

DATED at Vancouver, British Columbia, this 30th day of November, 1966.

*M. K. Lorimer*

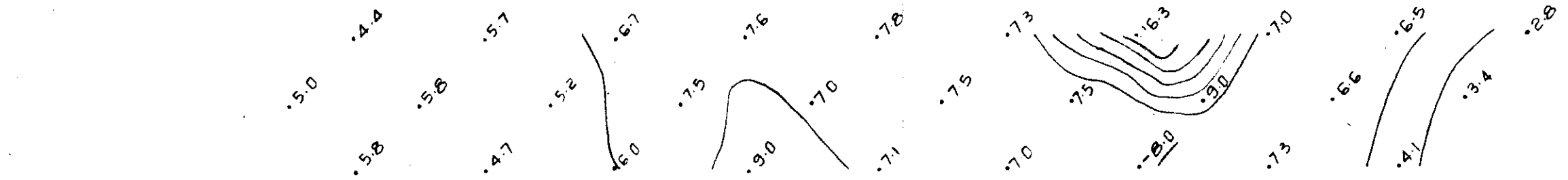
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M. K. Lorimer, B.A.Sc., P.Eng.



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a = 300 ft.

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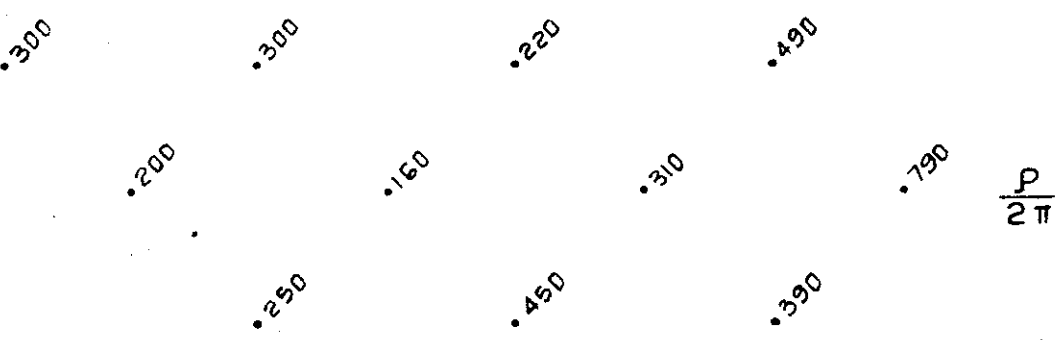


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BRENDA ORE BODY

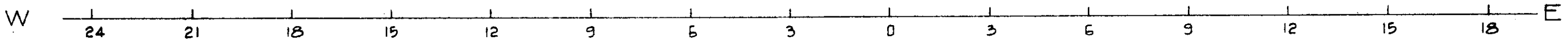
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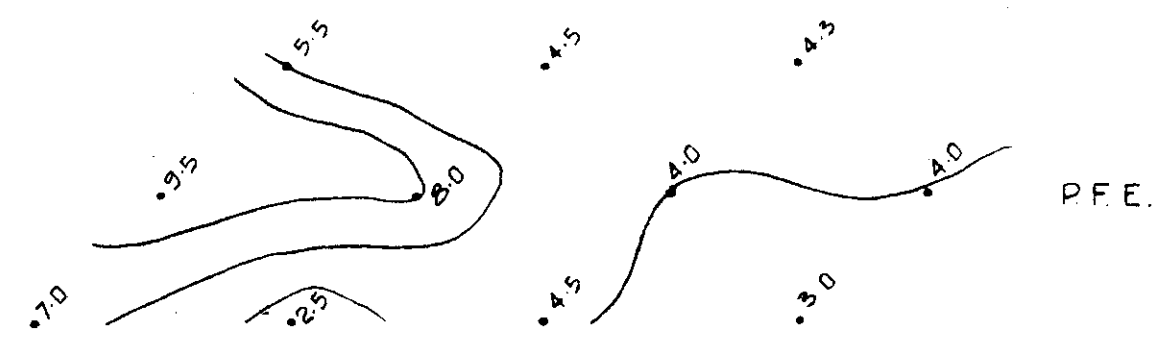


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a = 400 ft.

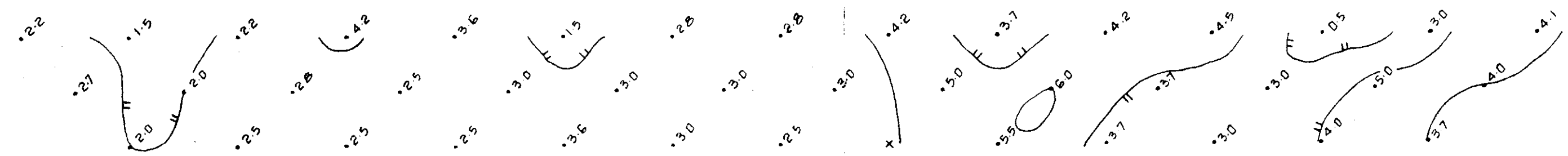
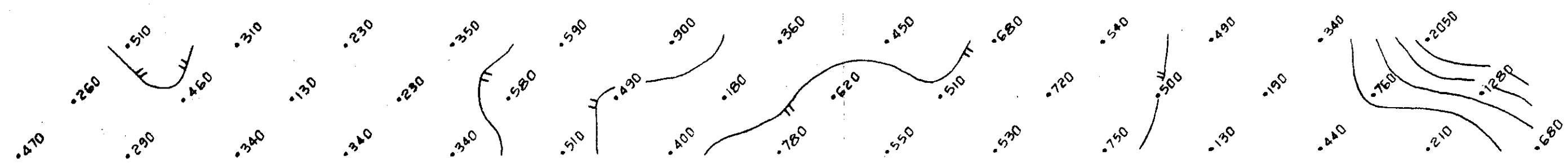


BRENDA ORE BODY



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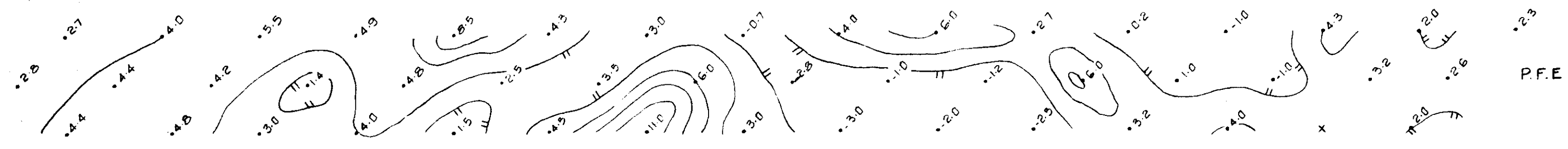
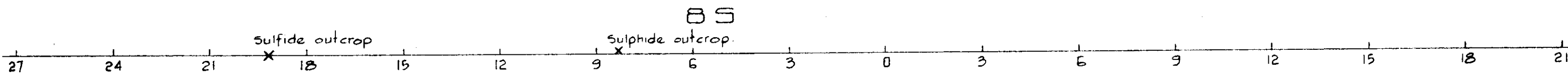
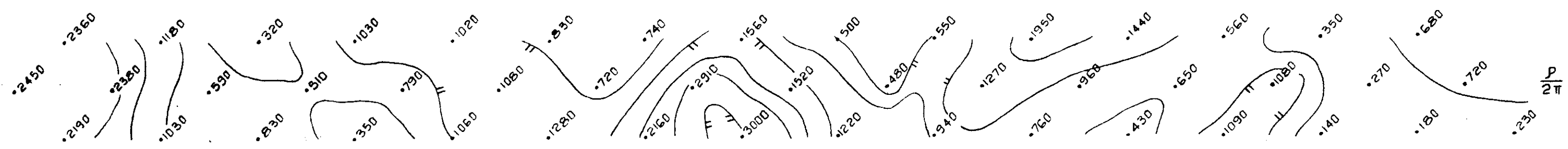




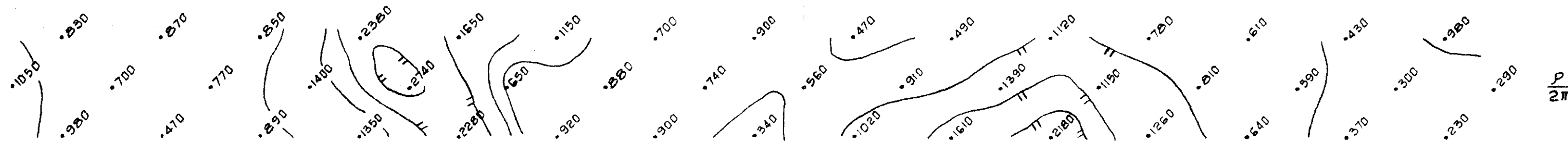
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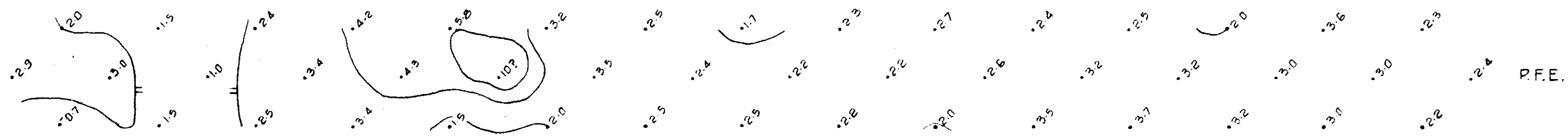
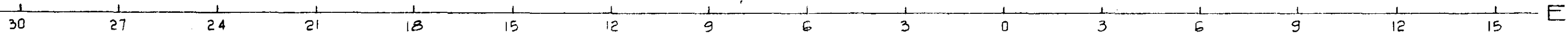
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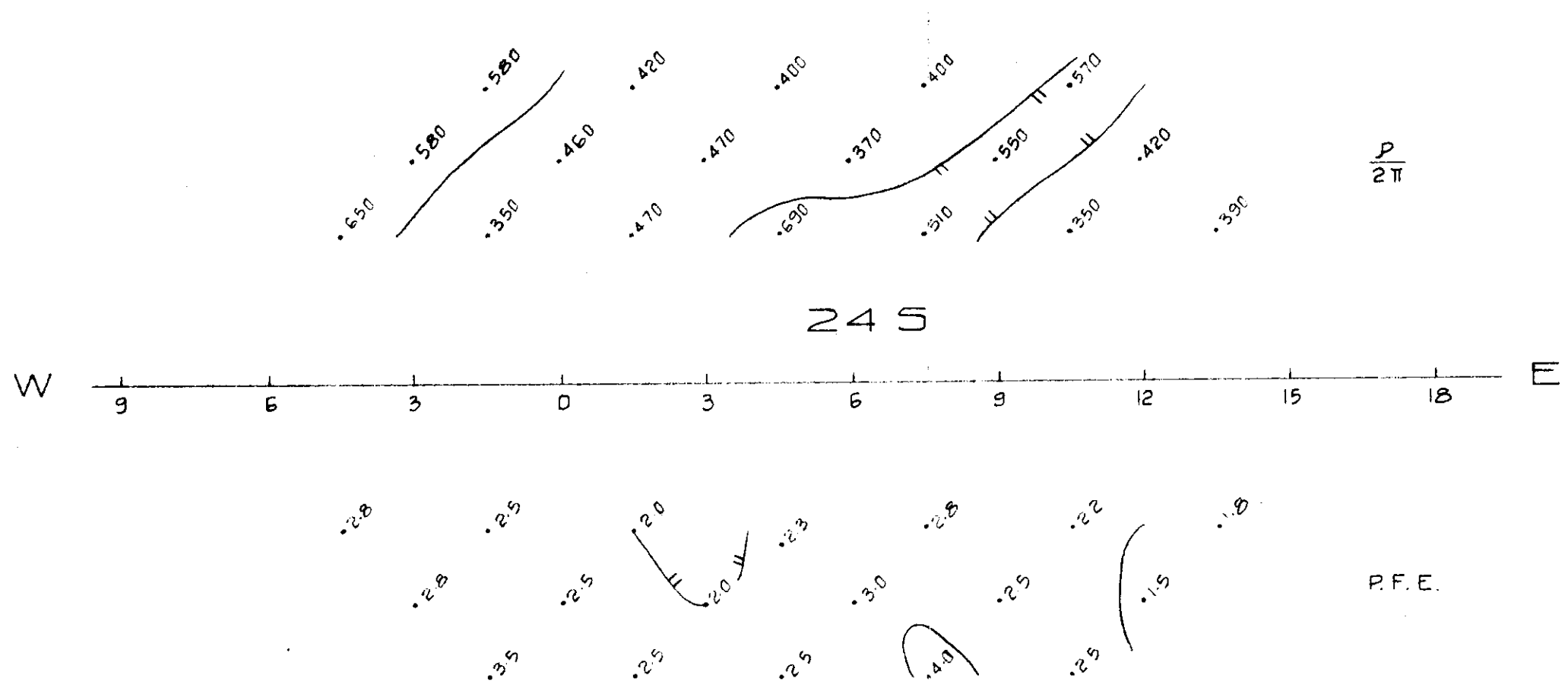
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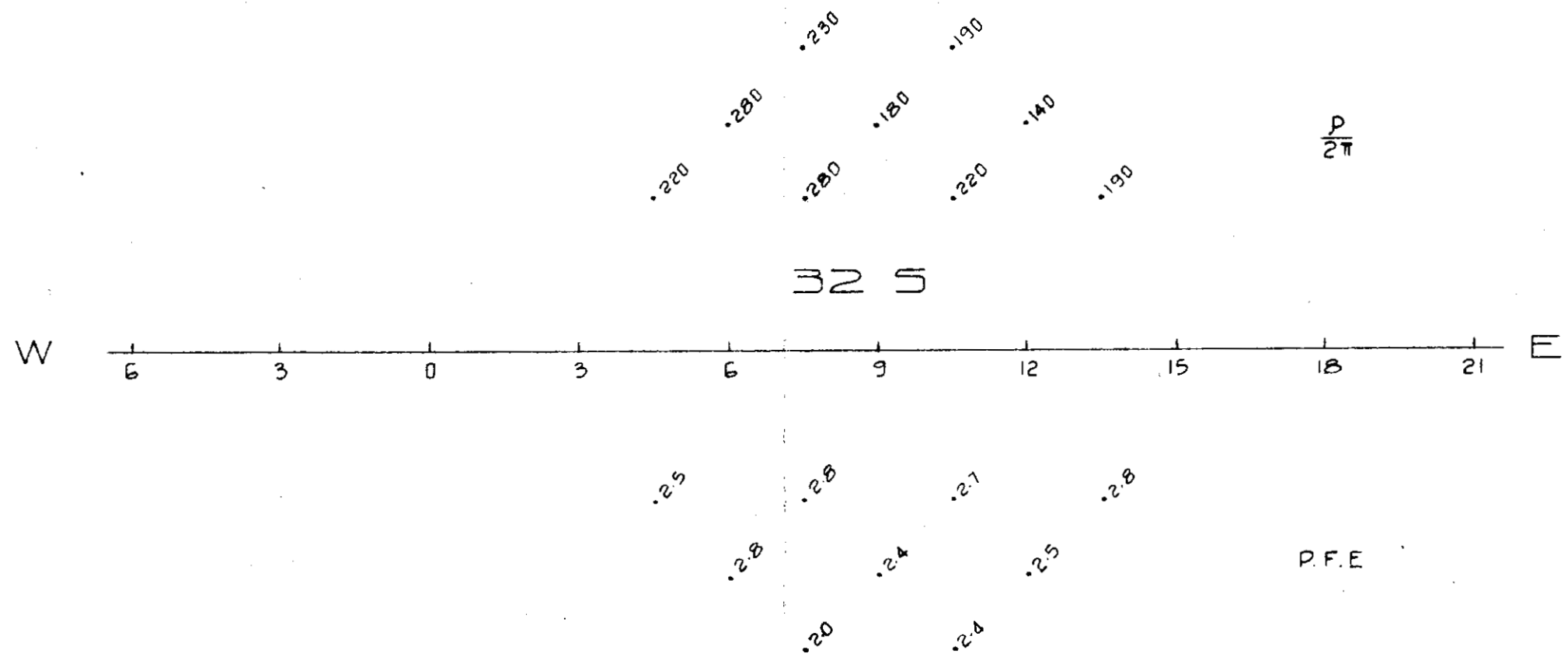
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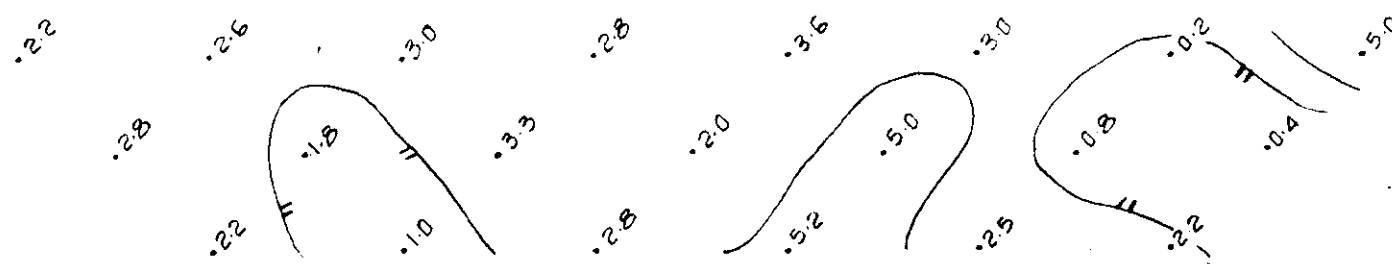
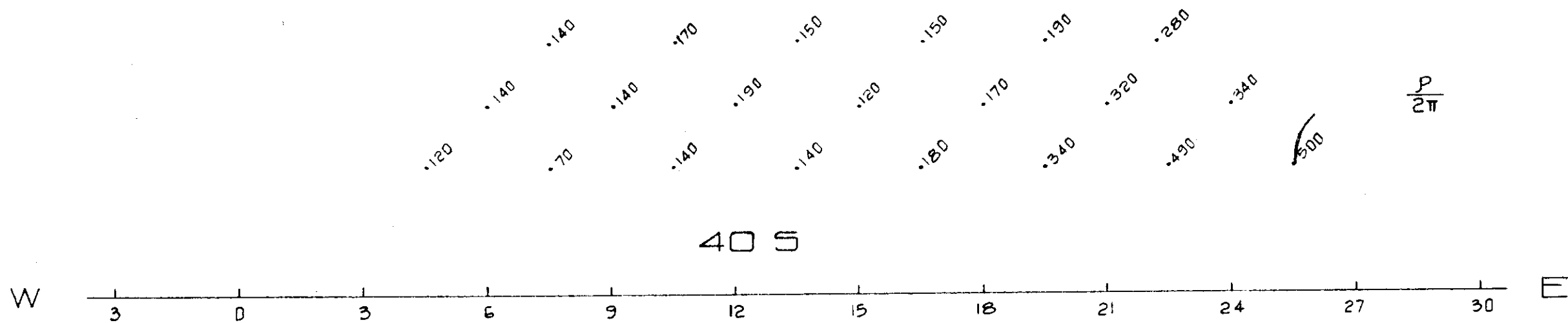
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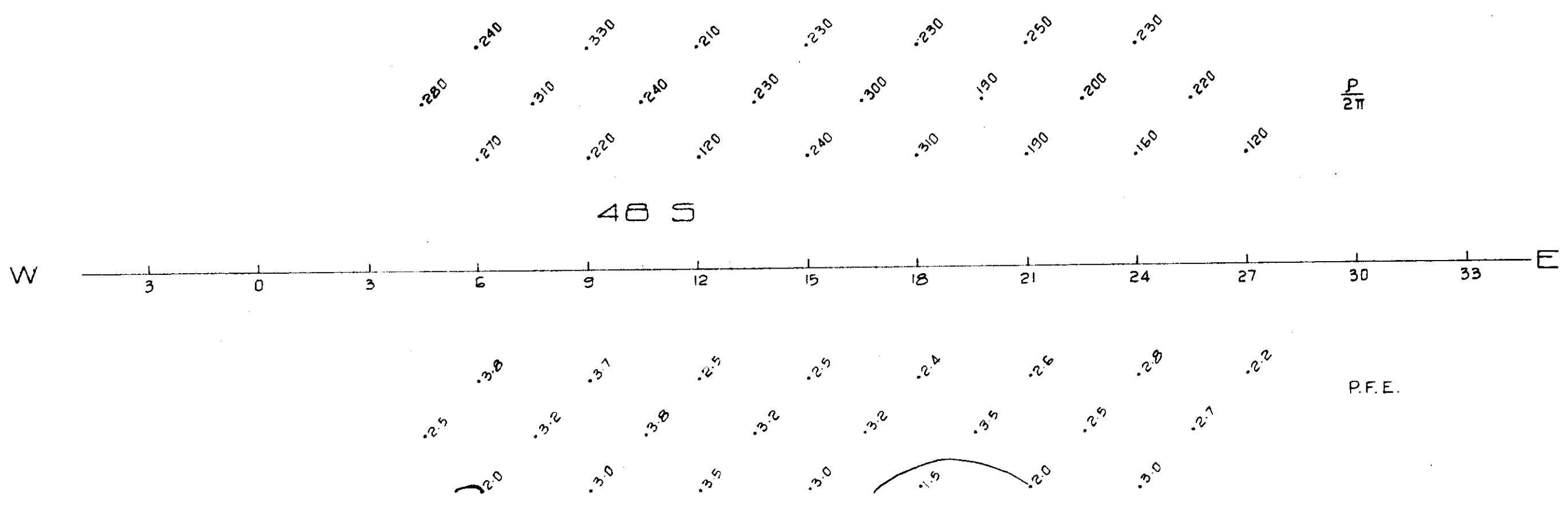


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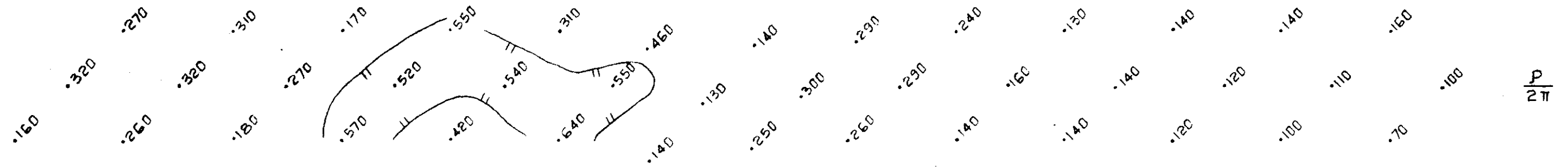


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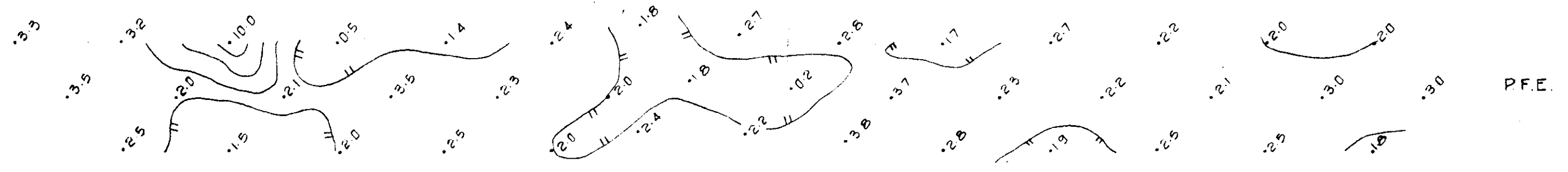
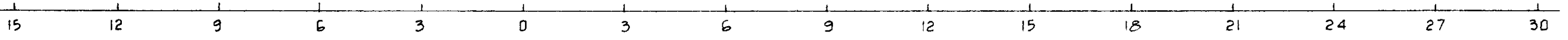
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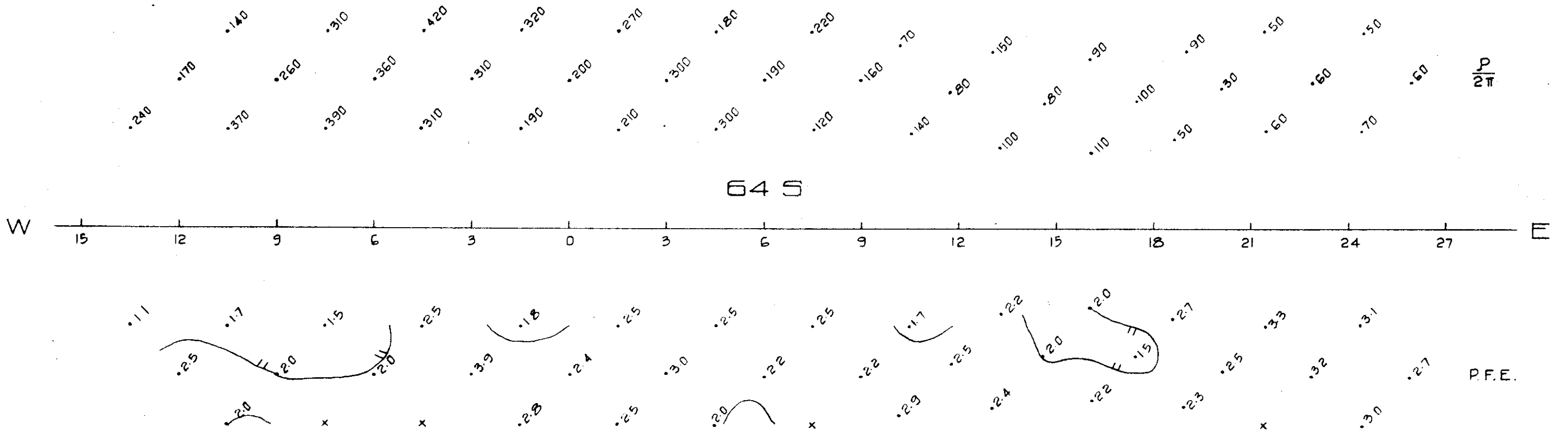
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P.F.E.

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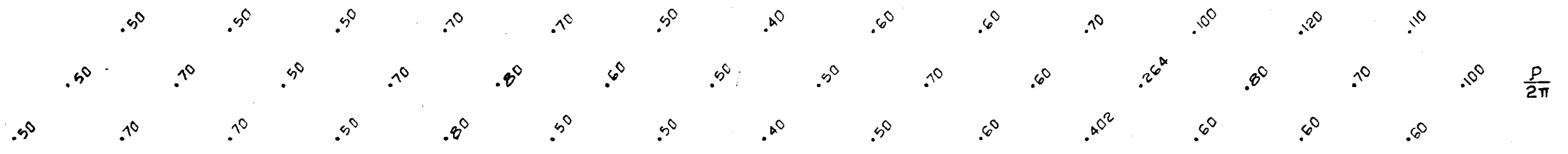
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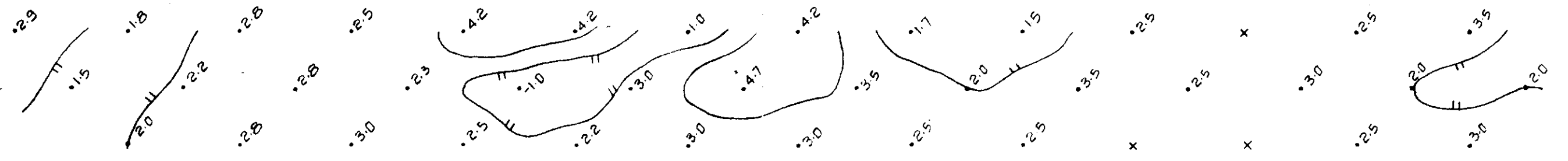
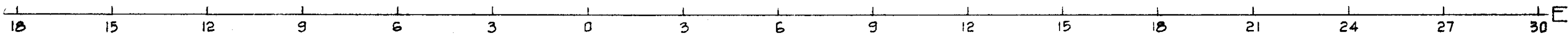
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P.F.E.

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P.F.E.

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