

443

REPORT OF GEOPHYSICAL SURVEYS

DON #12 AND DON #40

CLAIM GROUPS

LIARD MINING DIVISION

By: Gordon C. Gutrath, B.Sc. and

Dr. G. W. H. Norman, P. Eng.

For: Newmont Mining Corporation of
Canada Limited

June and July, 1962

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INTRODUCTION

This report presents results of geophysical surveys carried out during June and July on the Don #12 and Don #40 groups of 20 claims. The claims were staked late in the prospecting season of 1960 to hold ground containing a few small showings of magnetite, chalcopyrite, galena and tetrahedrite. The ground staked lies mostly below timber line in which wooded areas break the continuity of rock exposures and in part is floored by flood plain gravels near the toe of a large glacier.

The topography and overburden which is partly flood plain gravels make exploration by stripping and trenching difficult and expensive. Only a small amount of such work was performed because the showings found lack sufficient size to be of commercial importance.

Geophysical surveys were considered to be the cheapest and most effective method of exploring the claims and obtaining further information regarding the mineralization. The presence of magnetite in the area indicated that a magnetic survey would be desirable and in the hope of locating good conducting bodies of sulphides an electromagnetic method was also employed.

LOCATION

The Don #12 and Don #40 claim groups lie near the headwaters of Forrest Kerr Creek. This Creek flows into Iskut River from the north, forty-four miles east of Stikine River. 17 miles upstream from its junction Forrest Kerr breaks up into three branches. The two northern branches drain the east side of a large ice field. The southern branch flows out of a small lake fed by streams from high ground south of the eastern edge of the ice field. The Don claim groups extend east and west of the small lake on the southern branch.

SURFACE FEATURES

The claims lie partly on a northwest sloping side of a mountain and range from 2000 to 4000 feet above sea level and partly along the flood plain at the base of the mountain. The mountainside is drained by a series of sharp and steep gullies and is broken up by other depressions into a hummocky irregular surface. Line cutting and traversing across the flood plain part of the claims were carried out with less labour and difficulty than the hillside areas. Dense alder growth in some of the hillside regions made work particularly labourious in places.

WORK PERFORMED

General Statement

The personnel employed for the work on the Don claim group were as follows: -

Gordon C. Gutrath, B.Sc. U.B.C. Party Chief
Adrian Hankey, B.Sc. U.B.C. Geophysicist
Norman Tribe, 3rd yr. Ap.Sc.U.B.C. Magnetometer Operator
Lorne Basher, Line Cutter
George Wright, Line Cutter
Jon Giesbrecht, Field Assistant
Walter Giesbrecht, Field Assistant
Andrew Giesbrecht, Field Assistant

Under the general supervision of District Chief

G.W.H. Norman, P. Eng.

Adrian Hankey was employed to run the electromagnetic surveys, because he had had two years previous experience with electromagnetic methods. Norman Tribe had had one year's experience with a magnetometer before employment by Newmont. Prior to proceeding north, Dr. Gordon Wieduwilt, geophysicist, Newmont Exploration Limited, with fifteen years field experience, spent three days in the office and field near Vancouver overhauling and testing the geophysical equipment to be used on the Don claim groups with Adrian Hankey and Norman Tribe. This provided an opportunity to be sure the equipment would work and that Hankey and Tribe were acquainted with the equipment and its maintenance as an operating unit.

A total of 126,000 feet of cross lines were cut out and marked at 100 foot intervals along two base lines totalling 14,000 feet in length.

The lines were surveyed with Askania magnetometer by Norman Tribe with Andrew Giesbrecht as field assistant, and with a Ronka E.M. unit Mark 1, 200 foot coil spacing, by Adrian Hankey assisted by Jon and Walter Giesbrecht.

DON #12 GROUP

Work in the field on the Don #12 group commenced June 1 and ended July 18th. During this period 91 man days of line cutting were performed. The geophysicist and assistants spent 45 man days on an electromagnetic survey. The magnetometer operator and assistant spent 20 man days on a magnetometer survey.

DON #40 GROUP

Work in the field on the Don #40 group commenced June 1 and ended July 18. During this period 34 man days of line cutting were carried out. An electromagnetic survey was carried out in 29 man days by geophysicist and assistants. A magnetometer survey was carried out in 24 man days by the magnetometer operator and assistant.

MAGNETOMETER SURVEY

Instrument

The magnetometer used for the survey was a Torsion Type Askania with a rated scale value of 266.1 gammas per degree. Each degree is graduated into ten divisions and in reading the instrument it is possible to estimate to a tenth of the graduated divisions.

The instrument is accordingly a sensitive type reading to within about 3 gammas and measuring the vertical component only. After completion of the work the instrument was checked in another nearby area where magnetic measurements had been made in 1960 with a different instrument run by a different observer. The plots of the check line run in 1960 and again in 1962 agreed perfectly and indicated that the measurements with the 1962 instrument are reliable.

Method Employed

The chief precautions taken were to take readings at a base station in camp and a local base in the field two or three times a day to ascertain the amount of the diurnal variation or the presence of magnetic storms. It was found that the diurnal changes were too small to affect the overall pattern of the readings which were taken at 100 foot intervals along the lines.

The readings were plotted in the field as X minus 190 degrees where X equals the reading of the magnetometer in degrees to the second decimal point at the stations occupied. As the readings were read to one hundredth of a degree the figures used in plotting are in terms of one hundredths of a degree. The contours were drawn at one half degree intervals which is equivalent to a contour interval of 133.05 gammas, as the scale value of the instrument 266.1 per degree. The readings were plotted in degrees rather than gammas because it was considered desirable to check the rated sensitivity of the instrument against the readings of an accurately calibrated instrument that was used in the 1960 work.

Results

The objective of the magnetometer survey was to locate any mineralized zones sufficiently high in magnetite to produce a definite magnetic anomaly. The survey failed to reveal any sharp anomaly that could be attributed to a mineralized zone. There are definite magnetic highs present in the area surveyed, north of claim Don 44 and in claims Don 59, 60, 61, 65, 66, 67. These highs range from 1463 gammas, north of claim 44, to 1862.7 gammas, in claim 61, to 1596.6, in claim 67, above the lowest adjacent readings. The rocks underlying the magnetic high areas are porphyritic andesite-dacite lavas. They contain detectable magnetite which is probably an original constituent of the rocks.

ELECTROMAGNETIC SURVEY

Method Used

The electromagnetic survey was carried out by Adrian Hankey using a Ronka Mark I unit. The unit consists of two coils 30 inches in diameter which serve as a transmitter and receiver and ~~are~~ battery powered and operated at 876 cycles per second. The coils are held in a horizontal plane in field operation at a distance of 200 feet apart. A portion of the transmitter coil current is carried by the connecting cable to the receiving coil. The receiver circuitry permits measurements of the in-phase and out-of-phase field in excess of the normal primary as a percentage of the normal primary.

Readings were taken every 100 feet along the lines with the coils 200 feet apart. The readings are plotted at the mid point between the coils.

Results

The results of the survey are shown on the accompanying plan of the electromagnetic survey of the Don 12 and 40 groups in the pocket of the folder. The Ronka system where used under optimum conditions of terrain and relatively shallow overburden gives good quantitative data. The experience using this system on the Don claim groups indicated that the terrain was too rough in general and the thickness of gravels in the flood plain too great for satisfactory results. In a rough terrain it is difficult to keep the coils 200 feet apart and an error of $1\frac{1}{2}$ percent per foot of distance short of 200 feet is introduced. A bad feature of rough terrain is also the difficulty of carrying a large coil particularly where alders and downfalls may cause stumbling. Stumbling presents the problem of keeping the cable coil connections free of short circuits and breaks.

After completion of the work with the Ronka unit a McPhar fixed transmitter tilt unit was brought in and readings taken along a part of the lines. This unit is perhaps less definitive than the Ronka but has much greater depth penetration in locating conductors. A report of results obtained with the McPhar unit are not incorporated with this report because of their incompleteness.

Considerable additional work with this unit would be required to obtain information regarding the pattern of conductors present in the claims.

G. Gutrath per G.W.H. Norman
.....
G. Gutrath, B.Sc.

G.W.H. Norman
.....
G.W.H. Norman, P. Eng.

October 15th, 1962.

Dominion of Canada

Province of British Columbia

To Wit:

In the Matter of

personnel employed and wages, fees and salaries paid by Newmont Mining Corporation of Canada Limited from June 1st, 1962 to July 18th, 1962 for electromagnetic and magnetometer surveys of the Don #12 and Don #40 groups of claims in the Liard Mining Division.

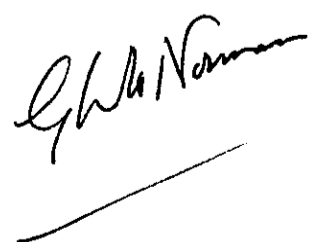
I, **G.W.H. Norman, P. Eng.**, of **604-744 West Hastings Street,**
Vancouver 1, in the Province of British Columbia.

Do Solemnly Declare that the following men were employed for the said surveys and their wages, fees and salaries were as follows:

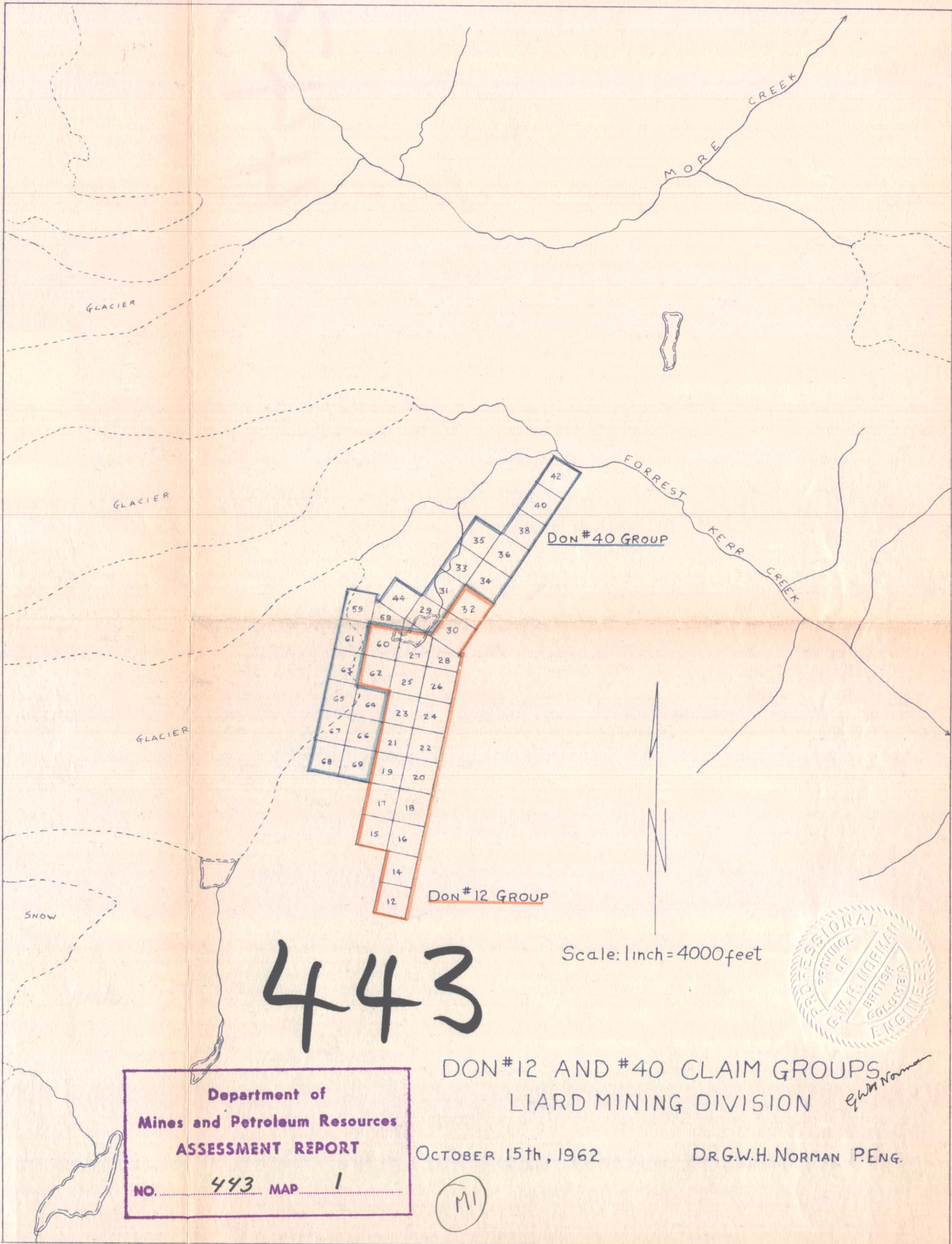
		<u>Monthly</u>
G.W.H. Norman Ph.D. P. Eng.	District Chief	\$1,500.00
G. C. Gutrath, B.Sc., U.B.C.	Party Chief	600.00
Adrian Hankey, B/Sc. U.B.C.	Geophysical Technician	500.00
Norman Tribe, 3rd yr. stud. U.B.C.	Magnetometer Technician	450.00
L. Basher	Line Cutter	450.00
George Wright	Line Cutter	450.00
Andrew Giesbrecht	Field Assistant	400.00
Jon Giesbrecht	Field Assistant	400.00
Walter Giesbrecht	Field Assistant	400.00
Food supplies, camping, outfit, rockgas per man day		6.00

And I make this solemn Declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath, and by virtue of the Canada Evidence Act.

Declared before me
 at *Vancouver*
 in the Province of British Columbia.
 this *15th* day of
October A.D. 19*62*



Shirley Jeanotte
 A Notary Public in and for the Province of British Columbia.
 A Commissioner for taking affidavits within British Columbia.
Sub-Mining Recorder



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Scale: 1 inch = 4000 feet



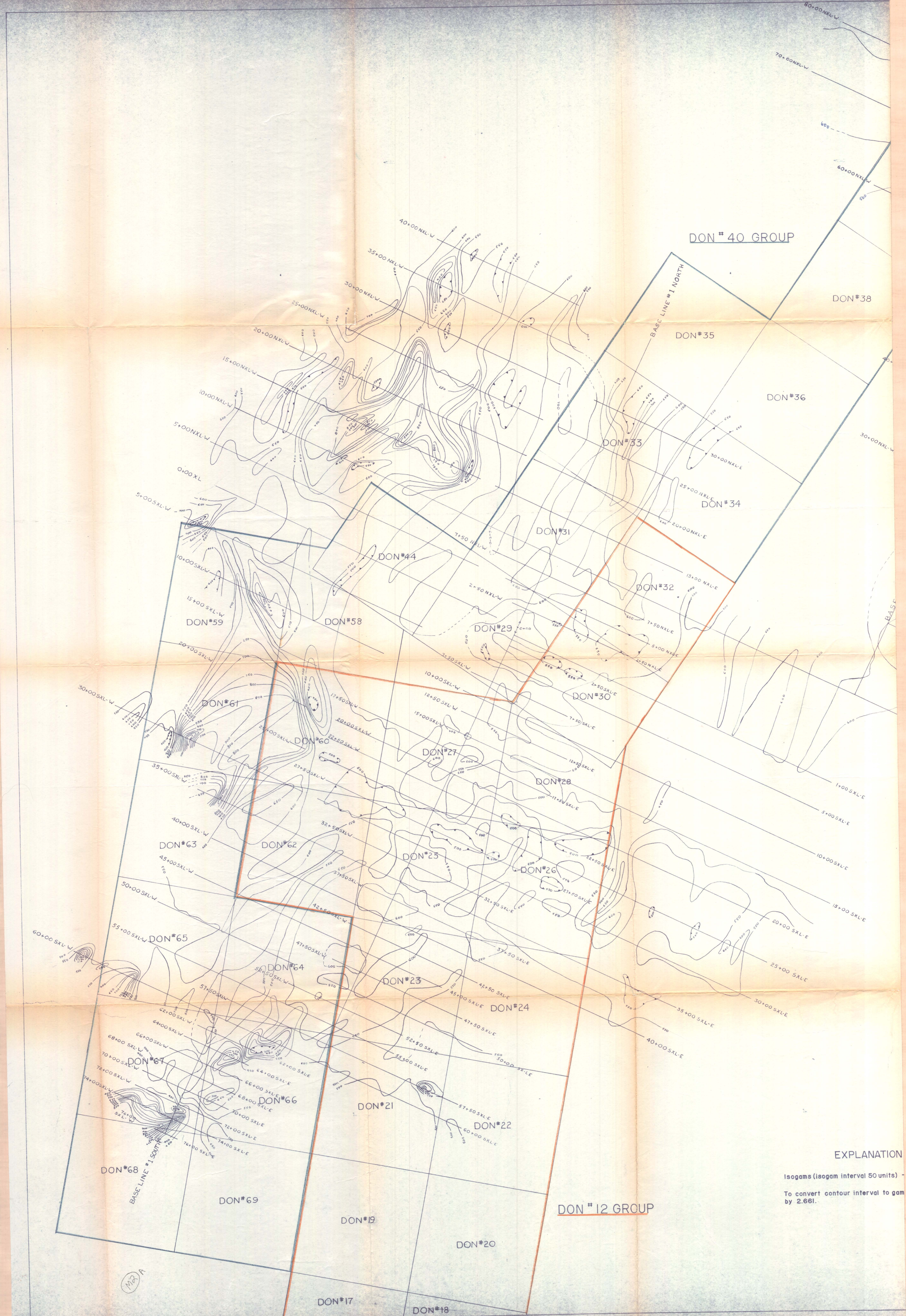
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 443 MAP 1

DON #12 AND #40 CLAIM GROUPS
LIARD MINING DIVISION

OCTOBER 15th, 1962

DR. G.W.H. NORMAN P. ENG.

MI



DON # 40 GROUP

DON # 12 GROUP

EXPLANATION

Isogams (isogam interval 50 units)
 To convert contour interval to gam
 by 2.661.

M3A



DON # 40 GROUP

DON # 12 GROUP

EXPLANATION

Isogams (isogam interval 50 units) — 550 —
 To convert contour interval to gamma multiply by 2.661.

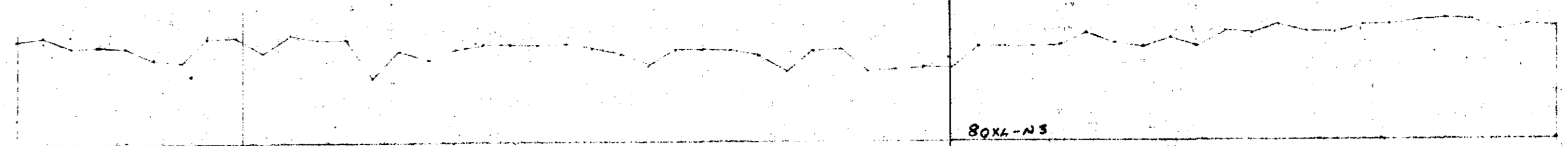
Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 443 MAP 2

MAGNETOMETER SURVEY
 OF THE
 DON #12 AND DON #40

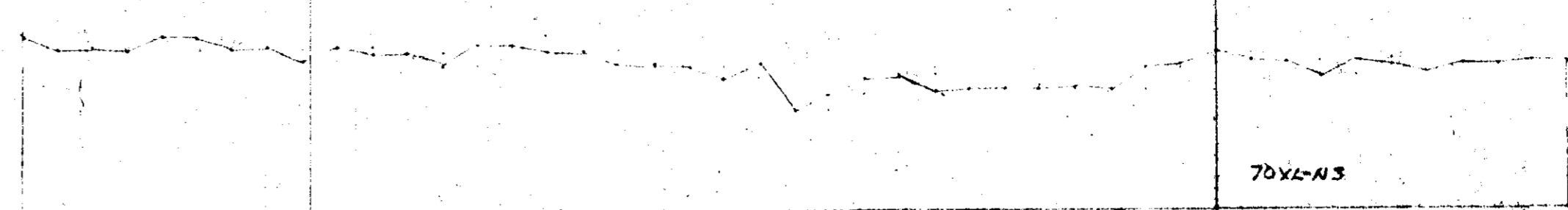
CLAIM GROUPS
 LIARD MINING DIVISION

OCTOBER 15th, 1982
 MAGNETOMETER OPERATOR N. TRIBE
 SUPERVISED BY DR. G.W.H. NORMAN PENO. AND G. GUTRATH

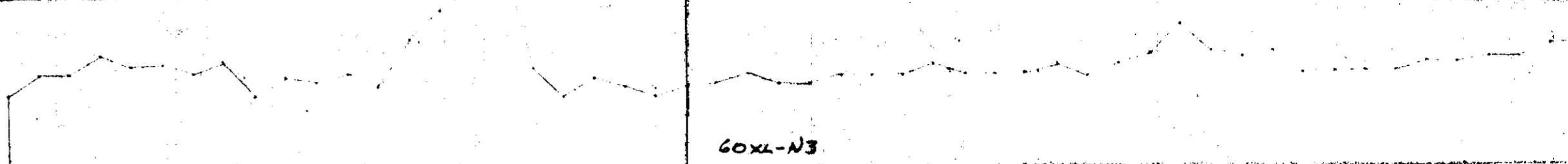
443



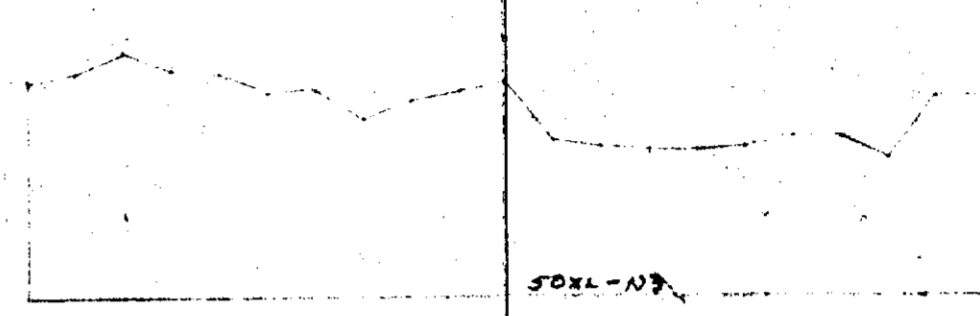
80XL-W3



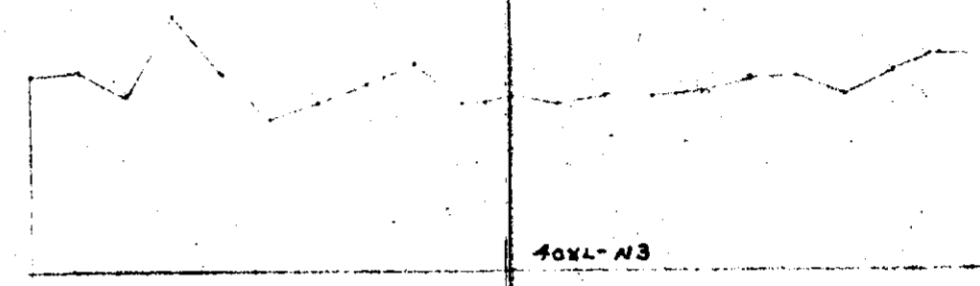
70XL-W3



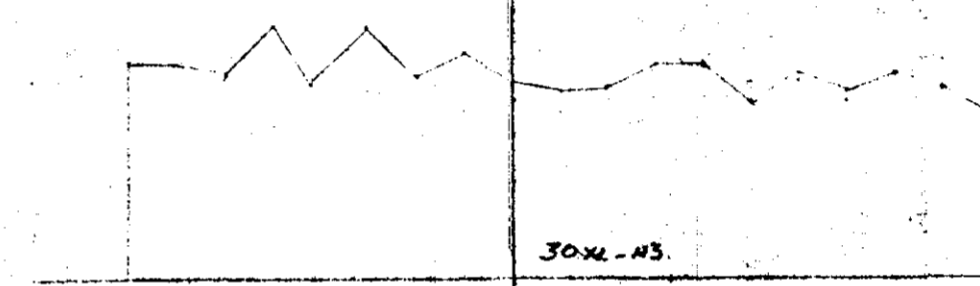
60XL-W3



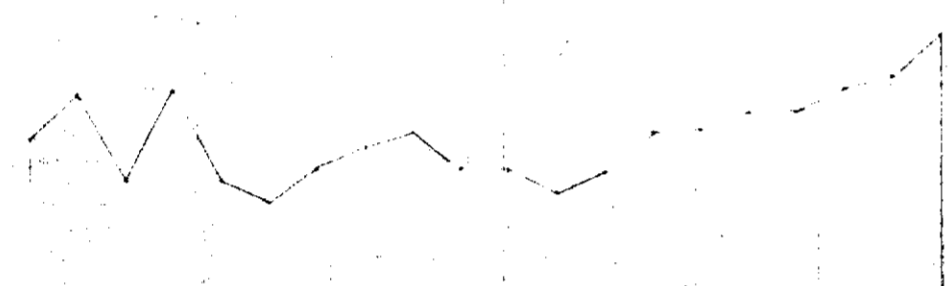
50XL-W3



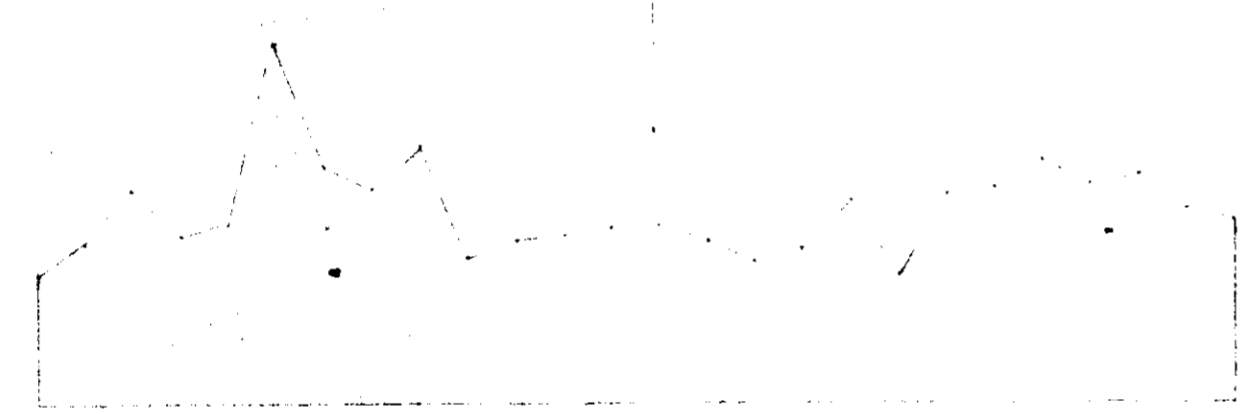
40XL-W3



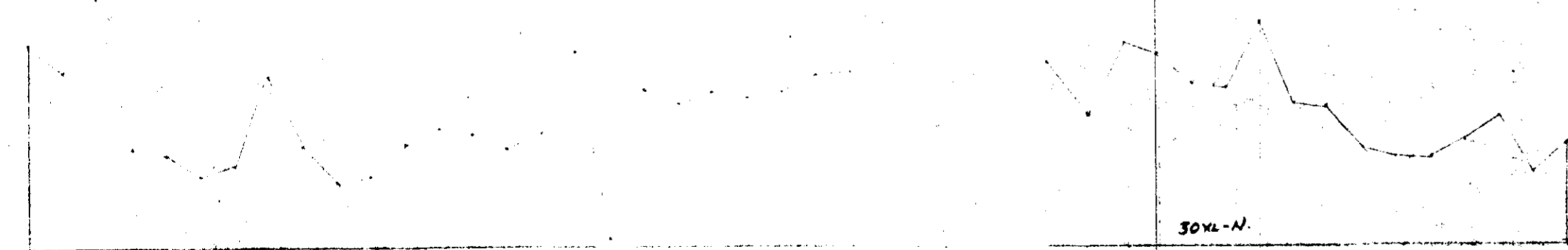
30XL-W3



40XL-N



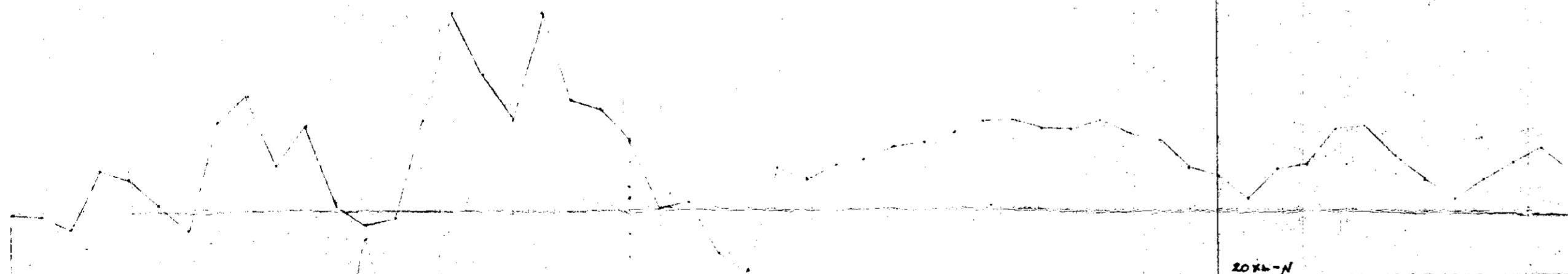
35XL-N



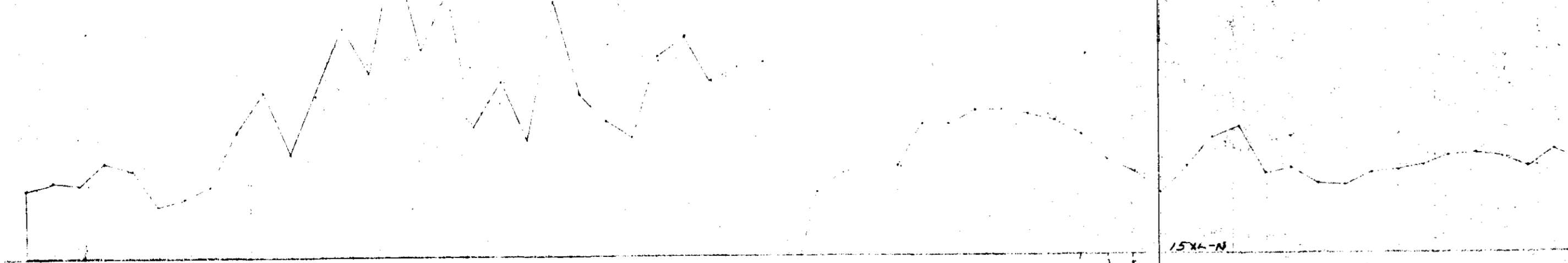
30XL-N



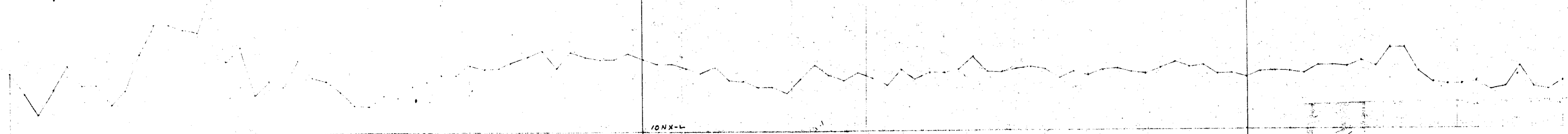
25XL-N



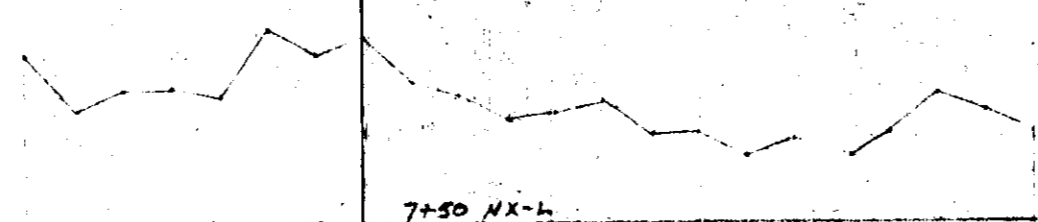
20XL-N



15XL-N



10XL-N

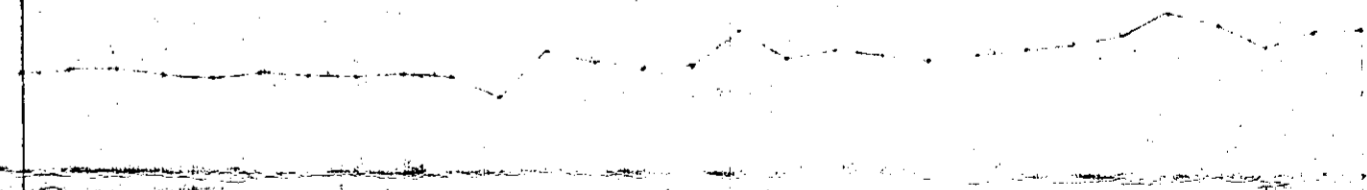


7-50 XL-L

80XL-W3



80XL-W3



70XL-W3



60XL-W3

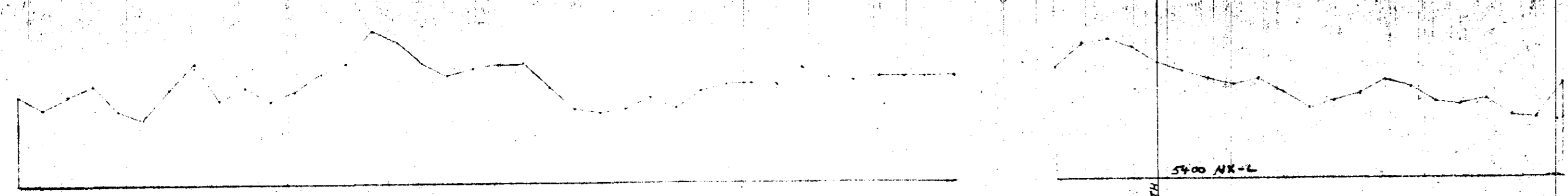
Department of
Mines and Petroleum Resources
AUGUST 1962 REPORT
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MAGNETIC PROFILES (Sheet 1)

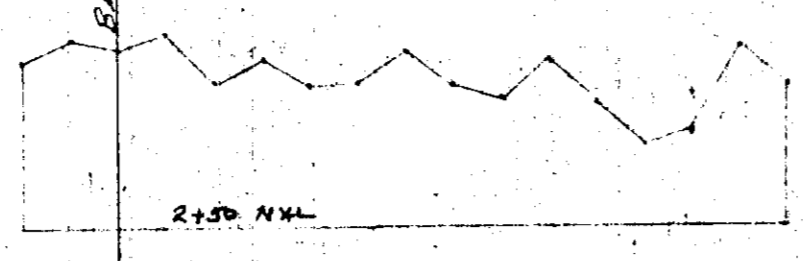
(M3)

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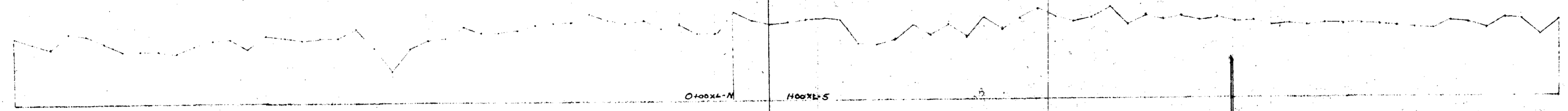
Scale 1:50,000
Magnetic profiles for the area shown on the map are shown on this sheet.
Compiled by Dr. J. J. ... and Dr. ...



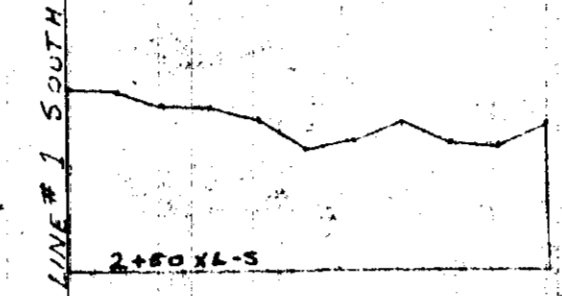
2500 NXL-L



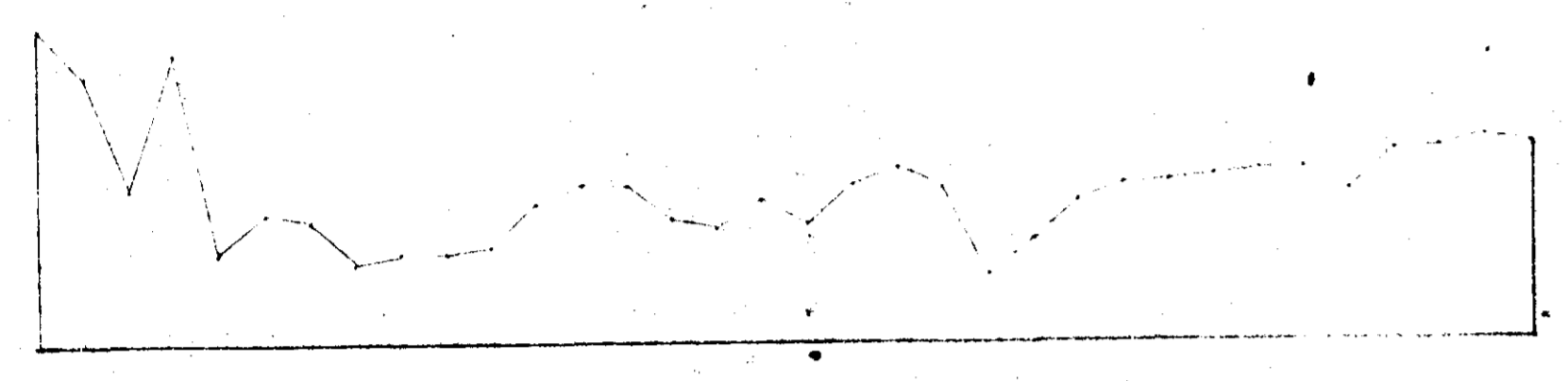
2100 NXL-L



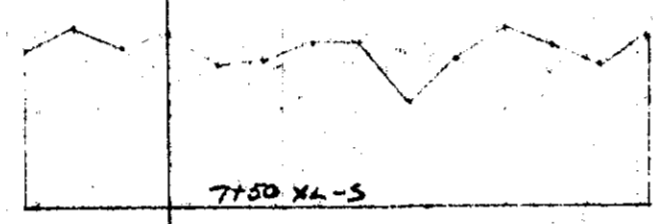
0400XL-N



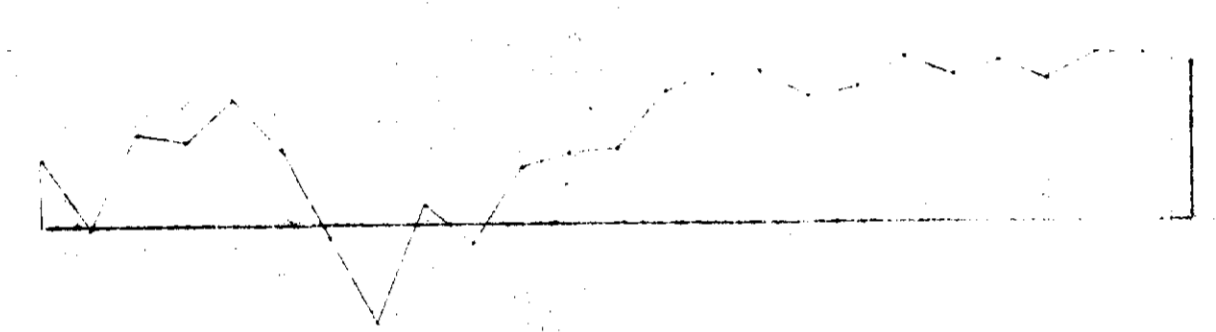
2800XL-S



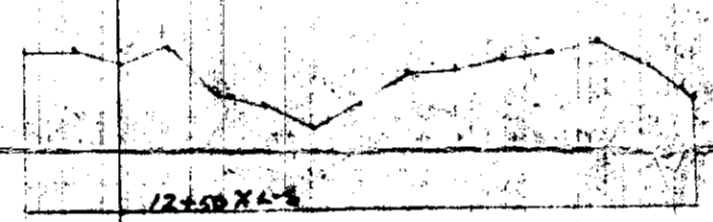
5100XL-S



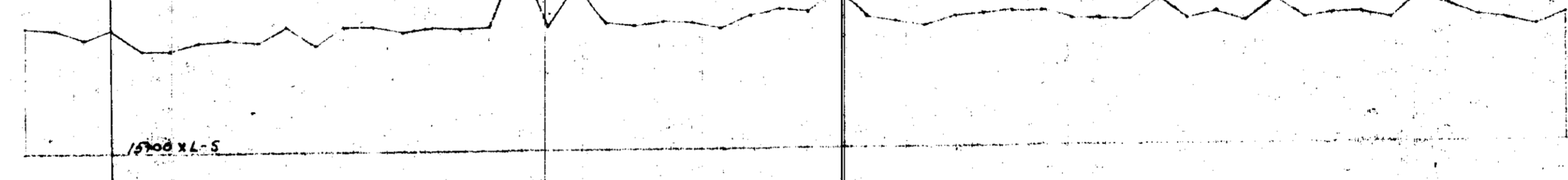
7700XL-S



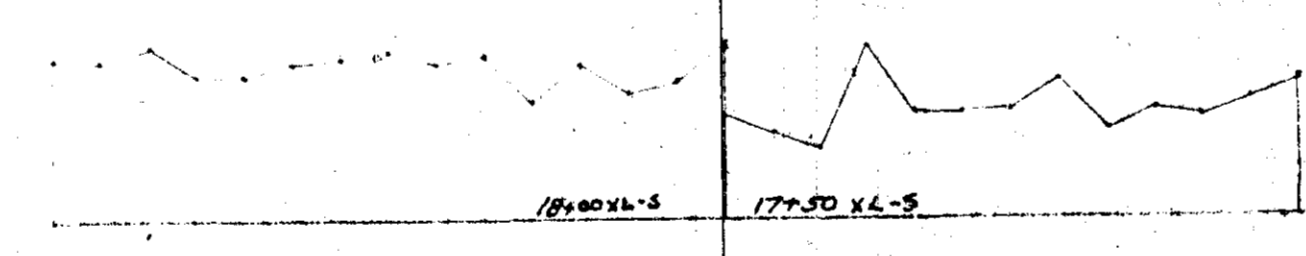
10400XL-S



12400XL-S

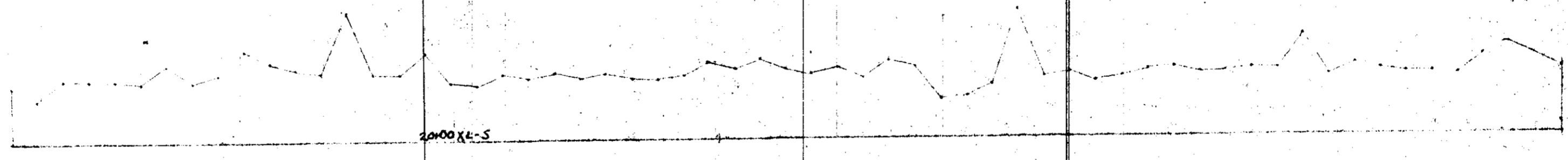


17000XL-S

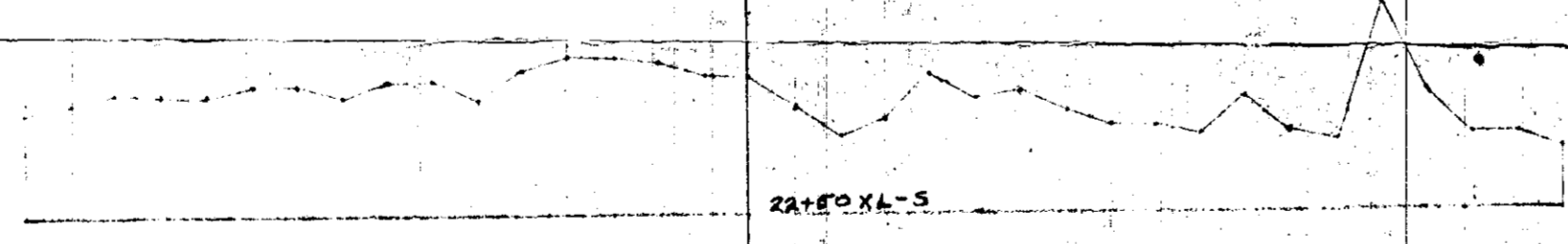


16400XL-S

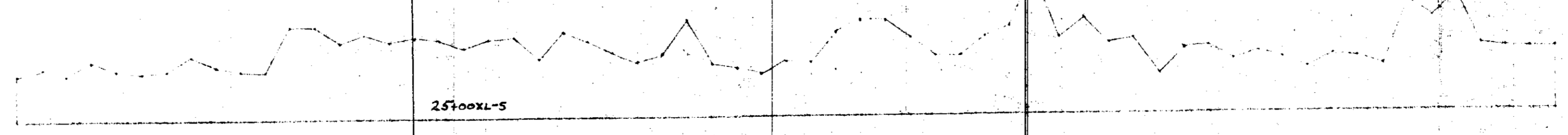
17200XL-S



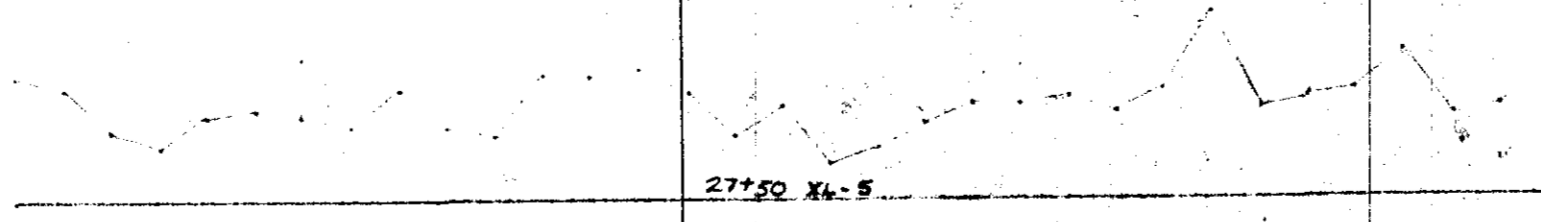
19000XL-S



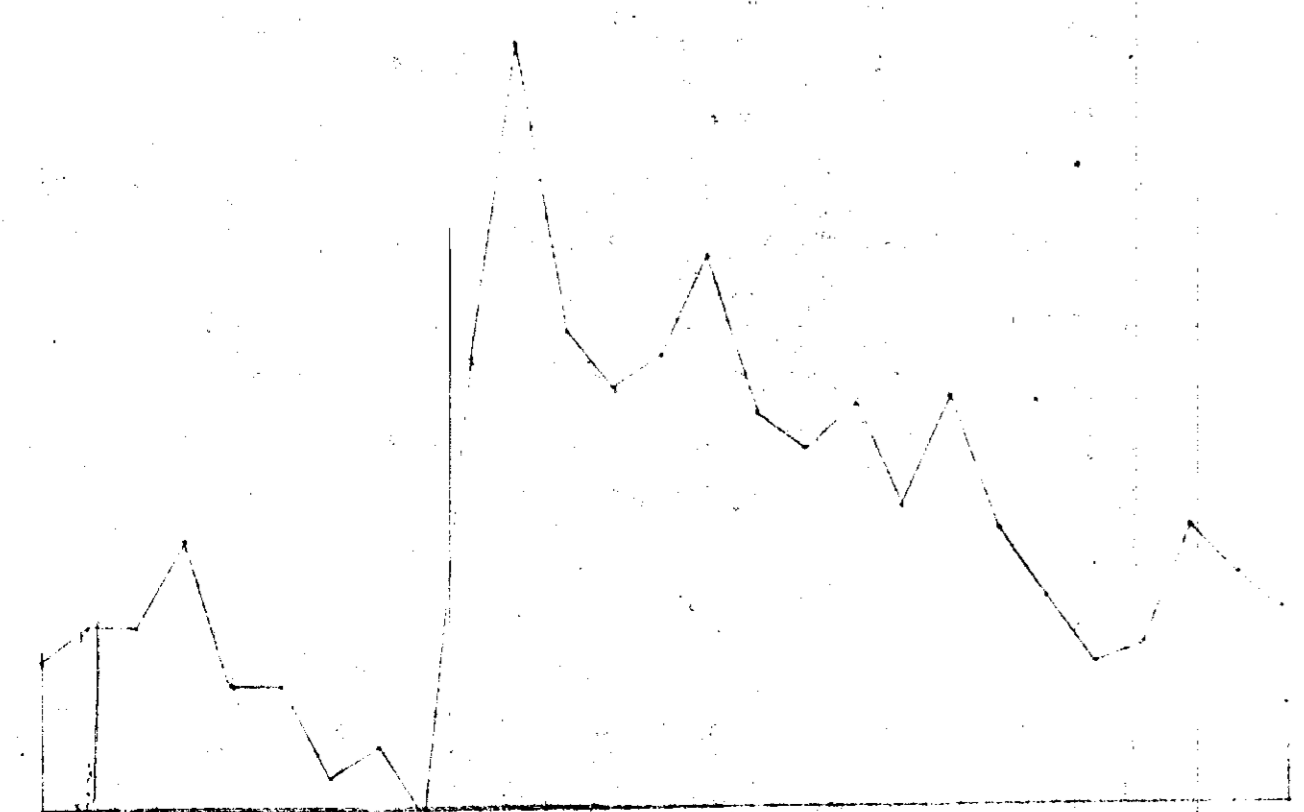
24100XL-S



25700XL-S



27750XL-S



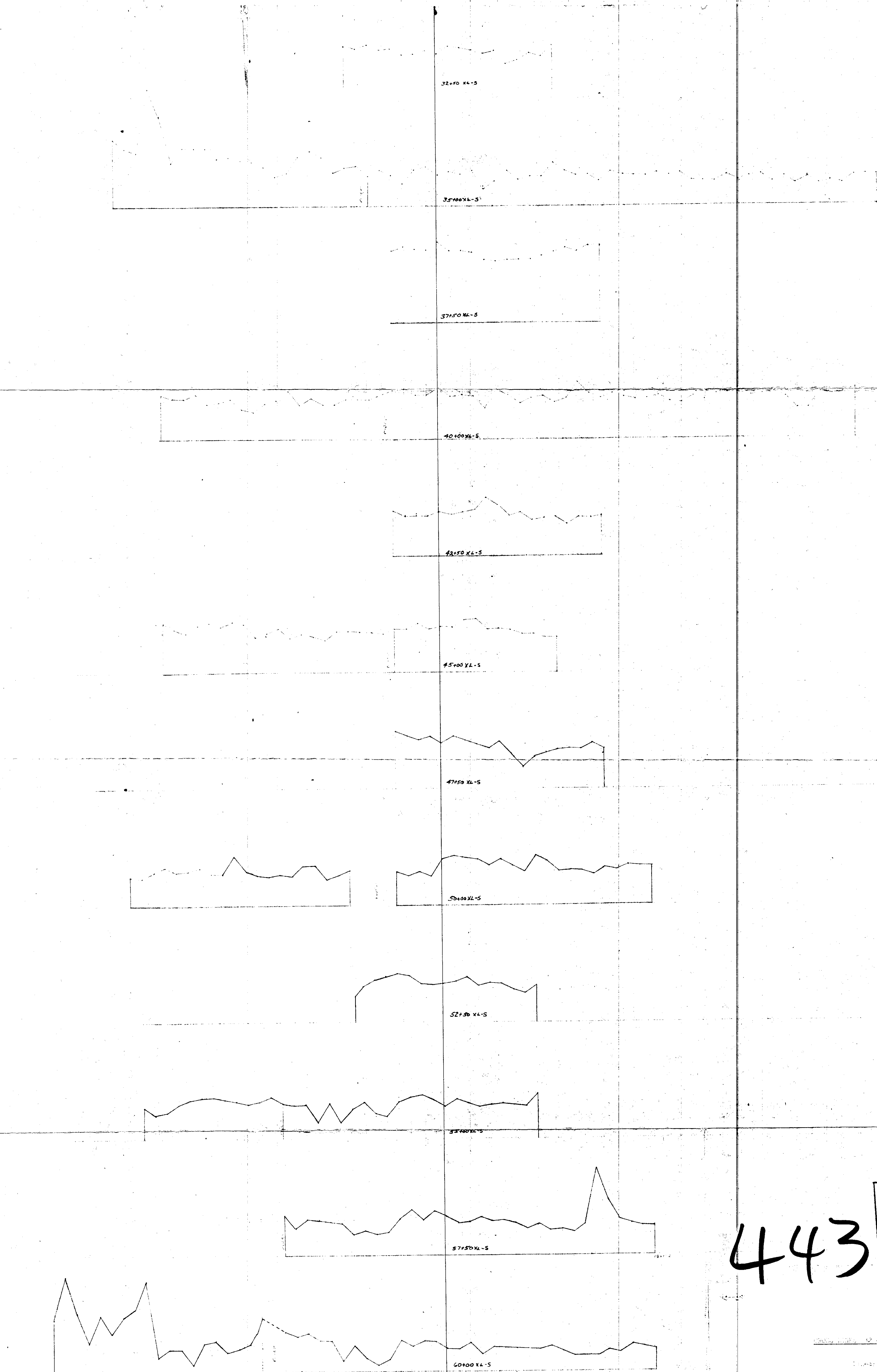
30400XL-S

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M4

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APR 19 1964
Mines and Petroleum Resources
Department of
Mines and Petroleum Resources
M.P.R. 443 MAP 4

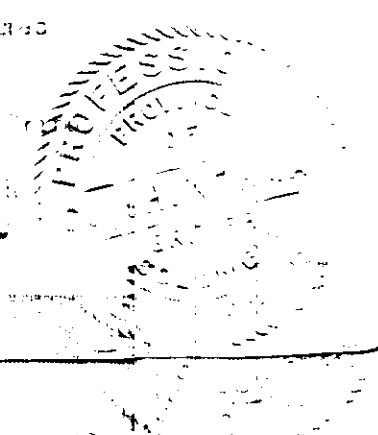


PROFILES OF CROSS-LINES 62+00 TO 68+00 NOT PLOTTED

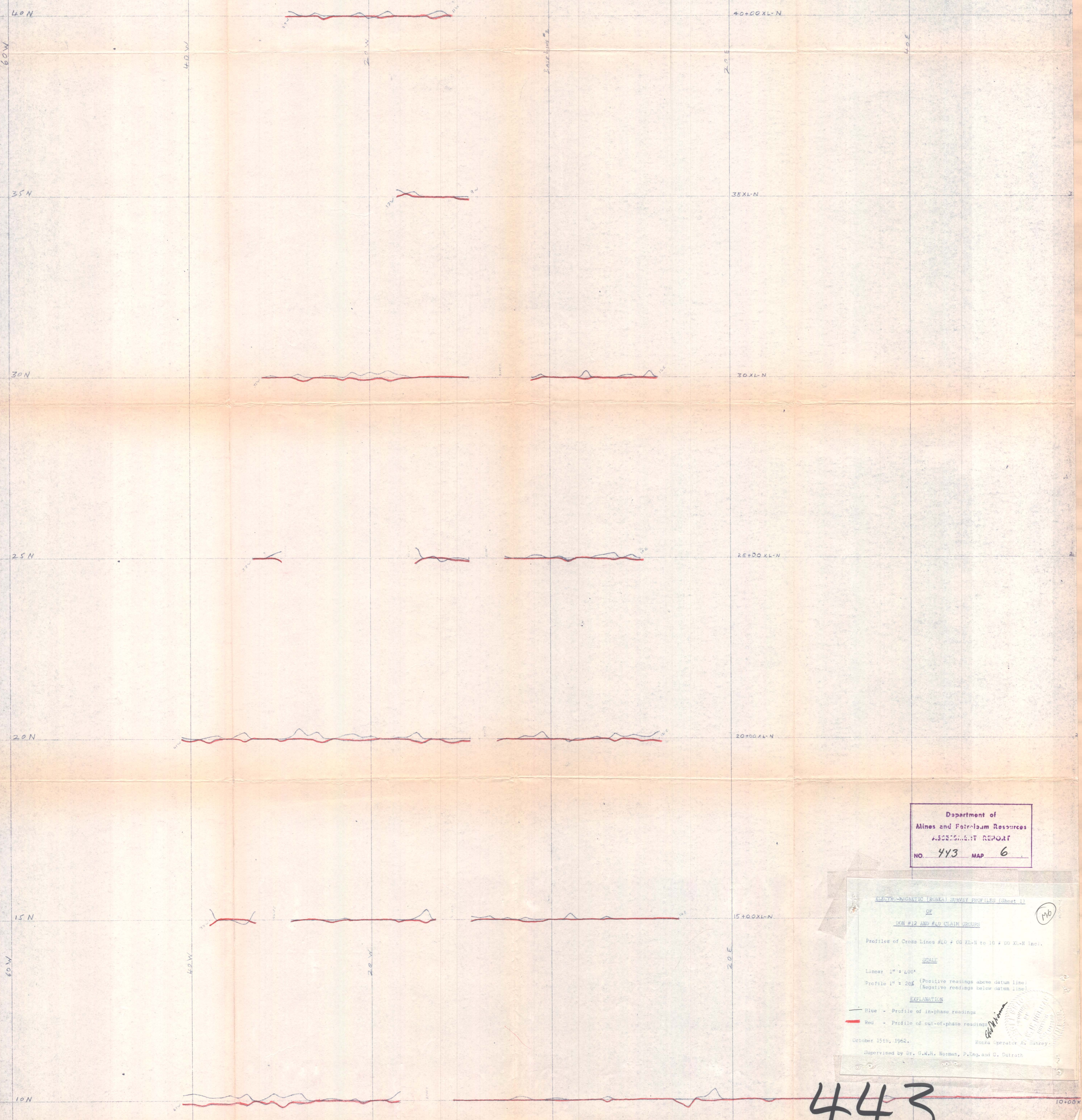
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Scale: 1" = 200'
Vertical scale: 1" = 50' (Baras)
October 1962, 1963. Supervision by Mr. David Harmon and G. G. G. G.
Supervised by: *[Signature]*



MS



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 443 MAP 6

ELECTRO-MAGNETIC (ROMKA) SURVEY PROFILES (Sheet 1)
OF
DOR #12 AND #40 CLAIM GROUPS
Profiles of Cross Lines #40 + 00 XL-N to 10 + 00 XL-N Incl.
SCALE
Linear 1" = 400'
Profile 1" = 20% (Positive readings above datum line)
(Negative readings below datum line)
EXPLANATION
Blue - Profile of in-phase readings
Red - Profile of out-of-phase readings
October 15th, 1962.
Romka Operator A. Hanrey
Supervised by Dr. G.W.H. Norman, P.Eng. and C. Gutzath

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OF
D/N #12 AND #40 CLAIM GROUPS

Profiles of Cross Lines 7+50 XL-N to 2+50 XL-N Incl. and
0+00 XL to 27+50 XL-S Incl.

SCALE

Linear 1" = 400'

Profile 1" = 200' (Positive readings above datum line)
(Negative readings below datum line)

EXPLANATION

Blue line - Profile of in-phase readings

Red line - Profile of out-of-phase readings

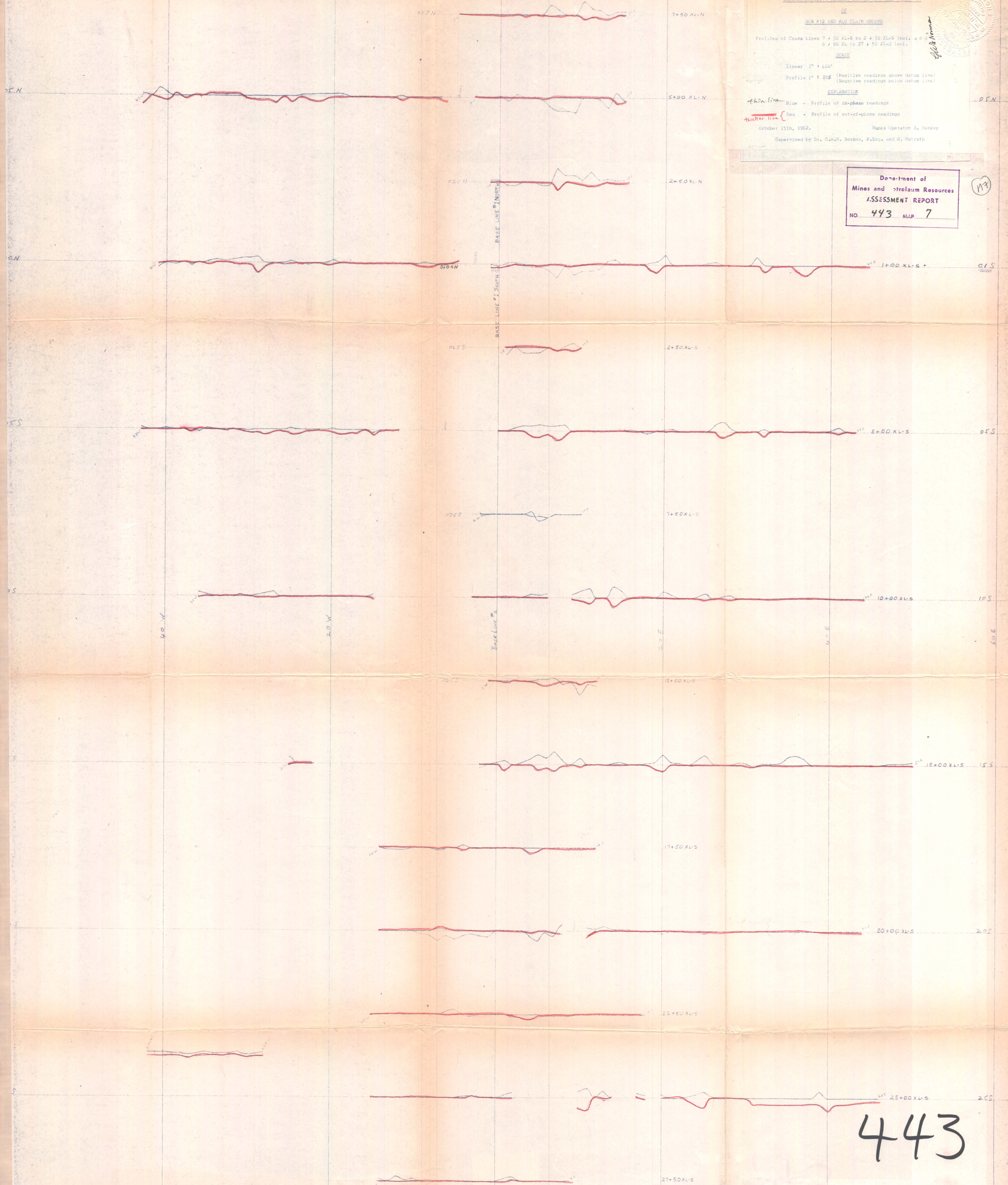
October 15th, 1962.

Rank Operator A. Hankey

Supervised by Dr. G.W.H. Norman, P.Eng. and G. Rutrath

Department of
Mines and Petroleum Resources
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