C.R.A. EXPLORATION PTY. LIMITED

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EL 1879 DONKEY CREEK, N.T.

ANNUAL REPORT

PERIOD ENDING 19TH OCTOBER, 1981

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CONTENTS

1. SUMMARY

During the third year of tenure of EL1879 reprocessing of data from an earlier aeromagnetic survey was completed and a ground magnetometer survey was carried out to enable the siting of a drill hole to test the source of a response beneath the Central Mt Stuart Beds west of the Home of Bullion mine.

2. CONCLUSIONS

The source of the magnetic response investigated is complex and probably north dipping at a depth of 120-150m.

3. INTRODUCTION

Previous work by CRA Exploration Pty Limited on Donkey Creek EL1879 included a detailed airborne magnetic and radiometric survey, and the subsequent investigation of the radiometric responses detected (Snelling, 1979) and a drainage geochemistry survey (Fraser, 1980). No significant radiometric or geochemical responses were detected.

During the third year of tenure of the exploration licence, the aeromagnetic data was reprocessed and a ground magnetometer

survey completed over a response to the west of the Home of Bullion mine.

4. TITLE

EL1879 was renewed for an area of 80.10 square miles (223.01km²) on 19/10/81 for a further period of 12 months (Plan No. NTd 1534).

5. AEROMAGNETIC SURVEY

The maps produced from the airbourne geophysical survey of 1979 were included in an earlier report (Snelling, 1979). The standard of presentation of the magnetic contours, and the levelling of the data, were subsequently considered to be unacceptable, and the data has been recompiled by a different processing bureau at the airborne contractor's expense. The resultant maps were used to produce a composite reduction at a scale of 1:100 000 (Plan No. NTa318).

6. GROUND MAGNETOMETER SURVEY

Following an earlier recommendation (Frazer, 1980) a ground magnetometer survey was carried out over a response approximately 5km to the west of the Home of Bullion mine. From a point accurately identified on the flight path recovery photographs of the earlier airbourne survey, a baseline designated 5 000mE was chained, pegged and permatagged at 50m intervals by backsighting on a bearing of 090° magnetic from 3800mE to 5800mE. 19.0km of traverse lines were established 200m apart by topofil distance measurement and compass with flagging every 50m and permatagged pegs at 200m intervals from 4600mN to 5400mN. Ground

magnetometer measurements were taken at an interval of 10m and the data corrected for diurnal variations by repeated base station readings at regular intervals and reference to a tie line along 5000mN.

The approximate location of the grid with respect to the aeromagnetic contours is shown in Appendix 1 together with profiles of the corrected magnetic data which were used to compile a contour map (Plan No. NTa334). The high frequency "noise" seen on the profiles in the south west part of the grid was removed by hand smoothing. It probably relates to the development of iron rich weathering products on top of the Mt Stuart Beds.

7. INTERPRETATION OF THE MAGNETIC DATA

The interpretation of the aeromagnetic data was discussed Fraser (1980). The ground survey data shows that the source is complex, and shallowest at its eastern end. Although only an approximation, a two dimensional dyke model was used to interpret the data in this area. From the results (Appendix 2) the source is north dipping at a depth between 120 and 150m, and has a finite depth extent. A subsidiary source, perhaps shallower, occurs to the south of the main response between 4600mE and 4900mE.

The above interpreation should be refined before any drilling is undertaken.

The sources both lie beneath a scarp of the Central Mt Stuart Beds in an area of considerable relief. It would therefore

be desirable to produce a topographic map of the grid area before siting drill holes. If the topographic levelling is carried out, a gravity survey utilizing the same height information would produce an additional set of data to aid the interpretation.

8. ACCESS

After the completion of the ground magnetometer survey, access was graded from the road between Barrow Creek and the Home of Bullion mine. Due to the steep and rocky terrain, no drill sites were prepared, as these will require heavier machinery.

9. REFERENCES

Frazer, W.J.	1980	EL1879 Donkey Creek, NT. Annual Report. CRAE report 10322 (unpublished) November 1980.
Snelling, A.A.	1979	EL1879 Donkey Creek, NT. Annual Report. CRAE report 9885 (unpublished) November 1979.

10. KEYWORDS

Airborne, geophys-mag

11. LOCALITY

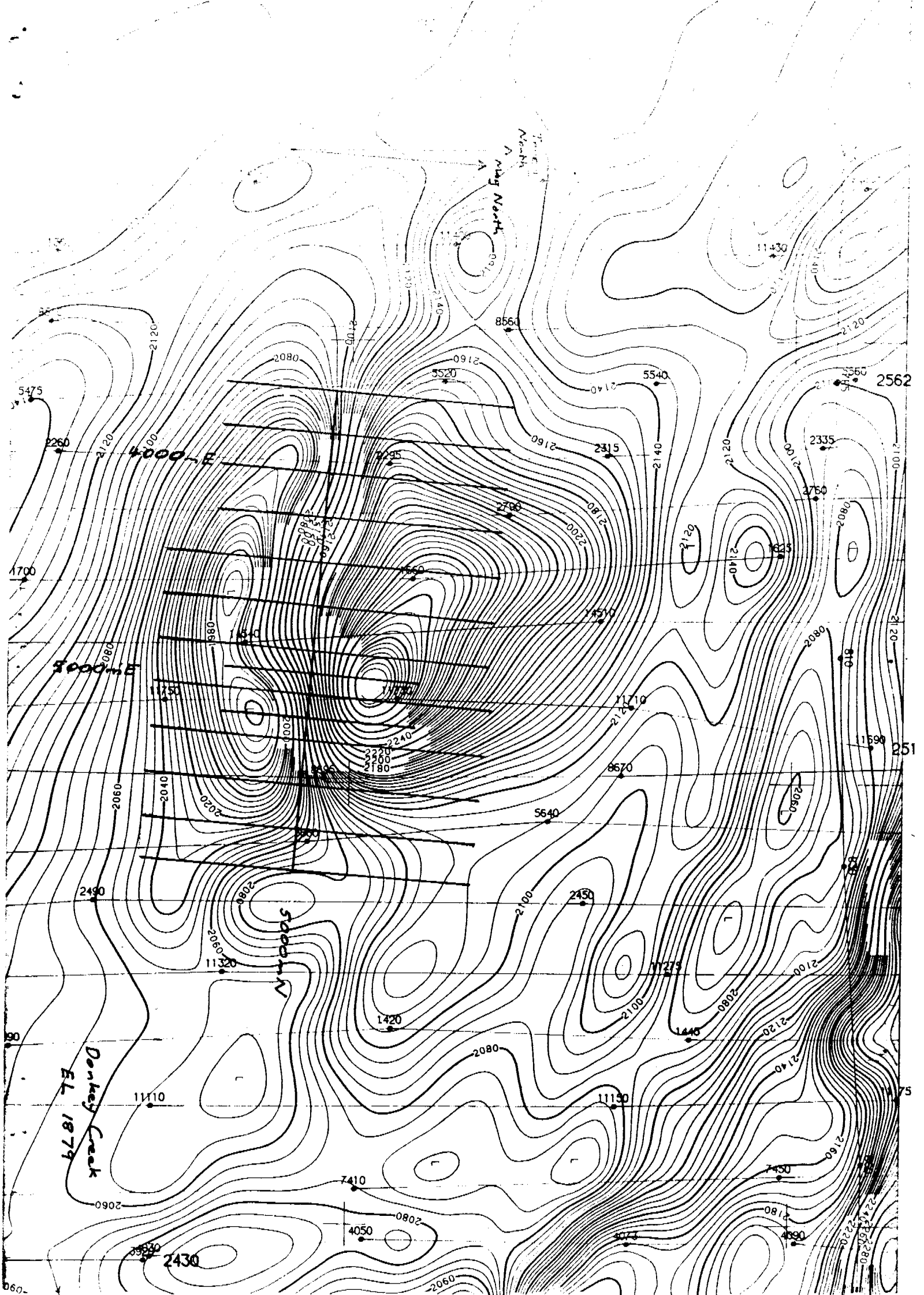
Barrow Creek SF53-6

12. LIST OF PLANS

Plan No.	Title	Scale
NTd 1534	Partial Relinquishment EL1879 Donkey Creek, NT	1:250 000
NTa 318	Contours of Magnetic Intensity EL1878, EL1879, EL1880	1:100 000
NTa 334	Contours of Total Magnetic Intensity, Donkey Creek EL1879	1: 10 000

APPENDIX 1

GROUND MAGNETOMETER SURVEY PROFILES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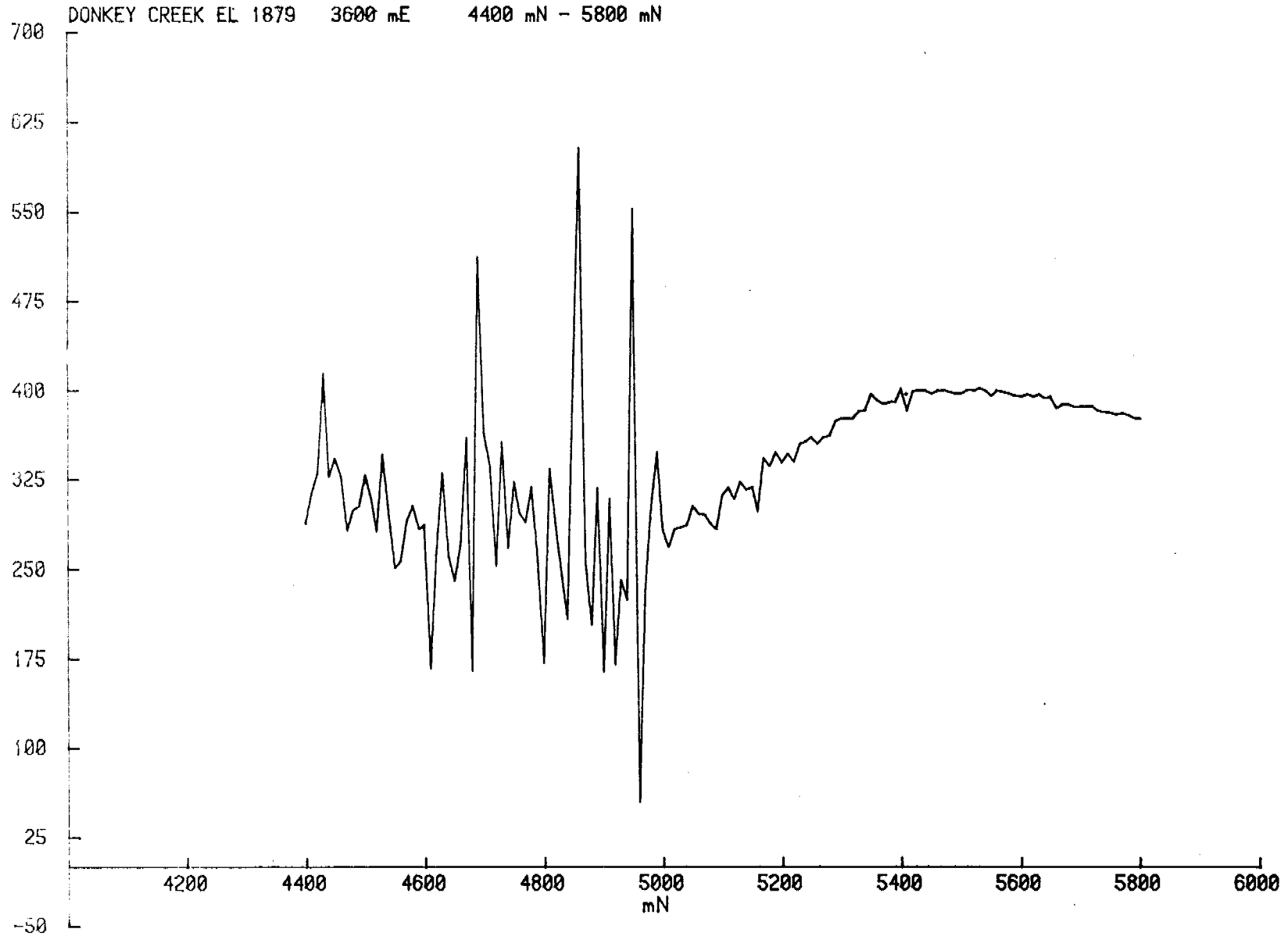
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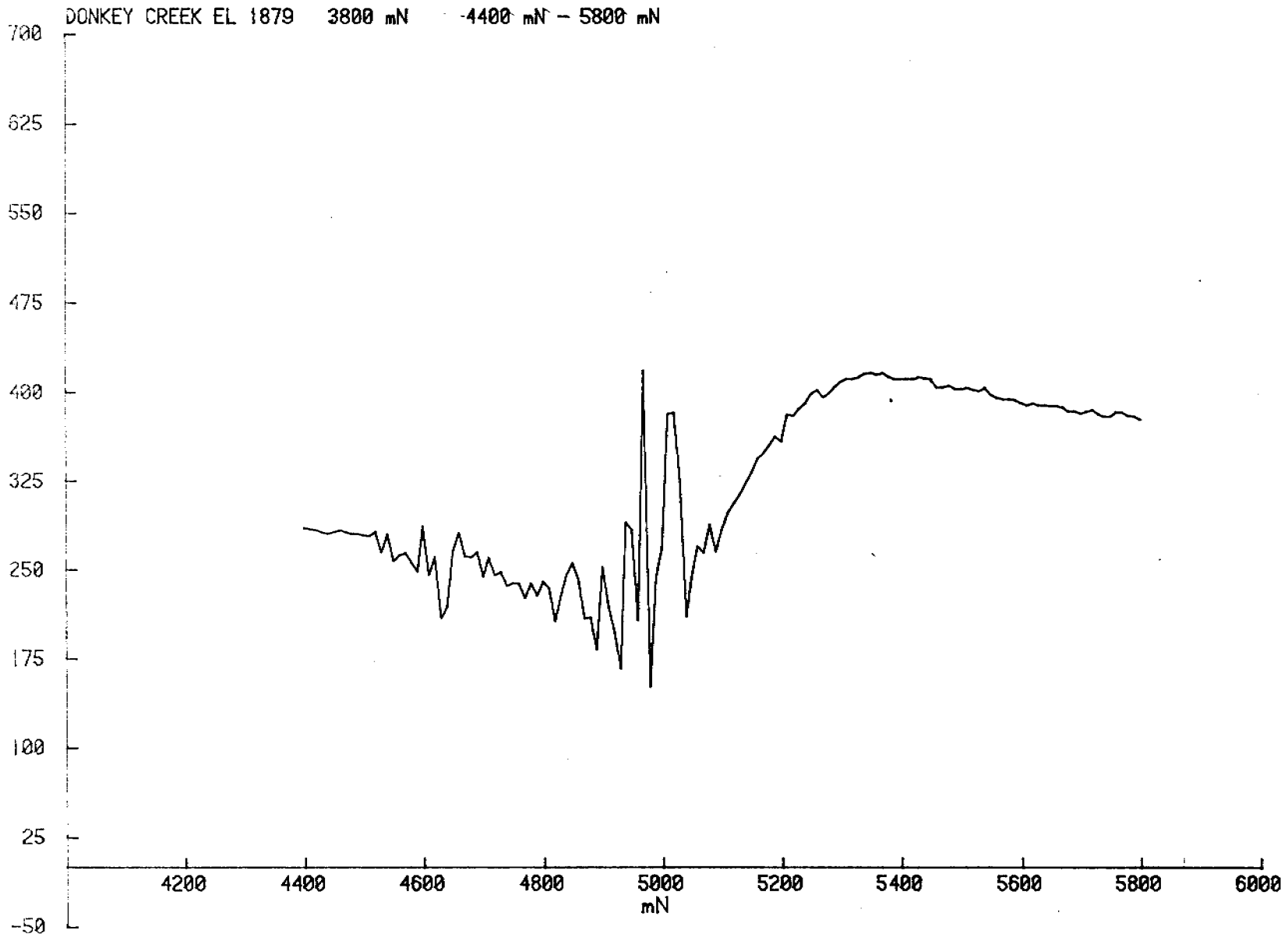
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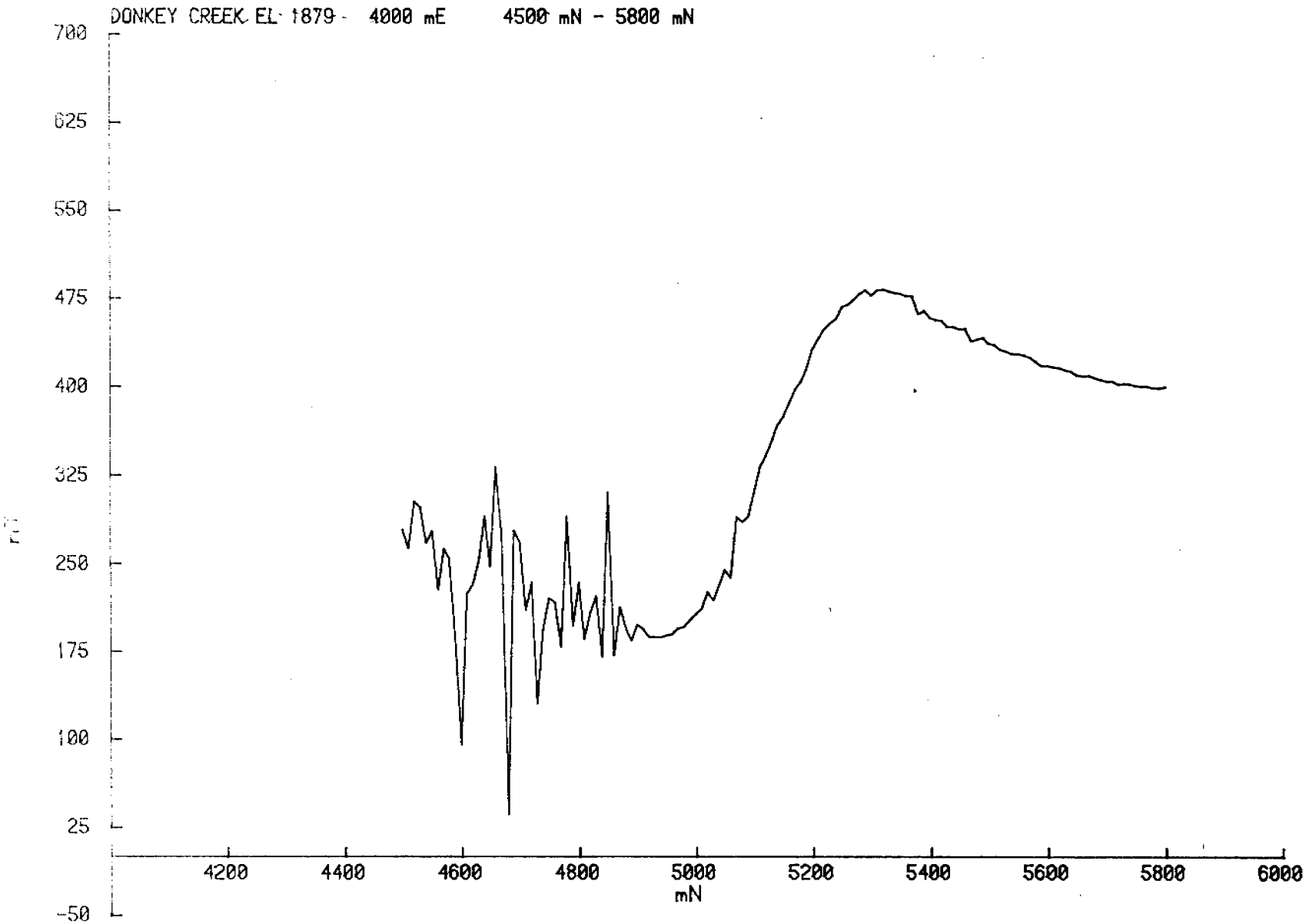
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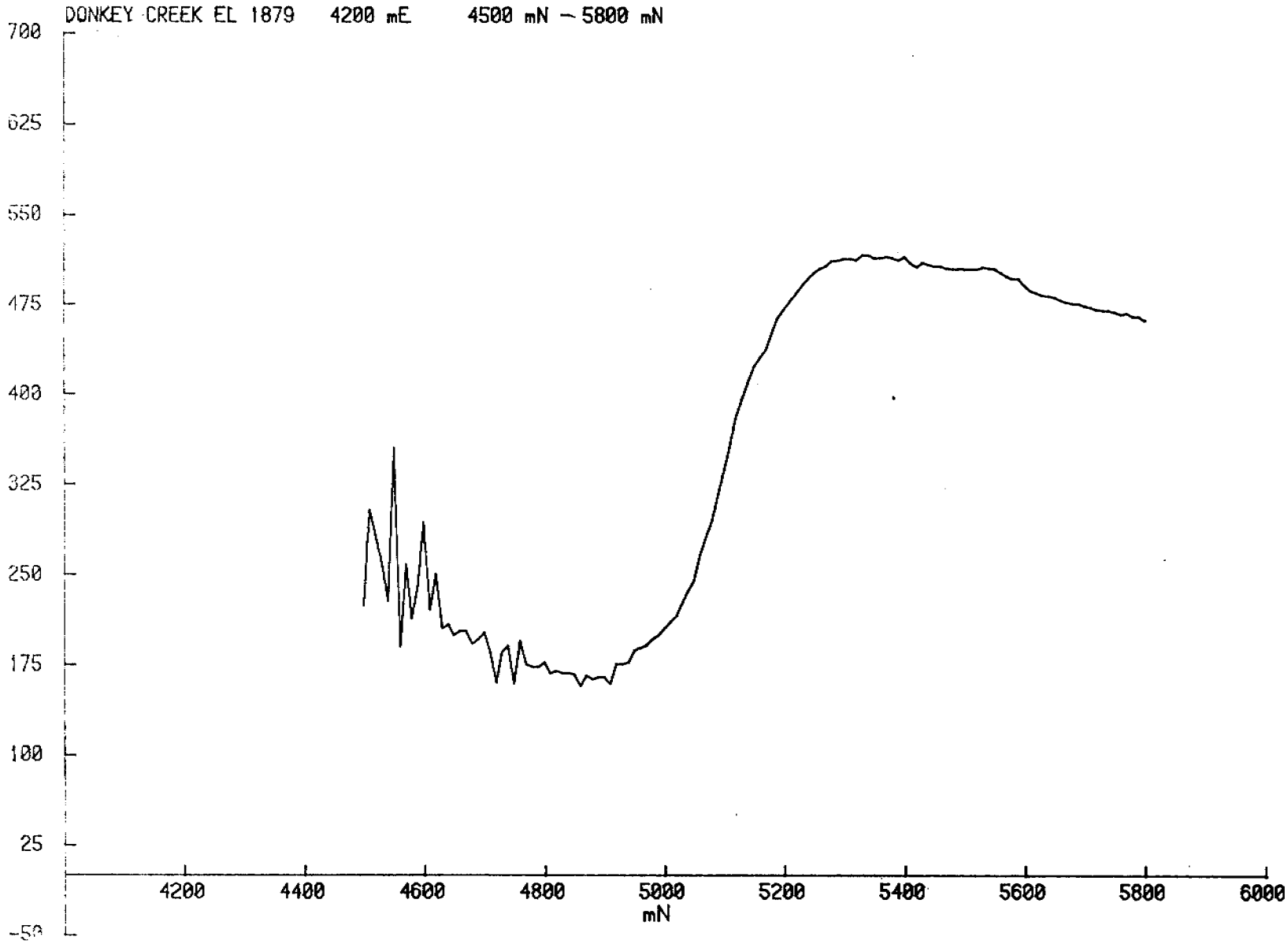
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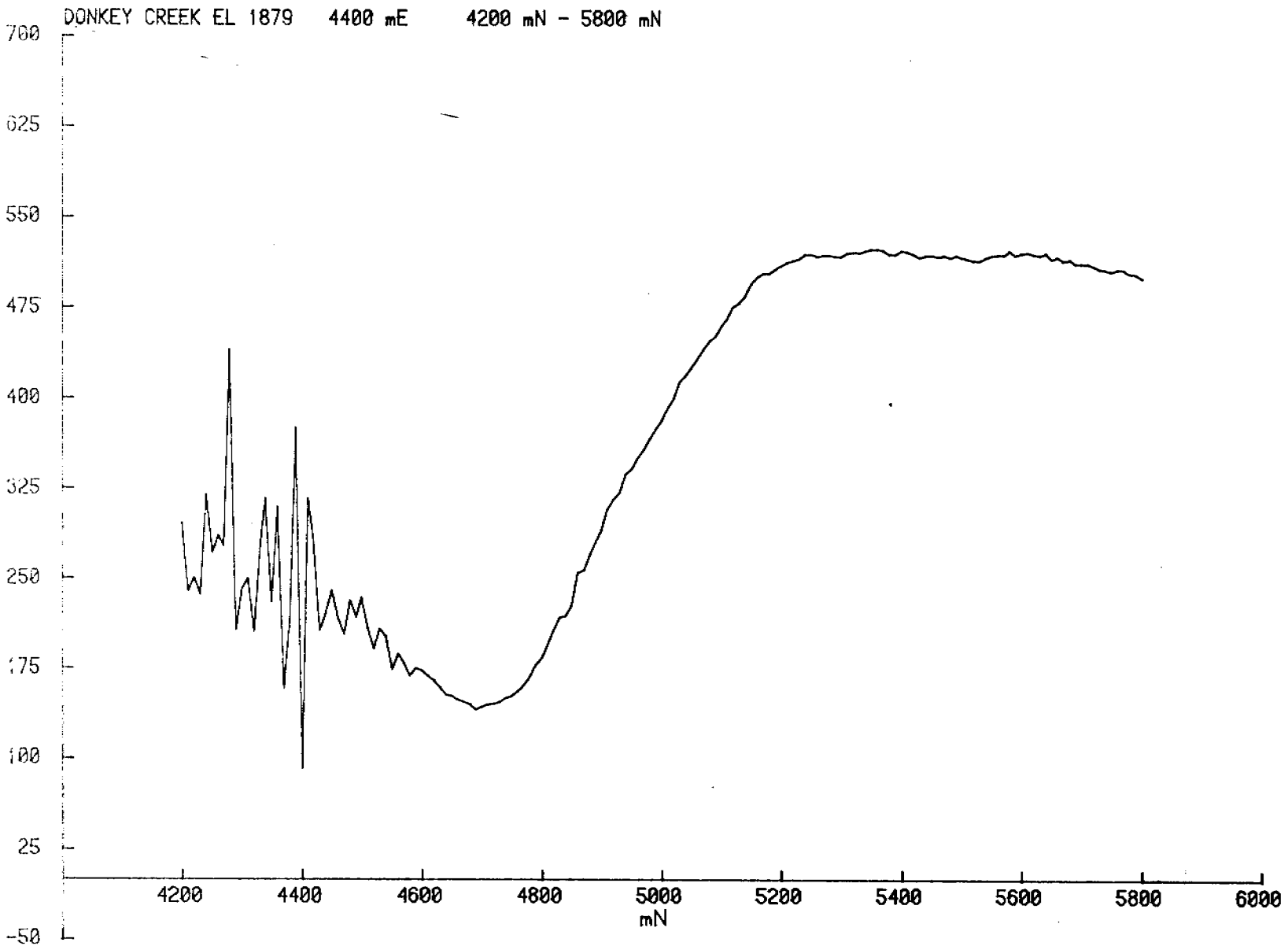
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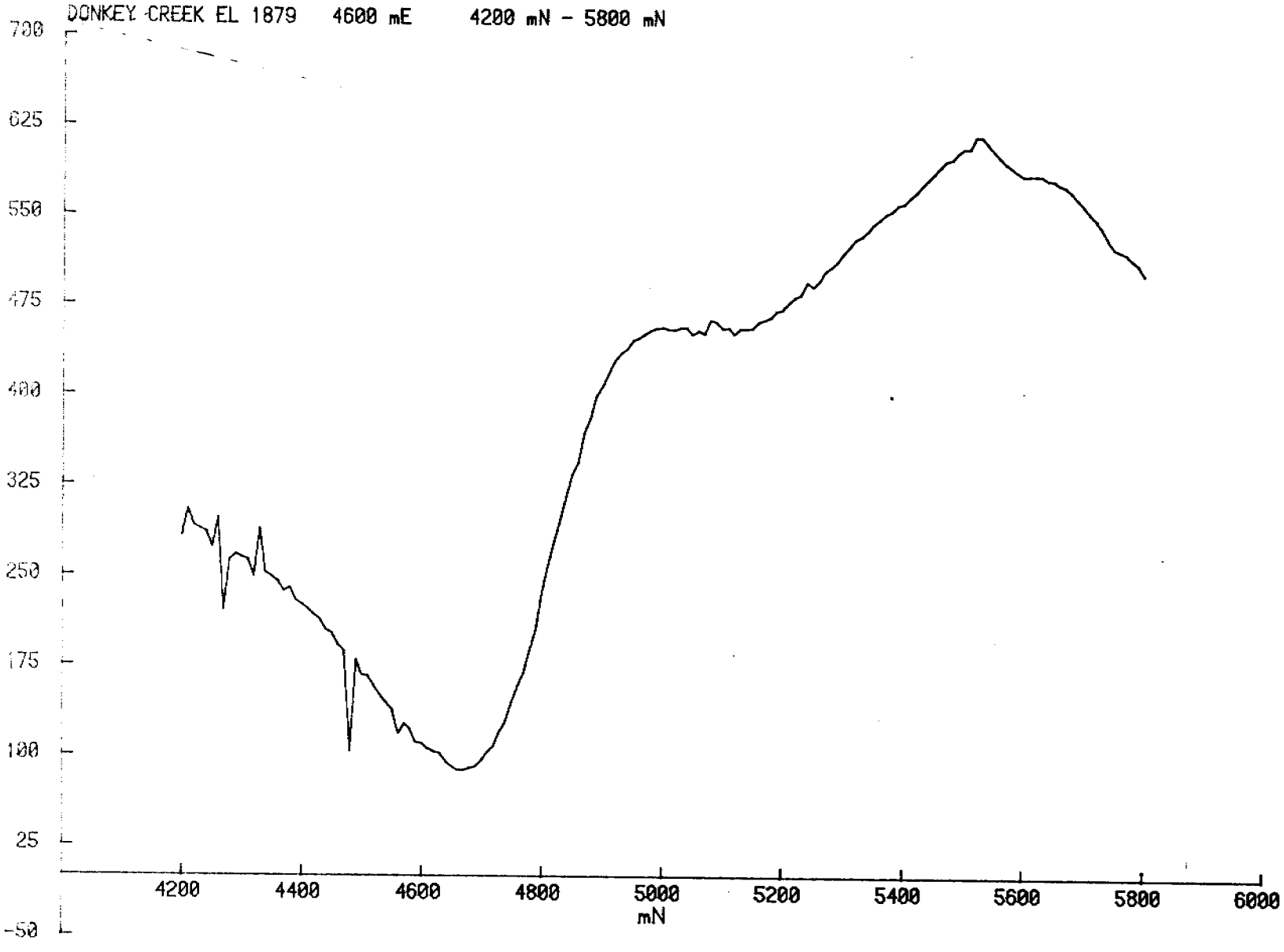
DONKEY CREEK EL 1879 4600 mE 4200 mN - 5800 mN
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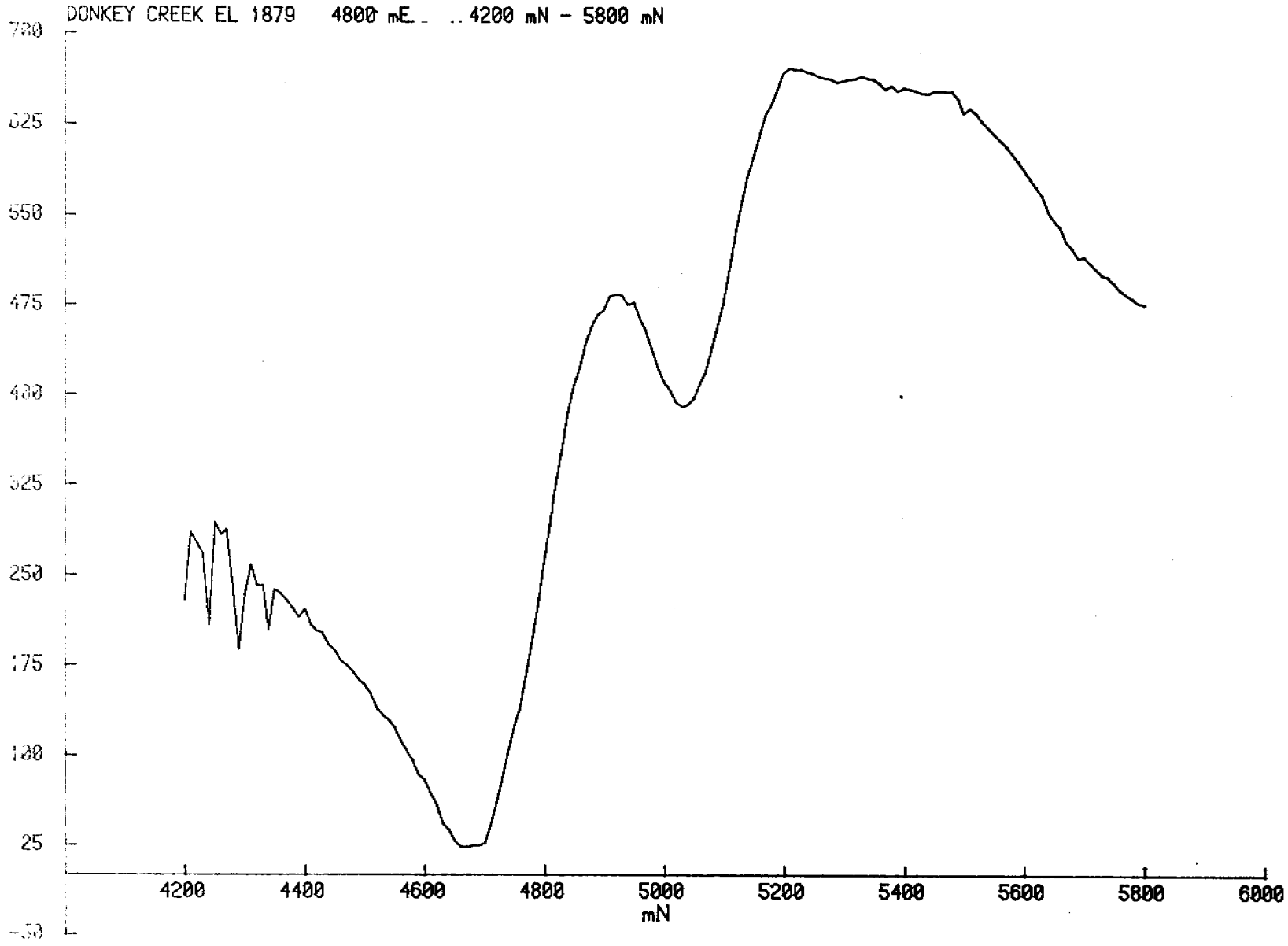
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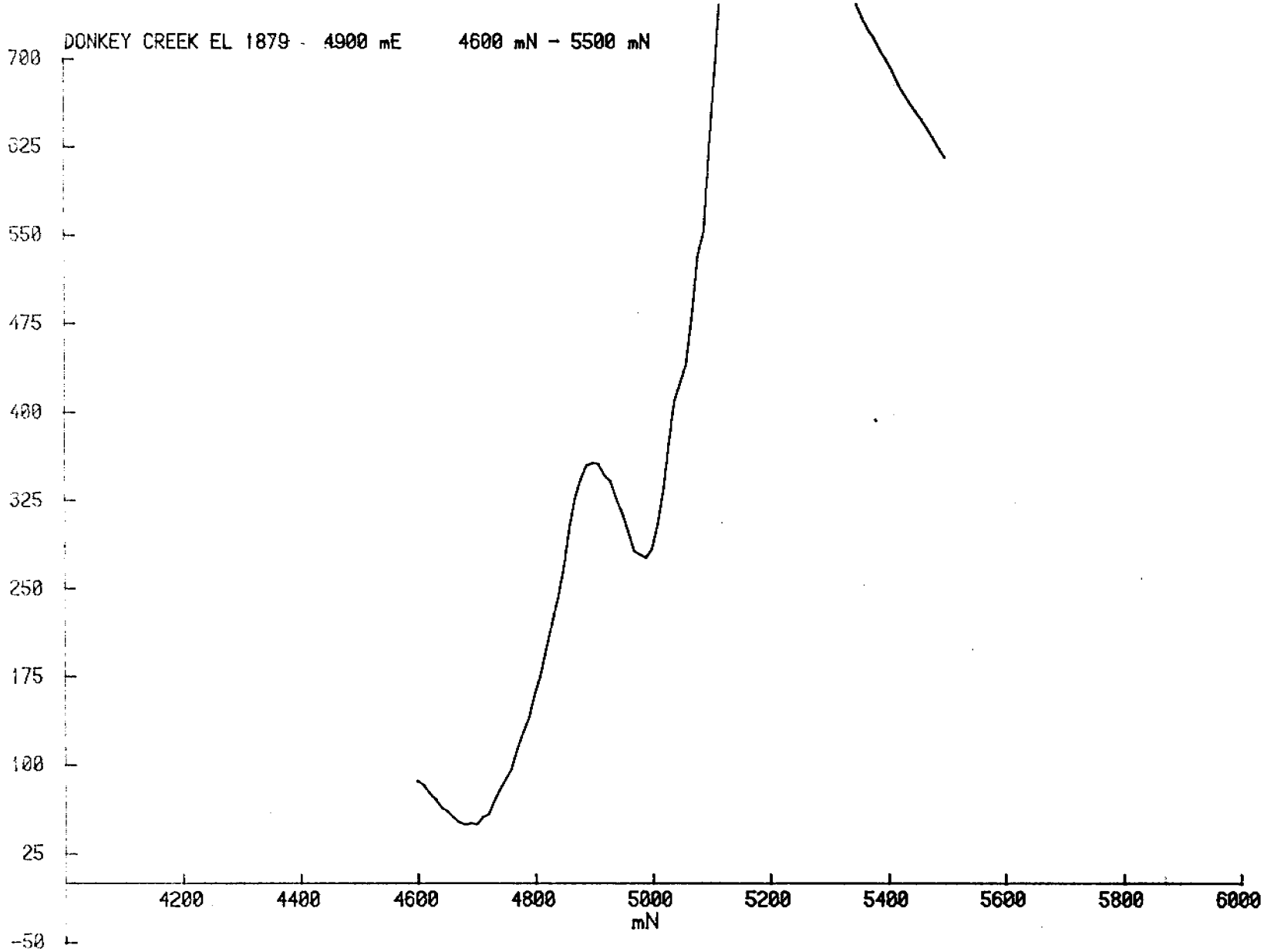
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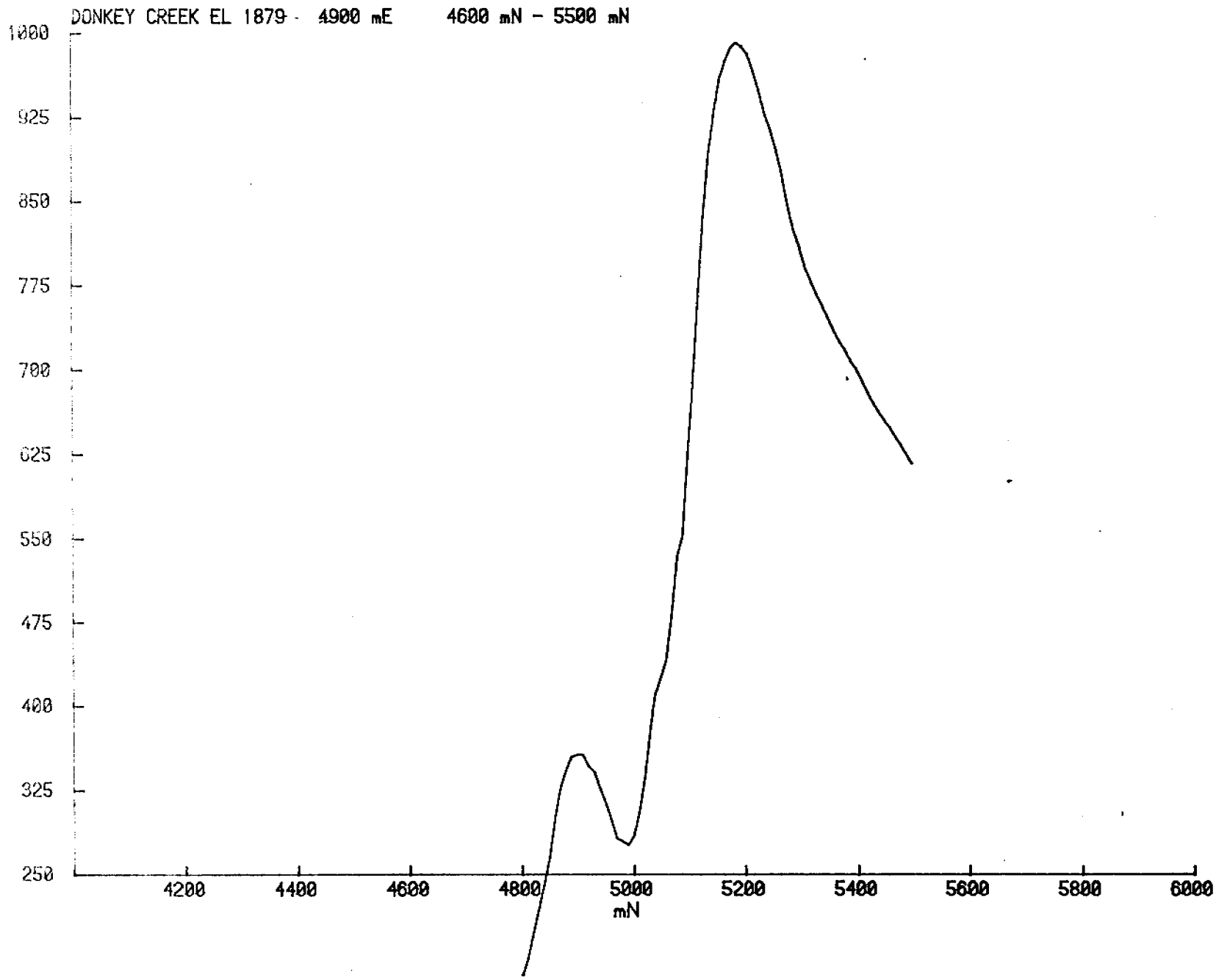
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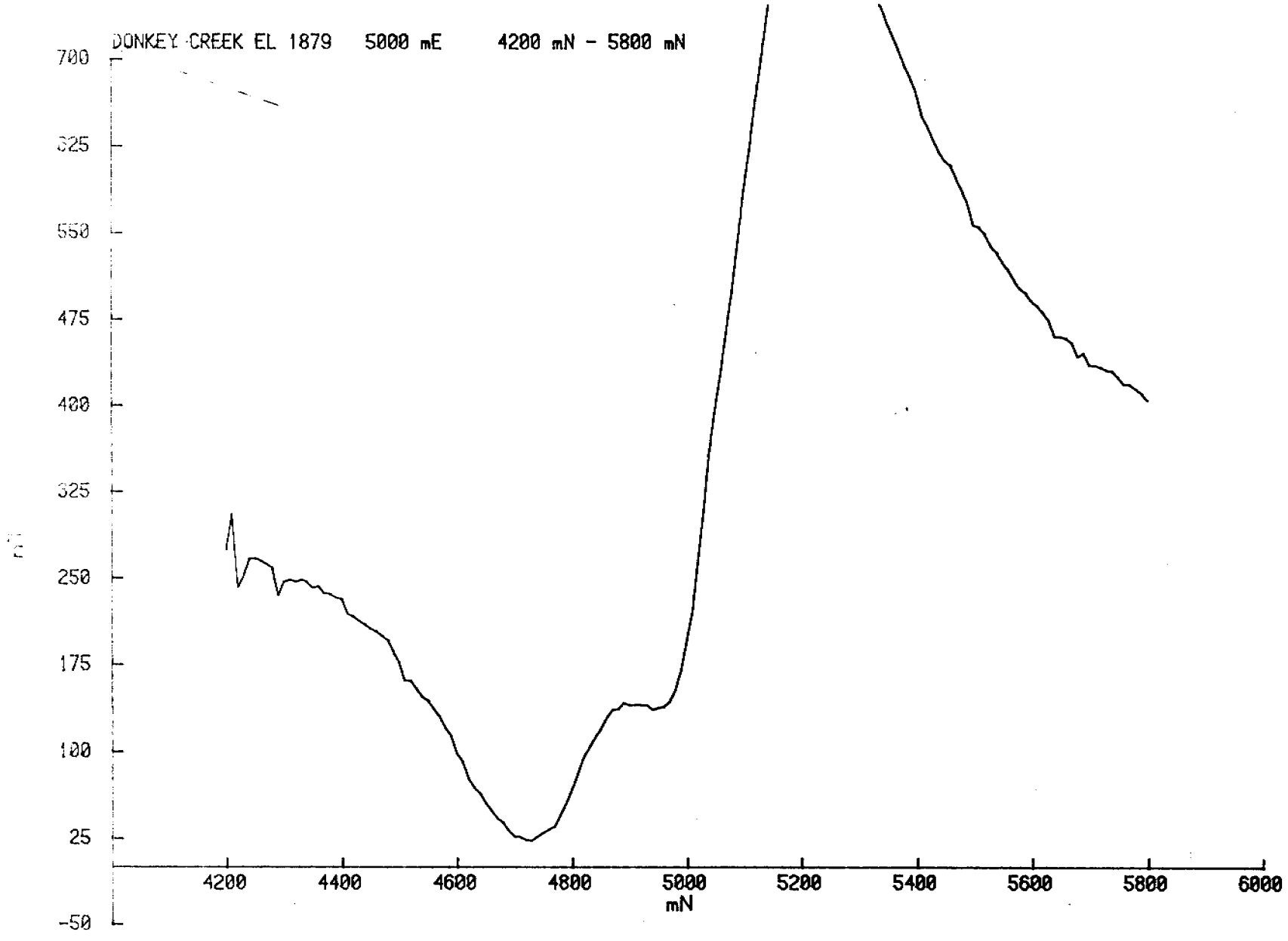
DONKEY CREEK EL 1879 5000 mE 4200 mN - 5800 mN
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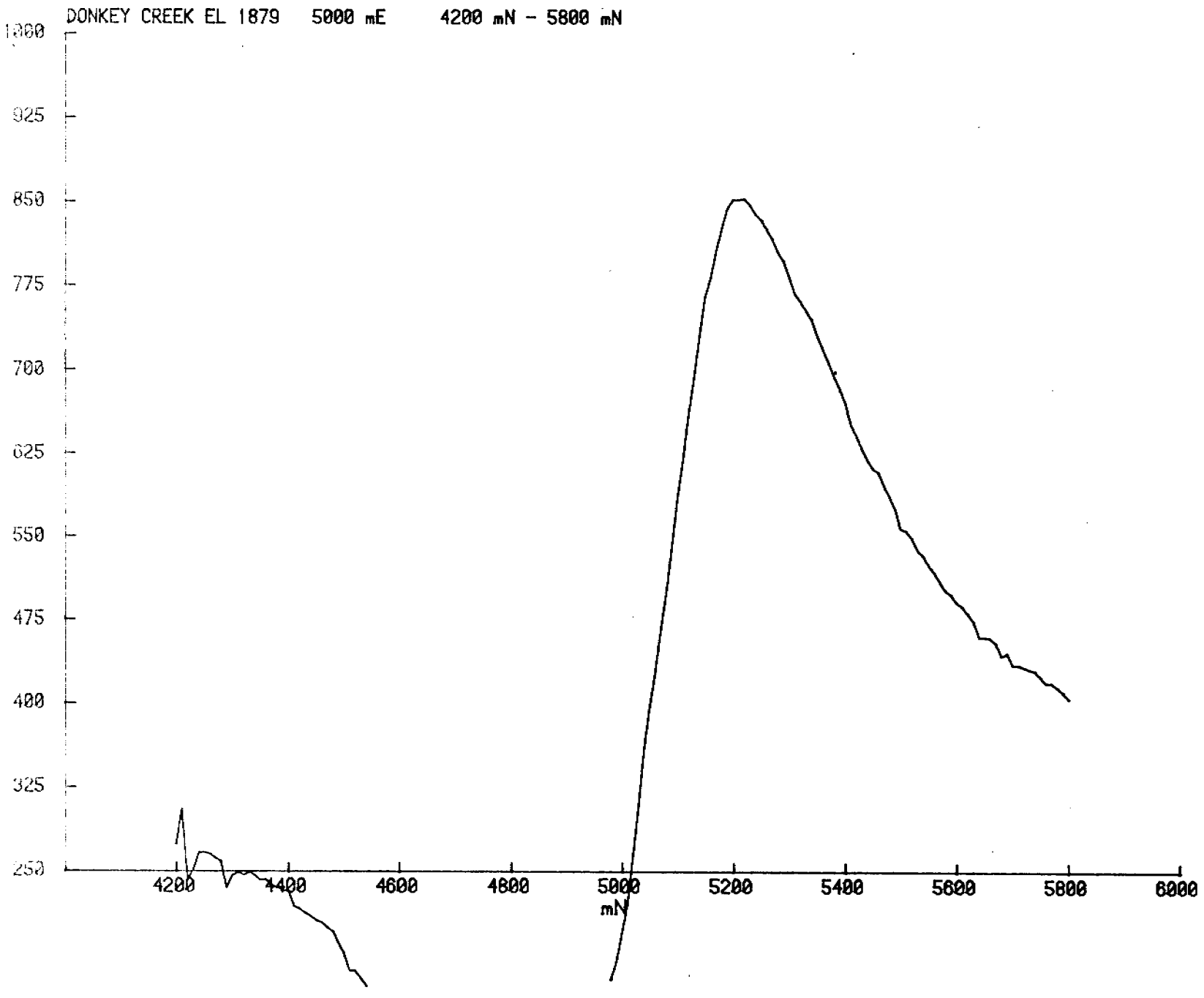
DONKEY CREEK EL 1879 5000 mE 4200 mN - 5800 mN
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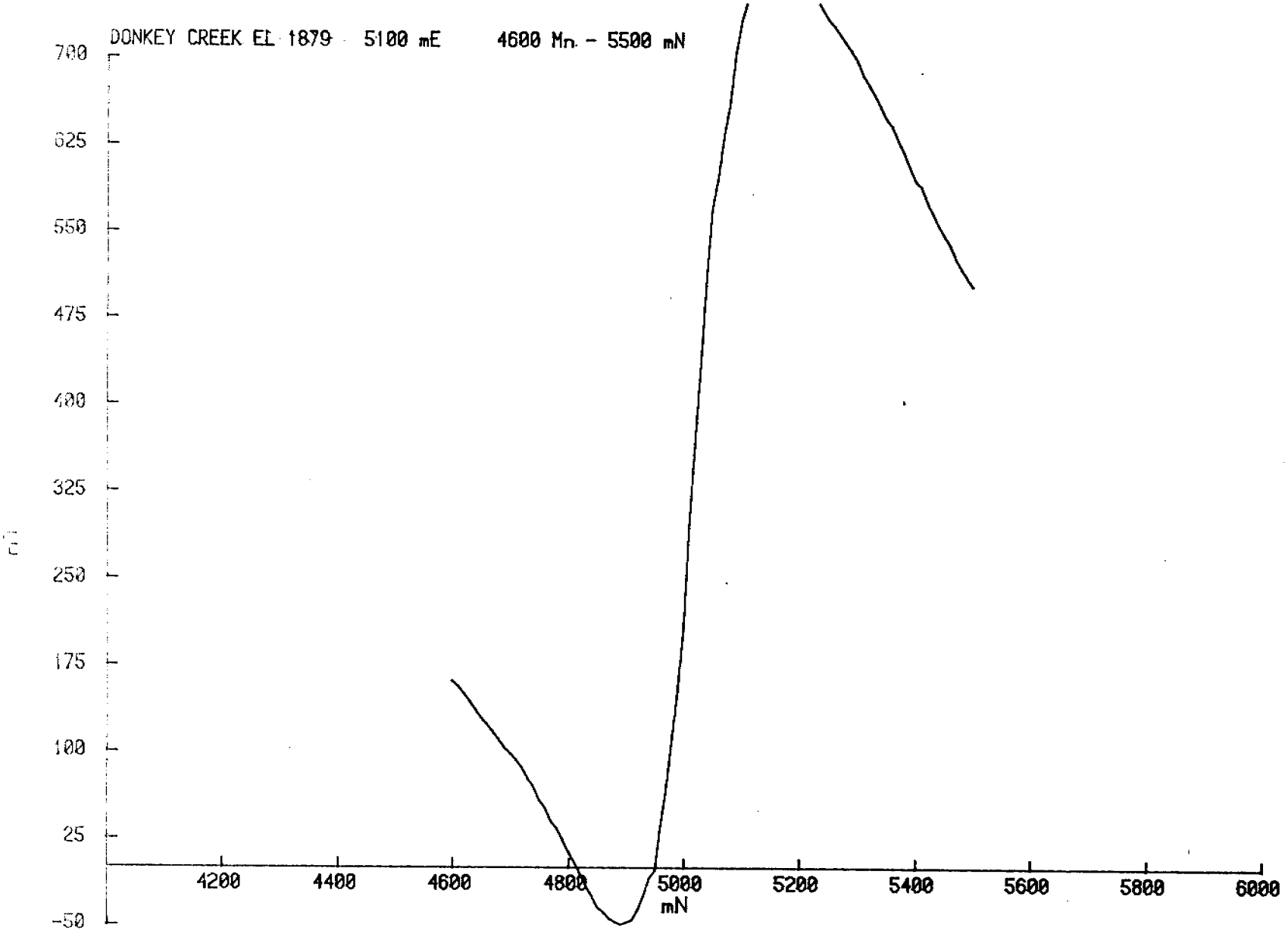
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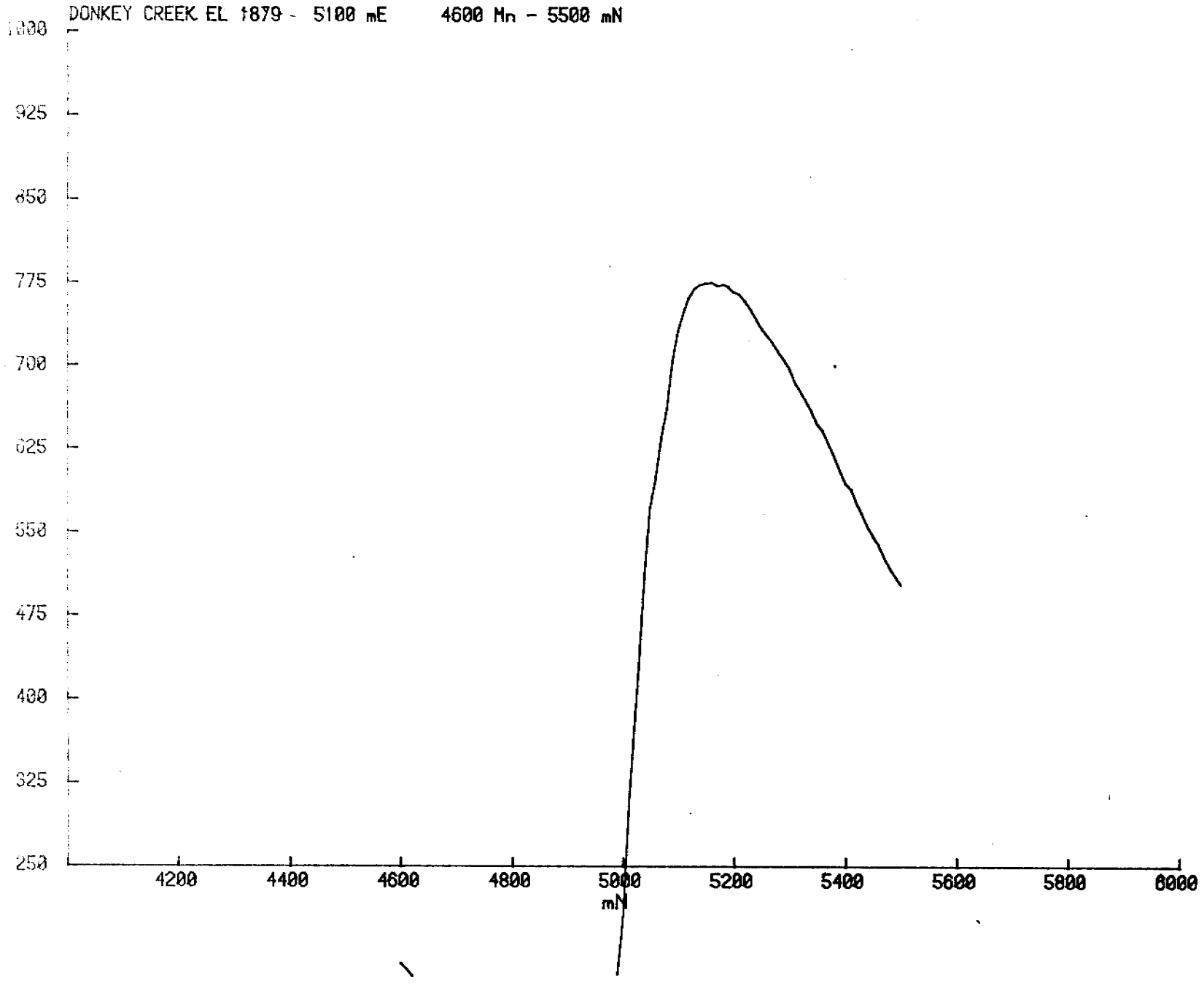
DONKEY CREEK EL 1879 - 5100 mE 4600 Mn - 5500 mN
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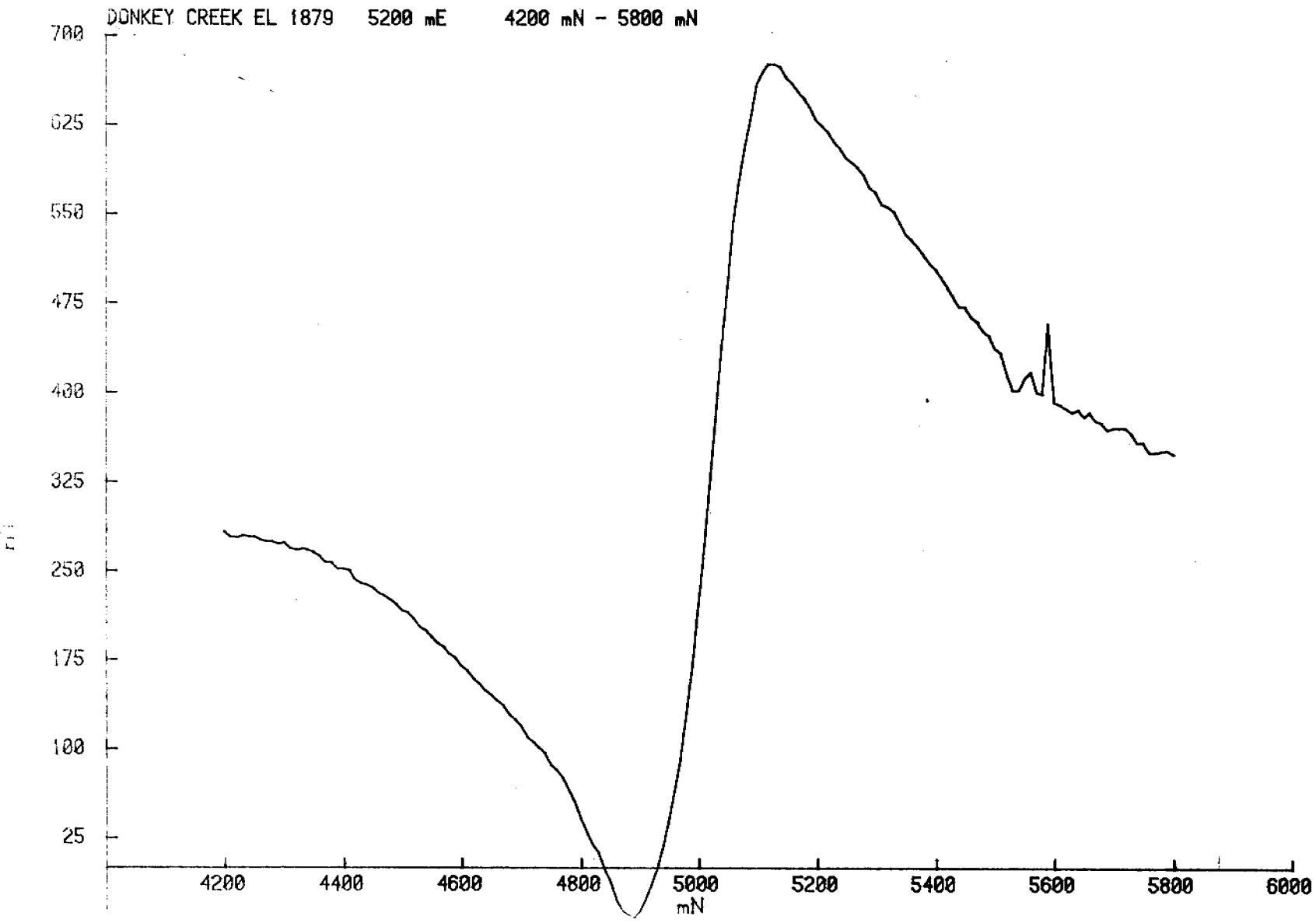
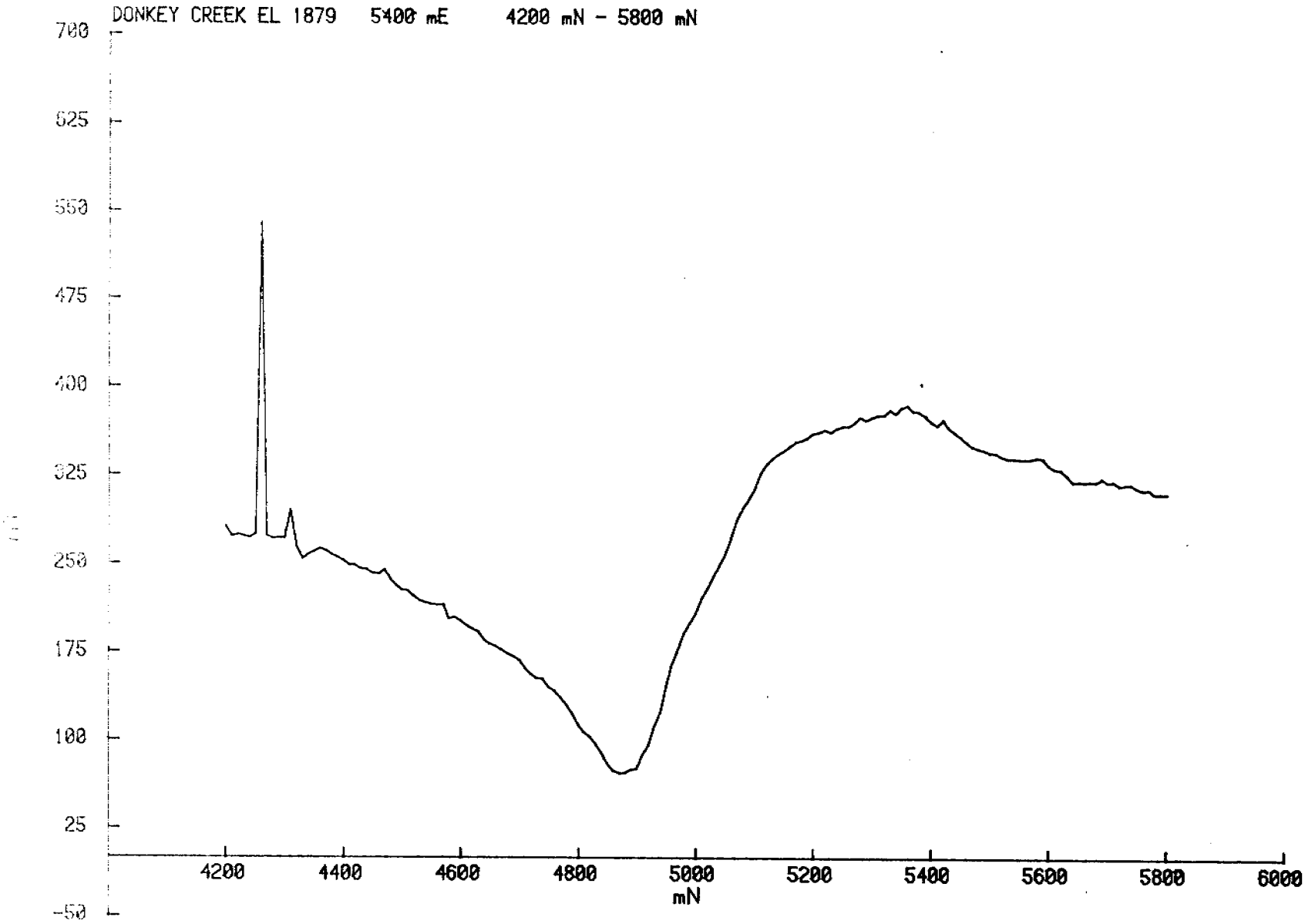
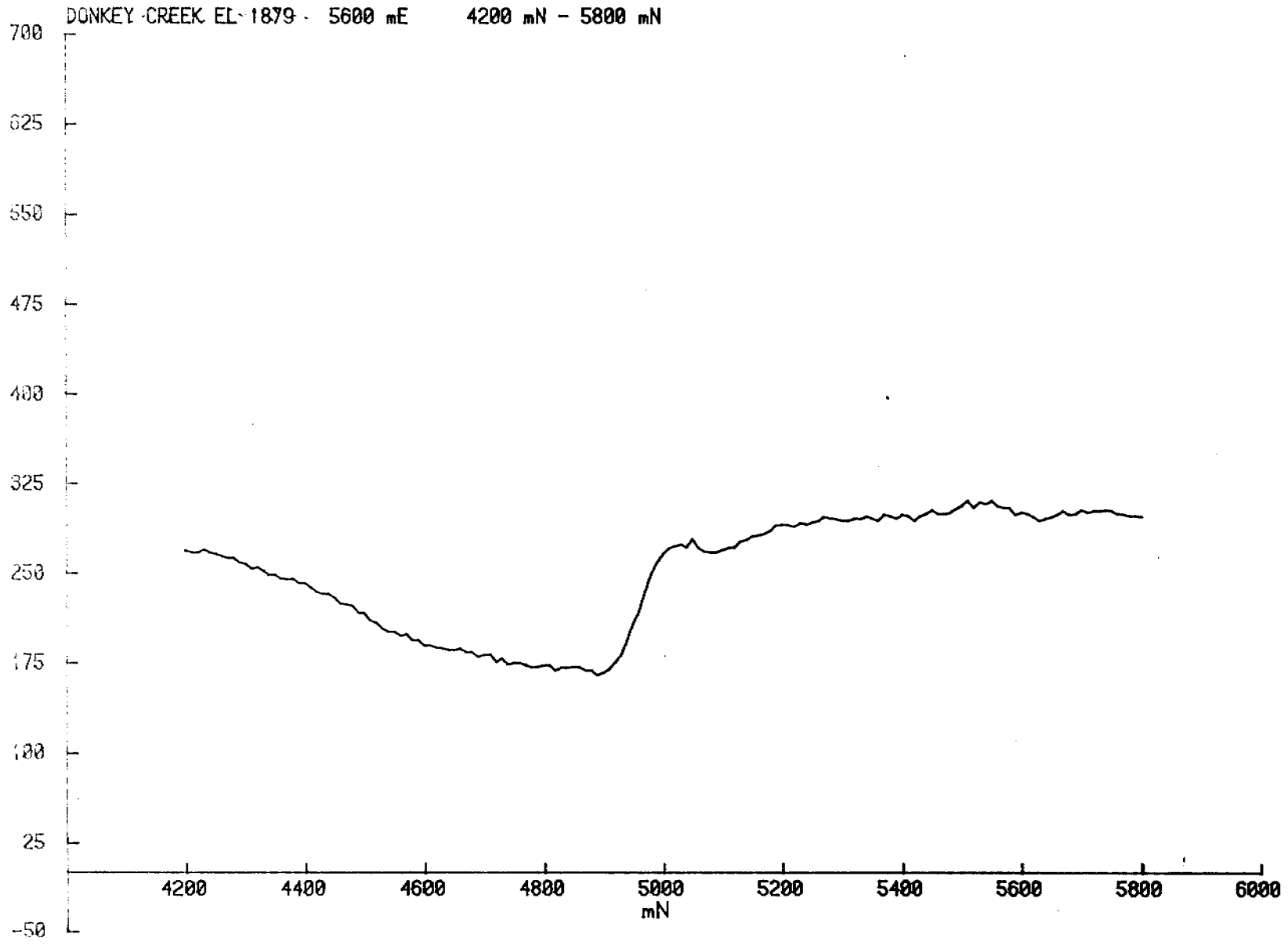
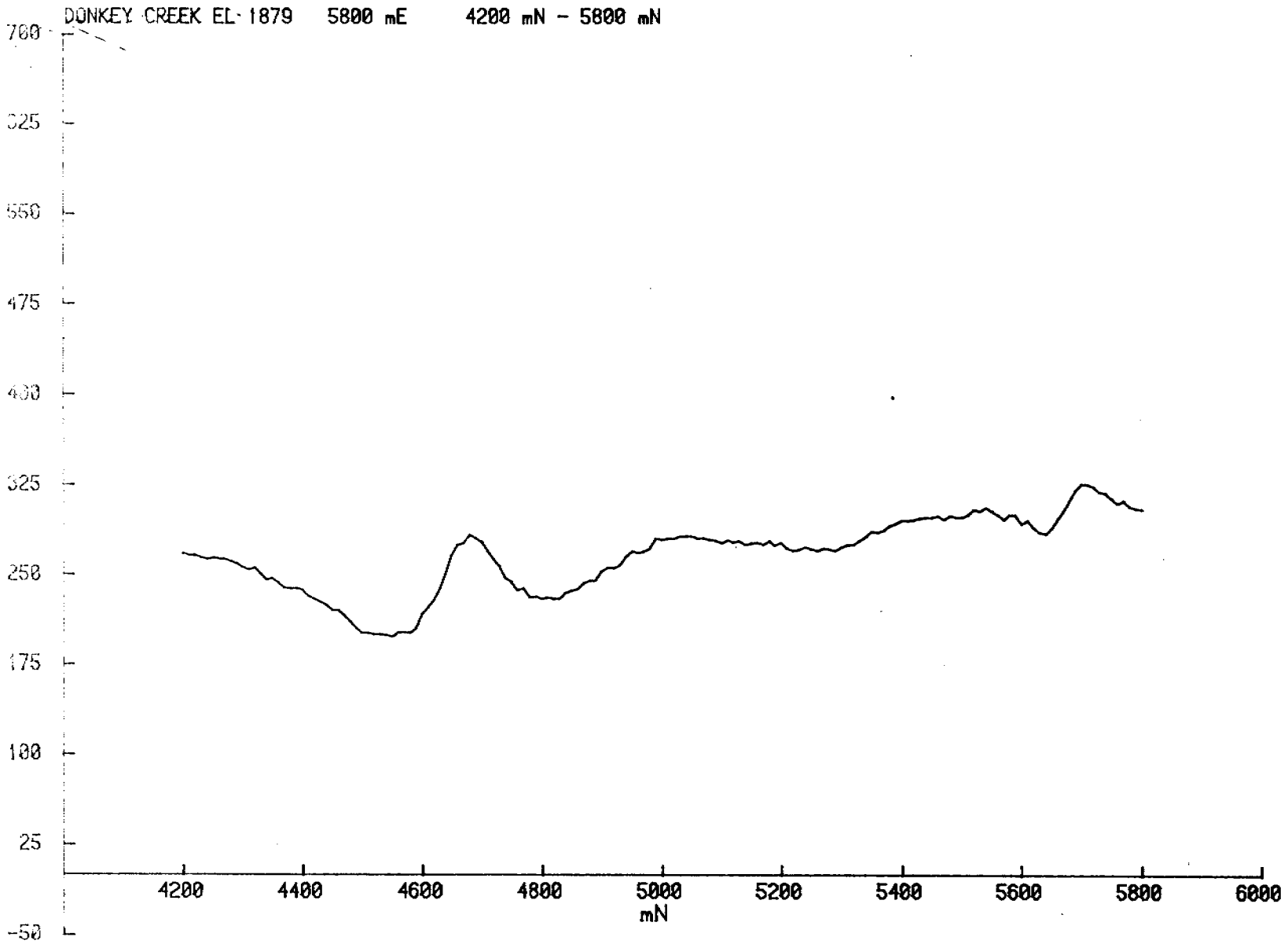
mN


DONKEY CREEK EL 1879 5200 mE 4200 mN - 5800 mN
700
625
550
475
400
325
250
175
100
25
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
mN

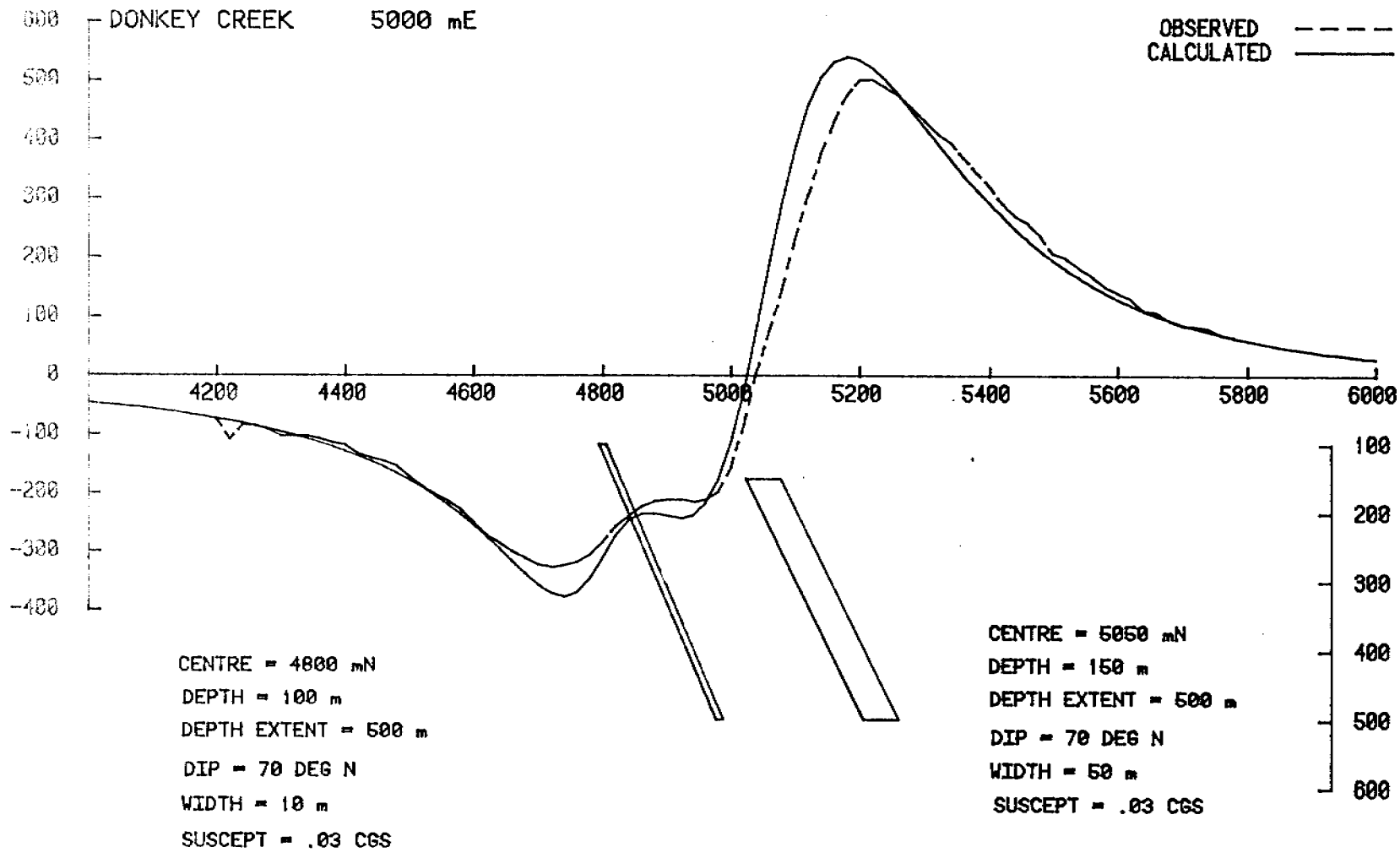

DONKEY CREEK EL 1879 5400 mE 4200 mN - 5800 mN
700
625
550
475
400
325
250
175
100
25
-50
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
mN

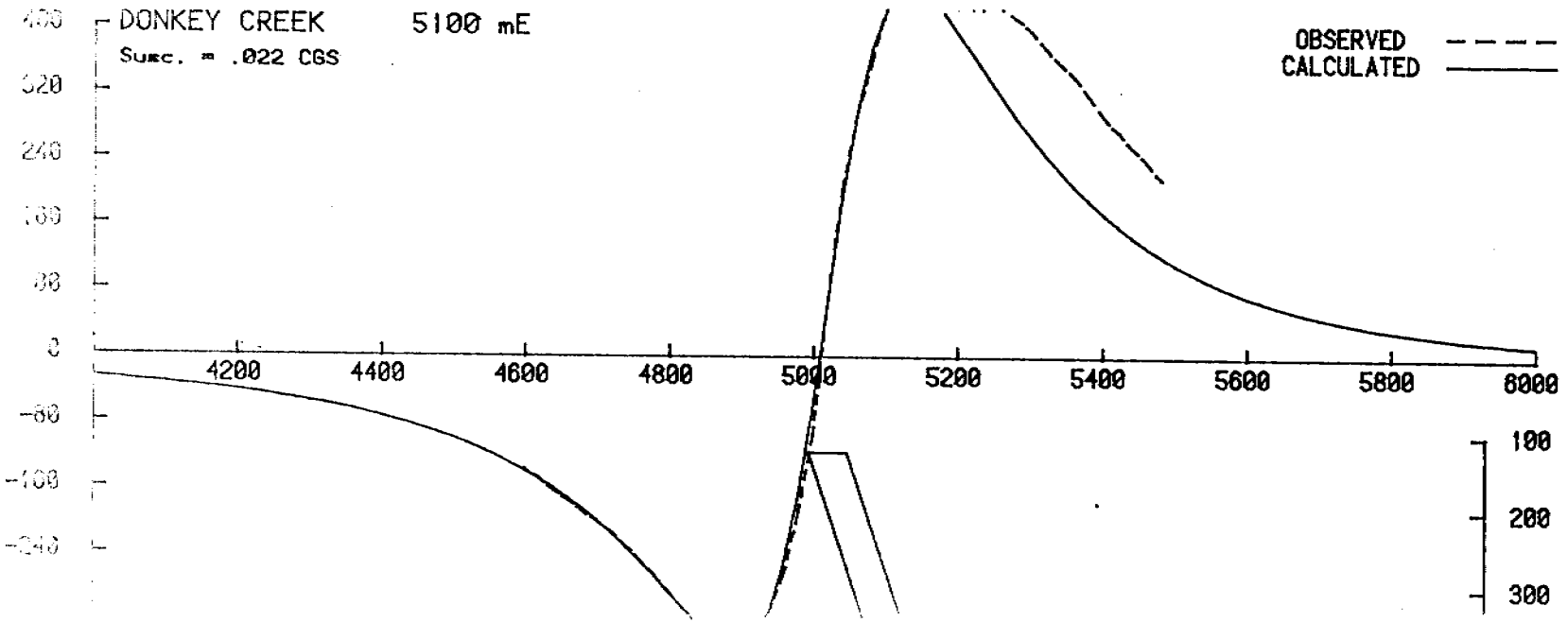

DONKEY CREEK EL 1879 - 5600 mE 4200 mN - 5800 mN
700
625
550
475
400
325
250
175
100
25
-50
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
mN


DONKEY CREEK EL 1879 5800 mE 4200 mN - 5800 mN
700
625
550
475
400
325
250
175
100
25
-50
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
mN

APPENDIX 2

INTERPRETATION OF GROUND MAGNETOMETER SURVEY


DONKEY CREEK
5000 mE
OBSERVED
CALCULATED
600
500
400
300
200
100
0
-100
-200
-300
-400
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
100
200
300
400
500
600
CENTRE = 4800 mN
DEPTH = 100 m
DEPTH EXTENT = 500 m
DIP = 70 DEG N
WIDTH = 10 m
SUSCEPT = .03 CGS
CENTRE = 5050 mN
DEPTH = 150 m
DEPTH EXTENT = 500 m
DIP = 70 DEG N
WIDTH = 50 m
SUSCEPT = .03 CGS

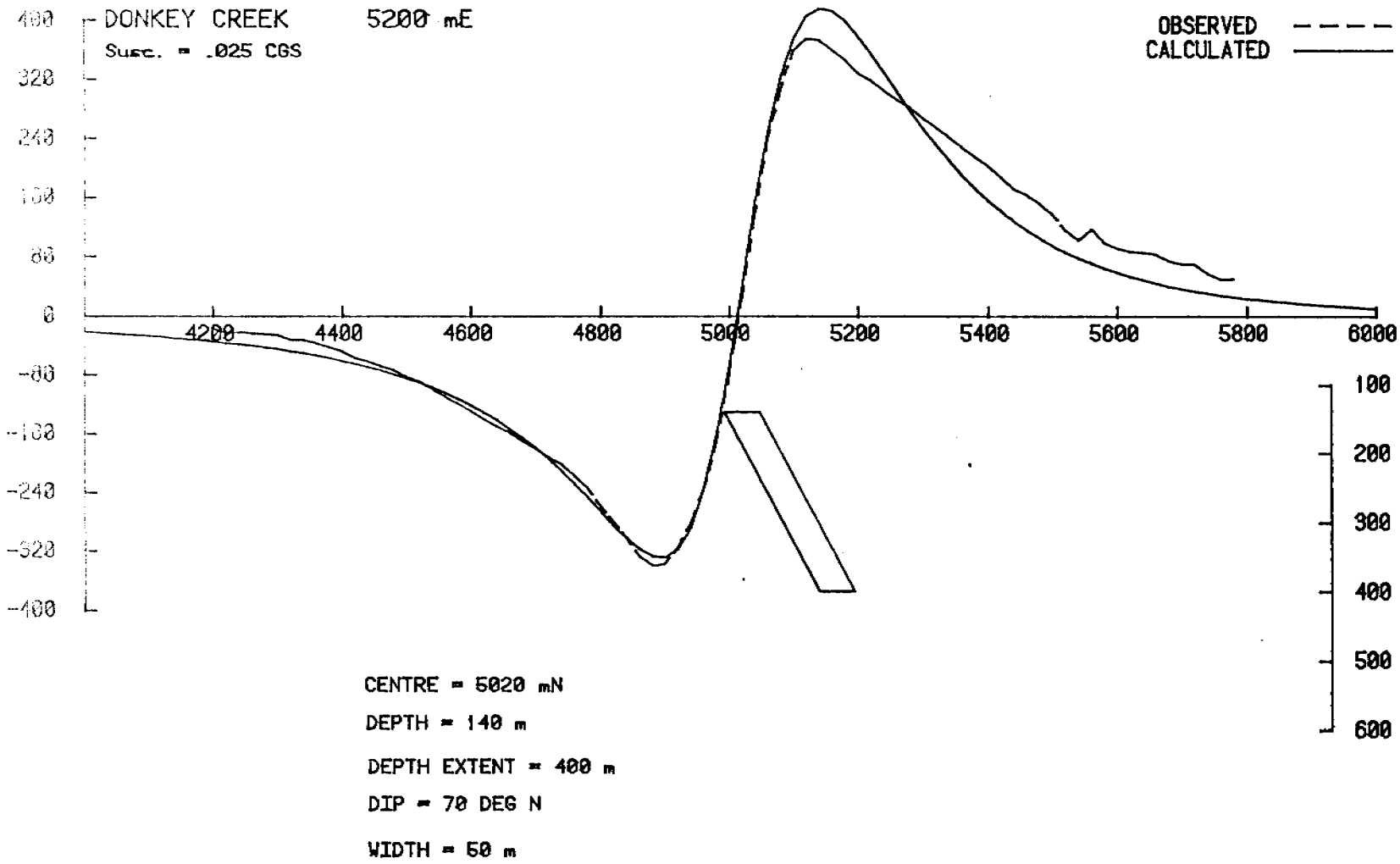


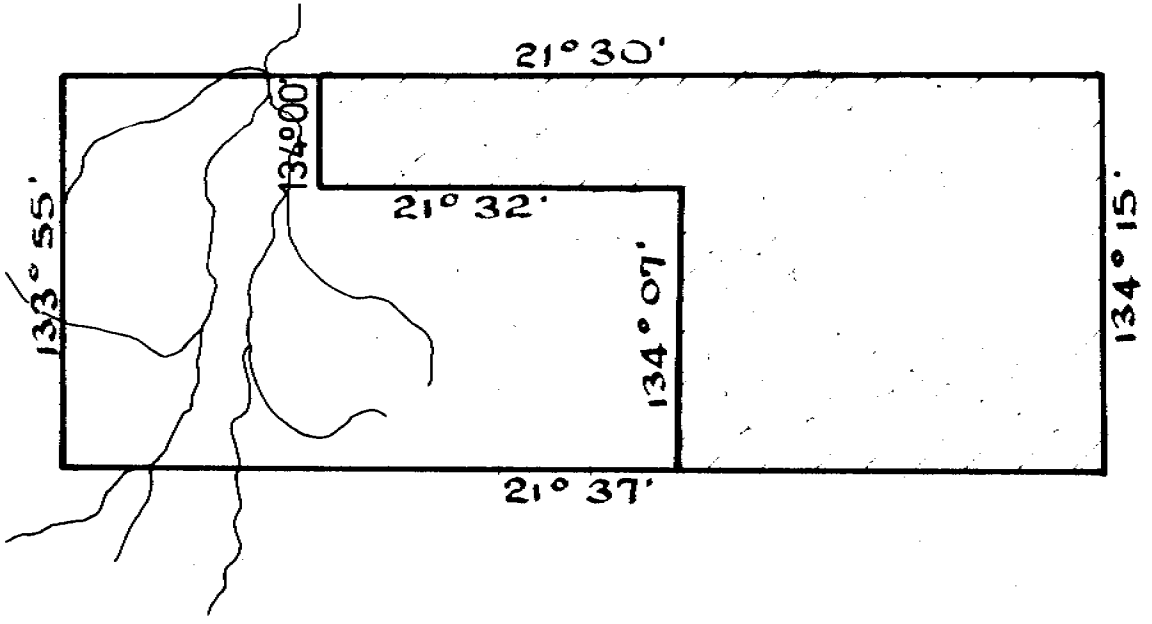
DEPTH = 125 m

DEPTH EXTENT = 500 m

DIP = 75 DEG N

WIDTH = 50 m


DONKEY CREEK
Susc. = .025 CGS
5200 mE
OBSERVED
CALCULATED
400
320
240
160
80
0
-80
-160
-240
-320
-400
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
100
200
300
400
500
600
CENTRE = 5020 mN
DEPTH = 140 m
DEPTH EXTENT = 400 m
DIP = 70 DEG N
WIDTH = 50 m



area to be retained

area to be relinquished

Area = 80·10 sq. miles
223·01 sq. kms.

PARTIAL RELINQUISHMENT
EL 1879
DONKEY CK. N.T.

SF 53-G
C.G.S. 1:250 000 11017
S.P.S Sept 1980 NTd1534

133°45'E

134°00'E

134°15'E

21°30'S

21°45'S

22°00'S

N

AIRBORNE SURVEY SPECIFICATIONS

MAGNETOMETER :	GEOMETRICS G-803 PROTON PRECESSION
SENSITIVITY :	0.5 NT
SAMPLE INTERVAL :	0.8 SEC
FLIGHT LINE DIRECTION :	N - S
FLIGHT LINE SEPARATION :	300 METRES
MEAN TERRAIN CLEARANCE :	80 METRES
ALONG LINE SAMPLING :	50 METRES

PROCESSING SPECIFICATIONS

IGRF : REMOVED . DATUM 2000 nT ADDED
GRID MESH : 100m by 100m
CONTOUR INTERVALS : 5,20,100,500,1000 nT
HORIZONTAL SCALE 1 : 20000
SHEET 7
GRID NOTATION REFERS TO AUSTRALIAN METRIC GRID

Scale 1:100,000

2 0 2 4 6 8 10 12 Kilometres

FLOWN BY GEOTERREX PTY LTD
JOB NO : 87-207 FLOWN : NOV 1978
COMPILED BY ENGINEERING COMPUTER SERVICES PTY LTD

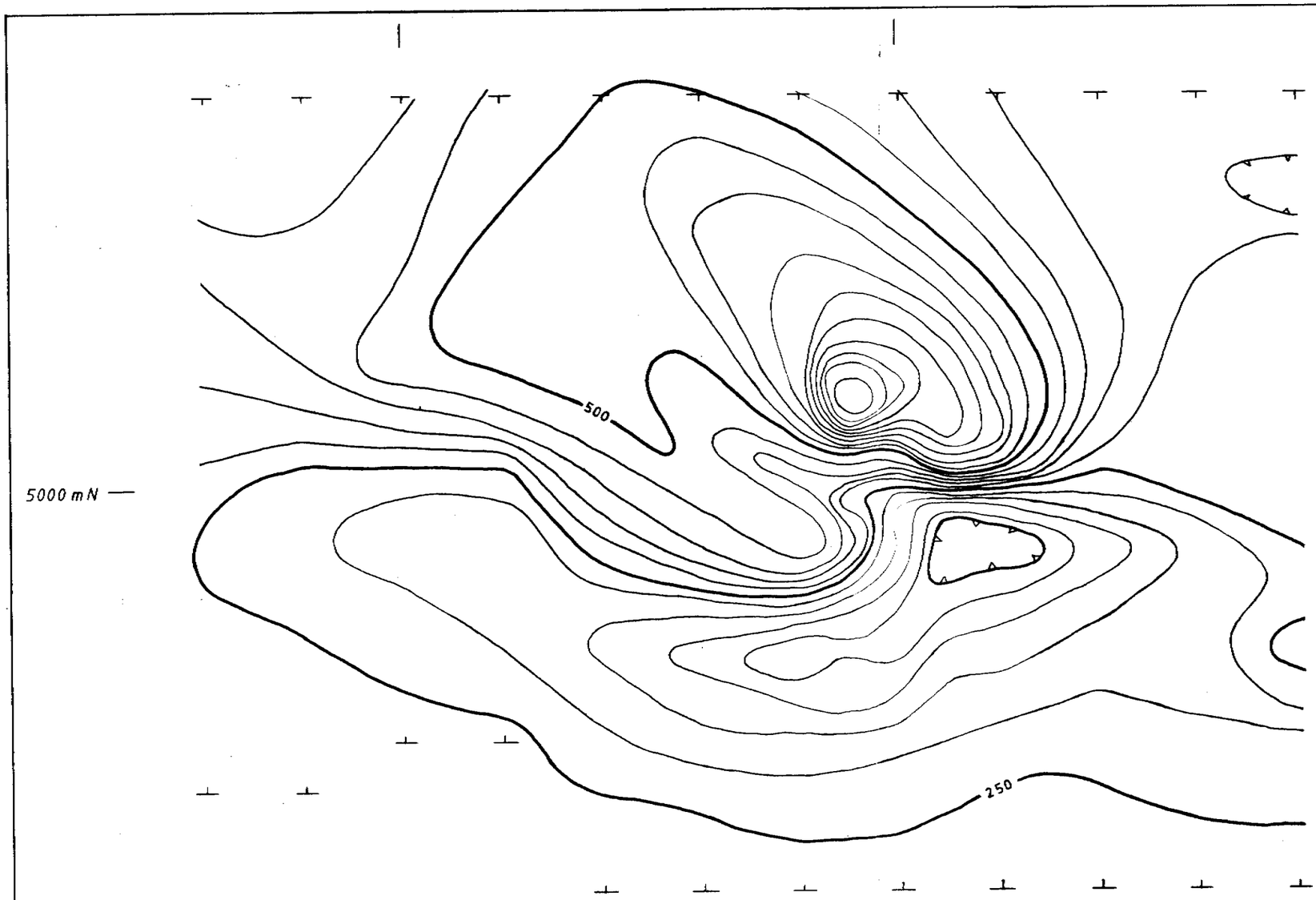
CRA EXPLORATION PTY. LTD.

BARROW CREEK SF53-6 ALCOOTA SF53-10

CONTOURS OF MAGNETIC INTENSITY

MILLIONAIRES WELL EL 1878
DONKEY CREEK EL 1879
FORSTER RANGE EL 1880

DATE: APRIL 1981 Scale: 1:100,000 | PLAN NO. NTo 318 | REPORT NO. 11017



NOTES

Magnetometer sensor height was 3.0m and the station spacing was 10 m

5000 mE is approx AMG 407600 mE

5000 mN 7619820 mN

Levelling was by a tie line run along 5000 mN

A Constant of 52000 has been removed from contour values shown

C.R.A. EXPLORATION PTY LIMITED

CONTOURS OF TOTAL MAGNETIC INTENSITY

DONKEY CREEK EL 1879

Reference BARROW CREEK SF 53-6		
Geologist G P J	Scale 1:10 000	Report No. 11017
Drawn B K B	Date JUNE 1981	Plan No. NTa 334

CR82/30