

92H/16W

REPORT ON THE DUCHESS CLAIMS

OREQUEST EXPLORATION

SIMILKAMEEN M.D. 92 H/16W

R. Wares A.L.J. MacDonald

December 1972

4525

4525

REPORT ON THE DUCHESS CLAIMS

AGUR OPTION

NTS 92H 16/W

Lat. 49° 51' Long. 120° 18'

OREQUEST EXPLORATION SYNDICATE

R. Wares

A.L.J. MacDonald, P.Eng.

Vancouver, B.C.

Department of
Mines and Petroleum Resources, November, 1972

ASSESSMENT REPORT

NO. 4525 MAP

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1. GENERAL INFORMATION

1:1 LOCATION

The Duchess claim group is located in the Simalkameen Mining Division, about 25 miles west of Peachland (fig. 1).

1:2 ACCESS

Access to the property is from Peachland by a logging road that connects with the Brenda Mines - Peachland road. The property is 35 miles by road from the Peachland turn-off, with the last five miles only being accessible with a four-wheel drive vehicle.

1:3 TOPOGRAPHY

The property is located at an altitude of about 5500', with a total relief of about 300'. The relief is somewhat subdued and is covered by a mature stand of jackpine. Lacustrine deposits and overflow channels of late glacial origin are present in the northern part of the property.

1:4 CLAIM STATUS

The property comprises thirty-five (35) claims, owned by D. Agur, termed the Duchess claims and recorded on April 27 (fig 2).

Duchess	5 - 16	35151 - 62
"	18	35164
"	20	35166
"	22	35168
"	24	35170
"	26	35172
"	36 - 42	37570 - 76

1:5 PREVIOUS WORK

Agur carried out some soil surveys and trenching on the property and outlined an area with sulphide mineralization in an andesitic host and accompanied by a moderate geochemical response.

2. REGIONAL INFORMATION

2:1 REGIONAL GEOLOGY

The Duchess property is located at the northern fringe of the Osprey Lake granodiorite body, a large composite intrusion of granodiorite/monzonite. The country rock into which the granodiorite is emplaced comprises meta-andesites of Nicola type with intercalated sediments. Small leucocratic stocks of possible Tertiary age are present near the northern edge of the granodiorite. These stocks appear to be the locus of hydrothermal alteration accompanied by erratic mineralization, principally vein type galena - sphalerite mineralization (fig. 3).

3. GEOLOGY

3:1 GEOLOGY

The Duchess claims straddle the northern contact of the Osprey Lake granodiorite body. The intrusion comprises biotite - hornblende granodiorite with a slight igneous foliation in the marginal phase where hornblende predominates.

The volcanics are chiefly of andesitic affinities and exhibit a marked contact alteration near the granodiorite contact.

3:1 GEOLOGY (continued)

Fine grained epidotised meta-andesite with minor carbonate is present in the contact zone.

Sulphides are present in the contact altered zone. The sulphides consist of pyrrhotite with minor chalcopyrite as disseminated mineralization with, in addition, minor fracture controlled mineralization. The pyrrhotite occasionally forms pods up to 1" - 2" in diameter but generally is present in grains up to 1/2" diameter. Chalcopyrite is erratically distributed as fine blebs and disseminations but generally in trace amounts. Pyrite was not observed in the area.

4. GEOCHEMISTRY

4:1 SOILS

The Duchess property comprises Dark Grey to Brown Wooded soils, that are relatively well drained.

Within the property, the stony glacial till is overlain in a zone in the north by lacustrine silts (fig. 6) of late glacial origin along with some well developed outflow channels along Siwash Creek. In the eastern portion of the grid the lacustrine silts are overlain by organic horizons up to 6" - 8" thick.

Profile samples were obtained in two areas (40W, 12S and 36W, 8S). The former area (fig. 10) is in an area of relatively shallow overburden. Cu. and Zn. values exhibit a sympathetic

4:1 SOILS (continued)

relationship, increasing with depth and broadly paralleled by the iron content of the soil. The soil pH values are about 5.5 to 6.0, with generally low, uniform cold-extractable copper values (about 15 p.p.m.).

In the latter area, where overburden is deeper, there is relatively little differentiation of copper values, except for a partially leached horizon from 4" - 10". Copper and zinc values (fig. 11) exhibit a slight inverse relationship while Fe values parallel the copper distribution. Cold extractable copper and zinc are generally of low order while pH values are again in the range 5.5 to 6.0.

The soils are all ferro-humic podzols or gleyed ferro-humic podzols, developed on stoney till. Glacial movement appears to have been from the north-north-east, with drumlinoid features irregularly developed.

4:2 DISTRIBUTION OF Cu.

Anomalous copper values (\approx 100 p.p.m. Cu.) forms a zone from 40W, 20S to 40W, 0+00, with two smaller zones at 36W, 2N and 60W, 10S. The central anomaly is closely related to the known area of mineralization and appears to reflect the higher copper content of the till and probably a thinning of the till over the mineralized bedrock (fig. 4).

4:2 DISTRIBUTION OF Cu. (continued)

The anomalies at 36W, 2N, and 60W, 10S are not attributable to any known bedrock mineralization and appear to be hydromorphic anomalies developed at a break in slope.

A reconnaissance soil traverse in the property, but outside the area of the grid, did not reveal any anomalous copper values.

4:3 DISTRIBUTION OF Zn.

The distribution of Zn. in the property is entirely different from that of copper. The anomalous zinc values (>100 p.p.m.) are erratically distributed in the grid area and probably reflect accumulation in organic rich areas, where humic horizons are developed over lacustrine deposits and stoney till (fig. 5).

In the sections (figs. 12 & 13) there is an inconsistent distribution of Zn. in relation to copper values or to any geophysical parameter, suggesting that accumulation in organic horizons is responsible for the higher Zn. values.

4:4 DISTRIBUTION OF Ag.

Silver values are all low and inconsistent and do not appear to reflect any significant geological or geochemical feature.

5. GEOPHYSICAL DATA

5:1 MAGNETIC DATA

The magnetic data reveal relatively minor amounts of structural information. The range in values is from -1400 to +2850 gammas though, throughout the area examined, the range is generally from -200 to +50 gammas.

The high values (>0 gammas) generally form low amplitude isolated anomalies with only the broad zones centred on 44W, 9S and 40W, 16S, being of any size and geological significance.

Profile sections (figs. 12 & 13) reveal a positive correlation between the magnetic highs and anomalous copper zones in the broad magnetic zones and a poor correlation in the small period anomalies, which probably reflect differences in lithology in the volcanic units.

5:2 EM-16 DATA

The EM-16 data was obtained using the Seattle station (17.5 KHz). The data (fig. 8) reveals several conductive zones trending east north-easterly in the south-east portion of the grid while several discontinuous small conductors are present in the northern part of the grid.

The conductive zones are better interpreted from the filtered data which is a technique of treating the inphase data to outline the conductive zones and facilitate interpretation¹.

¹Fraser, D.C. VLF-EM Data Processing, C.I.M.M. Bull.74 1971, p.39.

5:2 EM-16 DATA (continued)

The data (fig. 9) reveals several conductive zones trending east north-easterly with a broad but low amplitude zone from 48W, 12S to 36W, 10S. The conductive zones exhibit a partial but not complete correlation with the magnetic highs and a poor correlation with the anomalous copper areas (figs 12 & 13).

A tentative conclusion would be that within the pyrrhotite bearing zone, there is a range in composition of the pyrrhotite and in consequence, some variability of the magnetic properties¹, with the higher positive anomalies, correlative with the presence of chalcopyrite. No pyrite was observed in this area.

6. SUMMARY AND CONCLUSIONS

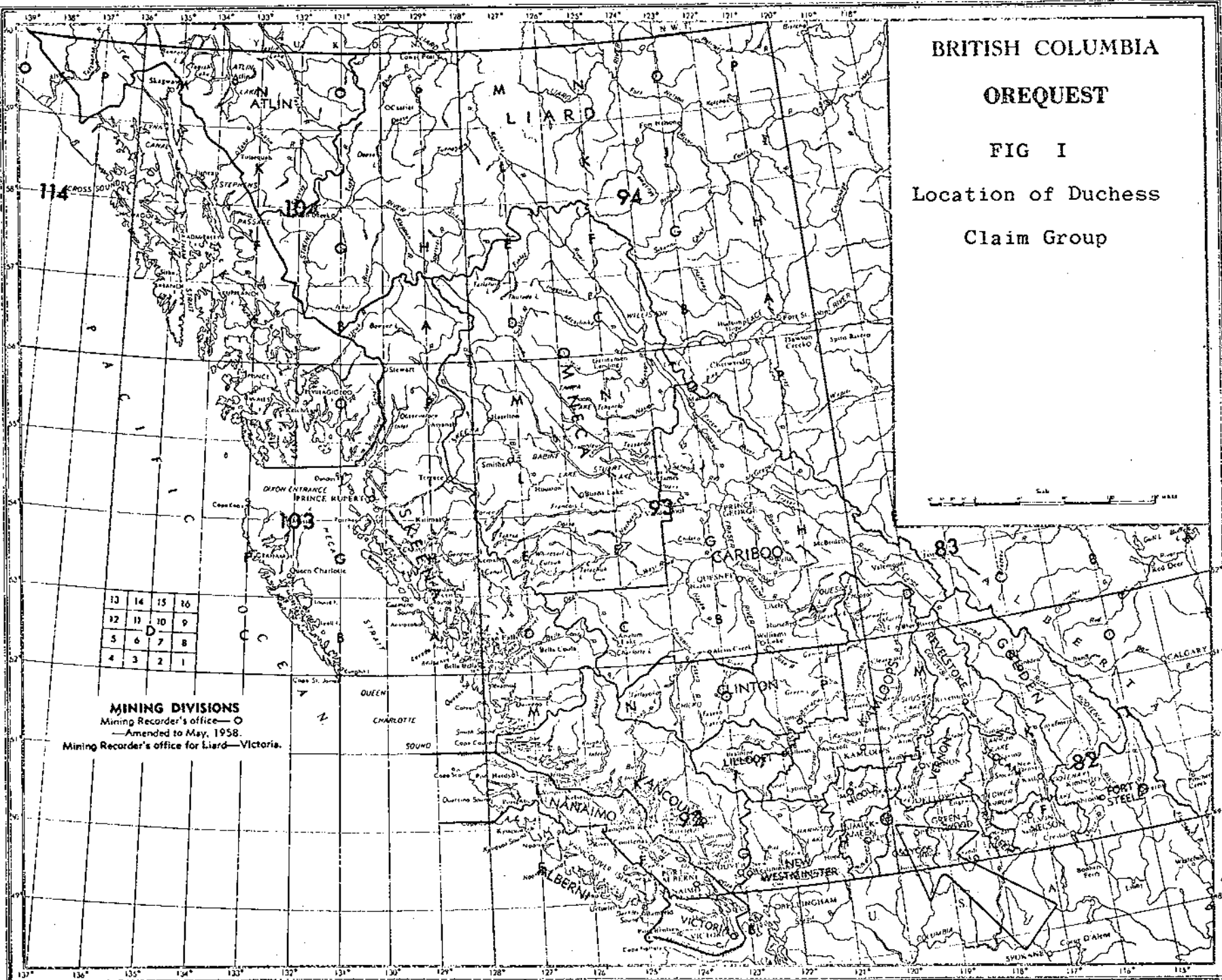
- 1) The Duchess option comprises sporadic disseminations of pyrrhotite and minor chalcopyrite in a contact altered zone peripheral to the Osprey Lake granodiorite.
- 2) Magnetic, EM-16 and geochemical data on the property indicate that the zone is relatively small, erratic in distribution and not large enough or of high enough grade to warrant further work by Orequest.

R. Wane



¹Magnetic Properties of Pyrrhotite and their use in geology and geophysics.
Schwerz, E.J. Canadian Mining Journal 1972 p.32.

4525-M1



BRITISH COLUMBIA

OREQUEST

FIG I

Location of Duchess
Claim Group

13	14	15	16
12	11	10	9
5	6	7	8
4	3	2	1

MINING DIVISIONS
 Mining Recorder's office—○
 —Amended to May, 1958.
 Mining Recorder's office for Liard—Victoria.

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NO. 4525 MAP # 1

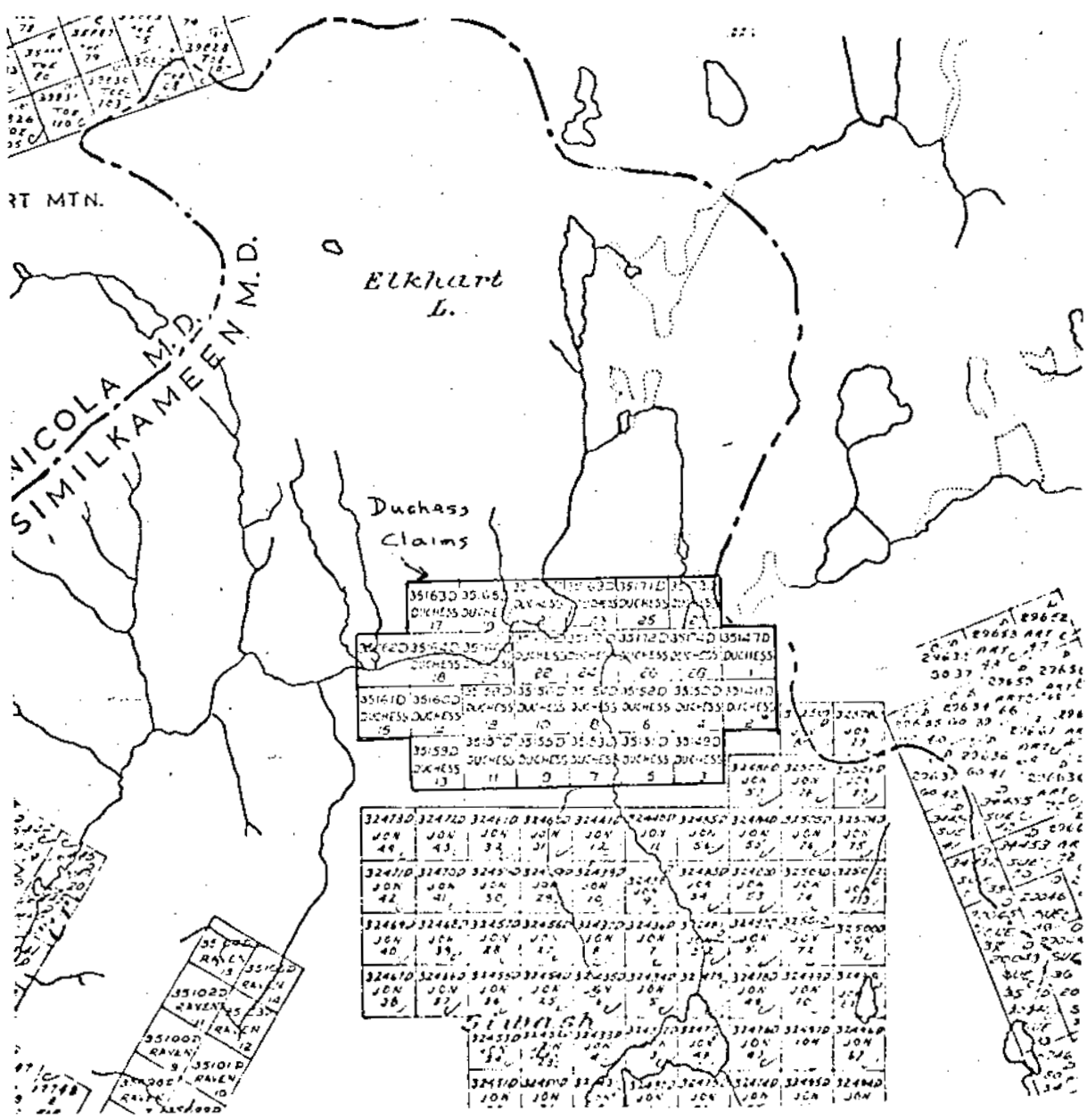


Fig.2 Claim Groups, Duchesne Claim Group.

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 NO. 4525 MAP #2

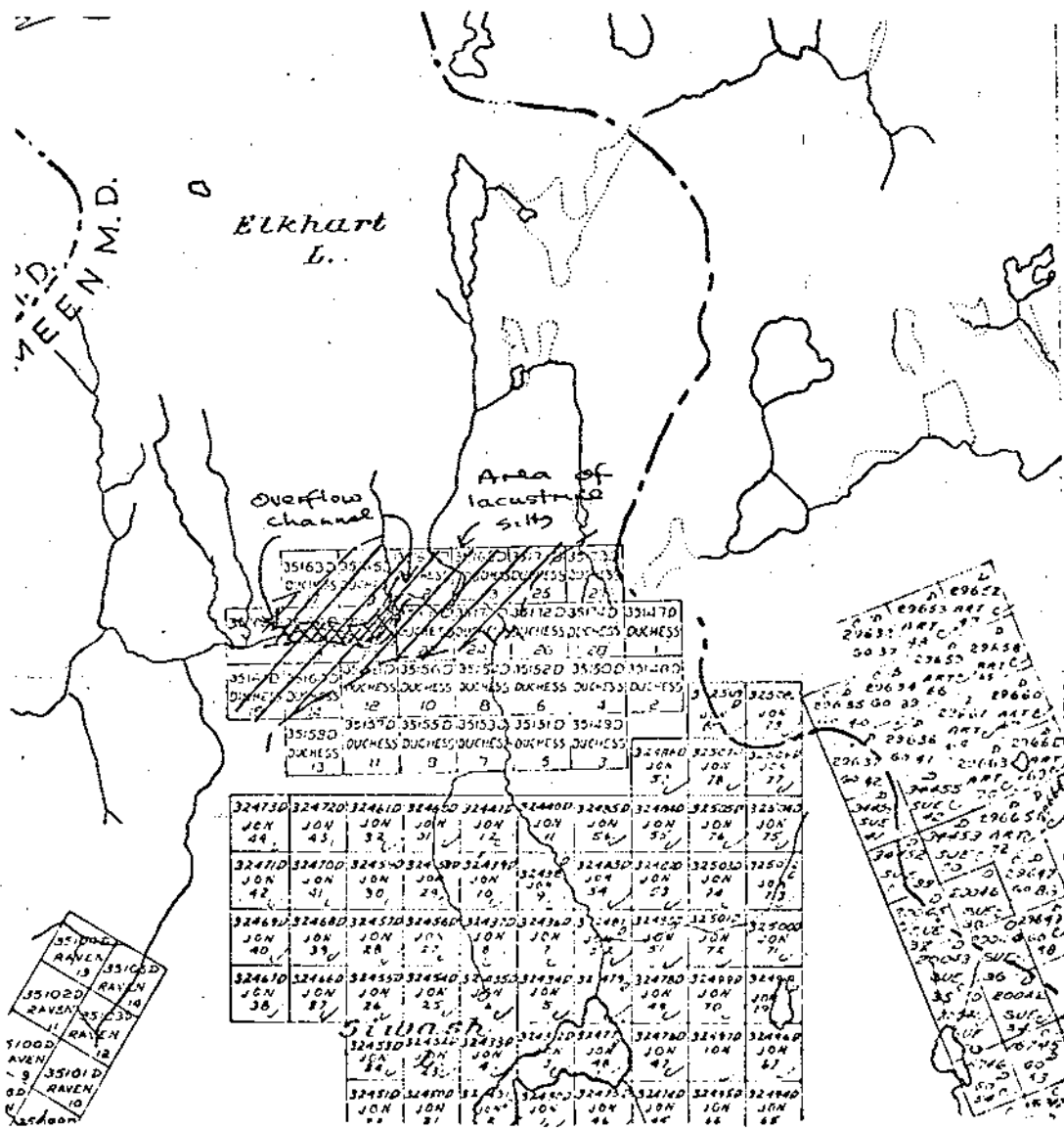


Fig 6 Glacial Features, Duches Claim Group.

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NO. **4525** MAP # **6**

A:1 Geophysics

The magnetic data was obtained using an MF-2 fluxgate magnetometer (see attached specifications). The readings were taken on 100 foot centres on grid lines cut 400 feet apart. Diurnal variations were established by looping back to an established base station at regular intervals.

The EM-16 data was obtained using the Seattle station (18.6kHz., Station NPG). The data was collected on 100 foot centres along the grid lines 400 feet apart. The data was filteredⁱ to make interpretation easier. The filtering was carried out on the data at 100 foot station intervals.

A:2 Geochemistry

The soil samples from the property were analysed for Cu, Mo, Zn and Ag (see attached reference). Profile samples were collected over anomalous areas. Cumulative histograms of the distribution of values on the Ellen claim group are enclosed.



GEOCHEMICAL ANALYTICAL PROCEDURE1. Sample Preparation

- a) Geochemical soil, silt and rock samples were received in the laboratory in wet-strength $3\frac{1}{2} \times 6\frac{1}{2}$ Kraft Paper bags.
- b) The wet samples were dried in a ventilated oven.
- c) The dried soil and silt samples were sifted, using an 80-mesh stainless steel sieve. The plus 80-mesh fraction was rejected and the minus 80-mesh fraction was transferred into a new bag for analysis later.
- d) The dried rock samples were crushed and pulverized to minus 80-mesh. The pulverized sample was then put in a new bag for later analysis.

2. Methods of Digestion

- a) 1.00 gram or 0.50 gram of the minus 80-mesh samples was used. Samples were weighed out by using a top-loading balance.
- b) Samples were heated in a sand bath with nitric and perchloric acids (15% to 85% by volume of the concentrated acids respectively).
- c) The digested samples were diluted with demineralized water to a fixed volume and shaken.

3. Methods of Analyses

a) Molybdenum analyses:

Molybdenum analyses were determined by using a Techtron Atomic Absorption Spectrophotometer Model AA4 with a molybdenum hollow cathode lamp. The digested samples were aspirated directly into a nitrous oxide, acetylene flame. The results were read out on a Photovolt Varicord Model 43 chart recorder. The molybdenum values, in parts per million, were calculated by comparing a set of molybdenum standards.

b) Copper, zinc, silver and lead analyses:

The above element analyses were determined by using a Techtron Atomic Absorption Spectrophotometer Model AA4 or Model AA5 with their respective hollow cathode lamps. The digested samples were aspirated directly into an air acetylene flame. The results, in parts per million, were calculated by comparing a set of standards to calibrate the atomic absorption unit.

4. The analyses were supervised or determined by Mr. Conway Chun or Mr. Laurie Nicol, and their laboratory staff.

FLUXGATE MAGNETOMETER MF-2 -- Specifications

	<u>Ranges</u>	<u>Sensitivity</u>
Standard:	Plus or Minus	
	1,000 gammas f.sc.	20 gammas/div.
	3,000 gammas f.sc.	50 gammas/div.
	10,000 gammas f.sc.	200 gammas/div.
	30,000 gammas f.sc.	500 gammas/div.
	100,000 gammas f.sc.	2,000 gammas/div.
Optional:	100 gammas f.sc.	2 gammas/div.
	300 gammas f.sc.	5 gammas/div.
Meter:	Taut-band suspension	
	100 gamma scale 2.1" long--50 div.	
	300 gamma scale 1.9" long--60 div.	
Accuracy:	1000 to 10,000 gamma ranges \pm 0.5% of full scale	
Operating Temperature	-40° C. to +40° C. -40° F. to + 100° F.	
Temperature Coefficient	Less than 1 gamma per °C. ($\frac{1}{2}$ gamma per °F.)	
Noise Level:	Less than 1 gamma P-P	
Bucking Adjustments: (Latitude)	-20,000 to +80,000 gammas 9 steps of 10,000 gammas plus fine control of 0-10,000 gammas by ten turn potentiometer Reversible for southern hemisphere	
Recording Output:	Optional	
Electrical Response:	D.C. to 0.3 cps (3db down) on 100 gamma range with meter in circuit. D.C. to 20 cps with meter network shorted for recording purposes	
Connector:	Cannon KO2-16-10SN for plug Cannon KO3-16-10PN and cover KO6-16-3/8	
Batteries	Internal 3 x 6V-1 amp/hour. Sealed Lead Acid rechargeable Centralab GC 6101; recharge time 8 hours	
Consumption:	60 milliamperes--GC 6101 batteries are rated for 16 hours continuous use	
Dimensions:	6 $\frac{1}{4}$ " x 2 $\frac{3}{4}$ " x 10" instrument 161mm x 71 mm x 254 mm	

COST BREAKDOWN

A. TRENCHING

i) 15 man days @ \$40.00/man day	600.00
ii) drill rental 15 days @ \$20.00/day	300.00
iii) transportation	375.00
iv) blasting: caps, fuse, powder	73.20

B. TRAIL BUILDING

i) 4 man days @ \$40.00/man day	160.00
ii) on property transportation	50.00

C. LINE CUTTING

i) 7 man days @ \$50.00/man day	350.00
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D. GEOCHEMISTRY

i) sampling 7 man days @ \$50.00/ man day	350.00
ii) analytical costs	827.00

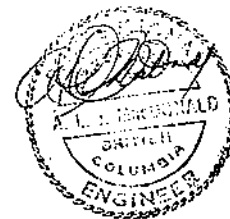
E. GEOPHYSICS

i) magnetometer 3 man days @ \$60.00	180.00
ii) E.M. 16 4 $\frac{1}{2}$ man days @ \$45.00	202.50

F. GENERAL

i) magnetometer rental 1 week @ \$60.00	60.00
ii) E.M. 16 rental 1 week @ \$60.00	60.00
iii) truck rental 1 week @ \$100.00	100.00
iv) supervision 1 day @ \$100.00/day	100.00
v) report preparation	370.00

GRAND TOTAL \$4457.20



PERSONNEL AND DATES WORKED

<u>PERSONNEL</u>	<u>DATES WORKED</u>	<u>DUTIES</u>	<u>MAN DAYS</u>
WARES R.	Sept. 22-27	linecutting	3
		magnetic survey	3
FORSHAW R.	Nov. 20-21	report preparation	2
HUTTON J.	Sept. 23-25	soil sampling	1
		E.M. 16 survey	2
TICKNER J.	Sept. 22-25	line cutting	3
		E.M. 16 survey	2
TICKNER J.	Sept. 22-27	line cutting	1
		soil sampling	5
McTAGGART K.	Dec. 18-19	report typing	2
GRAND TOTAL			24 MAN DAYS



STATEMENT OF QUALIFICATIONS

MacDonald, A., B.A., Geologist, P.Eng. Engaged in mineral exploration since 1955 while employed by Farwest Mining, United Keno Hill, Peso Silver, Kerr Addison, New Jersey Zinc, Manager of Meridian Syndicate and Orequest Syndicate.

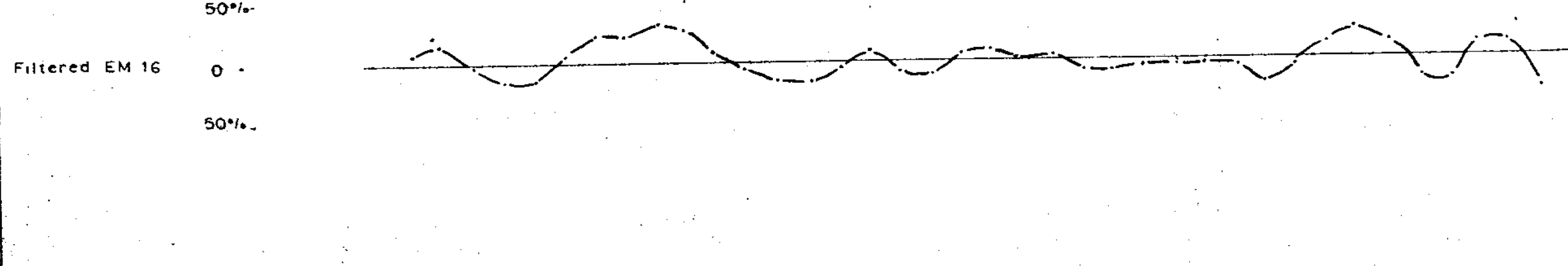
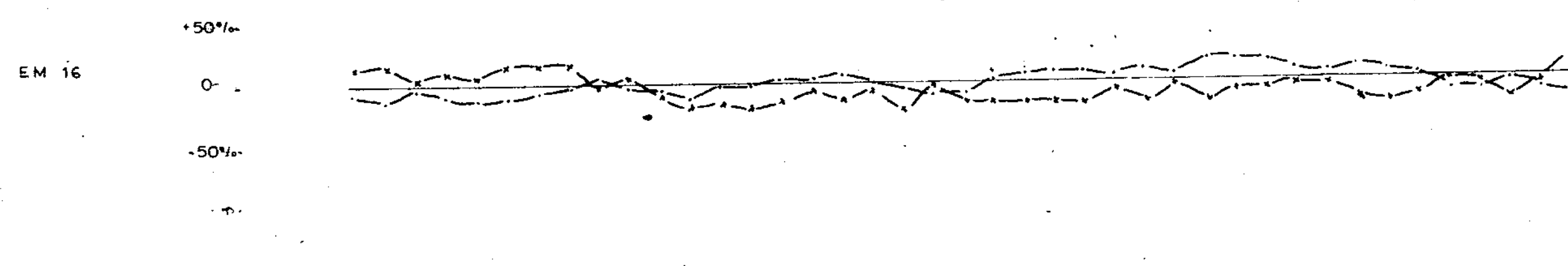
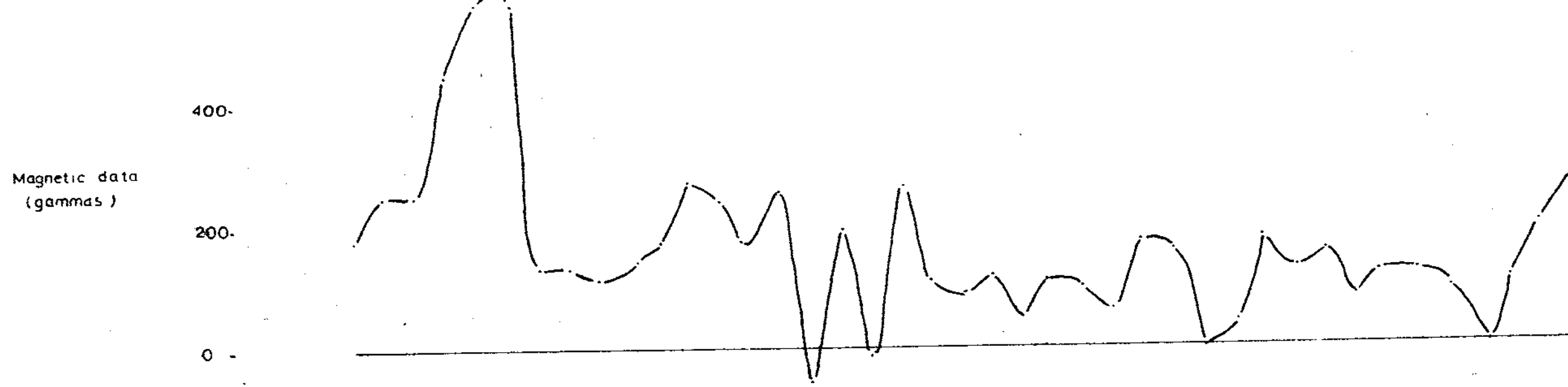
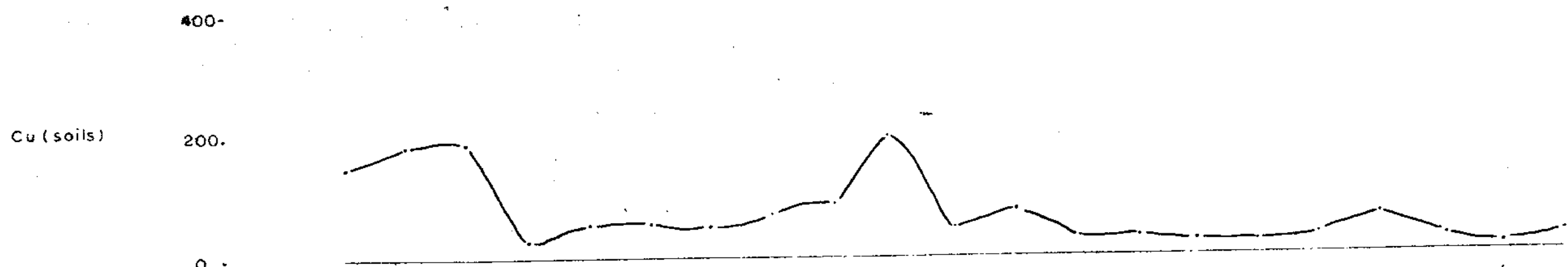
Wares, R., M.Sc., Geologist, engaged in mineral exploration while employed by the Ontario Department of Mines, Falconbridge, and since 1971 as a geologist for Orequest Syndicate.

Forshaw, R.T., Instrument operator, has been employed in various phases of mineral exploration for seven years while employed by Huntec Ltd., The Granby Mining Co., San Jacinto Mines, and since 1969 by Orequest Syndicate.

Hutton, J.A., B.Sc., Geophysicist, employed as a student in 1970 and 1971 by Orequest Syndicate and as a Geophysicist by Orequest since May 1972.

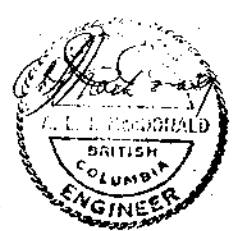
Tickner, J.J., Geological Technician, 2 years university, geology U.B.C. Employed in various phases of exploration since 1965, while working for Noranda, Asbestos Corp., Silver Standard, Inco., and Orequest. Employed in Canada, U.S.A., Australia and Great Britain.

20S 16S 12S 8S 4S 0 4N 8N 12N 16N 20N



• in phase
x quadrature

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NO. 4525 MAP #12

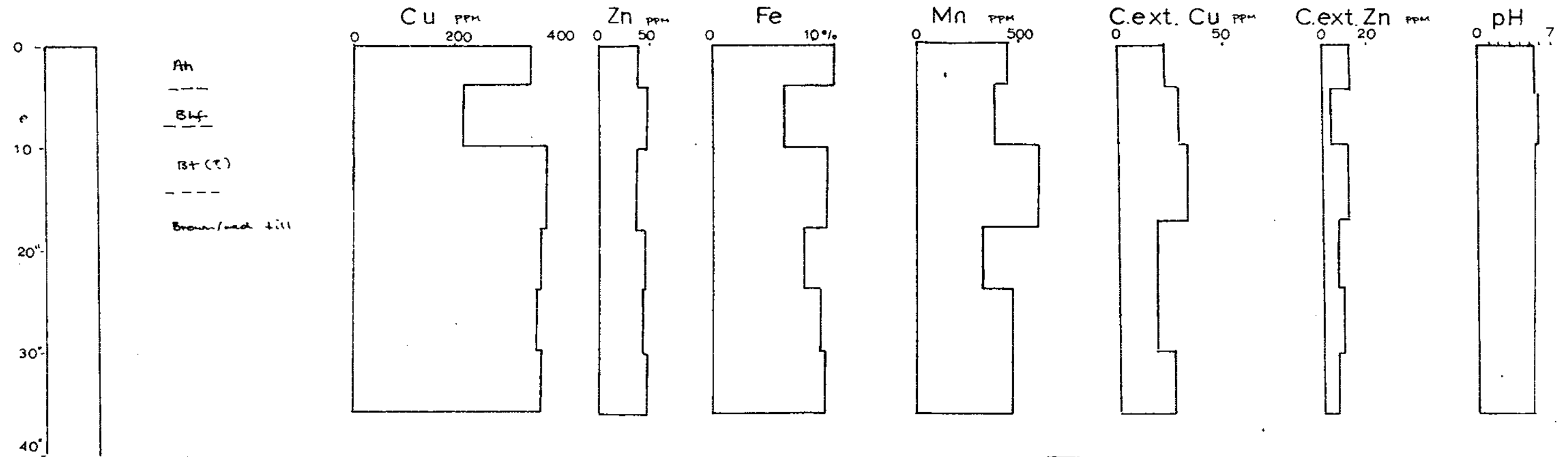


AGUR OPTION DUCHESS CLAIMS	SECTION 40+00W	OREQUEST
92H 16W FIG 12	0 100 400 800 400'	R.W. Nov. 1972

4525-112

DUCHESS OPTION

Profile No. 2



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ANALYTICAL REPORT
NO. 4525 #11

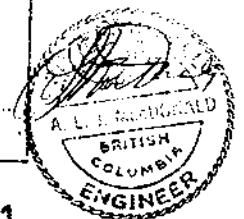


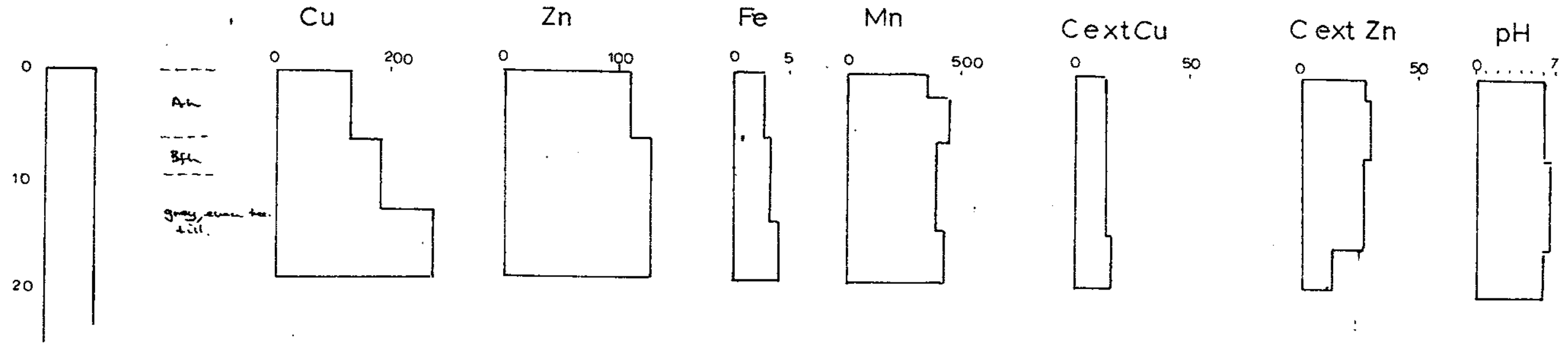
FIG 11

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DUCHESS OPTION

Profile No. 1



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A. I. M. D. O. M. L. E.
NO. 4525 M.P. #10

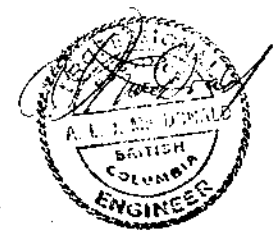
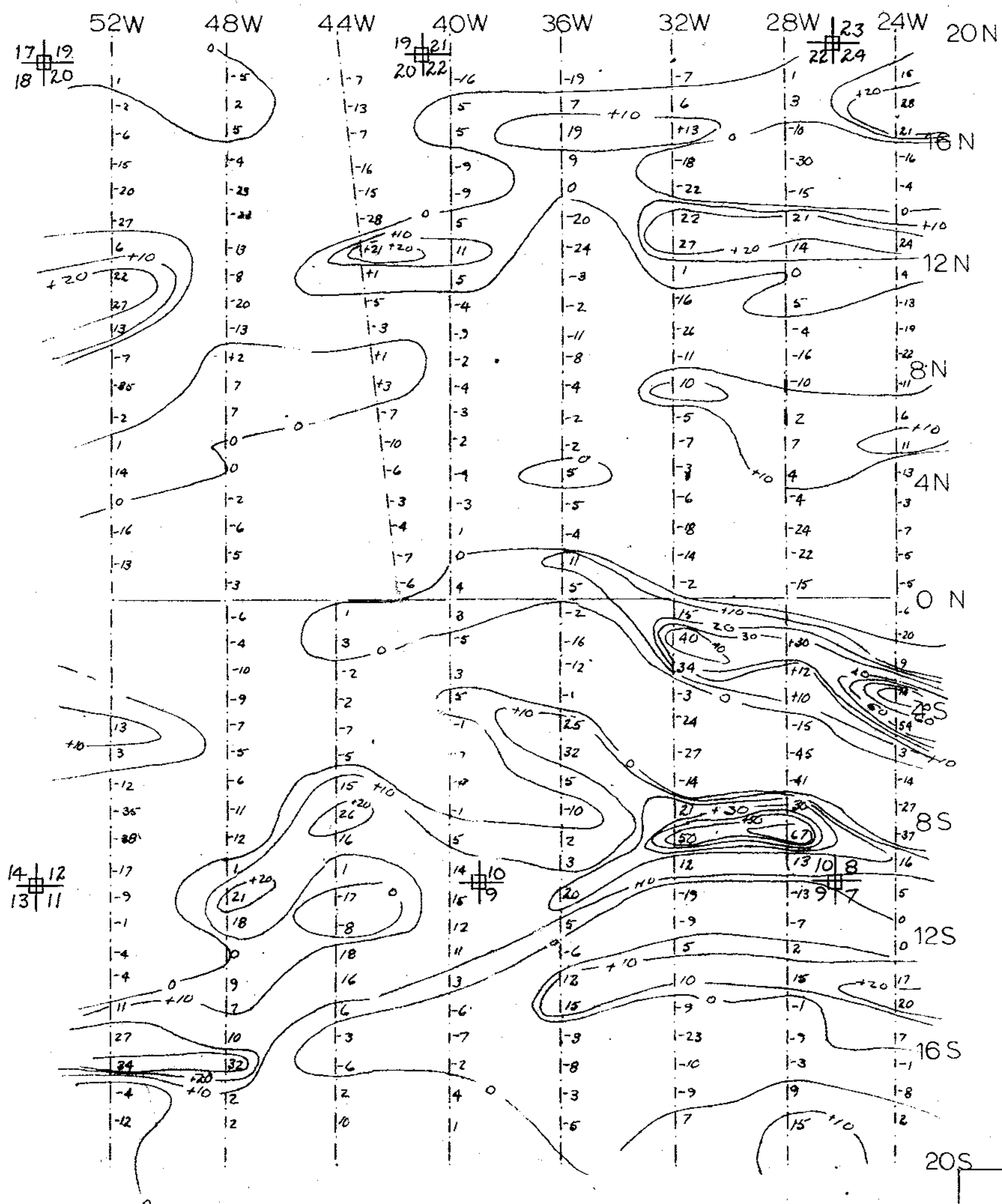


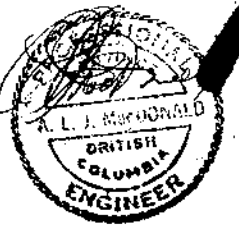
FIG 10

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M10

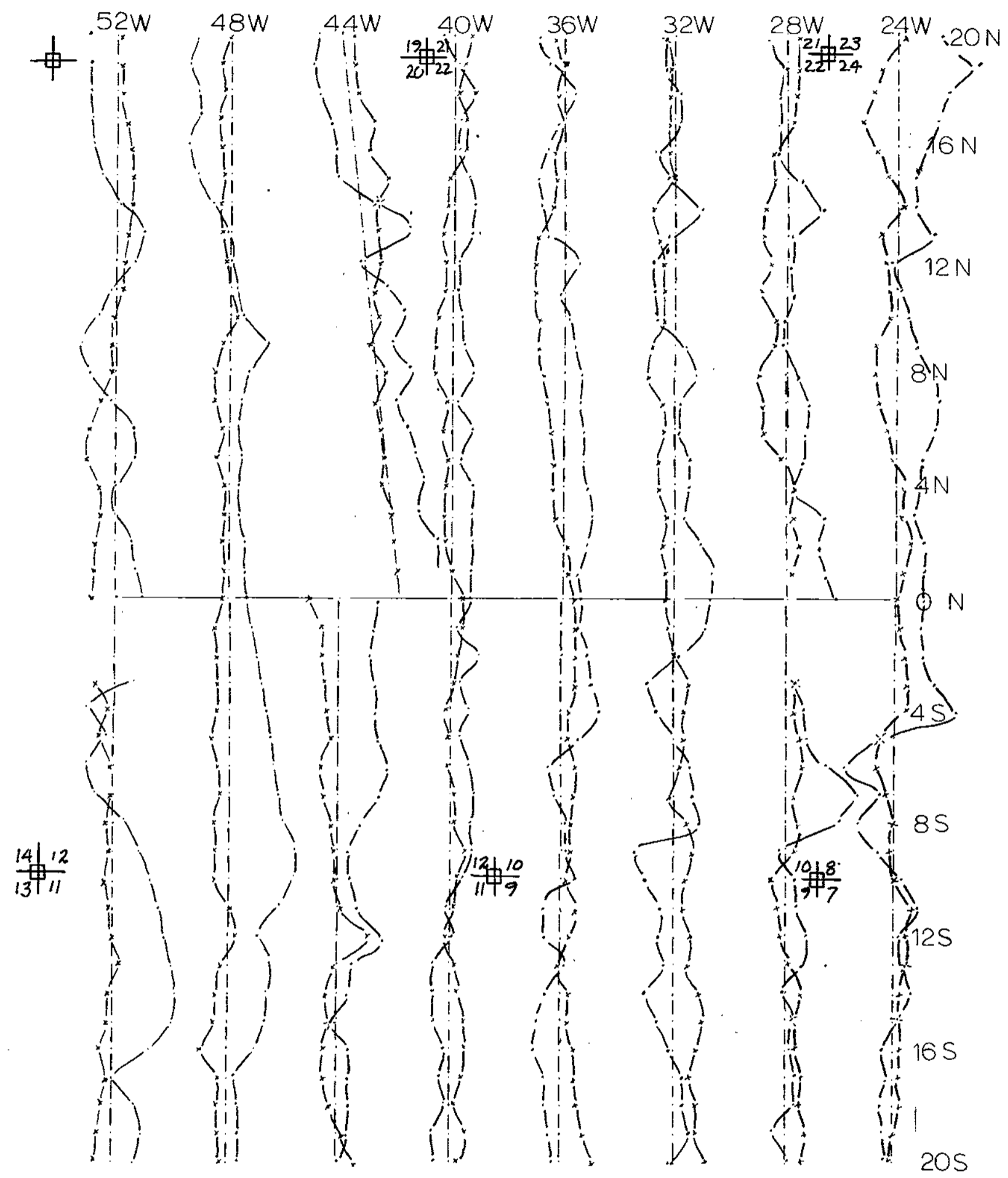


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NO. 4525 MAP #9

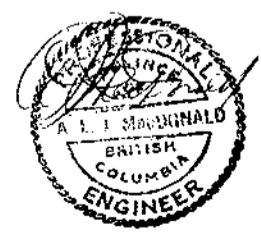
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M9**



AGUR OPTION DUCHESS CLAIMS	IN PHASE FILTERED EM-16	OREQUEST
92H 16/W FIG-9	1" = 400' 200 100 0 200 600	



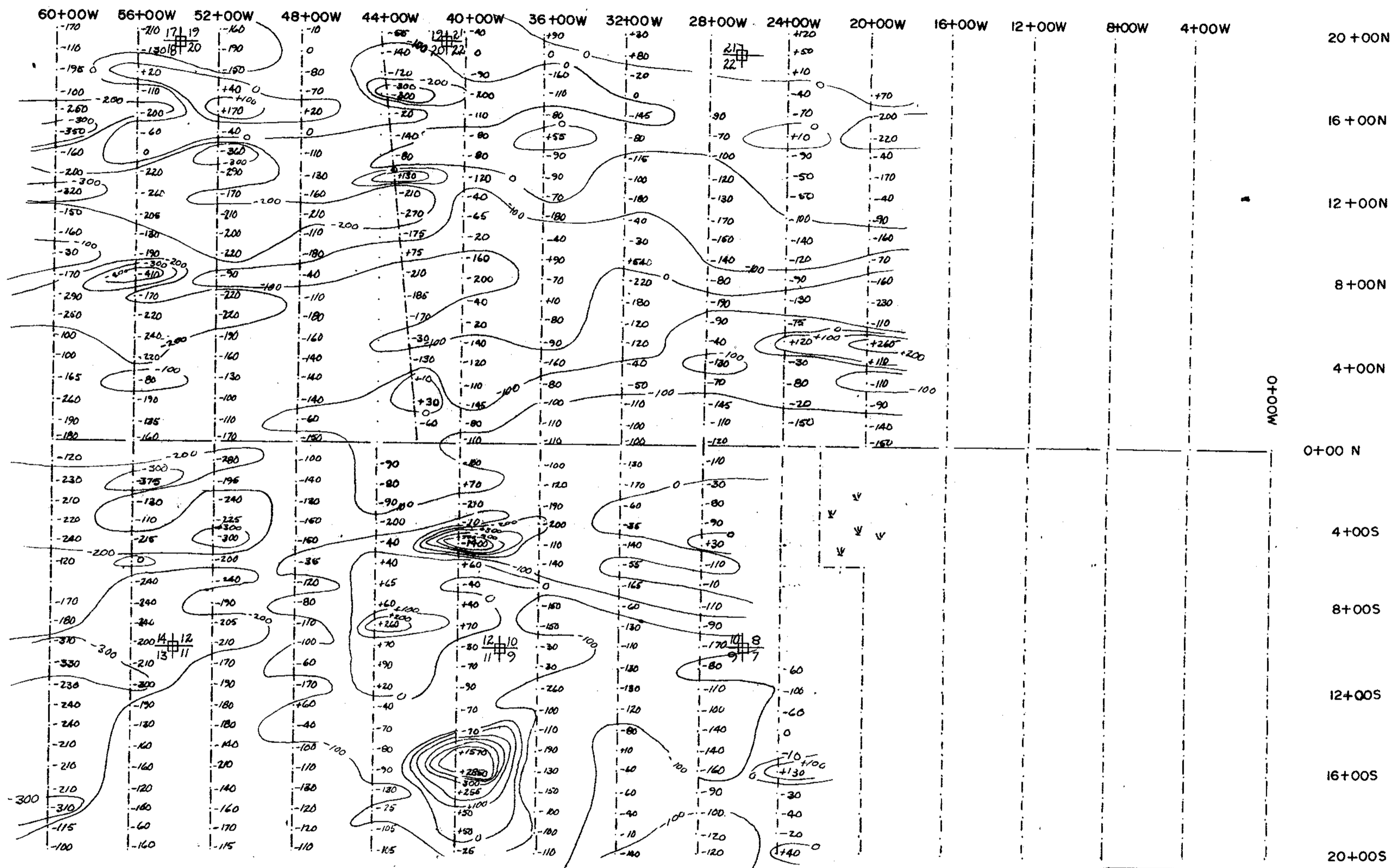
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NO. **4525** MAP #8



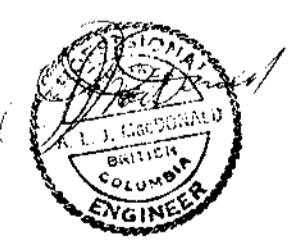
1" = 50% DIP ANGLE
50%

AGUR OPTION DUCHESS CLAIMS	EM-16 PROFILES --- IN PHASE --- *- QUADRATURE -*	OREQUEST
92 H 16/W FIG-8	200 100 0 200 600	

4525-178



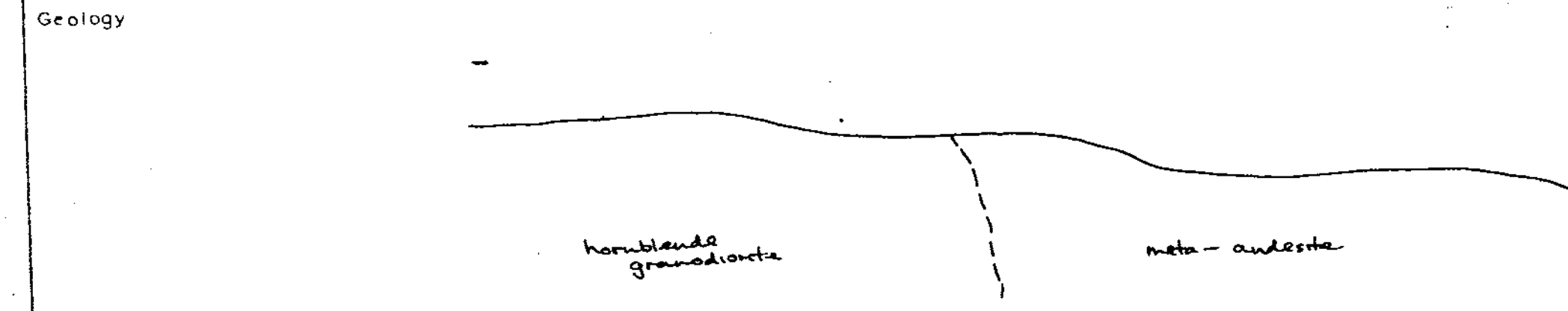
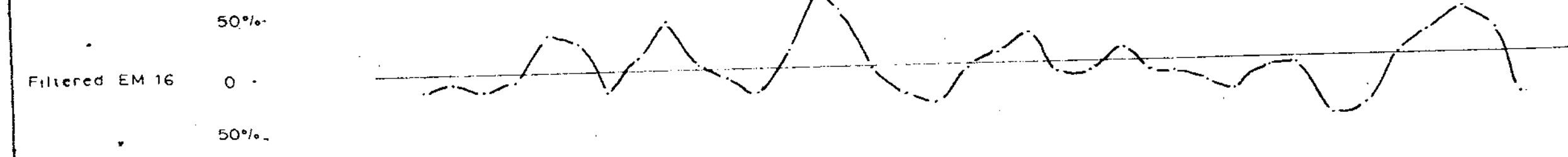
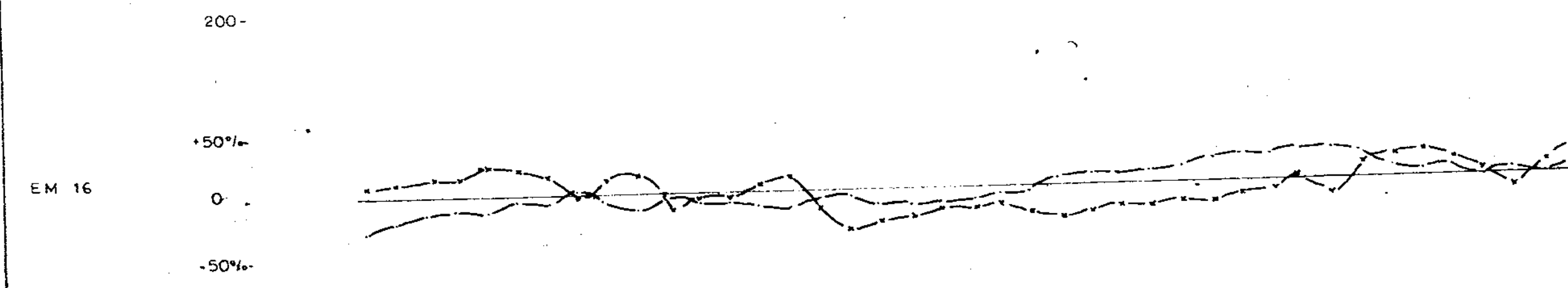
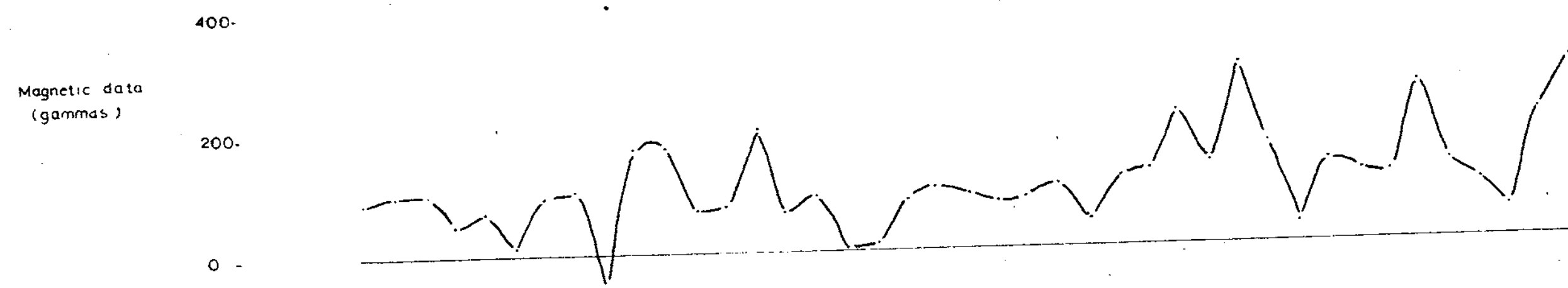
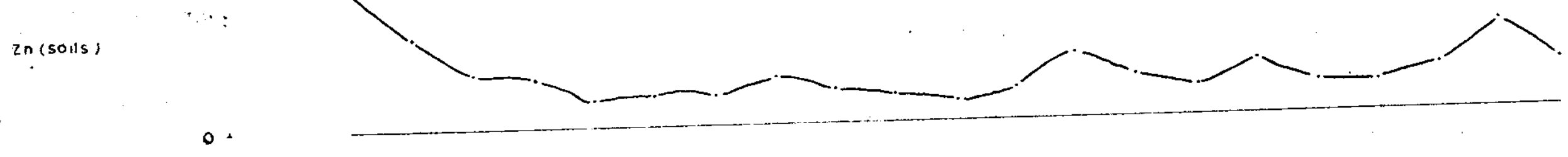
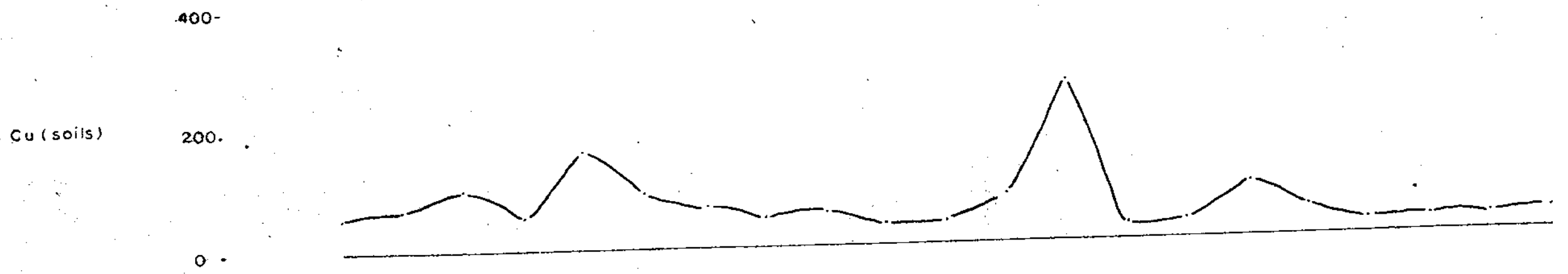
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NO. 4525 MAP #7



AGUR OPTION DUCHESS CLAIMS	ISOMAGNETIC PLAN	OREQUEST
92 H 16/W FIG-7	1"=400'	

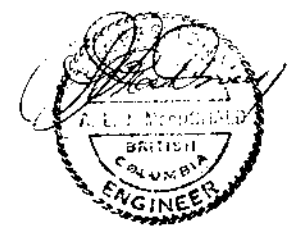
4525-M7

20S 16S 12S 8S 4S 0 4N 8N 12N 16N 20N

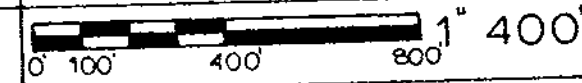


• in phase
• quadrature

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NO. 4525 MAP #13



AGUR OPTION DUCHESS CLAIMS	SECTION 36+00W	OREQUEST
92H 16W	FIG 13	RW



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