



Bergvesenet

Postboks 3021, 7002 Trondheim

Rapportarkivet

Bergvesenet rapport nr BV 1246	Intern Journal nr	Internt arkiv nr	Rapport lokalisering Trondheim	Gradering Åpen
Kommer fra ..arkiv	Ekstern rapport nr	Oversendt fra BP Minerals Norge	Fortrolig pga	Fortrolig fra dato:

Tittel

Digheim airborne Geophysics, Meråker, Norway.
Digheim ground geophysical follow up Meråker, Norway, March-May 1985 (phase A)
Bilagsdel område 1

Forfatter Paul Hayston	Dato May 1985	Bedrift BP Minerals Interanational LTD Norsk Hydro
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Kommune Meråker	Fylke Sør-Trøndelag	Bergdistrikt Trondheimske	1: 50 000 kartblad 17222 17223 17211 17214	1: 250 000 kartblad Trondheim
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Fagområde Geofysikk Geologi	Dokument type Rapport	Forekomster Meråker: Kongens gruver, Mannfjell / Storbekk knollen, Furuhaugen, Flatrya.
Råstofftype Malm/metall	Emneord Kis Cu Zn	

Sammendrag

Se også tekstdel i geofysisk rapport BV 953, med henvisning til disse 5 ringpermene.

INNHold:

1. Meråker -Tydalen, område 1, Kompilasjonskart, geologi og EM-anomalier, 1 : 10 000
2. Meråker -Tydalen, område 1, Resistivity uncoloured, 1 : 10 000
3. Meråker -Tydalen, område 1, Resistivity coloured, 1 : 10 000
4. Meråker -Tydalen, område1, Electromagnetic anomalies, 1 : 10 000
5. Meråker -Tydalen, område1, Total field magnetics, 1 : 10 000
6. Meråker -Tydalen, område1, Enhanced magnetics, 1 : 10 000
7. Kongens gruve, Summary Geophysics, Bilag 30, 1 : 10 000
8. Kongens gruve, VLF bakkemålinger, bilag 31, 1 : 10 000
9. Kongens gruve, Geokjem.(?), Anomaly plot, 1 : 10 000
10. Kongens gruve - Rotladalen, Summary map geology, airborne geophysics, anomaly location 1:15 000
11. Meråkerfeltet, Grid location , Mines and prospects 1 : 25 000
12. Meråker , Geology 1 : 25 000
13. Rotladalen, Geology and anomaly location areas (fargelagt)
14. Gressli (Rotladalen - Hyllingen) Geologisk kart (fargelagt)

BP Minerals Norge A/S

Meråker - Tydal prosjektet 1985

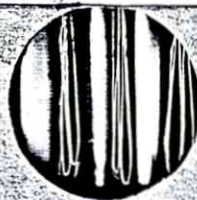
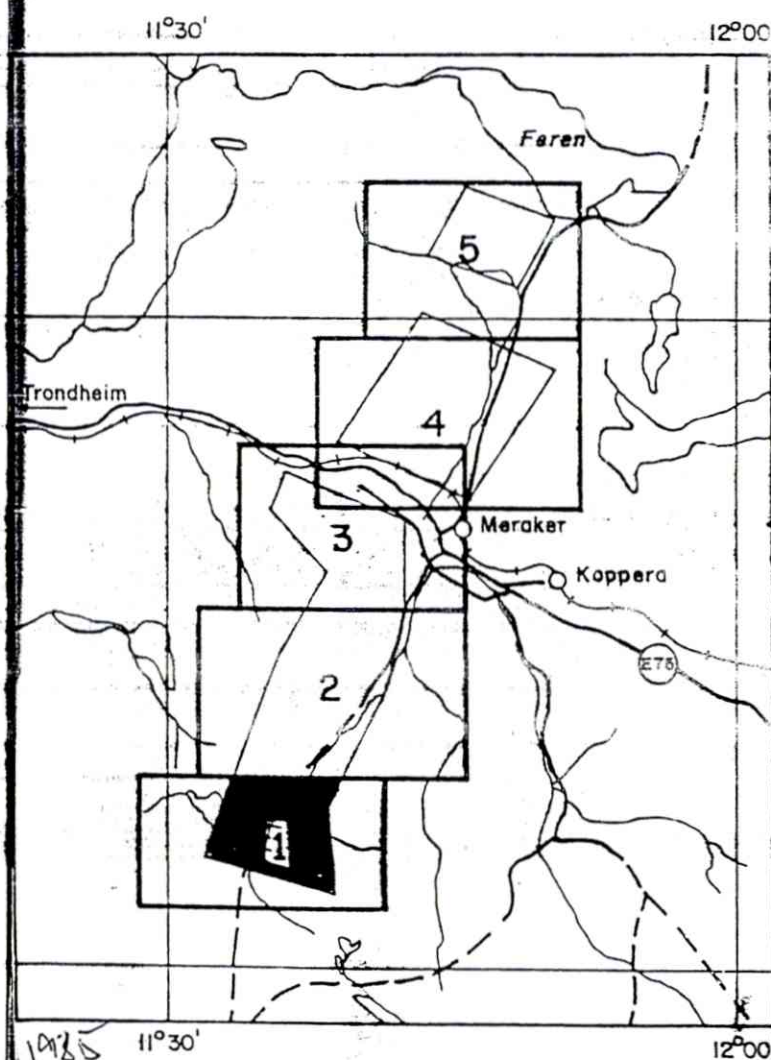
Innholdsfortegnelse

Område 1 Meråker

OMRÅDE	UNDERSØKELSE	SKALA	UTFØRT AV
Meråker -Tydalen Område 1	Kompilasjonskart Geologi og EM- anomalier	1:10 000	Dighem/BP
Meråker -Tydalen Område 1	Resistivity uncoloured	1:10 000	Dighem
Meråker -Tydalen Område 1	Resistivity, coloured	1:10 000	Dighem
Meråker -Tydalen Område1	Electromagnetic anomalies	1:10 000	Dighem
Meråker -Tydalen Område1	Total field magnetics	1:10 000	Dighem
Meråker -Tydalen Område1	Enhanced magnetics	1:10 000	Dighem
Kongens gruve,	Summary Geophysics Bilag 30	1:10 000	Dighem/BP Minerals Norge a.s
Kongens gruve	VLF bakkemålinger bilag 31	1:10 000	Paulsen / BP Minerals Norge a.s
Kongens gruve	Geokjem.(?) Anomaly plot	1:10 000	BP Minerals Norge a.s
Kongens gruve - Rotladalen	Summary map of Geology, airborne geophysics and annomaly location	1:15 000	ELKEM
Meråkerfeltet	Grid location Mines and prospects	1:25 000	E.E
Meråker	Geology	1:25 000	E.E / S.S

B.P. NORGE MINERALS MERÅKER-TYDALEN PROSJEKT 1985

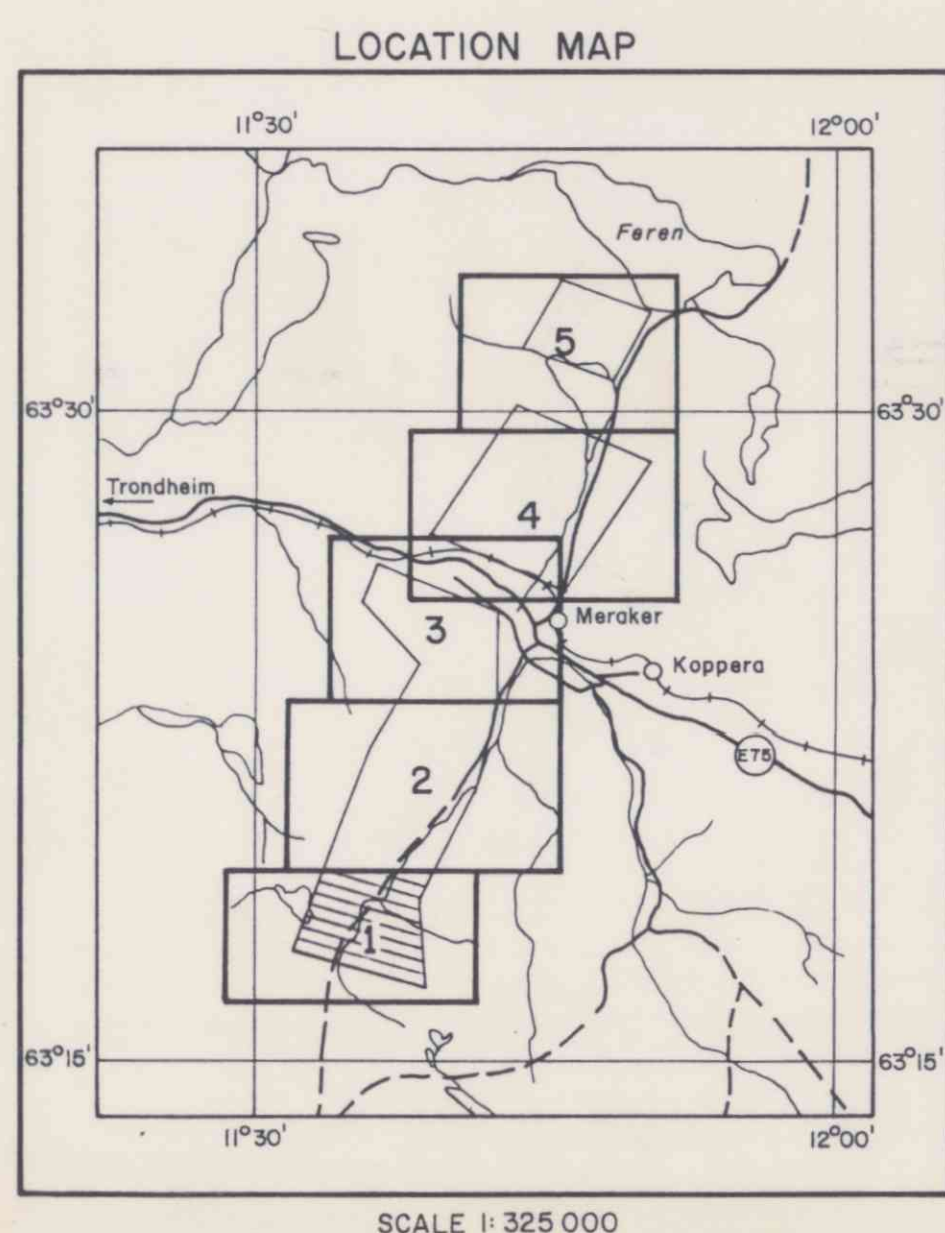
LOCATION MAP





MERAKER OMRÅDE,
GEOTEKNIKE ANOMALIER

Geologi + EM



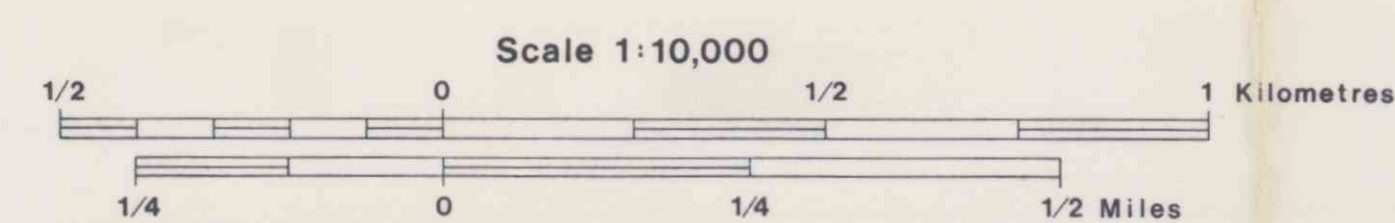
Geology and EM-anomalies



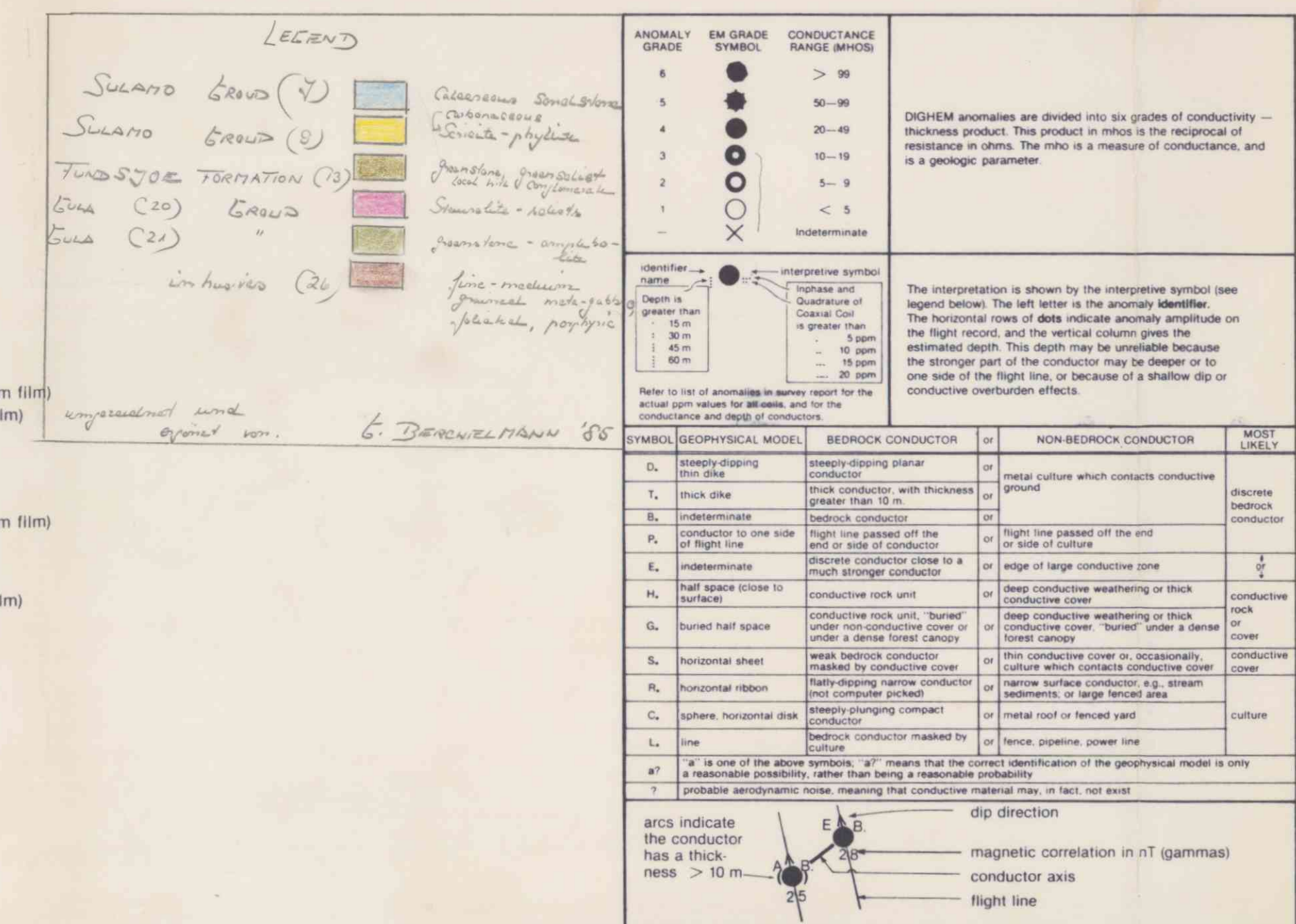
B.P. NORGE A/S MINERALS

MERAKER AREA

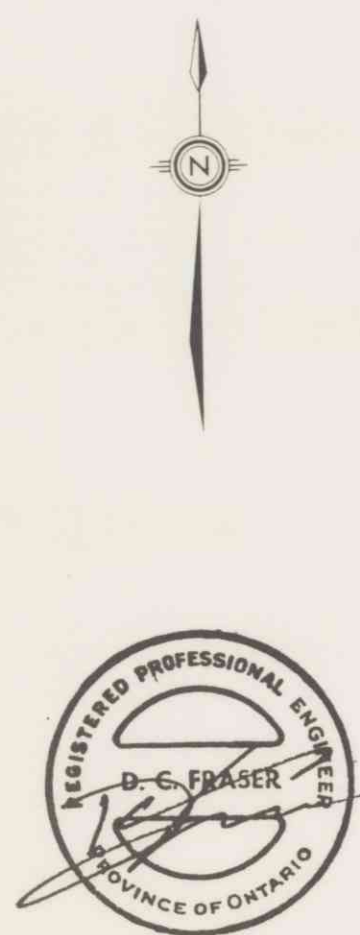
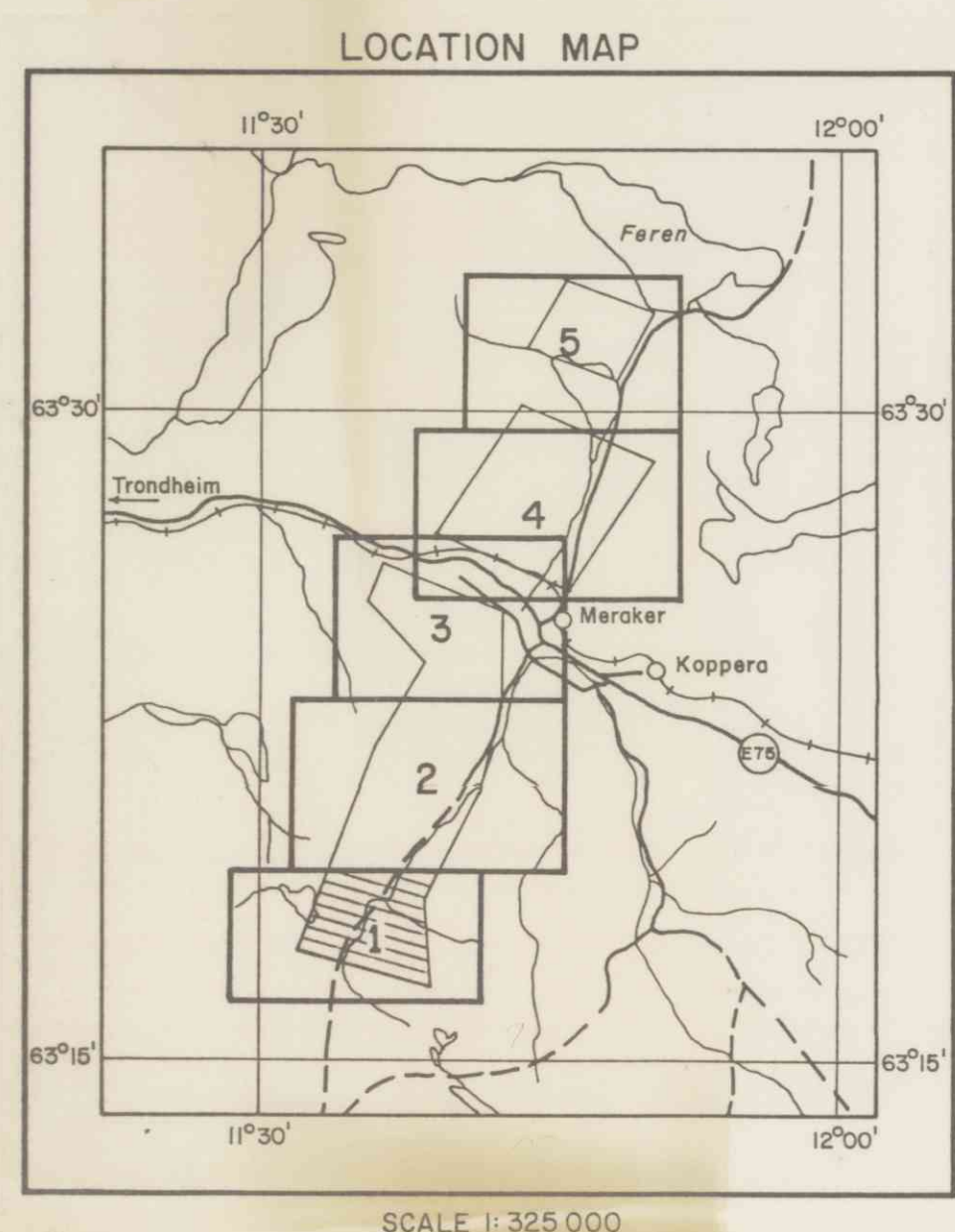
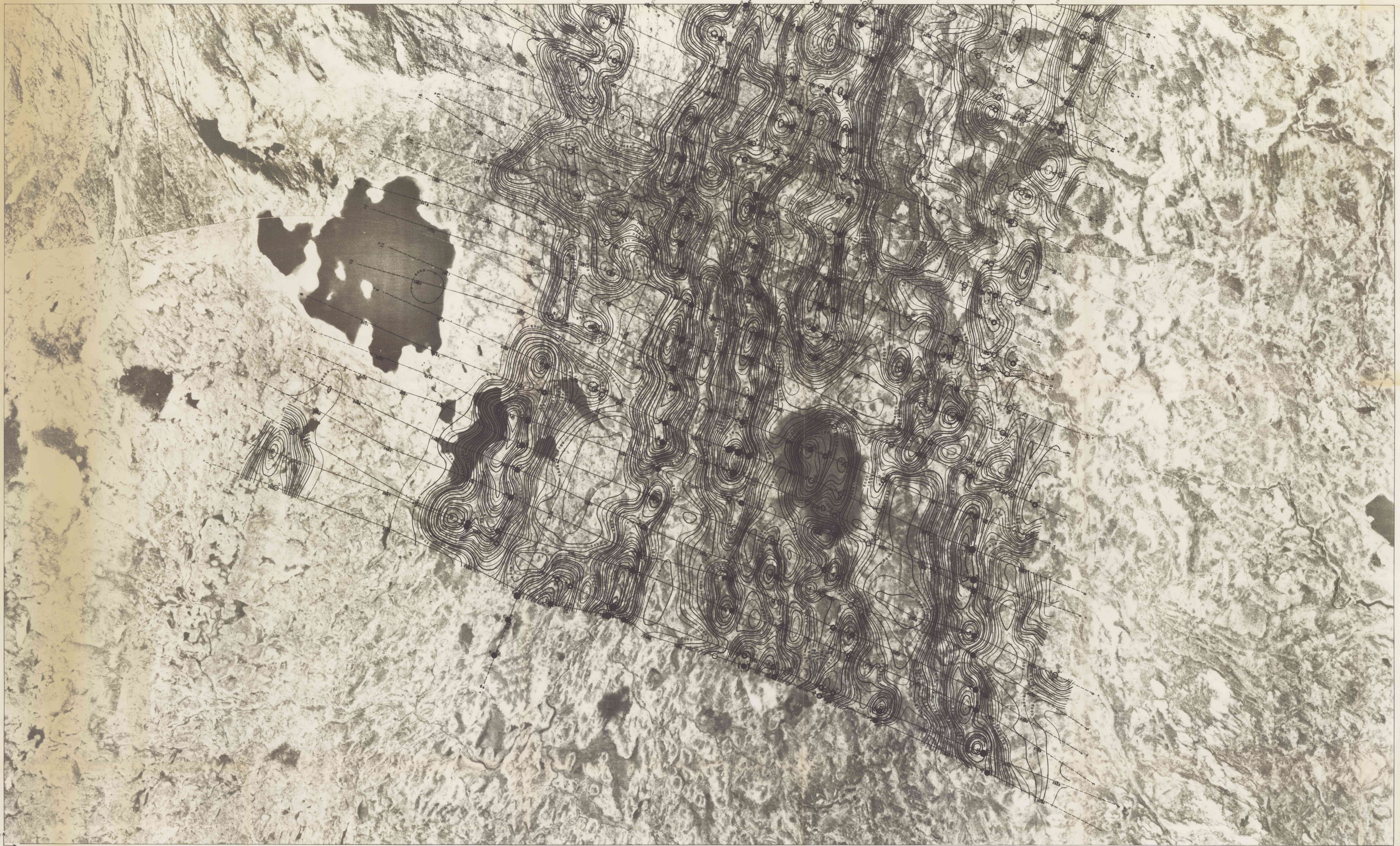
ELECTROMAGNETIC ANOMALIES



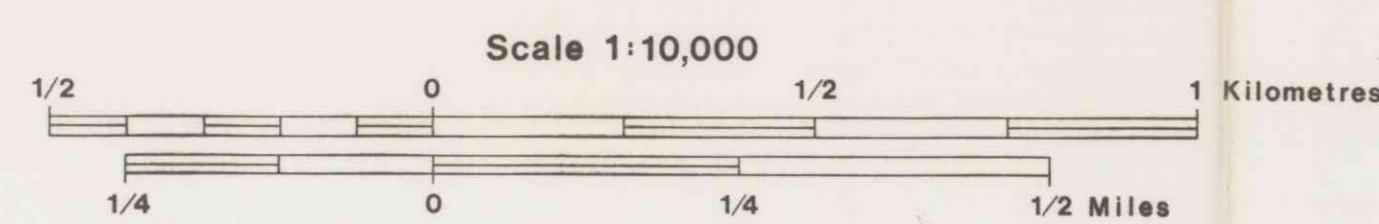
SHEET 1



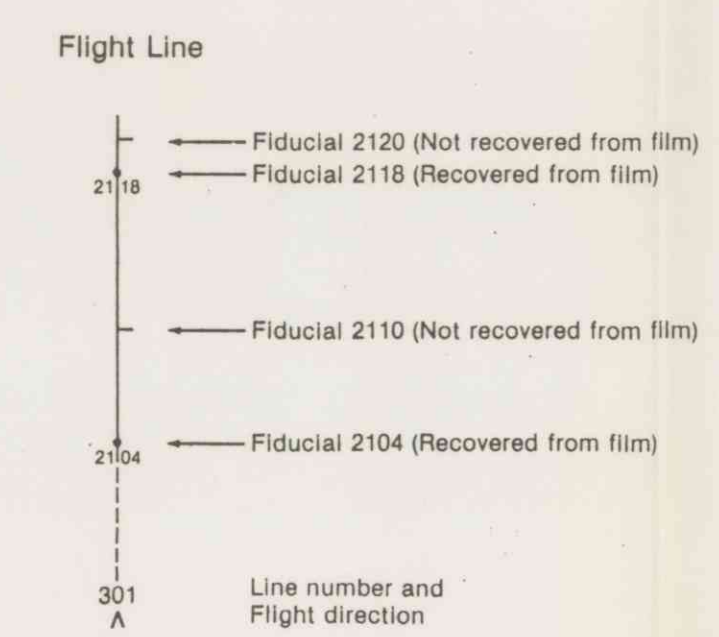
DIGHEMTM survey by:
Dighem Surveys & Processing Inc.



B.P. NORGE A/S MINERALS
MERAKER AREA
RESISTIVITY



SHEET 1



LEGEND
Contours in ohm — m
at ten intervals per decade

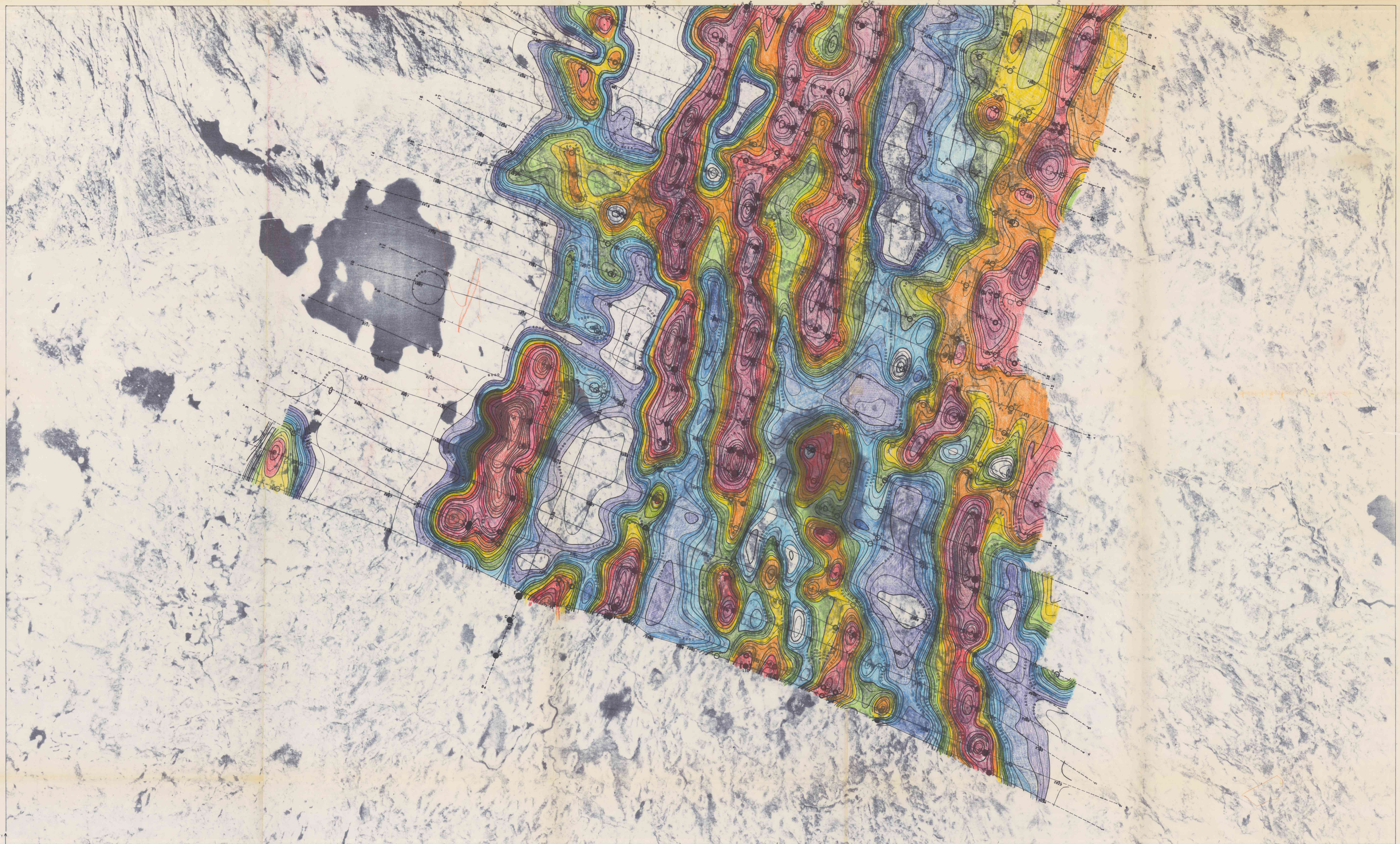
1000
800
600
500
400
300
250
200
150
125
100

Note:
The numbers face in the direction of increasing value.

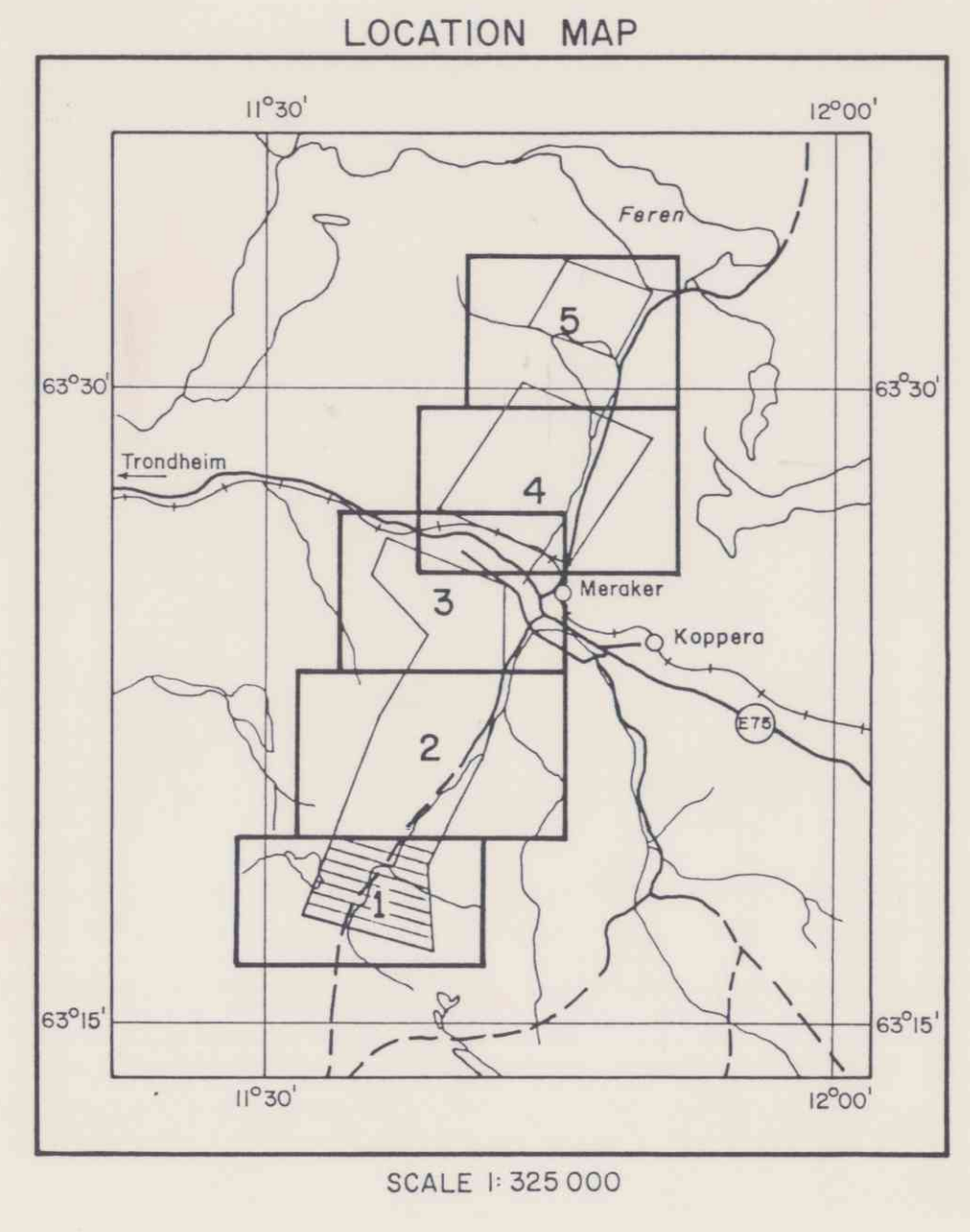
DIGHEM^{III} survey by:
Dighem Surveys & Processing Inc.

JOB 717	DATE JANUARY/85	DRAWN BY K.M.	CHECKED BY Z.D.
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Resistivity not coloured



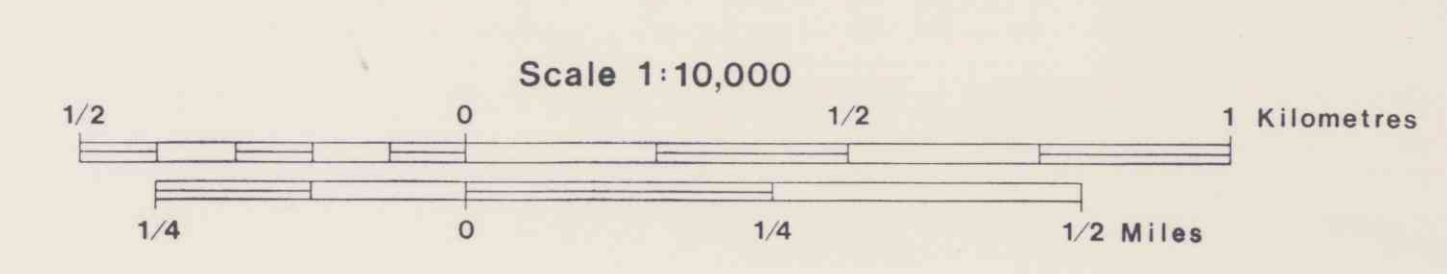
Resistivity



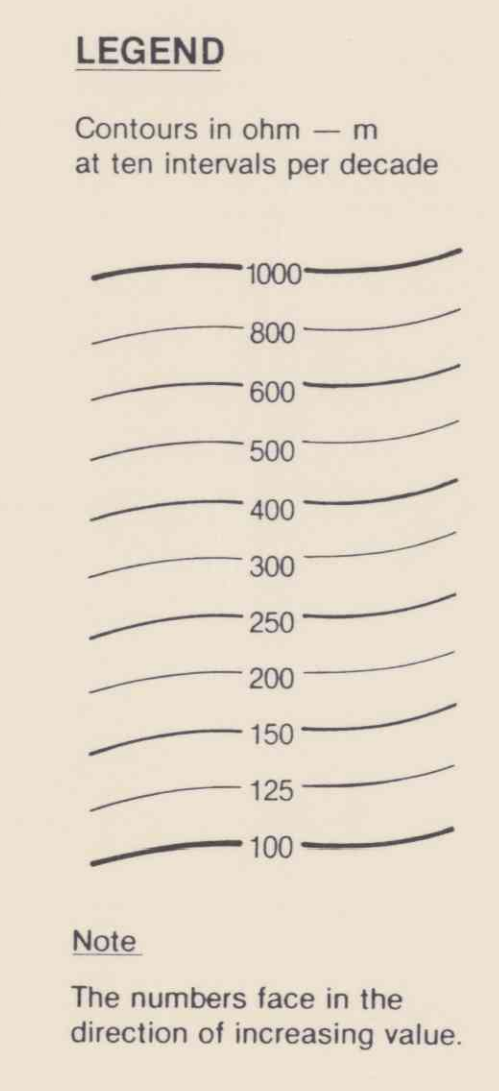
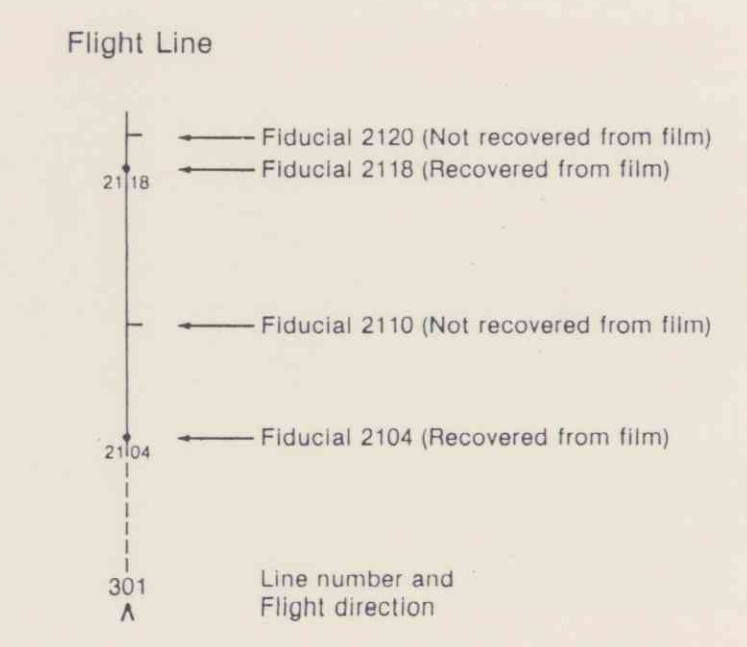
Resistivity coloured



B.P. NORGE A/S MINERALS
MERAKER AREA
RESISTIVITY

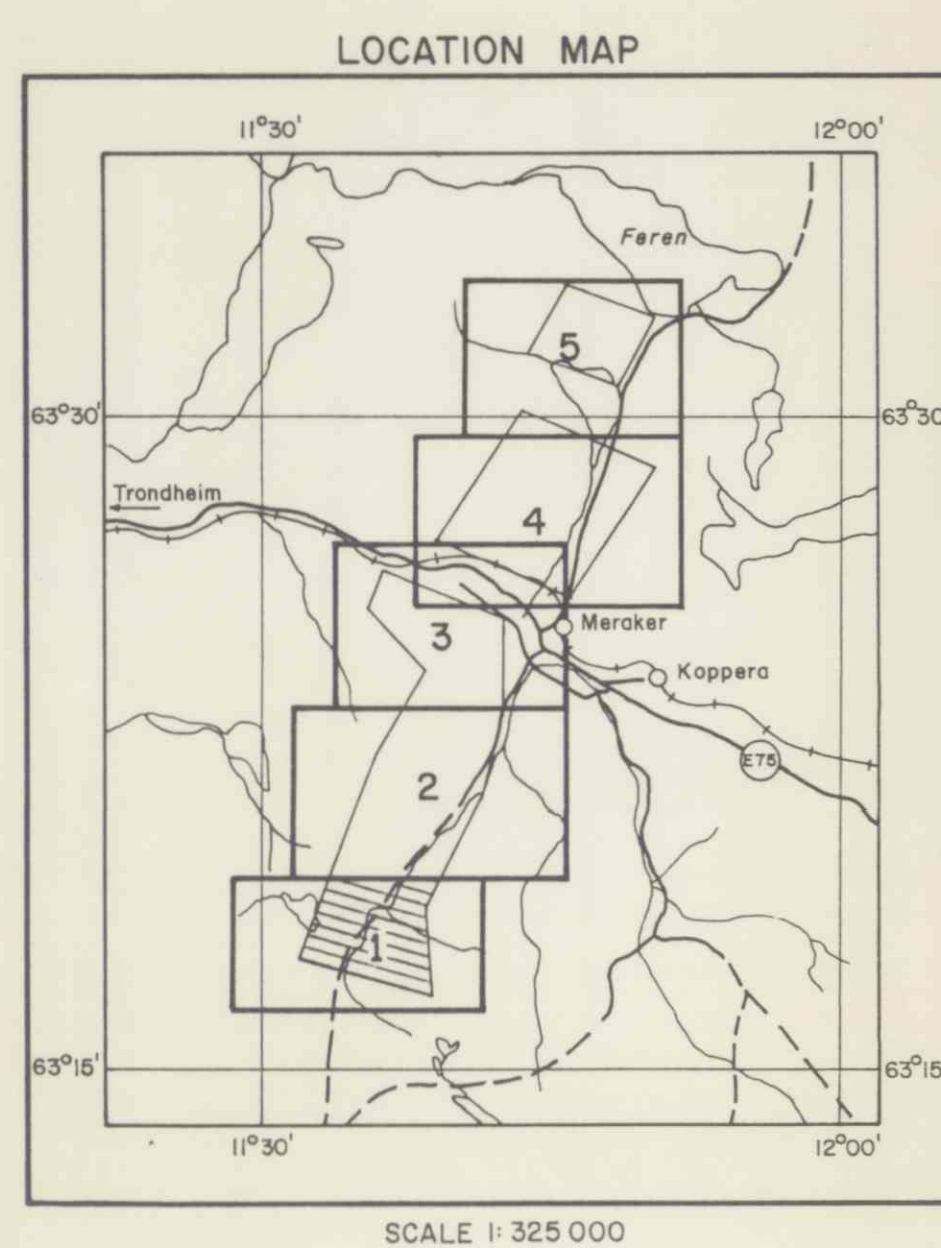
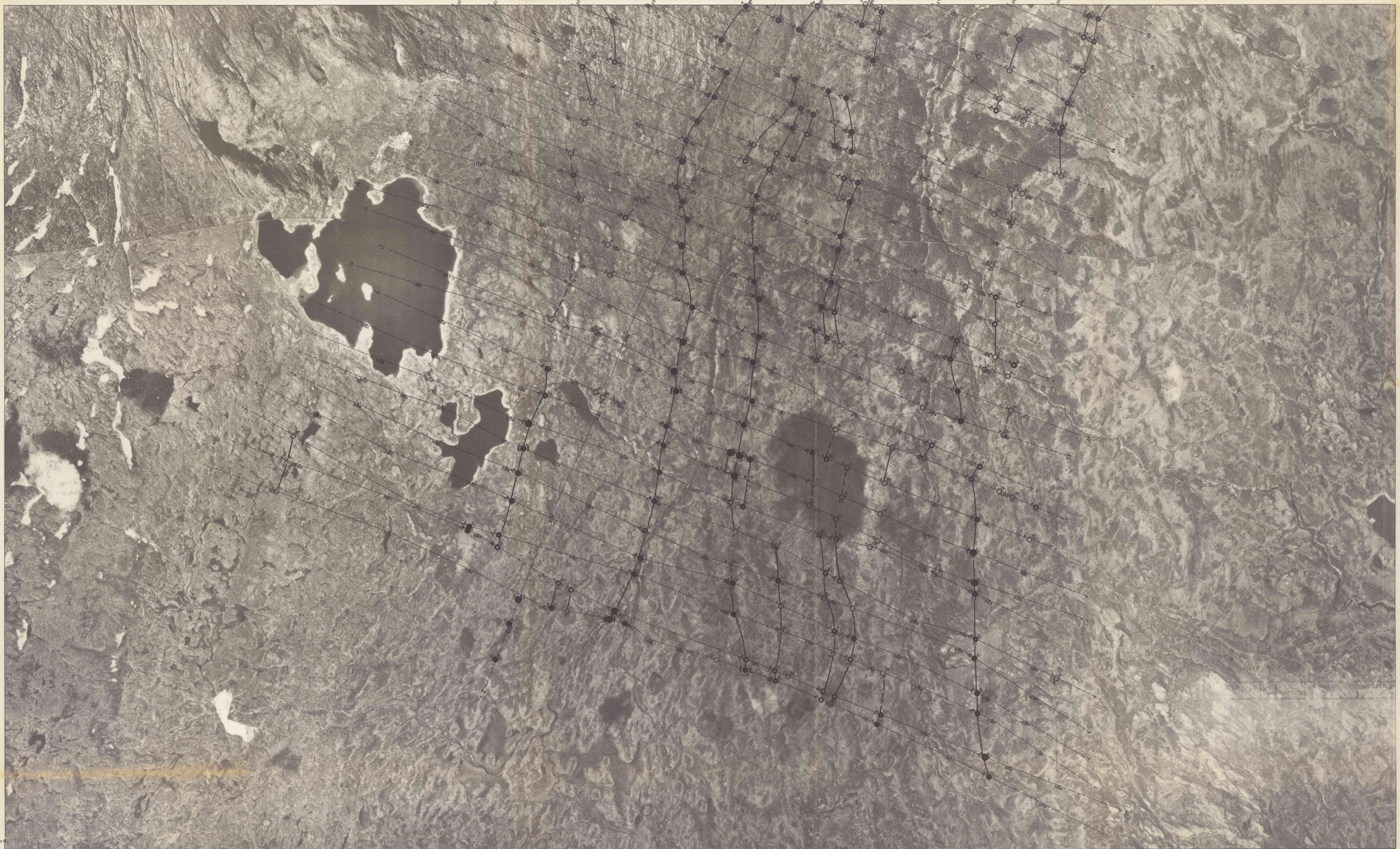


SHEET 1



DIGHEM^{III} survey by:
Dighem Surveys & Processing Inc.

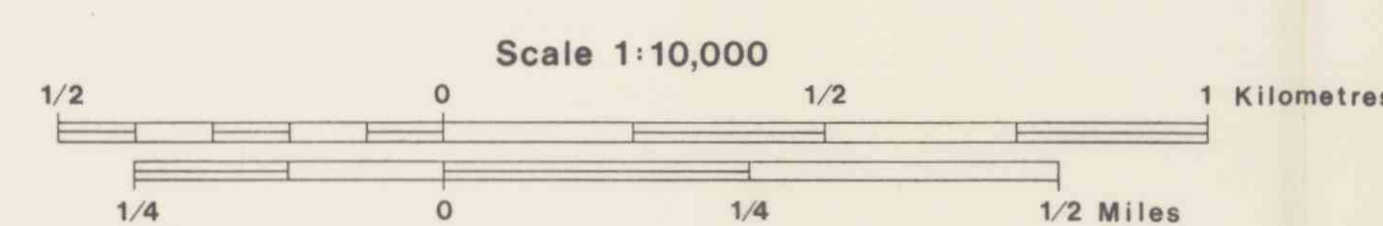
JOB	DATE	DRAWN BY	CHECKED BY
717	JANUARY/85	J.M.	2.0.



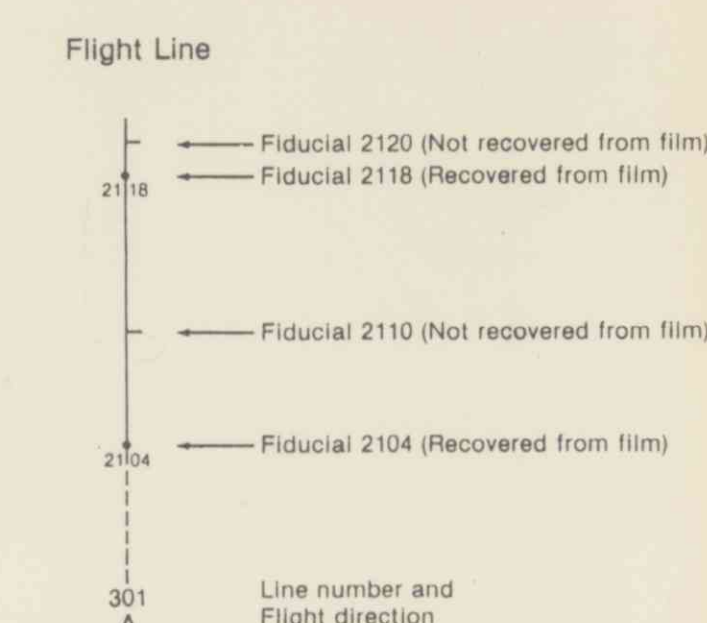
Electromagnetic anomalies



B.P. NORGE A/S MINERALS
MERAKER AREA
ELECTROMAGNETIC ANOMALIES



SHEET 1



ANOMALY GRADE	BY GRADE SYMBOL	CONDUCTANCE RANGE (MOHMS)
1	●	> 99
2	●	50-99
3	●	20-49
4	●	10-19
5	●	5-9
6	●	< 5
7	○	Intermittent

Interpretation:
The interpretation is shown by the interpretive symbol line legend below. The left letter is the anomaly identifier. The horizontal row of data indicates anomaly amplitude on the right scale, and the vertical column gives the estimated depth. This depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or conductive interference effects.

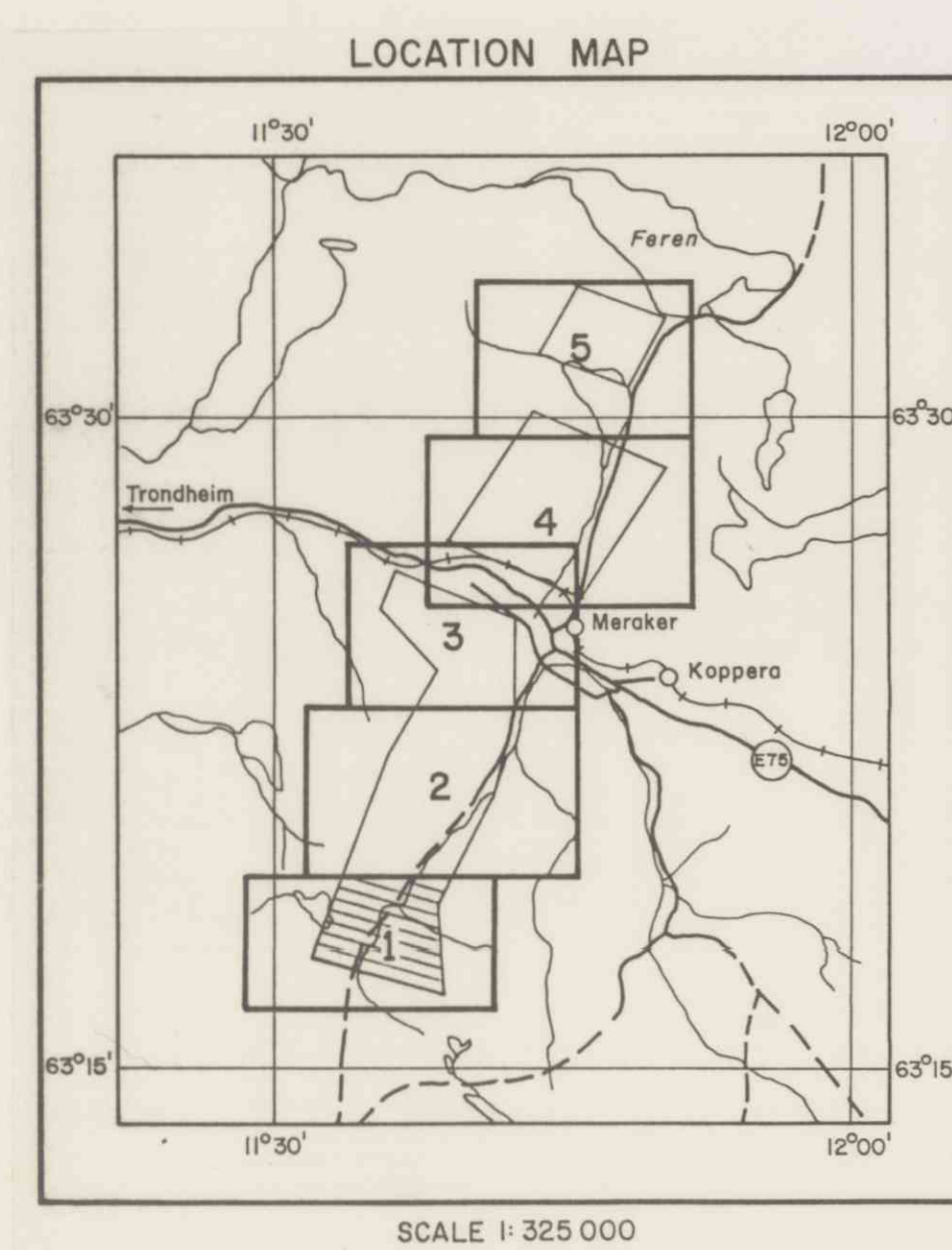
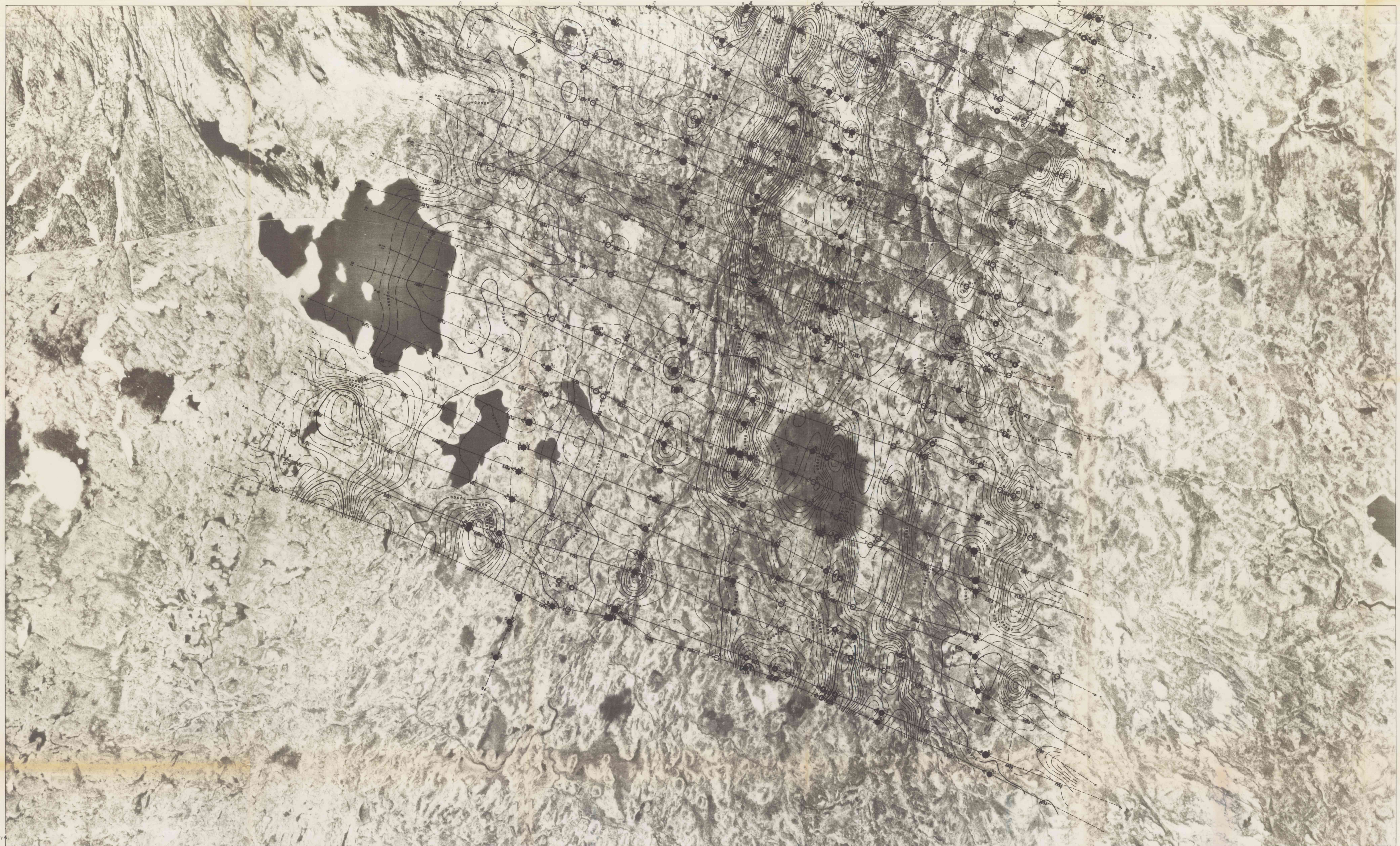
SYMBOL	GEOPHYSICAL MODEL	BEDROCK CONDUCTOR	NON-BEDROCK CONDUCTOR	FIELD EFFECT
A	Horizontal sheet conductor	Horizontal sheet conductor	Horizontal sheet conductor	Horizontal sheet conductor
B	Vertical sheet conductor	Vertical sheet conductor	Vertical sheet conductor	Vertical sheet conductor
C	Horizontal line conductor	Horizontal line conductor	Horizontal line conductor	Horizontal line conductor
D	Vertical line conductor	Vertical line conductor	Vertical line conductor	Vertical line conductor
E	Horizontal point conductor	Horizontal point conductor	Horizontal point conductor	Horizontal point conductor
F	Vertical point conductor	Vertical point conductor	Vertical point conductor	Vertical point conductor
G	Horizontal area conductor	Horizontal area conductor	Horizontal area conductor	Horizontal area conductor
H	Vertical area conductor	Vertical area conductor	Vertical area conductor	Vertical area conductor
I	Horizontal zone conductor	Horizontal zone conductor	Horizontal zone conductor	Horizontal zone conductor
J	Vertical zone conductor	Vertical zone conductor	Vertical zone conductor	Vertical zone conductor
K	Horizontal fault conductor	Horizontal fault conductor	Horizontal fault conductor	Horizontal fault conductor
L	Vertical fault conductor	Vertical fault conductor	Vertical fault conductor	Vertical fault conductor
M	Horizontal fracture conductor	Horizontal fracture conductor	Horizontal fracture conductor	Horizontal fracture conductor
N	Vertical fracture conductor	Vertical fracture conductor	Vertical fracture conductor	Vertical fracture conductor
O	Horizontal vein conductor	Horizontal vein conductor	Horizontal vein conductor	Horizontal vein conductor
P	Vertical vein conductor	Vertical vein conductor	Vertical vein conductor	Vertical vein conductor
Q	Horizontal dyke conductor	Horizontal dyke conductor	Horizontal dyke conductor	Horizontal dyke conductor
R	Vertical dyke conductor	Vertical dyke conductor	Vertical dyke conductor	Vertical dyke conductor
S	Horizontal sill conductor	Horizontal sill conductor	Horizontal sill conductor	Horizontal sill conductor
T	Vertical sill conductor	Vertical sill conductor	Vertical sill conductor	Vertical sill conductor
U	Horizontal pluton conductor	Horizontal pluton conductor	Horizontal pluton conductor	Horizontal pluton conductor
V	Vertical pluton conductor	Vertical pluton conductor	Vertical pluton conductor	Vertical pluton conductor
W	Horizontal batholith conductor	Horizontal batholith conductor	Horizontal batholith conductor	Horizontal batholith conductor
X	Vertical batholith conductor	Vertical batholith conductor	Vertical batholith conductor	Vertical batholith conductor
Y	Horizontal granite conductor	Horizontal granite conductor	Horizontal granite conductor	Horizontal granite conductor
Z	Vertical granite conductor	Vertical granite conductor	Vertical granite conductor	Vertical granite conductor

arcs indicate the conductor has a thickness > 10 m.

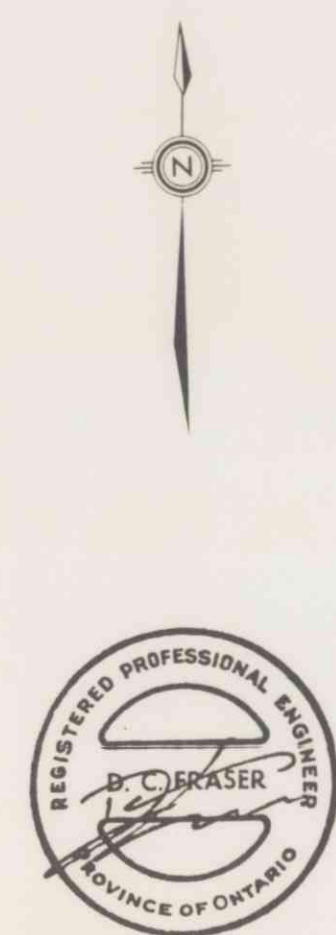
dip direction
magnetic correlation in NT (gamma)
conductor axis
flight line

DIGHemTM survey by:
Dighem Surveys & Processing Inc.

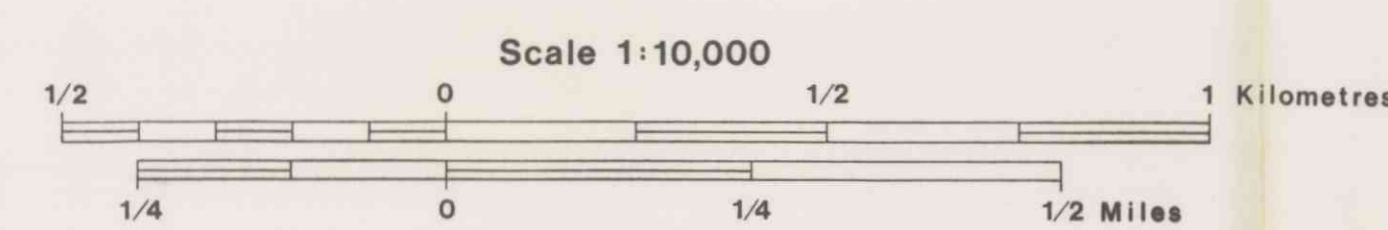
JOB	DATE	DRAWN BY	CHECKED BY
717	JANUARY/85	AM	P.D.



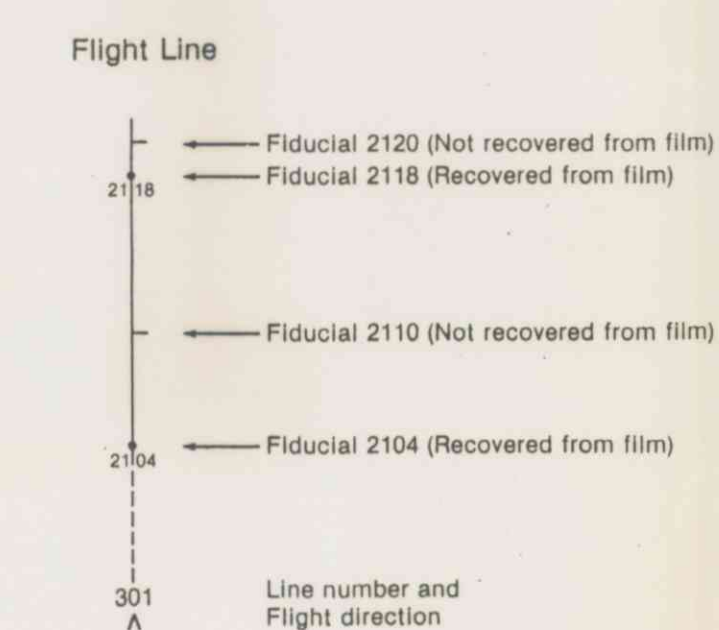
Total field magnetics



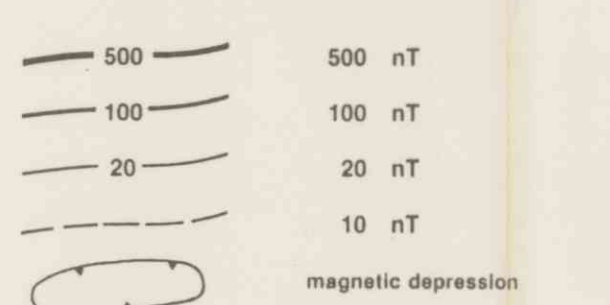
B.P. NORGE A/S MINERALS
MERAKER AREA
TOTAL FIELD MAGNETICS



SHEET 1



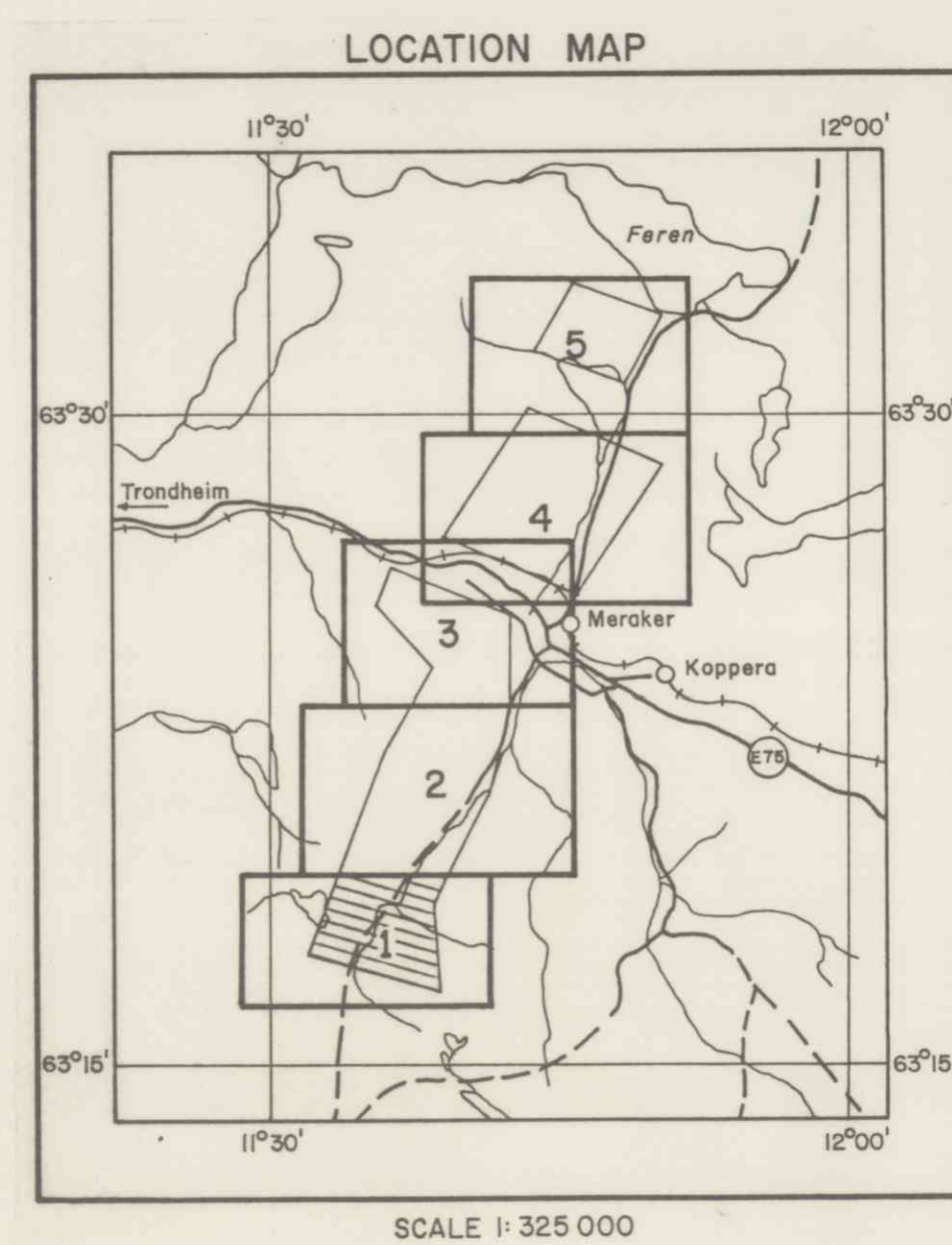
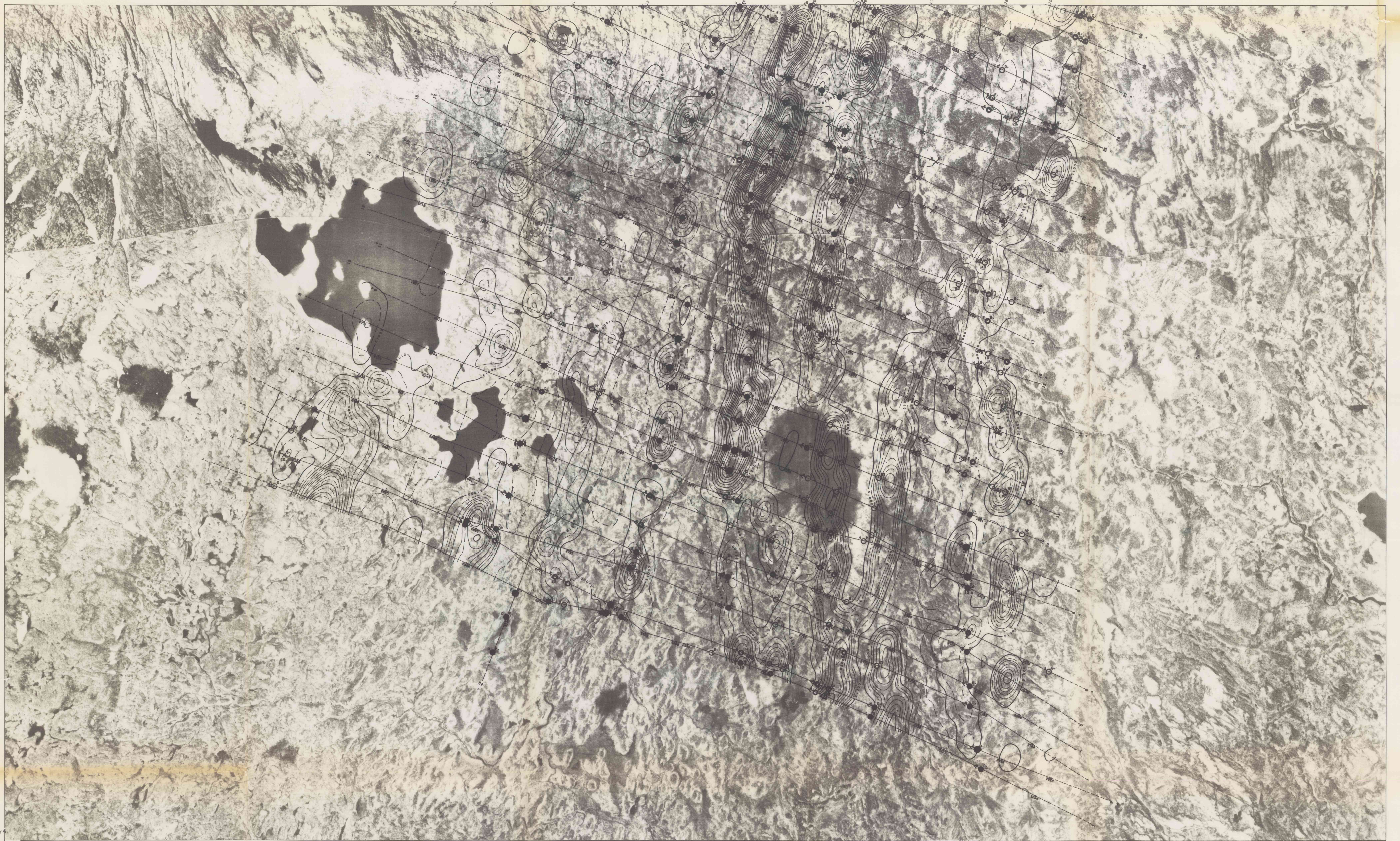
ISOMAGNETIC LINES
(total field)



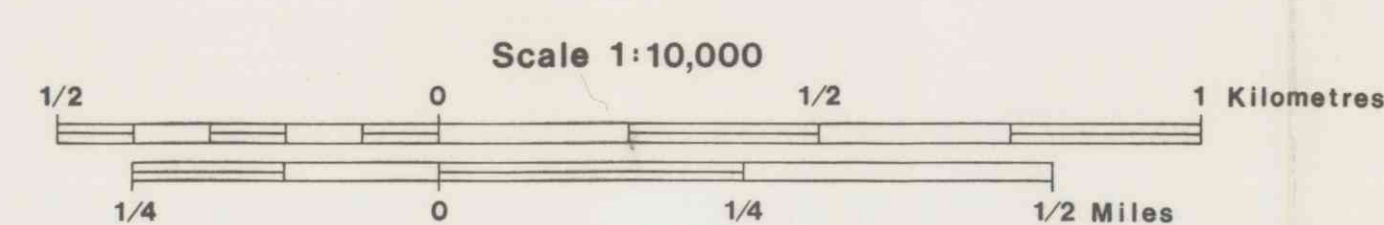
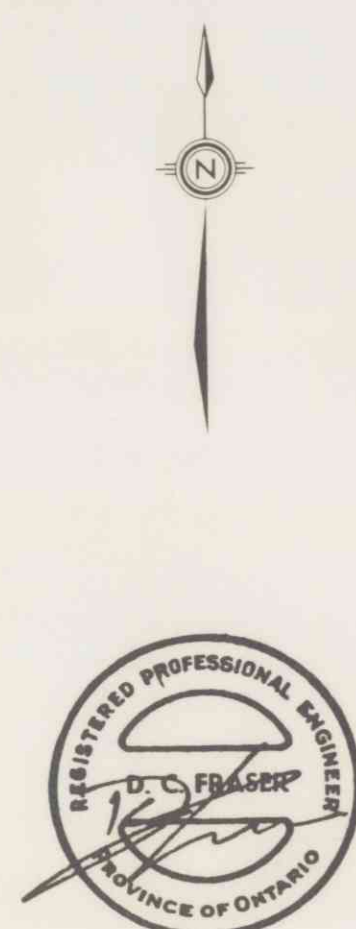
Magnetic inclination within the survey area: 74°

DIGHEM^{III} survey by:
Digheem Surveys & Processing Inc.

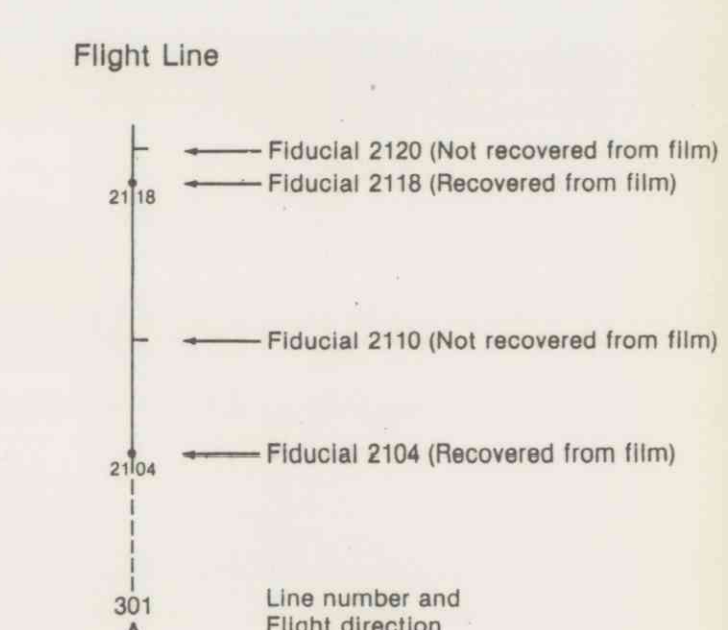
JOB	DATE	DRAWN BY	CHECKED BY
717	JANUARY/85	J.B.	2.2.



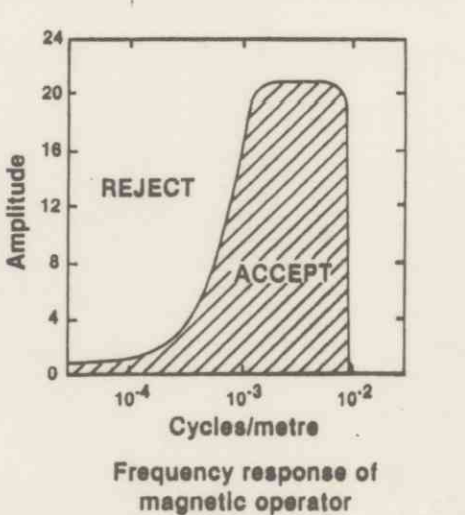
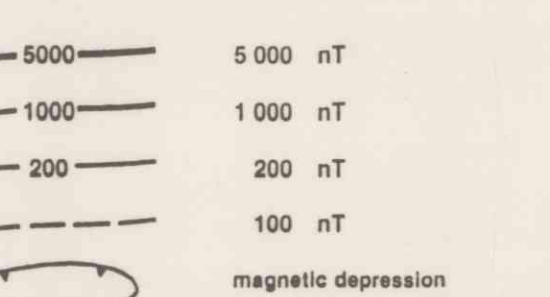
BP NORGE A/S MINERALS
MERAKER AREA
ENHANCED MAGNETICS



SHEET 1



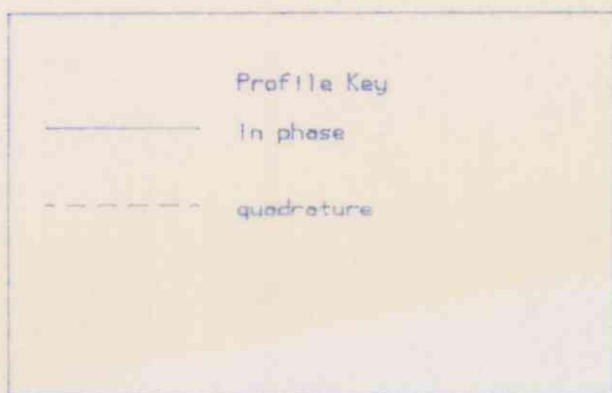
ISOMAGNETIC LINES
(enhanced field)



DIGHEMTM survey by:
Digheem Surveys & Processing Inc.

JOB	DATE	DRAWN BY	CHECKED BY
717	JANUARY/85	X/M	2.0.

Enhanced magnetics



Enclosure 31

BP MINERALS INTERNATIONAL

PROSPECT : MERAKER

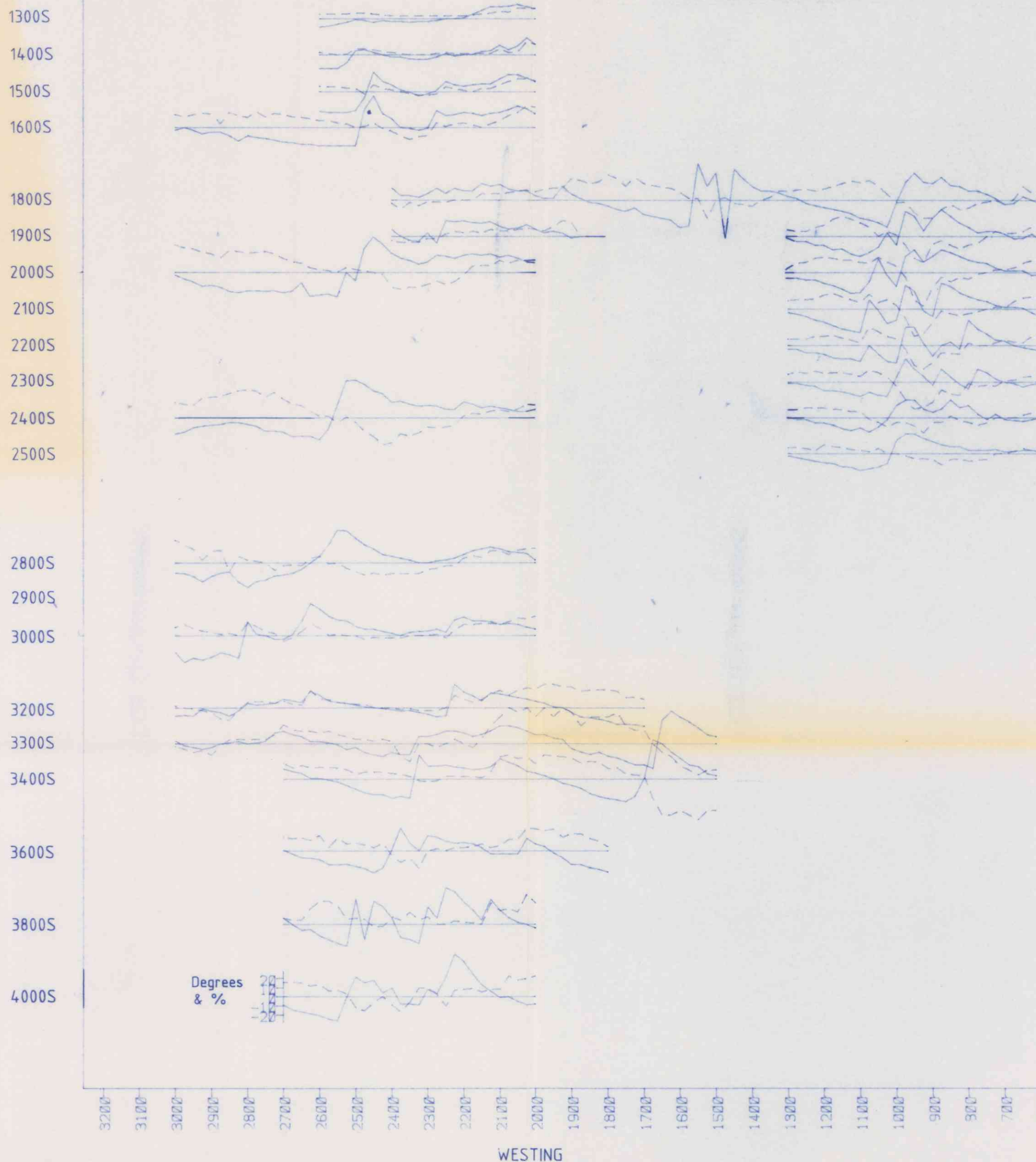
GRID : KONGENSGRUVEN

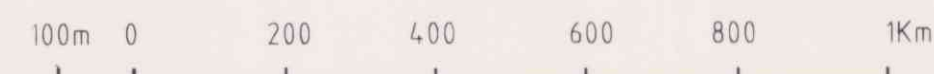
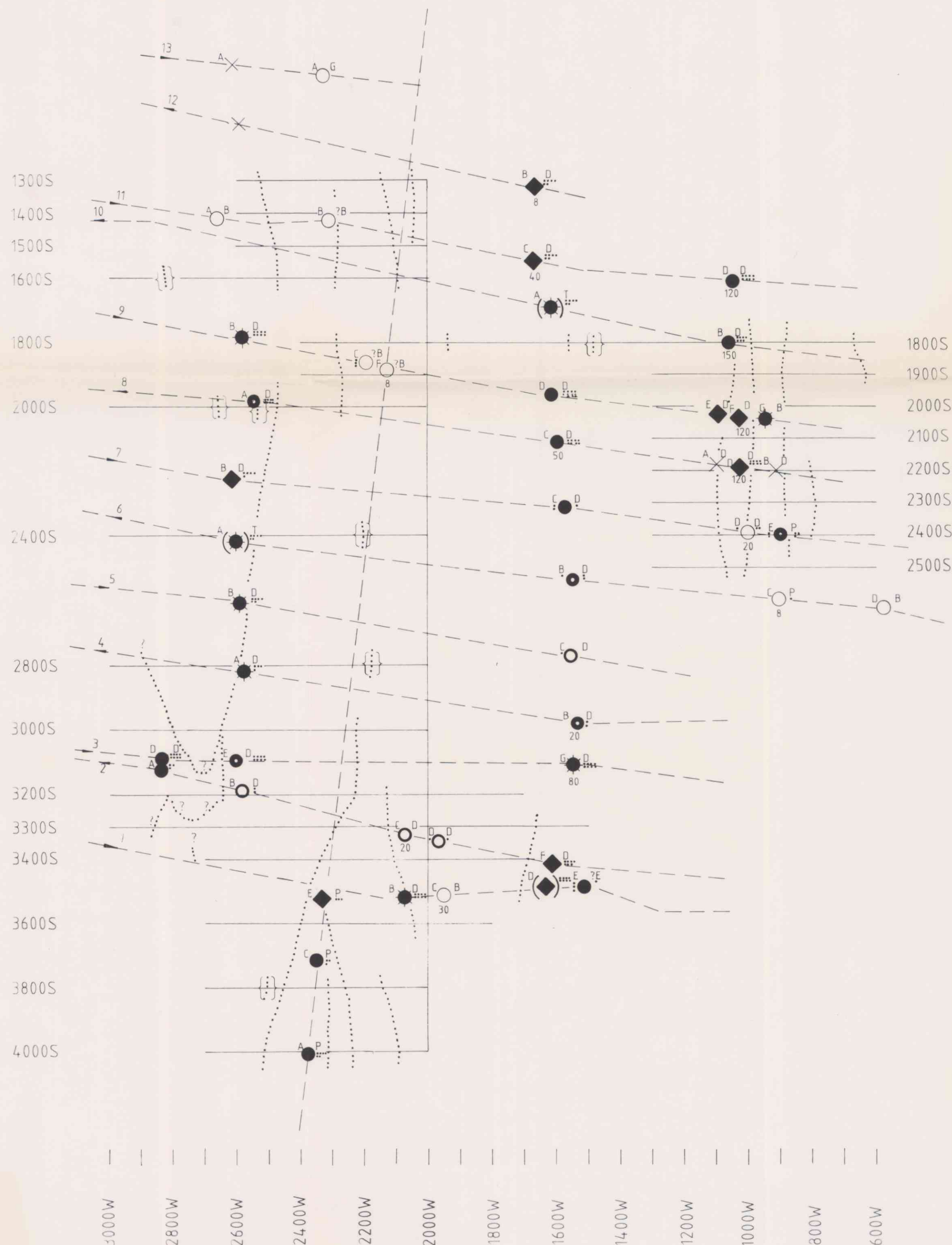
VLF, FUD Transmitter

Facing N., Scale 1:10000

DATE : MARCH/APRIL 1985

All data Paulsen P1 Inst except
Paulsen P2 1300S-1800S Incl.
Paulsen P3, 3300S/1500-2375W
and 3400S/1500W-1675W





DIGHAM ANOMALY KEY

ANOMALY GRADE	EM GRADE SYMBOL	CONDUCTANCE RANGE (MHOS)
6	◆	> 99
5	●	50-99
4	●	20-49
3	●	10-19
2	○	5-9
1	○	< 5
-	×	Indeterminate

DIGHAM anomalies are divided into six grades of conductivity — thickness product. This product, in mhos, is the reciprocal of resistance in ohms. The mhos is a measure of conductance, and is a geologic parameter.

Refer to list of anomalies in survey report for the actual geom values for all cells, and for the conductance and depth of conductors.

The interpretation is shown by the interpretive symbol (see legend below). The left letter is the anomaly identifier. The horizontal rows of dots indicate anomaly amplitude on the flight record, and the vertical column gives the estimated depth. This depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or conductive overburden effects.

IDENTIFIER	INTERPRETIVE SYMBOL	DEPTH (m)
D	◆	> 15 m
T	●	10-15 m
B	●	5-10 m
P	○	2-5 m
A	×	Indeterminate

SYMBOL	GEOPHYSICAL MODEL	BEDROCK CONDUCTOR	OR	NON-BEDROCK CONDUCTOR	MOST LIKELY
D ₁	steeply-dipping thin disk	steeply-dipping planar conductor	or	metal culture which contacts conductive ground	discrete bedrock conductor
T ₁	thick disk	thick conductor, with thickness greater than 10 m	or	flight line passed off the end or side of culture	
B ₁	indeterminate	bedrock conductor	or	edge of large conductive zone	
P ₁	conductor to one side of flight line	discrete conductor close to a much stronger conductor	or	deep conductive weathering or thick conductive cover	conductive rock or cover
A ₁	half space (close to surface)	conductive rock unit	or	deep conductive weathering or thick conductive cover, "buried" under a dense forest canopy	
S ₁	horizontal sheet	weak bedrock conductor masked by conductive cover	or	thin conductive cover or, occasionally, culture which contacts conductive cover	conductive cover
R ₁	horizontal ribbon	flatly-dipping narrow conductor (not computer picked)	or	narrow surface conductor, e.g., stream sediments or large fenced area	
C ₁	sphere, horizontal disk	steeply-plunging compact conductor	or	metal roof or fenced yard	culture
L ₁	line	bedrock conductor masked by culture	or	fence, pipeline, power line	

arcs indicate the conductor has a thickness > 10 m

arc direction

magnetic correlation in nT (gammas)

conductor axis

flight line

FOLLOW-UP

..... { } VLF conductor trends, weak where bracketed (?=questionable conductor)

BP NORGE a.s Minerals		
KONGENS GRUVER		
GEOPHYSICS		
SUMMARY Enclosure 30		
Author BPH	Drawn by ILF	Date 06/06/85
Scale 1:10000	Report No.	Drawing No.



BP BP NORGE a.s. Minerals

TYJAL, MERAKER PROJEKT

GRID LOCATION

MINES / PROSPECTS

Author: E.E.	Drawn by: E.E.	Date:
Scale:	Report No.	Drawing No.

1:25 000

LEGEND

Sulåmo group

- 1 Calcareous sandstone
- 2 Sericite phyllite

Fundsjo group

- 3 Tuffitic greenschist
 - 4a Amphibolitic greenstone with quartz keratophyre (<50%)
 - 5a Quartz keratophyre with amphibolitic greenstone (<50%)
 - 6 Biotite greywacke
 - 7 Staurolite micaschist
 - 8 Graphite schist
 - 9 "Rusty horizon"
- with swarms of feldspar porphyry

Gula group

- 10 Marble
- 11 Biotite schist

Intrusive

- 12 Gabbro

- X Old mine
- Prospect
- Strike/dip
- - - Fault
- - - Confirmed geological border
- - - Inferred geological border

- 13 Overburden

Follow-up area

- VLF & protonmagnetometer
- Slingram
- Turam

15 - Conductivity-thickness ($\sigma \times t$)

Bad conductivity-thickness $\sigma \times t < 2$

Weak $2 < \sigma \times t < 10$

Good $10 < \sigma \times t < 50$

Very good $\sigma \times t > 50$



Scale 1:15000

0 1km



BP NORGE a.s Minerals

SUMMARY MAP ROTLADALEN

Geology, airborne geophysics and anomaly location areas.

Author ELKEM Scale 1:15000 Drawn by EE Report No. Date 22-5-85 Drawing No.

- SULAMO GROUP
- 1 SERICITE PHYLITE - MICA SCHIST
- 2 LILLE FUNDSJØ CONGLOMERATE
- FUNDSJØ GROUP
- 3 MASSIVE AMPHIBOLITE (GREENSTONE)
FOLIATED AMPHIBOLITE (GREENSCHIST)
- 4 QUARTZ KERATOPHYRE
LOCALLY QUARTZ PORPHYRY
- 5 GRAPHITE SCHIST
- 6 STAUROLITE BIOTITE MICA SCHIST

- GULA GROUP
- 7 BIOTITE / HORNBLENDE SCHIST

INTRUSIVES

- 9 GRANITE
- 10 METADIORITE
- 11 GABBRO

- 12 PILLOW STRUCTURES

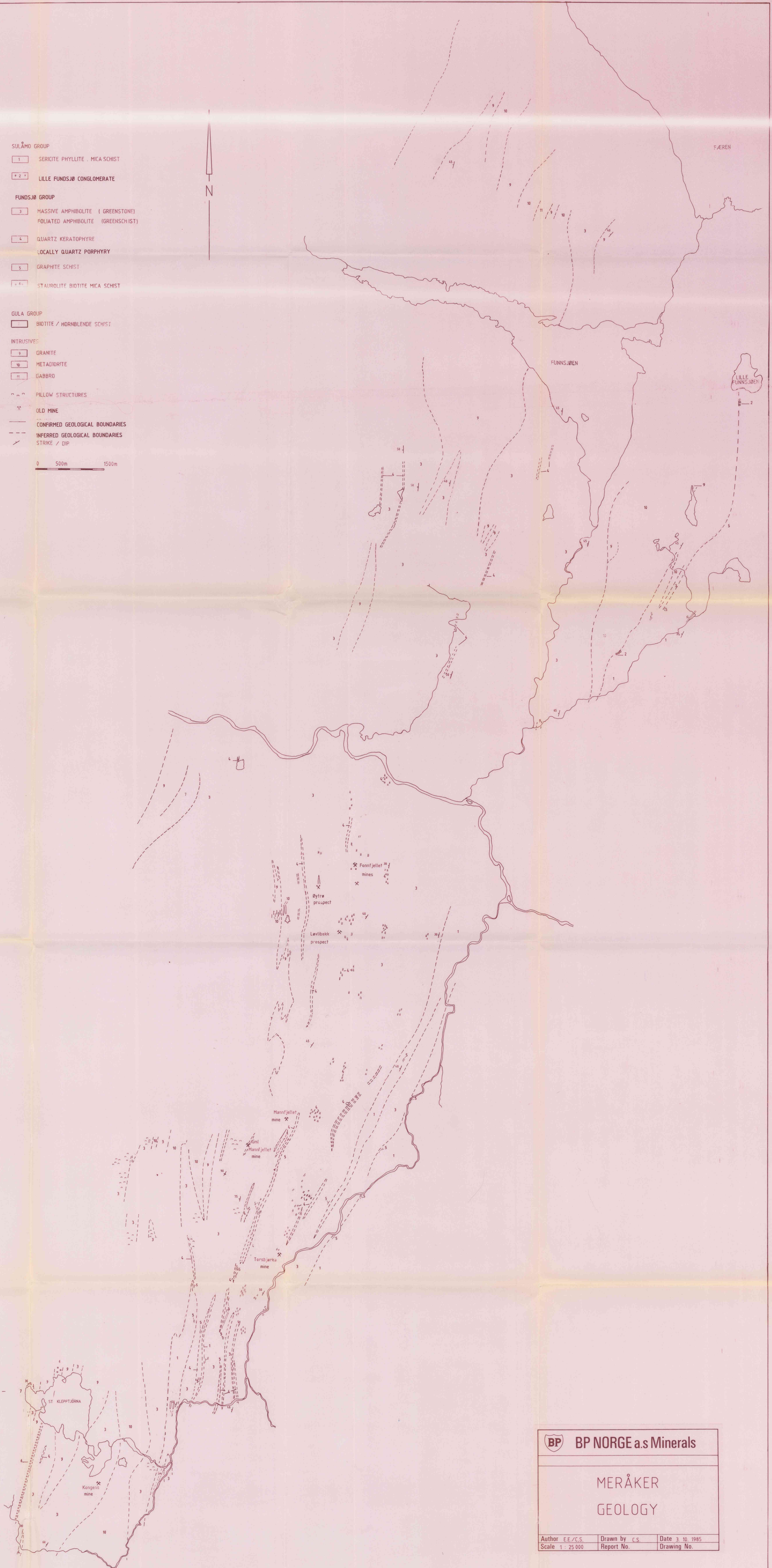
- 13 OLD MINE

- 14 CONFIRMED GEOLOGICAL BOUNDARIES

- 15 INFERRED GEOLOGICAL BOUNDARIES

- 16 STRIKE / DIP

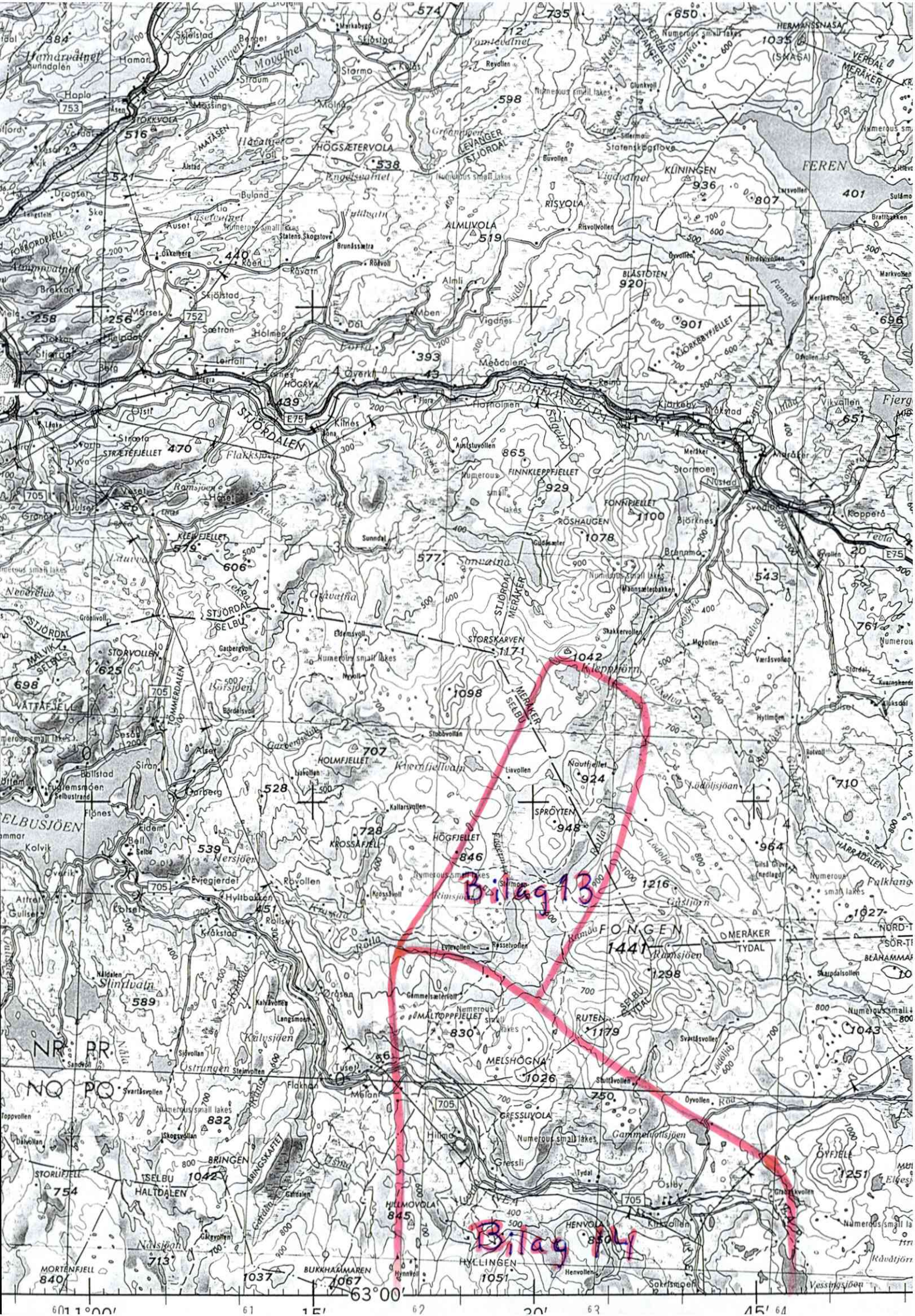
0 500m 1500m



BP NORGE a.s Minerals

MERÅKER
GEOLOGY

Author E.E./C.S.	Drawn by C.S.	Date 3.10.1985
Scale 1 : 25 000	Report No.	Drawing No.



LEGEND

Sulåne group

- Calcareous sandstone
- Sericite phyllite

Fundsjo group

- Tuffitic greenschist
 - Amphibolitic greenstone with quartz keratophyre (<50%)
 - Quartz keratophyre with amphibolitic greenstone (<50%)
 - Biotite greywacke
 - Staurolite micaschist
 - Graphite schist
 - "Rusty horizon"
- with swarms of feldspar porphyry

Gula group

- Marble
- Biotite schist

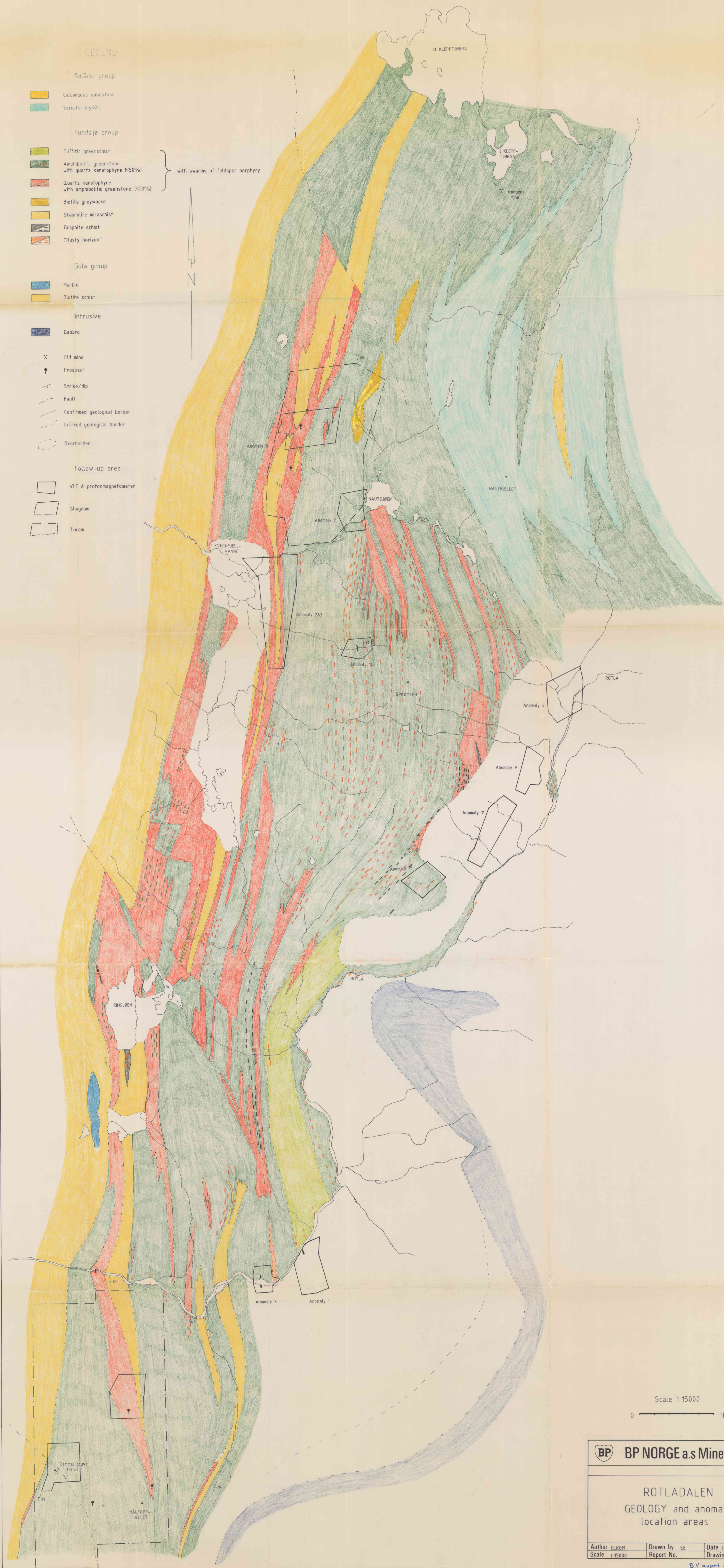
Intrusive

- Gabbro

- Old mine
- Prospect
- Strike/dip
- Fault
- Confirmed geological border
- Inferred geological border
- Overburden

Follow-up area

- VLF & protonmagnetometer
- Slingram
- Turam



Scale 1:15000

0 1km



BP NORGE a.s Minerals

ROTLADALEN
GEOLOGY and anomaly
location areas

Author ELKEM	Drawn by EE	Date 22-5-85
Scale 1:15000	Report No.	Drawing No.

B.V. report 1246 delag 13

BP - Norway?
Geologisk kart Gressli, Tydal
(Rottadalen - Hyllingen)
BV rapport nr. 124 bilag 14.

LEGEND

- | | |
|--|---|
| <p>Kjølnhaug group / Stuedals schist.</p> <ul style="list-style-type: none"> Biotite porphyry sericite-chlorite schist. Sericite-chlorite schist. <p>Fundsjo group.</p> <ul style="list-style-type: none"> Massive-pillow amphibolitic extrusive. Acid-felsic extrusive. Feldspar porphyry. Biotite schist. Marble. Biotite-amphibole schist. Amphibole/amphibole-biotite schist. Sericite-biotite schist. Black graphitic schist. <p>Gula group.</p> <ul style="list-style-type: none"> Biotite schist. | <p>Hummelfjell formation.</p> <ul style="list-style-type: none"> Amphibolitic extrusive. Biotite-sericite schist and phyllite. Intercalated calc-silicate, quartz sandstone and greywacke, thin marble and garnet-biotite-amphibole gneiss and thin acid extrusive. Quartzite and arkose. Acid extrusive. <p>Intrusives.</p> <ul style="list-style-type: none"> Acid intrusive. Diorite intrusive. Gabbro intrusive. Altered monzonite-granodiorite. |
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