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INTERN RAPPORT.

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RAPPORT VEDRØRENDE:

Detailed investigations of area 69:

Riednjajavri, Kautokeino, summer 1984.

FORDELING

OSLO: ☐☐☐☐☐☐☐☐☐

KIRKENES: ☐☐☐☐☐☐☐

ANDRE: ☐☐☐☐☐☐☐

RESYMÉ:

A geological interpretation of the area has been performed based on the detailed geological mapping and with the aid from EM and mag.

Petrography has been performed on different rock types, and a summary of parageneses is given.

4 drill holes gave negative results.
The observed mineralizations in outcrops have only limited extent.

KOMMENTAR:

KIO/rf

Detailed geology and diamond drilling in Area 69: Riednjajavri, southern part of the Kautokeino Region.

INTRODUCTION

The area lies in a regional sharp gravity-high, to which considerable attention was paid by the "Nord-Kalott Project", a cooperation program between the Norwegian-, Swedish- and Finish Geological Surveys on the geology, geochemistry and geophysics of the region lying north of the Polar Circle.

The gravity high was thus subject to detailed investigations, geologically and geophysically (See NGU report no. 1886/2 and no. 1886/10) 1982-83.

The results obtained, favoured a hypothesis also on the possible potential of basemetal deposits of the Bidjovagge-Type. The estimated thickness of the greenstones of about 7 km in this region could, if reflecting primary thickness of the volcanic pile in this region, be promising for the creation of hydrothermal systems which may cause metal transportation and deposition.

Some outcrops also showed Cu-mineralizations in basic rocks and in association with graphite schists.

The area around the Bidjovagge Deposit also has a gravity high thus supporting a possible Bidjovagge Model for the Riednjajavri Area.

NGU and A/S Sydvaranger started a cooperation on the area, and a drilling program was set up for the summer 1984, after Slingram follow-up on selected EM-anomaly zones (Report no. 1520, Prospektering A/S). The Slingram and mag. curves for the drill-profiles are presented together with the drill logs in this report.

At the same time detailed geological mapping was done, the result of which is presented together with an interpretation of the geology.

GEOLOGICAL SETTING

The area is composed of diabas, finegrained amphibolites of basaltic tuff/tuffitic origin, micaschists, carbonate sediments and graphite schists. The supracrustal series probably belong to the Avzi Formation which is correlated with the Suolovuobmi Formation in the NNE-ern part and parts of the Caskejas Formation in the NNW-ern parts of the Kautokeino Region. They overly metasediments correlated to the Masi Formation to the south (Roavvoaivi) and are intruded by a large qz-monzonite ca 2 km south of the area of investigation (Riednjajavri Massive). The strike is mainly NE-SW.

DESCRIPTION OF ROCKS

Tuffs/tuffites

The rocks are usually very finegrained and apparently little deformed, except in the NE-ern most part of the area, where recrystallization has resulted in partially coarse porphyroblasts of hbl, sometimes with gnt, in the banded tuffites. This may be caused by compositional differences or be a result of local more intensive deformation. Fine lamination is common, but also more homogeneous varieties are present. Metamorphic foliation is difficult to observe. Primary sedimentary structures, apart from the bedding, such as slumping and large pisolite-looking fragments are observed.

Mineral parageneses:

1) Hornbl. + plag + qz
2) Hornbl. + biotite + chlorite + plag + qz
3) Hornbl. + biotite + gnt + plag + qz (± chlorite)

Chlorite is rare and is obviously formed by later retrograding processes seen in the northeastern most parts.

Metamorphic foliation, lineations and isoclinal folding strike usually NE-SW and is often oblique to the primary sedimentary bedding, which is intensively folded in the northeastern parts as seen on the geological map, but having a general strike ENE-WSW.

Diabases, amphibolitic metadiabases

The diabases are medium to coarse grained, massive, and comprise most of the intrusive basic rodes. They clearly cut the supracrustal rocks oblique to bedding and metamorphic foliation. The discontinuous nature or abrupt termination of the EM-anomaly zones is interpreted to have been caused by the intrusion of diabases (see map).

Mineral parageneses:

Hbl + plag + qtz ± magnetite.

The minerals show clearly magmatic textures. Plag occurs as randomly oriented idiomorphic crystals, often with strong zonation. Hornbl. partially or totally enclose the plag-crystals as large randomly oriented more anhedral crystals. Hornblende may show partial recrystallization to finergrained aggregates of actinolite.

Magnetite occurs as inclusions in hornblende or interstitially between plaglaths and/or hornbl. Magnetite may be absent, which is also indicated by the highly variable magnetic susceptibility of the diabases.

Amphibolitic metadiabases constitue a minor part of the geology. They show a distinct foliation and/or lineation as seen at some localities by the shore of Riednjajavri, and in the NE most part of the region. Locally within the diabases, amphibolites are present, and the former seem to intrude and send apophyses into the amphibolites.

Mineral parageneses:

Hbl + plag + qtz ± magnetite

No magmatic textures are preserved. Plag occur as irregular aggregates of anhedral crystals. Likewise hornblende occurs as aggregates.

It is probable that the diabases and the amphibolitic diabases are of different origin, the former representing a late intrusive event not being subject to deformation or metamorphism of higher degree.

Micaschists

These are feldspathic biotite schists, and are light grey to brown in the field. White porphyroblasts of andalusite are common and may show lineation parallell to the foliation and fold axes.

TECTONICS

Structural analyses have not been performed. General considerations on the structurel setting, however, indicate that the described rocks constitute the southern limb of a large syncline with fold axis dipping westwards. The fold-knee may be represented in part by the intensively folded amphibolites in the NE-ern part of the area.

STRATIGRAPHY

The tectonic interpretation imply a *younging* direction northwards, i.e. micaschists/graphite schists/carbonates at the bottom, underlying quite a thick basaltic-/tuffitic sequence.

INTERPRETATION OF GEOLOGY

The geological map has been constructed partially by the combination of the magnetometry and EM-anomalies. A smaller tight synformal structure is indicated with the foldaxis dipping westwards along the shore of Riednjajavri. However, the structure has partially been destroyed by intrusion of larger diabase masses. The two parallel schists zones form the limbs of a tight antiformal structure with a core consisting partially of amphibolitic diabases and partially of unaltered intrusive diabas. The amphibolite to the NE may likewise form the core of another antiformal structure.

DIAMOND DRILLING

Four drill-holes were performed to investigate the extention of outcrop mineralizations of Cu, and eventual mineralizations associated with the graphitic horizons (Bidjovagge type). Promising slingram indications showed possible extension of the mineralization in the diabase westwards. B.H. 2 was drilled to cheque this hypothesis. B.H. 1 and 3 was drilled to cheque eventual extension of some observed Cu mineralization associated with graphite schists.

As seen on the fig. of the drill-logs, very low Cu-contents were obtained. No mineralization was detected in B.H. 2 beneath the southernmost slingram indication. This has not yet got any explanation.

Associated with the graphite schists are only sporadically occuring albite-felsites. The graphitic rocks themselves, however, may contain numerous veins and stockworks of pyrite + pyrrhotite + albite/carbonate with traces of chalcopyrite.

Up to almost 0.1 w% Cu or Ni was locally detected. Pb and Zn have no concentrated values. Au was always below detection limit (0.02 ppm).

CONCLUSION

The diamond drilling show that only locally Cu-mineralizations may occure. The area is preliminary abandoned, until new ideas or new moments favour a continuation of a drill program.

If the rock sequence investigated represent the bottom of the stratigraphy, perhaps eventual continued investigation instead should be concentrated on higher stratigraphic levels in the area (NNV-wards), and/or in favoured structural positions.

Stabekk, 21. juni

Karl Inge Olsen

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Målestokk, Scale 1:50 000

1 2 3 4

1000 2000 3000 4000

1 2

1 2

ISTANSE 20 METER

ellekurver 100 m
ilfomkurver 10 m
over gjennomsnitts sjønivå
meter under springfjære
UROPEISK DATUM
SYLINDERPROJEKSJON
for rutelinje i UTM sone 34

CONTOUR INTERVAL 20

Index contours: 100 met
Supplementary contours: 10
Vertical Datum: Mean Sea
Soundings in meters below Sprin
EUROPEAN DATUM
TRANSVERSE MERCATOR PR
BLACK numbered lines indicate the U

AREA 69: Riednjajavri

KAUTOKEINO

PROSPEKTERING A/S

M	1:50000
Målt:	
Tegn:	KIO
Trace:	KIO
Fig.	

LEGEND:

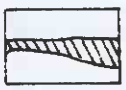

DIABASE


Amphibolitic metadiabase

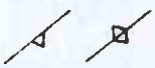

Tuff/tuffite, finegr.

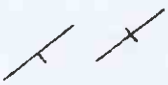

——//——
Banded, porphyrobl.


Feldspathic biotite-schists, andalusite


Graphite schist


Carbonate sed.


Plane of bedding


Metamorphic foliation


Isoclinal shear fold axis


Open fold axis


Mineral lineament


Border betw. rock types

Cu-mineralisation

Drill hole


Outcrop

N

40°

X445

Bh 3

Bh 1

Bh 2

Bh 4

4000 Y

3800 Y

3600 Y

5200 X

5600 X

6000 X

Riednjajav'ri

OMRÅDE 69: Riednjajav'ri.

GEOLOGI

KAUTOKEINO

PROSPEKTERING A/S

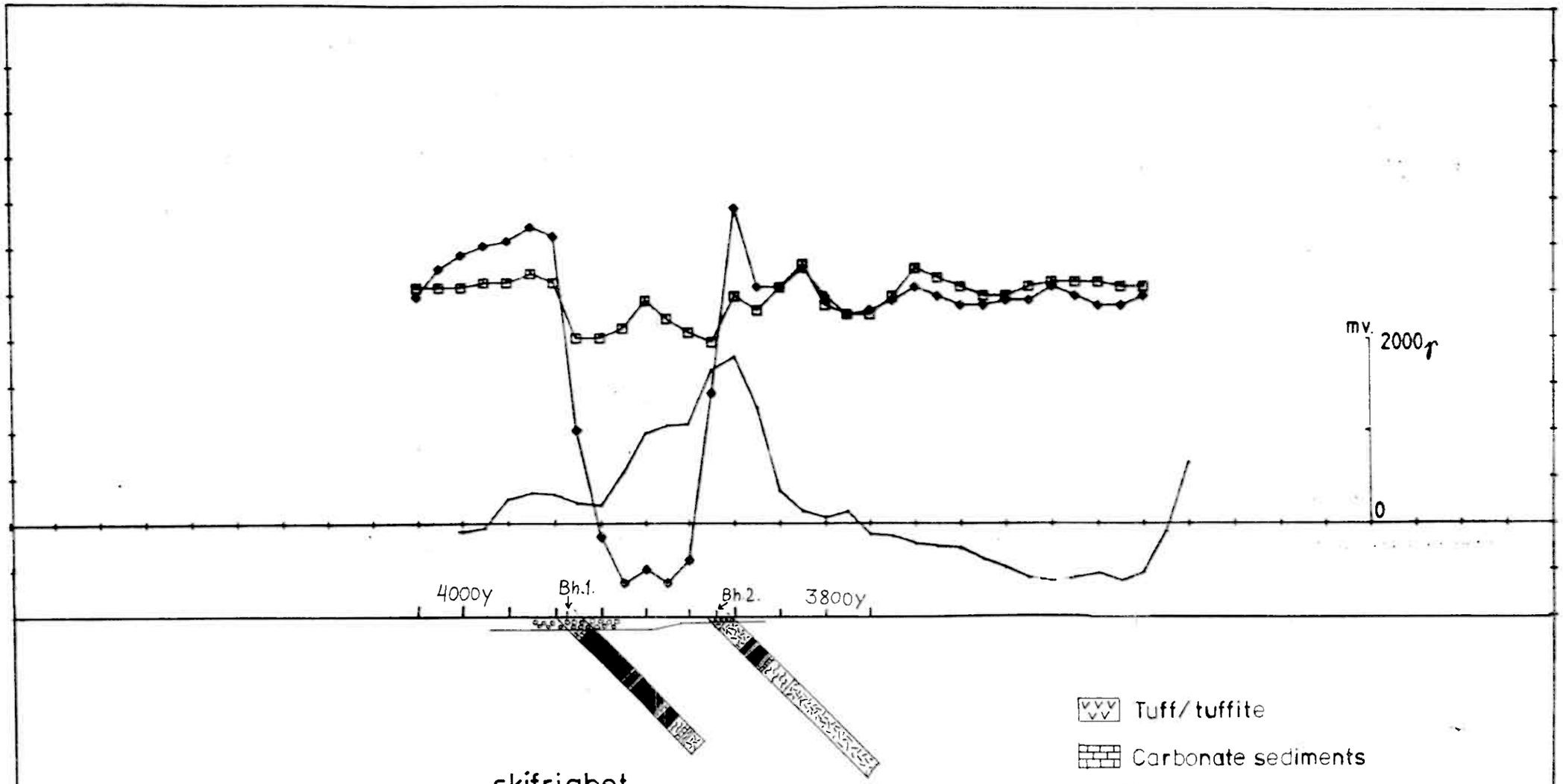
M 1:5000

Målt: E.R., K.I.O.

Tegn: K.I.O.

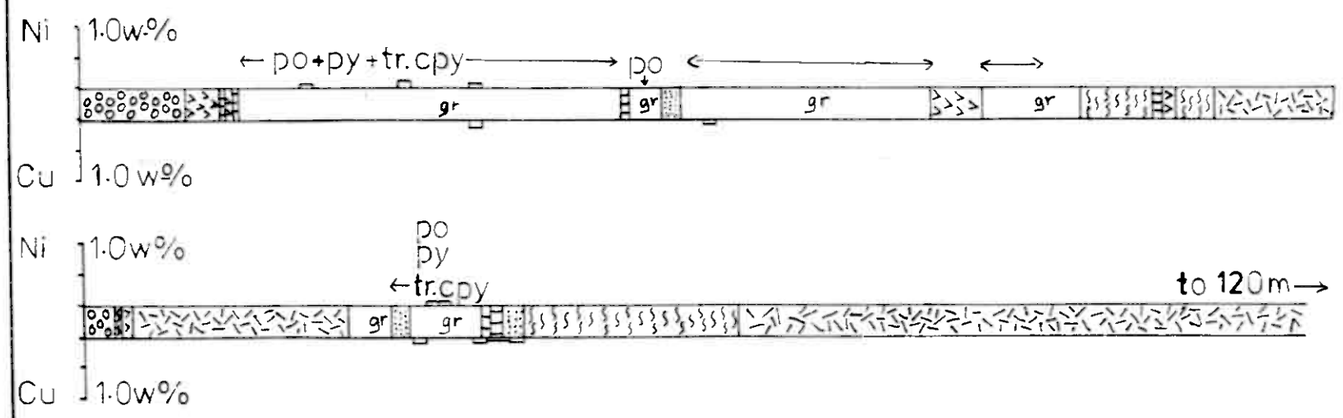
Trace: K.I.O.

Fig.



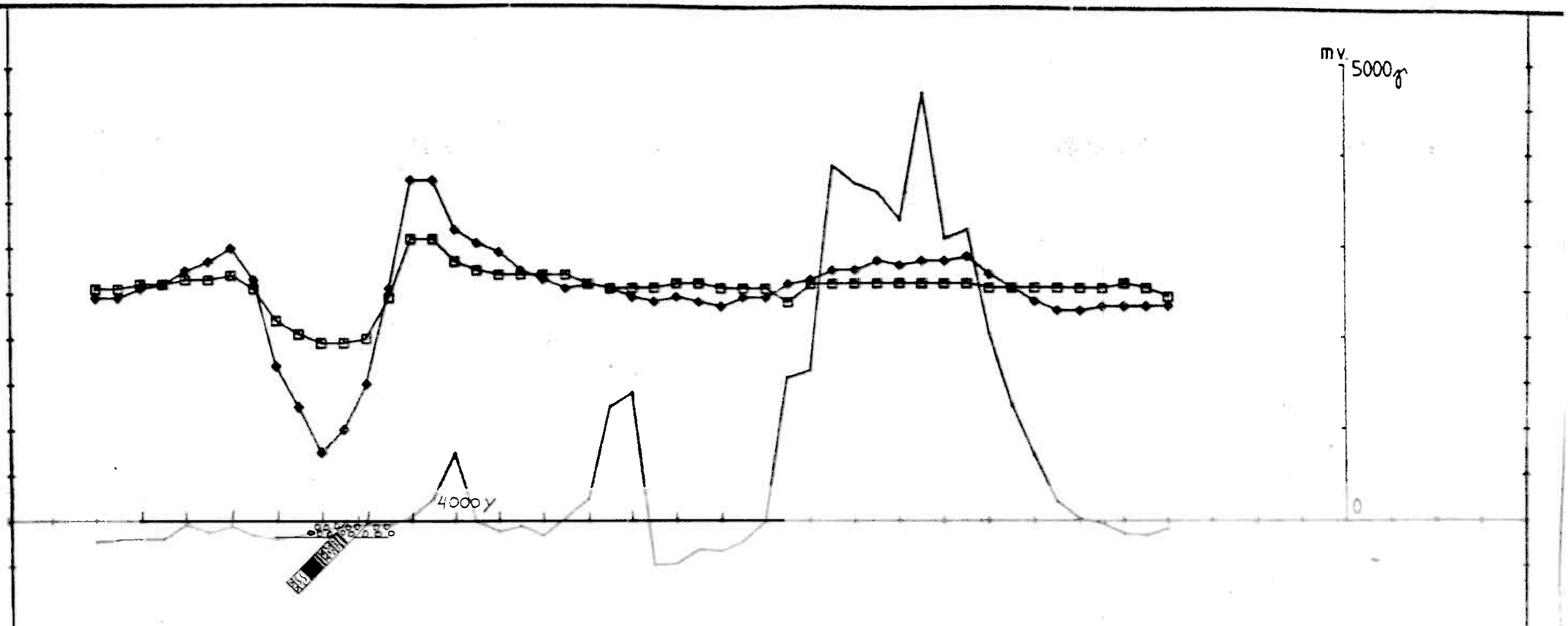
skifrighet
b.h. 1&2

1 : 500

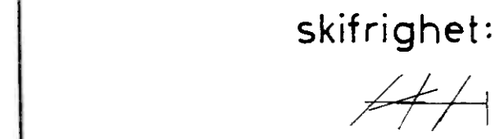


- Tuff/ tuffite
- Carbonate sediments
- Graphite schist (gr)
- Albite felsite/ab-carb. altered rocks
- Micaschist loc. w/andalusite
- Diabase

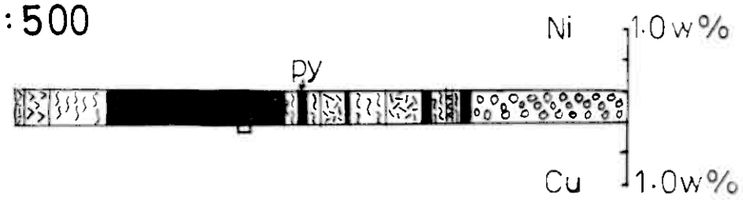
OMR.69: RIEDNJAJAVRI B.h.1 & 2 Profil 5600x KAUTOKEINO	M 1:2500
	Målt: K10 Tegn: K10 Trace: K10
PROSPEKTERING A/S	Fig.



skifrighet:



1:500



OMR. 69: RIEDNJAJAVRI

BH. 3 Profil 5200x

M 1:2500

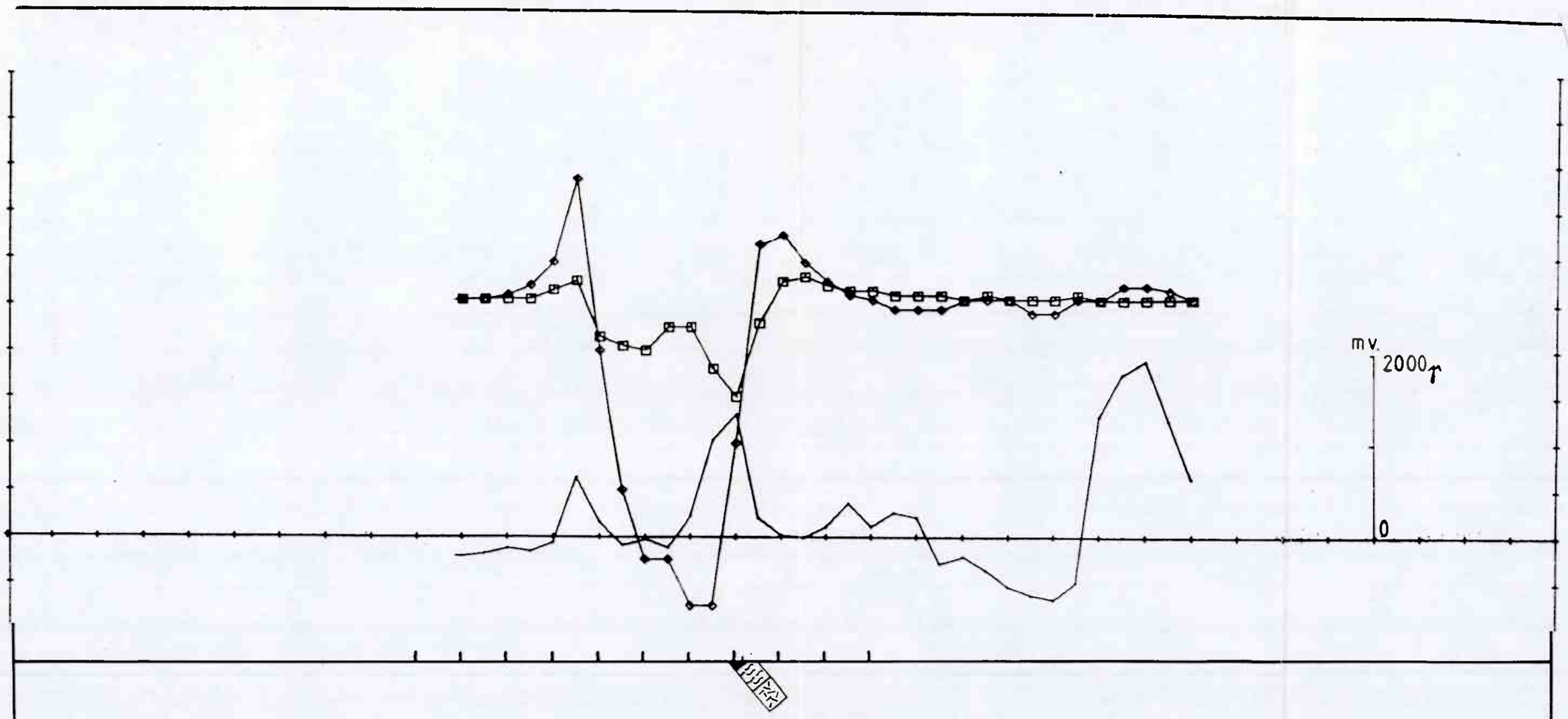
Målt: KID

Tegn: KID

Trace: KID

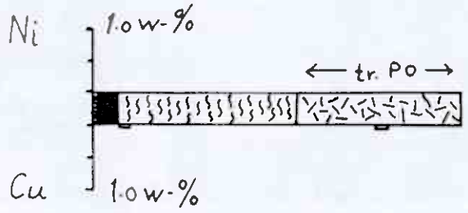
PROSPEKTERING A/S

Fig.



Skifrighet:

M = 1:500



OMR. 69: Riednjajavri
Bh. 4: Profile 5700 x
KAUTOKEINO

PROSPEKTERING A/S

M
1:2500

Målt: K10
Tegn: K10
Trace: K10
Fig.