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Sammendrag

During the field season of 1983, diamond drilling and detailed geological mapping were performed in the area south of the old Kvina molybdenum mine. The aim of the work was to locate a possible continuation of the Kvina orebody towards the south, and by means of geological mapping to find structures that could explain the ore grade mineralizations in the area.

Six holes, of lenght from 205 to 486m, in total of 1727m were drilled. The area was mapped on scale 1 : 2000.

A continuation of the Kvina orebody was not found. A 20m zone of bleached,MoS2 mineralized, granite was found at depth in DH 7 (southern end of lake Smalvann). This zone is considered to be a continuation of the Sandtjern-Grunnvannsknuten zone. It is parallell to the gneiss-horizon (as KnabenII), situatet on the same structural level relative to the gneiss- horizon, and show the same mineralization-features as the KnabenII ore.The zone is considered to be an interesting target for further investigations.

A second zone of bleached, weakly mineralized, red granite was found SE of Kvina. This zone is considered a possible target for further investigations.

Joint Venture Folldal Verk A/S - Norske Fina A/S

Knaben area

Exploration 1983

Jan Inge Tollefsrud


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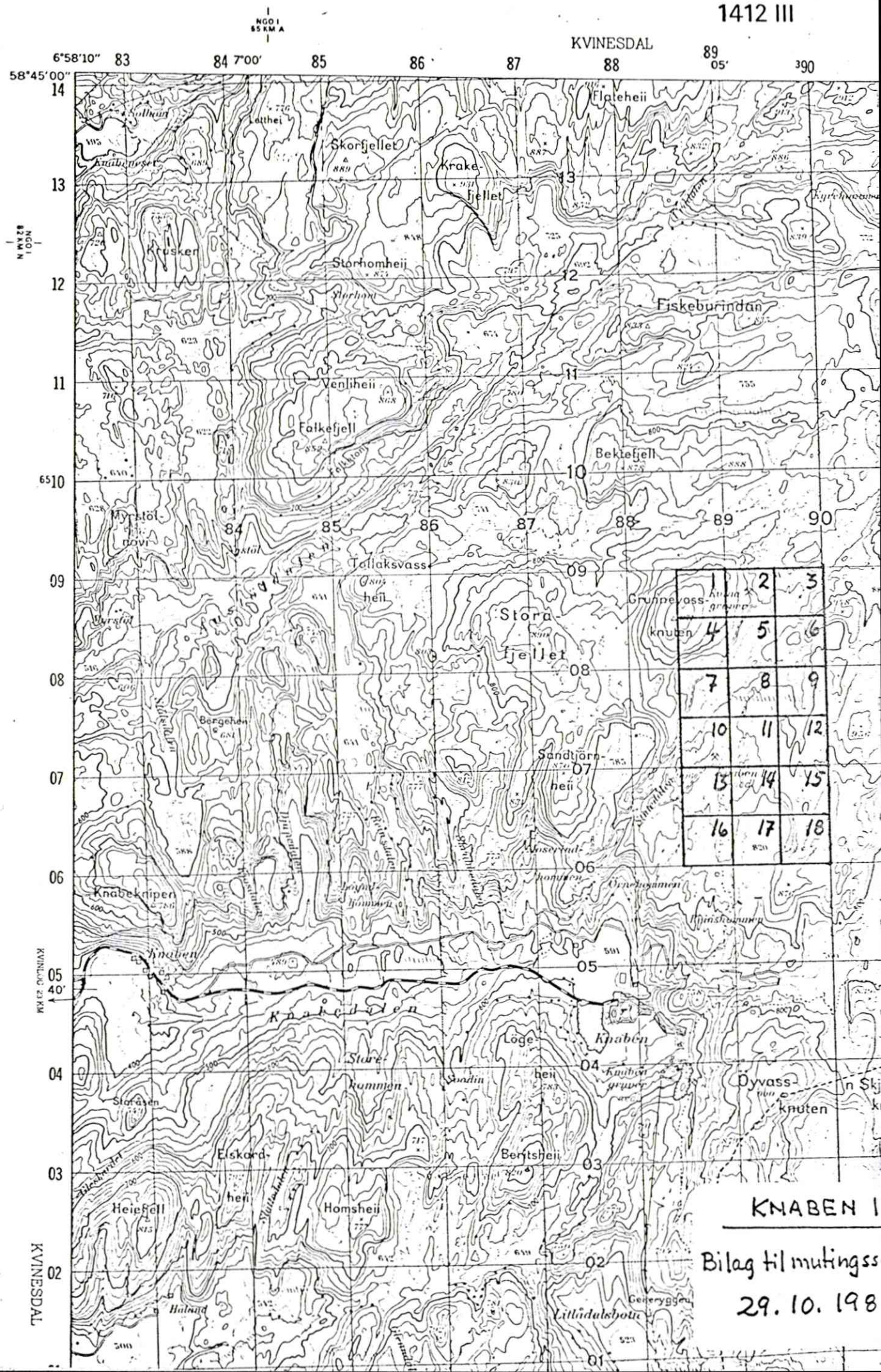

KNABEN I

Bilag til mutingss

29. 10. 198

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The hutted camp in southern end of Smalvann.

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Abstract

During the field season of 1983, diamond drilling and detailed geological mapping were performed in the area south of the old Kvina molybdenum mine. The aim of the work was to locate a possible continuation of the Kvina orebody towards south, and by means of geological mapping to find structures that could explain the ore grade mineralization in the area.

Six holes, of length from 205 to 486 m,in total of 1727 m, were drilled. The area was mapped on scale 1:2000.

The old Knaben I and Kvina mines are situated in open fold-structures within a gneiss-horizon. Knaben I in a synclinal and Kvina in an anticlinal. The structure of the gneisses and the distribution between gneisses and red granite is believed to have controlled the formation of the deposits, by formation of fractures due to different properties of the various rocks during stress.

A continuation of the Kvina orebody was not found. A 20 m zone of bleached, MoS_2 mineralized, granite was found at depth in DH 7 (southern end of lake Smalvann). This zone is considered to be a continuation of the Sandtjern-Grunnevannsknuten zone. It is parallell to the gneiss-horizon (as Knaben II), situated on the same structural level relative to the gneiss-horizon as Knaben II, and show the same mineralization-features as the Knaben II ore. The zone is considered to be an interesting target for further investigations.

A second zone of bleached, weakly mineralized, red granite was found SE of Kvina. This zone is considered a possible target for further investigations.

It is recommended to drill three diamond drillholes north of DH7 (west of lake Smalvann) to locate a possible Knaben II-type gangfjell ore. Further it is proposed to drill a single hole east of the zone SE of Kvina.

Introduction

During the field season of 1983, the Joint Venture - Folldal Verk A/S - Norske Fina A/S, continued with diamond drilling and detailed geological mapping in the area south of the old Kvina molybdenum mine in the Knaben district (John Pedersen,report,1982).

The aim of this work was to locate a possible continuation of the Kvina orebody towards south, and by means of geological mapping to find structures, such as open folds, that could explain the distribution of ore grade mineralizations in the area. The work started 25/6, and continued for about 3½ months.

Diamond drilling was carried out with a Diamex 250 drilling machine, hired from Folldal Verk A/S.

It was operated by four local residents who took over the operation after a short period of instruction given by Ola Holstad, A/S Backe Maskin (28/6-5/7), Trond Dal, Folldal Verk A/S (28/6-14/7) and Bjarne Valen, Veglaboratoriet (16/7-30/7).
The local operators were: Tom Toralf Røynestad, assisted by Terje Risøen and Karl Røyseland assisted by Tellef Risøen. They all performed an excellent job.

All equipment was transported with a Ford County 754 tractor, and partly by an old Deutz tractor, both hired from T. T. Røynestad.
Water pump, hydraulic pump and drilling machine were mounted on a sledge constructed by Holstad/Røynestad and built in Kvinesdal.
A field camp was established at the southern end of lake Smalvann (see map p). It consisted of 2 sleeping sheds, a wardrobe shed and a kitchen shed, all hired from Brakke Service A/S, Lillestrøm.

A Pioneer jolly-boat with a Johnson outboard engine was used as transport from campsite to drillsite.

The writer stayed in a hired house in Knaben (owned by O. K. Rejersen, Kvinesdal), which also served as a storage for the drill-cores.

Geological setting

The Knaben area is situated within the precambrian of South Norway.
The predominant rocktype is a pink to grey orthogneiss, called red granite (see description of rock types). Within this complex, there exists a up to 1,5 km wide zone where red granite is mixed with lenses and bands of various grey gneisses and amphibolites. The strike of this horizon (called the gneiss horizon, this report) is SSW-NNE and the dip is 20-40°E. The gneiss horizon often has a rusty appearance due to weathered iron-sulfides, and because of this,the term "fahlband" has been used. (Bugge, 1963).

The Knaben II mine is situated below this horizon, while the old Knaben I and Kvina mines are situated within the horizon.

Activities

The gneiss horizon was mapped on the scale of 1:2000 in the area from Kvina to Knaben I mines. (App. E).
Six vertical diamond drillholes of length 205-485 m,in total 1726 m were drilled.
(Map p. 19 App. A and B).

Description of rocktypes

Red granite (RGR)

The predominant rocktype in the Knaben area is a pink to grey orthogneiss with 1-2 cm blastophyres of alkali-feldspar. The texture varies from near granitic to typical gneiss-granitic. The size of the blastophyres and grains vary from medium to coarse grained over short distances (dm) across the strike. RGR has often a bleached appearance within the gneiss-horizon.

The red granite contains some magnetite and pyrite, but seldom molybdenite and ironsulfides other than pyrite.

Banded gneiss (BGN)

The main gneiss-type is a rather light, grey hornblende biotite gneiss, often with a rusty appearance because of weathered disseminated ironsulfides. It sometimes also contains molybdenite disseminated in the rock, and at the contact towards concordant and discordant quartsveins. The foliation is made up of biotite-hornblende as dark, mm thick bands between light bands of feldspar and platy quartz. The gneiss sometimes shows feldspar blastosis, and this gives the rock a lense - or augen-gneiss-like appearance.

Finegrained gneiss (FGGN)

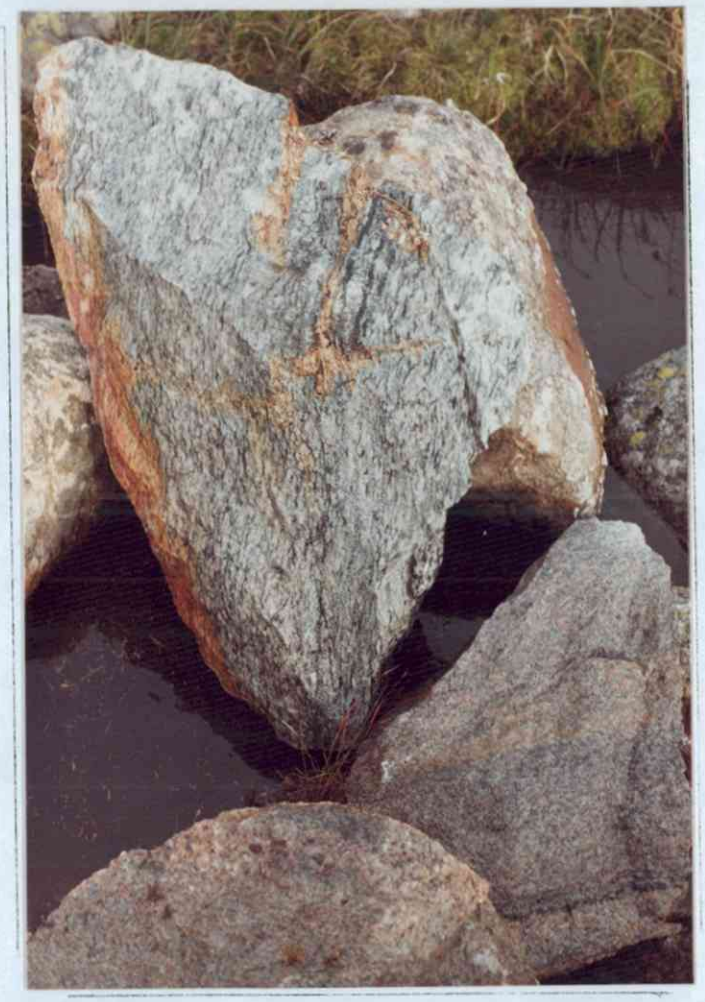
The grey, finegrained gneiss has a grain-size less than 1 mm. Alternating mm to cm thick, grey-white and dark grey bands are due to varied concentration of dark minerals. The rock is criss crossed by aplitic to granitic vens.
The finegrained gneisses are found as small slices and as concordant bands of 100-200 m length. They are often impregnated with ironsulfides, and traces of molybdenite as diffuse, concordant bands.
FGGN often appears together with amphibolite, and in a few places they both contain garnet (see corelogs, app. B).

Aplite (Apl.)

The aplites appears as "old" concordant and discordant veins of dm. to m width, and as late, cross-cutting dikes. They are red to grey in colour, and some may show feldspar blastesis, with a gradual change to red granite. The grey varieties may contain disseminated molybdenite and ironsulfides.

Amphibolite (Amph.)

Amphibolites occur as dark lenses, both old, concordant, and younger discordant. Only the last type was found in the mapped area. They often shows ptygmatic folded quartz-veins and lenses, and is sometimes altered to glimmerite in banded zones, due to hydrothermal alteration



Banded gneiss (left), and red granite (right).

5.

6. Bands of gneiss and amphibolite in red granite. 100m W of DH 5B.

"Gangfjell"/Breached red granite (BRGR)

Gangfjell is supposed to be a hydrothermally altered variety of the red granite. The texture is the same as in red granite, except in heavy altered parts, where the textures are diffuse.
It has raised silica-content, mainly due to abundant secondary, sub-parallell molybdenite-mineralized quartz-veinlets. The colour is grey to weak greenish-grey, presumably caused by sericittisation of feldspar. Besides molybdenite, gangfjell contains some chalcopyrite, pyrite and pyrrhotite, while red granite show some magnetite and pyrite, and only seldom molybdenite. The magnetite is assumed to be the Fe-source for ironsulfides in gangfjell (Gvein, 1981).

In this report bleached varieties of red granite are called bleached red granite (BRGR), and not gangfjell, because the quartz enrichment is not very obvious.

Structure

The 1:2000 scale geological mapping in the Knaben I - Kvina area showed that the gneiss horizon consists of concordant lenses and bands of amphibolites and various gneisses "floating" in red and bleached red granite. The main strike of the horizon is N-S, with deviations around 10°W and 30°E. The variation of the dip is mainly between 20° - 40°E. Dip up to 60°E has been measured in individual gneiss lenses.

The horizon has a weak waivy appearance due to open folding, and is seen to branch up towards north. In the Smalvann area there is a flexure with dextral drag along a NE-SW trending zone, giving the gneisses a strike parallell to the NE-SW trending shore of Smalvann, and forming an anticlinal running approximately parallell to the eastern slopes of Grunnevannsknuten and with an fold-axis dipping approximately 15°S (c.N170E)(fig.1). A direction beeing so close to the plunge of the longest axis of the Kvina orebody that it is reasonable to suggest that this structure has taken part in controlling the deposition of this mineralization.

In Knaben I, Kvina, and SE of Kvina (area between DH1, DH2, DH3, DH4, map. p. 19) there are areas of red and bleached red granite enclosed by branches of the gneiss-horizon. These areas may represent cores in isoclinal folds formed by east-west compression of the gneiss-horizon. The closures of the folds then pointing respectively towards north (Knaben I), south (Kvina) and south (area southeast of Kvina) in the three areas.

The dimension of the individual constituents of the gneiss-horizon vary strongly both in width and length. From 1 dm to 50 m in width, and 1 m to 200 m in length. The gneiss-bands some places shows isoclinal folding, and other places also local "drag" along planes with a ENE direction. The drag is in scale 1 dm to 1 m (fig.) and is considered to be the result of the same deformation that formed the flexure described above.

In Knaben I, the gneisses form an open synclinal with the fold-axis dipping C. 20°SSE(see also Pedersen, 1982). The mine is situated on the border between an above lying amphibolite in the gneiss-horizon, and an area of red granite.

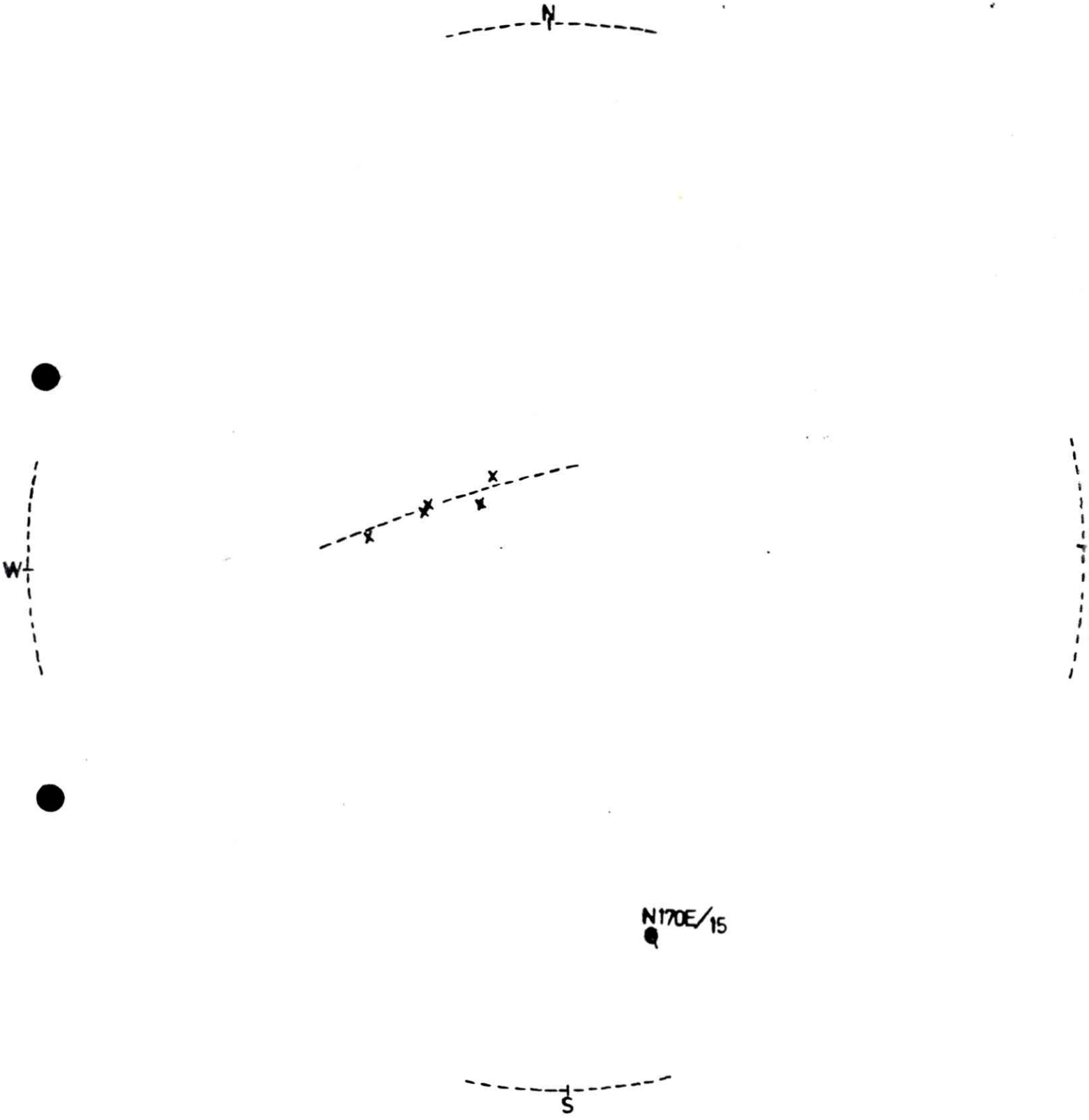
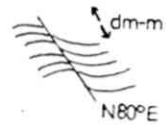


Fig.1 Constructed foldaxis from the area Kvina-Grunnevannsknuten.

The Kvina mine is situated in an open anticlinal, with the fold-axis dipping 10° - 15°S. In common with Knaben I. The Kvina orebody is situated on the border between areas dominated by gneisses on the one side and red granite on the other side.

The rock distribution and structures described above have been favourable for consentrating MoS_2 in rich, but small mineralizations. It seems unlikely that the open and inhomogeneous gneiss-horizon may have acted as a "roof" or "trap" for hydrothermal solutions (except maybe locally as in the case of the amphibolite in Knaben I). It is considered more likely that the structure of the gneiss-horizon, combined with the distribution of granite and gneiss have caused the rock to fracture due to difference in competence during stress between the red granite and the constituents of the gneiss horizon, caused by variation in texture and foliation.

Fig 2



Mineralization

Types of mineralization

The most frequent oreminerals in the Knaben area are molybdenite, chalcopyrite (chp.), pyrrhotite (pht.) and pyrite (py.). Various types of mineralization can be recognized.

Dissemination in gangfjell

This is the most important type of mineralization, and consists of molybdenite disseminated in gangfjell, often in association with small fractures and quartz-veinlets. In addition to molybdenite, gangfjell also contains minor amounts of chalcopyrite, pyrrhotite and pyrite. The northern part of the Knaben II orebody represents this type of mineralization.

Mineralized quartz-veins

This is considered to be the most widespread type of mineralization, and occur in all the various rock-types. The host-rock may show hydrothermal alternation in the vicinity of the veins (bleaching of red granite, amphibolite altered to glimmerite).

The veins can be grouped into three or four generations due to orientation and type of deformation (see end of next section, description of localities). The veins may contain either molybdenite or chalcopyrite or both in the same area, but molybdenite-mineralized veins are the most predominant.

According to size, the veins have been divided in two groups (Pedersen, 1982). One with veins less than 0,5 m thick, and the other with metre thick veins. Examples of young, concordant representatives of the first group are found in the southern part of Knaben II and in the Sandtjern-Grunnevannsknuten area.
Representatives of the second group are the Knaben I and Kvina orebodies.

Dissemination in gneiss

The gneisses of the gneiss-horizon often show concordant disseminations of pyrrhotite chalcopyrite, pyrite and minor amounts of molybdenite.

Mineralizations - Description of localities

The Knaben II mine

The Knaben II orebody is the largest and most important deposit in the area. It consists of a north-south oriented lense of gangfjell which is a hydrothermally altered red granite. For further description see: "Description of rocktypes", this report.

The molybdenite occur both as impregnation, and along, or in subparallell quartz-veinlets and fractures. The lense crops out in the northern end of the mine, and here it has a horizontal width of about 80 m, and a length of about 400 m. It has been mined along dip (30^{o}E) for 250 m where it wedges out. The content of molybdenite is variable, and parts of the lense show very low grade. Average consentration is calculated to 0,25% MoS_2 (a, fig. 3).

Towards south and towards depth the mineralization continues as a wide zone of close to concordant MoS_2-mineralized quartz-veins in red granite, which is only partly altered to gangfjell. The average consentration is less than 0,20% molybdenite (b, fig. 3), and the consentration weakens off along dip towards the surface, where it leaves little evidence about the ore at depth. This mineralization continues for about 350 m, where the zone makes a weak bend towards SW. South of this bend, the quartz-veins flattens out to a dip of 10-20^{o}E, and crosses the ore-zone which still has a dip of 30^{o}E (fig.4,5). In the area of the bend, the grade is raised to about 0,20% molybdenite (c, fig. 3), but further south it drops to a level of about 0,14% MoS_2 (d, fig. 3).
The ore can still be traced as a weak quartz-vein mineralization at surface.

After this description of the deeper, now unaccessible parts of the Knaben II mine (Bugge, 1963), it may be proposed that the various mineralized fractures were formed by compressional stress in a ENE-WSW direction, released as feather-joints in the southernmost part of the mine (d. fig. 3 and fig. 4,5),and as shear-fractures, partly controlled by the foliation of the rock, in the north-south oriented part of the orebody.
The gangfjell-lense should then be the result of more evenly distributed stress that caused the rock to respond by forming small, evenly distributed fractures, instead of the larger quartz-veins further south. The explanation to this difference in stress-distribution, could be inhomogenities in the rock (granites/aplites as described by Bugge, 1963), and/or the presence of amphibolites which would respond to stress in a different manner than granites.

The mineralizing, siliceous, hot fluids have followed these fractures, and through the relatively wide fractures in the southern parts, they have passed too fast and easy to be able to alter the host rock to any extent. Through the small fractures in the gangfjell-lense, the fluids have been slowed down and had time and access to alter the host rock, and to settle MoS_2 and minor amounts of chalcopyrite.
The raised molybdenite-content in the area where the ore bend toward SW, could be due to overlap of the fractures to the north and to the south of the bend.

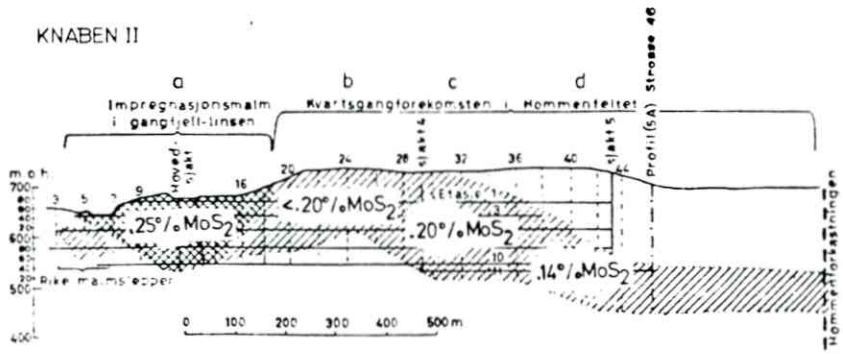


Fig 3

Longitudinal section through level 10 (on footwall). The deposit above level 10 has been projected in to the plane of the section.The continuation of the zone of quartz veins vertically beneath level 10 is suggested in the section.The zone's continuation in the direction of dip (about 30° E) does not come in on this section.
After Bugge (1963),Lindahl(1978).

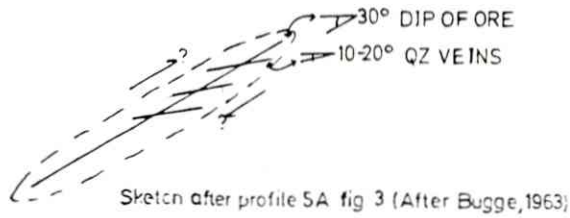
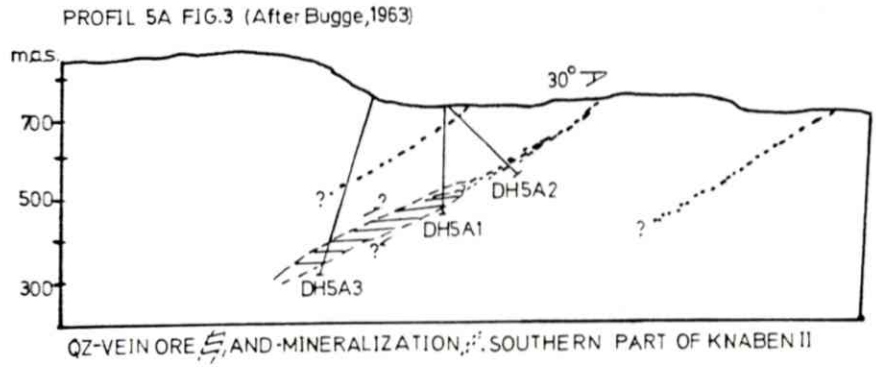


Fig 4

No matter what the mechanism may be, the Knaben II ore-zone is a very big one. In north-south direction it can be traced for about 1500 m, with a width of 30-80 m (Bugge, 1963). It has a dip of 30°E and a plunge of about 10°-20°S. Only the northernmost part of it show ore-grade mineralization at surface. Towards south, only irregular quartz-veins in granite, which are very similar to the Sandtjern-Grunnevanns-knuten, Bragol and Beritshei-mineralizations, gives a weak sign of the mineralization at depth.

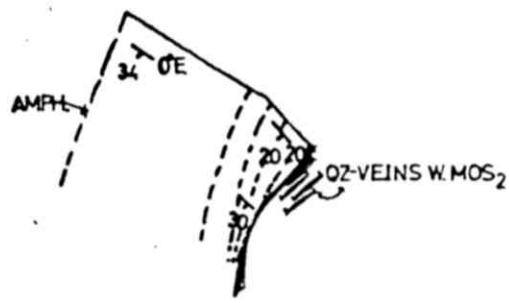
In the southern part of the zone, this weak mineralization can be followed for about 340 m along dip before the grade is raised and can be followed for further 500 m. (Fig. below, after Bugge, 1963).



The Knaben I mine

The ore in Knaben I consists of quartz-veins and -lenses in granite on W border of a concordant amphibolite. In the Knaben I-area, the gneiss-horizon is split up in two cranches with red granite in between. The amphibolite constitute the western border of the eastern gneiss-horizon. The amphibolite form a bend and flattens out towards north (0°/34E-20E/20ESE). The mineralized quartz-veins are consentrated just north of the bend, and they follow the amphibolite which in places is impregnated with MoS_2 and chalcopyrite, and is totally altered to glimmerite.

The quartz-veins depart from the amphibolite when this approaches the dip of 30°E towards depth. The mineralization disappeares at a depth of 25 m.



The consentration of the quartz-veins as described, could be controlled by difference in competense between the folded amphibolite and granite during deformation, or stress as described for the Knaben II-mine (this report).

The Kvina mine

The Kvina ore is connected to a lense-shaped, quartz-dominated pegmatite body with an average strike of 20°, dip 30°E and plunge 10°S. The pegmatite is enveloped by thick, MoS_2 mineralized quartz-veins. The surrounding rock is mainly red granite with some gneiss-bands on the west side of the quarry. Gangfjell has been described in the close vicinty of the orebody. Aplitic dikes cuts the lense. Close inspection of some quartz-veins in the mine, 10-20 cm wide, gives the impression of pinch and swell structures that could be the result of deformation.

Other mineralizations in the mapped area

In adits east of Knaben I, MoS_2 appears in cm to dm thick quartz-veins discordant in banded gneiss and granite.
A 5-15 cm thick quartz-vein inside one adit is weakly discordant in the gneiss, and has a distinct boudinaged, or pinch and swell structur, which imply that the mineralized quartz-vein has been streched during deformation.

150 m ENE of these adits, on the shore of the lake, another mineralized quartz-vein is visible (photo 7). This vein cuts an isoclinally folded gneiss and is itself ptygmatic folded with the hinge pointing towards north. It is not seen to cut the granite on each side of the gneiss-band, but limbs of folded veins follows close to border between gneiss and granite.

In northern end of the lake 867 m.a.s., 500 m north of adits described above, a 1 m long, isoclinally folded slice of quartz and amphibolite is seen to "float" in the red granite: The amphibolite is partly altered to glimmerite, and MoS_2 is found both in quartz and amphibolite (see photo 8).

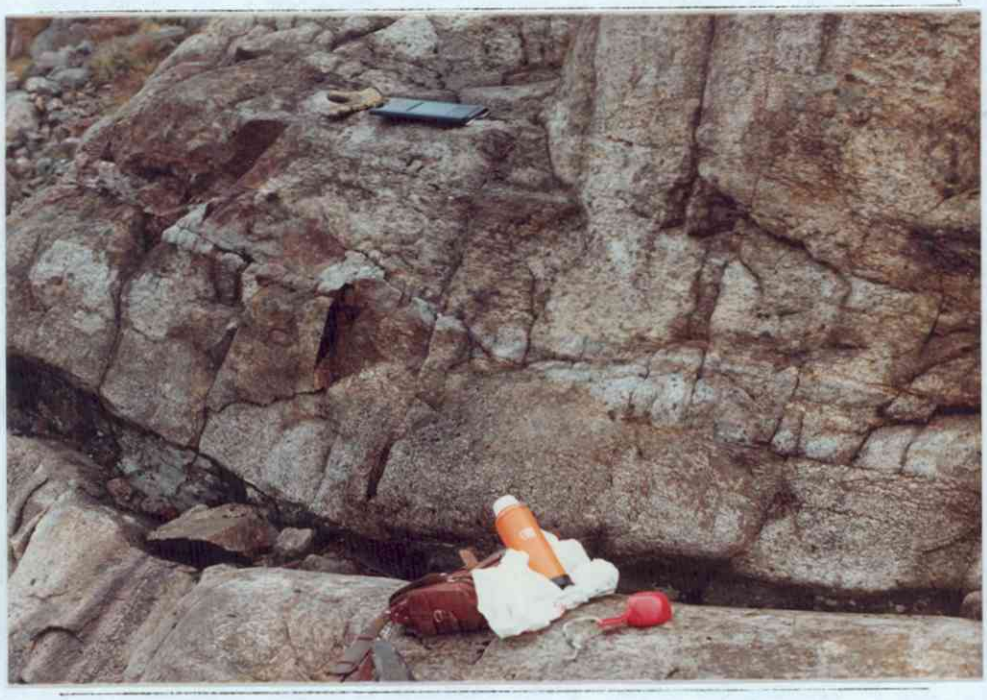
The Sandtjern-mineralization consists of irregular, thin, MoS_2-mineralized quartz-veins and fractures in red granite. The veins are apparently concordant, and the mineralized zone follows the main strike of the area, approximately N-S, from Ørnehammen-Stutedalen-Sandtjern to west side of the Grunnevannsknuten hilltop. This mineralization was found at 250 m depth in DH 7, in a 20 m thick zone of bleached red granite grading 314 ppm Mo.

The gneisses in the central parts of the gneiss-horizon often show mineralization of pyrrhotite, chalcopyrite, pyrite and molybdenite, mainly as dissemination in concordant bands, but also in quartz-veins, especially chalcopyrite and molybdenite. The mineralization is often followed by green colouring of the rock. Sometimes as a consequence of epidot alteration, but more often as a result of possible sericittisation of feldspar.

Between the location DH 1, DH 2, DH 3, and DH 4 there is an area of bleached granite with a less porphyritic appearance than the ordinary, red granite. The rock is limited in east, west and south by gneiss, and it is mineralized in much the same way as the banded gneiss described above. The rock was drilled through with DH 2 (approximately 70 m thick) and DH 4 (approximately 40 m thick), and samples were picked out. They showed an average grade of 168 ppm and 50 ppm Mo for 2 and 3 m of representative samples. There is, however, a possible zonation in the depositition of ironsulfides, with pyrite in DH 1 and more pyrrhotite instead of pyrite in DH 2 and DH 4. This could indicate a more high temperature mineralization towards east and towards depth, and could be a cause for further investigations of the zone towards east, despite the fact that the relatively

7. Folded and MoS_2-mineralized qz-vein

8. Folded, mineralized qz-amph. in red granite.



9. Pinch and swell in mineralized qz-vein. Smalvann.

Cross-cutting, undeformed, mineralized qz-vein.

10.

Ironsulfide mineralisation in banded gneiss, cut by two generations of aplites. DH 5B.

11.

large visible and drilled parts of the zone show poor mineralization of MoS_2.

Some places, on the shore of the lake, 350 m south of DH 5B, there occur 5-10 cm wide, undeformed MoS_2-mineralized, quartz pegmatite-veins. These veins are crossing both granites and gneisses and strikes 80°E which differs strongly from the dominating N-S strike in this area.

Conclusion

In summary, it is concluded that the area has been MoS_2 mineralized in at least 3, possibly 4 episodes.

The oldest generation is represented by ptygmatic folded quartz-veins in gneiss and granite (see photo 7 and 8).

A possible younger episode, is the lense-shaped and boudinaged quartz-veins and bodies that can have survived a weaker deformation possibly due to a late, open folding.

A third generation is the undeformed quartz-pegmatite veins with strike differing strongly from the main strike of the area.

A fourth generation could be the Knaben II and Sandtjern type. The Knaben II mineralization is supposed to be a late episode, with gangfjell-alteration described to cut undeformed pegmatite (Bugge, 1963).

The disseminated mineralizations of the gneisses is suspected to be of old, hydrothermal-, or of primary sedimentary origin. The fact that it is cut by two younger generations of aplites (core DH 5B, photo 11) indicate that this is not a very young episode.

The diamond drilling program 1983

Activities.

6 holes were drilled (Tabel 1, map. p. 19)

Tabel.1 Drillholes 1983.

Hole No.	Strike/dip	Length of hole
DH1	-/90	225,85 m
DH2	-/90	270,- "
DH4	-/90	205,40 "
DH5	-/90	229,80 "
DH5B	-/90	485,40 "
DH7	-/90	310,40 "
Sum		1726,85 m

DH1 and DH2 were drilled as planned, hole No. 3 was dropped because of negative results from DH1 and DH2.

DH4 was drilled only to 205 m because of heavy problems with crushed zones.

DH5 was drilled to 230 m in an area with MoS_2 mineralization in small concordant and discordant quartz-veins on surface. The intention was to intersect a possible continuation of the Kvina orebody at depth. Drilling was stopped after 20 m of unmineralized red granite.

DH5B was set out as a filling in between the 1983 drilling program and the older drillingholes further south. The plan was to drill through the gneiss horizon and as far down under it as possible in order to look for grey granite of the Knaben II type.

DH7 was preferred to DH6 as the last drillhole in the 1983 program. The cause of this was that the orebody in Knaben I mine is described to weaken off towards depth (Bugge, 1963), and that this type of mineralization is considered to be too small to be of an economic interest.

DH7 was set out to test a possible continuation of a mineralized zone, below the gneiss horizon, that runs from Sandtjern to Grunnevannsknuten. This zone consists of MoS_2 in irregular quartz-veins in granite, and has much the same appearance as the weak mineralizations that crops out south of the gangfjell-lense in Knaben II. The Sandtjern zone is also situated on the same structural level relative to the gneiss horizon as the Knaben II ore. This zone has never been examined at depth.

NORSKE FINA A/S/FOLLDAL VERK A/S

DIAMOND DRILL PROGRAM 1983

HOLES PLANNED, BUT NOT DRILLED: ( )

1:5000

CAMP

CROSS SECTION DH 7

CROSS SECTION DH 5B

CROSS SECTION DH 5

CROSS SECTION DH 3

CROSS SECTION DH 1,2

DH 7
-/90
(110.40)

KNABEN I

(DH 6)
-/90

DH 5B
-/90
(485.40)

DH 5
-/90
(229.80)

(DH 3)
-/90

DH 4
-/90
(205.00)

DH 1
-/90
(225.85)

DH 2
-/90
(270)

KVINA

Smalvann

Short description of drillholes 1983

(Corelogs app. A and B).

DH1

DH1 cuts the mixed zone of red granite, various gneisses and amphibolites of the gneiss-horizon. Weak mineralization of mainly pyrite, but also some chalcopyrite, pyrrhotite and molybdenite in banded gneiss occur at depth of approximately 200 m. No signs of a continuation of the Kvina orebody.

Samples analysed: 206-208 m: 115 ppm Mo and 275 ppm Cu in banded gneiss.

DH2

The drillhole cuts a zone of bleached red granite from 15-85 m. The granite is compact, homogeneous and has relatively small alkali feldspar blastophyres. The rock crops out in the area west of DH1 and DH2. The zone seems to thin out towards depth. It shows a weak mineralization of pyrite, chalcopyrite, pyrrhotite and also traces of MoS_2 as diffuse concordant bands, but also in concordant and discordant quartz-veins.

Analysed samples: 45-48 m - 168 ppm Mo, 373 ppm Cu.

From 85-270 m depth: mixed rocks of the gneiss horizon, partly mineralized by ironsulfides and traces of MoS_2. No signs of a continuation of the Kvina orebody.

DH4

From 60-100 m: The same zone of bleached red granite as in DH2 (15-85 m depth) was intersected. Type of mineralization is the same as in DH2, but the zone has thinned out to 40 m.

Above and below this zone was found the mixed rocks of the gneiss horizon, with weak mineralization of ironsulfides and traces of MoS_2, mainly disseminated in banded gneiss and within and on border of discordant and concordant quartz-veins.

DH5

Mixed rocks of the gneiss horizon with weak mineralization of ironsulfides and traces of MoS_2 in gneisses as described above.

DH5B

Mixed rocks of the gneiss horizon with red granite below. The banded gneiss is mineralized with ironsulfides and traces of MoS_2 as described above.

Samples analysed: Banded gneiss - 86-88 m: 100 ppm Mo, 205 ppm Cu.
Banded gneiss - 120-121 m: 90 ppm Mo, 60 ppm Cu.

DH7

The upper 60 m is represented by the mixed rocks of the gneiss horizon. 60-215 m is dominated by the granite below the main gneiss horizon.

In the section from 215-240 m banded gneiss and aplites, both altered, and containing discordant and concordant mineralizations of ironsulfides and traces of MoS_2, both disseminated in the rock and in quartz-veins.

From 247 to 267 m there is a 20 m section of altered bleached red granite with concordant and discordant MoS_2-bearins quartz-veins. Molybdenite is also present as concordant dissemination in the rock. Some pyrite and chalcopyrite. Chalcopyrite and molybdenite are not always consentrated in the same quartz-veins, and may belong to different mineralizing episodes. After these mineralizing episodes the rock has been fractured. This is visible from open fractures, cutting MoS_2-bearing quartz-veins.

Average of analysed samples 247-267 m, 314 ppm Mo and 316 ppm Cu.

From 270-310 m, the rock type is an ordinary red granite.

Previous drilling

In 1966 Knaben Molybdengruber A/S drilled along the road 225 - 405 SW of the open pit of Knaben I.

Table.2 Drillholes SW of Knaben I.

Hole No.	Strike/dip	Length of hole
2.1	-/90	79,0 m
2.2	287/34	81,0 m
1.1	-/90	90,0 m
1.2	-/90	102,0 m
3.1	287/34	82.4 m

These holes are too short to intersect the Sandtjern zone, and were probably drilled to test the continuation of the Lilleknaben zone further south.

Two other holes has been drilled 500 and 1200 m SW of the Kvina orebody to test some smaller mineralized zones on the south-east side of Grunnevannsknuten:

Table.3 Drillhole south-east of Grunnevannsknuten.

Hole No.	Strike/dip	Length of hole
2	-/90	146,2 m
3	-/90	98,8 m

These holes are also too short to intersect the Sandtjern-zone. The relatively large distance from the outcropping mineralizations in the Sandtjern area was chosen because examination of similar types of mineralizations in the southern end of the Knaben II mine, shows that they are very persevering along dip (fig. 5)

Discussion / conclusion

The diamond drilling in 1983 gave no indication of a continuation of the Kvina orebody towards south, neither in the form of a molybdenite-mineralized quartz-lense nor as a gangfjell-ore of the Knaben II type.

No zones of high grade MoS_2-mineralizations were found.

A zone of bleached granite, with low grade mineralization was found by mapping the gneiss horizon in the area SE of the Kvina mine. The location of this zone is between DH1, DH2, DH3, DH4 (map p la). The same zone is penetrated by DH2 (70 m thick) and DH4 (40 m thick). Representative samples were picked out for analysis: DH2: 45-48 m, 168 ppm Mo, 373 ppm Cu. DH4 88-90 m, 50 ppm Mo, 620 ppm Cu. The zone is limited towards south by a closure in the gneiss horizon with an axis running ESE. Comparing thickness of the outcrop and thickness of intersection in drillholes it seems that the zone is slowly getting thinner towards east.

Despite this fact, that the above mentioned zone both in the outcrop and the depth show poor mineralization of MoS_2, it is proposed as a possible target for further investigations because of the bleached character of the granite as this indicate gangfjell-alteration.

A second, 20 m thick, zone of mineralized bleached granite was found in DH7 at a depth of 250 m. This zone is dipping 33°E and is assumed to belong to the Sandtjern structural level.

It is concluded that there exists a very persevering molybdenite-mineralized zone cropping out in the area Sandtjern-Grunnevannsknuten, dipping approximately 33°E, and intersecting DH 7 at 250 m depth. It is parallell to, and below, the main gneiss horizon, and on the same structural level relative this horizon as Knaben II.

The outcropping mineralizations in the Sandtjern-Grunnevannsknuten area are of the same type as found south of the gangfjell-lense in Knaben II, where they represents distal parts of the ore-grade mineralizations at depth. In DH7, the zone is represented by concordant and discordant quartz-veins with MoS_2 and concordant disseminated MoS_2 in altered bleached granite. These conditions indicate gangfjell-type mineralization, and the observations leads to the conclusion that it is reasonable to suppose that there exists an ore-deposit of the Knaben II-type at depth in this area.

Assuming that the outcrop of the Sandtjern/Grunnevannsknuten mineralized zone is a structural lower parallell to the Kvina/Grunnevannsknuten anticlinal (dip 15° SSE). This indicate a parallell structure to the Knaben II - open anticlinal in the gneiss-horizon (Pedersen 1982). Expecting a plunge of the orebody 10-15°S a gangfjell orebody should be looked for SSE of Grunnevannsknuten.

Recommendation

A. It is recommended to drill three drillhole north of DH7 (west of Smalevann) in order to locate a possible orebody of the Knaben II type.

B. Further it is recommended to drill a single hole SE of the Kvina. The reason for this proposal is to follow the continuation the bleached granite zone observed by mapping and intersected by DH1 and DH2.

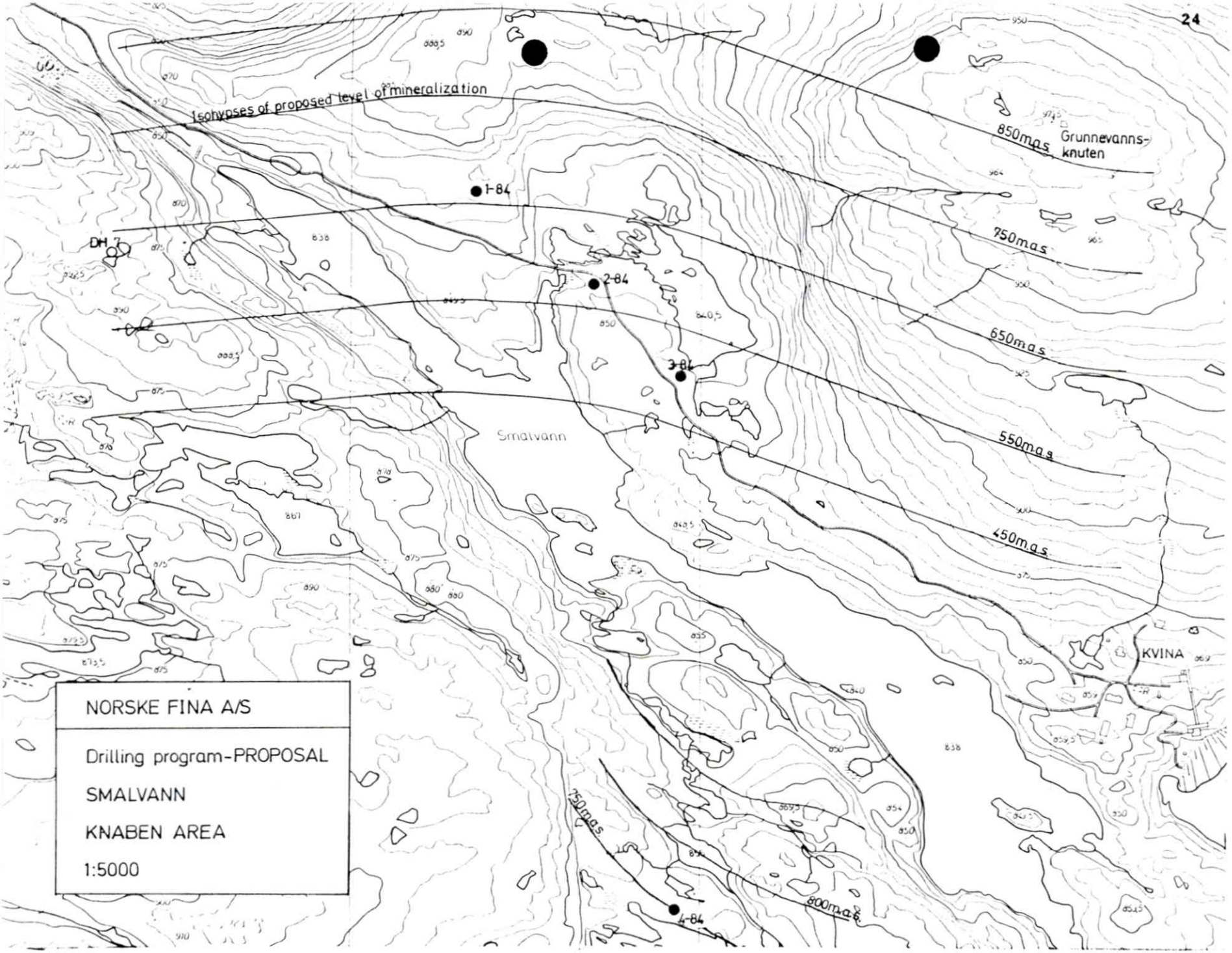
Proposed drilling program (Map next page)

Hole No. 1 shall be drilled to identify the position of the alteration zone. The position of hole No. 2 and 3, and a possible continuation of the program of the Sandtjern/Grunnevannsknuten structural level, has to be consecutive evaluated.

If the result of hole No. 1-3 are considered negative it is proposed to investigate the eastern zone of bleached red granite. The position of hole No. 4 is 100 m to east and between DH2 and DH4.

Locality	Hole No.	Strike/dip	Length of hole	Expected depth of mineralization
Smalvann W	1-84	-/90	300 m	200 m
"	2-84	-/90	250(+100?)m	250 m
"	3-84	-/90	400 m	340 m
Smalvann E	4-84	-/90	200 m	110 m
			1150(+100?)m	

Drillhole No. 2 is placed on the same site as drillhole No. 3-1966. This hole should be reopened and extended if possible. Present depth is 98,8 m.



NORSKE FINA A/S

Drilling program-PROPOSAL

SMALVANN

KNABEN AREA

1:5000

References

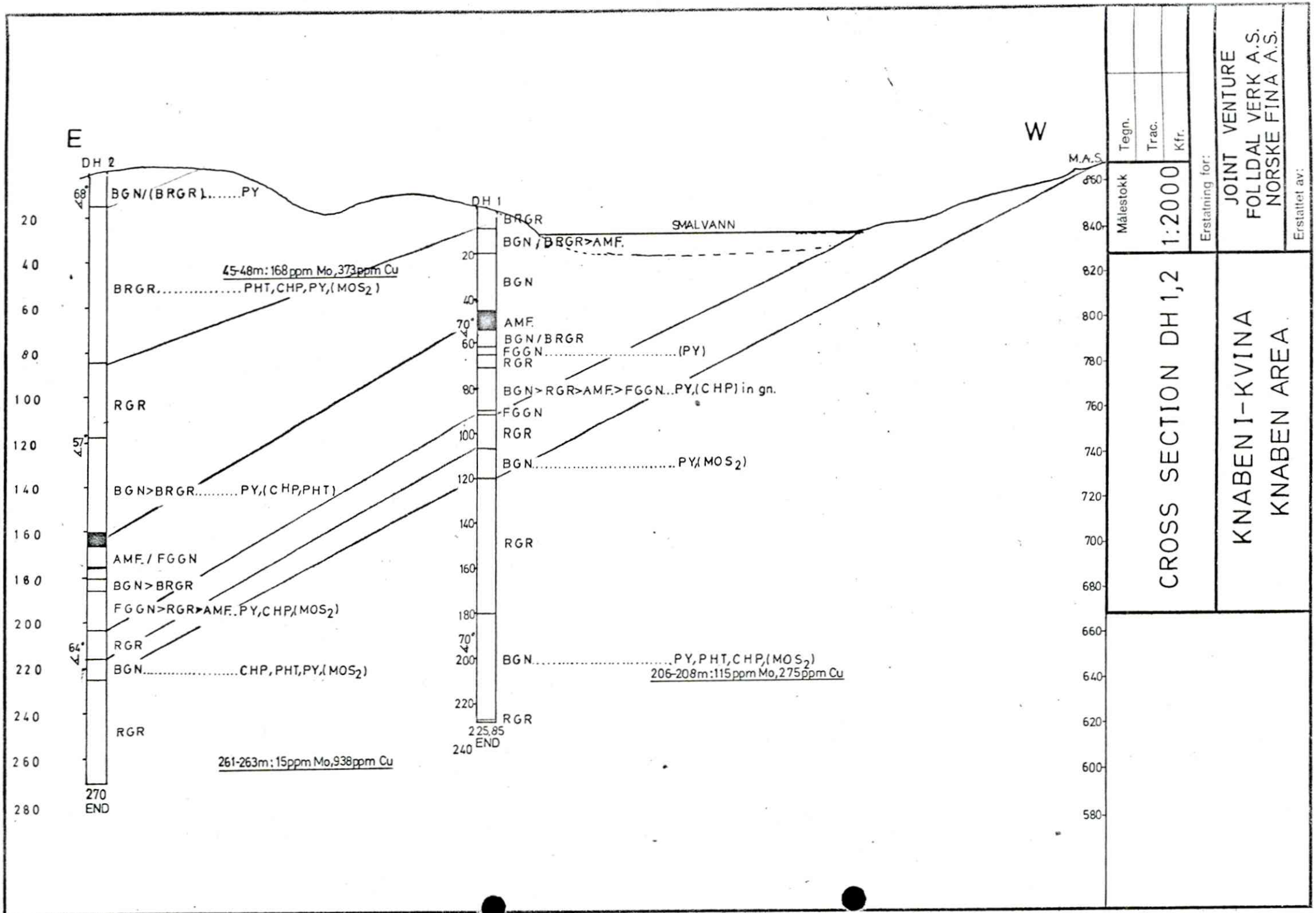
Bugge A: Norges molybdenforekomster. Norges Geologiske Undersøkelse. No. 217 (1963).

Gvein Ø: Field report, Knaben area. A/S Sydvaranger (1981).

Lindal I: Knabeheiene molybdenfelt. En undersøkelse av Statens bergrettigheter. NGU rapport nr. 1650/52A (1978).

Pedersen J: Field report, Knaben area. Joint Venture - Folldal Verk A/S Norske Fina A/S (1982).

CROSS-
SECTION
DH 1-7



Tegn.
Trac.
Kfr.

Erstatning for:

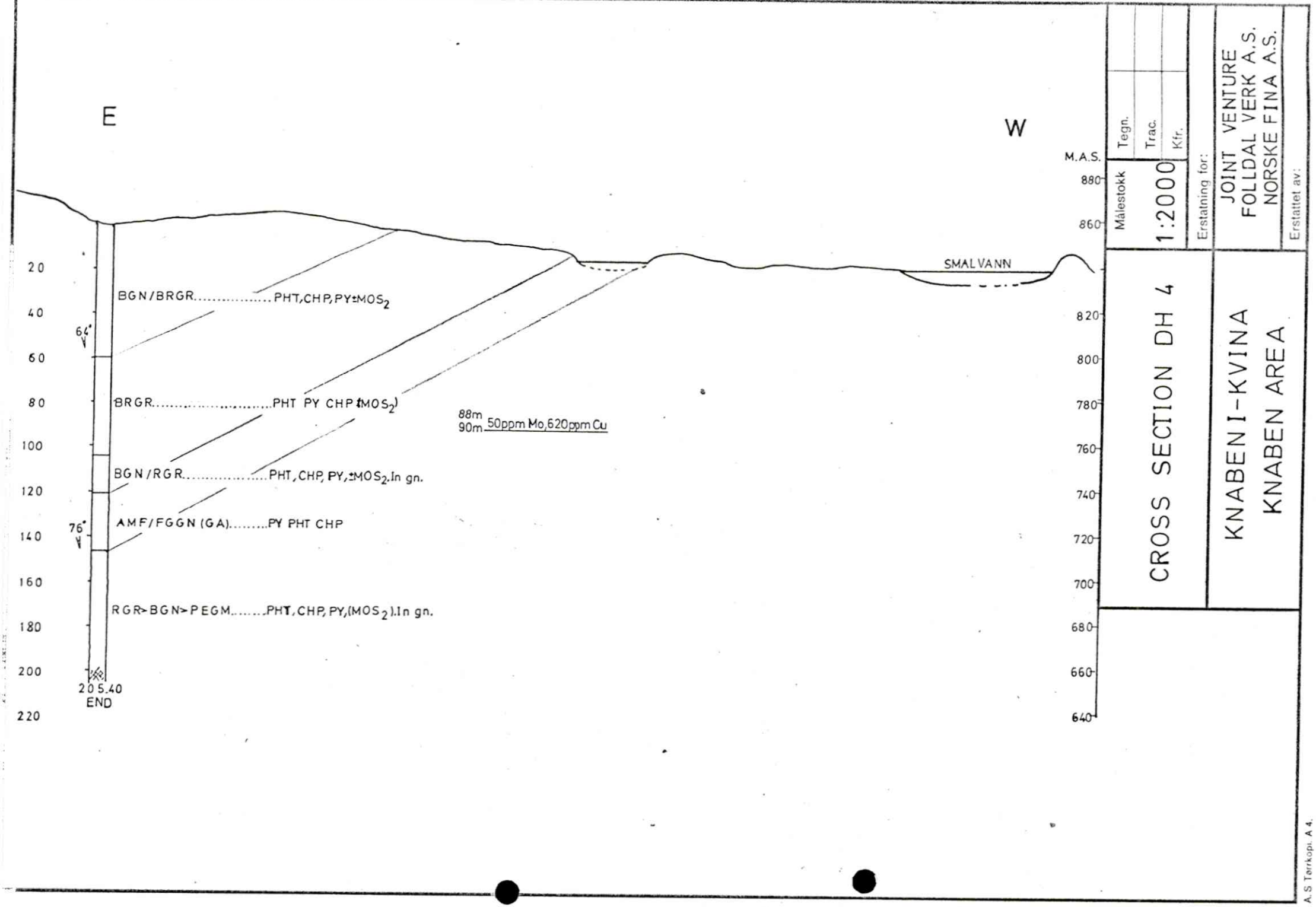
JOINT VENTURE
FOLLDAL VERK A.S.
NORSKE FINA A.S.

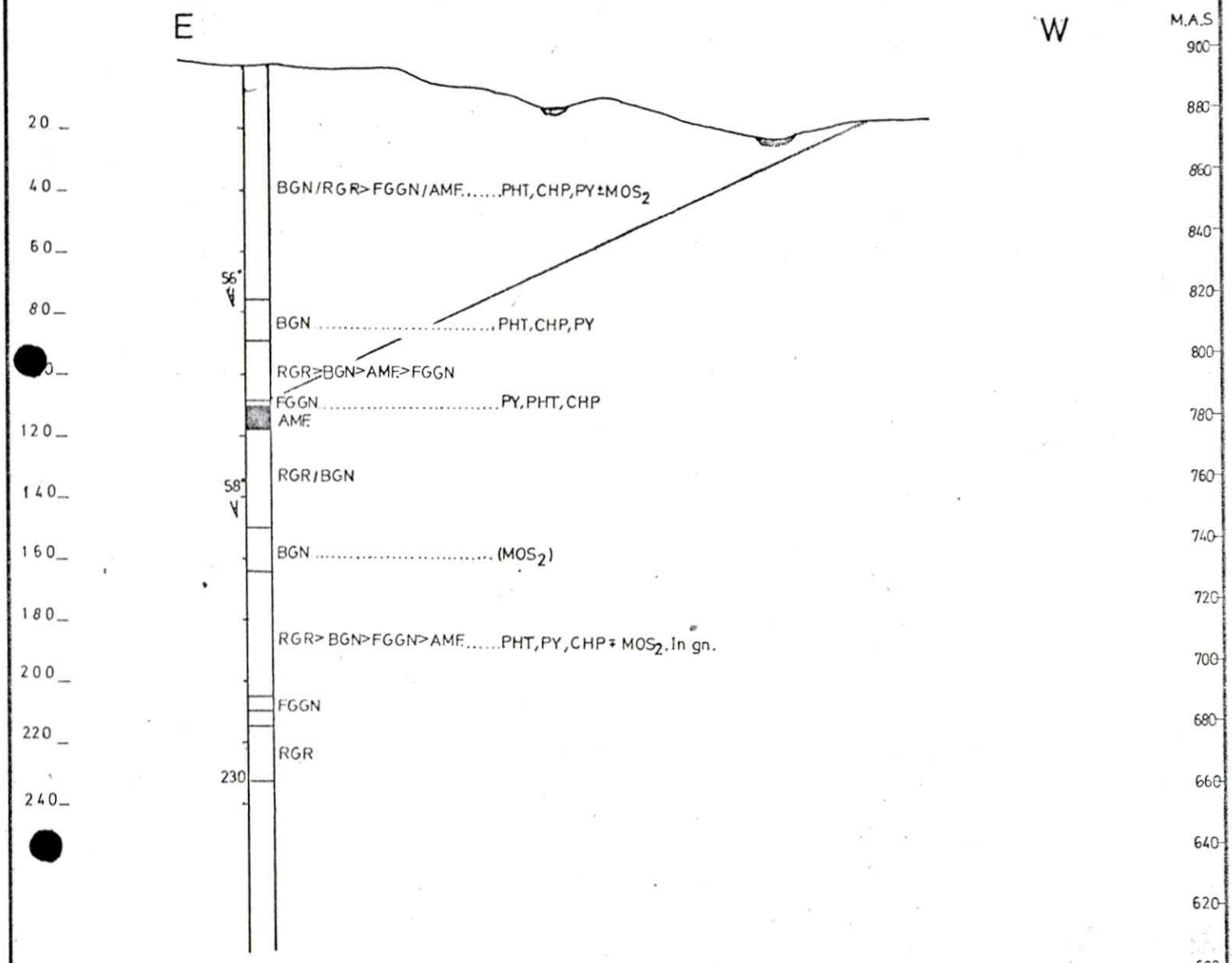
Erstattet av:

Målestokk 1:2000

CROSS SECTION DH 1,2

KNABEN I-KVINA
KNABEN AREA


E
W
M.A.S.
880
860
820
800
780
760
740
720
700
680
660
640
20
40
60
80
100
120
140
160
180
200
220
64°
76°
SMALVANN
BGN/BRGR.....PHT,CHP,PY±MOS2
BRGR.....PHT PY CHP (MOS2)
88m
90m 50ppm Mo, 620ppm Cu
BGN/RGR.....PHT, CHP, PY, ±MOS2. In gn.
AMF/FGGN (GA).....PY PHT CHP
RGR>BGN>PEGM.....PHT, CHP, PY, (MOS2). In gn.
205.40
END
Tegn.
Trac.
Kfr.
Målestokk
1:2000
Erstatning for:
JOINT VENTURE
FOLLDAL VERK A.S.
NORSKE FINA A.S.
Erstattet av:
CROSS SECTION DH 4
KNABEN I-KVINA
KNABEN AREA
A.S Terrkopi A 4.



CROSS SECTION DH 5	Målestokk 1:2000	Tegn.	
		Trac.	
		Kfr.	
	Erstatning for:		
KNABEN I-KVINA KNABEN AREA	JOINT VENTURE FOLLDAL VERK A.S. NORSKE FINA A.S.		
	Erstattet av:		

E

W

M.A.S.

880
860
840
820
800
780
760
740
720
700
680
660
640
620
600
580
560
540
520
500
480
460
440
420
400
380

20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
500

53°
55°
56°
60°
70°

BGN/RGR

BGN ..... WEAK IMP. OF PHT, CHP, PY

BGN / RGR ..... PHT, CHP, PY ± MOS_2 IN GN

86m
88m 100ppm Mo, 205ppm Cu

BGN ..... " "

120m
121m 90ppm Mo, 60ppm Cu

BRGR

BGN > RGR > AMF.

BGN / RGR / FGGN / AMF.(±GA) / APL. ..... PH, PY, CHP IN GN

FGGN (±GA IN AMF.) ..... PHT, PY, (CHP) ±MOS_2

(B)RGR / BGN > FGGN > AMF. ..... PHT, CHP, PY, ±MOS IN GN

RGR

BGN ..... PHT, CHP, PY, MOS_2

RGR > BGN > FGGN > AMF.

RGR, (BGN) ..... PHT, CHP, PY, ±MOS IN GN

285.40
END

CROSS SECTION DH 5B

KNABEN I–KVINA
KNABEN AREA

Målestokk 1:2000

Tegn.
Trac.
Kfr.

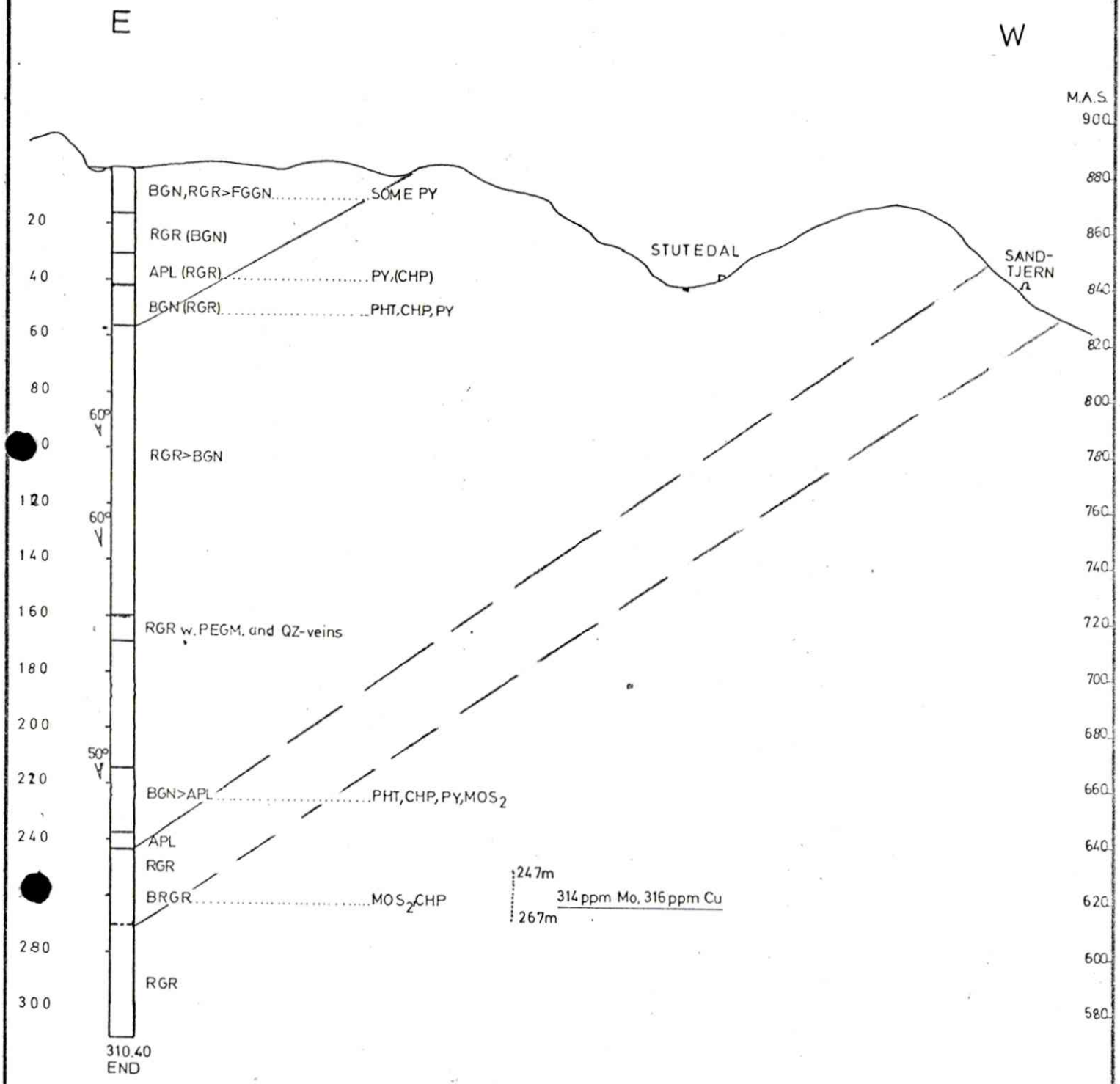
Erstatning for:

JOINT VENTURE
FOLLDAL VERK A.S.
NORSKE FINA A.S.

Erstattet av:

A S Terrkopi A 3

PROFILE N70W FROM DH 7



CROSS SECTION DH 7	Målestokk 1:2000	Tegn.	
		Trac.	
		Kfr.	
	Erstatning for:		
KNABEN I-KVINA KNABEN AREA	JOINT VENTURE FOLLDAL VERK A.S. NORSKE FINA A.S.		
	Erstattet av:		

A.S Terrkopi. A 4.

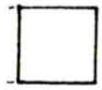
CORE
LOG
DH1

ANALYSIS OF SAMPLES

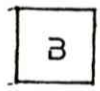
Samplenames are constructed this way:247-248-7,first number is from m depth in hole.Second number is to m depth in hole.Last number is name of drillhole.

Sample name	Mo ppm	Cu ppm	Mo/Cu
247-248-7	90	160	0.56
248-249-7	400	150	2.67
249-250-7	90	250	0.36
250-251-7	760	330	2.30
251-252-7	130	260	0.50
252-253-7	1100	310	3.55
253-254-7	50	540	0.09
254-255-7	100	1100	0.09
255-256-7	5	210	0.02
256-257-7	<5	25	-
257-258-7	<5	25	-
258-259-7	780	150	5.20
259-260-7	45	50	0.90
260-261-7	260	100	2.60
261-262-7	1000	140	7.14
262-263-7	190	120	1.58
263-264-7	290	1500	0.19
264-265-7	380	510	0.75
265-266-7	410	180	2.28
266-267-7	200	200	1.00
Average	314	316	1.01
86- 87-5B	50	230	0.22
87- 88-5B	150	140	1.07
120-121-5B	90	60	1.50
88- 89-4	60	670	0.09
89- 90-4	40	570	0.07
261-262-2	30	1800	0.02
262-263-2	<5	75	-
45- 46-2	310	600	0.52
46- 47-2	5	250	0.02
47- 48-2	190	270	0.70
206-207-1	130	330	0.39
207-208-1	100	220	0.45
83- 84-7	200	550	0.36

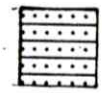
LEGEND



RGR-RED GRANITE



BRGR-BLEACHED RED GRANITE



BGN-BANDED GNEISS

FGGN-FINEGRAINED GNEISS

Amf.-AMFIBOLITE

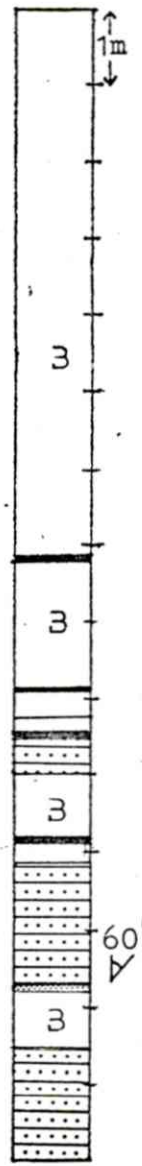
Pegm.-PEGMATITE

Qz.-vein

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 1 KASSER NR.: 1,2 FRA 0 m TIL 15 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
		Py,(chp)		
	Weak green colo.	"		
		Sprad frac. w. py.		
BRGR				1/1
Amf.				
Amf. BGN	Amf. partly alt. to gl.			
BRGR w.. Amf.				
BGN Apl.				2/1
BRGR				
BGN				

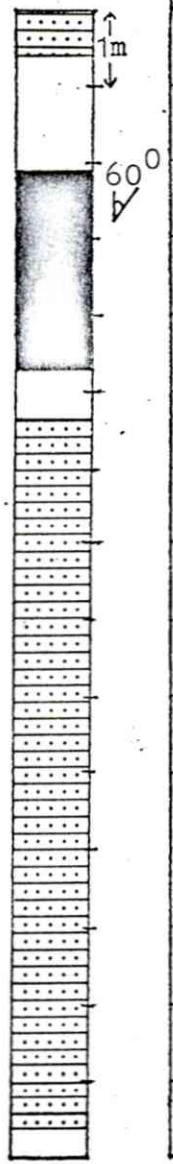
DATO: 1-7-83

sign

JIT-83

KVINA GRUVER.
JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 1 KASSER NR.: 2,3,4 FRA 15 m TIL 30 m



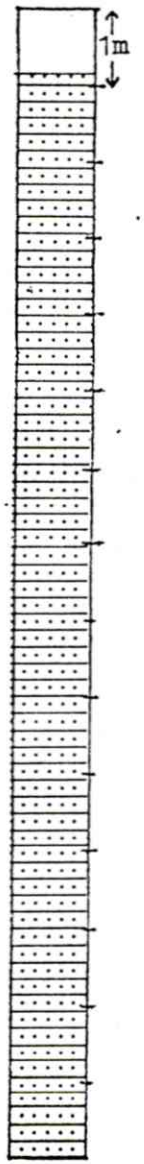
BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN w. disc. apl. 62°				
RGR				2/1
Amf.	Partly alt. to glimmerit.			
RGR				
BGN		Some py diss. in BGN		3/1
5cm qz w. py		Py in qz-vein		
15cm "		"-		
BGN				
RGR				4/1

DATO: 1-7-83 _____ sign JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 1 KASSER NR.: 4.5 FRA 30 m TIL 45 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BRGR		Spread py in dark bands		
	Green colo.	↑Py(chp) in the dark bands of the GN.		
				4/1
BGN				
				5/1

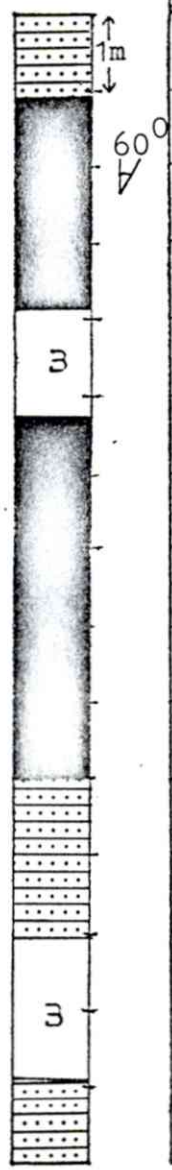
DATO: 1-7-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 1 KASSER NR.: 5,6,7 FRA 45 m TIL 60 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN				5/1
Amf.				
BRGR		Py,(chp) in dark bands.		6/1
Amf.	Partly alt. to glimmer.			
	Frac. w. chl.			
BGN				
BRGR				
BGN				7/1

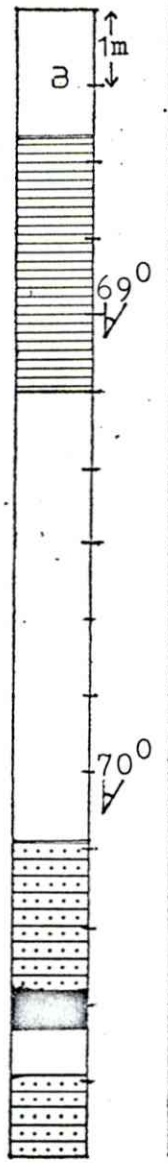
DATO: 1-7-83 si

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 1 KASSER NR.: 7,8 FRA 60 m TIL 75 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BRGR				
FGGN		Conc. py		7/1
		Grains of py diss. in rock.		
RGR				
BGN		Py in dark bans of GN		8/1
Amf. RGR				
Dark grey GN				

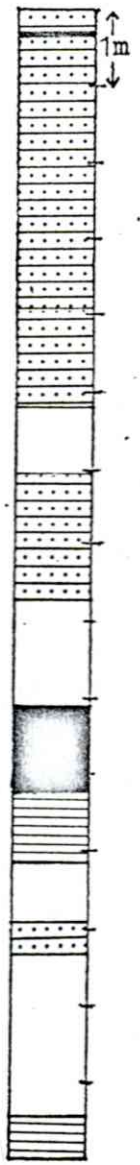
DATO: 8-7-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 1 KASSER NR.: 8,9,10 FRA 75 m TIL 90 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Garnet-amf.				
Grey GN w.amfibolte.				8/1
BGN	Brecciated	Weak imp of MoS_2,chp. MoS_2 in 5mm disc. qz-v.		
RGR				
BGN	20cm zone green colo.	Py in dark bands of GN		
(B)RGR w. qz-veins				
Conc. amf. w. disc.apl.				9/1
FGGN	Red alt. fsp.			
RGR				
BGN				
RGR				
FGGN		Py in dark bands.		10/1

DATO: 8-7-83

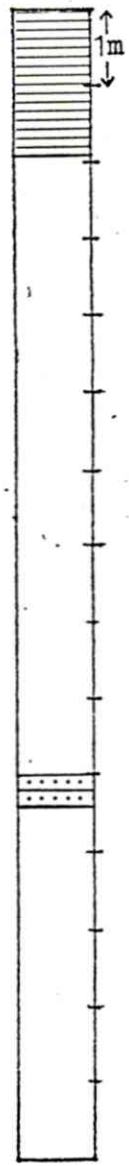
si

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 1 KASSER NR.: 10.11 FRA 90 m TIL 105 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
FGGN		Some py in dark bands.		10/1
RGR				
BGN		Py, chp, in thin conc. bands, o,5-4cm. Some grains of MoS_2.		11/1
Inhomog. RGR.				

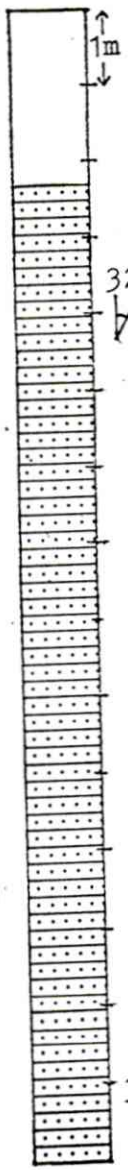
DATO: 8-7-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 1 KASSER NR.: 11,12,13 FRA 105m TIL 120 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Inhomog. RGR	10cm amf. alt. to glim.	5cm conc.qz-vein w. MoS_2		11/1
		Py in dark bands of GN		
BGN	Brecciated,ep.-alt.			12/1
	Ep.-alt.	Diss. grains of MoS_2		
		~~Py,(chp) in thin conc.~~ veins.		13/1

DATO: 6-7-83

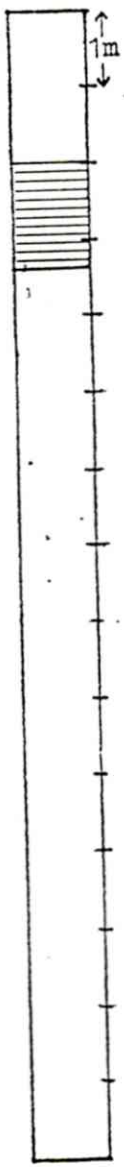
si n

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 1 KASSER NR.: 13,14 FRA 120 m TIL 135m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
.RGR				
	Red alt. fsp.			
FGGN				13/1
	"			
	"			
RGR				
	Fracture zone chl.,ep.			14/1
	Close to vertical frac.			

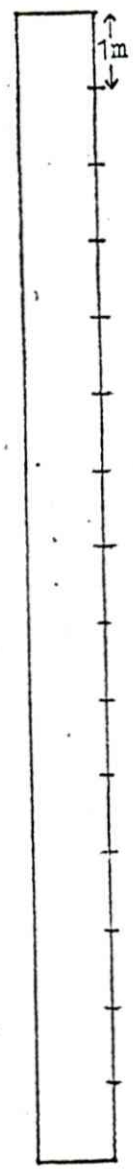
DATO: 6-7-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 1 KASSER NR.: 14,15,16 FRA 135 m TIL 150 m



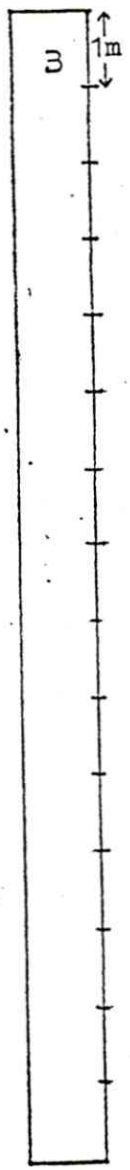
BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
	Close to vert.Fractures			14/1
RGR	"	Weak py min. in fract.		15/1
				16/1

DATO: 18-7-83

JIT-83

KVINA GRUVER.
JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 1 KASSER NR.: 16.17 FRA 150 m TIL 165m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BRGR				
	Fractured (yong)	Py in frac.		16/1
RGR	----"----			
	Close to vert. frac. (yong)			17/1
	Fractured (yong)			

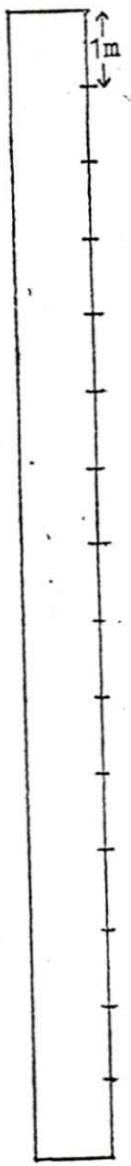
DATO: 18-7-83 si n

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 1 KASSER NR.: 17,18,19 FRA 165 m TIL 180 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
.RGR	Vertical frac.			17/1
	Ep. alt.			18/1
RGR				
	---"---			
				19/1
	Red alt fsp.			
	Ep. alt.			

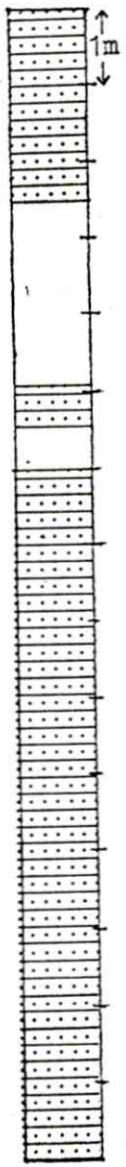
DATO: 18-7-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 1 KASSER NR.: 19,20 FRA 180 m TIL 195 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Alt. GN(?)	EP.-alt. chl.			
RGR				19/1
Grey GN w. fsp. blast. RGR		Traces of py,chp,pht, some grains of MoS_2		
BGN	Weak green colo.			20/1

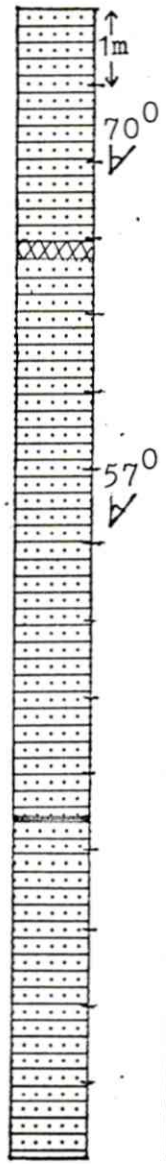
DATO: 31-7-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 1 KASSER NR.: 20,21,22 FRA 195 m TIL 210m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN		Traces of MoS_2, py, chp		20/1
	Yong fract.			
Pegm.		Grains of MoS_2, py in upper part of pegm.		
BGN				2171
Amf.	Partly alt. to glimmer.			
		Py, some MoS_2 in cm, conc bands in GN. (py, pht.)	ppm Mo ppm Cu 130 330 100 220 $\bar{x}$: 115 275	22/1
	yong frac.			

DATO: 31-7-83

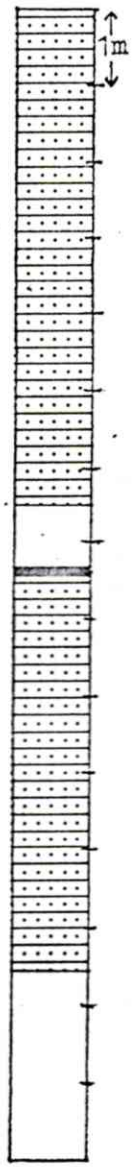
si.

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 1 KASSER NR.: 22.23 FRA 210 m TIL 225 m (225,85)



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
	Old breccia			
BGN				22/1
RGR Amf.cm qz on each side.				23/1
BGN				
(B)RGR				

225,85
END

DATO: 31-7-83 _____ sign

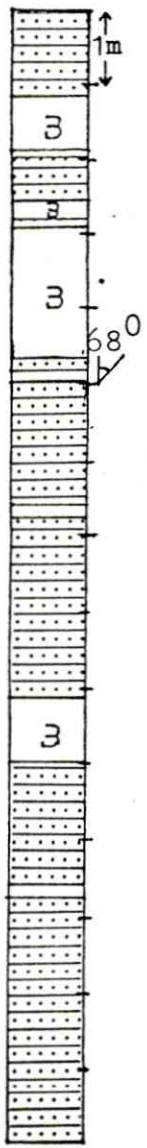
JIT-83

CORE
LOG
DH2

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.:2 KASSER NR.: 1,2 FRA 0 m TIL 15 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN	Fractures w. py	Some py,chp.		
BRGR Qz-vein		Qz w. py,chp.Traces of MoS_2,mm big grains.		
BRGR				
BGN RGR		Py in GN dark bands.		1/2
BGN		---------"----------		
BRGR	Close to vert.frac. w. rust.			
BGN	---------"----------			
BRGR	Fract. w. rust.			
BGN				
RGR	Weak green colour	Some py indark bands of GN		2/2
BGN	Frac w. rust.			
	------"------			

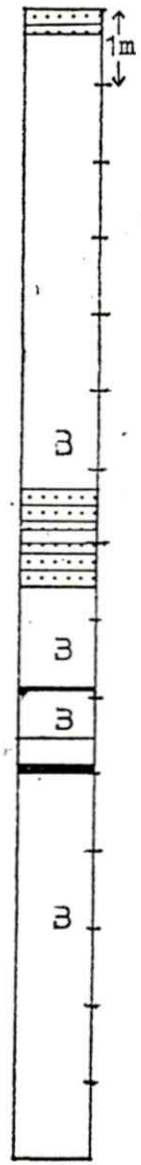
DATO: 24-7-83 _____ sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 2,3 FRA 15 m TIL 30 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN				
				2/2
RGR	5cm green colour	py.grain of MoS_2.		
	10cm--"--	py,pht,chp.		
BRGR				
BGN	Frac. w. rust	Py in frac.		
BRGR	"	"		
BGN				
(B)RGR	50cm green colo.	"		
5cm amf	amf. partly alt. to gl.			
qz-vein		Qz w. py chp.		
BRGR	green colo. BRGR	Py,chp		3/2
Amf.	Partly alt. to glimmer.	Py,chp.		
(B)RGR		Weak min. of py,(chp).		

DATO: 24-7-83

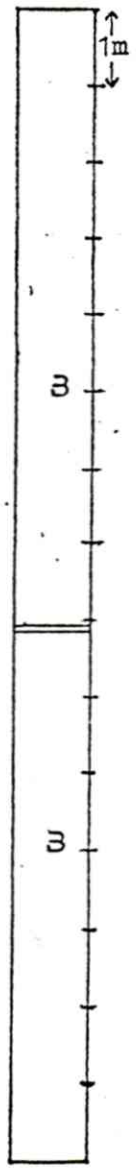
JIT-83

S

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 4,5 FRA 30 m TIL 45 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
	Weak green colour.			
		Traces of MoS_2, also py chp, pht in concordant bands 1-5cm. Py also as more diss. grains		
BRGR		cm concordant zone w. mm grains of MoS_2		4/2
Grey apl.				
BRGR	Green colo. in 15-20cm zones.	Traces of MoS_2		5/2
		"		
		"		
		"		

DATO: 24-7-83

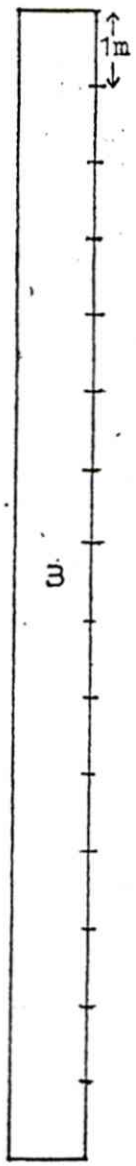
sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 5,6 FRA 45 m TIL 60 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE ppm Mo	ppm Cu	KASSE
		Traces of MoS_2, also weak min. of pht, py, chp	310	600	
		MoS_2	5	250	5/2
			190	270	
		MoS_2	$\bar{x}$: 168	373	
		MoS_2 on border of qz - vein.			
	Green colour of rock.				
BRGR					
		Grain of MoS_2			6/2
		MoS_2 in cm amf.-band.			
		Grains of MoS_2			
		--"--			
		--"--			
		--"--			

DATO: 24-7-83

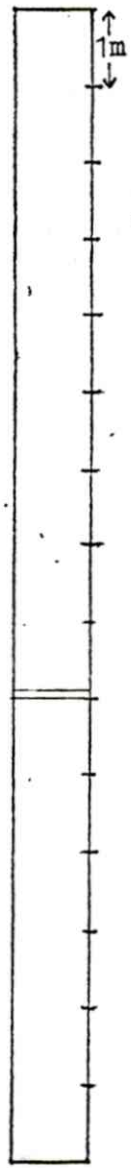
sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 7,8 FRA 60m TIL 75 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
	Ep.-alt..10-15cm qz-veins w. py,chp.	Py,chp,traces of MoS_2 Some pht.		
	Ep.-alt.	Traces of MoS_2		7/2
BRGR 10cm qz-vein.	Old breccia	Chp,py in qz-vein. Traces of MoS_2		
	Old breccia	Traces of MoS_2 in frac. of breccia. Py chp imp.in rock		8/2

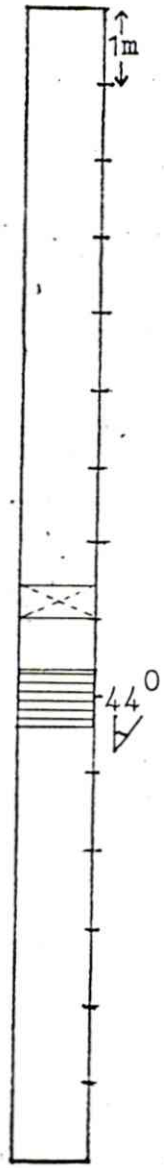
DATO:24-7-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 8,9 FRA 75 m TIL 90m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BRGR	Weak green colo.	Py,chp imp. in rock.Py in frac.		8/2
		Traces of MoS_2,py ,chp in old frac.		
Grey GN(?) w. fsp. blst No clear banding.				
Qz-rich vein	Green colo.	Py.chp,traces of MoS_2		
FGGN,dark grey.				
RGR				
Inhomogen. RGR				9/2

DATO: 24-7-83

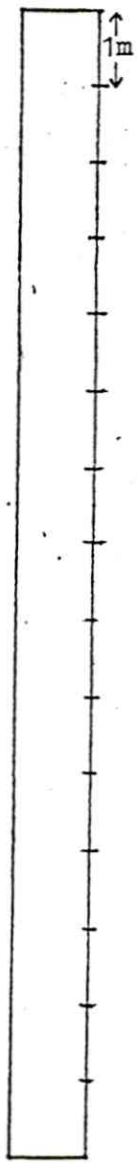
si n

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 10,11 FRA 90 m TIL 105m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
	~~Red alt. fsp.~~			
	Crushed zone ep.,chl.			
	Red,alt. fsp.			
RGR				10/2
				11/2

DATO: 26-7-83

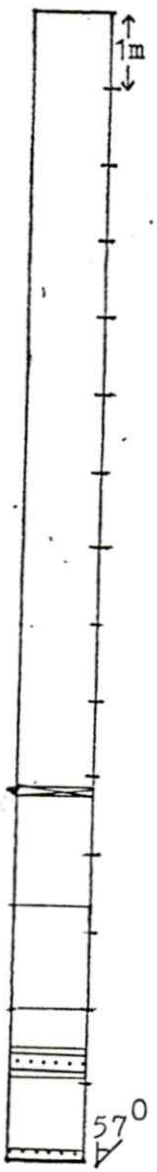
si n

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 11,12 FRA 105 m TIL 120 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
				11/2
RGR				
3cm qz-vein,conc.		Py,chp,2mm grains of MoS_2 on border of qz.		12/2
RGR				
FGGN	Green colo.			
RGR BGN	Red alt. fsp.			
RGR BGN	"	Py,(chp),grain of MoS_2 in 5mm dark band.		

DATO:27-7-83

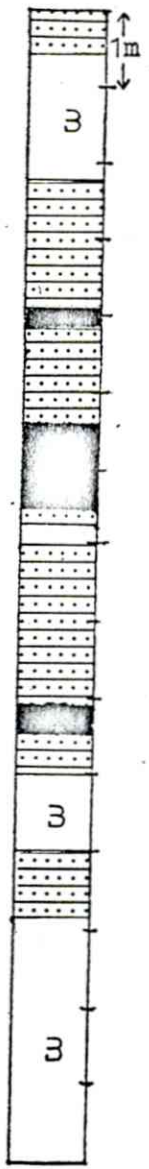
sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 13,14 FRA 120 m TIL 135m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN				
BRGR				
BGN				
Amf.				
BGN				13/2
Amf.				
BGN				
BRGR				
BGN				
Amf.				
BGN				
BRGR				
BGN				
				14/2
BRGR				

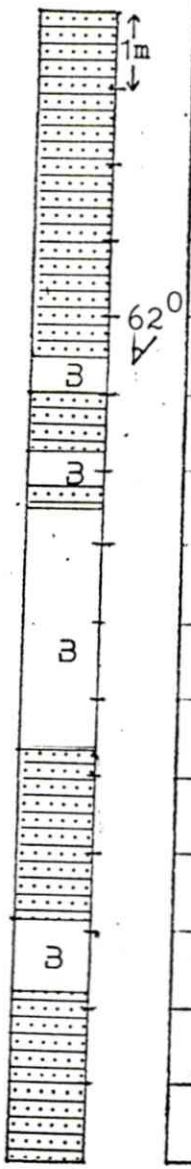
DATO:26-7-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 14,15 FRA 135 m TIL 150 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN		Pht,py,(chp)		
		----"------		14/2
BRGR				
BGN		Py,(chp) in dark bands og the GN		
BRGR				
BGN		"		
BRGR		Py,(chp) in dark band		
		Py,chp		
BGN				15/2
BRGR		Chp.pht(py in dark babds)		
BGN				

DATO:

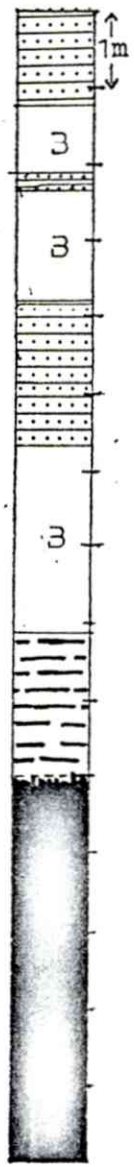
sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 16,17 FRA 150m TIL 165m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN				
BRGR		py,pht chp in cm bands inGN		
10cm conc. apl.				
BGN				16/2
Dark grey GN w. fsp. bl.		Imp.py.		
BRGR				
~~Dark (amfibolitic) GN~~ w. eyes of qz,fsp.				
Amf.				17/2

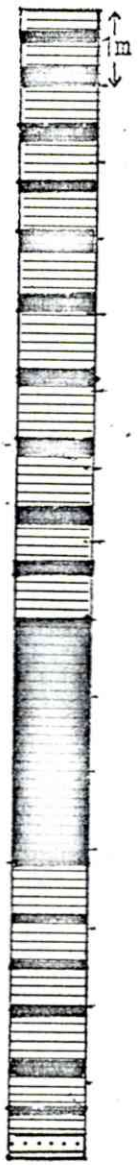
DATO: 1-8-83 _____ sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 17,18 FRA 165m TIL 180 m



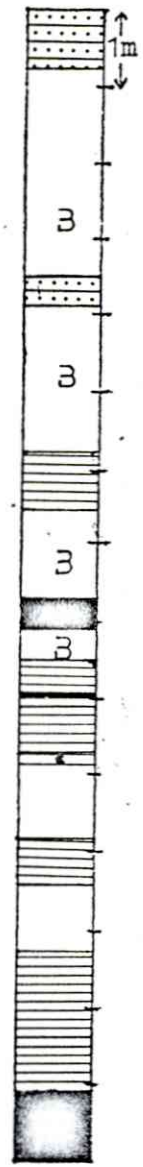
BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Mixing w. bands of FGGN and amf..Both rocks partly w. garnet.				17/2
Amf.				18/2
FGGN w. bands of amf. both rocks partly w. ga.				
BGN				

DATO: 1-8-83 _____ sign

JIT-83

KVINA GRUVER.
JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 19,20 FRA 180 m TIL 195m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN		Pht,chp.		
BRGR				
BGN				
BRGR				19/2
FGGN		Chp,(py).Chp in mm frac. 1/12 and conc.68 %.		
BRGR				
Amf.	Partly alt to glimmerit			
BRGR		Py,chp,grain of MoS_2		
		--"-- grains of MoS_2		
RGR				
FGGN		Py,chp in bands and frac.		
RGR		Py in frac.		20/2
FGGN				
Amf.				

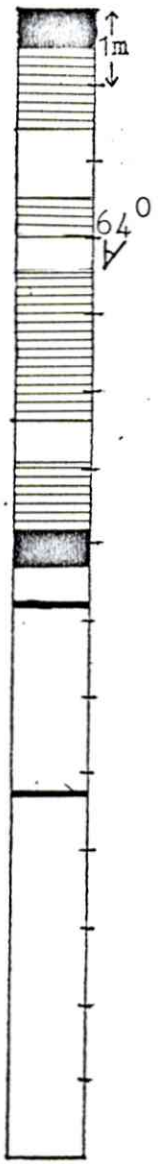
DATO: 1-8-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 20,21 FRA 195m TIL 210 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Amf.				
FGGN				
RGR				
FGGN		Weak imp. of py,chp conc. in FGGN.		20/2
RGR				
FGGN				
RGR				
FGGN				
Amf.				
RGR				
~~Amf./FGGN.~~				
RGR				21/2
Amf.				
RGR				

DATO: 2-8-83

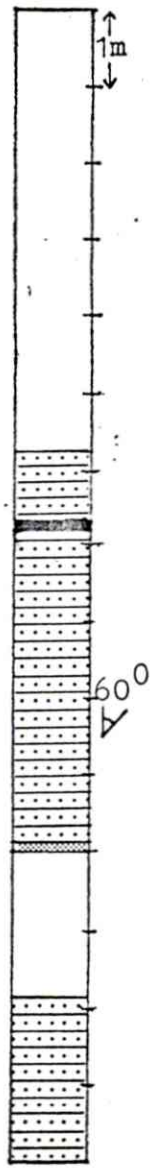
sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 22.23 FRA 210m TIL 225 m



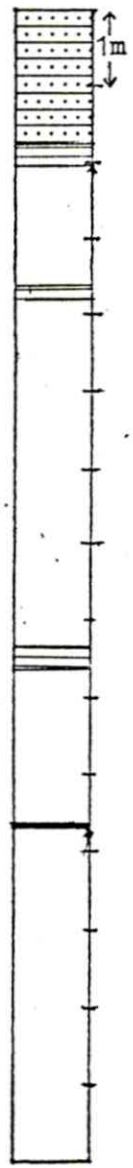
BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR				22/2
BGN Amf.		MoS_2 in cm disc. qz-ve. Weak imp. of pht.py,chp		
BGN				
~~Dark apl.~~ RGR				23/2
BGN				

DATO: 3-8-83

JIT-83

KVINA GRUVER.
JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 23,24 FRA 225m TIL 240 m



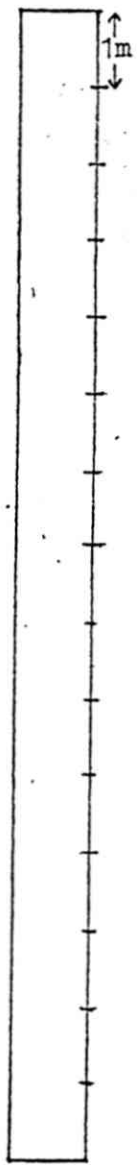
BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
		Py,chp,grain of MoS_2.		
BGN		Py,chp.		
FGGN				23/2
RGR				
FGGN				
		Chp,py in amf. band.		
RGR				
FGGN				
				24/2
Amf.				
RGR				

DATO: 4-8-83 si n JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 25,26 FRA 240m TIL 255 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
				25/2
RGR				
				26/2

DATO: 5-8-83

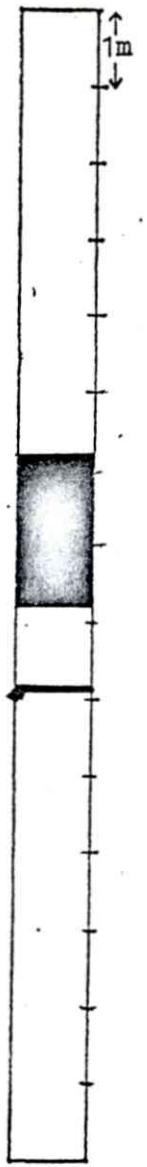
sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 2 KASSER NR.: 26,27 FRA 255 m TIL 270 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	Mo TIL ANALYSE	KASSE
				26/2
RGR				
			ppm Mo ppm Cu	27/2
Amf.	Partly alt. to glimmer.		30 1800	
			-5 75	
			$\bar{x}$: 13 938	
Amf.	----------"----------			
RGR				

DATO: 9-8-83

sign

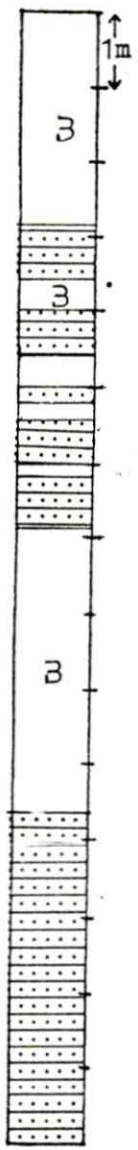
JIT-83

CORE
LOG
DH 4

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 4 KASSER NR.: 1,2 FRA 0 m TIL 15m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BRGR				
BGN				
BRGR BGN				
		.MoS_2 cm band w. pht,chp,py.		1/4
BRGR				
BGN				1/4

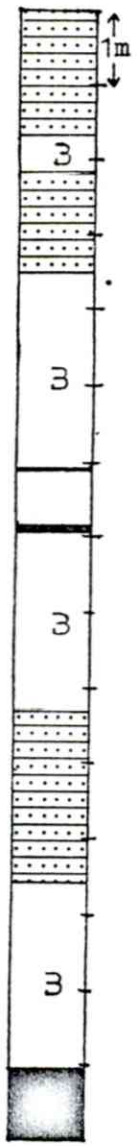
DATO: 11-8-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 4 KASSER NR.: 2,3 FRA 15 m TIL 30 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN		.Weak imp. of py (chp)		
BRGR				2/4
BGN		--------"---------		
BRGR	Close to vertical fractures w. rust.	Py in fractures.		
Amf.				
Amf.				
BGN				3/4
BRGR				
Amf.	Partly alt to glimmeri.	Chp,py,pht in cm. band in amf consisting of mm thick veins.		

DATO: 11-8-83

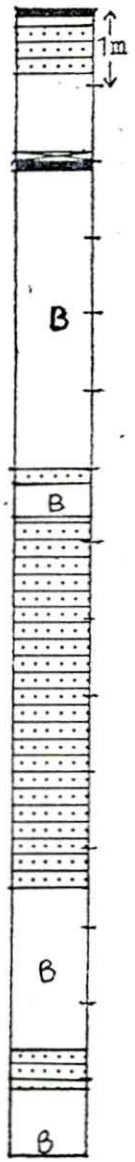
sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 4 KASSER NR.: 4,5 FRA 30 m TIL 45 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Amf. partly alt. to glimmerite.		Py,chp.		
BRGR		Chp,pht.		
BGN				
BRGR				
10cm. disc(?) qz-vein.		Pht,chp,py 2mm grains		
Amf./glimmeite.		of MoS_2		
		Small grains of MoS_2		
(B)RGR		Imp. of Py,chp pht.		
				4/4
BGN				
BRGR				
BGN		""		
BRGR				5/4
BGN		Py,chp,(pht)		
BRGR		MoS_2py,chp in 2cm disc qz.		

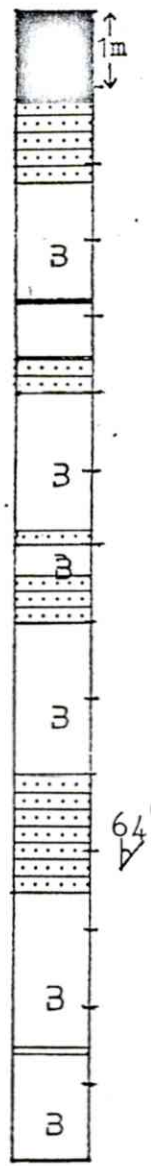
DATO: 12-8-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 4 KASSER NR.: 5,6 FRA 45 m TIL 60 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Amf.	Alt. to glimmerite			
BGN				5/4
BRGR				
Amf.				
BGN				
BRGR				
BGN				
BRGR				
BGN				
BRGR				6/4
BGN		Qz-vein w. chp,py Weak imp. pht,chp,py in BGN		
BRGR		Chp,MoS_2 in old ~~breech~~.		
FGGN				
BRGR				

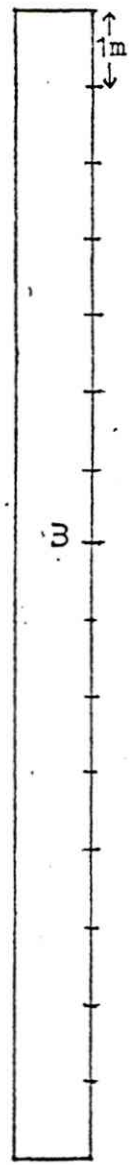
DATO: 12-8-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 4 KASSER NR.: 7,8 FRA 60 m TIL 75 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
	Green coloured	Py,chp,grains of MoS_2		
	Ep.-alt.	Qz-vein w.py,chp,pht		
		Pht,chp in BRGR Qz-vein w. py,MoS_2		
BRGR				7/4
				8/4

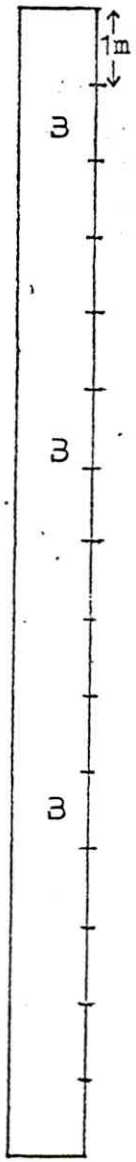
DATO: 13-8-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 4 KASSER NR.: 8,9 FRA 75 m TIL 90 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
	Green colour.	Py.		
BRGR	Fract. w. red alt colo. on fsp.			8/4
		Py,pht,(chp).		
		Py,chp,on limit of cm qz-vein.		
	Weak green colour.	Py,chp,grains of MoS_2.		
		Chp,py diss. in rock, 15 cm.		
Medium grained BRGR.	4cm zone w. green colo.	Pht,py,chp,MoS_2 Chp in fract. Chp,pht diss. in rock. Grains of MoS_2.		9/4
		cm bands w. pht,chp± MoS_2,not alt.	ppm Mo ppm Cu	
	Green colo. in 5cm zon	Py,chp,pht,grains of MoS_2.	60 670	
			40 570	

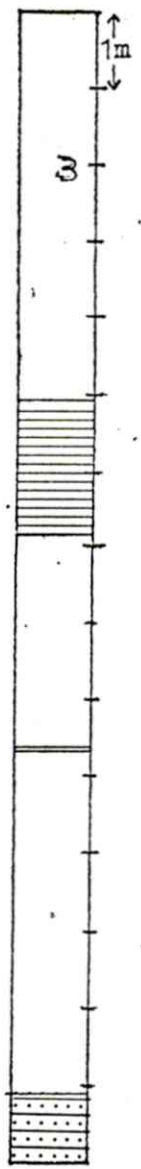
DATO: 11-8-83 _____ sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 4 KASSER NR.: 10,11 FRA 90 m TIL 105 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Medium gained, grey BRGR		Weak spread imp. of pht, chp, (py).		
				10/4
FGGN		Pht, py, chp, few grains of MoS_2. Py in yong frac.		
BRGR	Weak green colour.	Pht, py, chp in qz-rich bands, grain of MoS_2.		
Pegm.				
RGR		Pht, py, chp in thin band of BGN. Pht, py chp in old frac.		11/4
BGN				

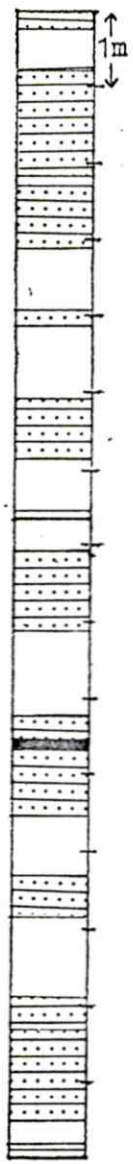
DATO: 11-8-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 4 KASSER NR.: 11,12 FRÅ 105 m TIL 120m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
		Py,chp,MoS_2 in qz inBGN		
		Chp,py,pht,grains of MoS_2 on border of qz-ve. Spred py,chp pht,in dark bands of the GN.		11/4
Highly mixed zone w. BGN/RGR.				
Amf.	Alt. to glimmerite.	Chp in amf.		12/4
	Green colo. in 2cm zone	Py,pht ,chp.		
		3cm qz-vein w. chp,pht, py.		
15cm qz-vein		MoS_2,chp,py on border of qz-vein.		
FGGN		Pht,chp,py in dark bands of BGN.		

DATO: 17-8-83

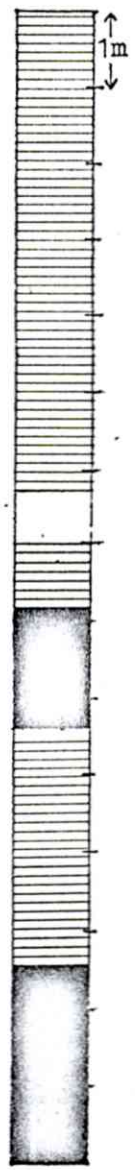
JIT-83

si n

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 4 KASSER NR.: 13,14 FRA 120 m TIL 135 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
		:Spread miner. of pht :chp,py,some gra. of Mo. :All sulfides in qz-ve- :in.		
	Weak green colour			
FGGN		Weak imp.of pht,chp,py also in cm thick bands in FGGN.		
	-------"--------			13/4
RGR				
FGGN w. garnet.	-------"--------			
Amf.	Alt. to glimmer. in bands.			
FGGN				
FGGN w. pieces of amf.				
				14/4
Amf.				

DATO: 17-8-83

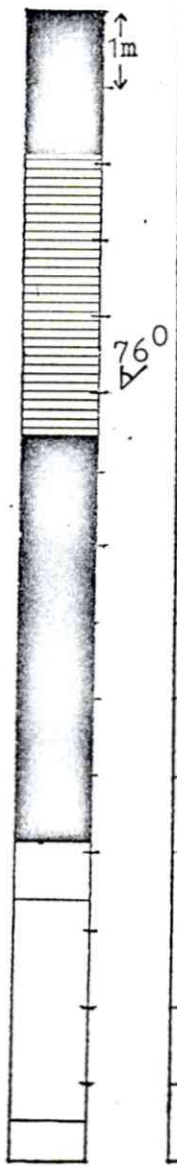
sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 4 KASSER NR.: 14,15 FRA 135 m TIL 150 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Amf.				
FGGN		Pht,py,chp conc. imp. in FGGN		14/4
		Pht,py,chp,mainly py imp. in FGGN.		
Amf.	Alt. to glimmerite in bands.			15/4
RGR				
Mixed RGR,FGGN,amf.		---------"---------		
RGR				

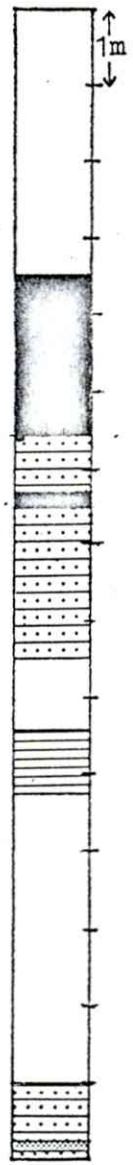
DATO: 17-8-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 4 KASSER NR.: 16,17 FRA 150m TIL 165 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M$_o$ TIL ANALYSE	KASSE
RGR				
Amf.				16/4
BGN				
Amf.				
BGN				
RGR				
Finegrained grey GN w. fsp. blast.				
RGR				17/4
BGN Apl.		Pht,chp,py grain of MoS_2 in BGN.		

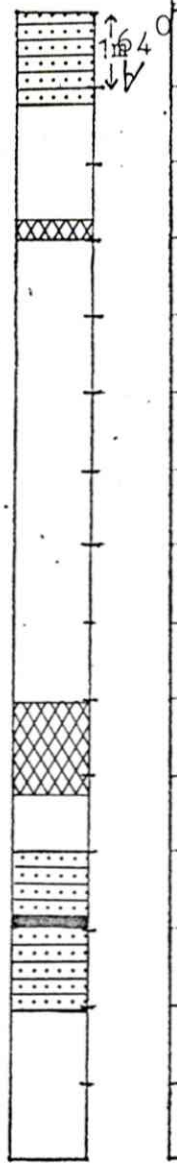
DATO: 17-8-83 _____ sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 4 KASSER NR.: 17,18 FRA 165m TIL 180 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN		Py, pht, chp, mainly py.		
		Chp in mm frac. 22^0.		17/4
Pegm.				
RGR.				
Pegm.				18/4
RGR				
BGN(amf.)				
RGR				

DATO: 17-8-83

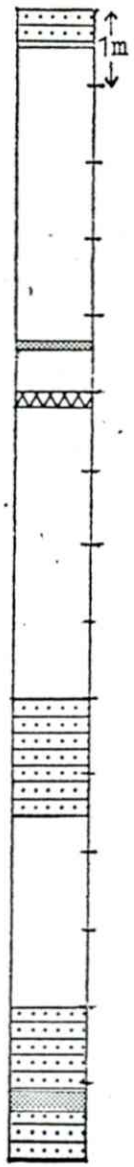
si n

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 4 KASSER NR.: 19,20 FRA 180 m TIL 195 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN				
RGR				
FGGN				
Pegmatite				19/4
RGR				
BGN	Weak green colour.	Py,chp,pht in the dark bands of the GN.		
Fract. rock w. qz-veins,fsp blast.Probably a granite.				20/4
BGN				
Grey apl.				

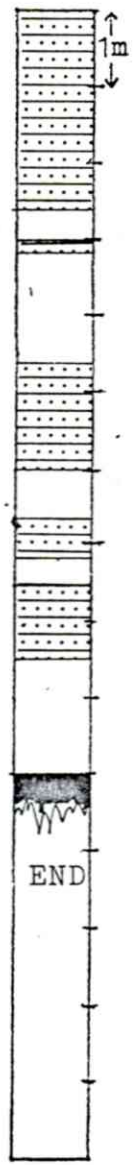
DATO: 18-8-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 4 KASSER NR.: 20,21 FRA 195 m TIL 210 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN				20/4
RGR				
BGN				
RGR				
BGN				
RGR				
BGN				
RGR				
BGN				
RGR				
Alt. amf.				21/4

DATO:18-8-83 _____ JIT-83

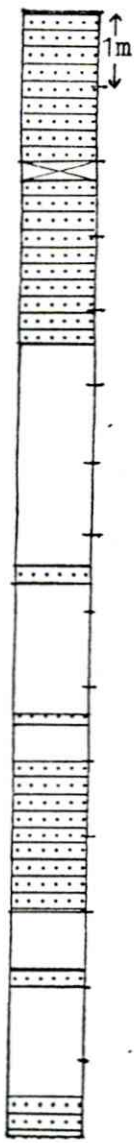
sign

CORE
LOG
DH 5

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 1,2 FRA 0 m TIL 15 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN				
Qz-vein		MoS_2 at lower limit of Qz-vein.		
BGN		MoS_2		
BRGR				1/5
BGN				
BRGR				
BGN				
BRGR				
BGN				
BRGR				
BGN				2/5
BRGR				
BGN				

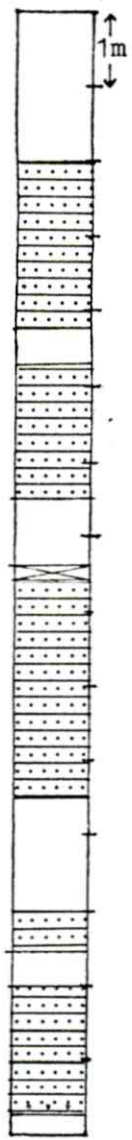
DATO: 22-8-83 S. ø

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 2,3 FRA 15 m TIL 30m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR				2/5
BGN				
RGR				
BGN				
RGR				
Qz-vein		Chp., some MoS_2 in Qz-vein		
BGN				
RGR				3/5
BGN				
RGR				
BGN				
RGR	Weak ep.-alt.	chp., pht., py., some MoS_2 in 20 cm wide zn		

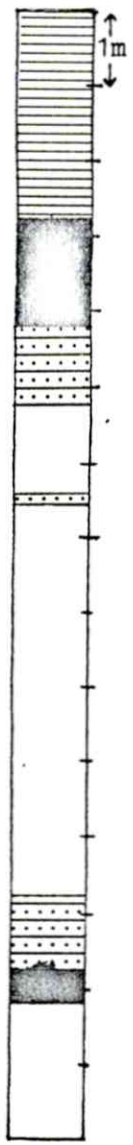
DATO: 23-8-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 4,5 FRA 30m TIL 45 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
FGGN w. garnet		.conc. pht-, chp-, py-, .impreg. in gn. .py on fracture.		4/5
Amf.				
BGN				
RGR				
BGN				
RGR				5/5
BGN		conc. pht-, chp-, py-, impreg. in gn.		
Amf. (concord.)				
RGR				

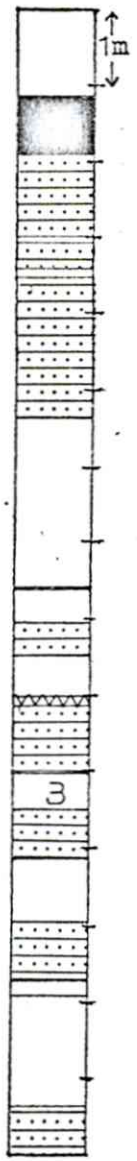
DATO: 23-8-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 5,6 FRA 45m TIL 60 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR				5/5
Amf.				
BGN				
RGR				
BGN RGR				
BGN				
RGR				6/5
Disc.10cm grey aplite.				
BGN RGR	Greenish colour.			
Pegmatite Dark grey GN w, fsp bl.				
BRGR Dark gr. GN w. fsp, bl.		Pht, py chp imp. Grains MoS_2 in dark GN.		
RGR				
BGN	Weak green colour. Thin amf. in GN partly alt. to glimmrite.	Some py impr..		
RGR				
BGN	Greenish colour.	Some py impr.		

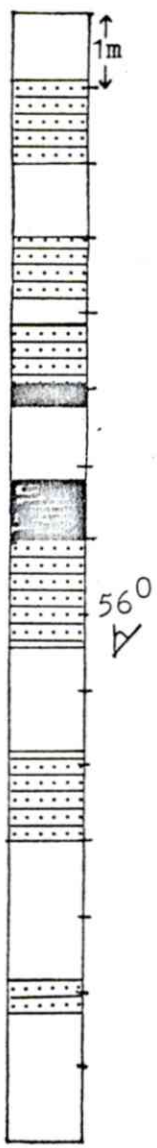
DATO: 23-8-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 7,8 FRA 60 m TIL 75 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Red-grey aplite-granite BGN RGR BGN RGR BGN Amf. Aplite-granite	Weak, green colour on rock	MoS_2 (chp,) in glimmerite-Qz.-bands between BGN and BRGR		7/5
Glimmerite w. qz.-fsp-lenses. BGN FGRG w.5-10cm thick bands of FGGN	Amf. alterd to gli.(?)	Pht-, chp- dissem. in rock		
BGN RGR BGN RGR	Weak green colour on rock	Weak impreg of py.		8/5

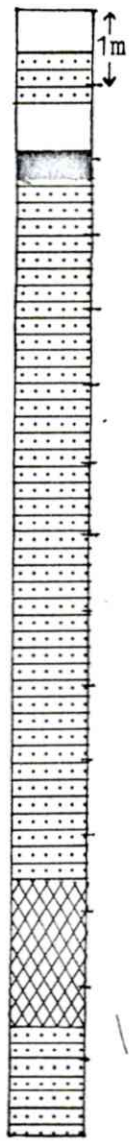
DATO: 24-8-83 _____ sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 8,9 FRA 75 m TIL 90 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR BGN RGR Amf.	Amf. altered to glim.	.Weak impr. of pht.,chp :and py.,in dark bands :of BGN		8/5
BGN		---------"---------		9/5
Pegmatite				
BGN				

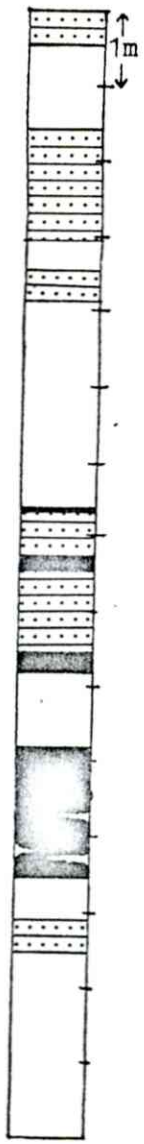
DATO: 28-8-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 10,11 FRA 90 m TIL 105 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN				
RGR				
BGN	Ep.-altered	Py.,chp. in qz.-vein		
RGR				
BGN				
RGR				10/5
Amf.				
BGN				
Amf.				
BGN				
Amf.				
RGR				
Amf. w. qz.-veins				
RGR				
BGN				11/5
RGR				

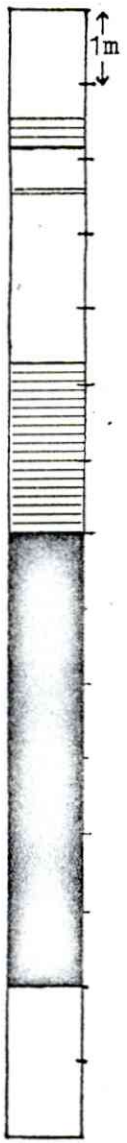
DATO: 28-8-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 11,12 FRA 105 m TIL 120 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR w. 5-10cm bands of FGGN		Py in fracture, py, chp impr. in FGGN		11/5
FGGN		Fract. w. py., chp. Pht., py., (chp.) diss. in FGGN. Py. in close to vertical frac.		12/5
Amf.	Banded alter. to glim.	Clusters of py. in amf		
RGR	Crushed RGR w. red altered fsp.			

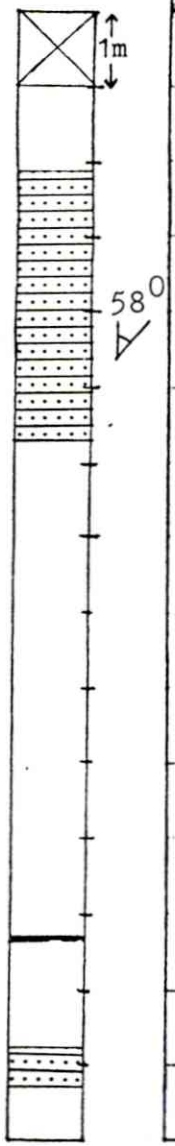
DATO: 24-8-83 _____ sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 13,14 FRA 120 m TIL 135 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
QZ				
BRGR	weak green colour			
BGN				13/5
(B)RGR				
Amf.				14/5
BGN				

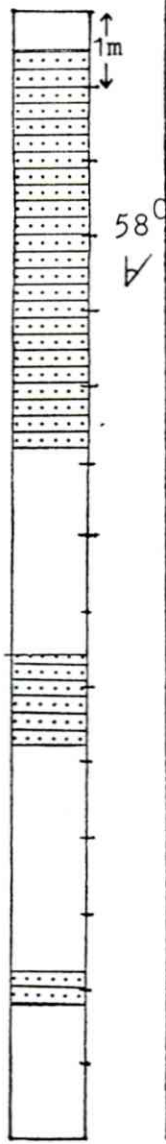
DATO: 26-8-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 14,15 FRA 135 m TIL 150 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
(B)RGR				14/5
BGN				
RGR				15/5
BGN				
Dark grey gn. w. qz.-fsp.-blastesis.				
RGR				
BGN				
RGR				

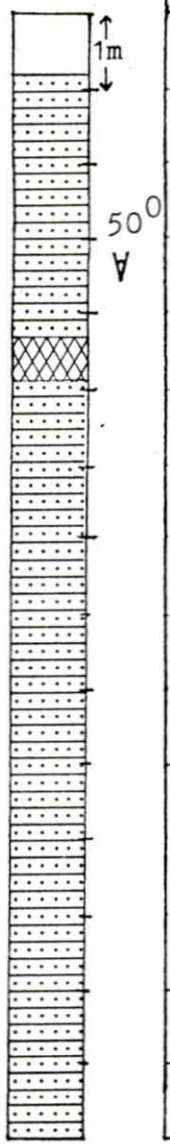
DATO: 26-8-83 si

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 16,17 FRA 150 m TIL 165 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR				
BGN	greenish colour on GN	Grains of MoS_2 in the dark bands of the GN.		
Pegmatite				16/5
BGN				
				17/5

DATO: 26-8-83

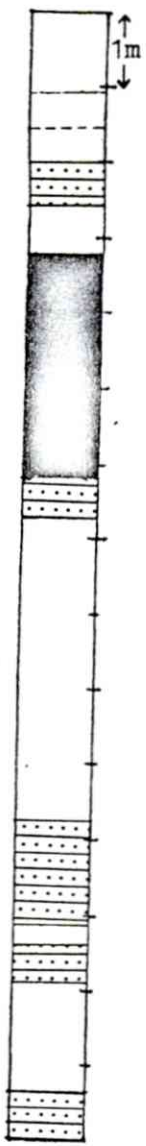
sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 17,18 FRA 165 m TIL 180 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR Altered zone between GR/BGN BGN RGR	Hazy texture, weak green colour on fsp.	Spot with chp., py. Grains of MoS_2, impreg. of pht., chp., py.		17/5
Amf. BGN		1-5cm wide qz-veins w. MoS_2 along border against amf..Chp,(py).		
RGR				18/5
BGN RGR BGN		Weak imp. pht., chp., (py)		
RGR BGN		Pegm. w. pht., chp. Imp. in GN over pegm. MoS_2 along border GN/pegm.		

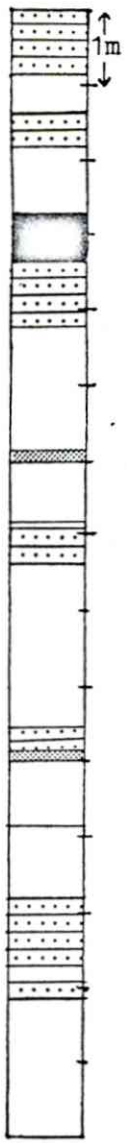
DATO: 30-8-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 19,20 FRA 180 m TIL 195 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN				
RGR				
BGN				
RGR				
Amf.				
BGN				
		10cm qz vein w. pht,chp		
RGR				19/5
Apl.				
RGR		Weak impr. of pht,chp.		
BGN				
RGR				
		3cm qz-vein with MoS_2		
BGN		on the border to thin		
Apl		amf.		
BGN				
RGR		5cm qz w. pht,chp,py.		
BGN		3cm qz w. grain of MoS_2		
RGR				20/5
BGN				
RGR				

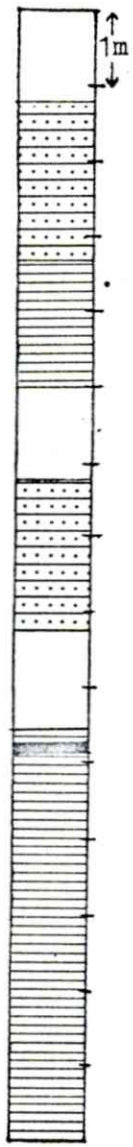
DATO: 30-8-83 si.

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 20.21 FRA 195m TIL 210m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
FG grey GN-GR		3cm qz w. grains of MoS_2 and pht,chp,py.		
BGN				20/5
FGGN		Weak impreg. of pht, chp,py.in GN.		
RGR				
BGN				
RGR				
Amf.				
FGGN				21/5

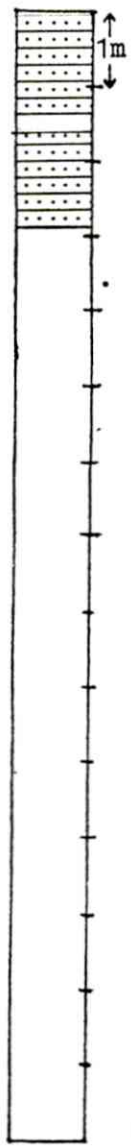
DATO: 30-8-83 _____ sign.

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 22,23 FRA 210m TIL 225 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN RGR BGN				22/5
RGR				23/5

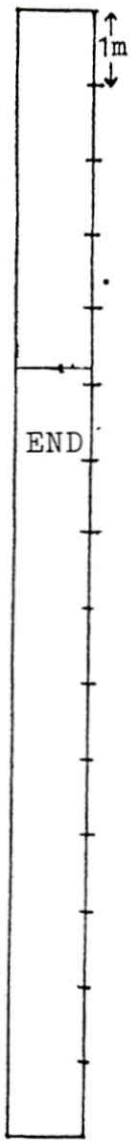
DATO: 31-8-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5 KASSER NR.: 23 FRA 225m TIL 230m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR				23/5

DATO: 31-8-83 sign

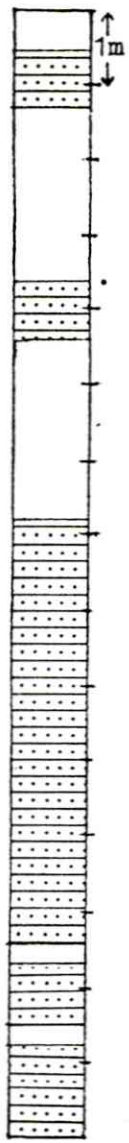
JIT-83

CORE
LOG
DH5B

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 1.2 FRA 0m TIL 15 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR BGN RGR				
BGN	Weak green colour.	Weak impr. of pht,chp. py.		1/5B
RGR				
BGN-dark grey w. fsp.-blastesis				
BGN				2/5B
RGR BGN RGR				
BGN	20cm zn. of ep. alt.	Weak imp. of chp,py.		

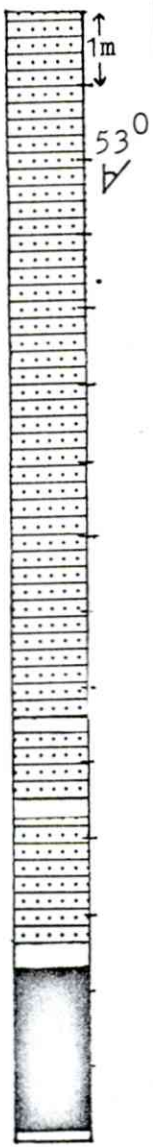
DATO: 1-9-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 2,3 FRA 15 m TIL 30 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	Mo TIL ANALYSE	KASSE
				2/5B
BGN				
10cm pegmatite		2,1.5cm^2 spots of MoS_2 py in altered spot.		
BRGR	Green alt.			3/5B
BGN				
RGR		.mm thick fract. 56° w. chp.Small qz-veins w. chp and grains of MoS_2.pht impr. in rock under qz-veins.		
BGN				
RGR				
Amf.				

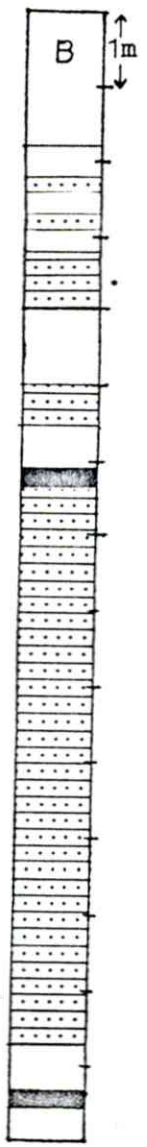
DATO: 1-9-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 4,5 FRA 30m TIL 45 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BRGR				
Alternating BGN/RGR.		qz w. chp.in upper part		
BGN				
RGR	Vertical frac. w. rust			
BGN				4/5B
RGR				
Amf.				
	Ep. alt.	Weak impr. of py (pht), also in fract.		
		Grains of MoS_2 on border of qz-rich band in GN		
BGN				
		Grains of MoS_2		
				5/5B
		Impreg. of pht,py.		
RGR				
Amf.				
RGR		Grains of MoS_2 in qz-v.		

DATO: 1-9-83

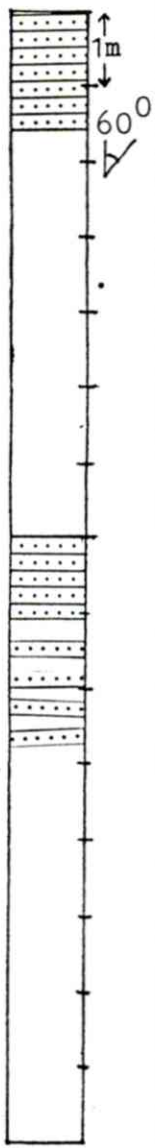
si.

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 5,6 FRA 45m TIL 60 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN		Pht, grains of MoS_2 in biotite-rich bands. MoS_2 in qz-vein. 2mm vein w. py (chp).		5/5B
RGR				
BGN		impreg. of pht, (chp, py)		
Alternating RGR/BGN, w. 1-2cm bands of glimmerite.				5/5B
		Grains of MoS_2 in qz. Pht, chp. MoS_2 on border qz/glimmerite band (cm).		
Pegmatite				

DATO: 2-9-83

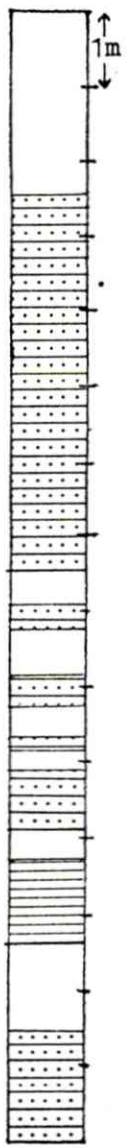
si. n

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 7,8 FRA 60m TIL 75 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR				
BGN		3cm qz w. MoS_2,qz-vein discordant. :Imp. of pht,(py,chp) :in GN.		7/5B
RGR BGN RGR BGN				
BGN RGR		Chp,pht in biotite rich band. --------"------+MoS_2		
FGGN RGR				8/5B
BGN				

DATO: 2-9-83

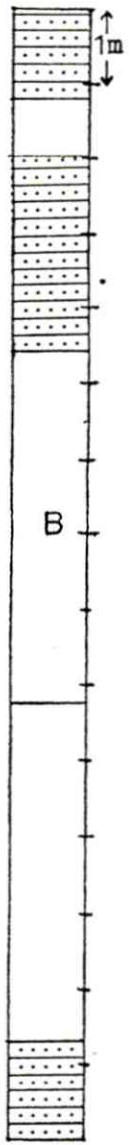
sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 8,9 FRA 75 m TIL 90m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN				
RGR				
		4cm imp.of pht		8/5B
BGN		Pht imp. in biotite rich bands.		
RGR				
BRGR				
Grey-green apl.-GR.	Green alt.	Pht in qz -rich band.		
		----------"---------		
				9/5B
			ppm Mo / ppm Cu	
RGR			50 / 230	
			150 / 140	
			$\bar{x}$:100 / 185	
Dark grey GN w. fsp.-blastesis.	Frac w. ep. alt.	:Pht,chp,py in rock,py :in fracture. ·grains of MoS_2		

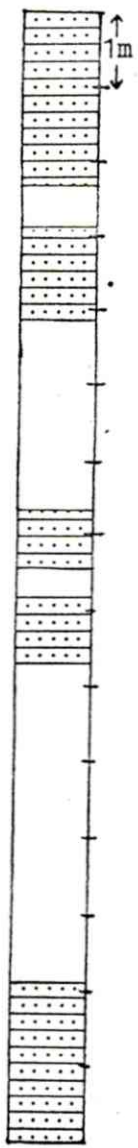
DATO: 2-9-83 si

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 10,11 FRA 90m TIL 105 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
		Grains of MoS_2. Pht, chp.		
BGN	Ep. alt.	Pht, chp, py imp. especially in biotite-rich bands in BGN.		
RGR				
BGN	--"--	-------"----------		
RGR				10/5B
BGN	--"--	-------"----------		
RGR				
BGN	--"--	2 grains of MoS_2 Pht, chp, py in BGN.		
RGR				11/5B
BGN				

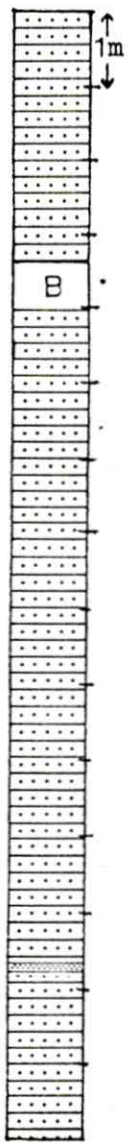
DATO: 2-9-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 11,12 FRA 105m TIL 120 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	Mo. TIL ANALYSE	KASSE
BGN	Weak green colour.	Pht,chp,(py),imp. in GN		11/5B
BRGR				
Grey inh. GN w. fsp.-blastesis.				
BGN		3cm qz w. MoS_2 pht,chp, py.		12/5B
Apl.	Green colo. on GN	Qz-vein w. MoS_2		
		Qz-vein w. MoS_2,pht,chp. py.		

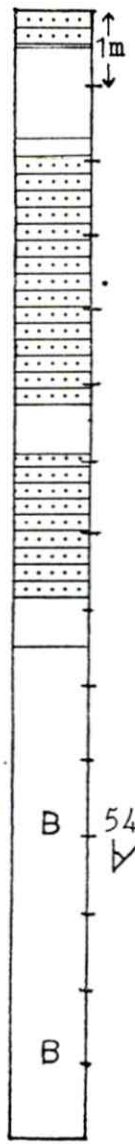
DATO:5-9-83 si

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 13,14 FRA 120 m TIL 135 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE ppm Mo	ppm Cu	KASSE
BGN Red-grey apl.-GR. RGR		2-3mm grains of MoS_2 diss. in the more coar-grained parts of the rock. MoS_2 in qz vein.	90	60	
BGN		MoS_2 on border of qz-vein in glimmerite band.			13/5B
RGR					
BGN					
(B)RGR		.Grains of MoS_2 in cm :veins of qz-fsp. :cm band w. pht chp. :			
Grey apl.-granite with some, cm big fsp. grains. Weak foliation	The GN gradually becom-es more altered, with greenish fsp.	1-10 cm bands w. imp. of pht and chp. Traces of MoS_2 in conc bands, not together w. pht and chp.			14/5B

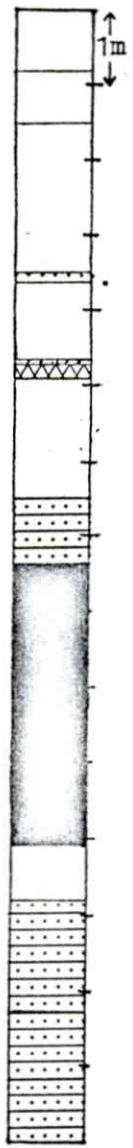
DATO: 5-9-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.:5B KASSER NR.: 14.15 FRA 135 m TIL 150m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Grey apl-GR.	Ep. alt.	10cm band w. imp. of pht,py,chp.		
RGR				14/5B
BGN				
RGR				
BGN				
Pegm				
Altern RGR/BGN				
BGN		Pht,chp,py in fract. 26°.		
Amf.				15/5B
RGR				
BGN,w.3-10cm qz-veins.				

DATO: 6-9-83

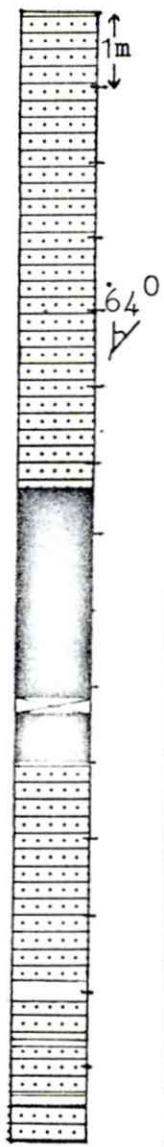
si n

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 16,17 FRA 150m TIL 165 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN		Pht,chp impr. in BGN Traces of MoS_2 under qz-vein.		16/5B
Amf.				
Qz-vein		MoS_2 in qz-veins upper part.		
Amf.				
BGN				17/5B
Altern. BRGR/BGN				

DATO: 6-9-83

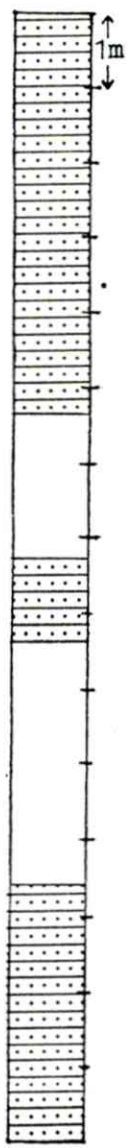
sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 17,18 FRA 165 m TIL 180 m



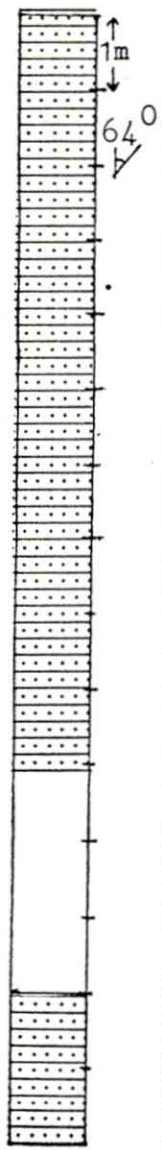
BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
				17/5B
BGN		Weak imp. of pht,chp,py in BGN		
GRG				
BGN		2cm qz-vein w. MoS_2 Py in GN and FRact.		
RGR		4cm qz w. chp 2cm qz w. MoS_2		18/5B
BGN		Traces of MoS_2 and chp in dark band in GN.		

DATO: 6-9-83 si.n JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 19,20 FRA 180m TIL 195 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
	5cm ep-alt,biotite rich conc. band w. py. 4cm conk. qz-vein above alt. zone,not minerali.			19/5B
BGN	2cm qz-vein w. 10cm ep.-alt	Weak imp. of chp,pht,py Py,pht in alt. zone.		
RGR	15cm ep.-alt. w. 4cm 4cm qz-vein.	impr. of py,pht,chp.		20/5B
BGN		MoS_2(py) in conc. pegm.		

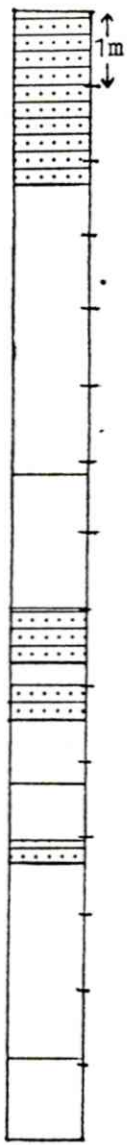
DATO: 9-8-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 20,21 FRA 195 m TIL 210 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN	Ep.-alt w. 2cm qz-vein	pht,chp in alt. zone.		20/5B
RGR	ep.-alt (4cm).			
No core				
BGN w. bands of gar.-amf red apl-GR	Weak ep.-alt.	pht,chp,py in the dark bands of GN		21/5B
BGN				
RGR				
No core				
BGN	ep.-alt.,fractures	Py,pht,(chp).		
RGR				
No core				

DATO: 9-9-83 _____ JIT-83

sign

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 21,22 FRA 210m TIL 225m

BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
No core				
FGGR				
Grey apl				
FGGR				21/5B
BGN	Fractured w. red alt fsp			
Amf.	Weak green colour	MoS_2 in biotite-rich band. Py, some chp in amf.		
BGN				
BRGR				
BGN				
BRGR				
BGN				
BRGR				
Amf.				22/5B
		Impreg. of pht.		
BGN				

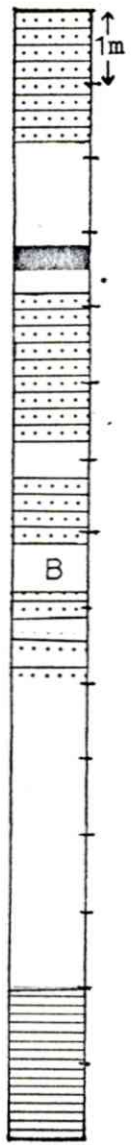
DATO: 9-9-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 24,24 FRA 225 m TIL 240 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Dark grey BGN		Impr. of pht,py,chp		
RGR				23/5B
Conc. amf. RGR				
BGN	Weak green colo. on fsp.	4cm conc. imp. of pht.		
(B)RGR				
BGN	Ep.-alt w. qz-vein.	MoS_2 in 3cm qz-vein (py,chp)		
BRGR				
BGN				
RGR				24/5B
	Ep.-alt.	py		
FGGN				

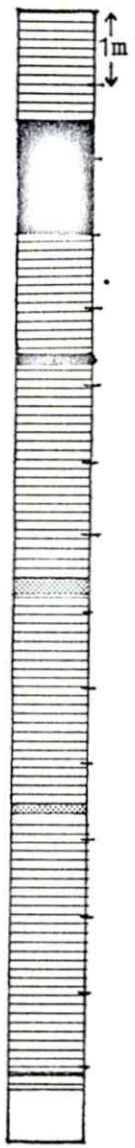
DATO: 9-9-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 25,26 FRA 240m TIL 255 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
FGGN		Py in fractures down to 247m		
Garnet-amf.				
FGGN		Disc. pht,py		
Amf.	10cm ep.-alt.	Py,grains of MoS_2		25/5B
FGGN	Ep.-alt.	4mm conc. band w. pht (py),traces of MoS_2.		
Disc.apl				
Disc.apl				
		4mm conc. bands w. pht. some cht.		26/5B
Amf.	Weak ep. alt.	Py,(chp) in GN.		
FGGN				
RGR				

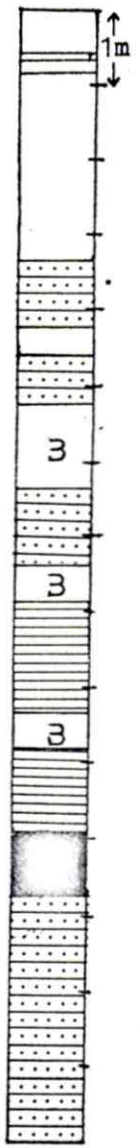
DATO: 12-9-83 si

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 26,27 FRA 255 m TIL 270 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR w. 2-5cm bands of FGGN				
(B)RGR	Weak green colour	Pht,chp,traces of MoS_2 in GN,on contact to RGR		26/5B
BGN				
(B)RGR				
BGN	---------"------in GN	Vein w. chp,pht,py.		
BRGR				
BGN		Pht,chp,(py)+traces of MoS_2 diss. in rock.		
BRGR				
FGGN w. 1-5cm bands of GR.				
BRGR				27/5B
Amf.				
BGN		4cm qz-vein w. MoS_2. Chp in yong vertical mm. fracture.		
	3cm-------"----------	Pht,pt,chp in alt. zone		

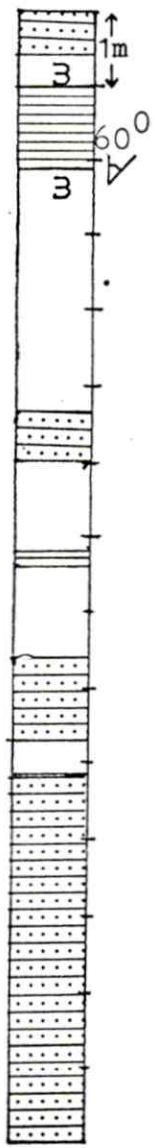
DATO: 12-9-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 28,29 FRA 270 m TIL 285 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN		4cm biotite-rich band w.conc. pht,chp(py)		
BRGR	Ep-alt. in disc. zone 20° w. py	10cm vertical qz-vein w.py.		
FGGN				
BRGR				
RGR		biotite-rich band(1cm) (conc.),w. pht,chp.		28/5B
BGN				
RGR				
FGGN				
RGR				
BGN	Weak green colour in narrow zones 40cm.	Pht,chp,(py)		
RGR	Hazy,white alt. fsp. close to vertical frac. w. qz,py. Fsp.-blast.Fsp red-brown in colour,some places greenish.	Pht,chp,,py,traces of MoS_2 in dark bands of the GN.		
BGN				29/5B
		Qz-vein w. pht.chp.		

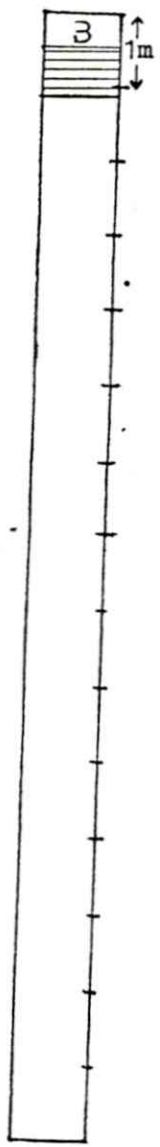
DATO: 13-9-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 29,30 FRA 285 m TIL 300 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BRGR FGGN		Weak imp. of py in FGGN		29/5B
RGR		Pht,chp in biotite-rich,conc.band.(20cm). Conc. miner. in bands. Traces of MoS_2 together w. pht and chp.		30/5B

DATO: 14-9-83

JIT-8

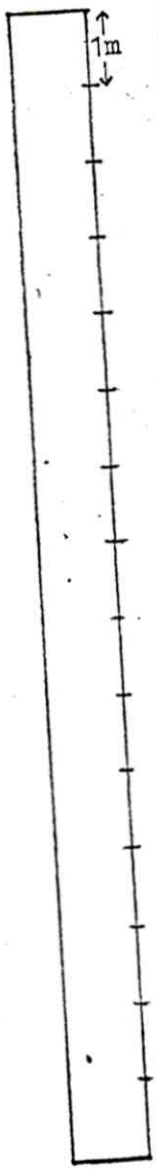
KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B

KASSER NR.: 31, 32

FRA 300m TIL 315m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
				31/5B
RGR				
				32/5B

DATO: 19-9-83

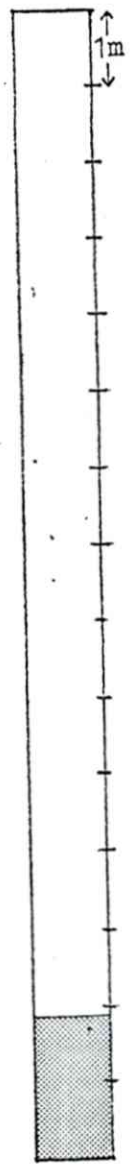
sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 32,33 FRA 315 m TIL 330m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
				32/5B
RGR				33/5B
Red grey apl. w. cm red fsp. blastesis.				

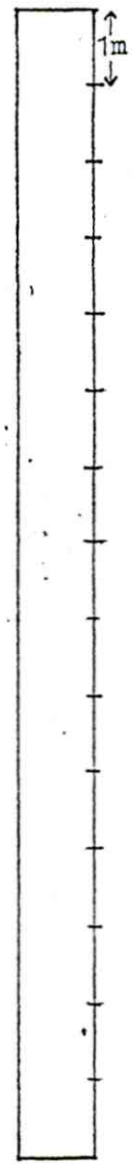
DATO: 19-9-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 34,35 FRA 330m TIL 345 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
				34/5B
RGR				
				35/5B

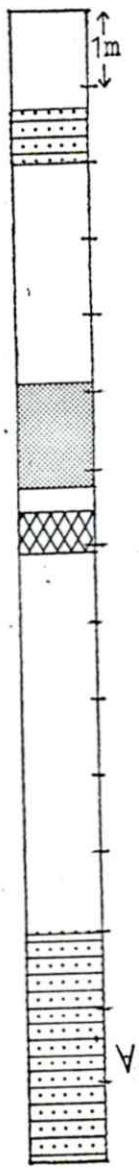
DATO: 19-9-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.:5B KASSER NR.: 35.36 FRA 345m TIL 360 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR				
BGN		Pht, chp in dark bands of gn.		35/5B
RGR				
Red grey apl. w. red fsp. blast. RGR				
Pegm. w. band of pegm.	252.30: mm frac. w. py. ∀340			
RGR				36/5B
BGN		0.5-1cm conc. bands w. pht, chp-MoS_2 in gn.		

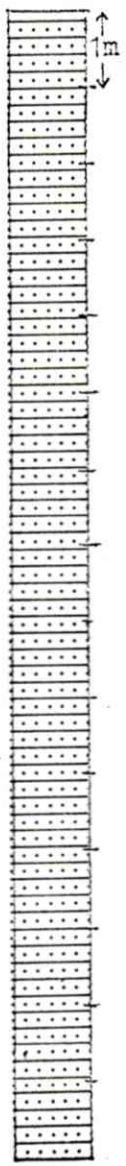
DATO: 20-9-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 37,38 FRA 360 m TIL 375m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
		Pht,chp,py in pegm.vein		
	Green colo.	Chp,pht,grains of MoS_2		
	Red brown fsp.	Imp. weakens.		37/5B
BGN				
		Pht,chp,(py) conc. in gn,also consentrated in cm bands.Some grains of MoS_2.		38/5B

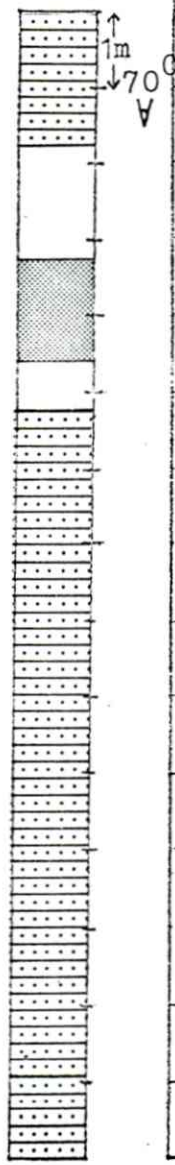
DATO: 22-9-83 _____ JIT-83

sign

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 38,39 FRA 375 m TIL 390m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN	10cm dark grey apl. crossing gn. w. fall 45° in opposit dir. Light apl. w. strike 90° on grey apl and fall 50°. Miner. in gn is cut by apl.	Pht, chp, (py) + grains of MoS_2.		
RGR				38/5B
Dark grey apl w. red fsp blastesis.				
RGR				
	3cm zone of greencolo.	py, pht, chp ± grains of MoS_2. MoS_2 also alone.		
BGN				39/5B
	Weak gr. colo. of gn.			

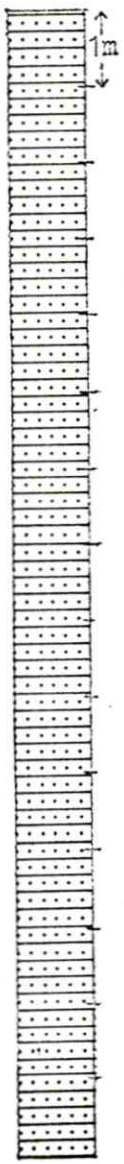
DATO: 22-9-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.:5B KASSER NR.:40,41 FRA 390m TIL 405 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN		Pht,chp,py,some grains MoS_2.		40/5B
BGN				41/5B

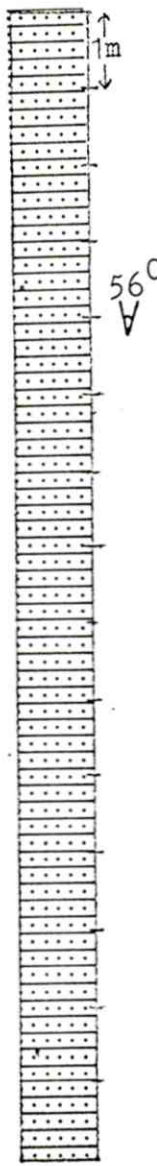
DATO:27-9-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.:5B KASSER NR.: 41,42 FRA 405m TIL 420 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN		Chp,pht,often in cm bands.Some MoS_2 together w. other sulfides or alone as spread grains making up conc."bands"		41/5B
BGN	20cm ep alt.Close to vertical frac. w. Chp, grains of MoS_2.			42/5B

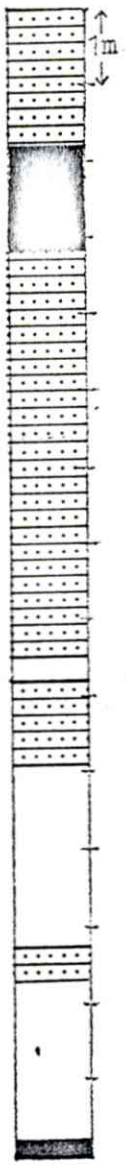
DATO: 18-10-83 si. n

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 43,44 FRÅ 420m TIL 435m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN				
Amf.				
				43/5B
BGN	mm frac. w. chp, pht ∀ 18°.	Mineraliz. as described last page.		
(B)RGR				
BGN				
RGR				44/5B
BGN				
RGR				
Amf.				

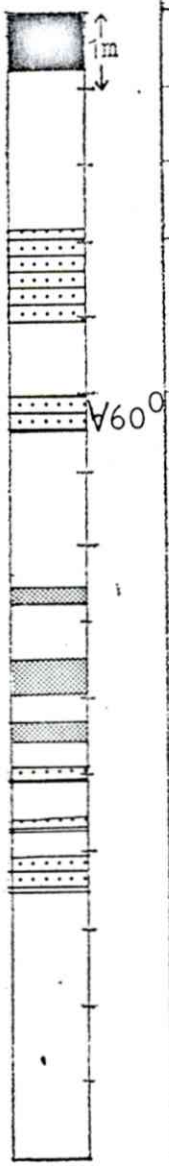
DATO: 18-10-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.:5B KASSER NR.: 44,45 FRA 435m TIL 450 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Amf.				
RGR		mm biotite-rich bands w. py,chp,pht in gn and rgr.		44/5B
BGN		Grains of MoS_2 in GN		
(B)RGR				
BGN				
RGR				
Conc red gr.apl.				
RGR Conc. red-grey apl.				
Mixed zone				45/5B
BGN	Fsp.-blast.3 x 2cm	Some conc. pht.chp,py.		
RGR				

DATO: 18-10-83

si n

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.:5B KASSER NR.: 46,47 FRA 450m TIL 465 m

BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR				46/5B
Amf.				
RGR				
BGN	Weak green colo. of gn.	Pht,chp,py and grains of MoS_2 in gn.		47/5B
BGN				
BGN				

DATO: 18-10-83

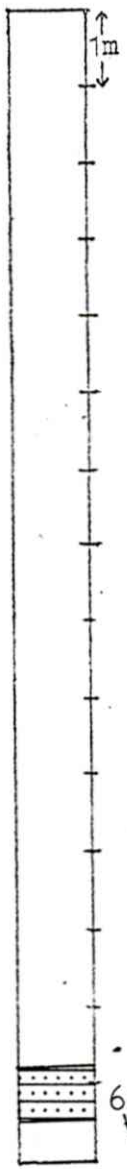
sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 47,48 FRA 465 m TIL 480 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
				47/5B
RGR				48/5B
BGN, lenses of fsp. blast.		Pht, chp in gn.		

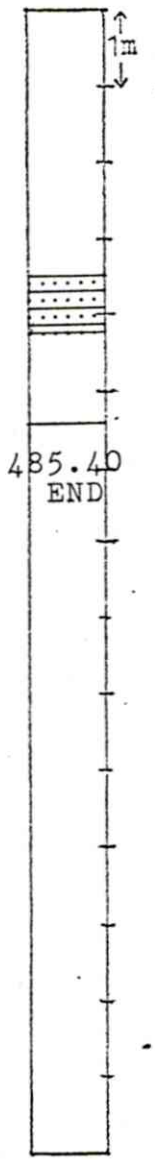
DATO: 18-10-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 5B KASSER NR.: 49 FRA 480 m TIL 495 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR				
BGN		Pht,chp,(py).		49/5B

DATO: 18-10-83 sign

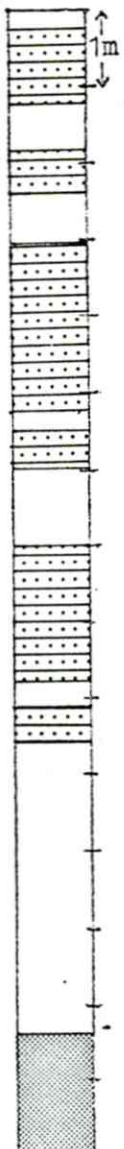
JIT-83

CORE
LOG
DH 7

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 1,2 FRA 0 m TIL 15m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR (Rusty)				
BGN				
BRGR	Green colo.			
BGN				
BRGR				
BGN				1/7
BRGR		Some py imp.		
BGN	—"—			
RGR				
BGN				
RGR				
BGN				
RGR				2/7
Red grey apl..				

DATO: 18-10-83 sig

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 2,3 FRA 15 m TIL 30 m

BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Grey apl.				2/7
RGR (rusty) w. bands of GN	Fractured zone			3/7

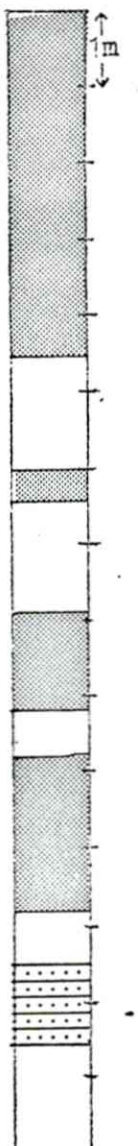
DATO: 18-10-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 4.5 FRA 30 m TIL 45 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Red-grey apl.				4/7
RGR				
Red-grey apl.				
RGR				
Grey apl.				
RGR				
Grey apl.		Fine grained imp. of sulfides. Conc. cm band w. py, chp.		5/7
RGR				
BGN				
RGR				

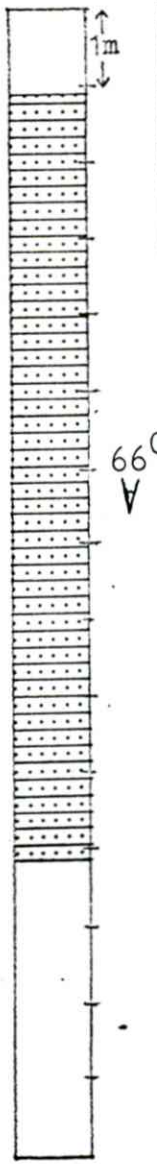
DATO: 18-10-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 5,6 FRA 45 m TIL 60 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR				
	Green colo.	0.5-3cm conc. bands w. pht,chp,py.		5/7
BGN	Weak green colo.	Weak imp. of ~~pht~~,chp,py		
Dark biotite-rich GN				
BGN Dark,biotite-rich GN				6/7
BGN				
RGR				

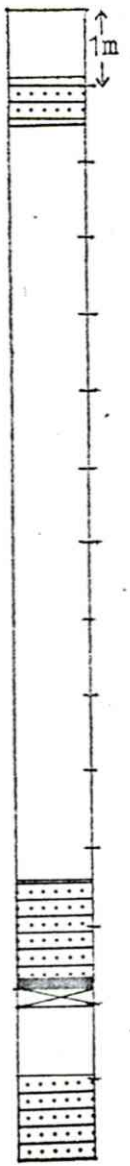
DATO: 18-10-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 7,8 FRA 60m TIL 75 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M$_o$ TIL ANALYSE	KASSE
RGR				
BGN				
RGR				
BRGR		Conc. cm band w. py,chp and MoS_2.		
RGR				
BRGR				
RGR				7/7
BRGR				
RGR				
BGN	Greenish colo.	Py,grains of MoS_2 on bo rder between amf. and Qz.weak min. in the GN.		8/7
Amf.				
Qz				
RGR				
BGN				

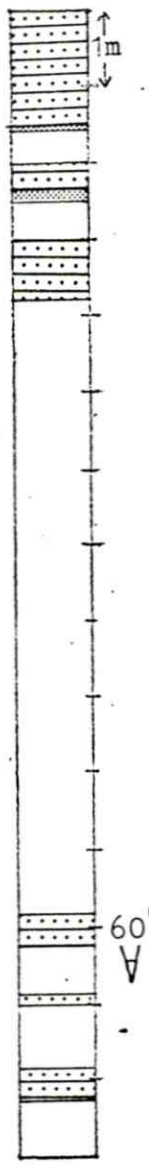
DATO: 18-10-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 8,9 FRA 75 m TIL 90 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
BGN				8/7
Conc. apl. BGN				
Conc. red-grey apl.fsp. RGR	bl.			
BGN		Weak imp. of py,chp,pht.		
				9/7
RGR				
BGN				
RGR	Weak,green colo. on GN	pht,chp,conc.imp. in GN		
BGN				
RGR		Small grains of MoS_2 in GN		
BGN				
RGR				

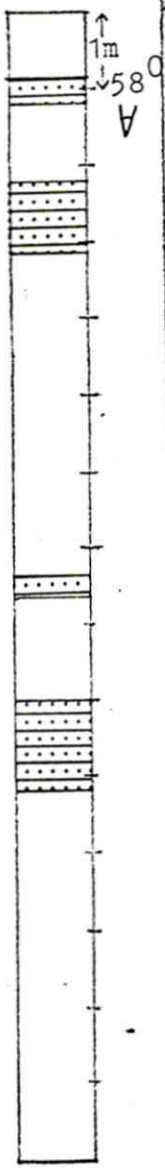
DATO: 18-10-83 si.

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 10,11 FRA 90 m TIL 105 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR				
BGN		Weak min. of pht,py,chp		
RGR		Cm conc. band w. chp.		
BGN		Pht,py,chp,grains of MoS_2		
				10/7
RGR				
BGN				
RGR				
BGN		10cm pegm w. chp,py ∀20°.		
RGR				11/7

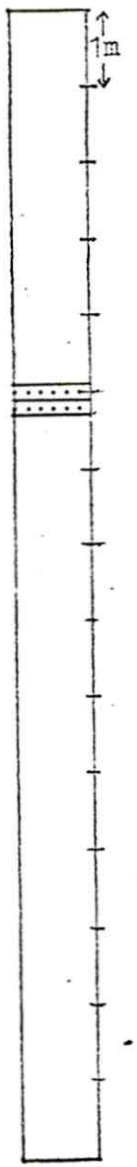
DATO: 18-10-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 11,12 FRA 105m TIL 120 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR				11/7
BGN				12/7
RGR				

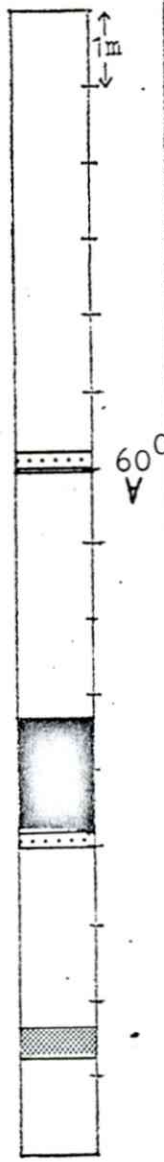
DATO: 18-10-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 13,14 FRA 120m TIL 135 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR				13/7
BGN				
RGR				
Amf.	Partly altered to glim.			14/7
BGN				
RGR				
Red-grey apl. (disc.?)				

DATO: 18-10-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 14,15 FRA 135m TIL 150 m

BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
				14/7
RGR				15/7
BGN		Cm qz-vein w. chp(conc?)		

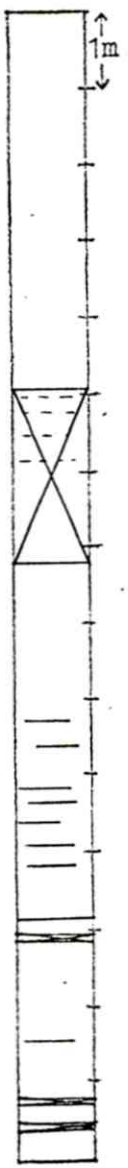
DATO: 18-10-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 16,17 FRA 150 m TIL 165 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR				
mm-cm bands w. glim. Qz conc. spots w. chp.		Chp. in conc. spot.		16/7
RGR				
BRGR				
(B)RGR w. 5-30cm qz and pegmatite veins.				17/7

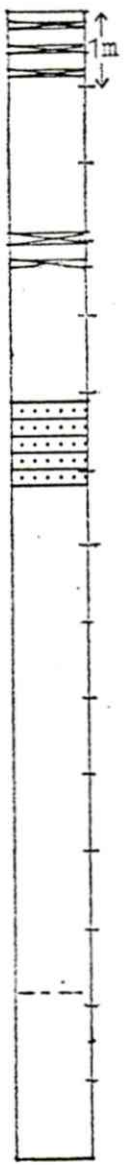
DATO: 18-10-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 17,18 FRA 165 m TIL 180m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
(B)RGR w. 5-10cm qz and pegmatite veins, apparently conc.		Weak imp. of pht, py, chp in lower part of qz-ve.		17/7
BGN		Conc. py, chp.		18/7
RGR		Cm conc. vein w. chp, grain of MoS_2		

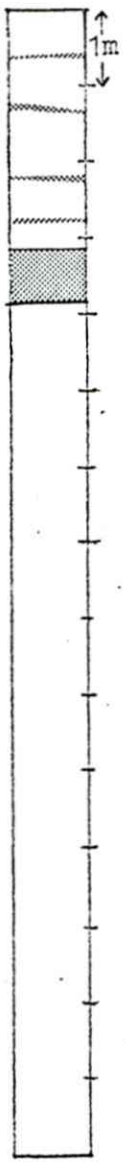
DATO: 18-10-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.:7 KASSER NR.: 19,20 FRA 180m TIL 195 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR w. apl.-bands		Apl. weak min.		
Grey-white apl.		Chp,pht,,MoS_2.MoS_2 alone spread in rock as 2-3mm conc. grains,or together with other sulfides in cm qz-rich conc. bands.	200ppm Mo 550ppm Cu	19/7
RGR				
Inhomog. RGR				20/7

DATO: 18-10-83 si JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 20,21 FRÅ 195m TIL 210 m

BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
Inhomog. RGR.Aplittic to normal granittic				20/7
BGN				21/7
RGR				

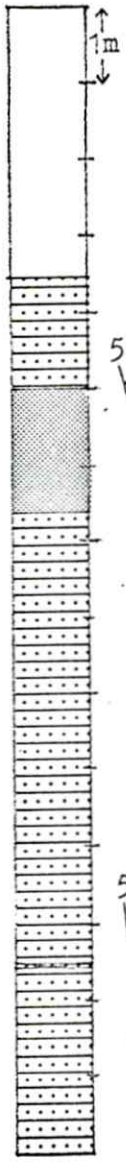
DATO: 18-10-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 22,23 FRA 210m TIL 225 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
RGR				
BGN				22/7
Grey apl.				
	Weak green colo.			
BGN				
		Conc. pht.chp,py.		
	------"-------			23/7
Qz		Traces of MoS_2 on border of 10cm qz-vein.		

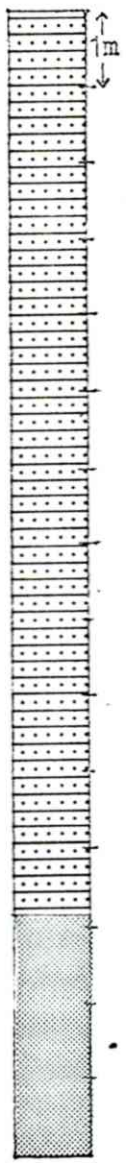
DATO: 18-10-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 23.24 FRA 225 m TIL 240 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
				23/7
	Weak green colo.			
BGN		Conc. chp,pht,py,also in mm disc. frac. Traces of MoS_2		
				24/7
Grey apl.		Chp. diss. in rock (py) Traces of MoS_2 in conc. 2cm qz-veins.		

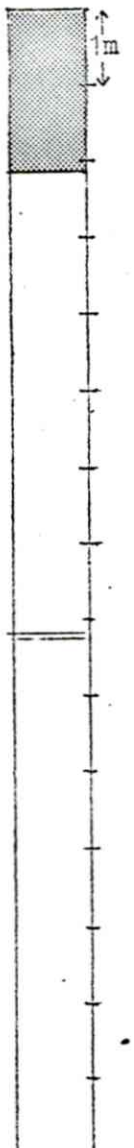
DATO:18-10-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 25,26 FRÅ 240 m TIL 255m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE		KASSE
Grey apl.					
	White alt. fsp.				25/7
RGR(fractured)	Crisscrossed by open fractures, filled w. cal.	Trac. of MoS_2 in qz-ve.			
			ppm Mo	ppm Cu	
		MoS_2 in 3mm disc. qz.-vein	90	160	
10cm qz-vein		cut by yong frac. Qz and MoS_2 brecciat. Some py, chp. Also conc. MoS_2 miner.	400	150	
	Vertical frac.		90	250	
			760	330	
			130	260	
RGR(fractured)	White alt. fsp.	Traces of MoS_2	1100	310	26/7
			50	540	
			100	1100	

DATO: 14-11-83

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 26,27 FRA 255 m TIL 270m

BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE ppm Mo	ppm Cu	KASSE
			5	210	
			-5	25	26/7
			-5	25	
			780	150	
			45	50	
			260	100	
			1000	140	
BRGR(fractured)	White alt. fsp.	Traces of MoS_2 in disc. qz-veins and diss.in rock. 10cm qz w. chp.py	190	120	
			290	1500	
			380	510	27/7
			410	180	
			200	200	
BRGR			$\bar{x}$: 314	316	

3 3 3

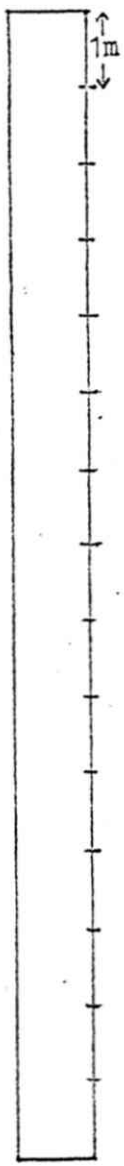
DATO: 14-11-83 sign

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 28,29 FRÅ 270 m TIL 285 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
				28/7
RGR				
	White alt. fsp.			29/7
	Open frac. w. cals.			

DATO: 14-11-83 _____

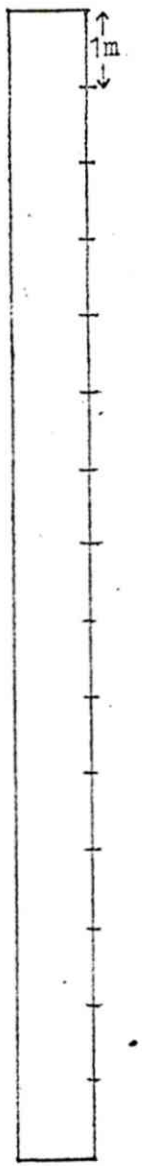
si n

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 29.30 FRA 285 m TIL 300 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
	Vertical ~~frac.~~ w. calc.			29/7
RGR				30/7
	Fractured and rusty			

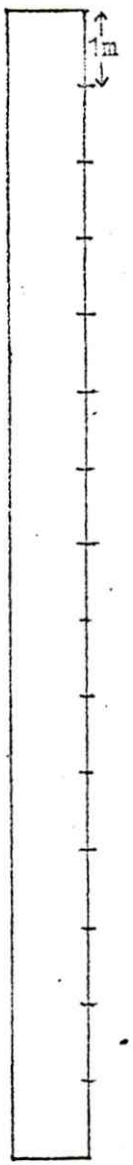
DATO: 14-11-83 si n

JIT-83

KVINA GRUVER.

JOINT VENTURE, FOLLDAL VERK A/S - NORSKE FINA A/S

HULL NR.: 7 KASSER NR.: 31,32 FRå 300m TIL 315 m



BERGARTSTYPE	OMVANDLING	MINERALISERING	M. TIL ANALYSE	KASSE
				31/7
RGR				
Inhomog. RGR				
				310.4
				END

DATO:14-11-83 sign

JIT-83

DIARY

DIARY FOR JAN INGE TOLLEFSRUD

FIELDWORK,KNABEN,27/6-28/9-83

27/6 Departure from Oslo 9.30 a.m..Knaben 3.30 p.m. Limyr had already arrived,and left at 9.30p.m..

28/6 Folldal Verks diamond-driller,Trond dal,arrived at 9.15 a.m.Backe Maskin-instructor,Ola Holstad, arrived at 2.00 p.m..T.Dal and T.T.Røynestad is rigging up the drilling-machine.I myself did some reco. in the Knaben II-area.

29/6 Reco. in the area around Knabeåni.An electrician and T.Dal on drill-site (DH-1) to adapt the voltage from the aggregate.Rigg 380V,pump 220V. T.T.Røynestad and K.Røyseland starts to transport barracks from Knaben to camp-site at southern end Smalvann.O.Holstad waited for necessary equipment to drilling-machine (cables,corepipes,corepipe-holder) that was missing in the first consignment from Folldal Verk.Equipment arrived at 8.50p.m..

30/6 Drillers finnished mounting of drilling-equipment at 1.30p.m..Drilled about 10m.
Ifollowed the gneiss-horizon from 1km south of - Knaben II to Kvina mine.Returned via Knaben I and Reinshommen.

1/7 Maps arrived yesterday evening.Reco. and mapping in Kvina mine area.T.dal and K.Røyseland drilled. O.Holstad and T.T.Røynestad took over at 2p.m. DH 1:43m.Moped has arrived.

2/7 Fog,rain and wind.Reco. in the Kvina area.Took over as assistent on rigg after T.T.Røynestad at 3.00p.m..DH 1:60m.

3/7 Fog,rain and wind.Assisted O.Holstad on rigg. DH 1:76m.

4/7 Fog,rain and wind.Tried to map western shore of Smalvann.First barrack has arrived camp-site. 100m of core is transported down to storehouse, Knaben II mine.

5/7 Mapped west of Kvina.Second barrack has arrived camp-site.Problems w. DH 1 because of faults and loss of water.DH 1:139m.

6/7 Assisted T.Dal on rigg until 2p.m.Johan Heim visited us for 3 hours.Still problems with the hole.T.T.Røynestad took over at 2.30p.m.
I logged cores in the storehouse in the evening.

7/7 Mapped eastern part of gneiss-zone from Kvina towards north.

8/7 Should assist T.Dal on rigg,but after heavy problems w. breccia in the hole it was desided to try cementing.Continued to map the area from DH 1 towards Knaben I.

9/7 Mapping on w. side of Smalvann.A try to drill failed.

10/7 Mapping on east side of Smalvann.

11/7 Mapped west of DH 1.Met Limyr at 1.30p.m.Limyr left at 4.00p.m.
I took the night train from Snartemo to Oslo.

12/7 Oslo.Train to Snartemo at 10p.m..

13/7 Back in Knaben at 6.30a.m.Mapping on west side of Smalvann.

14/7 Assisted T.Dal on rigg.Repared water-pump,which was blocked by sand.Mapped in Kvina area.

15/7 Tried to couple elec. to barracks.Missed some 16A contacts.Ordered 16A and 32A contacts from Kvinesdal.

16/7 Bjarne Valen and his son Stig arrived at 9.15a.m. Bought some food and equipment at the shop,and transported everything to the camp-site with the Deutz tractor.Showed Valen the drilling machine. Drove back to Knaben at 1.45p.m.Got new battery to the aggregate and contacts to the barracks. Drove back to camp and mounted the battery.

17/7 The owner of the house in Knaben,O.K.Reiersen, arrived at 9.00a.m.He repared the gully in the bathroom.Drove up to camp at 11.00a.m.,and coupled el. to the rest of the barracks.Logged cores down to 190m on drillsite.

18/7 Logged cores in the storehouse until12.00a.m. The house has been broken into.Repared the lock.Waited for Limyr and Svindal.They arrived at 4.30p.m.Limyr and I walked to drillsite because of a message about MoS_2 in the cores.Decided to continue the drilling in hole 1.

19/7 Svindal,Limyr and I up to camp.Starter on aggregate has broken down.Limyr and Røynestad tries to get a new aggregate,while me and Svindal put out the claim-marks.Svindal went back to Knaben at 2.00p.m.Limyr and I follow the drilling.

20/7 Finished DH 1 at 225,85m.Started removal to DH 2. Svindal left Knaben around mid-day.Heim made a short visit to the camp around 2.00p.m..

21/7 Mapping north of Kvina.Removal to DH 2 continues, and 11m is drilled before end of day.

22/7 Mapping in the area north of Knaben I.B. and S. Valen are drilling.Røynestad and T.Risøen transport materials to build a small cabin on drill-site.

23/7 Short trip to drill-site.Met Valen on his way down for atrip to Kvinesdal.DH 2:69m.

24/7 Corelogging on drill-site,mapping in Knaben I-area.

25/7 Limyr on drill-site at1.00p.m.Mappin in area south of DH 2.

26/7 Logging in the morning.Mapping in the area Smalvann Knaben I the rest of the day.

27/7 Mapped the eastern border of gneiss-horizon in DH 2-area.DH 2:124m in the morning.
Packing on rotation-unit on rigg was damaged last night.Oven and lamp for the new cabin has arrived.

28/7 Logging down to 140m.Mapping se. of DH 2.

29/7 Day off.Kristiansand.

30/7 Day off.Kvifjord.

31/7 Logging in storehouse.

1/8 Logging on drill-site.190m.Move the cores from the storehouse to house in Knaben,because the storehouse has been broken into once again.Terje Risøen helped me.

2/8 Logging on drill-site.210m.Mapping in the Knaben I area.

3/8 Moped on strike.Mapping in the area Knaben-Bergetjern.DH 2:220.

4/8 Fog and rain.Mapped east of Knaben I.DH 2:238m.

5/8 Tellef Risøen and Røynestad transported the new sledge for the drilling-machine to the drill-site. Mapped eastern border of gneiss-horizon,between Bergetjern and plateau.DH 2:242.30m.

6/8 Mapping north of Bergetjern.

7/8 Tried to repare the moped.Housework.

8/8 Mapping northeast of DH 2.Limyr short visit.Measured out the location of DH 4.

9/8 DH 2 stopped at 270m.Removal to DH 4 started. Mapping in the area NE of Knaben I.

10/8 Rigg and aggregate removed toDH 4 yesterday.Waited for O.Samskott from E. Kiil A/S in the afternoon.

11/8 Samskott arrived at 9.15a.m.Drove up to camp w. tractor.Changed damaged valve on the drillin-machine.Everything worked when Samskott left,but collapsed short after.It still functions in a way. Mapping north of Knaben I.

12/8 Slow progression in drilling.Continued mapping north of Knaben I.

13/8 Continued mapping in same area.DH 4:70m.

14/8 Office-work.(sunday)

15/8 Fog,rain and wind.Office-work.

16/8 Mapping in the Knaben I-area.

17/8 Mapping south of DH 4.Foun that adit (rubens-mine) is not a mine,but a try to find the continuation of the mineralizations in the prospection pit above.

18/8 Mapping on plateau.Assisted Røynestad on the rigg for a couple of hours,while Terje Risøen tried to repare the moped.Need spare parts for the moped. DH 4:200m.

19/8 Røynestad has talked to Limyr in the phone because of heavy problems w. a frac. zone in DH 4. It was decided to leave DH 4(205,40m),and to remove the equipment to DH 5.Mapping in the area of DH 5.Diesel and aggregate is removed the same day.

20/8 Mounting of equipment on drillsite 5.Mapping on plateau in the DH 5-area.Cores from DH 4 is transported to house in Knaben.

21/8 Mapping in the area around DH 4.Two reindeers shot at 1.00p.m.(by local people)

22/8 Drilling on DH 5 started at 11.00a.m.Mapping N of Kvina mine.

23/8 Worked in the Knaben I-area.DH 5:60m at 1.30p.m. Limyr arrived at 11.30p.m

24/8 Discuss with Limyr.Decides to set out a new hole further south,and that i shall stay in Knabe until end of sept.DH 5:70m.Limyr leaves at 6p.m.

25/8 Follows the drilling,to decide when to finsh. DH 5:150m.

26/8 Standby on drillsite.Some MoS_2 decides to continue. DH 5:190m.

27/8 Cloudberry-trip to Glupen.13hrs. 3/41.

28/8 Office work.Short trip to Flekkefjord.

29/8 Drilling contnues.Mapping in Kvina area.

30/8 Fog and rain.After 20m of red granite it is decided to stop.DH 5:229.80m.
DH 5B is marked and removal starts.

31/8 Removal continues and is finished.Looked on MoS - mineralizations in the area between Sandtjønn and Grunnevansnuten.Conc. qz.-veins in granite.
DH 5B:30m.Cores from DH 5 transported down to Knaben.

1/9 DH 5B:40m at 7.30 in the morning.Mapping in the area south of Kvina.

2/9 Fog and rain.DH 5B:80m in the morning.Tried to map the shores of Smalvann.

3/9 Fog,wind and rain.Logged to 120m on drillsite.

4/9 Fog,wind and rain.Mounted the rock-saw in the cellear. Need some contacts.

5/9 Fog,wind and rain.Mapping in the Kvina area.

6/9 Snow in the morning.Mapping in the Kvina-area. Brought 180m cores down to KNaben.

7/9 Limyr and John Pedersen arrived at 2.00p.m.

8/9 Discussed with Limyrand J.Pedersen.Short sightseeing in the Knaben I-area.Showed Pedersen various types of MoS_2-mineralizations.DH 5B:205m. Decided to drill DH 6 and DH 7.Limyr and Pedersen left at 2p.m.

9/9 Logging to 240m on drill-site.DH 5B:245m.Bad weather.Officework.

10/9 Fog,wind and rain.Officework.

11/9 Fog,wind and rain.Officework.

12/9 Mappin on east side of Grunnevansnuten.Logging on drillsite to 270m.

13/9 Mark DH 6,and find the best to transport the equipment to this place.Describe adit east of Knaben I.Find that the mineralization consists of discordant boudinaged qz-veins in gneiss.. Logging to 290m.

14/8 Describe cu prospection pit in NE end of Smalvann.Qz-lense discordant in gneiss,dipping 14° SSE.Mapping in the Kvina mine area.Logging to 300m,drilled to 326m.

15/9 Fog,wind and rain.Office work.A visit to the rigg in the evening.335m.

16/9 Fog,wind and rain.Deliver some equipment to the drilling-machine in the morning.Office-work.

17/9 Office-work.

18/9 Fog,wind and rain.Office-work.Neighbour repared the rock-saw,price kr 50,-.

19/9 Visit on rigg.Office-work.Split samples from DH 2.

20/9 Standby on rigg.Find some MoS_2 in gneiss.no more pipes.Limyr arrived at 2.00p.m.DH 5B:370m.

21/9 Discuss w. Limyr,20 new pipes are ordered.Split samples from DH 1 and DH 4.Limyr left at 1.00p.m.

22/9 Office-work.

23/9 Mapping "rests".Logging to 380m.Pipes arrived yesterday evening.

24/9 Logging to 390m.Still gneiss with some MoS_2
Mapping in the DH 7-area.

25/9 Officework.

26/9 Last inspection of the mapped area.Decides to order 20 more pipes,and to drill through the gneiss horizon.Then remove directly to DH 7,and if time,drill DH 6 as a last try.

27/9 Clear the house and Pack.

28/9 Left Knaben at 12.30p.m.

24/9 Logging to 390m. Still gneiss with some MoS_2.
Mapping in the DH7-area.

25/9 Officework.

26/9 Last inspection of the mapped area. Decides to order 20 more pipes, and to drill through the gneiss horizon. Then remove directly to DH7, and if time, drill DH6 as a last try.

27/9 Clear the house and Pack.

28/9 Left Knaben at 12.30 p.m.

17/10 Limyr and I travelled by car to Knaben in the evening.

18/10 Logged DH5B from 405-485.4 m depth, and DH7 from 0-240 m.
Back to Oslo in the evening.

13/11 Night train from Oslo to Store Kvina.

14/11 Tellef and Terje Rispen met me at the station. Breakfast with T.T. Røynestad. Travelled by car up to Knaben.
Logged cores: DH7 240-310,4 m. Prepared samples for analysis.
Left Knaben in the evening.

15/11 Arrived Oslo in the morning.

Konstuert av Wideröe's Flyveselskap A/S
etter fotogrammer opptatt aug. 1961

NORSKE FINA A/S
Geological/mineralization map
Knaben I - Kvina
Knaben area
1:5000

KNABEN GRUBER
Bl. 1
K.M.00, 150

LEGEND (1:2000 maps)

Banded gneiss, BGN

Finegrained gneiss, FGGN

Amphibolite

Aplite

Bleached red granite, BRGR

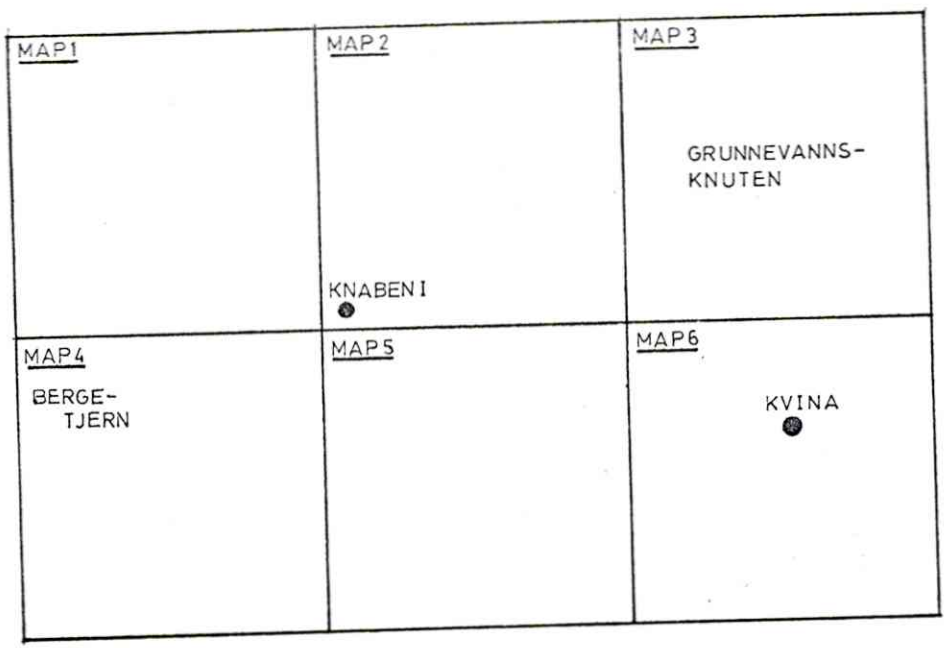
Adit w. MoS_2 showing

Prospection pit w. MoS_2 showing

MoS_2 showing

Strike/dip of foliation. 20° / 10°

Yong dolerite dike


MAP1
MAP2
KNABEN I
MAP3
GRUNNEVANNS-
KNUTEN
MAP4
BERGE-
TJERN
MAP5
MAP6
KVINA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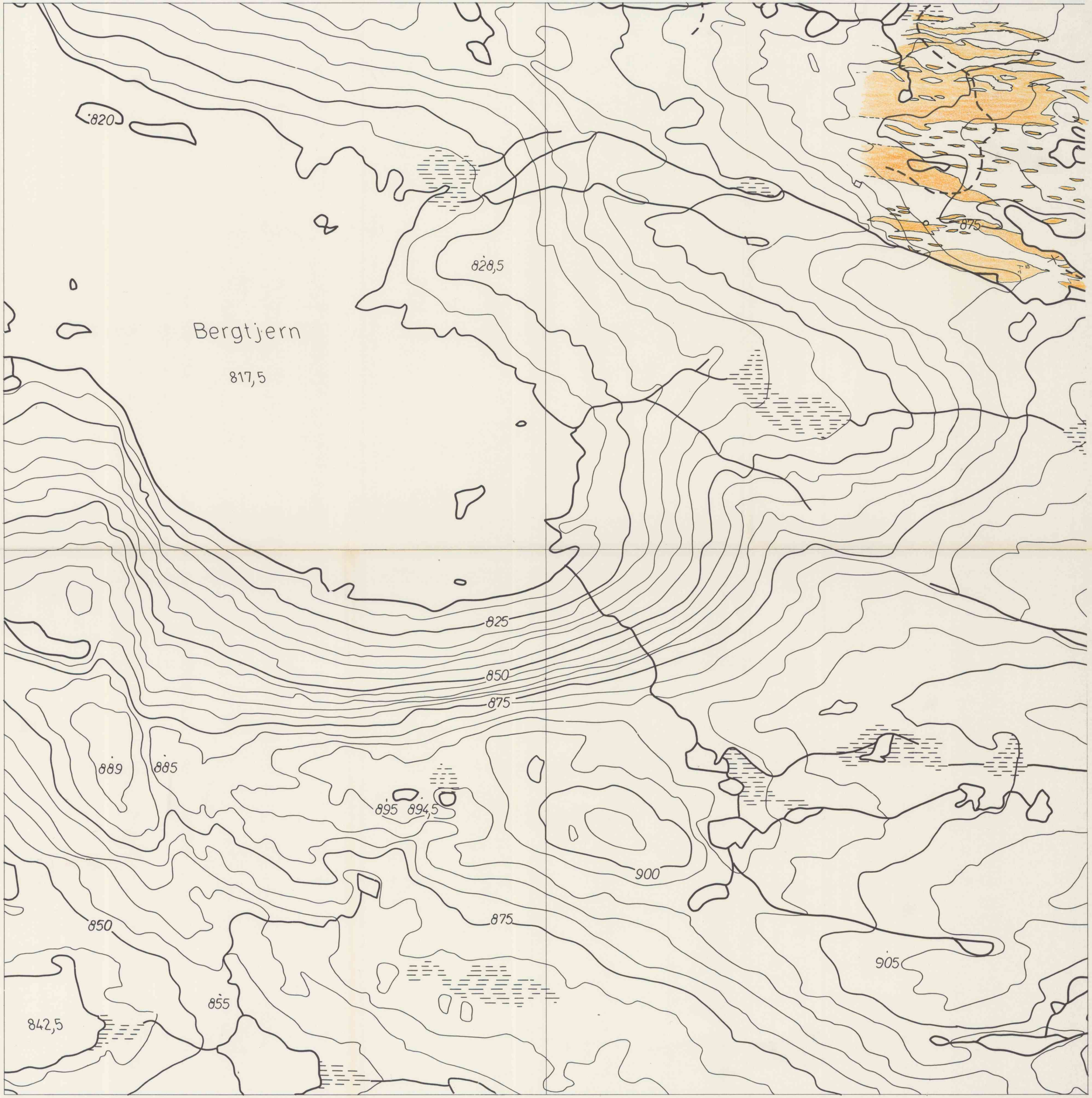
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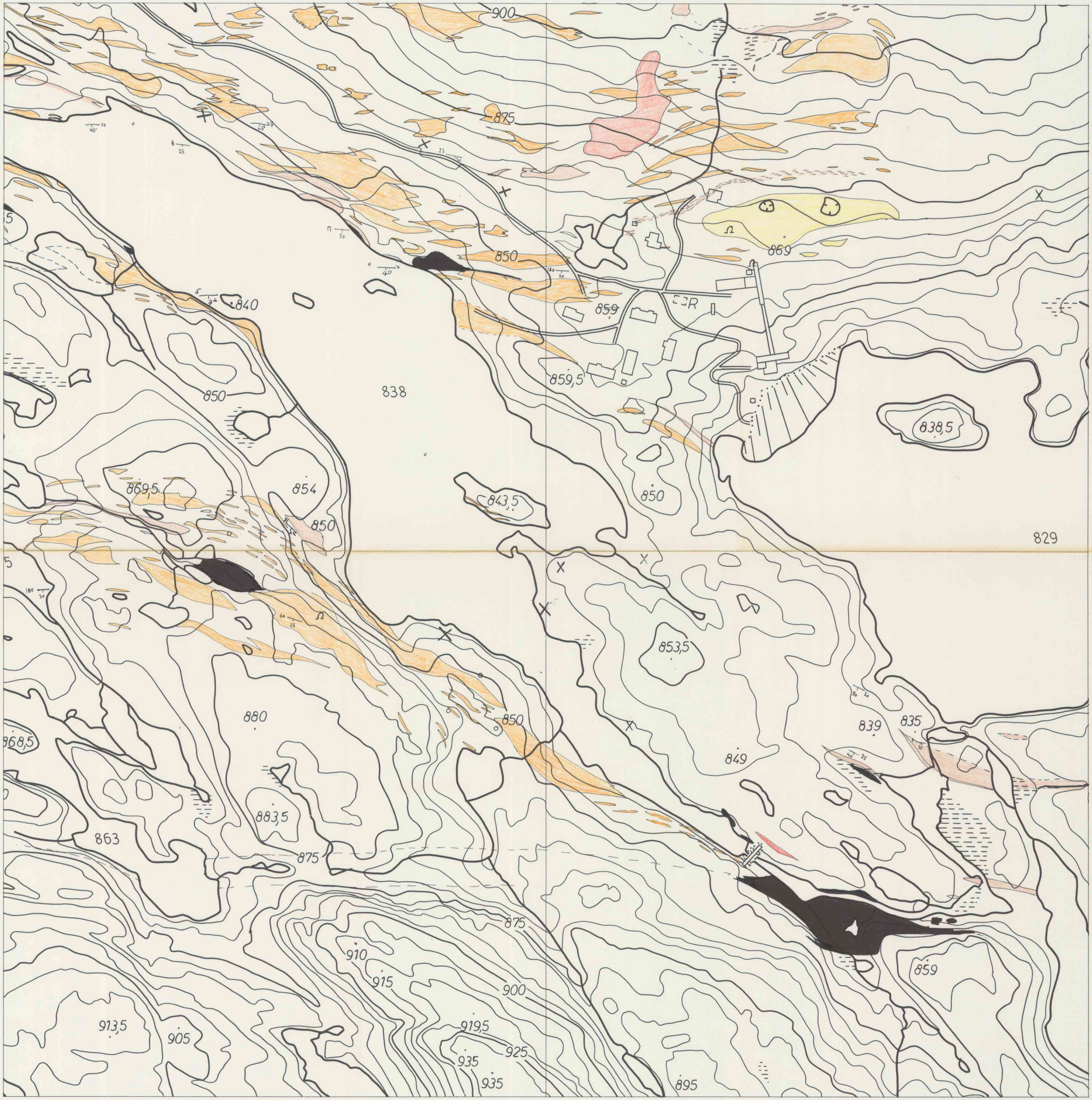
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