



Bergvesenet

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Rapportarkivet

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Kommer fra ..arkiv Falconbridge	Ekstern rapport nr Sul 100-7-70	Oversendt fra	Fortrolig pga	Fortrolig fra dato:
Tittel Diamond Drilling at Kjettevann, Mølland Farm, Iveland. 1970				
Forfatter F. Nixon		Dato 1970	Bedrift Sulfidmalm a.s.	
Kommune Iveland	Fylke Aust-Agder	Bergdistrikt Østlandske	1: 50 000 kartblad 15114	1: 250 000 kartblad Mandal Arendal
Fagområde Boring	Dokument type Rapport	Forekomster Kjettevann		
Råstofftype Malm/metall	Emneord Ni Cu Co S			
Sammendrag Rapporten gir en oversikt over all boring i Kjettevannfeltet med lokalisering og lengder. Det henvises til en "sketc map" som desverre mangler. Håndskrevne borlogger hull 5-12. Inneholder opptegnede seksjoner bare for borhullene 5-10. Totalt er det nå boret 30 hull i Kjettevannfeltet: 16 hull på totalt 601m ble boret av Raffineringsverket A/S i perioden 1907 - 1918. 2 hull på totalt 197m ble boret av Raffineringsverket A/S i 1938. 4 hull på totalt 635m ble boret av Sulfidmalm i 1969 (nr 1-4). 8 8 hull på totalt 1311m ble boret av Sulfidmalm i 1970 (nr5 -12).				

A/S SULFIDMALM EVJE - IVELAND PROJECTREPORT ON DIAMOND DRILLING AT KJETTEVANN, NØLLAND FARM, IVELAND, NORWAY 1970GENERAL REMARKS

The mineralized area at Kjettevann lies in the central part of the Evje Iveland basic complex. Drilling has been carried out on the western flanks of the Nølland gabbro complex, which forms a fairly well definable multiple intrusive complex in which the main rock types are various varieties of norite, gabbro and ultramafics. The geology is complex.

Prior to 1969 Sulfidmalm had carried out geological, geochemical and geophysical investigations in this area. It was recognized as a potential nickel area and exploratory drilling was commenced in 1969. (Ref. Preliminary Report on Diamond Drilling Kjettevann. 11.12.69. F. Nixon)

FACTUAL INFORMATION

A total of 8 holes were drilled in 1970 to a combined length of 1311.06 m. The machine used was a Craelius XF which has a capacity of 300 - 400 m. The recovered core diameter is 32 mm.

HOLES DRILLED IN 1970

No.	Direction	Dip	Length	Depth under Kjettevann	Height over Kjettevann	Location
5.1970	270	60	270.64 m	222 m	11.5 m	20N/70E
6.1970	-	90	93.85 "	82 "	12.0 "	15/16W
7.1970	270	60	134.40 "	107.5 m	9.18 m	80.9N/1.35W
8.1970	270	55	135.10 "	104.5 "	6.42 "	140N/15E
9.1970	270	60	166.57 "	144 "	1.23 "	200N/10E
10.1970	270	60	153.68 "	132 "	1.75 "	240N/o
11.1970	270	67	316.82 "	286 "	6.52 "	200N/50E
12.1970	-	90	40.00 "	38.2 "	1.80 "	175.15S/36W

1970's drilling brings the total number of holes drilled at Kjettevann to 30. Of these 16 holes with a total length of 690.89 m were put down by RAFFINERINGSVERKET A/S from 1907 to 1918. Two holes were put down by the same company in 1938, to a length of 89.15 m and 108.21 m respectively. Sulfidmalm drilled four holes in 1969 with a total length of 634.63 m.

HOLES DRILLED PRIOR TO 1970

No.	Year	Length	Dip	Height over Kjettevann	Location
1.	1907-18	58.15 m	50	3.47 m	See sketch map
2.	"	79.44 "	85.5	3.47 "	" " "
3.	"	70.45 "	66.75	4.63 "	" " "
4.	"	57.10 "	90	4.68 "	" " "
5.	"	46.50 "	50	9.37 "	" " "
6.	"	40.50 "	50	9.00 "	" " "
7.	"	41.00 "	77.65	9.00 "	" " "
8.	"	30.30 "	50	8.00 "	" " "
9.	"	40.00 "	50		Mag. anomaly 480 m N of dam
10.	"	25.00 "	50		" " " " " "
11.	"	58.00 "	66.75		E of exploration shaft E of dam
12.	"	15.50 "	100		Mag. anomaly 480 m N of dam
13.	"	13.30 "	39	3.50 "	See sketch map
14.	"	39.60 "	50		W of exploration shaft E of dam
15.	"	35.25 "	44.5		S " " " " "
16.	"	23.80 "	100		N " " " " "
20.	1938	89.15 "	1:2	6 "	See sketch map
21.	"	108.21 "	1:1	6 "	" " "
1.	1969	145.90	53	10.82	13.60S/8.68E See sketch map
2.	"	185.42	70	10.82	13.60S/9.00E " " "
3.	"	116.50	70	11.3	13.60S/25.78E " " "
4.	"	186.81	65	19.82	75.19S/28.74E " " "

SUMMARY OF DRILLING RESULTS PRIOR TO 1970

Surface showings at Kjettevann have been explored by means of a vertical shaft and drift and two small prospect pits. A mineralized zone on the lake shore has also been subject to some blasting. Drilling by the Raffineringsverk A/S has been concentrated on locating the lateral and vertical extents of these showings.

The results indicated that the mineralizations at the two small prospect pits are of a local nature and no intersections of any real significance were encountered. The two holes put down in 1938 intersected mineralizations about 20 m to the south of the exposed mineralized zone and more or less along its supposed continuation to the south.

During the late summer and autumn of 1969 three drillholes were put down in a profile 22 m south of the 1938 holes in order to find out whether the known mineralized zone continued in this direction. The working hypothesis at the time was that we were dealing with a mineralized zone that had a southerly plunge.

Hole 1-69 showed weak and scattered disseminations together with minor stringer sulphides. No distinct zone was cut that could be directly tied up with the zones to the north.

In a steeper hole (2 -69) an interesting sulphide zone was intersected which carried 0.48 Ni and 0.15% Cu over a core length of 9 m (approx. 30 ft.). Another poorer zone was cut deeper down in this hole. None of these sulphide intersections were traced over to hole 3 -69 which was put down to investigate the zones at a deeper level.

A hole No. 4 -69 about 60 m further south was barren.

The "southerly plunge" hypothesis was abandoned. It became apparent that we were dealing with many small mineralized zones of irregular size and shape and varying sulphide content. These zones are related to the contact zone between a norite complex to the east and foliated amphibolites and gneisses to the west. The sulphides appear to prefer a basic variety of the intrusive, these basic types being most frequent on the western flanks of the complex.

Drilling in 1970 was drawn up with the idea of systematically investigating the basic rich contact zone which has a surface expression in a N/S direction of approx. 500 m. It should perhaps be mentioned here that the mineralization at Kjettevann does not seem to respond to conventional electromagnetic survey methods. Surface magnetics give a complex picture and does not seem to reflect ore concentration. I.P. surveys are planned for the coming winter and it is hoped to get a better response by using this method.

GEOLOGY (See also drilling report 1969)

The basic rocks at Kjettevann embrace a number of varieties that are interpreted as being of a co-magmatic origin.

The main rock type intersected is a basic to ultrabasic gabbro type. This rock type varies in texture and degree of alteration. Hypersthene is usually dominant, clinopyroxene may or may not be present and the amphibole assemblage varies between hornblende, tremolite/actinolite and anthophyllite or a mixture of these. The amount of plagioclase varies but is usually very low, although in some sections introduced feldspar is common, this being accompanied by a predominance of hornblende.

A more normal norite/gabbro type is also quite common (this rock type was the most dominant in drilling (1969)). There is usually a gradual transition between this normal type and the more basic types, but in a few cases there is a definite injection of the basic type into the normal type, (see fig. 1), perhaps indicating some remobilisation.

This phenomena was also noted during drilling in 1969. Although sulphides occur in both rock types there is a marked preference for the more basic varieties.

Local introduction of feldspar with subsequent recrystallization of mafic minerals to hornblende gives rise to a variety of rock types that can generally be classed together as coarse hornblende gabbro. These rocks usually occur as patches and pods and are of limited extent. In some holes, however, similar rocks have sharp contacts with the surrounding country rocks and appear as dykes. Whether this reflects some remobilization or a separate rock type is not clear.

Textural and lithological variations within the two main gabbro types are common, this giving rise to various gabbro varieties. Lithological variations reflect alteration, recrystallization and younger developments, such as feldspar introduction. All these factors complicate the geological picture.

In hole 10 which lies farthest north the main rock type is a meta gabbro variety which seems to be different than the "Molland Morite". It is medium grained, mainly massive, but can locally be sheared. The main mafic mineral is hornblende, although hypersthene can occur. It contains patches of a coarser hornblende plagioclase rock which seems to be a younger development and feldspar patches (locally with quartz) which have been introduced. It is locally sauseritized, fractured and partly mylonitized. Fractures are lined with carbonate, epidote and often pyrite. In parts a mineral orientation is developed and the rock is foliated. This gabbro type is almost barren for sulphides.

This gabbro type is interpreted as being an older variety than the "Molland Morite".

Holes 9 and 10 and 11 intersected ultrabasic rocks that are classified as meta-pyroxenites. This is usually a fine/medium grained fairly massive black to dark green rock. The matrix consists of fine grained talc, tremolite, actinolite and in many cases serpentinite, with up to 10 mm large crystals of hypersthene and large serpentine spots after pyroxene. The rock is distinct and these drill hole intersections are the only record of the rock recorded in this Kjettevann area, although meta pyroxenites and meta peridotites occur in the general area.

The gabbro varieties and the ultrabasic are cut by various dyke like bodies both of acid and basic affinity. Some of the basic dykes no doubt represent late stages of the gabbro complex magma.

Basic and intermediate dykes

1. Med. grained, amphibolitic composition, non magnetic but in some cases carrying fine grained dissemination of pyrite and chalcopyrite.
2. Very fine grained basic dykes that are magnetic.
3. Ultrabasic dykes hornblendite, these probably represent some recrystallization and remobilization.
4. Fine grained hypersthene gabbro
5. Mylonitic dykes, extremely sheared, usually basic in composition.
6. Dykes of coarse grained hornblende/feldspar rock.

Acid dykes

1. Pegmatite
2. Quartz veins
3. Feldspar veins
4. Granite veins
5. "Granodiorite" veins: quartz/feldspar/biotite composition which usually carry a good dissemination of pyrite. A granodiorite dyke is in one intersection seen to be cut by a small pegmatite vein.

There is usually a gradual transition from the gabbro types into the more foliated hb, feldspar gneisses that lie to the west. In hole No. 5, however, the change over was fairly sharp.

Drill hole No. 11, however, encountered no gneissic rocks and when the hole was stopped at 316.82 m (this being the available capacity of the machine) it was still drilling in gabbro. This gabbroic rock varied in appearance and composition but was dominantly a medium grained two pyroxene gabbro fairly massive in appearance. It is possible that this gabbro type represents an older type than the Mølland norite and that this hole has drilled under the gneisses which lie as a wedge occupying Lake Kjettevann. More detailed geological observations and microscopic work will be required if this problem is to be cleared up. One must also bear in mind that this deeper hole could have a down dip deviation.

Both deeper holes i.e. 5 and 11 intersected thick pegmatite and quartz veins respectively at more or less the same horizon. At surface to the north of Kjettevann a distinct pegmatite horizon is present the pegmatites lying as thick cake like bodies and carrying a host of rare minerals. The pegmatites intersected in drilling were devoid of any such minerals.

MINERALIZATIONS

Diamond drilling both in 1969 and 1970 suggest that sulphide mineralization is irregularly distributed giving rise to several small and separated mineralized bodies. Even within a single "body" the mineralization can be very irregular and patchy.

Drilling has proved sulphides over a distance of 275 m in N/S direction and vertically from surface down to 250 m below Kjettevann provided there is no dip deviations of the drill holes. The E/W extension of the mineralized belt is 70 m in some sections.

Nickeliferous pyrrhotite, pyrite and chalcopyrite are the visible sulphides and occur as disseminations, blebs and stringers and fracture fillings in most of the gabbro and ultrabasic types, having, however, a marked preference for the basic gabbro types. The gneisses to the west carry pyrite dissemination as do some of the younger acid dykes.

Magnetite and ilmenite have been observed. Ilmenite is associated with the silicates whereas magnetite is associated with the sulphides. A polished section from a surface sample shows pyrite replacing and intersecting magnetite.

Magnetite is usually confined to the gneisses and the more normal gabbro.

Hematite both earthy and specular is abundant in the upper parts of holes 9 and 10 - also noted in a pegmatite in hole 11) and occurs in all rock types including the pegmatites.

The drillholes

Hole No. 5

In the upper parts of hole No. 5 the dominant sulphide mineral is pyrite. The pyrite is present in the gabbro but dominantly occurs in younger dyke rocks often together with minor chalcopyrite.

A small zone of sulphides from 124.70 - 125.20 (50 cms) consists of a medium grained impregnation of pyrrhotite, pyrite and chalcopyrite. The Ni % runs 0.33.

Apart from odd sulphide specks the only other zone of interest in this hole was intersected between 239.18 m and 242.60 m. The host rock is an extremely basic gabbro/norite and lies on the contact with the gneissic rocks. The dominant sulphide is pyrrhotite this occurring as fine to medium grained disseminations and coarse blebs. Pyrite and chalcopyrite are subordinate. The mineralization is erratic and uneven varying from specks to 5% sulphides. This zone averages 0.18% Ni over 5 m.

The gneisses in the contact zone contain up to 2% disseminations of pyrite.

Hole No. 6

Sulphides occur irregularly over almost the entire length varying from specks to fairly constant disseminations of up to 5 m. The sulphides in general seem to prefer the basic gabbro types but pyrite is also dominant in the less basic gabbro types.

The sulphides occur from fine disseminations to med. and coarse grained blebs and also as stringers. In stringers pyrrhotite as a rule forms the core with chalcopyrite forming the rims. Some sections run as high as 0.89 % Ni with average for the analysed sections running around 0.2 % Ni.

Three main mineralized zones can be tentatively extracted but again it must be stressed that the mineralization is of an irregular nature. "Zone" 1 from 20.50 - 45.50 m averages 0.08 Ni and 0.025 Cu. Individual samples run as high as 0.89 % Ni and the low average is due to the very uneven distribution of the sulphides - fairly rich zones interspersed with barren zones. These barren zones which have not been analysed have been regarded as containing 0 Ni in calculations.

"Zone" 2 from 49 - 66 m gives an average Ni % of 0.21 and average Cu % of 0.05. Combining zones 1 and 2 gives a core length intersection of 44.89 m averaging 0.12 Ni and 0.03 Cu.

A small "Zone" 3 averages 0.15 Ni and 0.06 Cu over a core length of 2.80 m.

Hole No. 7

The hole was put down near one of the surface showings intersected a small but rich zone near surface with 0.89 m of core running 1.00 % Ni and 0.33 % Cu. Sulphides in this zone occur in a basic norite variety and run up to 50% in volume, mainly as massive sulphides and coarse disseminated clumps. Around 20 m a small isolated zone in a somewhat altered basic gabbro runs 1.58% Ni and 0.34 % Cu over 0.78 m.

Below 50 m two unevenly mineralized zones were intersected the first from 61.62 m - 94.84 m gives an average of 0.28 % Ni and 0.07 % Cu over a core length of 33.32 m. The second from 103.10 m to 124.50 m runs 0.12 % Ni and 0.03% Cu over 21.40 m. Combined the two zones give an average of 0.19 % Ni and 0.05 % Cu over 62.88 m core length.

Sulphides vary from specks up to 50% volume and like in the other holes occurs as fine disseminations through to coarse blebs and more massive parts. Pyrrhotite is the dominant sulphide, chalcopyrite increases proportionately with increase in pyrrhotite. In some cases pyrite and chalcopyrite seem to be associated with a later introduction of feldspar.

Hole No. 8

The hole was put down 59 m N of hole 7. The drill intersected sulphide zones but these were of less extent than those intersected in hole 7. One sample runs as high as 1.24 Ni and 0.27 Cu over 20 cms of core but the average sample from this hole assays around 0.25 Ni. The amount of barren rock between the small mineralized zones is quite great and blocking off the individual intersections into one or more larger zones gives a very low Ni percentage.

Hole No. 9

This hole gave the best sulphide intersections so far intersected in the drilling program. These sulphides are most dominant in the meta-pyroxenite and in the basic norite varieties. Where basic patches and injections occur in a more normal light coloured gabbro, the normal gabbro contains only specks of sulphides (locally) mainly pyrite, while the basic patches are richer in sulphides: po, cp, py. Two "mineralized zones" were intersected the first from 61.39 - 86.75 m averages 0.20 % Ni and 0.06 % Cu over a core length of 25.36 m. A smaller zone within this main zone averages 0.40 % Ni and 0.10 % Cu over a core length of 7.48 m.

The second main zone was intersected between 101.23 and 164.29 m a core length of 63.06 m. This zone averages 0.30 % Ni and 0.08 % Cu. A smaller zone within this section runs 1.04 % Ni and 0.27 % Cu over a core length of 6.78 m. A wider intersection incorporating the 1.04 % Ni section runs 0.53 % Ni and 0.14 % Cu over a core length of 16.97 m.

Hole No. 10

This hole contained sulphides only over limited distances, the best intersection between 114.68 and 132.50 giving 0.26 % Ni over a core length of 17.8 m.

Hole No. 11

This hole is the deepest yet drilled at Kjettevann. It was put down to investigate the ground below hole 9 and some interesting mineralisations were intersected.

Between 120 m and 147.60 the drill intersected meta pyroxenite which was weakly mineralized. The upper portions of this section contained isolated specks of pyrrhotite chalcopyrite and pyrite, this specks increasing in amount with depth and from 142 m down to 147.60 there is an irregular distribution of sulphides totalling 2 - 5 % in volume. Pyrrhotite is dominant with minor chalcopyrite and pyrite. The mineralization is dominantly coarse grained. This mineralization averages 0.156 % Ni over 27.60 m, and 0.028 % Cu whereas from 140.00 - 147.60 the average runs 0.225 % Ni and 0.049 % Cu.

Between 152.63 and 154.27 the meta pyroxenite carries an uneven mineralization of po. cp. with a little py. This zone runs 0.36 % Ni and 0.06 % Cu over 1.64 m.

A broad mineralized zone was intersected between 193.16 and 217.25. The rock is meta pyroxenite. Between 193.16 and 198.60 contains up to 2% sulphides, mainly as small disseminations but some larger concentrations do occur. Pyrite is slightly dominant over pyrrhotite. This zone runs 0.16 % Ni and 0.029 % Cu over 5.44 m.

From 198.80 - 199.80 there is an extremely rich sulphide zone, dominantly pyrrhotite, the sulphides are coarse grained. This meter of core runs 1.48 % Ni and 0.5 % Cu. The rest of this zone contains a very irregular sulphide mineralization varying from fine - medium to coarse grained dissemination plus some coarser blebs of sulphides. Pyrrhotite is the dominant sulphide. The entire zone from 193.16 - 217.25 averages 0.39 % Ni and 0.08 % Cu over 24.06 m.

From 229.50 to 280.00 there is a very uneven mineralization in gabbroic rocks the sulphide content is very variable being from barren to 2%. The best intersection is between 256.00 and 280.00, this zone averaging 0.14 % Ni and 0.045 % Cu over 24.00 m. The entire zone from 229.50 - 280.00 averages 0.11 % Ni and 0.031 % Cu over 50.50 m.

Between 229.50 and 233.00 runs 0.3 % Ni and 0.05 % Cu over 2.50 m.

Hole No. 12

This hole was put down at the suggestion of Dr. Kilburn to recheck the magnetic anomaly to the south of Kjettevann. The hole which was drilled vertically to a depth of 40 m confirmed that the anomaly is caused by magnetic concentration.

ANALYSES

The following table shows the analyses of the samples taken from the drill cores.

Hole	Dip	Sample	Core length m	Ni %	Co %	Cu %	Fe %	S %	S-S(cp)	Cu/Ni
									Ni	
5	60	124.70 - 125.30	0.60 m	0.33	0.02	0.12	8.1	1.0	2.67	0.36
5	60	239.18 - 239.75	0.57 "	0.06	0.007	0.02	8.9	0.33	5.15	0.33
5	60	239.75 - 241.28	0.53 "	0.14	0.01	0.03	10.6	1.3	9.10	0.21
5	60	241.28 - 242.44	1.16 "	0.41	0.02	0.09	13.9	4.1	9.75	0.22
5	60	242.44 - 243.39	0.95 "	0.10	0.008	0.03	10.8	1.1	10.70	0.30
5	60	243.39 - 244.39	1.00 "	0.07	0.008	0.04	6.5	1.7	23.7	0.57
5	60	244.39 - 245.39	1.00 "	0.02	0.005	0.03	6.8	1.4	68.5	1.50
5	60	258 - 259	1.00 "	0.01	0.007	0.02	6.3	1.3	128.0	1.0
6	90	0.88 - 1.50	0.62 "	0.21	0.005	0.045	8.6	0.84	3.8	0.19
6	90	2.10 - 3.00	0.90 "	0.094	0.004	0.027	5.9	0.66	7.0	0.33
6	90	10.00 - 10.53	0.53 "	0.081	0.004	0.027	5.1	0.58	6.9	0.37
6	90	11.57 - 12.70	1.13 "	0.12	0.005	0.055	6.6	1.0	7.9	0.42
6	90	20.81 - 21.15	0.34 "	0.89	0.031	0.16	14.1	5.7	6.2	0.18
6	90	26.72 - 27.05	0.33 "	0.50	0.015	0.16	8.6	2.5	4.7	0.32
6	90	28.30 - 30.70	2.40 "	0.33	0.011	0.10	8.3	1.6	4.5	0.30
6	90	32.85 - 33.10	0.25 "	0.38	0.011	0.098	11.2	2.1	5.3	0.27
6	90	37.20 - 37.50	0.30 "	0.18	0.011	0.082	9.3	1.3	6.8	0.44
6	90	38.95 - 39.16	0.21 "	0.28	0.010	0.073	8.0	1.6	5.5	0.25
6	90	41.47 - 41.80	0.33 "	0.33	0.015	0.12	8.5	1.9	5.4	0.36
6	90	43.46 - 45.40	1.94 "	0.22	0.006	0.085	6.3	1.0	4.2	0.36
6	90	49.00 - 49.90	0.90 "	0.18	0.006	0.035	5.1	0.66	3.5	0.17
6	90	49.90 - 50.54	0.64 "	0.33	0.010	0.082	6.7	1.6	4.6	0.24
6	90	50.95 - 51.55	0.60 "	0.21	0.005	0.040	5.3	0.89	4.0	0.19
6	90	52.50 - 55.80	3.30 "	0.23	0.005	0.045	6.8	1.1	4.6	0.17
6	90	57.00 - 62.80	5.80 "	0.28	0.010	0.069	7.1	1.3	4.4	0.25
6	90	64.00 - 65.70	1.70 "	0.33	0.011	0.095	7.8	1.9	5.5	0.27
6	90	74.75 - 75.05	0.30 "	0.26	0.011	0.086	6.6	1.3	4.6	0.31
6	90	75.77 - 76.60	0.83 "	0.31	0.010	0.14	6.1	2.0	6.0	0.45
6	90	77.25 - 77.55	1.30 "	0.30	0.010	0.074	8.6	1.8	5.8	0.23

Hole	Dip	Sample	Core length m	Ni %	Co %	Cu %	Fe %	S %	<u>S-S(cp)</u> Ni	Cu/Ni
7	60	2.43 - 3.36	0.93 m	0.13	0.007	0.03	6.8	0.64	4.7	0.23
7	60	3.54 - 4.43	0.89 "	1.00	0.044	0.33	17.0	8.4	8.0	0.33
7	60	19.70 - 20.48	0.78 "	1.58	0.049	0.34	20.4	5.6	3.2	0.22
7	60	42.00 - 42.96	0.96 "	0.35	0.021	0.07	11.4	1.6	4.4	0.20
7	60	61.62 - 62.30	0.68 "	1.63	0.041	0.33	20.3	8.5	5.0	0.20
7	60	63.00 - 63.90	0.90 "	1.36	0.041	0.34	18.6	6.4	4.5	0.25
7	60	64.00 - 65.36	1.36 "	0.31	0.013	0.09	11.4	1.8	5.5	0.29
7	60	65.36 - 71.48	6.12 "	0.29	0.009	0.07	10.6	1.1	3.6	0.24
7	60	71.48 - 76.00	4.52 "	0.25	0.007	0.07	7.3	1.3	3.9	0.28
7	60	76.00 - 80.00	4.00 "	0.25	0.009	0.06	10.9	1.1	4.2	0.24
7	60	80.00 - 83.12	3.12 "	0.28	0.009	0.07	10.0	1.3	4.4	0.25
7	60	83.60 - 85.90	2.30 "	0.30	0.010	0.09	11.2	1.4	4.4	0.30
7	60	89.00 - 89.90	0.90 "	0.30	0.011	0.08	9.1	1.7	5.4	0.27
7	60	91.57 - 94.84	3.27 "	0.30	0.011	0.09	10.4	1.6	5.0	0.30
7	60	103.10 - 107.30	4.20 "	0.19	0.009	0.05	9.2	1.6	8.1	0.26
7	60	107.85 - 108.40	0.55 "	0.21	0.009	0.06	8.7	1.5	6.7	0.29
7	60	109.00 - 109.90	0.90 "	0.38	0.013	0.12	11.5	2.9	7.6	0.32
7	60	111.20 - 111.70	0.50 "	0.35	0.014	0.10	13.4	2.5	6.9	0.29
7	60	112.43 - 112.90	0.47 "	0.31	0.013	0.09	11.5	2.2	6.5	0.29
7	60	115.33 - 117.00	1.67 "	0.24	0.009	0.07	9.2	1.4	5.5	0.29
7	60	120.25 - 121.20	0.95 "	0.43	0.011	0.13	11.9	2.8	6.2	0.30
7	60	124.00 - 124.50	0.50 "	0.43	0.022	0.09	13.5	3.5	7.9	0.21
8	55	36.10 - 37.50	1.40 "	0.27	0.008	0.17	7.4	0.94	2.8	0.63
8	55	46.60 - 46.80	0.20 "	1.24	0.038	0.27	16.6	7.1	5.5	0.22
8	55	50.60 - 53.40	2.80 "	0.29	0.011	0.084	9.4	1.4	4.6	0.28
8	55	53.80 - 54.55	0.75 "	0.29	0.009	0.088	9.7	1.9	6.2	0.31
8	55	57.13 - 58.00	0.87 "	0.26	0.011	0.091	11.2	1.4	5.0	0.35
8	55	69.00 - 70.00	1.00 "	0.22	0.006	0.084	7.0	1.0	4.2	0.36
8	55	73.35 - 74.00	0.65 "	0.25	0.008	0.084	9.3	1.5	5.7	0.32
8	55	79.26 - 81.00	1.74 "	0.32	0.009	0.10	10.3	1.2	3.4	0.31
8	55	81.60 - 85.00	3.40 "	0.21	0.013	0.060	10.8	1.2	6.9	0.29
8	55	85.00 - 86.00	1.00 "	0.22	0.008	0.059	9.8	1.0	4.3	0.27
8	55	94.00 - 96.90	2.90 "	0.23	0.008	0.065	9.2	1.1	4.5	0.26

Hole	Dip	Sample	Core length m	Ni %	Co %	Cu %	Fe %	S %	<u>S-S(cp)</u> Ni	Cu/Ni
8	55	99.00 - 102.00	3.00 m	0.15	0.006	0.041	8.6	0.81	5.1	0.27
8	55	102.00 - 106.00	4.00 "	0.21	0.011	0.07	10.3	1.2	5.3	0.33
9	60	61.39 - 64.52	3.13 "	0.18	0.013	0.05	8.5	0.69	3.5	0.28
9	60	64.52 - 68.00	3.48 "	0.32	0.015	0.09	9.2	1.6	4.7	0.28
9	60	68.00 - 72.00	4.00 "	0.48	0.019	0.11	10.2	1.9	3.7	0.23
9	60	72.00 - 76.00	4.00 "	0.12	0.011	0.025	8.6	0.55	4.4	0.25
9	60	76.00 - 79.18	3.18 "	0.12	0.011	0.026	9.4	0.40	3.1	0.25
9	60	79.18 - 80.83	1.65 "	0.13	0.010	0.16	9.3	0.55	3.0	1.20
9	60	80.83 - 84.42	3.59 "	0.06	0.006	0.024	7.0	0.29	4.4	0.33
9	60	84.42 - 86.75	2.33 "	0.12	0.007	0.050	7.5	0.69	5.3	0.42
9	60	95.70 - 98.75	3.05 "	0.063	0.006	0.043	6.8	0.35	4.9	0.67
9	60	98.75 - 101.23	2.48 "	0.050	0.006	0.029	6.6	0.08	1.0	0.60
9	60	101.23 - 103.96	2.73 "	0.13	0.010	0.042	8.0	0.38	2.6	0.30
9	60	103.96 - 106.97	3.01 "	1.28	0.038	0.28	16.4	5.6	4.2	0.22
9	60	106.97 - 109.00	2.03 "	0.94	0.030	0.28	15.3	1.9	1.7	0.30
9	60	109.00 - 110.74	1.74 "	0.72	0.024	0.23	13.9	3.4	4.4	0.32
9	60	110.74 - 111.89	1.15 "	0.19	0.011	0.056	8.8	0.72	3.5	0.32
9	60	112.50 - 114.21	1.71 "	0.19	0.011	0.053	7.9	0.60	2.9	0.26
9	60	116.65 - 118.20	1.55 "	0.75	0.030	0.27	14.1	4.6	5.8	0.37
9	60	118.20 - 119.30	1.10 "	0.21	0.011	0.068	8.1	0.96	4.2	0.33
9	60	119.30 - 122.00	2.70 "	0.23	0.014	0.060	11.6	0.90	3.6	0.26
9	60	122.00 - 125.00	3.00 "	0.22	0.013	0.059	11.0	0.66	2.7	0.27
9	60	125.00 - 130.00	5.00 "	0.19	0.010	0.045	10.1	0.66	3.2	0.21
9	60	130.00 - 135.00	5.00 "	0.19	0.011	0.049	10.7	0.72	3.5	0.21
9	60	135.00 - 136.66	1.66 "	0.23	0.011	0.047	10.5	0.60	2.4	0.22
9	60	136.66 - 138.15	1.49 "	0.082	0.006	0.028	7.0	0.06	3.9	0.37
9	60	138.15 - 140.00	1.85 "	0.20	0.015	0.050	10.1	0.60	2.7	0.25
9	60	140.00 - 145.00	5.00 "	0.21	0.015	0.056	10.8	1.1	4.8	0.28
9	60	145.00 - 150.00	5.00 "	0.15	0.011	0.033	9.7	0.80	5.5	0.20
9	60	150.00 - 155.00	5.00 "	0.15	0.010	0.044	10.0	0.75	4.7	0.27
9	60	155.00 - 160.00	5.00 "	0.20	0.013	0.054	9.8	1.0	4.7	0.25
9	60	160.00 - 162.40	1.40 "	0.23	0.013	0.059	10.0	1.4	3.5	0.26
9	60	161.40 - 164.29	2.89 "	0.36	0.018	0.12	9.6	2.5	6.6	0.33

Hole	Dip	Sample	Core length m	Ni %	Co %	Cu %	Fe %	S %	$\frac{S-S(cy)}{Ni}$	Cu/Ni
10	60	101.28 - 102.24	0.96	0.20	0.01	0.12	10.0	0.69	2.8	0.6
10	60	105.00 - 105.90	0.90	0.68	0.02	0.29	14.4	2.2	2.8	0.43
10	60	114.68 - 120.00	5.32	0.26	0.010	0.069	8.1	1.2	4.3	0.27
10	60	120.77 - 121.62	0.85	0.29	0.009	0.08	11.1	1.2	3.9	0.28
10	60	121.90 - 126.00	4.10	0.32	0.012	0.085	9.2	1.6	4.7	0.25
10	60	126.00 - 130.00	4.00	0.29	0.011	0.068	9.1	1.2	3.9	0.24
10	60	130.00 - 131.80	1.80	0.24	0.008	0.07	10.8	1.0	3.9	0.29
10	60	132.15 - 132.50	0.35	0.28	0.009	0.09	10.9	1.3	4.3	0.32
10	60	144.92 - 145.75	0.83	0.60	0.02	0.20	14.5	3.1	4.8	0.33
10	60	109.00 - 109.35	0.35	1.05	0.03	0.60	13.0	2.8	2.1	0.57
11	67	120.00 - 126.00	6.00	0.11	0.009	0.02	8.0	0.37	3.2	0.18
11	67	126.00 - 127.00	1.00	0.15	0.010	0.03	8.5	0.40	2.5	0.20
11	67	127.00 - 130.00	3.00	0.11	0.009	0.02	8.2	0.37	3.2	0.18
11	67	130.00 - 135.00	5.00	0.11	0.006	0.015	9.5	0.35	3.0	0.14
11	67	135.00 - 140.00	5.00	0.15	0.011	0.02	9.1	0.40	2.5	0.13
11	67	140.00 - 142.43	2.43	0.19	0.011	0.04	9.3	0.68	3.4	0.21
11	67	142.43 - 144.50	2.07	0.15	0.010	0.03	9.4	0.42	2.8	0.21
11	67	144.50 - 147.60	3.10	0.31	0.015	0.07	11.5	1.3	4.0	0.23
11	67	152.63 - 154.27	1.64	0.36	0.014	0.06	9.8	1.0	2.6	0.17
11	67	193.16 - 198.80	5.44	0.16	0.007	0.029	11.2	0.72	4.3	0.19
11	67	198.80 - 199.80	1.00	1.48	0.043	0.50	19.1	8.1	5.1	0.34
11	67	199.80 - 200.45	0.65	0.09	0.008	0.020	9.4	0.40	4.2	0.22
11	67	200.45 - 206.00	5.55	0.28	0.012	0.069	14.0	1.4	4.7	0.25
11	67	206.00 - 210.00	4.00	0.33	0.015	0.086	13.5	1.9	5.5	0.26
11	67	210.00 - 212.00	2.00	0.44	0.018	0.098	12.3	2.1	4.5	0.22
11	67	212.00 - 214.00	2.00	0.94	0.034	0.18	17.8	5.4	5.5	0.19
11	67	214.00 - 216.00	2.00	0.26	0.014	0.06	11.2	1.2	4.4	0.23
11	67	216.00 - 217.25	1.25	0.34	0.015	0.07	12.8	1.7	4.8	0.20
11	67	220.00 - 222.50	2.50	0.05	0.006	0.01	8.2	0.43	8.4	0.20
11	67	229.50 - 233.00	3.50	0.30	0.011	0.05	11.5	1.0	3.2	0.17

Hole	Dip	Sample	Core length m	Ni %	Co %	Cu %	Fe %	S %	$\frac{S-S(cp)}{Ni}$	Cu/Ni
11	67	233.00 - 237.00	4.00	0.10	0.006	0.03	8.1	0.40	3.7	0.30
11	67	237.00 - 240.00	3.00	0.05	0.006	0.01	8.2	0.14	2.6	0.20
11	67	240.00 - 245.13	5.13	0.06	0.005	0.016	9.8	0.40	6.3	0.27
11	67	246.10 - 250.00	3.90	0.07	0.007	0.025	10.1	0.49	6.6	0.36
11	67	250.00 - 253.00	3.00	0.08	0.006	0.029	10.0	0.58	6.9	0.36
11	67	253.00 - 256.00	3.00	0.08	0.008	0.02	8.5	0.43	5.1	0.25
11	67	256.00 - 259.00	3.00	0.12	0.008	0.04	8.6	0.60	4.7	0.33
11	67	259.00 - 261.00	2.00	0.14	0.008	0.03	8.8	0.58	3.9	0.21
11	67	261.00 - 263.00	2.00	0.33	0.015	0.11	13.8	2.20	6.3	0.33
11	67	263.00 - 266.00	3.00	0.11	0.007	0.031	9.2	0.69	6.0	0.28
11	67	266.00 - 270.00	4.00	0.15	0.009	0.045	11.2	0.81	5.1	0.30
11	67	270.00 - 275.00	5.00	0.09	0.006	0.029	10.2	0.58	6.1	0.32
11	67	275.00 - 280.00	5.00	0.13	0.007	0.052	10.8	0.98	7.1	0.40

As can be seen from the table some sections run fairly high nickel percentages but the average sample is rather low grade. Copper percentages are low, but increase proportionately with increasing nickel as is also the case for cobalt (see graphs). The Cu/Ni ratio is very regular and the average calculated is . This compares with 0.27 calculated from 74 surface and old drilling samples. The Cu/Ni ratio at Flåt is calculated to 0.67 from 359 samples.

From the table it can also be seen that the concentration of Ni in the sulphide phase is high. For the samples investigated the average (S-Seh):Ni ratio is , this compares with 6.25 (74 samples) calculated previously. Flåt Mine gives 8.73 (359 samples).

CONCLUDING REMARKS

Detailed discussions on the nature and origin of the mineralization at Kjettevann will not be taken up here as this will be discussed in a later report.

It is planned that an I.P. survey will be carried out here during the coming winter. It is hoped that this survey will detect definite drilling targets and determine the known zone northwards. The survey is planned carried out along the eastern shore of Kjettevann at least as far north as the northern end of the lake. Attention will also be given to an area farther south near Mølland farm where basic norite types outcrop.

It is suggested here that some attention should also be paid to the eastern contact of the norite complex where basic types also occur but to a lesser extent than in the west.

Regardless of I.P. results it is recommended that the area on the eastern shore of Kjettevann be drilled up more closely in order to get a better idea of the geometry if possible of the complex mineralized zones.

It is recommended that a study be undertaken to try to determine the origins of the sulphides and to try to determine whether such a deposit has economic possibilities.

14th Jan., 1971

FH/dm

A/S SULFIDMALM LVJE - IVELAND PROJECT

Report on Diamond Drilling Kjettevann 1970.

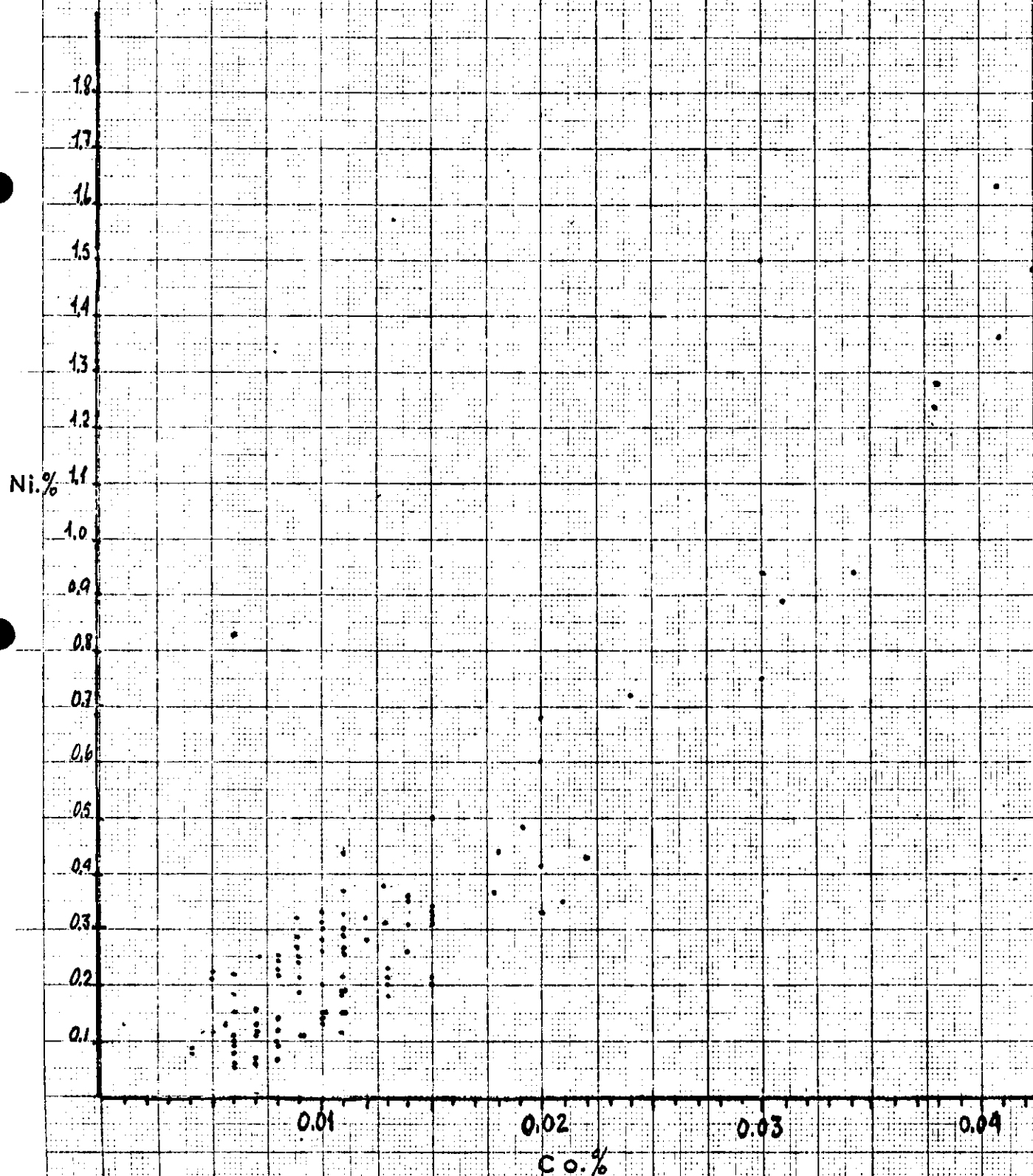
APPENDIX 1: Costs for Diamond Drilling 1970.

Between 11.5. and 11.12.1970 6 diamond drill holes were drilled at Kjettevann to a total length of 1311 m. The total cost of this drilling was kr. 245.531 which gives a price per meter of kr. 187. This compares with 1969 drilling where for 4 holes drilled to a total length of 634.43 m the total cost per meter was kr. 179.

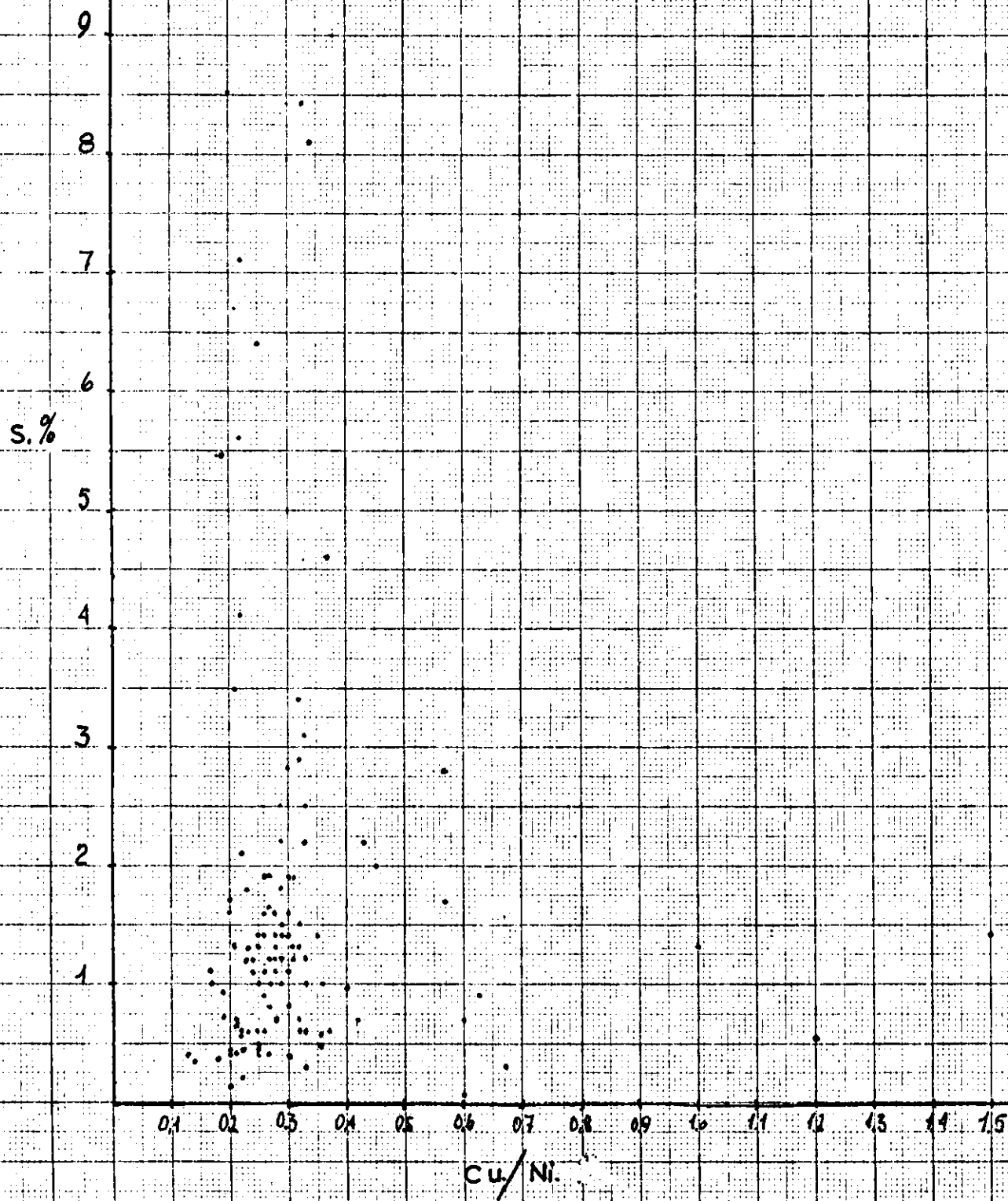
8th February, 1971
FN/hm

Fixin

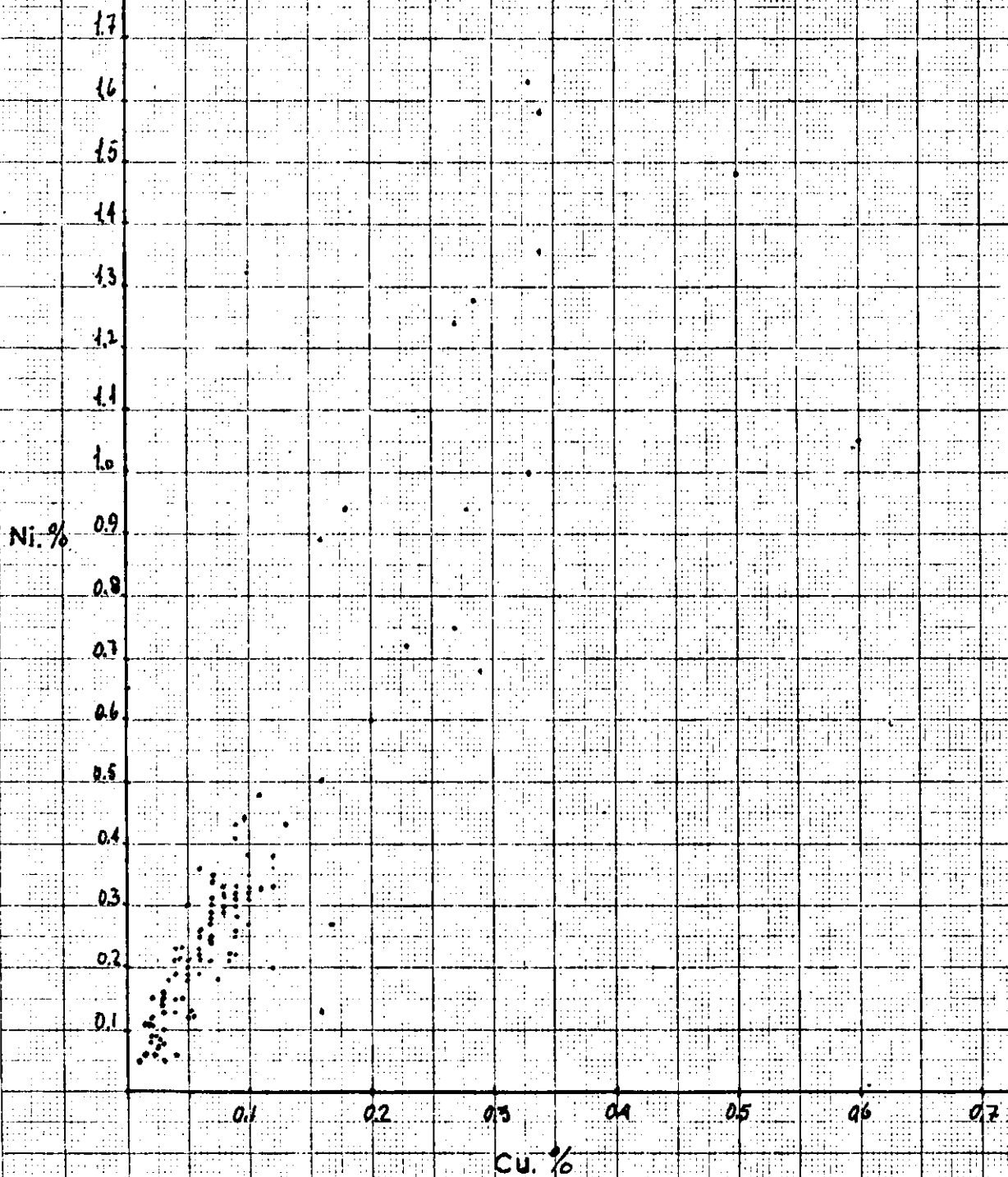
GRAPH SHOWING RELATIONSHIP BETWEEN % Ni AND % Co
FOR 138 DRILL SAMPLES KJETTEVANN 1970.



GRAPH SHOWING RELATIONSHIP BETWEEN $\%S$ AND Cu/Ni
FOR 138 DRILL SAMPLES FROM KJETTEVANN 1970.



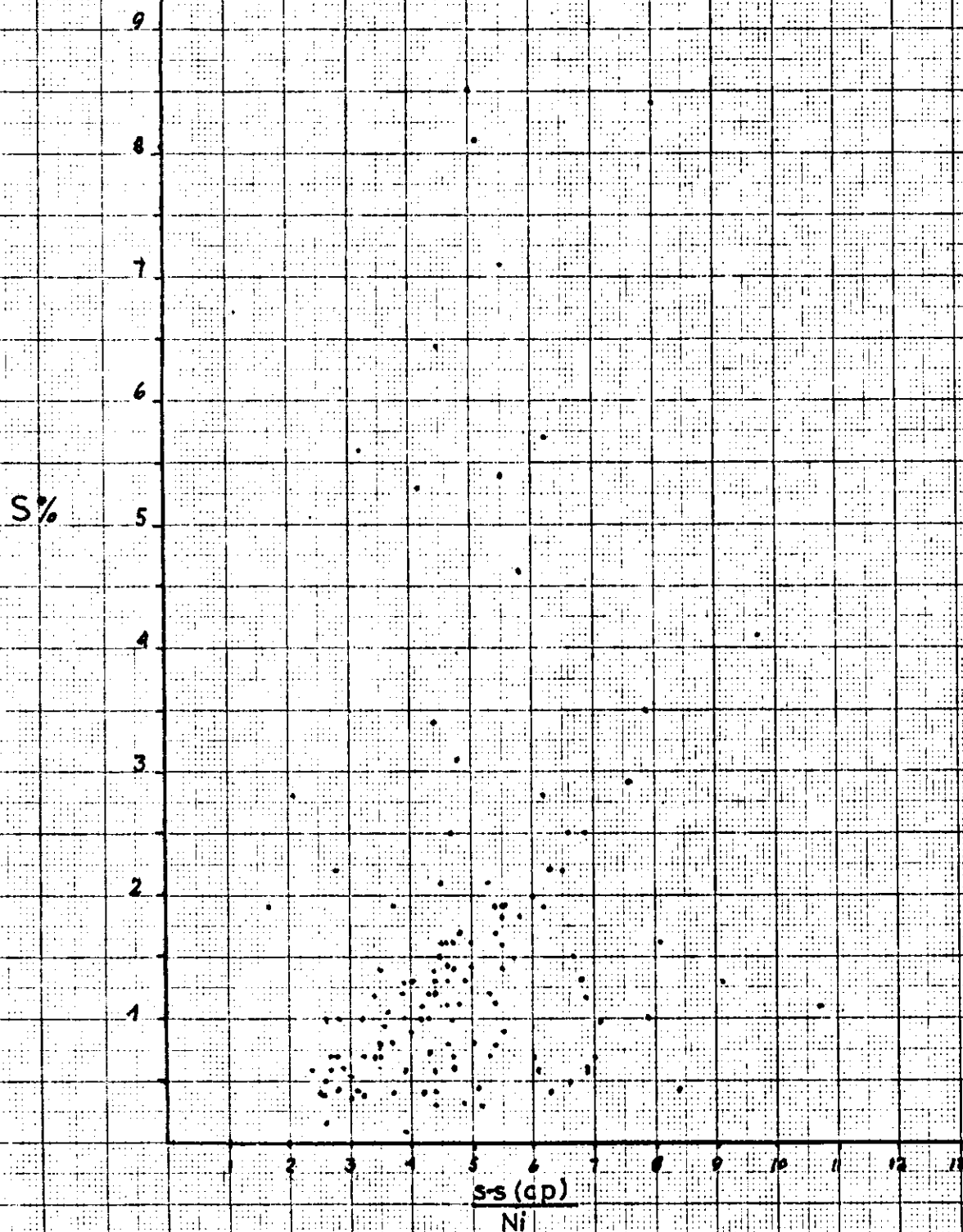
GRAPH SHOWING RELATIONSHIP BETWEEN %Ni AND %Cu
FOR 138 DRILL SAMPLES FROM KJETTEVANN 1970.



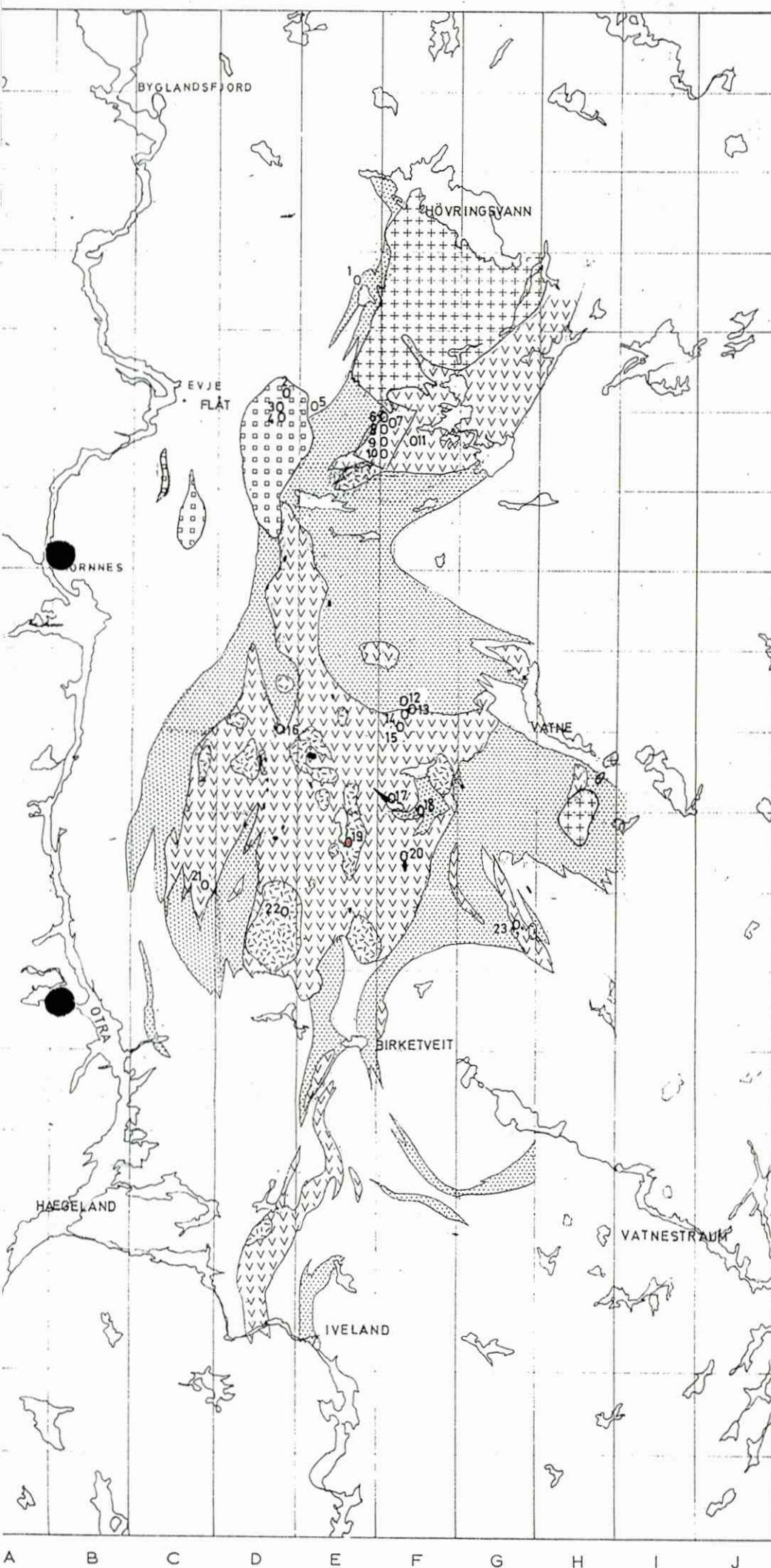
GRAPH SHOWING RELATIONSHIP BETWEEN %S AND $\frac{S-S(cp)}{N_i}$
 FOR 138 DRILL SAMPLES FROM KUETTEVANN 1970.

S = Total Sulphur.

S(cp) Sulphur united with chalcopyrite



EVJE-IVELAND ARE.



- GRANITIC AND DIORITIC GNEISS
- AMPHIBOLITE FOLIATED AND MASSIVE
- HORNBLLENDE GNEISS
- GABBRO
- HORNBLLENDE DIORITE
- ULTRABASIC
- GRANITE

- 1 st. AAFLOU PROSPECT
- 2 FLATERYGD "
- 3 FLÅT MINE "
- 4 MYKLEÅSEN PROSPECT
- 5 STABBESTEN "
- 6 HESTÅSEN "
- 7 LANGTJERN "
- 8 LOMTJERN "
- 9 GULREGN "
- 10 BYTTINGSMYR "
- 11 VIKSTØL "
- 12 N. PAASCHE "
- 13 S. PAASCHE "
- 14 BEKKEN "
- 15 ORREKNAPPEN "
- 16 LITJERN "
- 17 KLEPTJERN "
- 18 EPTVASSMYR "
- 19 MÖLLAND (Kjetlevann)
- 20 HAALAND "
- 21 LANDAAS "
- 22 SKRIPELAND "
- 23 ELSHAUGEN

AAVITSLANDSHEIA GRIN AREA

0 1 2 3 4 5 KM

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 20N/70E BEARING 270 DIP: 60 HOLE NO: 5 SHEET NO: 1
 LOGGED BY: F. NIXON STARTED: 11.5.1970 PROPERTY KJETTEVANN
 CASING: 2.30 m. FINISHED: 30.6.1970 MOLLAND IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
0	1.64	Overburden
1.64	2.40	Massive medium grained basic altered gabbro amphibole rich. With specks of pyrite and some chalco. noted. Near 2.40 more biotite appears probably due to Qtz. feldspar vein. Some introduced feldspar.
2.40	2.56	Qtz/fld. vein.
2.56	3.08	Massive medium grained basic gabbro amphibole rich with odd specks of pyrite.
3.08	3.32	Qtz/fld vein.
3.32		Massive medium grained altered gabbro/nonte still fairly basic but with marked less predominance of amphiboles - not so green in colour and the pyroxenes are plainly visible. Odd specks of pyrite with carbonate on fracture planes.
		9.90 - 10.50. Medium grained amphibolite this rock intrudes the gabbro which is altered on the contacts i.e. increase in amphibole content. The dyke is non-magnetic. Lower contact is in fracture zone and is difficult to see.
		10.30 - 11.00. Fracture zone.
		10.59 - 10.61 Intrusion of amphibolite, chlorite rich on borders with fine gr. dissemination of pyrite with very minor chalcopyrite.
		From 16m onwards seems to be a slight increase in the amphibole content.
		17.34 - 17.57. Qtz/fld. vein barren.
		18.90 - 19.10. Intrusion of amphibolite which again affects the gabbro.
		19.33 - 19.50 Shear zone. Most likely a sheared

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 20N/70E BEARING: 270 DIP: 60 HOLE NO.: 5 SHEET NO.: 2
 LOGGED BY: F. NIXON STARTED: 11.5.1970 PROPERTY: KJETTEVANN
 CASING: 2.30m FINISHED: 30.6.1970 MÖLLAND IVELAND.
 CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		minor intrusive with significant dissemination of pyrite with minor chalcopirite.
		20.78 - 20.82 Small vein of amphibolite with disseminated pyrite specks.
		From 19.50 - 23.00 the rock is extremely basic and amphibole rich. Pyroxenes gone over to fibrous amphiboles. From 23.00 - 30.00 the pyroxenes (hypersthene) are much more easily visible but the rock is still definitely not fresh.
		From 23.00 - 33.00 the rock is less pyroxene rich contains much amphibolite amphibole gradually becoming more altered until around 34.00 it is essentially an amphibole / biotite rock with minor feldspar.
		From 23.00 - 33.00 introduced feldspar is evident.
		28.45 - 28.55 Dioritic vein medium grained biotite rich on contacts. Contact zones both in intrusive and host rock have pyrite disseminations.
		28.80 - 28.90 Same dioritic rock as above again contains stringers of pyrite with some in contact zone.
		34.14 - 34.70 Uneven qtz / fld. vein with inclusions of host rock. Specks of pyrite occur in the vein, the inclusions, and in the contact zones of the host rocks.
		36.50 - 37.00 Extremely fractured and sheared zone.
		37.00 - 37.42 qtz / feldspar vein containing inclusions of host rock. This vein shows evidence of having been fractured after intrusion. Again contains minor pyrite.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 20N/70E BEARING: 270 DIP: 60 HOLE NO: 5 SHEET NO: 3
 LOGGED BY: F. NIXON STARTED: 11.5.1970 PROPERTY: KJETTEYANN
 CASING: 2.30m FINISHED: 30.6.1970 MÖLLAND IVELAND
 CORE SIZE: 52mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		45.31 - 45.50. Q13/fld. vein with 1 grain of cp. 1 grain of pyrite and 1 grain of Mo.
		46.63 - 46.73. Uneven introduction of qtz/feldspar with inclusions of host rock. Carries epidote and 2% disseminated pyrite.
		50.09 - 50.64. Intrusive dyke of amphibolite medium gr. fairly dark in colour - feldspars stand out as well defined white spots. Much of the amphibole has gone over to biotite. Upper contact is uneven due to feldspar introduction and thermal modification. Some specks of cp in this rock near the lower contact.
		The gabbro after this is still extremely basic and amphibole rich, but contains less biotite. The rock is especially basic and amphibole rich in the contact zones with the intrusive dykes.
		52.39 - 52.50 Intrusive dyke, finer grained and lighter in colour than the previous one - more dioritic in composition. Also contains small specks of pyrite.
		52.88 - 53.24 Intrusive dyke. Fine grained amphibolite. Contains small fracture fillings of pyrite and chalcopyrite. Around 53.20 over a few cms is a very fine dissemination of pyrite with minor chalcopyrite. Seems to be associated with epidote or saussuritized plagi.
		53.54 - 53.64 Small dyke as 52.39 - 52.50

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 20N/70E BEARING: 270 DIP: 60 HOLE NO.: 5 SHEET NO.: 4
 LOGGED BY: F. NIKON STARTED: 11.5.1970 PROPERTY: KJETTEVANN
 CASING: 2.30m FINISHED: 30.6.1970 MÖLLANDA, IVELAND
 CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		56.46 - 56.72 small dyke (as previous one) cut in turn by dyke of qtz/fld. The diorite dyke has a fine gr. impregnation of pyrite. The qtz/fld dyke is barren of sulphides.
		The gabbro on the whole from 50 to 60 m is very basic and amphibole rich (both hb and fibrous amphiboles).
		From 60-70 m also the gabbro is fairly unchanged, basic, amphibole rich etc. No noticeable sulphides.
		60.90 - 61.07. Pegmatitic dyke. Contains fine-med specks of pyrite especially in contact zone.
		62.00 - 62.13 Same kind of pegmatitic dyke specks of pyrite.
		69.00 - 69.20 Dioritic dyke with fine gr. impregnation of pyrite.
		From 70-80 m the gabbro is still basic and amphibole rich and on the whole barren of sulphides. My impression is however that it is slightly less altered than the preceding 20-30 meters.
		77.22 - 77.42. Small granitic dyke - fine grained
		80.50 - 80.70. In connection with feldspar introduction are specks of pyrite.
		82.18 - 82.38. and especially between 82.30 - 82.35 there is a definite connection between introduction of feldspar and sulphide mineralization.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 20N/70E BEARING: 270 DIP: 60 HOLE No: 5 SHEET No: 5
 LOGGED BY: F. NIXON STARTED: 11.5.1970 PROPERTY: KJETTEVANN
 CASING: 2.30m FINISHED: 30.6.1970 MÖLLAND IVELAND
 CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		In this case pyrite and chalcopyrite. From 82.30-82.35 is a quite med. gr. dissemination.
		83.00-83.10. Difficult to say if it is some kind of dyke or just an area with introduction of feldspar. sulphides specks plus a little more are present. (pyrite)
		86.11-86.23 Very fine grained slightly sheared amphibolitic dyke rock. Non magnetic with minor specks of sulphides (pyrite) Contact zones are slightly sheared.
		86.27-86.29. Al_2SiO_5 / feldspar vein.
		87.85-88.07 Fine / med. gr. amphibolite dyke.
		89.50. Just above zone with dioritic dyke are med. gr. spots of pyrrhotite.
		The gabbro from 80-90 m is fairly unchanged. From 80-85 more or less the same as from 70-80. From 85-90 however it is more altered biotite rich, lighter in colour (due to fibrous amphiboles) and more basic.
		From 90-100 m the gabbro is much fresher than from 85-90 and is probably some of the freshest most normal gabbro we have had in this hole so far.
		91.50-91.60 Fine gr. diorite dyke with pyrite in contact. Also biotite rich in contact.
		97.55 secondary feldspar with some associated pyrite.
		98.40-99.00. The rock is fairly basic, green

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 20N/70E BEARING: 270 DIP: 60 HOLE No: 5 SHEET No: 6
 LOGGED BY: F. NIXON STARTED: 11.5.1970 PROPERTY: KJETTEVANN
 CASING: 2.30m FINISHED: 30.6.1970 MOLLAND IVELAND
 CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		and in parts fairly fine grained. Contains large irregular spots and clumps of pyrite and chalcopirite.
		100.28 - 100.34 2% sulphides py. cp. po.
		102.20 - 102.23 What looks to be a dyke rock. very basic, dark, fine to med. grained.
102.33	103.80	Pegmatite coarse grained. At the lower contact the gabbro is very feldspar rich and contains a small fine gr. impregnation of sulphides dominantly chalcopirite.
103.80	110.00	Gabbro as above.
		104.60 - 104.75 specks of sulphides in the gabbro cp. py (po?) again I think associated with the introduction of feldspar.
		107.20 - 109.90. The gabbro changes in texture and lithology due to the fact that it contains feldspar, most likely introduced - possibly due to close proximity of fairly numerous pegmatite dykes.
		107.34 - 45. 2% sulphides mainly pyrite.
		108.30 - 108.53. Fine gr. granite vein.
		109.90 - 110.00. Quartz vein, at upper contact shear which gave rise to stone fall in the hole that needed cementing.
110.00	120.80	Gabbro is extremely basic and for the most part of this section is in fact of an ultrabasic nature. Texture varies from fine/med. - to more medium grained.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 20N/70E BEARING: 270 DIP: 60 HOLE NO: 5 SHEET NO: 7
 LOGGED BY: F. NIXON STARTED: 11.5.1970 PROPERTY: KJETTEVANN
 CASING: 2.30m FINISHED: 30.6.1970 NOLLAND IVELAND
 CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		Lithology also varies, sometimes almost all ls ditic others more rich in anthophyllite, actinolite, chlorite etc. Some carbonate in places. 110.00 - 110.20. specks to 2% sulphides dominantly pyrite. Down to 111.00 there occur odd lumps of pyrite. Also at other places down to 120m (for ex. 114.50 isolated clumps and lumps of sulphides mainly pyrite plus minor cp. In some cases seem to be definite replacement. Some in the centre of carbonate vugs for example.
120.80	124.00	Still a basic gabbro but much fresher and massive and compact, med. gr. Hypersthene visible also the odd speck of pyrrhotite.
124.00	131.60	The gabbro again becomes altered, softer, biotite rich, hypersthene breaking down 124.70 - 125.20 2% sulphides mainly pc also a little py + cp. med. gr. impregnation.
131.60	155.58	Pegmatite. qtz, fld. biotite, both upper and lower contacts in country rock are extremely biotite rich and sheared
155.58	162.75	The gabbro down to 162.75 is extremely basic and in many parts entirely ultrabasic in character. ls. biotite, chlorite rich.
162.75	164.86	Pegmatite.
164.86	170.00	The gabbro seems to be affected by the pegmatite down to 165.60, but then becomes quite fresh and is seen to contain visible hypersthene and although it contains in part quite a lot of feldspar is quite fresh. The hypersthene

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 20N/70E BEARING: 270 DIP: 60 HOLE NO: 5 SHEET NO: 8
 LOGGED BY: F. NIXON STARTED: 11.5.1970 PROPERTY: KJETTEVANN
 CASING: 2.30m FINISHED: 30.6.1970 MOLLAND IVELAND
 CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		can be seen down to a depth of 170.00 m
170.00	182.00	but from then on the dark minerals go over to hb. and the rock becomes a mottled hb/feldspar rch. This rock continues down to around 182 m
		170.30 - 170.38 small amphibolitic dyke with a few small shingens of pyrite.
		172.65-70. Amphibolite dyke.
		182.72-82. small qtz vein with uneven contacts
182.00	194.75	Pyrroxenes become visible and the rock is more fresh and gabbroic looking.
		183.57 - 183.70 Qz/feldspar vein
		184.40 - 184.46. very good coarse gr impregnation of pyrrhotite 2-5%.
194.75	199.38	The lappetstone is replaced by amphibole and the rock becomes a plag. hornbl. rch, still massive and still coarse gr. Contains some small more fine grained and basic parts
199.80	201.30	Gabbro is much finer gr. contains pyroxenes.
201.30	201.80	Rock is sheared .. includes a sheared peg.
201.80	203.93	Fine gr. basic gabbro.
203.93	206.00	Coarse gr. gabbro
206.00	218.75	Fresh med. grained. massive gabbro norite with old specks of sulphides.
		215.60 - 215.88 amphibolite fine gr. dyke.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 20N/70E BEARING: 270 DIP: 60 HOLE No: 5 SHEET No: 9
 LOGGED BY: F. NIXON STARTED: 11.5.1970 PROPERTY: KJETTEVANN
 CASING: 2.30 m FINISHED: 30.6.1970 MÖLLAND IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
218.75	220.35	Mottled feldspar / amphibole gabbro coarse gr.
220.35	221.56	Fine / med. gr. granitic dyke.
221.56	243.40	Gabbro / norite.
		221.56 - 222.00 ultrabasic section, green med gr dominantly amphibole.
		222.00 - 224.00 med. coarse gr. more typical and fresh with easily visible hypersthene.
		224.00 - 224.80 Introduction of uneven irregular quartz / feldspar veins and these seem to affect the gabbro making it more amphibole rich.
		Around 227 m again getting the introduction of feldspar but this time more regular and as one goes deeper the rock becomes coarser but the mafic minerals are still fairly fresh.
		228.95 - 229.16. Fine gr amphibolitic dyke, clearly intrusive with sharp contacts. Slightly magnetic.
		The coarser type continues down to 232.20
		231.16 - 231.17 a few coarse lumps of pyrite
		232.28 - 233.20 fine gr. amphibolitic dyke slightly magnetic. The lower contact is qtz / feldspar rich and contains a few specks of pyrite.
		The
		From here down to 235 the gabbro is very basic and fine to med. gr. but still with visible hypersthene
		From 235 the gabbro becomes less fine grained, more altered and in parts more acid although it is dominantly still very basic. Magnetite appears at 235.66 and occurs sporadically down

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 20N/70E BEARING: 270 DIP: 60 HOLE NO: 5 SHEET NO: 10
 LOGGED BY: F. NIXON STARTED: 11.5.1970 PROPERTY: KJETTEYANN
 CASING: 2.30 m FINISHED: 30.6.1970 MOLUIND IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		to 238.10 with some parts being highly magnetic.
		236.25 - 236.60 very weak dissemination of pyrite
		238.239 round here quite a lot of carbonate
		237.90 - 240.00 basic gabbro with good coarse impregnation 5% dominantly pyrrhotite. around 240.45 and at 240.80 get coarse clumps of sulphides po cp. py.
		241.28 - 242.00 0-2% sulphides, dominantly po some very coarse blebs.
		242.15 - 242.44 over 5% sulphides dominantly po some very coarse blebs.
		242.44 - 242.00 0-2% dominantly po.
		Gabbro in this mineralized zone is very basic but still fairly fresh.
243.40	267.20	At 243.40. There is an increase in feldspar, Epidote begins to appear, the rock becomes more foliated and the gabbro passes over into a foliated amphibolite. Although over the first few m. more massive types do occur. These foliated rocks are rich in pyrite as a fine dissemination and also as fracture fillings and stringers. 245.50 - 245.60 2% py.
		245.69 - 245.82 Fine gr. amphibolite dyke slightly magnetic.
		248.50 magnetic
		247.54 - 61. fine gr. amphibolite/gabbro dyke.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 20N/70E BEARING: 270 DIP: 60 HOLE NO: 5 SHEET NO: 11
LOGGED BY: F. NIXON STARTED: 11.5.1970 PROPERTY: DETTEVANN
CASING: 2.30m FINISHED: 30.6.1970 MOLLAND IYELAND
CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		250.70 - 253.52 more massive gabbroic section
		From 253.52 on well foliated kb. gneiss with pyrite disseminations.
267.20	270.64	Pegmatite - coarse gr.
	270.64	End of hole.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 20N/70E BEARING: 270 DIP: 60 HOLE No: 5 SHEET No: 12
 LOGGED BY: F. Nixon STARTED: 11.5.1970 PROPERTY: KJETIEVANN
 CASING: 2.30m FINISHED: 30.6.1970 MOLLAND NELAND
 CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		CORE ANGLES .
		9.90. 60 contact. 260.20. 42
		10.59 52 contact 263.20 48
		10.61 52 contact 266.20 45
		17.34 10 " 267.20 18 contact.
		17.57 10 "
		18.90 55 "
		19.10 50 "
		19.40. 51 shear
		20.78 72 Contact
		20.82 72 "
		28.45 56 "
		28.90 48 "
		45.31 32 "
		50.64 68 "
		52.50 44 "
		53.84 90 "
		56.46 38 "
		61.07 42 "
		62.13 49 "
		82.10 45 "
		86.23 76 "
		91.50 26 "
		108.30 40 "
		109.85 38 shear
		110.50. 52
		131.55 50 shear.
		155.68 25 "
		172.65. 30 contact
		186.20 60
		201.50. 55 shear
		220.35. 42 contact
		228.95 60 contact
		233.20 50 "
		245.69 60 "
		247.54 62 contact

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 1S/16W. BEARING: --- DIP: 90 HOLE NO: 6(1970) SHEET NO: 2
 LOGGED BY: F. Nixon STARTED: 3.7.1970 PROPERTY: KJETTEVANN
 CASING: --- FINISHED: 13.7.1970 MÖLLANDA ISVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED): NORWAY

FROM	TO	DESCRIPTION
0.00	0.80	Overburden.
0.88	1.57	Compact massive small grained basic/gabbro almost ultrabasic - seems to be amphibol. rock. 0.88 - 1.50 up to 2% sulphides dominantly pyrite with a little cp.
1.57	2.20	This then passes into a more medium to coarse gr. even gr rock which is roughly 50% amphib and 50% plag
2.20	4.00	Around 2.20 there is again a change in rock character the rock contains slightly less feldspar and pyroxenes notably hypersthene and readily visible, after about 20cms there seems to be introduction of feldspar and development of amphibol. and the rock in part has obtained a somewhat mottled appearance. 2.10 - 3.00 up to 2% sulphides dominantly pyrite.
4.00	6.40	From 4.00m the amphibol. (hb) becomes the more dominant although the rock still retains some feldspar and is fairly coarse grained. Some parts there is introduction and development of feldspar. At 6.19-6.22 seems to be a small ultrabasic intrusive dyke - hornblende. Only lower contact is sharp. Speds of sulphides
6.40	8.80	Fine gr. compact massive ultrabasic, diffuse contacts possibly a dyke.
8.80	11.20	Medium / coarse gr. gabbro feldspar / amphibol. rock in part with pyroxenes (hypersthene visible)

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: IS/16W BEARING: --- DIP: 90° HOLE NO: 6/1970 SHEET NO: 5
 LOGGED BY: F. NIXON STARTED: 3.7.1970 PROPERTY: KISTEVIANN
 CASING: --- FINISHED: 13.7.1970 VELAND, MOLLAND
 CORE SIZE: 52mm TESTS (CORRECTED): NORWAY

FROM	TO	DESCRIPTION
		around 10.00 however begin to get isolated clumps of a fine gr. lighter bas. rock. Difficult to say if this is some kind of inclusion or differentiation product.
		8.80 - 10.00 isolated specks of outplides but in patch comes up towards 2/ eg 9.40-9.90.
		10.00 - 10.53. specks to 2/ dominantly pyrite, minor cp. po. as fine gr. dissemination.
		10.90 - 11.20. specks to 2/ dominantly pyrite minor cp. po. as fine gr. dissemination.
11.20	12.73	From 11.20 begin to get patches of lib. The groundmass also becomes more lib. rich eventually get an almost ultrabasic hornblende rich rock.
		11.20 - 11.57 odd specks of outplides
		11.57 - 11.90 Here in the basic patches in this section are 2/ outplides, mainly pyrite as both fine and coarse dissemination.
		12.00 - 12.70 The mineralization is very uneven mainly pyrite as rich aggregates, clumps, fine gr dissemination and stringers.
12.73	14.08	Now getting large clumps of introduced feldspar up to 2cms in length in the lib matrix so the rock is a mottled extremely uneven and coarse gr lib/feldspar rock.
		12.86 - 13.04 pegmatite.
14.08	15.00	Still coarse grained with large uneven feldspar aggregates but with more hypersthene than previous few meters.
		14.30 - 14.43. Healed med grained biotite (phlogopite) amphibole, plag dyke rock. Sharp contact.
15.00	30.00	Fairly uniform white, hypersthene rich, massive

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 15/16W BEARING: --- DIP: 90 HOLE NO: 6 (1970) SHEET NO: 4
 LOGGED BY: F. Nixon STARTED: 3.7.1970 PROPERTY: KILBICKYNN
 CASING: --- FINISHED: 13.7.1970 NORLAND 142MM Ø
 CORE SIZE: 32 mm TESTS (CORRECTED): NORLAND

FROM	TO	DESCRIPTION
		19.00 - 20.00 is very basic and from 20 - 30 m fairly basic
		At 26.70 there are concentrations of coarse grains of lib a hypersthene. Could be differentiation concentrations or introductions. seem to be associated with concentrations and introductions of feldspar.
		21.95 - 22.20. Extremely fine gr basic light rock
		23.45 - 24.20 feldspar rich.
		15.40 - 15.44. med grained dissemination of po py and a little cp. 2-5%. po here was as dominant as the py.
		20.81 - 21.15 Heavily mineralized part 10% sulphides dominantly po then py then cp as dominantly med/coarse gr impregnation. Host rock is very basic.
		[Between old specks]
		26.72 - 27.05. 2-10% sulphides dominantly po py less dominant and cp least dominant Both as fine impregnation and coarse impregnation and coarse slumps and stringers. Po forms core of stringers with cp on outside. Some of the mineralization seems to occur in lib/hyp concentrations that may intrude the host rock. Introduced feldspar. here contains pyrite grains.
		28.30 - 28.80 uneven mineralization, dominant po also py cp. 2-5%. as fine-coarse dissemin in stringers.
		29.20 - 30.00 2-20% sulphides po py cp.
30.00	40.00	Rock is predominantly an hypersthene rich, basic rock/gabbro but has in places been affected by shearing and fracturing. From 30.00 - 30.55 get two rock types with a fairly uneven contact in the core.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 15/16W BEARING: 47 DIP: 90 HOLE NO: 6(1970) SHEET NO: 5
 LOGGED BY: F. N. K. K. STARTED: 3.7.1970 PROPERTY: KJETTEVANN
 CASING: --- FINISHED: 13.7.1970 MØLLAND IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED): NORWAY

FROM	TO	DESCRIPTION
		One is a coarse hb/hyp rock with sulphides. The other is a med gr amphib / pyroxene plagi rock generally without sulphides. Difficult to say which intrudes which.
		30.55 - 31.00 Very basic
		31.52 small shear zone chlorite development.
		32.50 - 38.50 fracture zone with much chlorite. Not a continuous zone over the whole 6 m. but most of the six meters show visible signs of fracturing.
		Drill has drilled along one fracture zone from 32.50 - to 33.75.
		Another major fracture zone drilled along 35.70 - 37.60.
		38.85 Shear zone.
		30.00 - 30.70 Very uneven sulphide distribution but between 2-5%. Slightly more pyrite present here although po still quite abundant. As fine and coarse gr dissemination. Py & pycp. noted in stringers. The sulphides seem to prefer the basic hb/hyp rock.
		32.85 - 33.10 2-5% sulphides dominantly py
		37.20 - 37.50 2-5% mainly pyrite.
		38.95 - 39.16 2-5% mainly po
		Otherwise mainly old specks and lumps.
40.00	50.00	Basic gabbro / norite med gr. and fairly fresh contains in parts introduced pyrites.
		40.55 pyrite stringers on 40.
		40.88 - 41.47 spread mineralization fine disseminati. pyrite dominant.
		41.47 - 41.80 over 5% sulphides py, po, cp. py & cp as stringers. Otherwise fine med gr. dissemination.
		42.10 - 42.20 over 5% sulphides dominant py & po.
		43.46 - 45.40. Very uneven distribution but

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 1S/16W BEARING: --- DIP: 90 HOLE NO: 6 (1970) SHEET NO: 6
 LOGGED BY: F. Nixon STARTED: 3.7.1970 PROPERTY: KJETTEVANN
 CASING: --- FINISHED: 13.7.1970 ICELAND (MFLAND)
 CORE SIZE: 32 mm TESTS (CORRECTED): NOVAZ

FROM	TO	DESCRIPTION
		ail zone. contains between 2 and 5% sulphide. from fine gr dissemination to coarse blebs. Pyrite and pyrrhotite are the most dominant. Cp is very minor.
		43.46 - 43.75. very fine gr dissemination
		44.80 - 45.00 very coarse gr. dissemination
		45.28 - 45.40 2% py. po dominant.
		46.10 - 46.70 up to 2% of unevenly distributed fairly coarse grains of sulphides, dominant po
		49.00 - 49.90 over 2% fine dissem. of sulphides po py minor cp.
		49.90 - 50.00 coarse blebs po + very minor cp 2-10%.
50.00	54.00	Med. gr. massive fairly fresh gabbro / white 50.00 - 50.24. 5-10% sulphides mainly po. coarse blebs. 50.40 - 50.54 coarse blebs 5-10% po. 50.75 - 51.20 over 5% sulphide. fine med dissemination po. py. cp. 51.20 - 51.55 2% sulphides fine/med dissem. po py. cp. 52.50 - 55.80 2% sulphides mostly as fine/med. gr dissemination mainly po py. cp.
54.00	56.80	Very sheared and altered zone with much chlorite and carbonate. 56.00 - 56.40. 2% sulphides po py.
56.80	58.00	Gabbro showing perhaps some effects of the shearing 57.00 - 59.50. up to 2% sulphides po py. cp.
58.00	59.50	Mixture of coarse gr. basic gabbro (hypersthene and amphibolite and more fine/med gr plagioclase rich gabbro. It is again noticeable that the sulphides prefer the coarser basic rock.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 15/16W BEARING: — DIP: 90° HOLE NO: 6(1970) SHEET NO: 7
 LOGGED BY: F. Lickert STARTED: 3.7.1970 PROPERTY: KJETICVANN
 CASING: — FINISHED: 13.7.1970 MOLLAND, IRELAND
 CORE SIZE: 32 mm TESTS (CORRECTED): NORWAY

FROM	TO	DESCRIPTION
59.50	60.00	Darker coarse, more basic gabbro more homogeneous 59.50 - 60.00 5% sulphides dominantly pc
60.00	70.00	First three m. are very basic and massive varies little in character down to 70m some places more fine gr. others slightly less basic 60.84 - 61.00 much feldspar. 64.40 - 64.60 fracture zone. 68.30 - 68.40 fracture zone. 69.04 - 69.12 feldspar / biotite dyke med gr sharp contacts with gabbro. Is itself cut by vein that contains carbonate and hornblende and contains blobs of pyrite with minor cp. The dyke also carries disseminated specks of py. 60.00 - 60.50 2-5% sulphides po py cp fine med gr dissemination. 60.70 - 82. 5% mainly pyrite coarse gr 61.00 - 62.80 around 2% sulphides mainly as fine/med dissemination po + py most dominant cp. minor 64.00 - 65.70 5% sulphides as coarse blobs with minor med/fine gr dissemination. po py again dominant some cp. At 67.70. coarse blobs of pyrite with thin rim of cp. thick rim of po.
70.00	73.00	Fairly fresh massive gabbro, hypersthene rich med gr.
73.00	83.90	Same as seen higher up in this hole and in other holes. med gr. gabbroic rock and schlieren of basic coarse gr. hb / hypersthene patches clumps etc. At 77.90 - 78.00 some slight shearing

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 15/16W BEARING: --- DIP: 90' HOLE NO: 6(1970) SHEET NO: 8
LOGGED BY: F. Nixon STARTED: 3.7.1970 PROPERTY: KJETTEVIK
CASING: --- FINISHED: 13.7.1970 MOLLAND NEZAND
CORE SIZE: 32mm TESTS (CORRECTED): NORWAY

FROM	TO	DESCRIPTION
		74.75 - 75.05 over 2% sulphides po + py dominant mostly as fine/med gr dissem. but some coarse lumps present
		75.77 - 76.60 2% sulphides po. py. cp. fine/med. dissem.
		77.25 - 77.55 2% sulphides py is dominant cp. quite abundant. Okenite add specks.
83.90	92.00	Around 83.90 there seems to be less interweaving of the med. and coarse gr varieties and the rock becomes a more uniform gabbroic 10th fairly basic in character. Red grained. 84.81 - 84.98 small granitic dyke 80.00 - 83.80 over 2% sulphides po py. cp med. dissem.
92.00	93.85	Basic lb. rich rth with uneven foliation lumps
93.85		End of lake.

A/S SULFIDMALM

DIAMOND DRILL RECORD

DIAMOND DRILL RECORD

LOCATION: 18/16W	BEARING: —	DIP: 90	HOLE NO: 6(1970)	SHEET NO: 9
LOGGED BY: F. Nixon	STARTED: 3.7.1970	PROPERTY: KJETTEVANN		
CASING: —	FINISHED: 13.7.1970	MOLLAND IVERLAND		
CORE SIZE: 32mm	TESTS (CORRECTED):	NORWAY		

[illegible]

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 80.9N/1.35V BEARING: 270° DIP: 60° HOLE NO: 7(1970) SHEET NO: 2
 LOGGED BY: F. NIXON STARTED: 16.7.1970 PROPERTY KJETTEVANN. MÖLLERND
 CASING: 1.68 m FINISHED: 30.7.1970 IVELAND NORWAY
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
0.00	1.50.	Overburden.
1.50.	2.00.	Gabbro. Dark, massive, and obviously not fresh. The mafic mineral - amphibole is extremely dark in colour. Feldspar about 40%. Seems to contain 'inclusions' of a more normal gabbro - lighter in colour and with visible pyroxene (hypersthene). Few specks of pyrite noted.
2.00	2.44.	Extremely basic gabbro, a gradual change into an ultrabasic variety which is massive amphibole rich and near lower contact carries a weak concentration of med. gr. pyrite dissemination.
2.44.	2.99.	Coarse gr. Hb. gabbro. A coarse gr. massive rock consisting of a green amphibole and plagi 50/50. Has sharp upper and lower contacts. Contains in part a good concentration of pyrite both as disseminations and small vein fillings.
2.99.	3.16	Sharp upper contact. A more medium gr. variety of the preceding Hb. gabbro. Pyrite rich, contains a small (cm wide) band of the coarse gr. variety.
3.16	3.29	Fine gr. ultrabasic type - amphibole rich. contains about 2% pyrite.
3.29	3.54	Med. gr. massive Hb. gabbro.
3.54.	4.52.	There is a slight upper contact to be seen where the Hb. gabbro goes over to a fine gr. more basic gabbro type, in parts almost ultrabasic. Between 3.60 and 3.70. There is a horizon

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 80.9N/1.35V BEARING: 270 DIP: 60 HOLE NO: 7(1970) SHEET NO: 3
 LOGGED BY: F. NIXON STARTED: 16.7.1970 PROPERTY: DETLEFSEN HOLLAND
 CASING: 1.68m FINISHED: 30.7.1970 1 VELAND, NORWAY
 CORE SIZE: 52 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		of quartz feldspar and much pyrite.
		3.85 - 4.15 50% sulphides as massive dissemination po. py cp. Also some magnetite present.
		4.15 - 4.43 2% sulphides as some stringers and dissemination.
		4.43 - 4.82. Specks of sulphides.
4.82	5.06	Hb. feldspar rich rock with in part fine dissemination of pyrite. Probably some kind of dyke rock or same kind as the gabbro rocks mentioned above.
5.06	6.00	Ultrabasic section pyroxene rich with small hairline carbonate lined fractures. passes gradually into next rock unit.
6.00	37.42	Massive med. gr. hypersthene rich fairly basic norite/gabbro. The large amount of hypersthene gives it a fairly distinctive reddish colour. Between 14 and 17m there has obviously been some kind of alteration (due to circulating ground waters or other source - I don't know) Carbonate abundant. 17.48 - 17.56. Small fine gr. dark basic dyke rock - non magnetic. 19.70 - 20.48 Still in altered zone but here it is heavily mineralized. Pyrrhotite seems to be dominant and is rusted. Cp and py. are also present. Sulphides run from 20-50%. From 21-25m less altered. 25.43 - 25.54. Small feldspar rich dyke rock same type as between 4.82 and 5.06. The gabbro still shows signs of heavy alteration down to 30m. 28.53 - 29.09 Fine gr. basic dyke rock. 31.64 - 31.69. introduction of feldspar.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 80.9N/1.35E BEARING: 270 DIP: 60' HOLE NO: 7 (1970) SHEET NO: 4
 LOGGED BY: F. NIXON STARTED: 16.7.1970 PROPERTY: KJETTEVANN, MOLLAND
 CASING: 1.68m FINISHED: 30.7.1970 IVELAND, NORWAY
 CORE SIZE: 52mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		Gabbro is still showing signs of alteration and from 34.70 - 34.80 there is a small fracture zone and around this it is extremely altered. Around 35.50 small open fractures can be seen and in some of these carbonate can be seen to be partially dissolved.
		36.92 - 37.42 Intrusive dyke, fine to med gr. and of amphibolite composition. Country rock at upper contact is rich in a green amphibole.
37.42	42.96	Seem now to be in a more feldspar and amphibolite incl. gabbro type. Down to 37.85 there is an even distribution between plag. and mafic in a massive texture. After this however the rock becomes more basic and the plag. sporadic in its distribution. Contains specks of sulphides. Between 42 and 43m approaches 2% dem. pyrite.
		39.20 - 39.60. Shear zone.
42.96	53.50	Coarse gr. hb. gabbro (hb. plag. - minor biotite) massive. Upper contact is fairly sharp. 44.13 - 44.27 Small peg vein. 45.40 - 45.55. Small acid vein. The surrounding gabbro is sheared parallel to the contact walls of the dyke. 48.85 - 49.80. Peg vein. Again gabbro is sheared in contact zones. From 50m to 53.50 biotite rich.
53.50	53.66	Sheared fine/med gr. biotite, hornblende feldspar dyke, shearing parallel to contacts.
53.66	56.08	Med. grained (in part, fine) very basic (to ultrabasic) gabbro with smooth core surface.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 80.9N/1.35W BEARING: 270° DIP: 60° HOLE NO: 7 (1970) SHEET NO: 5
 LOGGED BY: E. Nixon STARTED: 16.7.1970 PROPERTY: KETTEVUNN, NICKLAND
 CASING: 1.68m FINISHED: 30.7.1970 IVELAND, NORLBY.
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
56.08	58.75	Here the core surface ceases to be smooth and is much rougher. Still more or less the same basic gabbro type although the texture becomes slightly coarser.
58.75	65.36	Same as from 53.66 - 56.08 looking quite fresh and very massive. Between 58.80 and 59.00 it carries some specks and blebs of py. and cp. that seem to be in association with introduced feldspar. Contains in parts quite a lot of feldspar and in parts it is so arranged that it is possible to obtain a core angle. From 60.00 - 61.62 isolated sulphides in some parts approaching 2%. Pyrite is most common however. 61.62 - 62.30. Very good coarse gr. mineralization 20-50% sulphides. Dominantly po & cp. 62.30 - 63.00. Odd specks. 63.00 - 64.00 as above 20-50%. 64.00 - 65.36. 2-5% sulphides med. gr. po & cp.
65.36	71.48	From here the rock suddenly develops a much more weathered surface, it is still a basic gabbro (med, coarse gr.) but now on the core surface it is much lighter in colour and the hypersthene stands out as being much more reddish in colour. Also contains "fragments" of a finer gr. rock. (This phenomena has been seen in other holes.) Even distribution of sulphides po, py, cp. 1-2%.
71.48	97.73	Return of the massive smooth surfaced basic variety mottled with a fairly even distribution of sulphides po, py, cp. Difficult to judge percentages but on the whole above 2% down to 85.90.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 80.9N/1.35W BEARING: 270 DIP: 60 HOLE NO: 7 (1970) SHEET NO: 6
 LOGGED BY: F. ALLEN STARTED: 16.7.1970 PROPERTY: KJETTEVANN, MOLLAND
 CASING: 1.68 m FINISHED: 30.7.1970 IVELAND, NORWAY
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		83.14 - 83.50. peg vein.
		89.00 - 89.90. mineralization comes again over
		2% pc. py. cp. disseminations.
		91.57 - 94.84. again pretty even distribution
		of sulphides 2.5% pc. py. cp. fine med. gr
		and partly coarse disseminations, also
		fracture fillings.
97.73	124.56	Here the gabbro becomes slightly less basic
		and the increase in plagioclase gives the rock a
		much lighter colour, still very massive med. gr.
		From around 101 m. the gabbro begins to be
		foliated and in places a very good foliation
		is developed although the rock is still a
		gabbro (meta. gabbro).
		Around 107.60. magnetite dissemination.
		Even at this depth most of the pc. here is rusty.
		From around 107.10 get very good examples
		of coarse basic schlieren (lvs. lvs) in a
		more normal gabbro, these basic "injections"
		here carry the sulphides.
		100.00 - 105.00 specks of sulphides uneven
		distribution with odd small concentrations as at
		103.40.
		105.10 - 107.30. over 2% both as coarse gr -
		fine gr. impregnation, fairly uniform but the
		coarse disseminations occur together and give
		richer parts. pc. py. cp.
		107.85 - 108.40. same as above, here main
		concentration is between 108.20 and 108.40.
		108.70 - 109.70. Here the coarse sulphides are
		found in the basic "injections".
		109.95 - 110.23. Fine gr. amphibolitic dyke.
		All the way down to 120 still getting basic
		injections of various size and shapes and

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 80.9N/135W BEARING: 270 DIP: 60 HOLE NO: 7(1970) SHEET NO: 7
 LOGGED BY: F. Nixon STARTED: 16.7.1970 PROPERTY: KIETTEVANA HILLMINE
 CASING: 1.68m FINISHED: 30.7.1970 'VELAND. NORLUND.
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		The entire picture looks very chaotic. One
		From 116 onwards there is an increase in
		the feldspar content.
		Mineralization is very irregular.
		110.73 - 110.83 coarse blks po. py. sp.
		111.20 - 111.70. 5-10% coarse dissem. of po py. sp.
		112.43 - 112.90. 5-10% " " " "
		113.55 - 113.60 " " " "
		114.00 - 114.20. 2-5% " " " "
		115.35 - 117.00 2-5% " " " "
		Otherwise down to 120 get sporadic and isolated
		blks
		It is noticeable that the feldspar rich part.
		have the least sulphides.
		120.25 - 121.20 coarse dissem. of po. py. sp. 2-5%
		121.88 - 122.60 " " " "
		123.70 - 124.56 the rock is basic, green in colour
		and slightly K-feldspathized
		124.00 - 124.56. is mineralized mainly coarse
		blks of po and py.
124.56	134.40	Come into the gneisses which are well foliated
		contain some pyrite
		128.40 - 128.60. Open fracture fillings - epidote po. py.
134.40		End of hole.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 80°N/1.35W BEARING: 270° DIP: 60° HOLE NO: 7(1970) SHEET NO: 8
 LOGGED BY: F. NIKON STARTED: 16.7.1970 PROPERTY: KJETTEVANNY. MOLLAND
 CASING: 1.68m FINISHED: 30.7.1970 DELAND. NORRISY.
 CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		Core Angles.
		2.44 m 70 contact.
		2.79 m 41 contact.
		3.16 m 65 contact
		4.82 m 32 contact
		25.43 m 90 contact.
		28.53 m 60 contact.
		37.42 m 68 contact
		39.40 m 55 shear
		42.96 m 56 contact
		45.55 m 18 contact & shear
		48.85 m 31 contact
		53.50 m 58 contact.
		51.50 m 55
		83.50 m 18 contact.
		102.40 m 55.
		107.90 m 48.
		110.23 m 35 contact
		106.20 m 31 shear
		125.50 m 45 shear
		129.80 m 35. shear
		132.50 m 60
		134.20 m 48.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 140N/15E BEARING: 270 DIP: 55 HOLE NO: 8(1970) SHEET NO: 2
 LOGGED BY: F. NIKON STARTED: 3.8.1970 PROPERTY: KJETTEVIK
 CASING: 1.32 m FINISHED: 14.8.1970 MOLLAND NORWAY
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
0.00	0.80	Overburden.
0.80	9.07	Massive basic norite/gabbro very little feldspar hypersthene rich. old specks of sulphides mainly pyrite. At 5.55 a vein 1cm thick of coarse hls and plg with some chalcopyrite and pyrite blebs. 6.70. carbonate lined fractures. 7.48-7.52 coarse hls and plg vein, seems that the feldspar is introduced and perhaps some recrystallization and concentration of the hls.
9.07	12.63	Massive fine gr. gabbroic rock fairly magnetic. From 11.63-12.34 contains what seem to be inclusions? of a coarse, basic hypersthene rich gabbro. (or is it a dyke of the stuff)
12.63	13.00	What looks to me to be a sheared version of the previous rock type - little more feldspar present. Upper contact is sharp. 12.85-12.87. small dyke of fine gr hypersthene
13.00	13.42	Coarse gr. basic hypersthene rich gabbro, sharp lower contact.
13.42	15.15	Sheared fine gr gabbroic rock, becomes more massive with depth. 13.46-13.50. small extremely fine gr mylonitic dyke rock.
15.15	49.50	Sharp contact but rock is broken and impossible to measure. Extremely basic, massive, coarse gr. hypersthene rich gabbro/norite Very rich in hypersthene and very basic. 17.35-18.17 fracture zone. 20.72-20.89. hls feldspar vein slightly sheared parallel to contact. 22.10-22.18 small extremely sheared dyke

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 140N/15E BEARING: 270 DIP: 55 HOLE NO: 8 (1970) SHEET NO: 3
 LOGGED BY: F. NIXON STARTED: 3.8.1970 PROPERTY KJETTEVANN
 CASING: 1.32 m FINISHED: 14.8.1970 MOLLAND IVERLAND
 CORE SIZE: 32 mm TESTS (CORRECTED): NORWAY

FROM	TO	DESCRIPTION
		difficult to say what it originally was, now hornblende feldspar qtz mainly also carries blebs and stringers of py and cp.
		26.95 - 27.05 Small pegmatite dyke. Carries ilmenite.
		27.26 - 27.46 Small peg dyke carries a little chalcopyrite.
		Around 29.70 the rock carries introduced feldspar and associated spots of pyrite.
		35.75 - 38.90 Fine gr. basic dyke slightly magnetic.
		36.10 - 37.50 1% sulphides spread evenly as fine gr. dissemination. Pyrite.
		46.74 - 46.92 Small dyke of a feldspar rich gabbro type.
		46.60 - 46.77 Massive blebs, semi veins and stringers of po. py. cp.
		46.92 - 47.31 Very fine gr. microcrystic basic dyke.
		49.60 - 49.75 Some coarse clumps and fine dissemination of po with minor cp. Gabbro here is more medium grained.
49.50	53.00	Here the gabbro is definitely less basic and it seems to me to be a more med gr. more acid gabbro variety which contains clumps and stringers etc of the coarse hb/hyp rock this usually carrying sulphides.
		51.30 - 51.60 feldspar rich part
		53.42 - 53.70 fine gr. massive basic dyke rock.
53.00	53.42	More basic gabbro/melite
		It looks as if the med grained gabbro types between 10 and 15 m are the same as the med gr type between 49.50 and 53.00. Instead of having basic addition the rock between 10 and 15 m is dykes of basic melite. So it looks like all the basic stuff is a later phenomena.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 140N/15E BEARING: 270 DIP: 55 HOLE NO: 8 (1970) SHEET NO: 3
 LOGGED BY: F. Nixon STARTED: 3.8.1970 PROPERTY: KJETTEVANN
 CASING: 1.33m FINISHED: 14.8.1970 ROLLAND, IVELAND
 CORE SIZE: 32mm TESTS (CORRECTED): NORWAY

FROM	TO	DESCRIPTION
53.42	53.70	Basic dyke.
53.70	54.48	As from 49.50-53.00 but gabbro seems to be more feldspathic.
54.48	58.60	Seems to be a sharp contact into the massive basic hypersthene hornblende rock again (contact however is not too good to see and is a little dubious. From 55.80 start getting some feldspar and at 58.60 there is a gradual change over into the next rock. 55.06-55.14 small (sharp contacts) dyke of med gr gabbro (diorite) 57.72-57.82 small dyke of med. gr. fairly light coloured gabbro or diorite contains inclusions of the basic rock. Some pyrite present. 50.00-50.30 small patches of sulphides po and cp. py. 50.60-53.40 over 2% sulphides fairly coarse gr. po. py. cp associated with basic schlieren. Best from 50.80-51.00 over 10%. 53.80-54.55 up to 2% sulphides mainly as disseminations po. py. cp. 56.30-56.40. coarse dissemination of po. cp. 57.13-58.00 2-5% fine to coarse dissem. dominantly coarse of po. py. cp.
58.60	62.70	Gradual change over into a feldspar (pinkish) gabbro amphibole rock. Looks gneissic in that it has a foliation and a good one at that. Passes gradually around 62.70 into what must be called gabbro.
62.70	70.35	Med gr. fairly feldspar rich gabbro. Contains basic schlieren gradually becomes more and more basic and from 69.00 dominantly basic.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 140N/15E BEARING: 270 DIP: 55 HOLE NO: 8/1970 SHEET NO: 4
 LOGGED BY: F. Nixon STARTED: 3.8.1970 PROPERTY: KJETTEVANN
 CASING: 1.32 m FINISHED: 14.8.1970 NOLLAND NELLAND NORWAY
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		From 60 to in old specks and clumps of sulphides slight concentration between 66.80 - 66.90.
		69.00 - 70.00 fine dissemination of sulphides py. po. cp.
70.55	71.36	Med / fine gr. gabbro type that seems to contain in part basic schlieren and also carries a very fine gr. sulphide dissemination in part.
71.36	71.66	Sharp contacts, small dyke like body of a coarse gr. lib / feldspar rock 50/50. The gabbro variety.
71.66	72.00	As from 70.35 - 71.36 - med gr. gabbro type with basic schlieren.
72.00	72.23	Extremely fine gr basic mylonitic dyke rock
72.23	72.36	Med gr gabbro type with basic schlieren. Contains specks to 1% pyrite.
73.36	78.00	Med gr. gabbro fairly basic that seems to become coarser, more foliated less massive and slightly coarser. 73.35 - 74.00 up to 2% sulphides mainly pyrite.
78.00	78.52	Extremely feldspar rich foliated rock. Feldspar quartz, hornblende.
78.52	78.70	Extremely basic gabbro, looks like hypersthene has gone over to a dark coloured amphibole. Extremely rich in sulphides dominantly pyrite some po. cp.
78.70	79.13	As from 78.00 - 78.52 only more mafic minerals

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 140N/15E BEARING: 270 DIP: 55 HOLE NO: 8(1970) SHEET NO: 5
 LOGGED BY: F. Nixon STARTED: 3.8.1970 PROPERTY: KJETTEVANN
 CASING: 1.32m FINISHED: 14.8.1970 MOLLAND IVEZAND
 CORE SIZE: 50mm TESTS (CORRECTED): NORWAY

FROM	TO	DESCRIPTION
79.13	79.82	As from 78.52-78.70.
79.82	79.92	Small sheared quartz feldspar dyke.
79.92	81.00	Extremely basic rock same as from 78.52-78.70. with same sulphide content.
81.00	89.20	For the most part basic gabbro, med coarse gr. quite fresh. First half m. is more fine gr. feldspar and amphibole rich but still massive 81.60-85.00 over 2% sulphides po. py. cp. po dominant as an uneven med. gr. dissemination
89.20	90.50	Pyroxenite.
90.50	91.60	Altered basic, fibrous amphibole rich gabbro variety, an altered variety of the more normal basic type I think. Contains between 91.55-91.57 either a dyke or an inclusion of a med gr feldspar/amphibole gabbro/amphibole type
91.60	92.56	Coarse gr. feldspar amph rock 50/50 distribution 92.00-92.35 peg dyke.
92.56	92.90	Med gr. gabbro variety
92.90	94.00	Again coarse lib/feldspar rock here in part sheared/foliated and not so massive. Upper contact is sharp and first few cms med med med gr. looks almost like a small dyke here in the contact.
94.00	109.70	Med gr. gabbro type that in places has undergone feldspar introduction and some shearing. Typical contact zone rock. From 94-97 contains 2%

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 140 N/15E BEARING: 270 DIP: 55 HOLE NO: 8(1970) SHEET NO: 6
 LOGGED BY: E. Nixon STARTED: 3.8.1970 PROPERTY: RJETTE-VALVA
 CASING: 1.32 m FINISHED: 14.8.1970 MOLLAND IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED): NORWAY

FROM	TO	DESCRIPTION
		sulphides as an uneven dissemination mainly py some po.
		From 99-106 same kind of uneven mineralization 2% dominantly pyrite.
		From 106-109.70 more or less gneiss contains in part good impregnation and clumps of hematite.
109.70	111.50	Dark green fine gr. massive hornblende that seems to contain remnants (or has been injected by) of a more acid gr. hb. gabbro.
111.50	117.48	Passes over gradually into gneiss.
117.48	117.88	Same hornblende as above.
117.88	119.95	Gneiss.
119.95	121.50	More hornblende rock speckled in places with feldspar.
121.50	121.95	Gneiss.
121.95	122.60	Peg with specular hematite and inclusions of hornblende. Contacts very uneven.
122.60	122.85	Hornblende.
122.85	123.15	Same peg again contacts very uneven.
123.15	135.10	Gneiss.
135.10		End of hole.

A/S SULFIDMALM

DIAMOND DRILL RECORD

DIAMOND DRILL RECORD

LOCATION: 140N/15E	BEARING: 270	DIP: 55	HOLE NO: 8(1970)	SHEET NO: 7
LOGGED BY: Frixen	STARTED: 3.8.1970	PROPERTY: KJETTEVANN		
CASING: 1.32m	FINISHED: 14.8.1970	MOLLAND, NORDLAND, NORWAY		
CORE SIZE: 32mm	TESTS (CORRECTED):			

FROM	TO	DESCRIPTION
		<u>Pore Angles</u>
		5.55. 15
		9.07 65 contact.
		12.63. 50 contact.
		12.77. 43.
		13.42. 45 contact
		20.72. 60 contact
		27.26. 46 contact.
		35.75 41 contact.
		53.42 55 contact.
		54.48 65. contact.
		55.06 82. contact.
		59.60 44
		71.36 82 contact.
		72.00 80 contact.
		75.32 66 contact.
		72.54. 73 contact.
		78.10 52
		78.52 55 contact.
		79.13 50 contact.
		89.20 40 contact.
		91.60. 45 contact.
		92.90 60 contact.
		98.50 50.
		112.50. 48°
		115. 50 47
		118. 50. 55
		121. 60 49
		121. 95 15 contact.
		124.50 44
		127.50 42
		130.50 40
		134.50 47.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200N/10E BEARING: 270 DIP: 60 HOLE NO: 9 SHEET NO: 1
 LOGGED BY: F. NIXON STARTED: 20.8.1970 PROPERTY: KJETTEVANN
 CASING: 6m 54mm FINISHED: 10.9.1970 MÖLLAND IVELAND
 CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
0.00	5.80	Overburden Swamp.
5.80	17.00	Fairly altered GABBRO variety. No pyroxenes to be seen. Hornblende is the dominant mafic mineral. Feldspar is common and often forms 50% of the rock - sometimes more. The rock varies both with regard to textures and mineralogy. Very rich in hematite (both specular and massive varieties) as vein fillings and disseminations. From 14m to 17m the rock is more basic, consisting of a massive fine grained green amphibole groundmass speckled with small altered feldspar grains and some hematite. The feldspar varies.
17.00	60.00	Passes over gradually into a dark, fine/medium grained meta ultrabasic rock, dark in colour and in part rich in hematite. Consists almost entirely of amphibole with some hematite. Most of the fracture veins are carbonate lined. After about 1.5m getting more green minerals (still amphibole) and from 19m get a mottled green and black rock, with quite large blebs of a black mineral. This black mineral represents hypersthene in the process of serpentinization. The green is a mixture of talc, chlorite and fibrous amphiboles. Hematite is still present mostly as coarse clumps. After 20m no more hematite present. After 20.50. The dark patches - (pyroxene remnants) stop and the rock is an ultrabasic green in colour composed mainly of fibrous amphiboles some chlorite and mica. 22.60 - 23.00. fracture zone that is partly occupied by pegmatite vein that has uneven contacts.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200 N / ICE BEARING: 270 DIP: 60 HOLE NO: 2 SHEET NO: 2
 LOGGED BY: F. NIXON / ED. VERWIJEN STARTED: 20. 8. 1970 PROPERTY: KJETTEVANN
 CASING: 6.00 m 58 mm FINISHED: 10. 9. 1970 MOLLAND IVELAND.
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		24.56 - 24.70 small peg vein.
		At 27.82 again get appearance of dark blebs of pyroxene remnants.
		29.30 small shear.
		29.60 - 29.84 small dyke of a medium/fine grained massive gabbro type associated at upper contacts with a fracture zone.
		With the reappearance of the dark pyroxene remnants also get an increase in biotite content.
		From 30m the rock is becoming slightly fresher and good hypersthene is visible.
		37.90 - 38.05 small qtz / feldspar vein.
		37.46 - 37.56 small dyke of medium grained gabbro type
		42.10 - 42.23 small pegmatite vein slightly sheared. The host rock at the contacts has clearly been altered over a length of 1cm to dark green hornblende.
		42.84 - 42.97. same type of pegmatite dyke as above slightly sheared contacts. Upper contact sharp, lower in small fracture zone. Again host rock is deep green at the contacts.
		44.64 - 44.72 small granitic / granodioritic dyke rock. This has again altered the host rock at the contacts.
		46.00 - 46.05 small specks of pc.
		From 50 - 55m a few odd specks of py x po.
		55.05 - 55.34 quartz / feldspar dyke that contains inclusions of the host rock, these having a definite orientation parallel or subparallel to the contacts.
		56.74 - 57.34 shear zone.
		57.55 - 57.73 small breccia zone consisting of the host rock and the feldspar

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200N / 10E BEARING: 270 DIP: 60 HOLE NO: 9 SHEET NO: 3
 LOGGED BY: F. NIXON & OVERWIE STARTED: 20.8.1970 PROPERTY: KJETTEVANN
 CASING: 6.00m 56mm FINISHED: 10.9.1970 MOLLAND ISLAND
 CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
60.00	80.83	Continued Meta Ultrabasic. - fine-med grained, fairly massive, dark black to dark green. specks of sulphides. Carbonate as thin fracture fillings. 60.00 - 60.80. Green, fine grained talc-act/horn matrix with < 3 mm black serpentine? grains. 60.80 - 61.02 black serpentinite. 61.02 - 80.83 Dark green black medium grained rock with a matrix of fine grained talc-act/horn with < 10 mm large crystals of hornblende/hypersthene and black serpentinite spots. The relative amounts of the two latter minerals varies. The rock is meta pyroxenite or meta-peridotite. From 61.39 - 64.52. An average 1-2% dissemination of mainly po + some pc blebs (up to 1cm). Also some fracture fillings of mainly py. 64.52 - 72.00. Same rock with 1-5% dissemination of mainly po, minor cp. Also some large blebs. At 69.25 massive 2cm wide po/cp vein. 72.00 - 72.43. Same as above barren. 72.43 - 72.83. fine gr. dark rock with feldspar. hbl. gneiss or amphibolite (pre intrusive?) Contains ≈ 1% fine dissemin. sulph. 72.83 - 79.18. Same m. pyroxenite with 1% po. 79.18 - 79.48. Hbl. feldspar rock, fine gr at contacts where m. pyroxenite is sheared and med grained in the middle. It is partly foliated with concordant contacts. Looks nearly like a hbl gneiss; but could be an intrusive dyke rock. It contains a 1cm peg vein + specks of pyrite. 79.48 - 80.83 The meta ultrabasic is getting more green and fine grained with chlorite, talc and hornblende, lower contact is dense (≈ 1% sulphides (po) and partly sheared (mylonitic)

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200 N/10 E BEARING: 270 DIP: 60 HOLE NO: 9 SHEET NO: 4
 LOGGED BY: F. NIXON E. OVERWYEN STARTED: 20.8.1970 PROPERTY: Kjellviken
 CASING: 6.00 in 56 mm FINISHED: 10.9.1970 ACCEPTED REMOVED
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
80.83	86.75	Mixed rock. mainly hornblende - plagioclase usually medium grained but locally fine grained and even coarse grained, massive and foliated. Is this a meta gabbro younger than the meta pyroxenite? The rest a 1/3 of the rock consists of meta ultrabasic, a fine grained talc chlorite tremolite rock. The whole unit contains specks of sulphides (mainly py) but after 84.42 some 2-3% sulphides.
86.75	90.10	Meta gabbro? Hbl gabbro. mainly medium grained and fairly massive but locally foliated. Contains some zones of meta ultrabasic (same as above). 88.40 - 88.47 meta ultrabasic patches with sulphide blebs (py). 89.48 - 89.70. Same as above but no sulphides. Irregular but sharp contacts, looks like the meta gabbro is youngest.
90.10	90.60	Basic dyke. meta gabbroic hbl bearing magnetic med. grained, massive, sharp contacts.
90.60	99.13	Mixed rock. basic and ultramafic, mainly med grained and usually foliated. Contains also patches and veins of quartz-feldspar material. This gives the rock sometimes a banded appearance. Contains local specks and a few blebs of sulphides, mainly in the most basic sections (py + po). From 95.70 the feldspar is getting more red brown. 95.70 - 98.75 specks - 2% of mainly pyrite.
99.13	101.23	Hypinite-gabbro, comparatively basic, med grained, massive. Contains red brown feldspar. Contains some hornblende and some pyroxene. specks of py. No sharp contact by hanging wall. 99.71 - 99.75 sheared qb - feldspar vein.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200N/10E BEARING: 270 DIP: 60 HOLE NO: 9 SHEET NO: 5
 LOGGED BY: F. NIXON & OVERWIEN STARTED: 20.8.1970 PROPERTY: KJETTEVANN
 CASING: 6.50 m 58 mm FINISHED: 10.7.1970 APOLLAND IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
101.23	103.96	Meta-gabbro / hyp. (Hbl. gabbro) Some remnants of hypersthene. medium grained with some ultramafic patches and some light sections containing introduced plag. feldspar (light grey and red brown) The light sections are partly foliated and contain only specks of sulphides (locally) mainly pyrite while the basic patches are richer in sulphides (<10%) po. cp. py.
103.96	110.74	Basic Meta-gabbro / hyperite (meta pyroxenite / gabbro) with minor feldsp. contains hyp. and amph. Dark green, medium grained, coarse grained, massive. Contains up to 20% of blebs and streaks of sulphides (po. py. cp) and some as fracture fillings. The pyroxenes are surrounded by sulphides. 109.01 - 109.21 fine grained green massive section with only small specks of sulphides. A dyke?
110.74	111.89	Gabbro / hyperite (med gr.) - basic gabbro / hyperite (med - coarse gr.) partly massive, partly introduced feldspar. with mineral orientation 1-2% disseminated sulphides.
111.89	112.50	Basic dyke. fine med. grained massive very magnetic (no sulphides) Carries 60% plag. The mafics are magnetite and probably hornblende.
112.50	114.21	Gabbro / hyperite. med grained, contains introduced feldspar, locally "foliated". Contains up to 2-3% disseminated po + py. N.B. mainly in the most basic varieties.
114.21	116.65	Basic dyke as at 111.89 - 112.50 (no sulphides) upper contact is vaguely sheared. (first 5cm)

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200N/10E BEARING: 270 DIP: 60 HOLE NO: 9 SHEET NO: 6
 LOGGED BY: F. NIXON, FOVERHORN STARTED: 20.8.1970 PROPERTY: KJETTEVANN
 CASING: 6.00m 50mm FINISHED: 10.9.1970 MOLLAND, IVELAND
 CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
116.65	136.66	Basic (Meta) gabbro - hyperite - usually with minor plag (locally up to 30% plag). dark green medium grained massive. Contains hypersthene and hornblende. Where not containing introduced feldspar the rock down to 118.20 contains 2-20% of sulphides as blebs (< 2cm large), streaks and fine dissemination. 116.65 - 118.20 very basic and rich mineralization 118.20 - 119.30 a lot of introduced feldspar and peg which is sheared 119.30 - 136.66 1-3% fine disseminated sulphides mainly py (>50%) + some po. minor cp. 124.86 - 125.04 Light med. gr. dyke with 30% mafics (mainly h.bl.) the rest is plag. no ore minerals. from 135.00 the rock is getting richer in hornblende
136.66	138.15	Meta Gabbro (h.bl. gabbro) fine-med grained massive. contains some patches rich in coarse h.bl. with disseminated pyrite. 136.76 - 137.16 Peg. sheared/fractured contains epidote and cp. grains.
138.15	164.29	(Meta)-gabbro / hyperite (h.bl. gabbro) partly basic. med. grained, massive, remnants of hypersthene contains 1/2 - 3% dissim. sulphides mainly py/po. Locally some thin acid veins. 141.10 - 141.22 acid section with introduced feldspar. 141.85 - 141.97 acid (med-coarse gr.) dyke with h. blende. 142.80 - 142.87 Mylonite with py. (+po) as fracture fillings. 155.81 - 155.89 acid vein fine grained 159.38 - 159.58 Fracturing

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200N/10E BEARING: 270 DIP: 60 HOLE NO: 9 SHEET NO: 7
 LOGGED BY: F. NIXON / E. OVERWIEN STARTED: 20.8.1970 PROPERTY: KJETTEVANN
 CASING: 6.00 m 58 mm FINISHED: 10.9.1970 MOLLAND IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		After 150.00 and especially after 152.50 m there is a lot of hypersthene present while sulphides (mainly py) occur as specks $\approx 1/2\%$.
158.15	164.29	(Meta) - Gabbro / hyperite. Increasing sulphide content towards "gneiss" contact. After 161.30 m 2-5% mainly po. as blebs (not in acid sections). 160.44-160.66 fine-med grained hbl-feldspar (gneiss?) rock, foliated, concordant contains specks of py. Is this some kind of a vein or is it an inclusion of "gneiss"? 161.30-161.47. Med. grained, foliated quartz-feldspar rich section w. minor amphibolite and biotite. An acid vein? Only minor py specks, concordant. 163.92-164.14. Hornblende-feldspar (gneiss) rock as at 160.44-160.66, concordant.
164.29	166.57	Hornblend-feldspar rock (gneiss) ~ 30% mafics, med. grained, foliated 165.05-165.60 some fractures filled partly with py and epidot. Is this a pre-gabbro intrusion rock (the gneiss?) or is it simply an altered and foliated variety of the gabbro/hyperite. There is very little quartz present.
166.57		End of hole.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200N/10E BEARING: 270 DIP: 60 HOLE NO: 9 SHEET NO: 8
 LOGGED BY: E. NIKOLAI E. OVERKAMP STARTED: 20.8.1970 PROPERTY: KJETTELANN
 CASING: 6.00 m 58 mm FINISHED: 10.9.1970 MOLLAND IVEZAND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION					
		CORE ANGLES					
		24.56	35	contact	160.14	45	contact
		29.30	32	shear	161.30	45	contact
		29.84	62	contact	163.92	46	contact
		37.46	64	contact	164.29	45	
		41.10	39	contact	166.57	45	
		42.84	35	contact			
		35.05	46	contact			
		56.20	39	shear			
		72.43	65	contact			
		72.60	52				
		72.83	90	contact			
		79.30	70				
		79.50	53	shear			
		86.75	43				
		88.47	70	contact			
		90.10	39	contact			
		91.50	40				
		95.70	30				
		99.13	40	contact			
		99.72	42	shear			
		101.80	39				
		109.01	45	shear			
		111.40	45				
		111.89	37	contact			
		112.50	32	contact			
		113.50	49				
		114.21	35	contact			
		116.65	28	contact			
		118.20	37	shear			
		124.86	52	contact			
		136.76	52	contact			
		137.16	39	contact			
		141.10	49	contact			
		141.85	43	contact			
		142.80	58	contact			
		153.81	58	contact			

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 240 N/0 BEARING: 270 DIP: 60 HOLE NO: 10 SHEET NO: 1
 LOGGED BY: F. NIXON, E. OVERWIEN STARTED: 15. 9. 1970 PROPERTY: KJETTEVANN
 CASING: 1.00 m 50 mm FINISHED: 2. 10. 1970 MJØLLAND, LVELAND.
 CORE SIZE: 32 mm. TESTS (CORRECTED): -----

FROM	TO	DESCRIPTION
0.00	0.65	Overburden.
0.65	22.17	Meta-gabbro/norite. (mainly hornblende gabbro) medium grained, mainly massive, but can locally be sheared. Contains patches of a coarser hornblende plagioclase rock which seems to be a younger development, and feldspar patches (locally with some quartz) which must have been introduced. Could it be an effect of the introduction of the younger pegmatites in the vicinity? Contains a lot of magnetite which can explain the mag. high. The rock is locally saussuritized, fractured and partly mylonitized (only narrow zones). Fractures are filled with carbonate epidote and locally sulphides (mainly py).
		0.65 - 3.00 mainly small patches of green hornblende, white plag (somewhat coarse).
		3.50 - 4.80 a lot of fractures.
		4.56 - 7.10 fairly massive and unaltered section, also some pyroxene present?
		7.10 - 11.62 patches of introduced feldspar (+ quartz)
		9.50 - 9.85 a lot of fractures with cp + py.
		11.60 - 11.62 mylonitized acid vein.
		11.62 - 13.10. Fairly massive as at 4.56 - 7.10, a lot of mt.
		13.10 - 14.57 Feldspar-quartz veins and patches.
		14.57 - 16.40 Fine grained variety (dyke?) with a lot of magnetite. Contains a few younger plag. patches.
		15.10 - 15.83 completely altered with a lot of introduced acid material.
		From ~ 14.00 - 14.00 20.00 there is an increasing amount of hematite.
		16.40 - 21.35. Med. grained altered gabbro with introduced feldspar (minor quartz) hematite.
		21.35 - 22.17 med. grained and very light and altered section of same rock as above. Some.

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DIAMOND DRILL RECORD

LOCATION: 240N/0 BEARING: 270 DIP: 60 HOLE NO: 10 SHEET NO: 2
 LOGGED BY: F. NIXON, E. OVERWIEN STARTED: 15.9.1970 PROPERTY: KJETJE VAN N
 CASING: 1.00 in 56 mm FINISHED: 2.10.1970 MÖLLAND IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		saussuritization. specular hematite.
22.17.	23.45.	Granite, light grey - pink, medium grained. Contains some disseminated specular hematite + hem. along fractures. 22.85-23.05 undigested m. Ga (altered)
23.45	26.62	Meta Gabbro med. grained and very altered with zones with a lot of introduced acid material. 23.45-23.73. Very sheared ultramafic section with chlorite and amphibole. 23.73-24.05. Mainly granite. 24.05-25.42. Med. grained, partly very altered m. Ga. (amph) with pink staining of feldspar and saussuritization. 25.42-25.86 Granite with hematite as at 22.17-23.45 25.86-26.62 m. Ga. altered med. grained.
26.62	32.50	Pegmatite. pink locally very porous with cavity fillings of drusy quartz, chlorite, spec. hematite. Is rather weathered and very brittle. In porous sections core recovery poor. Core lost at 29.00 - 31.65. 32.50 - 33.20.
32.50	33.20	Core lost.
33.20	43.14.	Meta Gabbro med grained (to coarse gr.) as at 0.65-22.17 and 23.45-26.62. It is fairly massive but where it contains a lot of introduced feldspar a mineral orientation develops. Local fractures can be seen. 33.20-33.80 Fractured zone. 34.20-34.37. Peg. with spec. hematite. 36.34-36.89. a lot of fractures with epidote. 36.85-36.89 Mylonitic section. 39.00-41.17. Fairly massive section with little secondary feldspar. 39.33.-39.38. shear/mylonite with qtz.

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DIAMOND DRILL RECORD

LOCATION: 240 N/0 BEARING: 270 DIP: 60 HOLE NO: 10 SHEET NO: 3
 LOGGED BY: F. NIXON E. OVERWIEN STARTED: 15.9.1970 PROPERTY: KJETTEVANN MOLLAND
 CASING: 1.00 in 58 mm FINISHED: 2.10 1970 IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		41.17 - 41.39 Granite w. spec. hem.
		42.20 - 42.21 shear / mylonite
43.14	43.67	Pegmatite, pink. Contains several blebs of hematite. First part is rather fractured.
43.67	59.80	Meta-Gabbro, med grained (partly coarser) with zones containing a lot of introduced feldspar (qtz) as at 33.20-43.14. 44.85 - 44.87 Qtz zone sheared / mylonitized. 45.85 - 45.90. peg. zone. 49.50 - 49.65 A zone of med. gr. m. Ga which is sheared. N.B. One can here see that the rock must originally have been more fine grained and that it later has been altered to or been intruded by (more med-coarse gr) plag-hbl. bearing rock, sometimes with a little quartz. From 50.00 - 52.00 contains much introduced quartz and feldspar and is in parts well foliated. 50.50 - 50.70 - Here is a small quartz and epidote filled shear zone. From 52.00 - 58.00 the gabbro is medium gr. and here is fairly massive although it still contains some introduced feldspar. 56.00 - 56.31 Extremely fine gr. basic dyke rock meta-dolomite? contains small amount of visible feldspar Non magnetic. 56.31 - 59.80. Rock is still meta-gabbroic but contains a good deal of feldspar (+quartz) that is tending to be orientated in a weak foliation.
59.80	62.00	Sharp contact with a fine gr. massive and fairly fresh gabbroic rock, with depth it becomes slightly less fresh and seems to pass gradually over into a coarser more hornblende rich and foliated rock type.

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DIAMOND DRILL RECORD

LOCATION: 240N/0 BEARING: 270 DIP: 60 HOLE NO: 10 SHEET NO: 4
 LOGGED BY: F. NIXON, E. OVERWIEN STARTED: 15.9.1970 PROPERTY: KJETTEVANN
 CASING: 1.00 m 50 mm FINISHED: 2.10.1970 MOLLAND IVER AND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
62.00	70.00	Well foliated hb. feldspar rock that when foliated contains much epidote. In parts looks more like a gneiss than a meta gabbro but I think it probably belongs to the gabbro suite as more fine gr portions which are less foliated and contain less feldspar are definitely meta gabbroic in texture. Contains specks of hematite 63.85 - 63.97. Grey med. gr granite 67.85 small hb. schlieres which contain disseminated py.
		70.42 - 70.48 small intrusive band of hb/chlorite rock that has been later disturbed by introduced quartz.
70.00	77.50	From 70m onwards to 77.50 the rock can no longer be classed as gabbroic. It is foliated and contains vast amounts of feldspar schlieres. 74.43 - 74.90 fine gr. ultrabasic rock - hb/chlorite type. Upper contact is wavy, lower contact with granite is sharp. Contains also some fine gr. hematite 74.90 - 75.50 granite which has a good impregnation of hematite. 75.50 - 75.85 same ultrabasic type but here with some feldspar. Lower contact is very rich in hematite. 75.85 - 76.90. Gneissic rock hb/feldspar med to coarse grained and extremely rich in hematite disseminations. 76.90 - 77.50 more fine grained hb/chlorite rich rock but with uneven diffuse contacts.
77.50	102.00	From 77.50 the rock becomes again more massive medium grained fairly basic m. Gabbro. Contains at 79.90 a few small specks of pyroxenite. 80.40 - 80.85 coarse hb/feldspar - gabbroic rock, no sharp contacts 80.85 - 82.90 what I suppose must be called meta gabbro although varies from med gr

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DIAMOND DRILL RECORD

LOCATION: 240N/0 BEARING: 270 DIP: 60 HOLE No: 10 SHEET No: 5
 LOGGED BY: FNIXON, E. OVERWIEN STARTED: 15.9.1970 PROPERTY: KJETTEVANN
 CASING: 1.00m 50mm FINISHED: 2.10.1970 IVELAND NORWAY
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		to fine gr. and also varies in basic content, seems to be intruded in places by same type of coarse hb/ feldspar rock as mentioned previously.
		82.90- 83.55. pegmatite, pinkish in colour, somewhat fractured and affected by following shear which is parallel to lower contact, the rock being sheared over a distance of 20 cms
		83.55- 84.00 Extremely basic and fine gr. with some hematite and carbonate lined fractures.
		101 84.00 - 85.00. meta gabbro (gneissic) varies from more massive to more foliated. part contains in part abundant epidote and hematite.
		85.00- 85.50. Extremely foliated zone.
		Down to 93.00, very gneissic, much feldspar and fairly well foliated. After this the rock is much more basic.
		From around 95 m becomes slightly coarser due to introduced feldspar.
100.00	102.24	Dark green basic hornblenditic rock contains also in part some fibrous amphibole. - some patches contain also a little introduced feldspar.
		101.67 a stringer of po & cp.
		From 101.28 - 102.24 contains fine from specks up to 1-2% sulphides as an uneven dissemination.
102.24	104.30	Coarse to med. gr hornblende gabbro, fairly massive consisting 50/50 of hb. and plag
		103.10 - 103.20. small epidote rich shear zone
		Towards lower contact towards the pegmatite becomes finer grained and more basic and contains a few small specks of sulphides
104.30	104.66	Small peg vein.
104.66	106.40	Fine gr. basic Hornblendite again. First 25cms are extremely sheared in the contact with the

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DIAMOND DRILL RECORD

LOCATION: 240N/0 BEARING: 270 DIP: 60 HOLE NO: 10 SHEET NO: 6
 LOGGED BY: F. NIKON / E. OVERWIEN STARTED: 15. 9. 1970 PROPERTY: KJETTEVANN
 CASING: 1.00 m 56 mm FINISHED: 2. 10. 1970 NELAND NORWAY
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		peg. Over the last 50 cms contains a good deal of introduced feldspar which gives the rock the appearance of a coarse gabbro.
		From 105.00 - 105.90 contains a very patchy and irregular distribution of sulphides po. py. cp. Some being extremely coarse. The total % age is small.
		106.30 - 106.40 specks of sulphides
106.40	107.24	Coarse med. gr. hb. gabbro. upper contact is very diffuse but is around 80'
107.24	109.80	Dominantly hornblende but contains uneven patches of the hornblende gabbro type rock. Contact relations are very difficult to deduce
		107.36 - 107.56 1% sulphides po. py. and also some hematite dissemination
		109.00 - 109.35 Coarse sulphide dissemination py. po. cp.
109.80	111.90	Coarse hb. gabbro partly foliated. Lower contact is so diffuse and irregular that it is impossible to measure it
110.90	112.90	Meta pyroxenite. Now definitely in a meta pyroxenite (probably same as found in hole no. 9) carries a black mineral that has the form of hypersthene and must replace this mineral. It is soft and is probably serpentine. Also carries green amphibole (ferrolite/actinolite). Quite altered and contains in places introduced feldspar.
112.90	113.50	Gradual change over noted by increase in feldspar content into coarse hb. / plag rock.
113.50	113.70	Small zone with alternating feldspar and hb. rich

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DIAMOND DRILL RECORD

LOCATION: 240N/0 BEARING: 270 DIP: 60 HOLE NO: 10 SHEET NO: 7
 LOGGED BY: F. NIXON E. OVERWIEN STARTED: 15.9.1970 PROPERTY: KJETTEVANN
 CASING: 1.00 m 50 mm FINISHED: 2.10.1970 IVELAND NORWAY
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		bands. These bands are orientated thus giving a foliation.
113.70	130.00	Then pass over into a fine to medium grained meta gabbro type (dominantly hb as dark mineral) which is cut by basic schlieren of meta pyroxenite, some of the basic rock shows the black serpentine noted above others carry more fresh hypersthene. Contains a very uneven mineralization. Mainly py. but also some cp. and po. Almost entirely confined to the basic portions. Starts at 114.68 and continues down to 120. 120.00 - 120.80 much introduced feldspar and very few sulphides. 121.60 - 121.90 small sheared amphibolitic dyke, med. grained. 127.15 - 127.30 fine gr. dyke rock dioritic in composition. Towards 130 the gabbro contains more basic schlieren and some parts of the core here consist solely of the meta ultrabasic. From 121.80 down to 130 the mineralization is very spread and irregular, again dominantly py. some po, very little cp. again mainly confined to the basic parts
130.00	132.50	By 130m the rock is entirely basic, seems to be fairly fresh with good brown visible hypersthene meta ultrabasic. Continues down to 132.50, where there is a sharp contact with the underlying rocks up to 2% sulphides, po, py, cp. 131.80 - 132.15. meta ultrabasic seems to be cut by a dyke of fine/med gr. meta gabbro (hypersthene visible).
132.50	140.37	The gabbro at first is fine gr. and fairly massive but after about half a meter passes over into a more medium grained and

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DIAMOND DRILL RECORD

LOCATION: 240 N/O BEARING: 270 DIP: 60 HOLE NO: 10 SHEET NO: 8
LOGGED BY: F. NIXON E. OVERWICH STARTED: 15.9.1970 PROPERTY: KSETTEVANN
CASING: 1.02 m 56 m m FINISHED: 2.10.1970 MOLLAND IVERAND
CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		and slightly and slightly less fresh variety. Gabbro over the first 30-40 cms looks very much like the "dyke" from 131.80-132.15. Odd specks and stringers of pyrite
140.37	143.10	With a fairly sharp but not distinct contact come out of the gabbro and into the meta pyroxenite.
143.10	144.72	A mixture of gabbro with some schlieres and blebs of ultrabasic. From 144 a good deal of introduced feldspar and the rock becomes fairly acid.
144.92	151.50	Meta ultrabasic. gradual contact parallel to the foliation. From 146-148 contains much black serpentine (after hypersthene). From 148-150 becomes finer grained and more lib. rich. 144.92 - 145.75 2-5% sulphides dominantly pyrite. - There is a contact zone of about 50cms above the lower contact which is marked by a progressive increase in feldspar.
151.50	153.86	Feldspar, hornblende gneiss, medium grained, foliated, contains some hematite and epidote.

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DIAMOND DRILL RECORD

LOCATION: 240 N/0 BEARING: 270 DIP: 60 HOLE NO: 10 SHEET NO: 9
 LOGGED BY: F. NIXON, E. OVERWIEN STARTED: 15. 9. 1970 PROPERTY: KJETTEVANN
 CASING: 1.00 m 56 mm FINISHED: 2. 10. 1970 MØLLAND IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION			
		CORE ANGLES.			
		3.50.	40	fracture.	104.30. 36 contact
		9.50.	45	fracture.	104.66 22 contact
		11.60	46	acid vein.	110.50 55
		23.45.	33	contact	113.55. 38
		25.42	33	contact	121.60. 68 contact
		25.86	33	contact.	127.30 15 contact.
		26.62.	90	contact.	131.80 20 contact
		34.20.	55	contact	132.15. 65 contact.
		34.37	70	contact.	132.50. 20 contact.
		38.86.	56.	mylonite	143.10 29 contact
		39.35	30	shear	144.40. 30
		41.39.	56	contact.	151.50. 50.
		42.20	20	shear	153.50 55.
		43.14	56	contact.	
		44.86	46	shear	
		45.90	40	contact	
		49.50	35	shear	
		50.10	31		
		50.60.	50	shear.	
		56.31	39	contact	
		58.50.	40		
		59.80	36	contact	
		63.50	30		
		63.65.	37	contact.	
		70.42.	29	contact.	
		73.20	21		
		74.90	40	contact	
		75.85	21	contact	
		82.90.	44		
		83.55.	28	contact shear.	
		85.30.	35.		
		89.50.	55.		
		91.50.	50.		
		101.67	67	stinger	
		102.24	50	contact.	
		103.15	49	shear	

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DIAMOND DRILL RECORD

LOCATION: 200N/50E BEARING: 270 DIP: 67 HOLE NO.: 11 SHEET NO.: 1
 LOGGED BY: F. NIXON STARTED: 7.10.1970 PROPERTY: KJETTEVANN
 CASING: 1.70m FINISHED: 11.12.1970 MOLLAND IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
0	0.80	Overburden.
0.80	1.51	Gabbro, medium gr. hypersthene rich gabbro, massive. Around 1.00m contains a coarse pegmatitic patch consisting of hb. and red violet feldspar.
1.51	2.40	Medium/fine gr. gabbroic/amphibolitic rock. Dark mineral seems to be dominantly hb. The upper contact is fairly sharp but very irregular. Slightly sheared in part. Contains what looks to be an inclusion of the hypersthene gabbro around 2.00. Nearing 2.40 get isolated feldspar clumps and hb. patches. This section could represent a variety of the older gabbro into which the Mollandinite has been intruded. Contains a few odd specks of pyrite.
2.40	5.60	Gabbro same type as observed above, although after the first 10-20 cms it becomes much more hornblende (amphibole rich) and fairly basic.
5.60	6.98	Very sheared section of a fine grained fairly basic younger rock. - The shearing having come at the time of intrusion. However over the first 20 cms the rock is very massive and becomes over a distance of 5 cms slightly sheared and then abruptly the fine gr. sheared rock. I am of the opinion that the finer gr. sheared rock is younger than the more massive type at the upper contact and that they are not the same rock type. I think the massive type is a remnant as between 1.51 and 2.40. Between

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DIAMOND DRILL RECORD

LOCATION: 200N/50E BEARING: 270 DIP: 67 HOLE NO: 11 SHEET NO: 2
 LOGGED BY: F. NIXON STARTED: 7.10.1970 PROPERTY: KJETIEVANN
 CASING: 1.70 m FINISHED: 11.12.1970 MOLLANDS IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		5.89 and 5.93 The sheared rock is cut by a very fine gr. massive basic rock which has the slightest suggestion of a planar structure
6.98	11.20	Sharp contact into massive basic gabbro which over the first 20-30 cms is hypersthene rich and contains specks of py. and po. After this start getting introduction of feldspar and the dark minerals become predominantly hornblende. 9.25-9.40 specks of py and ep. The gabbro continues with variations down to 11.20. There is much variation some parts extremely basic others more normal etc.
11.20	14.90	Section of what looks like same amphibole rich gabbro/amphibolite type seen previously in this hole. Also this now seems to be varying in texture from medium to more fine grained. Contains also some epidote and patches/blebs of the basic gabbro type. It is fine gr. towards the footwall. Is massive all the way through.
14.90	33.40	Passes with sharp contact into basic gabbro which varies enormously in texture and composition. Med, fine and coarse gr. parts dominantly hypersthene rich but also irregular parts that are amphibole rich. A good deal of introduced feldspar. From 19.30 there is a fairly sharp change from a massive amphibole rich type to a more uniform medium gr. gabbro type, probably part of the same suite. 18.45-19.52 shear zone. From 19.30 the gabbro has certainly changed in nature

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200N/50E BEARING: 270 DIP: 67 HOLE NO: 11 SHEET NO: 3
 LOGGED BY: F. NIXON STARTED: 7.10.1970 PROPERTY: KJETTEVANN
 CASING: 1.70m FINISHED: 11.12.1970 MOLLAND IVELAND
 CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		down to 23.50 much lighter in colour, with hb dominant and with quite a high percentage of feldspar.
		20.30-20.42 irregular intrusive dyke of a fine gr. basic amph./plag rock.
		From 23.50 gabbro becomes more massive and compact, darker in colour and more even gr. fine-med. contains on the whole less light minerals here, although in places there is obvious introduction of feldspar.
		24.60-24.74 small peg. dyke.
		25.16-25.30 " "
		28.20 small shear.
33.40	47.30	This gabbro type continues down to around 33.40 from where we get again our old friend coarse hb/plag rock, extremely coarse in the hanging wall. Small patches of this are also beginning to be developed before 33.40 in places by small thin fine gr./med gr. gabbro (amph./plag).
		31.02-31.23 small peg dyke.
		35.20 small fine gr dyke sheared.
		39.22-39.26 fines gr. portion that is also sheared.
		This coarse pegmatitic type continues down to 47.30 with variations in grain size so that some parts are ultrabasic i.e. only hornblende. I think this rock type is caused by local mobilization and concentration of light and dark constituents.
		At 45.80 a feldspar rich portion contains flakes of MoS_2 .
47.30	53.00	After 47.30 passes again into same type of gabbro that we had before the coarse pegmatitic type. This continues down to

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200N/50E BEARING: 270 DIP: 67 HOLE NO: 11 SHEET NO: 4
 LOGGED BY: F. NIXON STARTED: 7.10.1970 PROPERTY: KJETTEVANN
 CASING: 1.70m FINISHED: 11.12.1970 MOLLAND NELAND
 CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		53.00.
53.00	60.00	Coarse pegmatitic type again
60.00	64.90	Pass over quite abruptly into a basic to ultrabasic gabbro variety, in some sections hypersthene rich. It looks as though the hypersthene are being altered to a black mineral (serpentine?). Near contact to peg it is very basic and hornblende rich.
64.90	67.93	Peg with specular hematite
67.93	78.90	Extremely basic hypersthene rich gabbro with slight variations in texture and composition
78.90	79.26	Extremely basic hypersthene rich gabbro with slight variations in texture and comp fine gr massive gabbro variety fairly sharp contacts.
79.26	79.62	Basic gabbro.
79.62	80.90	Fine gr. gabbro variety.
80.90	93.00	Extremely basic to ultrabasic gabbro type hypersthene rich. Possibly meta pyroxenite. 86.00 - 88.00. An altered zone, hb rich some introduced feldspars at 86.50 some open fractures. (carbonate, epidote and pyrite) also partly fractured
93.00	95.27	Coarse hb/plag. rock again
95.27	120.00	Meta pyroxenite, quite coarse grained

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200N/50E BEARING: 270 DIP: 67 HOLE NO: 11 SHEET NO: 5
 LOGGED BY: F. NIXON STARTED: 7.10.1970 PROPERTY: KJETIEVANN
 CASING: 1.70 m FINISHED: 11.12.1970 MÖLLAND IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		and massive. Tale developed on some fracture surfaces.
		117.87 - 117.98 small dyke of an amphibolitic rock, medium gr. hb. plagi. massive
120.00	130.00	Again m. ultrabasic with in part quite fresh readily visible pyroxene (hypersthene) Contains the odd speck of sulphides. Pyrite as joint fillings. Also po and cp noted as rounded grains cp included in po.
		125 - 130. specks of magnetite visible.
130.00	140.00	Meta pyroxenite fairly fresh and massive, in parts partly serpentized.
		131.21 - 131.33 Quartz vein contact rocks are slightly sheared and altered.
		137.90 - 138.57 fine gr. amphibolitic rock, obscure contacts, very massive however.
		From 130-140 the meta pyroxenite contains from specks up to 1% sulphides
140.00	147.50	Dark massive partly serpentized meta pyroxenite.
		140.44 - 140.55 small quartz/feldspar dyke.
		140.00 - 140.20 up to 2% of finely disseminated sulphides po cp. py.
		Between 140.20 and 142.08 specks of py. po and cp which sometimes add up to 1% but very uneven and irregular distribution
		142.08 - 142.43 irregular distribution but up to 5% sulphides po cp py some good coarse clumps.
		144.50 - 147.60 irregular uneven dissemination but on the whole between 2-5% mainly med. - coarse gr. mainly po. Then cp. py.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200N/50E BEARING: 270 DIP: 67 HOLE NO: 11 SHEET NO: 6
 LOGGED BY: F. NIXON STARTED: 7.10.1970 PROPERTY: KJETTEVANN
 CASING: 1.70 m FINISHED: 11.12.1970 MOLLAND JVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		Between 142.43 - 144.50 specks.
147.60	150.00	Mixed basic rock consists of hb/biotite and chlorite mainly, shearing quite well developed although when approaching 150m becomes less obvious (sheared m. pyroxenite)
150.00	150.86	Meta pyroxenite but here very much altered and recrystallized to fibrous amphiboles and some mica, in fact fairly schistose, although no apparent planar direction.
150.86	151.11	Small quartz vein
151.11	159.50	Same meta-pyroxenite although in various stages of alteration, but mainly quite well altered as from 150.00 - 150.86. Some parts show good serpentinization as between 157.50 and 158.50. 156.17 - 156.50 irregular feldspar introduction that has caught up some of the basic material that it is now changed to hornblende. Some shearing. 152.63 - 154.27 uneven mineralization 0-2% sulphides po.py.ep.
159.50	160.38	Pass over into an amphibolitic dyke rock that is fine-med grained and fairly massive but looks to a certain extent to have also been affected by the shearing and mashing up that is probably due to close proximity of the peg.
160.38	166.85	Extremely altered ultrabasic, talc-chlorite hem-actinolite rock.
166.85	193.16	Quartz vein. Pure white quartz. Over first

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200N/50E BEARING: 270 DIP: 67 HOLE NO: 11 SHEET NO: 7
 LOGGED BY: F. NIXON STARTED: 7.10.1970 PROPERTY: KJETTEVANN
 CASING: 1.70m FINISHED: 11.12.1970 MOLLAND IVELAND
 CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		3m contains biotite schlieres
		171.50 - 172.00 an inclusion of country rock that consists almost in its entirety of biotite, chlorite plus some amphibolite. (green in colour and appears to be hb) also some carbonate.
		The quartz dyke is in parts very pure, especially from around 180.00 in it contains almost no inclusions at all.
193.16	217.25	Pass out of the quartz with a sharp contact into a basic altered zone that is chlorite, biotite, hb rich. This zone continuing down to 196 and over the last half meter also contains some quartz veins and here it looks as if there has been some kind of brecciation.
		Passes out of the altered zone into a basic massive meta ultrabasic.
		193.16 - 195.80 Contain sulphides up to 2% mainly as small dissemination but some larger concentrations do occur. Dominantly pyrite.
		198.80 - 199.80 Extremely rich sulphide zone. Dominantly po. next comes py then cp. coarse. 20%.
		199.80 - 200.45 some kind of younger basic dyke. amphibolitic in nature, fine-med. gr. massive. Cut in turn by a fine gr. small qtz/peg. vein. The small dyke contains a fine dissemination of py.
		Once out of this zone the basic rock is med. gr. and not a typically fresh

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200N/50E BEARING: 270 DIP: 67 HOLE NO: 11 SHEET NO: 8
 LOGGED BY: F. NIXON STARTED: 7.10.1970 PROPERTY: KJETTEVANN
 CASING: 1.70m FINISHED: 11.12.1970 NELLAND NELAND
 CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		ultrabasic rock continues down to 210 and over these meters contains a very irregular sulphide mineralization varying from fine-med-coarse dissemination (and of coarse barren) and some coarse clumps of pc. py. cp. Pc over the entire zone seems to be the dominant sulphide. Difficult to give a percentage but the whole zone probably contains over 2% sulphides.
		211.40 - 211.60 small quartz veins.
		From 210 down to 217.25 the basic rock (m. ultrabasic) seems to be coming slightly more altered. Still basic, massive, fine to med. gr., seems to contain more trem. actinolite than previously. Also is well mineralized, and except for around 213-214 is pretty even. Again over entire zone runs up over 2%.
217.25	219.80	Quartz vein, the quartz has been very brittle and has fractured a good deal.
219.80	222.52	219.80 - 220.00. Very fractured sheared, albite, biotite, rich contact zone.
		Again after this altered m. ultrabasic, rich in fibrous amphiboles. Lower contact with peg slightly sheared.
222.52	229.50	Quartz vein white in colour and contains biotite inclusions and inclusions of the country rock.
229.50	232.00	Very fractured, sheared and also slightly pegmatized meta. gabbro hb.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200N/50E BEARING: 270 DIP: 67 HOLE NO: 11 SHEET NO: 9
 LOGGED BY: F. NIKON STARTED: 7.10.1970 PROPERTY: KJETTEVANN
 CASING: 1.70m FINISHED: 11.12.1970 MÖLLAND IVELAND
 CORE SIZE: 35 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		seems to be the dominant mafic mineral
232.00	245.13	Then passes over into a massive fairly fresh basic gabbro which is medium grained, feldspar is sparse and hypersthene can be seen. Contains isolated specks of sulphides.
245.13	246.10	Aplitic dyke - light grey fine gr.
246.10	250.00	Again in Gabbro but contains more feldspar, hornblende is more dominant as the mafic mineral, also slightly coarser grained. Contains from specks up to 2% sulphides. Dominant py. but also some po and cp.
250.00	279.84	Fairly fresh massive med. gr. basic in Gabbro fairly constant in lithology, hypersthene usually visible but in some places contains a little more hb. 253.20 - 253.75. feldspar rich zone and gabbro here quite coarse. Feldspar is pinkish, reddish in colour. 253.75 - 253.82 mylonitic qtz / feldspar vein From 250.00 - 260.00 unevenly mineralized from fine dissemination to coarse blebs. All these sulphides are present but pyrite seems to be most dominant, cp least. 260.25 - 260.45 small mylonitic quartz / feldspar vein. 261. - 262.50 mineralization is better than in the surrounding rocks and runs over 2% sulphides - otherwise it is very unevenly distributed and runs from specks to 2%. In the above mentioned section it occurs as coarse gr. blebs and fingers

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200N/SOE BEARING: 270 DIP: 67 HOLE NO: 11 SHEET NO: 10
 LOGGED BY: F. NIXON STARTED: 7.10.1970 PROPERTY: XJETTEVANN
 CASING: 1.70m FINISHED: 11.12.1970 MOLLAND VEZAND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		dominantly po with a little cp. almost no pyrite to be seen.
		From 264 onwards to 271 gabbro is slightly less basic in character and hb dominates over hypersthene. It still retains however its massive character.
		265.55 - 265.60. small sheared dk feldspar (dominant fd) vein that is extremely rich in magnetite.
		269.00 - 269.15 coarse gr. hb. feldspar rock that could possibly be some kind of dyke although no sharp contacts can be seen.
		270. - 271 gabbro is becoming less massive more altered and in part more feldspar rich.
		273.30 - 273.46 sheared dk/feldspar dyke.
		From 274 down to 279.84 get patches of the previously mentioned coarse hb/peg rock.
		274.70 - 275.10 27. sulphides mainly pyrite although a little po is present. from 278 - 279.84 getting effects of peg.
280.00	281.00.	Pegmatite.
281.00	282.00	Massive med. gr gabbro in which hornblende is the dominant dark mineral. Contains at 281.20 small vein filling of pyrite.
282.00	282.66	Coarse hb/feldspar rock. hb aggregates consist of many small crystals. Contains the odd speck of pyrite.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 200N/50E BEARING: 270 DIP: 67 HOLE NO.: 11 SHEET NO.: 11
 LOGGED BY: F. NIXON STARTED: 7.10.1970 PROPERTY: KJETTEVANN
 CASING: 1.70m FINISHED: 11.12.1970 MÖLLAND IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
282.66	282.88	Al ₂ /feldspar vein.
282.88	286.65	Gradual increase in feldspar content until the rock becomes a coarse gr. feldspar hb. gabbro variety. Remnants of hypersthene however can be still seen.
286.05	286.40	Very fine gr. mylonitic zone that seems to contain an inclusion of a med. gr. gabbro type, due perhaps to this inclusion that the mylonite has developed some slight folding. Also contains a few pyrite grains. Contacts are obscure.
286.40	293.40	M. gabbro type that contains in part visible pyroxene (hypersthene) but which has for the most part hornblende as the dominant mafic mineral. Varies also in texture from somewhat fine gr. to somewhat coarse gr. but dominantly med. gr. Contains a good deal of introduced feldspar and on the whole is quite rich in feldspar. From 292.50 to 293.40 hypersthene becomes well developed and is still preserved in a slightly mylonitic near zone. 293.30 - 293.40 small quartz rich zone that carries pyrite.
293.40	316.82	Passes gradually over into a medium gr. fairly uniform and massive gabbro type. Contains both pyroxenes and amphiboles but is different from the Mölland north and seems to resemble more the Skripeland m. gabbro type.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 203N/50E BEARING: 270 DIP: 67 HOLE NO: 11 SHEET NO: 12
LOGGED BY: F. NIXON STARTED: 7.10.1970 PROPERTY: KJETTEVANN
CASING: 1.70m FINISHED: 11.12.1970 MÖLLAN 1 VELAND
CORE SIZE: 32mm TESTS (CORRECTED):

FROM	TO	DESCRIPTION
		From 300 - 302 contains small irregular basic veins up to 1cm wide that consist of hypersthene and hornblende. This gabbro variety is very weakly magnetic.
		From 309 - 316 slightly less massive with in part some feldspar introduction and some hint of a planar structure.
316.86		End of hole.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: _____ BEARING: 270 DIP: 67 HOLE NO: 11 SHEET NO: 13
 LOGGED BY: F. NIXON STARTED: _____ PROPERTY: KJETTEVANN
 CASING: _____ FINISHED: _____ MOLLAND IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED): _____

[illegible]

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 17S.58/36W BEARING: - DIP: 90 HOLE NO: 12 SHEET NO: 1
 LOGGED BY: E. NIXON STARTED: 18.11.1970 PROPERTY: KJETTEVANN
 CASING: - FINISHED: 25.11.1970 MOLLAND FARM 1022M
 CORE SIZE: 32 mm TESTS (CORRECTED): -

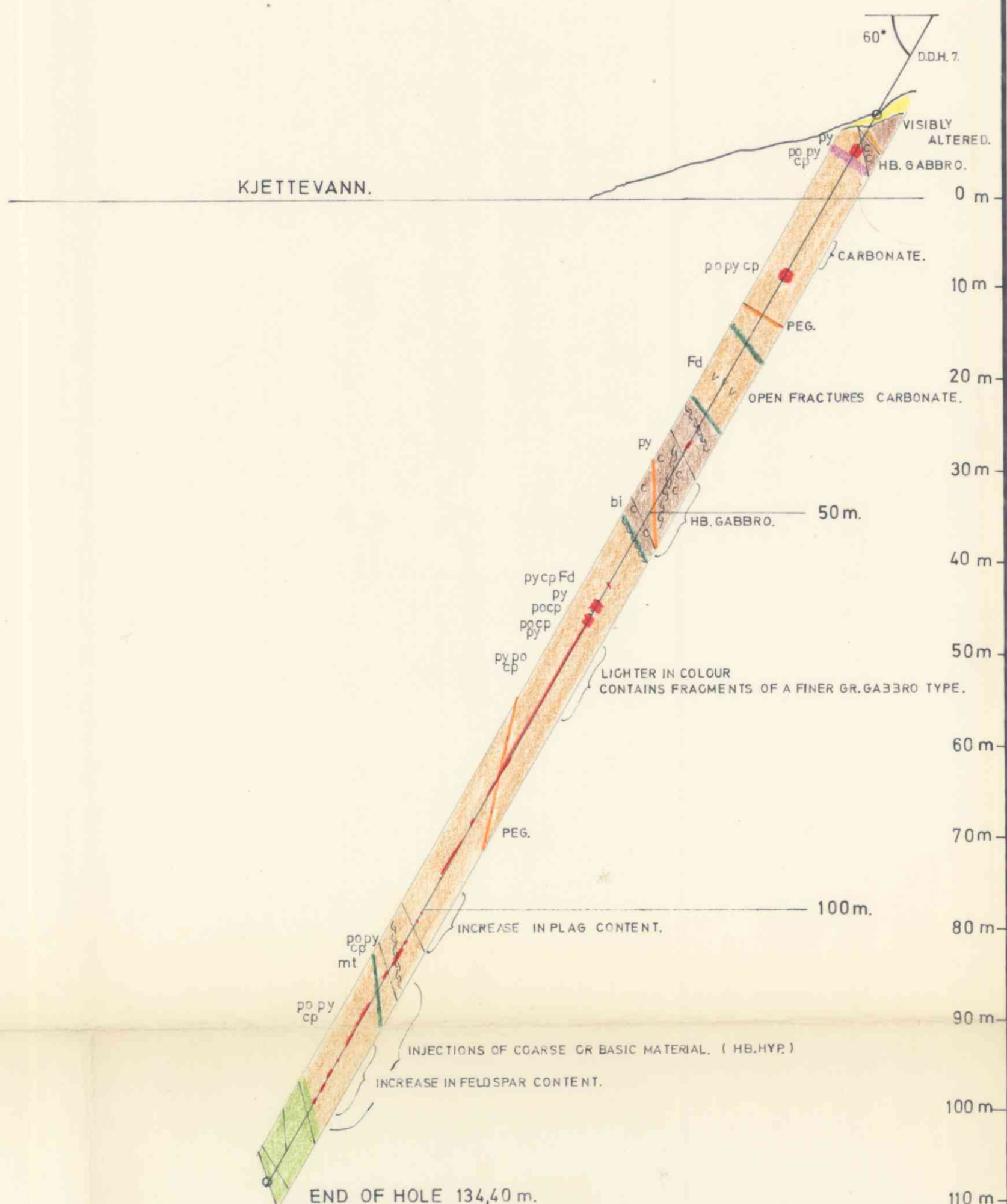
FROM	TO	DESCRIPTION
0.00	0.70	Soil and boulders. Overburden.
0.70	40.00	Amphibolite (m. Gabbro) medium grained, partly massive, partly foliated. 0.70 - 1.20 feldspar rich and also contains some pyrite, from specks to blks 2mm. Slightly magnetic. The magnetite appears to be associated with the pyrite. 1.20 - 1.70. Strongly magnetic, magnetite is visible as fine to med. gr. dissemination. 1.85 - 1.95 strongly magnetic due to magnetite concentration. 1.00 - 1.50 fracture zone, fracture being sub-parallel to the drill core 2.25 - 2.35. pyrite specks. 2.80 - 3.00 weakly magnetic. 3.75 - 4.00 fracture zone 4.00 - 4.75 rock is bleached and partly mylonitic still retains hornblende but also some chlorite present some pyrite as fracture fillings and as fine thin strings (very local). Around 5.60 - 65 weakly magnetic. 6.00 - 7.96 weakly magnetic, stringers in places. 7.96 - 8.07 Quartz vein. 8.07 - 10.00 unevenly but weakly magnetic. 10.00 - 12.00 weakly magnetic. From 11.00 - 13.50 the amphibolite is slightly more coarse grained than the normal. 13.00 - 13.20 strongly magnetic. 13.20 - 14.00 weakly magnetic. 12.00 - 12.50 fracture zone. 13.50 - 14.70 slightly migmatitic and fine grained. 14.71 - 16.10 up to 2% dissemination of pyrite. 16.50 - 19.00 the amphibolite is slightly more massive 17.80 - 19.00 weakly magnetic, stronger around 18.30 20.00 - 30.00 the amphibolite is dominantly foliated and med. gr. some slight shearing

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 175.5S/36W BEARING: --- DIP: 90 HOLE NO: 12 SHEET NO: 2
 LOGGED BY: F. NIXON STARTED: 18.11.1970 PROPERTY: KJETTEVIK
 CASING: --- FINISHED: 25.11.1970 HOLLAND FARM, IVELAND
 CORE SIZE: 32 mm TESTS (CORRECTED): ---

FROM	TO	DESCRIPTION
		seems to be evident however, and some fine gr. mylonitic sections can be seen.
		21.65 - 21.70 mylonitic zone.
		22.70 - 23.00 mylonitic zone.
		No sulphide mineralization of note in this section except for the odd pyrite speck.
		22.20 slightly magnetic.
		22.50 - 22.60 slightly magnetic.
		28.00 - 27.30 slightly magnetic.
		Although it is difficult to judge I also get the impression that the whole of this section contains some magnetite.
		From 30.40 dominantly foliated, some slight variation in proportion between the mafics and plag and some local "leucorag" developed.
		Towards the end of this section there is an increase in feldspar and the last half is quartz.
		Again no sulphides noted in this section except for occasional pyrite specks.
		31.50 - 31.70 is a basic orthoclase like body that doesn't quite follow the foliation and this might be some late plutonism.
		30. - 35 weakly magnetic.
40.00		End of hole.



EXPLANATION.

- OVERBURDEN.
- NORITE/GABBRO.
- BASIC NORITE/GABBRO.
- FOLIATED AMPHIBOLITE + HB. GNEISS.
- ULTRABASIC.
- BASIC DYKE ROCKS.
- ACID DYKE ROCKS.
- SHEAR.
- FRACTURE ZONE.
- FOLIATION.
- CONTACT.
- C COARSE GRAINED.
- po PYRRHOTITE.
- py PYRITE.
- cp CHALCOPYRITE.
- mt MAGNETITE.
- hb HORNBLende.
- hyp HYPERSTENE.
- Fd FELDSPAR.
- up to 5 % SULPHIDES.
- up to 50 % SULPHIDES.

KJETTEVANN.		OBS. F.N.	AUG. 1970
D.D.H. No. 7. 80,9 N/1,35 W. DIP 60° WEST.		DRAW. F.N.	"
MÖLLAND. IVELAND.		TRAC. J.J.	DES. 1970
NORWAY.		DRILLED A/S GRUNNBORING. OSLO.	
A/S SULFIDMALM. KRISTIANSAND.		MAP NR.	MAP SHEET.

110W 100W 90W 80W 70W 60W 50W 40W 30W 20W 10W 0 10E 20E 30E 40E 50E 60E 70E 80E

1000
750
500
250
0
250
500
750
1000

LINE 20N

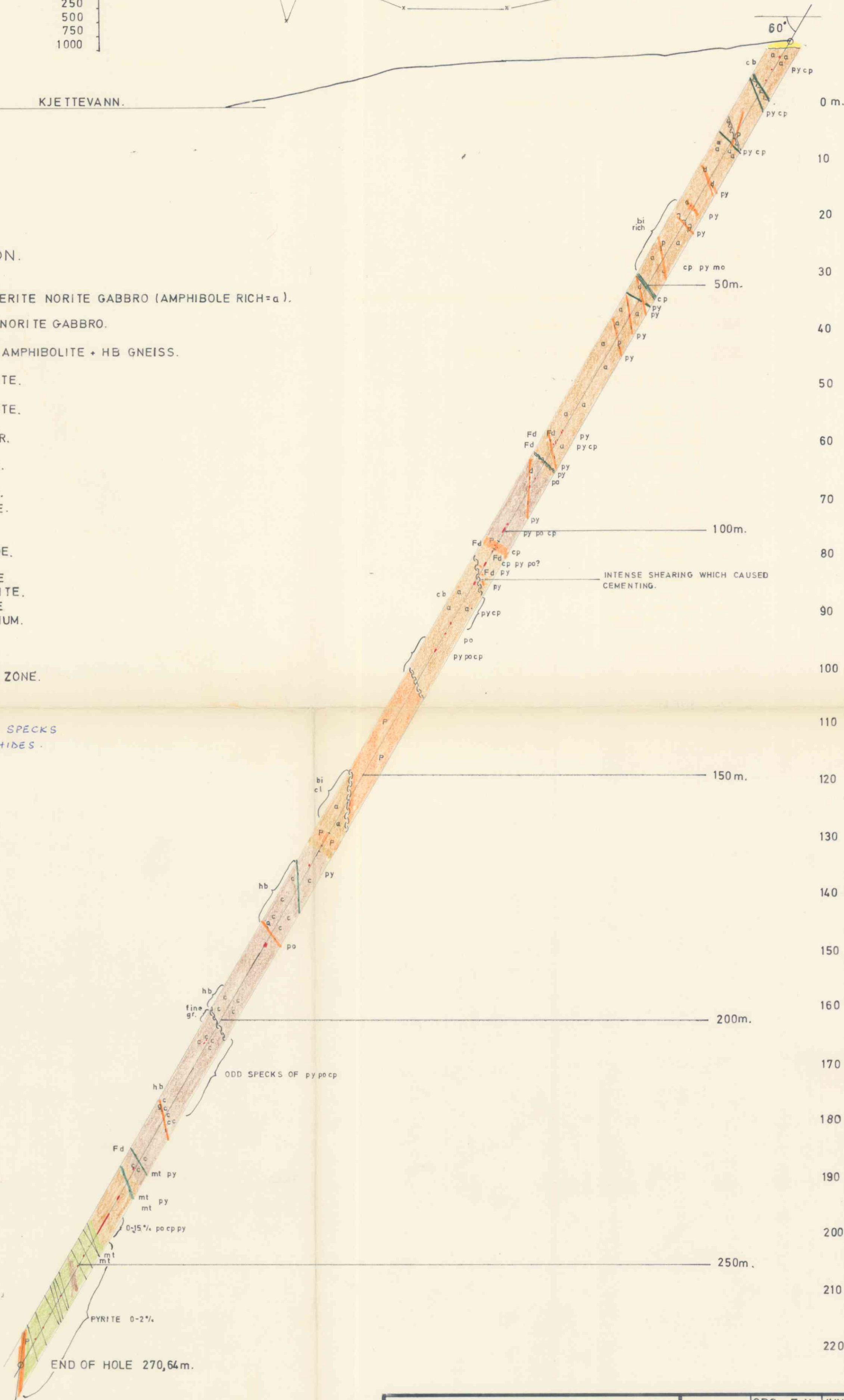
KJETTEVANN.

EXPLANATION.

- BASIC HYPERITE NORITE GABBRO (AMPHIBOLE RICH=a).
- HYPERITE NORITE GABBRO.
- FOLIATED AMPHIBOLITE + HB GNEISS.
- AMPHIBOLITE.
- P PEGMATITE.
- d DIORITE.
- Fd FELDSPAR.
- Q QUARTZ.
- g GRANITE.

- c COARSE GR.
- cb CARBONATE.
- cl CHLORITE.
- bi BIOTITE.
- hb HORNBLende.
- py PYRITE.
- po PYRRHOTITE.
- cp CHALCOPYRITE.
- mt MAGNETITE.
- Mo MOLYBDENIUM.

- FOLIATION.
- FRACTURE ZONE.
- SHEAR.
- SULPHIDE SPECKS
- 2% SULPHIDES.



KJETTEVANN.
D.D.H.No.5. 20N/70E DIP 60° ON 270
MÖLLAND. IVELAND.
NORWAY.

SCALE 1:500
OBS. F.N. JUNE 1970
DRAW. F.N. "
TRAC. J.J. DES. 1970

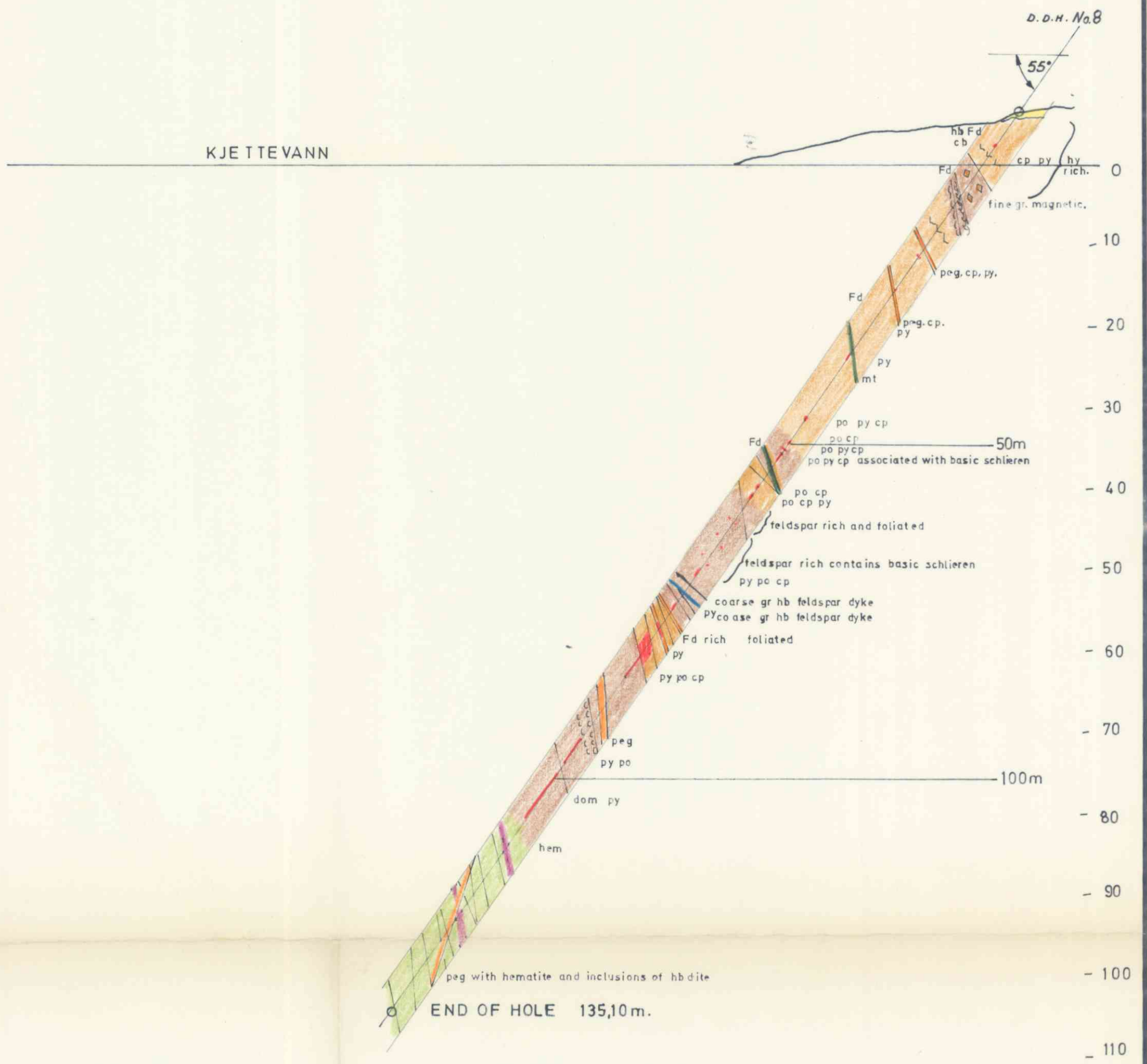
DRILLED A/S GRUNNBORING. OSLO.

A/S SULFIDMALM. KRISTIANSAND.

MAP NR. 13
MAP SHEET.

BV493 S.11. 100-7-70

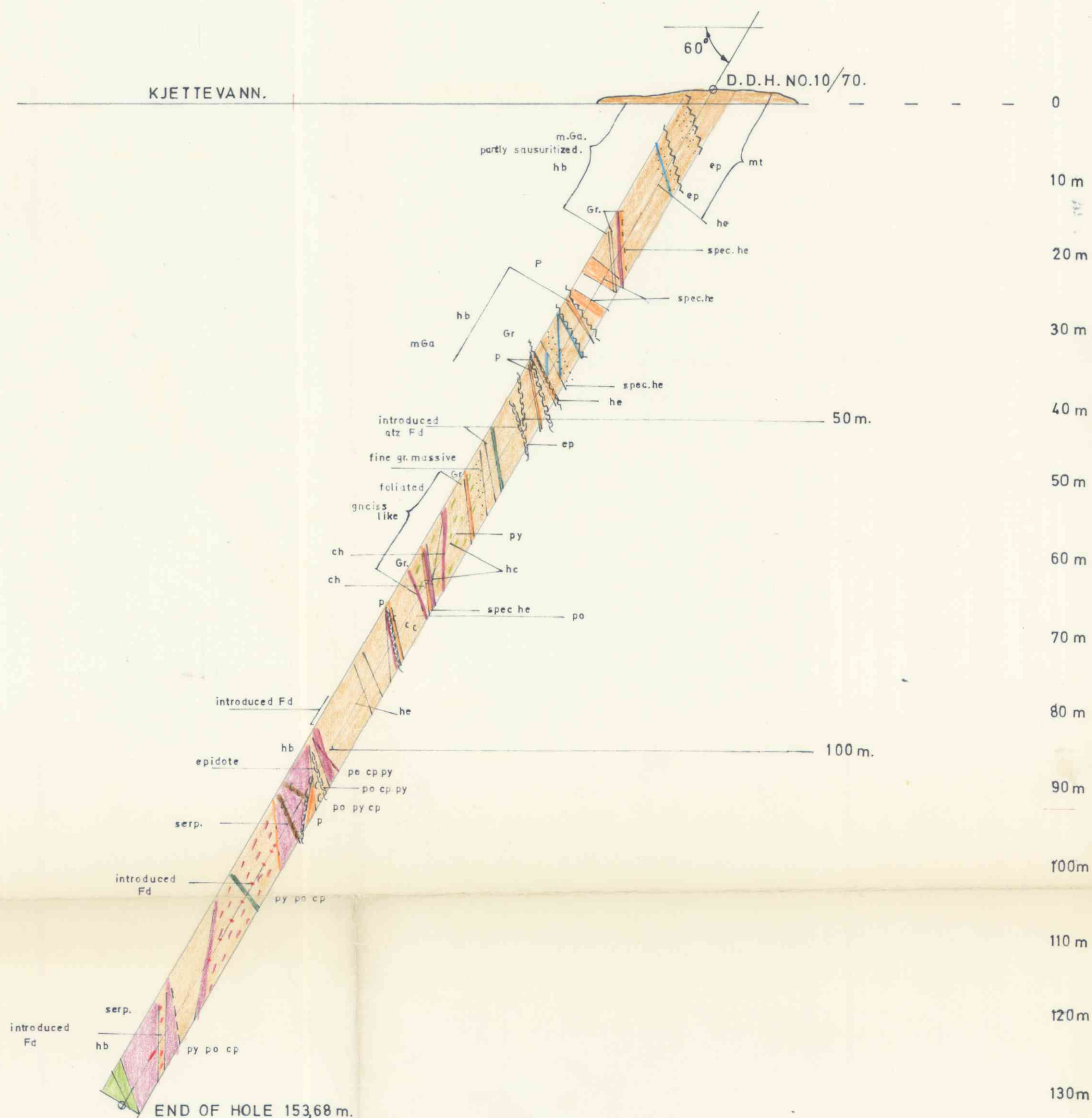
100W 90W 80W 70W 60W 50W 40W 30W 20W 10W 0 10E 20E



EXPLANATION

- BASIC NORITE GABBRO
- GABBRO NORITE
- HORNBLENDITE
- ACID DYKE ROCKS
- BASIC DYKE ROCKS
- MYLONITE
- OVERBURDEN
- FOLIATED AMPHIBOLITE / HB. GNEISS
- CONTACT
- FOLIATION
- FRACTURE ZONE
- SHEAR ZONE
- INCLUSIONS
- py pyrite
- po pyrrhotite
- cp chalcopyrite
- mt magnetite
- hem hematite
- hb hornblende
- fd feldspar
- specks of sulphides
- 2-5% "
- 5-10% "
- >10% "

KJETTEVANN D.D.H. No 8. 140N/15E DIP 55°W MÖLLAND IVELAND NORWAY	SCALE 1:500	OBS F.N.	AUG 70
		DRAW F.N.	AUG 70
		TRACE J.J.	JAN 71
		DRILL. GRUNNBORING	
A/S SULFIDMALM KRISTIANSAND S.	MAP NR 16	MAP SHEET	



EXPLANATION

- | | | | |
|--|---------------------|--|---|
| | CONTACT | | META GABBRO (OLDER TYPE THAN MOLLAND NORITE.) |
| | CONTACT (UNCERTAIN) | | GNEISSIC META GABBRO. |
| | FOLIATION | | META GABBRO INTRUDED BY BASIC SCHLIEREN OF M. PYROXENITE. |
| | FRACTURE ZONE | | META PYROXENITE. |
| | SHEAR ZONE | | COARSE HB. GABBRO (INTRUDES PYROXENITE?) |
| | FINE GRAINED | | MYLONITE. |
| | SULPHIDES | | BASIC DYKE ROCK. |
| | SPECKS | | PEGMATITE (P) GRANITE (GR). |
| | OVER 2 % | | AMPHIBOLITE / HB. GNEISS. |
| | STRINGER | | |
-
- | | |
|------|-------------|
| po | PYRRHOTITE |
| py | PYRITE |
| cp | CALCOPYRITE |
| he | HEMATITE |
| ep | EPIDOTE |
| mt | MAGNETITE |
| hb | HORNBLende |
| fd | FELDSPAR |
| serp | SERPENTINE |
| qtz | QUARTZ |
| ch | CHLORITE |

KJETTEVANN.		OBS: E.O.F.N.	
D.D.H. NO.10/70 260N/0 DIP 60°W.		DRAW: E.O.F.N.	
MÖLLAND. IVELAND. NORWAY.		TRAC: J.J. JAN. 1971	
DRILLED BY A/S GRUNNBORING, OSLO.			
A/S SULFIDMALM. KRISTIANSAND.		MAP NR.	MAP SHEET
		18	

