



Bergvesenet

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Rapportarkivet

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Tittel

Utdrag av rapporten: South Pasvik 1979 Investigations.
Utdraget omfatter borloggene.

Forfatter B. Lieungh F Nixon	Dato 1979	Bedrift Sulfidmalm a.s.
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Kommune Sør-Varanger	Fylke Finnmark	Bergdistrikt Troms og Finnmark	1: 50 000 kartblad 23332	1: 250 000 kartblad Kirkenes
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Fagområde Boring	Dokument type Rapport	Forekomster Blankvann
Råstofftype Malm/metall	Emneord Cu Ni	

Sammendrag

Rapportutdraget omfatter profilboringene som ble utført i Blankvannsområdet, Syd-Pasvik, sommeren 1979. Tilsammen ble det i 1979 boret 533m fordelt på 10 hull.(Borhullene SP4-13)

9. DIAMOND DRILLING

To date 15 short drill holes have been drilled during the present investigations in South Pasvik. Table 6 gives a summary of these holes showing locations and depths. 1979 drill logs and sections are enclosed.

Holes SP 01 and SP 02 drilled in 1977 were drilled on a H.E.M. conductor ca. 1.5 km up ice from the Rømlingås boulders. The anomaly was covered by shootback E.M. and mag. A strong shootback anomaly was obtained and drilled. Only weak magnetic response was obtained. The two subsequent drill holes verified pyrrhotite in garnet bearing amphibolite as the source of the E.M. anomalies. No ultrabasic intersections were obtained.

Although no drilling was planned for the 1978 season, the opportunity arose to drill a limited meterage in Pasvik using a machine taken down from Sydvarangers iron-ore operations in Kirkenes.

It was decided to test 3 geophysical anomaly targets in the detailed grid area.

Hole SP 1 was drilled on a magnetic anomaly south of the main boulder finds. It was suspected that the anomaly was caused by an ultramafic. Drilling confirmed this, but no sulphides were found.

Hole SP 2 was put down on a strong shoot-back E.M. and resistivity anomaly just north of the magnetic anomaly drilled by SP 1. The cause of the anomaly was graphite.

Hole SP 3 was drilled on a shootback E.M. anomaly with weak magnetic association up ice from boulder finds. This anomaly was found to be caused by a magnetic bearing graphite horizon.

Although no mineralization was intersected by the three short drillholes, the program did throw some light on the cause of various anomaly types and also gave some interesting intersections of the bedrock of the area, proving the existence of the ultramafic material.

In 1979 the drilling in S. Pasvik was carried out by Bjørkåsen Gruver - a drilling company in the A/S Sydvaranger group.

Mobilization took place in the middle of August with a large Longyear drill machine from Bjørnevann mine and a 4 men crew from Ballangen.

For transport in the field a Timber jack from the State-forest Company was hired with "pilot" on time paying basis.

The drilling operation stopped 1/10 -79 after a season with normal good drilling condition - even if the last ½ month was a bit dry.

A total of 10 holes were drilled (Sp 4 - Sp 13) giving 533.8 m of which 83.6 m were casing drilling.

The overburden had a thickness between 6 m and 13.6 m with a mean depth of 8.4 m.

The entire drill program was situated within area 15 on two separate magnetic bodies.

The drill program was planned concentrated along 3 main profiles to test the magnetic anomaly in size shape and dip.

Vertical holes down to approx. 50 m depth were chosen as most practical in this heavy overburden area.

Drillhole Sp 4-6 was put down on a small but distinct magnetic anomaly in the southern part of the area on profile 10300N. (see section I, enclosure 17).

The drilled SP 4 cut through a small peridotite in the upper part of the hole - mainly in the casing drilling. Assays from this ran only up to 0.17 Ni and 0.01 Cu.

Drill hole SP 5 and 6 had no intersection with peridotite or similar rocks, but the holes confirmed the general dip of the granitic gneiss and the amphibolites in the area.

The drillholes Sp 6,7,8,9,10,11 were put down on profile 11400N to test shape and internal variation of an expected peridotite (see section II, enclosure 18).

The magnetic anomaly was caused by a differentiated pyroxenite-peridotite with the peridotite - mainly in the lower part. Banding due to different grainsize and dark minerals was visible in the core. No sulphides were seen except some

few scattered cpy grains in Sp 9 and the assays showed only up to 0.19% Ni and 0.01% Cu.

From the section we can see that the dip of the ultrabasic complex flattens out westwards but follows the observed core angle - and shows no sign of cross cutting.

An extra drillhole Sp 12 was put out approx. 100 m south of the profile to test the variation along "strike" (see section III, enclosure 19).

As seen from the profile - we have the same strong variation in the peridotite-pyroxenite relation.

Sp 12 is more similar to Sp 7.

The last drill hole Sp 13 : was expected as the first hole in a drilled profile along 11800N but for several reasons - the drill program ended after this hole, (section IV, enclosure 20).

This section shows an irregular distribution of peridotite/pyroxenite, possibly due to (magmatic) layering and folding.

CONCLUSIONS DRAWN FROM DRILLING 1979

1. The strong magnetic anomalies are caused by a series of peridotite/pyroxenite rocks. Weaker magnetic seem due to amphibolites. (Sp 4-5).
2. The ultrabasic rocks are conformable to the general strike and dip.
3. The ultrabasic rocks are differentiated in pyroxenite and peridotite varieties and show traces of layering in some of the sections.
4. Sulphides are only observed as few small cpy grains in peridotite and do not influence the assays (0.01 - 0.03% Cu).
5. Graphitic rocks are only reported in Sp 4 in the footwall of the small peridotites as a very thin paper.
6. Both the hanging and ^{granitic} footwall rocks to the ultrabasics are mica bearing white gneiss not so different to the rock in the cpy block 78EK77.

Granitic rocks are rare and only intersected in Sp 11. A slight tendency to augengneiss towards west may indicate thrust movement.

TABLE 6

OVERSIKT OVER BORINGER I S. PASVIK

Year	No	Coordinates		Casing	Tot. depth
1977	SP 01	10740 N	5930 W	12,0 m	50,0 m
	SP 02	10550 N	5850 W	no data	37,0 m
1978	SP 1	12000 N	5250 W	7,3 m	38,0 m
	SP 2	12060 N	5080 W	10,0 m	47,65 m
	SP 3	10500 N	5960 W	17,5 m	50,2 m
	SP 4	10300 N	3190 W	6,0 m	55,3 m
	SP 5	"	3250 W	11,9 m	51,3 m
	SP 6	"	3150 W	7,5 m	50,0 m
	SP 7	11400 N	3550 W	7,5 m	50,0 m
1979	SP 8	"	3500 W	7,5 m	50,0 m
	SP 9	"	3600 W	7,9 m	53,2 m
	SP 10	"	3650 W	8,2 m	57,0 m
	SP 11	"	3700 W	5,8 m	60,0 m
	SP 12	11300 N	3615 W	7,7 m	46,0 m
	SP 13	11800 N	3590 W	13,6 m	61,0 m
1979 Drilled total		4 - ¹³ 12		83,6 m	533,8 m



FIG. 6

A/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 10300N-3190W BEARING: _____ DIP: 90° HOLE NO: SP-4 SHEET NO: 1
 LOGGED BY: C. Coates STARTED: 8-79 PROPERTY Blankvann
 CASING: _____ FINISHED: _____ S. Pasvik, Finnmark
 CORE SIZE: 35 mm TESTS (CORRECTED): _____

From	To	Description
0	6.0	OVERBURDEN
6.0	22.6	AMPHIBOLITE Dark green, fine to medium grained, well foliated amphibole rich rock with approx. 20% feldspar plus garnets. Essentially non-magnetic except for some narrow interbeds of Po + magnetite bearing biotite-feldspar gneiss. Amphibolite is banded with fine lamellae of more feldspathic feldspar-amphibole rock. 6.0 - 6.3 Chlorite-amphibole rock. May be chlorite-feldspar amphibolite ultramafic contact zone? Magnetic. 6.4 - 9.5 Sulfide mineralization. Dark grey biotite feldspar gneiss with 10-15 % Po + some py. Augens of white feldspar in some sections.
22.2	40.7	AMPHIBOLE GNEISS Dark grey to greenish, medium grained biotite-amphibole feldspar gneiss. Magnetite content variable - so magnetic in patches. Pink to white cg. pegmatite at intervals. 24.2 - 24.7 Pegmatite, white cg. with ^{inclusion} volcanic amph. gneiss 25.5 - 29.7 Pegmatite, white to pinkish-white, coarse grained with diffuse patches of green amphibole crystals. 36.5 - 37.2 Shear zone - chloritic and broken up 0.3 m of core lost.
40.7	55.3	GRANITE GNEISS Grey coloured biotite-quartz-feldspar gneiss, well foliated and occasionally distinctly banded. Non-magnetic. Minor narrow pegmatites.
55.3		END OF HOLE (Casing left in hole)

DIAMOND DRILL RECORD

LOCATION: 10300N - 3190W BEARING: _____ DIP: 90° HOLE NO: SP-4 SHEET NO: 2
LOGGED BY: C. Coats STARTED: _____ PROPERTY Blankvann
CASING: _____ FINISHED: _____ S. Pasvik Finnmark
CORE SIZE: 35 mm TESTS (CORRECTED): _____

From	To	Description
		Foliation angles
		7 m - 50°
		32 - 70°
		10 m - 70°
		34 - 75°
		12 - 60°
		36 - 75°
		14 - 75°
		38 - 60°
		16 - 77°
		40 - 85°
		18 - 73°
		42 - 77°
		20 - 75°
		44 - 76°
		22 - 60°
		46 - 60°
		24 - 60°
		46
		25 - 65°
		50 - 64°
		30 - 60°
		53 - 76°
		55 - 75°

A/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 10300N - 3250W BEARING: _____ DIP: 90° HOLE NO: SP-5 SHEET NO: 1
 LOGGED BY: C. Coats STARTED: _____ PROPERTY Blankvann
 CASING: _____ FINISHED: 8-79 _____ S. Pasvik Finnmark
 CORE SIZE: _____ TESTS (CORRECTED): _____

From	To	Description
0	11.9	OVERBURDEN
11.9	41.9	AMPHIBOLITE Dark green, fine to medium grained, foliated amphibole-rich rock with approx. 30% feldspar and some biotite. Small garnets ubiquitous, each with white depletion halo. Foliation distinct but banding poorly developed. Occasional ^{thin} their lamellae of more feldspathic material. Only faintly magnetic in part few fractures. Pale green clinopyroxene plus garnet in some lamellae? This may indicate grade of metamorphism near pyroxene granulite facies. 26.0 - 29.4 Sulfide mineralization approx. 5% Po+Py Graphite in some sections. Highly magnetic Rock more schistose and biotite rich with some streaky feldspar augens. Unit would appear to an interbedded sediment to the amphibolite. Probably conductive. 31.2 - 31.4 Amphibole pegmatite. Coarse gr. veinlike. Adjacent narrow magnetic zone. 35.0 - 41.9 Amphibolite with scattered narrow zones (up to few cms.) of highly magnetic, finely laminated biotite-amphibole rock. These are a generally more siliceous than amphibolite.
41.9	51.3	AMPHIBOLE GNEISS Dark green to grey, irregularly banded and well foliated biotite-hordblende feldspar gneiss. Magnetic in their sections but generally non-magnetic. Medium grained and generally coarser than the amphibolite above. Abundant narrow cg. white to pink pegmatite veins. 51 - 51.3 Amphibole biotite schist. Sheared material.
51.3		END OF HOLE (casing left in hole)

A/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 10300N - 3250W
 LOGGED BY: C. Coats
 CASING: _____
 CORE SIZE: _____

BEARING: _____ DIP: 90°
 STARTED: _____ PROPERTY: Blankvann
 FINISHED: 8-79
 TESTS (CORRECTED): _____

HOLE NO: SP-5 SHEET NO: 2
 S. Pasvik Finnmark

From	To	Description
		Foliation angles
		12 m - 80°
		14 - 60°
		16 - 80°
		18 - 85°
		20 - 85°
		22 - 80°
		24 - 85°
		26 - 60°
		28 - 80°
		30 - 80°
		32 - 80°
		34 - 85°
		36 - 85°
		38 - 85°
		41 - 85°
		45 - 90°
		48 - 75°
		50 - 60°
		51 - 55°
		(det er mulig at noen av 80-tallene egentlig skal være 6-taller, AB)

A/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 10300N - 3150W BEARING: _____ DIP: 90° HOLE NO: SP-6 SHEET NO: 1
 LOGGED BY: C. Coats STARTED: _____ PROPERTY Blankvann
 CASING: _____ FINISHED: 8 - 79 S. Pasvik Finnmark
 CORE SIZE: _____ TESTS (CORRECTED): _____

From	To	Description
0	7.5	OVERBURDEN
7.5	27.1	PLAGIOCLASE AMPHIBOLITE Dark greenish grey, well foliated feldspar-amphibole rock. Minor compositional banding, with some bands of leucocratic gneiss and amphibole-biotite rock. Magnetite content variable - distinctly magnetic in part (7.5-79) Narrow white pegmatite dykes. 8.95 - 9.5 Pegmatite 11.4 - 14.6 Pegmatite, white to greenish grey and pink. Foliation evident in part, so may include bands of white quartz-feldspar gneiss. Included seams amphibolite. 17.5 - 20.0 Core highly fractured and broken up. 19.0 - 19.5 Pegmatite. 20.2 - 20.9 Pegmatite stringers in amphibolite.
27.1	50.0	GRANITE GNEISS Light grey to grey-pink leucocratic gneiss, with distinct foliation and only poorly developed banding, composed of quartz, feldspar and biotite (+ amphibole?). Non-magnetic. Medium grained granular texture with preferred orientation of biotite. Narrow stringers of white or pink cg. pegmatite.
50.0		END OF HOLE (casing left in hole)

DIAMOND DRILL RECORD

From	To	Description
		Foliation angles
		8 - 70°
		32 - 80°
		10 - 65°
		35 - 80°
		12 - 65°
		37 - 76°
		15 - 70°
		40 - 75°
		17 - 74°
		42 - 70°
		19 - 70°
		44 - 70°
		20 - 70°
		46 - 70°
		22 - 70°
		47 - 70°
		24 - 70°
		50 - 70°
		26 - 72°
		28 - 76°
		30 - 75°

A/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 11400N-3550W BEARING: _____ DIP: 90° HOLE NO: SP-7 SHEET NO: 1
 LOGGED BY: _____ STARTED: _____ PROPERTY: Blankvann
 CASING: _____ FINISHED: 9-79 S. Pasvik Finnmark
 CORE SIZE: _____ TESTS (CORRECTED): _____

From	To	Description
0	7.5	OVERBURDEN
7.5	24.9	PERIDOTITE Dark green, massive ultramafic rock with various textural and compositional features. Highly magnetic throughout. 7.5 - 8.9 Peridotite with high amphibole content (amph. perid. 8.9 - 10.2 Tremolite-chlorite (phlopogite?) zone. Dark grey. Some shearing and broken core. 10.2 - 14 Serpentinized peridotite with considerable amphibole development (often pyroxene). Probably tremolite + chlorite. Dark green, granular texture (primary magmatic) 14 - 15.4 Sheared and altered section of tremolite + chlorite. Vein of extremely coarse pyroxene (amphibole?) which is fractured with stringers of saporite & minor grains cpy. Small (2-3 cms) vein of quartz with Po grains. 15.4 -22.3 Serpentinized peridotite, granular texture. Pyroxene cleavages visible with replacement by some amphibole magnetite-rich areas indicative of olivine locations. 22.3 -23.4 Amphibole-chlorite zone, fine grained. Core broken. 23.4 -24.9 Serpentinized peridotite. Some alignment of magnetite streaks. Contact sharp and relative unaltered. Increase in tremolite content for 0.2 m. No sulphide mineralization in peridotite unit!
24.9	50.0	GRANITE GNEISS White to light grey leucocratic biotite quartz feldspar gneiss. Well foliated and gneissic texture. Non magnetic. 37.2 - 38.0 Amphibolite. Dark green band of beat-amphl. feldrock. 45.0 -45.7 Pegmatite. Highly fractured with development of a 0.1 m biotite seam. Lost core. 48.0 -48.3 Lost core (?)

A/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 11400N - 3550W BEARING: _____ DIP: 90° HOLE NO: SP-7 SHEET NO: 7
 LOGGED BY: C. Coats STARTED: _____ PROPERTY: Blankvann
 CASING: _____ FINISHED: 9-79 S.Pasvik Finnmark
 CORE SIZE: _____ TESTS (CORRECTED): _____

From	To	Description
		Foliation angles
		26m - 80°
		28 - 80°
		30 - 75°
		32 - 80°
		34 - 70°
		36 - 60°
		36 - 60°
		40 - 65°
		42 - 55°
		44 - 60°
		46 - 50°
		48 - 65°
		50 - 70°

DIAMOND DRILL RECORD

From	To	Description
0	7.5	OVERBURDEN
7.5	50	GRANITE GNEISS
		Light grey, foliated and diffusely banded biotite granite gneiss. Principal minerals quartz & feldspar. Nonmagnetic. Included narrow zones of amphibolite.
		7.4 - 8.3 Amphibolite. Dark green, foliated
		16.0 -16.6 Amphibolite. Shear zone of biotite-chlorite at 16.6. m
		23.2 -23.6 Lost core. Rock locally fractured.
		24.0 -25.0 Lost core.
		27.2 -27.3 Amphibolite band.
		31.6 - 31.8
		32.6 - 34 Lost core (Probably soft amphibolite band)
		34.9 - 35.7 Amphibolite with narrow white pegmatite veins
		46.8 - 47.2 Amphibolite
50.0		END OF HOLE

DIAMOND DRILL RECORD

LOCATION: 11400N - 3500W BEARING: _____ DIP: 90° HOLE NO: SP-8 SHEET NO: 2
 LOGGED BY: C. Coats STARTED: _____ PROPERTY Blankvann
 CASING: _____ FINISHED: _____ S. Pasvik
 CORE SIZE: _____ TESTS (CORRECTED): _____

F 4. 4 : 5000 5 73

A/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 11400N - 3600W BEARING: _____ DIP: 90° HOLE NO: SP-9 SHEET NO: 1
 LOGGED BY: B. Lieungh STARTED: _____ PROPERTY: Blankvann
 CASING: _____ FINISHED: 9 - 79 S. Pasvik
 CORE SIZE: _____ TESTS (CORRECTED): _____

From	To	Description
0	7.90	OVERBURDEN
7.90	13.50	White homogen quartz feldspar gneiss with some scattered biotite flakes.
13.50	43.70	Metapyroxenite weak - strong magnetic more chlorite at 13.50 - 14.50 no visible sulfides
43.70	47.40	Metaperidotite, strong magnetic few cpy grains between 46.50 - 46.85
47.40	53.20	White quartz feldspar gneiss as on top
53.20		END OF HOLE
		Core angles
		9 m - 90°
		13.50 - 85°
		49.00 - 75°
		50.00 - 75°

1/5 SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 11400N - 3650W BEARING: _____ DIP: 90° HOLE NO: SP-10 SHEET NO: 1
 LOGGED BY: B. Lieungh STARTED: _____ PROPERTY Blankvann
 CASING: _____ FINISHED: 9 - 79 S. Pasvik
 CORE SIZE: _____ TESTS (CORRECTED): _____

From	To	Description
0	8.20	OVERBURDEN
8.20	11.10	White quartz-feldspar gneiss with some biotite
11.10	13.25	Dark hornblende gneiss with few red augens.
13.25	19.65	White-grey biotite gneiss with few red augens.
19.65	20.30	Green hornblende gneiss with some white gneiss bands unmagnetic.
20.30	20.95	Grey-white banded biotite gneiss
20.95	22.20	White homogen gneiss
22.20	26.45	Grey-white banded biotite gneiss
26.45	26.95	Dark hornblende gneiss un-magnetic (some pyroxene?)
26.95	27.50	Light grey banded biotite gneiss
27.50	28.65	Dark hornblende gneiss (some pyroxene) unmagnetic
28.65	30.00	White homogen gneiss with few biotite grains
30.0	34.30	Light grey banded biotite gneiss
34.30	34.50	Crosscutting quartz vein
34.50	39.30	Metapyroxenite with some talc-serp. bands. Low-unmagnetic Quartzpegmatite at 35.10 - 35.60
39.30	46.20	Bluish dark massive metaperidotite, increasing magnetic to 40.00, then strong magnetic.

A/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 11400N - 3650W BEARING: _____ DIP: 90° HOLE NO: SP-10 SHEET NO: 2
 LOGGED BY: B. Lieungh STARTED: _____ PROPERTY: Blankvann
 CASING: _____ FINISHED: 9 - 79 S. Pasvik
 CORE SIZE: _____ TESTS (CORRECTED): _____

From	To	Description
46.20	48.50	Grey-grenn metapyroxenite, distinct lighter coloured than metaperidotite. Low magnetic.
48.50	50.20	White-grey weak banded gneiss with few biotite grains.
50.20	50.40	Dark hordblende gneiss with some biotite (?)
50.40	52.20	White-grey banded biotite gneiss
52.20	52.65	Very dark hornblende gneiss (some pyroxene?)
52.65	57.00	White-grey massive gneiss with some biotite
57.00		End of hole
		Core angles
		11.00 - 75°
		13.10 - 78°
		14.00 - 78°
		18.00 - 65°
		20.30 - 65°
		26.20 - 62°
		33.70 - 70°
		(34.30 - 50° Crosscutting quartz vein)
		49.00 - 60°
		49.70 - 78°
		51.00 - 85°
		57.00 - 85°
		mean foliation approx. 73° (read core angle)

A/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 11400N - 3700W BEARING: _____ DIP: 90° HOLE NO: SP 11 SHEET NO: 1
 LOGGED BY: B. Lieungh STARTED: _____ PROPERTY: Blankvann
 CASING: _____ FINISHED: 9 - 79 S. Pasvik
 CORE SIZE: _____ TESTS (CORRECTED): _____

From	To	Description
0	5.80	Overburden
5.80	18.60	Grey-white banded biotite gneiss
18.60	20.15	Grey-red granite - partly foliated, with red feldspar some pockets with small clear quartz crystals
20.15	23.60	Foliated granitic gneiss
23.60	28.60	Amphibole gneiss, partly amphibolite with distinct banding unmagnetic pure gneiss at 13.90 - 14.05 14.60 - 15.00 15.55 - 15.65
28.60	32.60	Light grey biotite bearing gneiss, the upper part (30 cms) with red feldspar.
32.60	32.80	Dark amphibole gneiss (some pyroxene?)
32.80	37.55	Grey weakly foliated gneiss
37.55	38.15	Dark amphibole gneiss (some pyroxene?)
38.15	46.90	White granitic gneiss with weak banding small aggregates of amphibole-garnet between 45-46 m.
46.90	47.30	Talc-serpentine, light grey with long fibres, unmagentic very soft rock
47.30	47.70	Peridotite (?) dark massive weak-distinct magnetic rock relict layering paralell to core at 47.40
47.70	48.10	Ultrabasic breccia
48.10	50.30	Talc-serpentine rock

A/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 11400N - 3700W BEARING: _____ DIP: 90° HOLE NO: SP 11 SHEET NO: 2
 LOGGED BY: B. Lieungh STARTED: _____ PROPERTY Blankvann
 CASING: _____ FINISHED: 9 - 79 S. Pasvik
 CORE SIZE: _____ TESTS (CORRECTED): _____

From	To	Description
50.30	51.90	Grey Gneiss
51.90	52.05	Amphibole gneiss - amphibolite
52.05	60.00	Grey-white gneiss, mainly quartz feldspar gneiss with biotite bands.
60.0		End of hole
		Core angle
		6.75 - 60°
		10.00 - 70°
		12.00 - 68°
		16.00 - 75°
		20.40 - 85°
		23.60 - 72°
		28.00 - 80°
		28.60 - 72°
		30.00 - 80°
		36.50 - 90°
		45.00 - 90°
		50.30 - 80° rock contact
		55.00 - 70°
		59.30 - 65°
		60.00 - 80°
		mean foliation value 76°

A/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 11300N - 3615W BEARING: _____ DIP: 90° HOLE NO: SP 12 SHEET NO: 1
 LOGGED BY: B. Lieungh STARTED: _____ PROPERTY Blankvann
 CASING: _____ FINISHED: _____ S. Pasvik
 CORE SIZE: _____ TESTS (CORRECTED): _____

From	To	Description
0	7.70	OVerburden
7.70	14.95	White-grey gneiss with weak banding of biotite
14.95	19.00	Pyroxenite Strong - medium magnetic
19.00	22.80	Green-grey metapyroxenite with transition to meta-peridotite from 22.00 - 22.80. Magnetic.
22.80	25.20	Feldspar - pegmatite crosscutting the ultrabasic rocks core angle upper contact 45° - " - lower - " - 20° cpy-fish ^{5/26} approx. 2x2x3 cm in the pegm. at 23.10
25.20	27.60	Talc-serpentine-amphibole rock
27.60	29.35	Coarse grained bluish metaperidotite. High magnetic contact to talcserp. rock above 30°.
29.35	30.05	Talc serpentine rock weak magnetic
30.05	31.50	Dark peridotite medium magnetic
31.50	32.70	Weak magnetic meta pyroxenite core loss at 32.30 - 32.40
32.70	32.90	Hornblende gneiss unmagnetic contact against lower gneiss = 80°
32.90	46.00	White-light grey granitic gneiss with weak biotite bands Amphibole gneiss at 37.75 - 37.90 Core loss at 39.35 - 39.50
	46.00	End of hole

DIAMOND DRILL RECORD

LOCATION: 11300N - 3615W BEARING: _____ DIP: 90° HOLE NO: SP-12 SHEET NO: 2
LOGGED BY: B. Lieungh STARTED: _____ PROPERTY Blankvann
CASING: _____ FINISHED: 9-79 S. Pasvik
CORE SIZE: _____ TESTS (CORRECTED): _____

From	To	Description
		Core angles
	10.00 - 90°	
	14.00 - 85	
	22.80 - 45	Crosscutting pegmatite
	25.20 - 20	- " -
	27.60 - 30	Pyroxenite-peridotite contact
	32.90 - 80	Hornblende gneiss - gneiss contact
	34.00 - 80	
	40.00 - 85	
	44.00 - 65	
	46.00 - 85	

A/s SULFIDMALM.

DIAMOND DRILL RECORD

LOCATION: 11800N - 3590W BEARING: _____ DIP: 90° HOLE NO: SP 13 SHEET NO: 1
 LOGGED BY: B. Lieungh STARTED: _____ PROPERTY: Blankvann
 CASING: _____ FINISHED: 9 - 79 S. Pasvik
 CORE SIZE: _____ TESTS (CORRECTED): _____

From	To	Description
0	13.60	Overburden
13.60	16.60	Metaperidotite, dark bluish, coarse grained, strong magnetic
16.60	16.80	Core loss
16.80	17.50	Metapyroxenite, greenish-grey fine grained
17.50	17.70	Fine-medium grained peridotite
17.70	25.00	Coarse grained metaperidotite. Increasing grainsize and bluish colour downwards.
25.00	26.10	Medium coarse grained metaperidotite
26.10	27.15	Medium grained meta peridotite
27.15	30.90	Fine grained peridotite, more fine grained towards bottom
30.90	32.75	Feldspar-pegmatite and breccia upper contact approx. 10°
32.75	35.50	Fine grained metapyroxenite with gradual coarser grain towards 35.50
35.50	42.80	Medium grained metapyroxenite
42.80	44.60	Metaperidotite Between 42.80 - 42.90 a transition from pyrox.-peridotite
44.60		A sharp contact to the lower fine grained pyroxenite contact angle approx. 25°.

A/s SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 11800N-3590W BEARING: _____ DIP: 90° HOLE NO: SP 13 SHEET NO: 2
 LOGGED BY: B. Lieungh STARTED: _____ PROPERTY Blankvann
 CASING: _____ FINISHED: 9 - 79 S. Pasvik
 CORE SIZE: _____ TESTS (CORRECTED): _____

From	To	Description
44.60	44.90	Fine grained pyroxenite. approx. 10 cms thick
44.90	46.50	Coarse grained dark metaperidotite
46.50	46.90	Metaperidotite with decreasing grainsize. colour change from bluish-greenish green at 46.90.
46.90	47.00	Same transition rock but reversed
47.00	48.00	Metaperidotite, bluish.
48.00	48.90	Transistion from bluish metaperidotite - greenish pyrox.
48.90	49.95	Grey-white massive gneiss.
49.95	50.40	Amphibolite
50.40	50.70	Grey-white massive gneiss
50.70	51.30	Medium-coarse grained amphibole with fine grained borders of both sides. Diabase dyke?
51.30	56.60	Partly brecciated grey-redish granitic gneiss.
56.60	58.40	Brecciated amphibolite
58.40	60.0	Grey gneiss
60.0	60.25	Amphibolite

DIAMOND DRILL RECORD

LOCATION: 11800N - 3590W BEARING: _____ DIP: 90° HOLE NO: SP 13 SHEET NO: 3
LOGGED BY: B. Lieungh STARTED: _____ PROPERTY Blankvann
CASING: _____ FINISHED: _____ S. Pasvik
CORE SIZE: _____ TESTS (CORRECTED): _____

From	To	Description
60.25	60.55	White granitic gneiss
60.55	61.00	Brecciated amphibolite
61.00		End of hole
		Core angles
	30.90 - 10°	Pegmatite crosscutting (?) peridotite
	44.60 - 25°	Contact between upper peridotite and lower finegrained pyroxenite, sharp contact

<u>Borhull nr.</u>	<u>boremeter</u>	<u>% Ni</u>	<u>% Cu</u>
Sp 9	19 - 20	0,17	0,01
	20 - 21	0,18	0,01
	21 - 22	0,16	
	22 - 23	0,17	
	23 - 24	0,17	
	24 - 25	0,17	
	25 - 26	0,19	0,01
	26 - 27	0,18	
	27 - 28	0,18	0,01
	28 - 29	0,17	0,01
	29 - 30	0,17	0,01
	30 - 31	0,17	
	31 - 32	0,15	
	32 - 33	0,17	
	33 - 34	0,17	
	34 - 35	0,17	
	35 - 36	0,15	
	36 - 37	0,14	0,01
	37 - 38	0,14	0,01
	38 - 39	0,14	0,02
	39 - 40	0,14	0,02
	40 - 41	0,11	0,01
	41 - 42	0,09	0,02
	42 - 43	0,11	
	43 - 44	0,10	0,02
	44 - 45	0,10	
	45 - 46	0,10	0,01
	46 - 47	0,13	
	47 - 47,5	0,06	
Sp 12	15 - 16	0,14	
	16 - 17	0,13	
	17 - 18	0,14	0,01
	18 - 19	0,13	0,01
	19 - 20	0,13	0,01
	20 - 21	0,08	
	21 - 22	0,14	0,01
	22 - 23	0,11	0,01
	23 - 23,5	0,03	
	25 - 26	0,12	0,01

<u>Borhull nr.</u>	<u>boremeter</u>	<u>% Ni</u>	<u>% Cu</u>
Sp 12	26 - 27	0,15	0,01
	27 - 28	0,14	
	28 - 29	0,15	
	29 - 30	0,12	
	30 - 31	0,13	
	31 - 32	0,10	0,01

Verdier $< 0,01 \%$ er ikke tatt med på analysebeviset.

Grete Hofseth
Grete Hofseth

Torbjørn Nilsen
Torbjørn Nilsen