

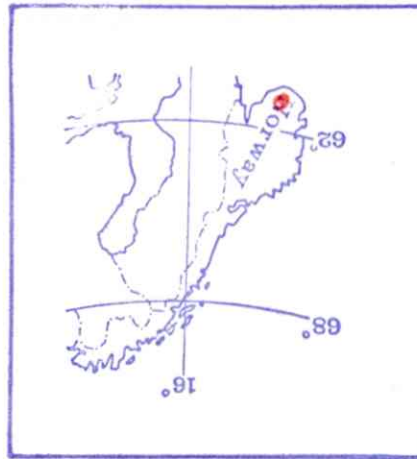


Bergvesenet

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Rapportarkivet

Bergvesenet rapport nr BV 1216	Intern Journal nr	Internt arkiv nr	Rapport lokalisering Trondheim	Gradering Åpen
Kommer fra ..arkiv Falconbridge	Ekstern rapport nr Sul 252-73-7	Oversendt fra Sulfidmalm a.s.	Fortrolig pga	Fortrolig fra dato:
Tittel Note on a Winkie Drilling at Birkeland Test Grid, Iveland, S.Norway				
Forfatter F Nixon		Dato 1973	Bedrift Sulfidmalm A/S	
Kommune Iveland	Fylke Aust-Agder	Bergdistrikt Østlandske	1: 50 000 kartblad 15123	1: 250 000 kartblad Mandal
Fagområde Boring	Dokument type Rapport	Forekomster Birkeland grid		
Råstofftype Malm/metall	Emneord Ni Cu			
Sammendrag				



F. NIXON

1973.

NOTE ON WINKIE DRILLING AT BIRKELAND
TEST-GRID, IVELAND, S. NORWAY.

PROJECT 905-7

A/S SULFIDMALM

FOR FALCONBRIDGE NIKKELVERK A/S

INTRODUCTION.

Winter 1972 it was decided to buy new lightweight drill rods for Sulfidmalms winkiedrill and at the same time cut down from AX to IEX size. These changes were made in order to increase footage from the WINKIE machine. Equipment arrived in Kristiansand at the end of January and prior to the first drilling job in Østfold it was decided to test out the new equipment near Kristiansand. The Birkeland Test Grid (reports 204-72-7 and 142-71-7) was chosen for the drilling tests. On this grid an anomaly detected by ABEM slingram had been used as a test for Sulfidmalms various geophysical systems that Sulfidmalm has at its disposal (ABEM slingram various frequencies. Crone horizontal and coaxial shootback various frequencies. Vertical loop, broadsize technique and fixed transmitter. Geonics VLF and magnetics McPhar Fluxgate). Two birds were thus killed with one stone, i.e. getting a check on the nature of the conductor and testing the new drilling equipment.

LOCATION.

The test site is located in the Iveland area. Reports (142-71-7 and 204-72-7) give details of the geology and geophysics.

WORK CARRIED OUT.

Three short holes to a combined length of 34.85 m were drilled. The locations are shown in fig. 1 in relation to ABEM gun high freq. map where the imaginary component is contoured.

The work was hampered due to late delivery of bits from J. Schmit and absence of Sulfidmalms driller due to family bereavement. Difficult terrain and snow conditions made for set up problems.

Hole 1. 50W/430N, 55°/N45°E. 7.70 m.

Hole 2. 50W/430N, 70°/N45°E. 18.45 m.

Hole 3. 25W/432N, 55°/North. 8.70 m.

RESULTS.

All three holes intersected sulphide mineralization. Hole 1 intersected amphibolites with small 2 cm - 20 cm ultrabasic veins. The ultrabasics were well mineralized, mainly pyrrhotite with minor chalcopyrite and pyrite.

Hole 2. Results very similar to hole 1. Amphibolite with mineralized ultrabasic lenses in the first 10 meters of the hole. From 10 m to end of hole unmineralized amphibolites.

Hole 3. Amphibolite with two intersections of ultrabasic which were well mineralized 20-30% sulphides, dominantly pyrrhotite with minor pyrite and chalcopyrite.

ASSAY RESULTS.

<u>Hole</u>	<u>Depth.</u>	<u>Ni%</u>	<u>Cu%</u>	<u>S%</u>
1	1.5-2.0 m	0.14	0.17	2.6
1	3-4 m	0.40	0.45	9.6
1	4-5 m	0.14	0.18	3.0
1	5-6 m	0.17	0.15	3.2
1	6-6.5 m	0.18	0.20	3.3
1	6.5-7 m	0.09	0.11	0.7
2	1.5-2 m	0.11	0.12	1.5
2	3.5-4 m	0.29	0.19	7.5

<u>Hole</u>	<u>Depth</u>	<u>Ni %</u>	<u>Cu %</u>	<u>S %</u>
2	4-5 m	0.43	0.28	10.5
2	5-6 m	0.16	0.15	3.0
2	6.0-6.5 m	0.14	0.12	2.5
2	6.5-7 m	0.09	0.12	1.4
2	7-7.5 m	0.07	0.10	1.6
2	7.5-8 m	0.07	0.15	1.9
3	1.0-1.66 m	0.20	0.12	1.6
3	1.66-2.57 m	0.60	0.45	12.9
3	2.93-3.54 m	0.46	0.98	15.6

CONCLUSIONS.

The anomaly drilled is due to sulphides associated with ultrabasic rocks. The sulphides are mainly pyrrhotite with subordinate pyrite and chalcopyrite. The nickel content is low but the sulphides, which are in places massive form a good geophysical anomaly and should give a good response to most geophysical techniques. The best nickel assays run 0.6% Ni, this was however a pure sulphide rich intersection, and because of the irregular nature of the sulphides an average assay of the mineralized zone would run much lower than 0.6% Ni because of the large amount of dilution that must be taken into account. The area is considered a good test area but not an economic proposition.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 50W/430 N BEARING: N 45° E DIP: 70 HOLE No: W 2 SHEET No: 1
LOGGED BY: NIXON STARTED: PROPERTY
CASING: FINISHED: BIRKELAND TEST GRID
CORE SIZE: IEX TESTS (CORRECTED):

FROM	TO	DESCRIPTION
0	18.45	Medium grained amphibolite, cut by small ultrabasic lenses and quartz/pegmatite stringer. Most of the ultrabasic lenses are mineralized with po. cp. py. and in parts the amphibolite also carries a small dissemination of sulphides plus some magnetite.
		1.60-1.78 ultrabasic 2-5% dissem. sulphides.
		2.70-3.00 ultrabasic 5-10% sulphides.
		3.84-4.00 ultrabasic 30% sulphides.
		4.00-4.83 ultrabasic 10-20% sulphides (4.20-4.30 massive po).
		5.10-5.28 ultrabasic 10-20% po.
		5.42-5.65 ultrabasic 10% sulphides.
		6.15-6.20 ultrabasic 2% sulphides.
		7.00-7.09 ultrabasic 50% sulphides.
		In rest of section ultrabasic lenses are unmineralized.
		18.45 end of hole.
		Core Angles.
		3.50 65° contact
		5.40 55° foliation
		6.70 55° "
		9.30 65° "
		17.20 65° "
		The sulphides encountered are sufficient to cause the observed anomalies.

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 25W/432N BEARING: N DIP: 55° HOLE NO: W 3 SHEET NO: 1
LOGGED BY: NIXON STARTED: PROPERTY
CASING: FINISHED: BIRKELAND TEST GRID
CORE SIZE: IEX TESTS (CORRECTED):

[illegible]

A/S SULFIDMALM

DIAMOND DRILL RECORD

LOCATION: 50W/430N BEARING N 45° E DIP: 55 HOLE No: W 1 SHEET No: 1
LOGGED BY: NIXON STARTED: PROPERTY BIRKELAND
CASING: FINISHED: TEST GRID
CORE SIZE: LEX TESTS (CORRECTED):

[illegible]

N
S

Direction
of traverse

90.0



525

97.0

96.0

101. +0,5

106.0

86.0

500

95.0

98.0

81. -13

96.0

91.0

81.0

475

99.0

98. -2

103. -6

103. +2

104. +1

110. +1

103.0

450

92.0

91.0

102. -3

90. +1

73. -12

127. +15

91. +1

425

90.0

93.0

87. -3

94. +1

84. -12

67. -8

113. +1

400

108.0

101.0

106. +1

100.0

105. -11

100.0

100.0

375

89.0

94.0

96.0

96. +1

96. -6

96. +2

75.0

350N

97.0

97.0

96.0

96.0

100.0

100.0

98.0

100.

97.0

98.0

98.0

99.0

98.0

75

50

25

00

150W

125

100

A/S SULFIDMALM

BIRKELAND GRID
ABEM GUN IMAG.GOMP.
LOCATION OF DRILLHOLES

SCALE 1:1000

DRAWN FN

DATE 20.3.73.

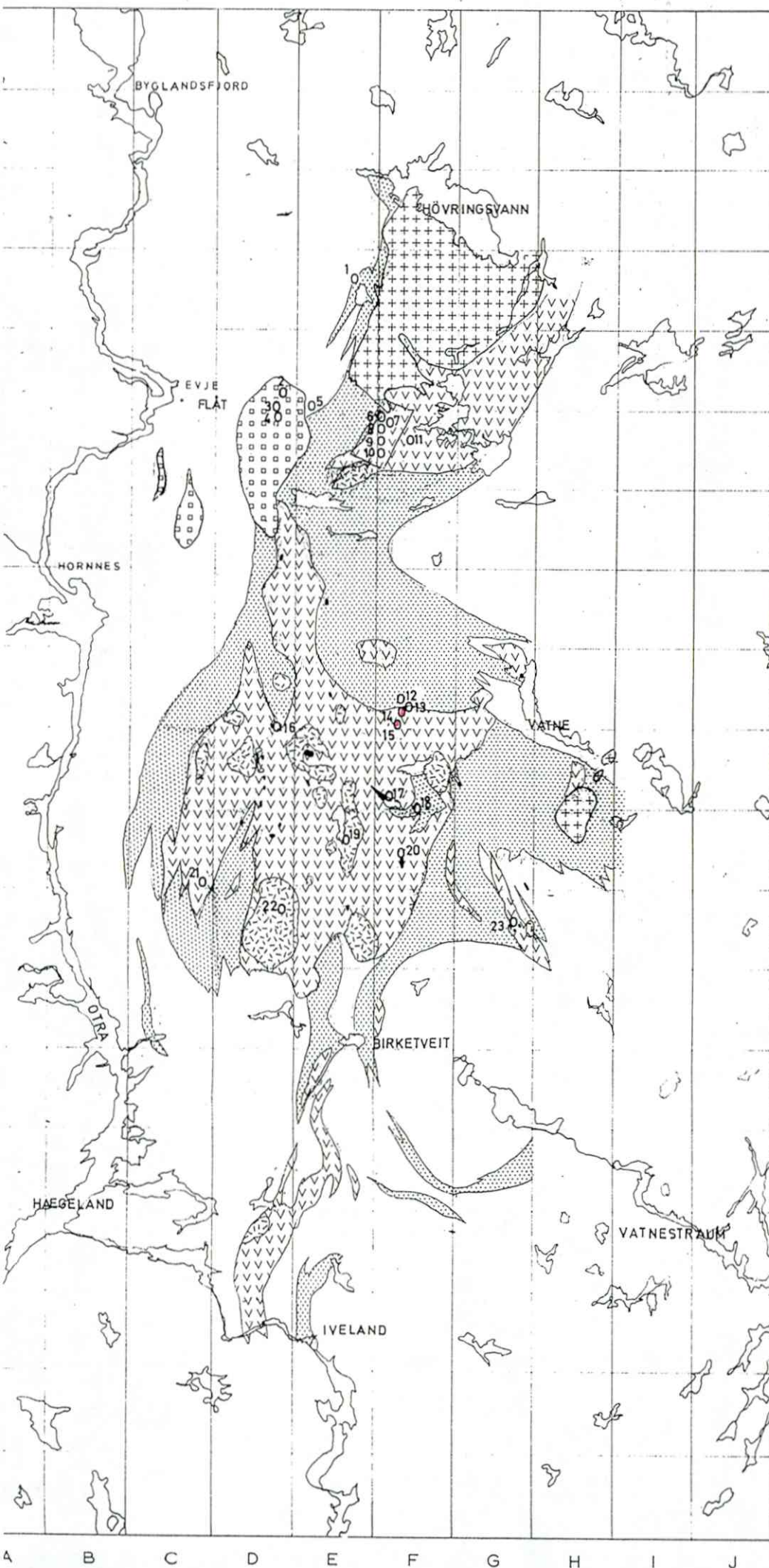
TRACED FN.

$$RBB / H_{\alpha} L / RH / RH \rightarrow$$

Date 24.4.1973

[illegible]

EVJE-IVELAND AREA



- GRANITIC AND DIORITIC GNEISS
- AMPHIBOLITE FOLIATED AND MA
- HORNBLende GNEISS
- GABBRO
- HORNBLende DIORITE
- ULTRABASIC
- GRANITE

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

AAVITSLANDSHEIA GRID AREA

0 1 2 3 4 5 KM

→ RTH → RH / RBB / HLR
↓
ARIT

A/S SULFIDMALM
INTER-OFFICE MEMORANDUM

Date: 25th June, 1973

To: Falconbridge Nikkelverk A/S

cc: A.M. Clarke, H.T. Berry,
F. Nixon

From: J. B. Gammon

Subject:

534.02
055

Project 905-7, Winkie Drilling at Birkeland Test Grid,
Report No. 252/73/7.

Please find attached Nixon's notes on the results of 3 short Winkie drill holes put down to test the anomalous sources on our geophysical test grid in the Evje-Iveland area. In view of our reduced interest in this area no further evaluation is planned.

copy 252-73-7