Bergvesenet

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Rapportarkivet

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Tittel

Investigations in the Rosokkatoppen Sjangeli area. 1971

Forfatter	Dato	Bedrift
R B Band	1971	Sulfidmalm A/S

Kommune	Fylke	Bergdistrikt	1: 50 000 kartblad	1: 250 000 kartblad
Narvik	Nordland	Trondheimske	14312	Narvik

Fagområde	Dokument type	Forekomster
Geologi geofysikk geokjemi	Rapport	Rosokatoppen, Sjangeli (Sverige)
Råstofftype	**Emneord**	
Malm/metall	Cu Mo Zn Pb	

Sammendrag

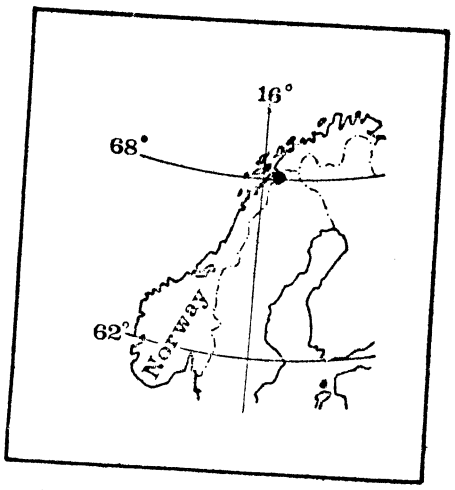
FOR FALCONBRIDGE NIKKELVERK A/S

A/S SULFIDMALM

PROJECT 905-03

INVESTIGATIONS IN THE ROSOKA-TOPPEN SJANGELI AREA. 1971.

R.B. BAND



INTRODUCTION

The investigation described in this report formed part of a reconnaissance appraisal of the mineral potential of the Rombaks Precambrian Window, Nordland, Norway.

The copper mineralisation in the Rosokatoppen-Sjangeli area has been known since at least the late 19th century. Apart from a brief reference to the Sjangeli mineralization in a Swedish Geological Survey report (Kulling 1964, "Geology of the Caledonian rocks of the Norrbotten Mountains", S.G.U. Series Ba, No. 19) no published descriptions are available. The Sjangeli showings are presently held by the Swedish company Sjangeli A/B. Ankenes commune claim records indicated that the Rosokatoppen showing was open and this was accordingly claimed by A/S Sulfidmalm in July 1971.

LOCATION

The Rosokatoppen-Sjangeli area is approximately 40 km southeast of Narvik (Fig. 1). The Rosokatoppen prospect is at an elevation of approximately 1200 m, near the summit of Rosokatoppen. These showings are about 3 km from the Norway-Sweden border. The Sjangeli showings are in Sweden, and occur in a distinct zone running from Unna Allakats, 1 km from border post 263, to the Volfojåkka river, a total distance of 5,5 km.

Access is by float plane from Narvik to Cuonojavrre and then on foot. Alternatively Cunojavrre can be reached by way of a new road from Skjomenfjord to Norddalen and then by foottrack along the Cunojokka valley.

SULFIDMALM INVESTIGATIONS

The showings were located during a preliminary visit made by Band and Matilla in July 1971. A magnetometer survey was run over the possible strike extension of the Sjangeli zone and preliminary magnetometer traverses were run in the Rosokatoppen area. Matilla made a 1: 12,500 geological map of the Rosokatoppen - Unna Allakati area during this visit. In September 1971 Hansen extended the Rosokatoppen magnetometer survey and Matilla extended his geological mapping over the area covered by the magnetometer grid. Bad weather and early snow prevented completion of the planned survey. A total of 58 line km was run in the Rosokatoppen and Sjangeli magnetometer surveys.

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GENERAL GEOLOGY

Mineralisation occurs in Archaean rocks of the Rombaks Precambrian Window. Kulling's map of the Swedish Norrbotten mountains shows the dominant rock type to be mica schist, with prominant dolomite bands in the Sjangeli area. South of the Sjangeli-Unna Allakats line Kulling shows a change in rock type to dominant migmatites and granite. The regional strike also changes from N 40° E in the Sjangeli area to north-south in the migmatites. Sjangeli is close to the eastern boundary of the Rombaks Window, the base of the overthrust complex cropping out along the Volfojokka valley for part of its length. An outlies of younger Precambrian sediments caps the ridge between the Volfojokka valley and Sjangeli proper.

In mapping the Sjangeli-Rosokatoppen area Matilla found the rock units north of Cunojavrre generally conformed to the regional north-easterly strike. The mica gneisses, granite gneiss and migmatites south of Cunojavrre have a predominant north-south strike, foliations dipping steeply westwards. North of the Cunojokka valley Matilla's map (Map 03-72-01) shows a sequence of mica gneisses, dolomites, sediments and chlorite schists with localised gabbroic bodies.

T. Birkeland has made a 1: 50,000 geological map of the Norwegian portion of Sjangeli-Rosokatoppen, covering a larger area than that mapped by Matilla (map 03-72-2). There are significant differences between the two maps, in particular Birkeland clarifies the dominant rock type north of Cunojavrre as basic effusives, (mainly greenstones) and has not recognised gabbroic rocks in this area.

MINERALISATION

The Sjangeli showings form a distinct mineralised zone which can be traced by a series of prospect pits and exploratory workings for a total length of 5.5 km. The zone varies in width up to a maximum of 300 m. It strikes N 35° E, sub-parallel to the regional strike, as indicated by distinctive marker dolomite horizons. To the north the Sjangeli mineralised zone is covered by overthrust younger Precambrian rocks. Extensive exploratory workings in the Volfojokka valley indicate that the mineralised zone has been traced up to the overthrust. In the south the Sjangeli zone can be followed to within 1 km of the Norway-Sweden border, where thick glacio-fluvial deposits flooring the Cunojokka valley cover any possible strike extension.

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Mineralisation occurs in a fine to medium grained meta-basic unit which varies from chlorite-mica schist to massive amphibolite. By anology with more massive gabbroic rocks around the shores of Cunojavrre, Matilla considered this unit to be a meta gabbro. Minor mineralisation also occurs in a thin meta dolomite horizon in chlorite-mica schists near Unna Allakats.

Ore minerals are bornite and chalcopyrite. Together with minor pyrite these occur as disseminations in the foliation plans of chlorite-mica schists or as stringers and impregnations in the more massive amphibolite. Bornite also occurs associated with magnetite in narrow veins, typically 5 cm wide, but reaching a maximum width of 20 cm. In addition both bornite and chalcopyrite occur locally in narrow quartz-epidote-carbonate veins.

Samples from Sjangeli returned the following assays:

3 Ro -26 -HM71 (chlorite-mica schist with bornite veinlets, Sjangeli)	Cu - 9,8%
3 Ro - 27 - HM71 (disseminated bornite in chlorite-mica schist, "average" sample, Sjangelistuga).	Cu - 1,25%

According to a local inhabitant most of the exploratory work in the Sjangeli area was completed prior to 1920. The larger exploratory pits were channel sampled in 1935. It is probable that a principal factor in preventing further work in these deposits by the Swedes is their remote location and inaccessibility from major Swedish centres.

Rosokkatoppen There are four separate showings on Rosokkatoppen. (Map 03-7/1). The main locality is immediately north of Rosokkatoppen trig. and consists of a lense of massive magnetite with surficial malachite, exposed over a length of 100 m. The lens has am maximum width of 1 m. Two smaller magnetite lenses occur west of the main locality. These are exposed over a strike length of approximately 15 m and have maximum width of 1 m. At the fourth locality, 800 m southwest of Rosokkatoppen trig., massive pyrrhotite with chalcopyrite is exposed in two prospect pits. The exposed dimensions of this lense are 15 m by 0.5 m.

Samples gave the following assays: -

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3 Ro 31 HM 71 — 0.10 % Cu

(Massive magnetite from Rosokkatoppen main showing)

3 Ro 33 HM 71

(Pyrrhotite and chalcopyrite from prospect pit 800 m south-west of Rosokkatoppen) — 0.84% Cu

The host rock is mapped by Matilla (Map 03-72-1) as chlorite-schist with intercalated meta-dolomite, passing westwards into mica gneisses and amphibolite. The main magnetite showing occurs in meta-dolomite. This is a distinctive rock type, varying from coarsely crystalline, vari-coloured dolomite to tremolite-actinolite schist. Disseminated magnetite occurs throughout this unit. On Birkeland's map (03-72-2) it is shown as "ultramafic intrusion (serpentenite)".

MAGNETIC SURVEY

Magnetic surveys were carried out over the southernmost portion of the Sjangeli zone, and over an extensive area north of Cunojavrre (see Fig. 2 for details of magnetic coverage).

The Sjangeli grid was laid out in an attempt to trace the mineralised zone beneath the Quarternary deposits of the Cunojokka valley into Norway. The results of this survey are presented in map 03-73-3-2a. Magnetite associated with bornite and chalcopyrite in the Sjangeli mineralisation gave rise to very pronounced magnetic anomalies, with magnetic relief ranging from a low of - 3600 gamma to a maximum of +9400 gamma. This strong magnetic anomaly was traced into the overburdened area for 450 m beyond the most southerly known minerlisation, but died out completely before the Norwegian border.

The results of the Rosokatoppen grid are presented on maps 03-72-3, 1 to 4. Only part of the planned survey was completed due to bad weather and early snow. The main bornite-bearing magnetite lens north-east of Rosokatoppen trig. is reflected by a strong magnetic anomaly with values up to 18500 gamma. This anomaly is 100 m long and does not indicate any extension to the known dimensions of the lens. The massive pyrrhotite with chalcopyrite mineralisation exposed 100 m southwest of Rosokatoppen is reflected by a strong single line, two station magnetic dipole, with a high and low values of +8000 gamma and -32000 gamma respectively.

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Magnetic relief is strong in the vicinity of Rosokatoppen, with narrow elongate anomalies reflecting magnetite-rich units within the chlorite-schist. The magnetic survey in the Rosokatoppen area therefore confirmed the apparent small dimensions of the known mineralised lenses. The complexity of the magnetic relief appears to be due principally to variations in magnetite contact of the bedrock, and this effectively masks any pattern due to possible blind magnetite lenses.

The results of the magnetic survey over the Rosokatoppen and Sjangeli grids are summarised at a scale of 1:10.000 on map 03-72-4. On this scale the area is clearly divisible into two distinct units on the basis of magnetic trend. The boundary between these units coincides approximately with the Saelkajokka valley. To the east of this feature the dominant magnetic trend is NE -SW, coinciding with the general strike in this area. West of the Saelkajokka valley magnetic features trend N 25° W. This is sub-parallel to strike directions mapped by Matilla in the granite gneisses and mica gneisses south of Cunojavrre.

The magnetic observations strongly suggest the presence of a fault system along the line of the Saelkajokka valley.The parallelism between the measured strikes south of Cunojavrre and the west-block magnetic trend suggests that the fault(s) may swing eastwards to pass through the eastern end of Cunojavrre. The eastern extension of this line coincides with the Allakasjokka valley, and the abrupt termination of the Sjangeli magnetic anomalies. -- The available geological and magnetic data therefore suggest that the Sjangeli mineralised zone terminates inside Sweden against the Saelkajokka-Allakasjokka fault and does not extend into Norway.

GEOCHEMISTRY

Stream sediment samples were collected in the area around Sjangeli and Rosokatoppen as part of the Rombaksbotn reconnaissance survey. Data for these samples are plotted on map 03-72-1.

In the reconnaissance survey the following threshold levels were selected for areas underlain by bedrocks other than graphite gneiss and migmatite: -

	Possibly anomalous	Probably anomalous	Anomalous
Cu	40-50 ppm	50-60 ppm	> 60 ppm
Mo	3-5 ppm	5-10 ppm	> 10 ppm
Zn	120-150ppm	150-200ppm	>200 ppm
Pb	60-75 ppm	75-100ppm	>100 ppm

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Orientation sampling below undisturbed mineralisation in the Sjangeli zone showed a 2500 m dispersion train with Cu values of 89 and 52 ppm. Mo, Pb and Zn have background values.

Highly anomalous copper values (maximum 155 ppm Cu) occur in streams draining the high ground north of Rosokatoppen to Doaresvarre. Zinc values in these samples are in the possibly to probably anomalous range while lead and molybdenum values are low. In the area south of Rosokatoppen the stream sediments are generally low for all four metals. Exceptions to this are a value of 88 ppm Cu in a stream draining the vicinity of a magnetite-chalcopyrite showing, 1500 m west of Rosokatoppen and a value of 59 ppm Cu in a stream on the west side of Saelkajokka.

The stream sediment results indicate the area north from Rosokatoppen to Doaresvarre to have considerable potential for copper mineralisation. Stream sediment copper values in this area are significantly higher than those below undisturbed mineralisation in Sweden.

CONCLUSIONS AND RECOMMENDATIONS

1) It was not possible to trace the Sjangeli mineralised zone into Norway by means of a detailed magnetic survey. The available magnetic and geological data from the Sjangeli-Rosokatoppen area suggests that the Sjangeli zone is truncated by a curved fault system which approximately follows the lines of the present Saelkajokka and Allakasjokka valleys.

2) The magnetometric survey in the Rosokatoppen area confirmed the limited extent of the known mineralisation. The high relief and complexity of the magnetic data reflect very variable magnetite contents in the chlorite-schist rock unit. This masks any anomaly due to possible blind copper-bearing magnetite lenses.

3) The stream sediment results indicate that the most favourable area for copper mineralisation lies north of Rosokatoppen and south of Doaresvarre. Stream sediment copper values in this area are equal to or greater than those below undisturbed mineralisation in the Sjangeli zone. This area was not covered during the 1971 investigations.

4) It is recommended that further exploration be concentrated in the Rosokatoppen-Doaresvarre area. A limited number of additional stream sediment samples should be collected to completely outline the area of interest. Further work should consist of detailed geological mapping and prospecting coupled with reconnaissance

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VLF profiles. If there is sufficient soil cover present, reconnaissance soil profiles should also be collected. Reconnaissance VLF and soil traverses should be oriented as nearly perpendicular to the regional strike as the topography permits.

---JBG--JR RBB---

A/S SULFIDMALM

INTER-OFFICE MEMORANDUM

Date: 27th June, 1972

To: Falconbridge Nikkelverk A/S

cc: A.M. Clarke, D.R. Lochhead, R.B.Band, J. Jacobsen, F. Hansen

From: J.B. Gammon

Subject:

905-3, Rosokatoppen-Sjangeli area, Rombaks area, Norway

Please find attached Band's report on work in the Rosokatoppen-Sjangeli area on the Norwegian-Swedish border near Narvik. The known mineralisation on the Swedish side has been shown to terminate before reaching Norway. The mineralised showings known on the Norwegian side have been shown to be of limited extent and of no further interest.

High value stream sediment anomalies occur to the north of the area studied in 1971. We plan on following these up during the 1972 field season.

J.B. Gammon

SÆLKAJOKKA

CUNDJAVRRE

Allakasjokka

N

Sælkajokka. Fault interpreted from magnetic date.

0 500 1000 metres

SUMMARY OF MAGNETIC ANOMALIES ROSOKATOPPEN SJANGELI AREA	Scale 1:10000	Obs. FIH	SEPT 71
		Draw. FIH	DES 71
		Trac EW	JUNE 72
		Chk. RB	JUNE 72
	Map. no. 03-72-4		
A/S Sulfidmalm	Map. sheet		

N

1500 S

1750 S

2000 S

2250 S

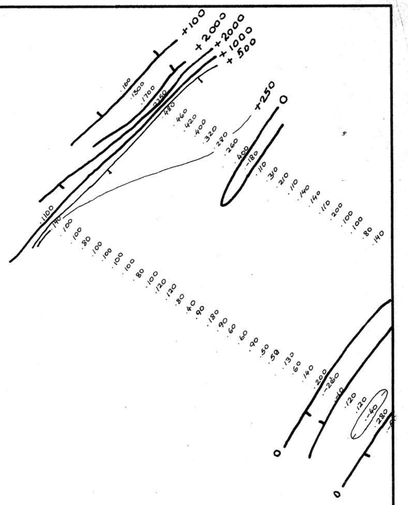
2500 S

2750 S

3000 S

3250 S

3500 S



4	1
3	2

ROSOKKATOPPEN GRID
ANKENES NORWAY

SCALE 1:5000

OBS.	FiH	9 71
DRAW.	FiH	12 71
TRAC.	UT	12 71
CHK.	FiH	12.71

½ SULFIDMALM

MAP NO. 03-72-3/4

MAP SHEET 1431 II

A.s Tegnekopi. 3000. A 1. E 9 gi. 10-71. Sentrum Trykkeri.

N

1500 S

1750 S

2000 S

2250 S

2500 S

2750 S

3000 S

3250 S

3500 S

4	1
3	2

ROSOKKATOPPEN GRID
ANKENES NORWAY

½ SULFIDMALM

SCALE 1:5000	OBS. Fi H	9 71
	DRAW. Fi H	12 71
	TRAC. U T	12 71
	CHK. [illegible]	12.71

MAP NO. 03-72-3/4

MAP SHEET 1431 II

A.s Tørrkopi 1000. A 1. E 9 gl. 10-71. Sentrum Trykkeri.

N

3250 S

3500 S

3750 S

4000 S

4250 S

4	1
3	2

ROSOKKATOPPEN GRID
ANKENES NORWAY

SCALE 1:5000

OBS.	FiH	9 71
DRAW.	FiH	12 71
TRAC.	UT	12 71
CHK.	FiH	12.71

½ SULFIDMALM

MAP NO. 03-72-3/3

MAP SHEET 1431 II

A.s Terrkopi. 3000. A 1. E 9 gl. 10-71. Sentrum Trykkeri.

N

NORWAY
SWEDEN

NR 263

4	1
3	2

ROSOKKATOPPEN GRID
ANKENES NORWAY

SCALE 1:5000

OBS.	FiH	9 71
DRAW.	FiH	12 71
TRAC.	UT	12 71
CHK.	FiH	12.71

⅛ SULFIDMALM

MAP NO. 03-72-3/2

MAP SHEET 1431 II

A.s Tørrkopi. 3000. A 1. E 9 gl. 10-71. Sentrum Trykkeri.

STOR-
VATN

RIVER

RIVER

RIVER

RIVER

NORWAY
SWEDEN

NB 263

1870 S

1720 S

1570 S

1420 S

1270 S

1170 S

1070 S

920 S

770 S

620 S

470 S

320 S

200 S

100 S

LEGEND

- Base station
- Norway - Sweden
- Prospect pit
- Mine dump

INSTRUMENT : MC PHAR M 700 FLUXGATE MAGNETOMETER

Intervals of 1000 γ
" " 500 γ
" " 250 γ

4	1
3	2 2a

N

0 50 100 200
Scale

MAGNETIC ANOMALIES SJANGELI GRID SWEDEN - NORWAY	SCALE 1:2000	OBS: P.H. H.M. 7.71 DRAW: P.H. H.B. H.M. 8.71 TRAC: U.T. 12.71 CHEK: PH 12.71	
A/S SULFIDMALM	MAP NO 03-72-3/2a		
	MAP SHEET 1431 II		

ROSOKKATOPPEN GRID
ANKENES NORWAY

SCALE 1:5000

OBS.	Fi H	9 71
DRAW.	Fi H	12 71
TRAC.	U T	12 71
CHK.	Fi H	12.71

½ SULFIDMALM

MAP NO. 63-72-3/1

MAP SHEET 1431 II

A.s Terrkopi. 3000. A 1. Etg.gl. 10-71. Sentrum Trykkeri.

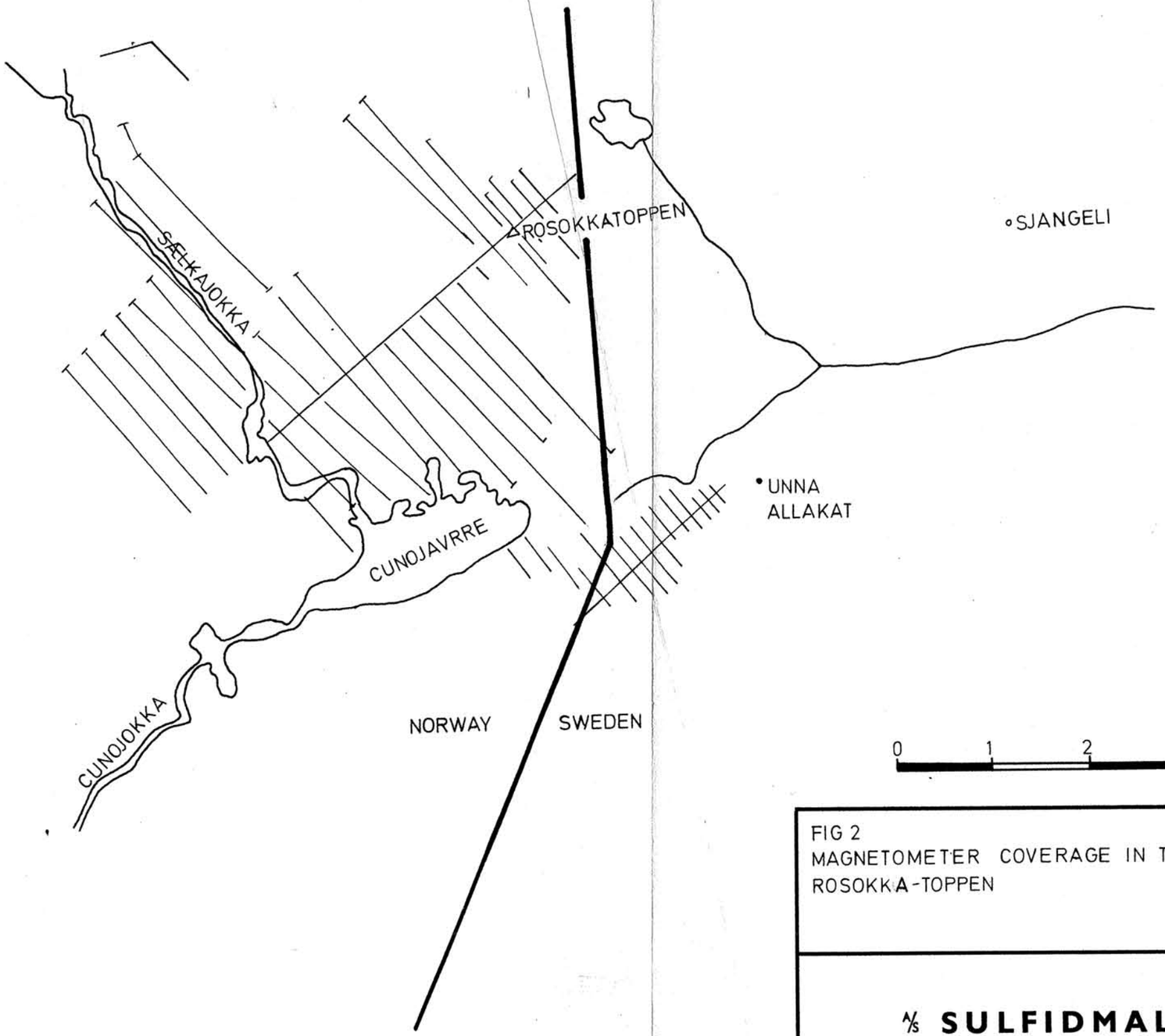


FIG 2
MAGNETOMETER COVERAGE IN THE SJANGELI ROSOKKA-TOPPEN

SCALE	OBS.	
1:50000	DRAW.	
	TRAC.	
	CHK.	

MAP NO.

⅛ **SULFIDMALM**

MAP SHEET

A.s Tørrkopi. 1000. A 3. E 9 gl. 10-71. Sentrum Trykkeri.