

FOR FALCONBRIDGE NIKKELVERK A/S

A/S SULFIDMALM

PROJECT 905-17M

Salganjokka

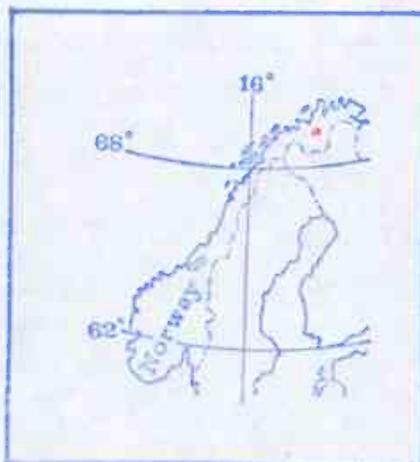
rapp 278

Till geochemistry in the Salganjokka  
area, Masi, Finnmark.

by

E. Kreivi

J. Gammon



Report Nr. 278/73/17

Introduction.

The till sampling programme reported on here was carried out during the late fall of 1973 in the Salgganjokka - Masi area of Finnmark. A total of 1518 samples were collected from frozen till below more than one meter of snow. The samples were dried and sieved in Kristiansand and forwarded for analysis by FNC in Vancouver. Kreivi has reported more completely on this programme in his report no. 277/73/17.

The assay results arrived in Oslo subsequent to his departure for the 1974 field season and have been plotted, interpreted and commented on by the Oslo office.

Results.

The results were plotted in histogram form and anomaly classes decided on by inspection of the resultant distributions. The following classes are plotted on the accompanying maps.

<u>Element.</u>	<u>Possibly anomalous.</u>	<u>Probably anomalous.</u>	<u>Anomalous.</u>
Copper	60 - 160 ppm	160 - 250 ppm	>250 ppm
Nickel	70 - 100 ppm	100 - 170 ppm	>170 ppm
Zinc	80 - 130 ppm	130 - 200 ppm	>200 ppm
Cobalt		40 - 60 ppm	> 60 ppm
Arsenic	5 - 15 ppm	15 - 30 ppm	> 30 ppm

The data are plotted on the maps using colour coding to denote anomalous values. The interested reader is referred to Kreivi's report no. 277/73/17 for a composite map of the grid and the location of VLF anomalies, showings and the relevant geology.

The main anomaly distributions will be discussed from north to south in the grid area. The northernmost mapsheet (278-1) covers lines 1100 N to 9600 N and includes the main Salgganjokka showing at 1000 N/0. It is apparent that this showing would not have been obviously located as a result of the till geochemistry. It lies within a possibly anomalous area for copper and closer spaced sampling gives a very clear anomaly in the vicinity of the showing. This underlines the importance of following up indications resulting from this work even if they are only in the "possibly anomalous" class.

A possibly anomalous copper area trends northeastwards from line 9400 N/500 W to 10000 N/0 with constant support from arsenic plus sporadic nickel, cobalt and zinc anomalies. If this was chosen as a "follow - up " area for closer sampling the Salgganjokka showing would have been discovered. The belt of nickel anomalies flanking this zone to the north-west is interesting and possibly represents a basic volcanic or intrusive rock type, a belt of possibly anomalous copper values flanks this nickel zone again to the north west and should be followed up, particularly in the areas centred on 10800N/400W and 10800N/400E.

Map 278-2 which covers the area from 9400 N to 7800 N has very widespread anomalous copper values. The main concentration trends northeastwards from 8200 N/550 W to 9400N/0 with fairly consistent support from zinc in the axial zone. It is recommended that this area be covered by detailed sampling. One very anomalous sample was collected at 9200 N/950 W which is located on the indicated extension of the Salgganjokka zone by Kreivi's VLF interpretation.

Map 278-3 covers the area from 7600 N to 6000N. Immediately apparent is the cluster of anomalous copper values centre on 6600 N/200 W. This is partly a biased result arising from the intermediate lines put in around the Javrehuosjokka showing located at 6690 N/280 W. There is a good correlation here between the till geochemistry and the VLF data. A very interesting zone of strong but really restricted Cu - Zn - Ni - Co anomalies trends northeastwards from 7200 N/750 W to 7800 N/650 W and may have its continuation in the main concentration discussed for map 278-2. This zone warrants further investigation.

Map 278-4 covers the area from 5800 N to 4200 N. A zone of copper - arsenic anomalies follows the baseline northwards from 5000 N and can be linked up with the strong pattern surrounding the Javrehuosjokka showing. This zone is open to the east and it is interesting to note that chalcopyrite-pyrrhotite bearing boulders were discovered at 5400 N/100 E, an interesting VLF anomaly follows this trend and confirms an interest in the area. However the most strong and obvious zone is the north-south trending Zn - Cu - As anomaly crossing this whole mapsheet. It appears to originate at 3800 N/700 W with a very high copper value (1080 ppm), crosses map 278-4 to line 6000 N and may possibly be linked up with the Zn - Cu zone discussed for maps 278-3 and 278-2. Maximum occur at 5600 N/900 W and 5000 N/750 W.

Map 278-5 covers the area from 4000 N to 2400 N. The southern end of the zinc - dominant anomaly zone mentioned above is present on this map sheet. A strong and interesting Zn - As - Ni - Co - (Cu) anomaly is developed at the western end of line 3200 N which should be investigated further, particularly as Kreivi has outlined a strong VLF-EM anomaly linking up this area with the zinc dominant anomaly coming through on line 4000 N centred at 500 W. A zone of copper anomalies with little support from other elements makes its appearance on this mapsheet and has a maximum at 2600 N/850 W.

This copper zone continues across map sheet 278-6, covering the area from 2200 N to 600 N. A maximum is present at 2200 N/450 W and very widespread but fairly low order anomalies for copper with cobalt making its appearance are present at the south end of the map sheet. VLF-EM anomalies are interpreted in this general area by Kreivi which should be investigated further.

On the southernmost mapsheet (278-7) this copper - cobalt association becomes very marked and has a clear cut - off south of line 400 S. The Unnavuovdas showing is located at 400 N/250 W in association with this anomaly pattern. Kreivi has outlined VLF-EM anomalies in the vicinity. His strong VLF anomalies east of the baseline on lines 1000 S and 800 S have not been covered by till sampling.

### Conclusions.

This work has resulted in till geochemistry anomalies being demonstrated in the immediate vicinity of the three known showings in the area. Even higher anomalous values occur at other locations, some with associated VLF-EM indications. These make prime follow-up targets.

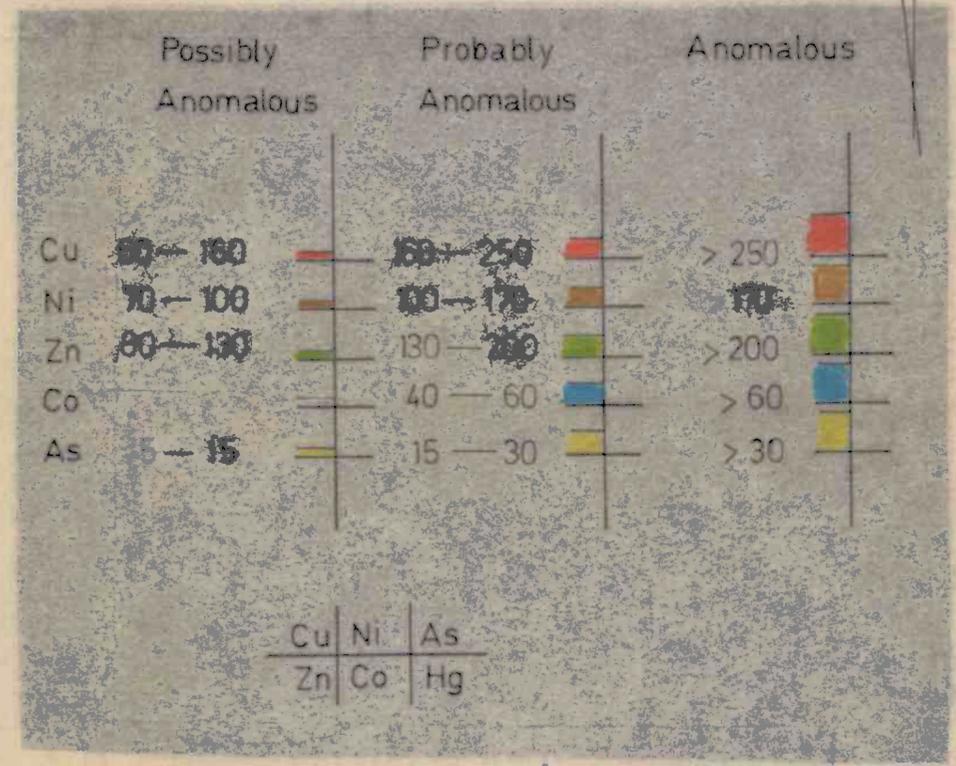
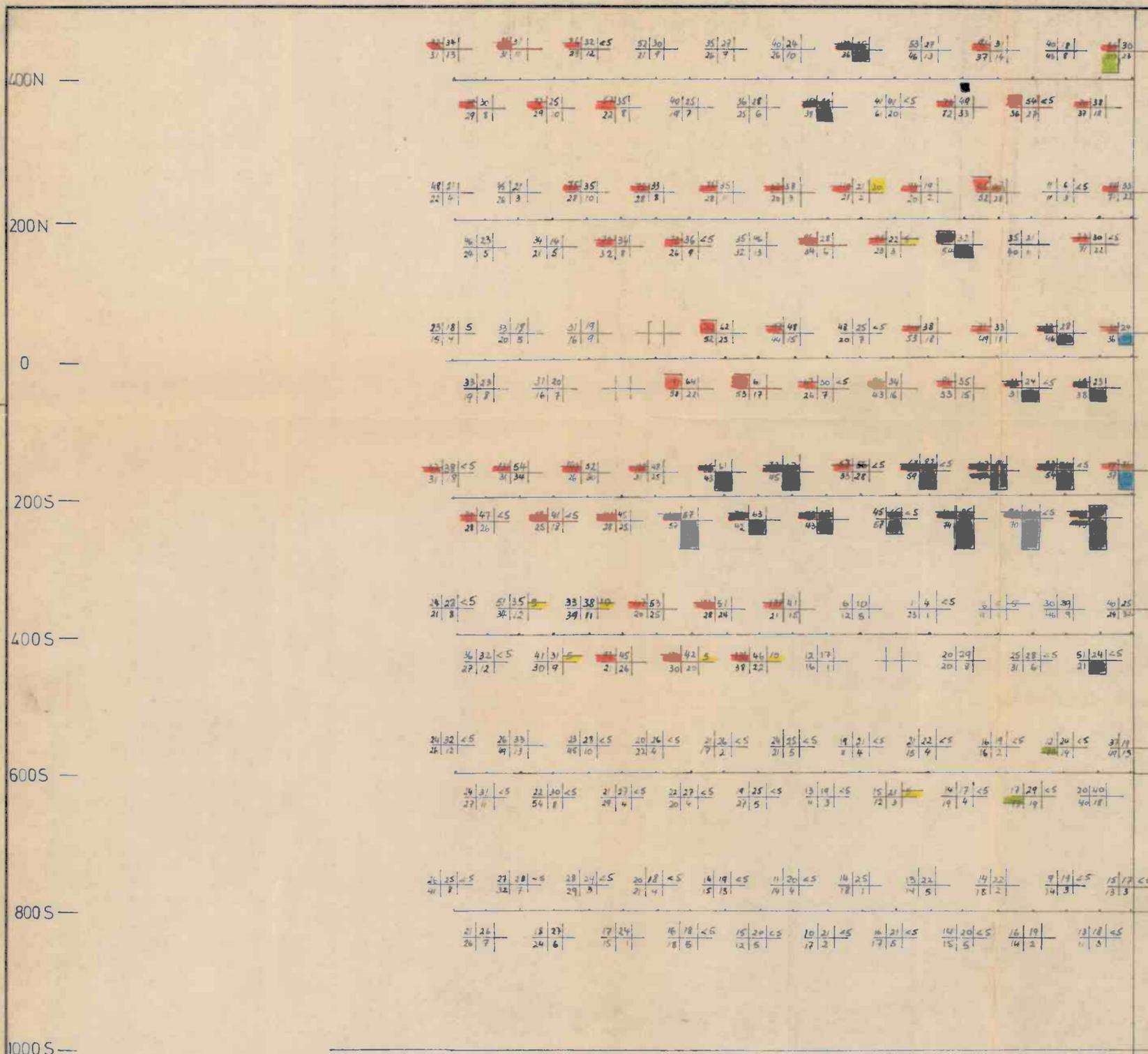
Interesting element association patterns have been developed which require further elucidation. A clear copper-cobalt anomaly zone is present in the south of the area (600 S to 3200 N), a zinc - copper - arsenic zone is then present from 3200 N to at least 5800 N and may be traceable even further through the complex anomaly, north to the Salgganjokka showing. The nickel anomaly north-west of this showing also requires explanation.

It is not immediately obvious that glacial dispersion patterns have been developed in a classical pattern. The only indication of this would be the pattern developed around, and to the north of, the Javrehuosjokka showing on map 278-3.

The distinct possibility should be borne in mind of the anomalies being related to underlying bed rock in the immediate vicinity.

Recommendations.

Closer spaced till sampling, geophysics, geology and prospecting over the most highly anomalous areas indicated . A further programme using the present sample spacing should be extended beyond the area covered to date.



■ Mineralization in outcrop

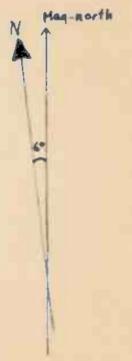
1100W 1000W 900W 800W 700W 600W 500W 400W 300W 200W 100W

100E 200E 300E

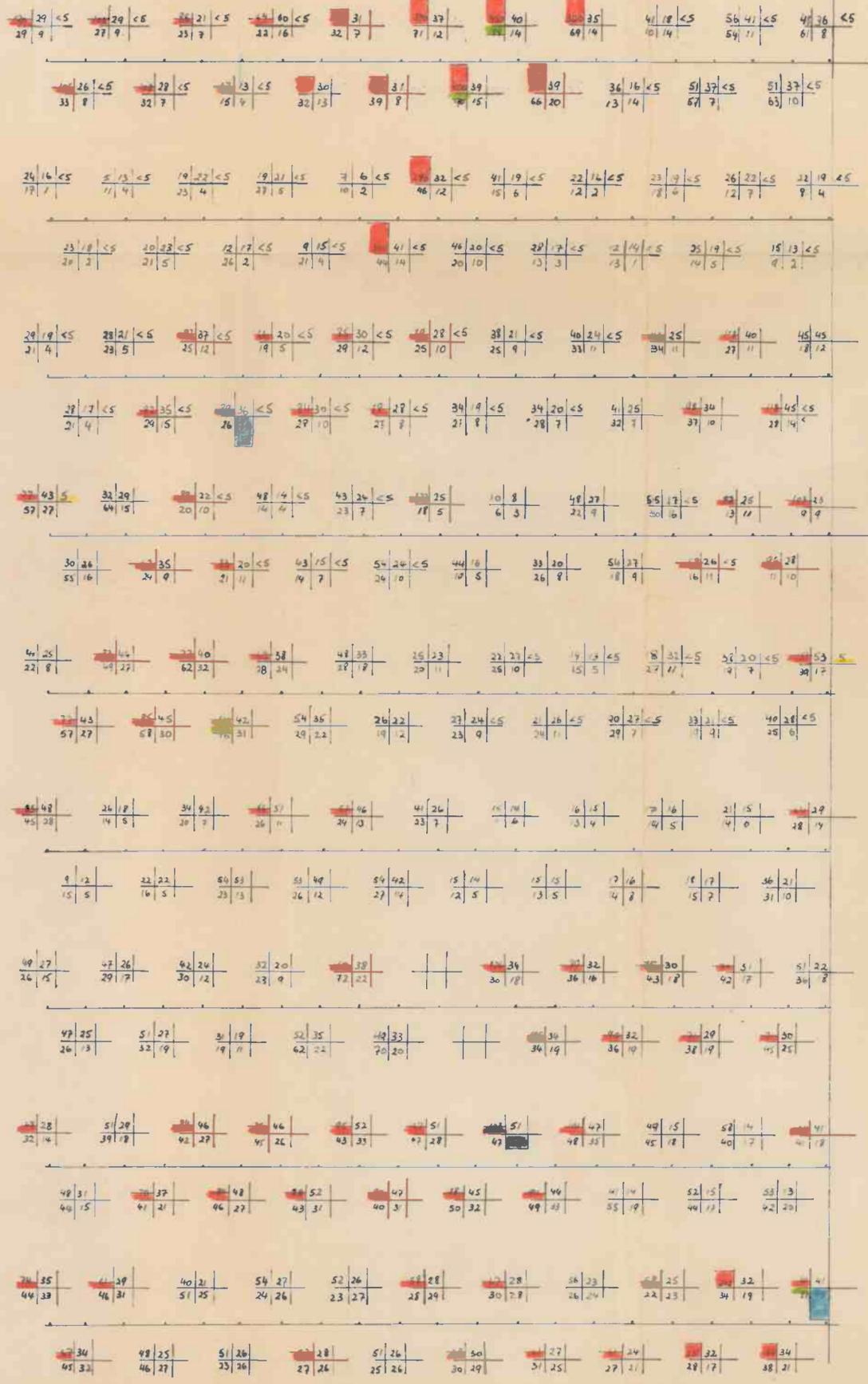
400E 500E 600E 700E 800E 900E 1000E

SALGGANJOKKA, Masi, Finnmark 1773	SCALE	OBS. EK 9-73
	1:5000	DRAW. RG 6-74
TRAC. RG 6-74		
CHK. JG 6-74		
% SULFIDMALM	MAP NO.	278-7
	MAP SHEET	

1100W 1000W 900W 800W 700W 600W 500W 400W 300W 200W 100W 0 100E 200E 300E



2200N  
2000N  
1800N  
1600N  
1400N  
1200N  
1000N  
800N  
600N



	Possibly Anomalous	Probably Anomalous	Anomalous
Cu	60-160	160-250	>250
Ni	70-100	100-170	>170
Zn	80-130	130-200	>200
Co		40-60	>60
As	5-15	15-30	>30

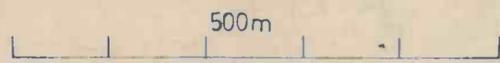
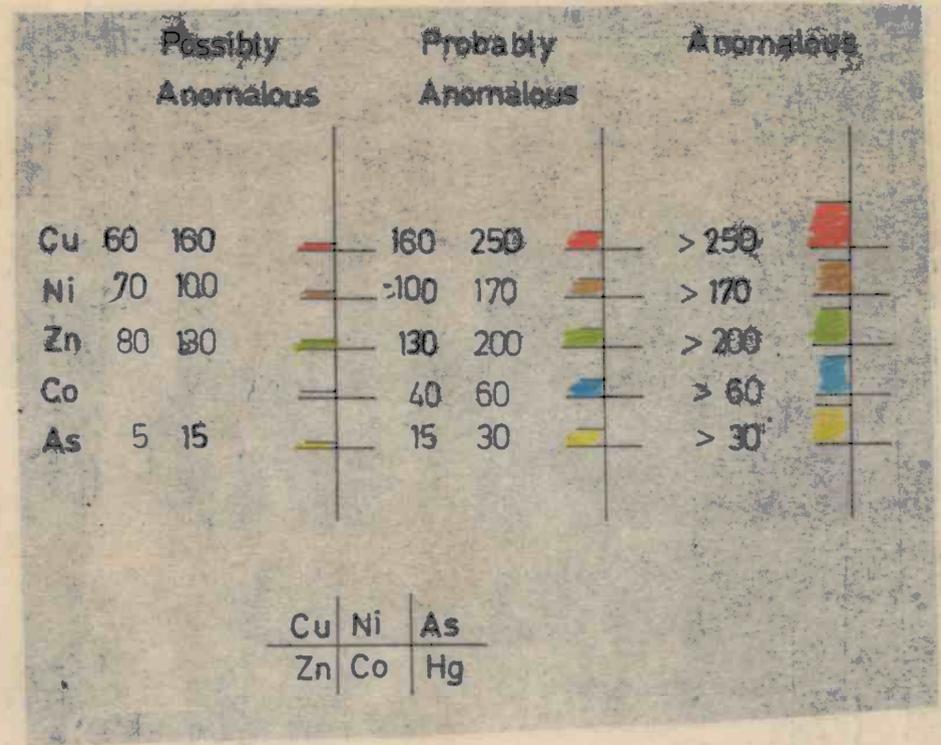
  

Cu	Ni	As
Zn	Co	Hg



SALGGANJOKKA, Masi, Finnmark 1773	SCALE	OBS. E K	9-73
	1:5000	DRAW. R G	6-74
% SULFIDMALM		TRAC. R G	6-74
		CHK. J G	6-74
MAP NO.		278-6	
		MAP SHEET	

1100W 1000W 900W 800W 700W 600W 500W 400W 300W 200W 100W 0 100E 200E 300E



SALGGANJOKKA, Masi, Finnmark 1773	SCALE	OBS. EK 8-73
	1:5000	DRAW. RG 8-74
1/2 SULFIDMALM		TRAC. RG 8-74
		CHK. JG 6-74
	MAP NO.	278-5
	MAP SHEET	

1100W 1000W 900W 800W 700W 600W 500W 400W 300W 200W 100W 0 200E 300E

5800N  
5600N  
5400N  
5200N  
5000N  
4800N  
4600N  
4400N  
4200N



Sp + po in blocks

DOH  
11W/25  
12W  
low

	Possibly Anomalous	Probably Anomalous	Anomalous
Cu	60-120	160-250	> 250
Ni	70-100	100-170	> 170
Zn	80-130	130-200	> 200
Co		40-60	> 60
As	5-15	15-30	> 30

Cu	Ni	As
Zn	Co	Hg

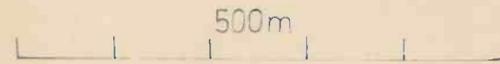
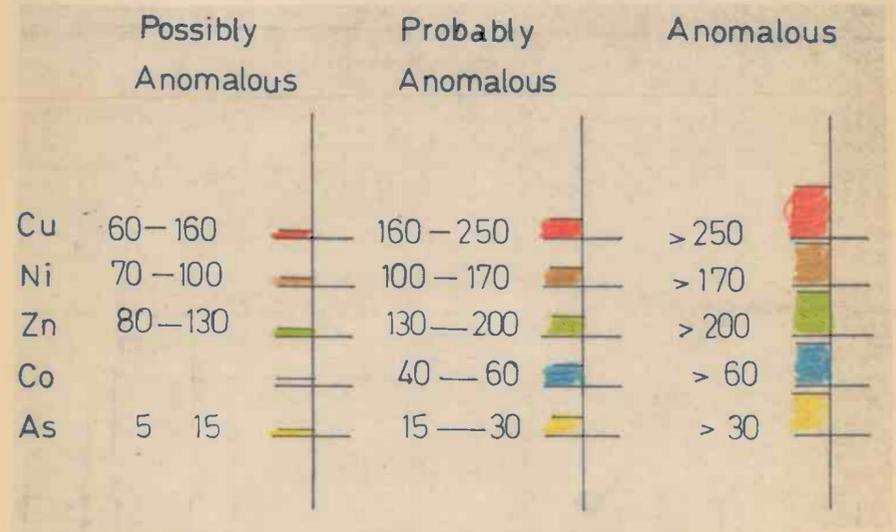


SALGGANJOKKA, Masu, Finnmark 1773	SCALE	OBS.	E. K.	9-73
	1:5000	DRAW.	R. G.	6-74
1/2 SULFIDMALM		TRAC.	R. G.	6-74
		CHK.	J. G.	6-74
MAP NO.		278-4		
MAP SHEET				

1700W 1600W 1500W 1400W 1300W 1200W 1100W 1000W 900W 800W 700W 600W 500W 400W 300W 200W 100W 0 100E 200E 300E 400E 500E 600E 700E



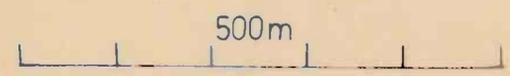
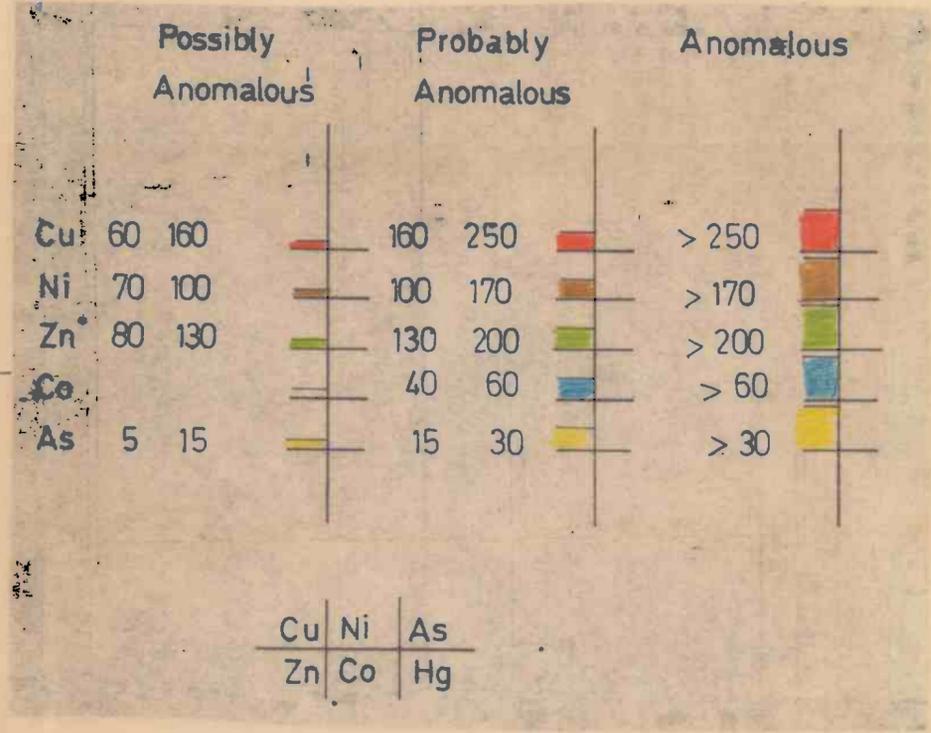
JAVREHUOSJOKKA



Cu	Ni	As
Zn	Co	Hg

SALGGANJOKKA, Masi, Finnmark 1773	SCALE	OBS. EK	9-73
	1:5000	DRAW. RG	6-73
% SULFIDMALM		TRAC. RG	6-73
		CHK. JG	6-73
MAP NO.		278-3	
MAP SHEET			

1700W 1600W 1500W 1400W 1300W 1200W 1100W 1000W 900W 800W 700W 600W 500W 400W 300W 200W 100W 0 100E 200E 300E 400E 500E 600E 700E



■ Mineralization in outcrop

SALGGANJOKKA, Masi, Finnmark 1773	SCALE	OBS. EK	9-73
	1:5000	DRAW. RG	6-74
4 SULFIDMALM		TRAC. RG	6-74
		CHK. JG	6-74
MAP NO.		278-2	
MAP SHEET			

1700W 1600W 1500W 1400W 1300W 1200W 1100W 1000W 900W 800W 700W 600W 500W 400W 300W 200W 100W 0 100E 200E 300E 400E 500E 600E 700E



Possibly Anomalous

Probably Anomalous

Anomalous

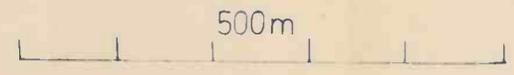
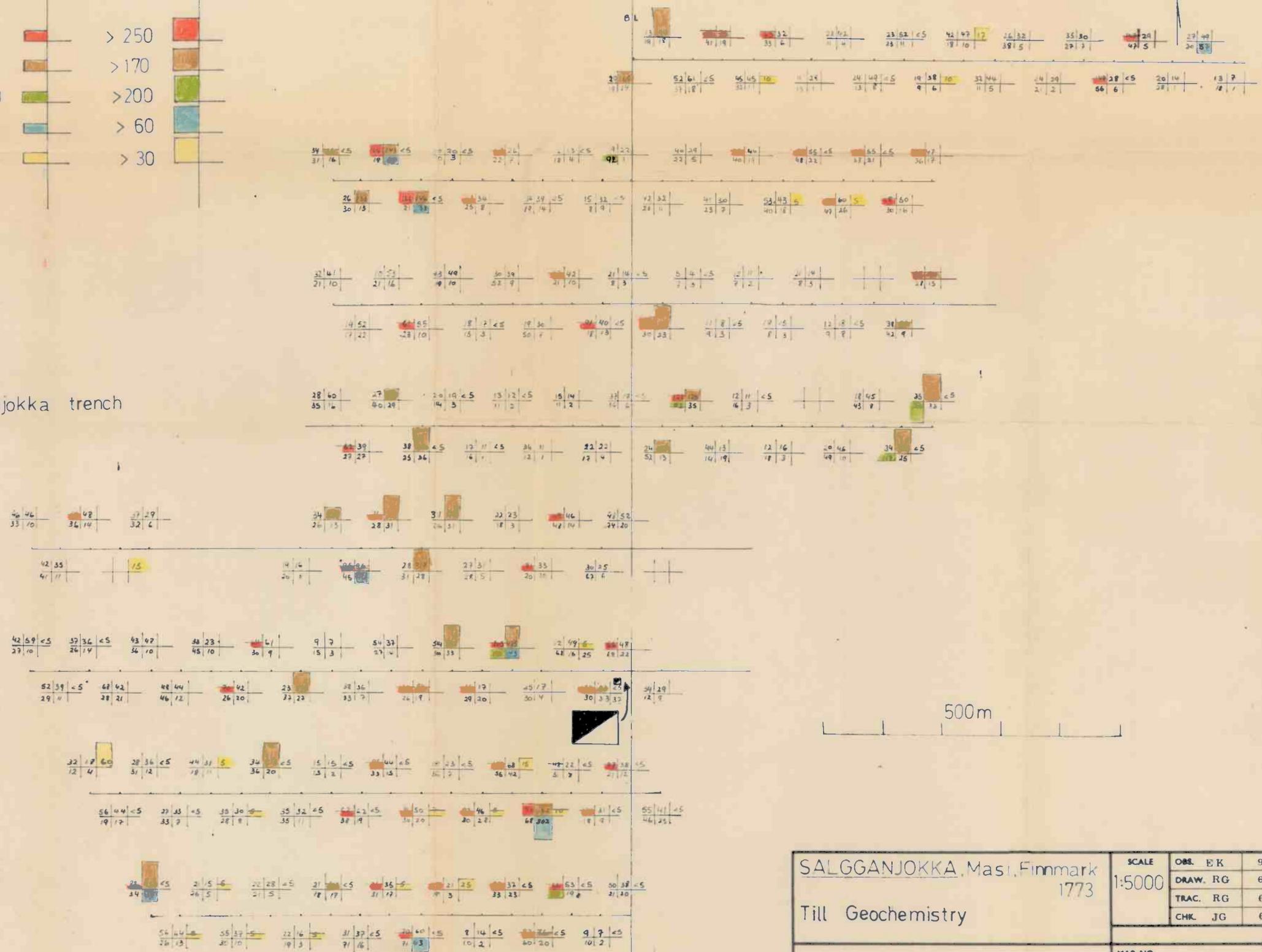
Cu	60—160		160—250		> 250	
Ni	70—100		100—170		> 170	
Zn	80—130		130—200		> 200	
Co			40—60		> 60	
As	5—15		15—30		> 30	

Cu	Ni	As
Zn	Co	Hg



Salgganjokka trench

11000N  
10800N  
10600N  
10400N  
10200N  
10000N  
9800N  
9600N

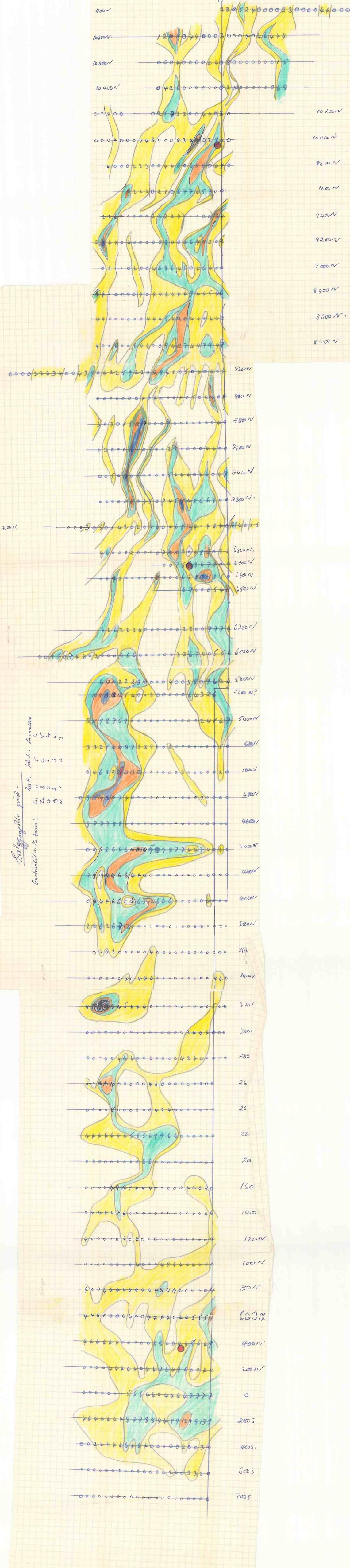


SALGGANJOKKA, Masu, Finnmark		SCALE	OBS. EK	9 73
1773		1:5000	DRAW. RG	6 74
Till Geochemistry			TRAC. RG	6 74
			CHK. JG	6 74
<b>1/2 SULFIDMALM</b>		MAP NO.		
		278-1		
		MAP SHEET		

Salpingostoma piod.

Involutus in 10 basia:

Pa.A.	Pa.A.	Annulata
4	5	6
5	4	5
2	3	4
2	3	3
1	2	3
Ca	Ca	Ca
2	4	5
2	4	5
1	2	3



A/S SULFIDMALM  
INTER-OFFICE MEMORANDUM

Date: 30. juli 1974  
To: Falconbridge Nikkelverk A/S  
cc: A. M. Clarke, H. T. Berry, R. B. Band,  
E. Kreivi  
From: J. B. Gammon ✓  
Subject:

905-17M. Salgganjokka till sampling. Report No 278/73/17.

Please find attached the results of till sampling in the Salgganjokka area, Masi, Finnmark. Several quite interesting anomalous zones have been outlined which will be followed up during the 1974 fieldseason.

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