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Tittel On the ultrabasis of the Komagfjord area, Finnmark				
Forfatter H A Rosenqvist		Dato 1973	Bedrift Sulfidmalm A/S	
Kommune Alta	Fylke Finnmark	Bergdistrikt Finnmark	1: 50 000 kartblad 19351 19352 19353 19354	1: 250 000 kartblad Hammerfest Honningsvåg
Fagområde Geologi	Dokument type Rapport	Forekomster Komagfjord Nagjet		
Råstofftype Malm/metall	Emneord Cu Ni			
Sammendrag				

FOR FALCONBRIDGE NIKKELVERK A/S

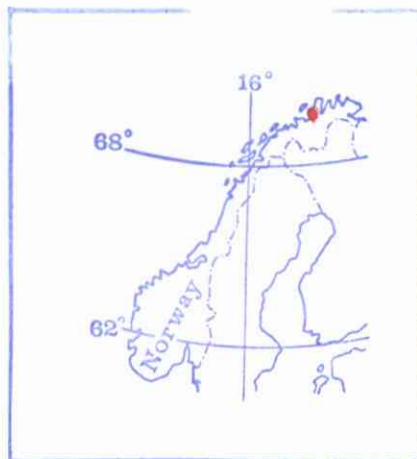
A/S SULFIDMALM

PROJECT 905-16

ON THE ULTRABASICS OF THE
KOMAGFJORD AREA, FINNMARK

1973

HaRosenqvist



Report No. 287-73-16

ON THE ULTRABASICS OF THE KOMAGFJORD AREA, FINNMARK

INTRODUCTION

The Komagfjord tectonic window is an area of Pre cambrian rocks surrounded by overthrust Caledonides. Several bodies of ultramafic rock are known to occur within a greenstone belt (Holmvann formation). The obvious Ni potential of the area has never been assessed. The main ultramafic bodies were briefly visited by HaR/FE in early July 73, the purpose being general reconnaissance.

LOCATION

The area is located NW of the motor road Alta-Skaidi (E6) approximately 40-50 km NE of Alta. It can rather easily be reached on foot from the above road or often more conveniently by air from Alta. The topography is gently hilly (200-600 m a.s.l.) being more rugged towards NW and the sea.

GENERAL GEOLOGY

The geology of the Komagfjord area has been mapped by Reitan (1963, NGU 221) :

He distinguishes between two groups of supracrustals, the Repparfjord group and the presumably younger Saltvann group. Both groups have been intruded by trondhjemitic, gabbroic and ultramafic intrusions.

The lowest formation of the Repparfjord group is the Holmvann formation, which is a series of interbedded volcanic and sedimentary rocks. They are basaltic lavas (pillow structures and amygdules reported), tuffs, fine grained argillaceous sediments and some conglomerates. A usually pure quartzite, named the Doggelv formation, overlies the Holmvann formation whereas the uppermost part of the Repparfjord group consist of different slates (Lomvann and Kvalsund formations).

The most important part of the younger Saltvann group is the Steinfjell arcose sandstones in which the Ulveryggen Cu-ore occur (Repparfjord mine).

Cu and Fe sulphides occur frequently within the Komagfjord area. Vokes (1957, NGU 200, pp 74-111) distinguished two different parageneses i.e. "the copper" and "the pyritic" parageneses. The former is represented by the above mentioned dissemination type Cu-mineralization at Ulveryggen. The "pyritic" parageneses is represented by innumerable small vein fillings, especially common in the Holmvann formation but also known from the Doggelv formation and the gabbroid intrusives. Pyrite and chalcopyrite ores of this type have been mined in the NW part of the Komagfjord area i.e. the Porsa, Bratthammer and Bachke mines.

THE ULTRABASICS

REITAN (1963):

The ultrabasics can be recognized from distance by their rusty reddish weathering surface. They usually form topographic highs, other characteristic field features being blocky jointing and rounded smooth-lined outcrops.

For the most part these rocks consist of fine grained "matty" serpentine with tremolite, tremolite-actinolite, chlorite, talc and magnetite as frequent products of metamorphism.

Clot-like clusters of serpentine have suggested the previous presence of olivine and also relics of ortho - and clinopyroxene have been recognized. Some assemblages, such as talc, serpentine and magnetite, have suggested extremely mafic - especially Mg-rich - original rocks.

SOME FIELD NOTES:

The accompanying map 1-287-73-16 shows the localities for the present reconnaissance. In addition to Reitans description there are some general characteristics of the ultrabasics which are worth noting with future work in mind.

- (1) Reitans map is approximate and does not show all ultrabasics present in the area.
- (2) The general abundance of fine grained magnetite will probably be of good help in outlining the contacts of the ultrabasics. One would expect the ultrabasics to stand out a lot more clearly than they do on the NGU aeromagnetic maps (1:250.000).
The magnetite is probably secondary, with the Fe derived from the breakdown of mafic silicates during serpentinization.
- (3) Only very minor amounts of sulphides were observed. However Ni- and Cu-sulphides are certainly not totally absent, a fact which is illustrated by sample 16-19-73 from Nagjet. Here aggregates of Ni-Cu-sulphides (DMG-test positive) occur as irregular lumps.
- (4) In general the ultrabasics have a rather massive and homogeneous appearance. However, diffuse internal structures can be observed especially at the Veifjell and Mikkeldal S localities. These "structures", which obviously represent compositional variations, often occur as bands of more or less discontinuous character. The meaning of the inhomogenities is impossible to establish without further investigations. They could represent:
 - melted and assimilated remnants of intruded country rocks or
 - some kind of layering or perhaps more likely
 - pulses of ultramafic intrusions.

Samples 16-8-73 from Mikkeldal S and 16-36A plus B-73 from Veifjell illustrate these internal structures. The latter locality is a suitable area for a study on this matter.

- (5) Of the contact observations made, the rule seems to be that the contacts of the ultrabasic bodies are sharp and sheared. This is also often the case for ub/gabbro contacts. At one locality (i.e. Veifjell, NE-end of lake 490) a 1m wide transitional zone between ub and gabbro was noted.

ROCK SAMPLES

One of the purposes for the present reconnaissance visits was to collect samples of the ultrabasics for a rock geochemistry program. A total of 75 rock samples, the locations of which are shown on the accompanying map, are listed in an appendix to this report. Most of the samples are meant for rock geochemistry and are split in the field.

COMMENTS

The ultrabasic bodies of the Komagfjord area are considered of good Ni-Cu-potential. Ni-Cu-sulphides have been shown to occur by the present very brief reconnaissance.

A full assessment, i.e. an exploration program extending over 3 years, if successful, is recommended.

As outlined in an earlier memo (29.8.73 HaR to JBG) the following approach is suggested:

Year I Regional survey

- (1) Literature studies and preparatory work
- (2) Rock geochemistry of ultrabasics
- (3) Airborne MAG/EM (Helicopter, 2500 line km)
- (4) Regional stream sed. geochemistry
- (5) Geological profile mapping over greenstone/ub belt
- (6) Claim marking

Reports → Assessment → Decisions

Year II and III

- (1) Ground geophysical surveys
- (2) Geology
- (3) Diamond drilling

CAF Dronning

APPENDIX

ROCK SAMPLES, KOMAGFJORD AREA

No	Locality	Rock Type	Remarks
16- 1-73	Mikkeldal S	Ub	
2	"	"	
3	"	"	
4	"	"	
5	"	"	
6	"	"	
7	"	" (schistose)	
8	"	" (banded)	Thin section
9	"	"	
10	"	"	
16-11-73	Mikkeldal N	Ub	
12	"	" (sheared zone)	
13	"	Gabbro (?)	
14	"	Ub	
15	"	"	
16	"	Ub	
16-17-73	Nagjet	Volcanite	
18	"	Ub	
19	"	Ub (Ni/Cu sulphides)	Polished section
20	"	Ub with minor sulph in contact with volcanite	
21	"	Ub	
22	"	Ub (coarse)	
23	"	Ub	
24	"	Ub (troctolitic)	
25	"	Ub	
26	"	Ub	
27	"	Gabbro (incl. ? in ub)	
28	"	Ub	
16-29-73	Veifjell	Mafic gabbro	
30	"	Ub	
31	"	Mafic gabbro	
32	"	Veifjell gabbro	
33	"	Ub	
34a	"	Ub (banded ?)	Thin section
34b	"	Ub (" ?)	" "
35	"	Ub	
36a	"	Ub (banded ?)	Thin section
36b	"	Ub (" ?)	" "
37	"	Ub	
38	"	Ub	

No	Locality	Rock Type	Remarks
16-39-73	Vuggenes	Ub	
40	"	Ub	
41	"	Ub	
42	"	Ub	
43	"	Ub	
44	"	Ub	
16-45-73	Stjernevann	Ub (light)	
46	"	Ub	
47	"	Ub (light)	
48	"	Ub	
49	"	Ub (light)	
50	"	Ub	
51	"	Ub	
52	"	Ub	
53	"	Ub	
54	"	Ub	
55	"	Ub	
56	"	Magnetite rich crack of ub	Polished sect.
57	"	Ub	
58	"	Ub	
59	"	Ub	
16-70-73	Fieddarurene	Ub	
71	"	Ub	
72	"	Ub	
73	"	Ub (15cm from contact with amygdaloidal greenstone)	
74	"	Ub	
75	"	Ub	
76	"	Ub	
77	"	Ub	
78	"	Ub	
78b	"	Quartzite	
79	"	Ub	
80	"	Ub	
81	"	Ub	
82	"	Ub	

Date: 22. March 1974

To: Falconbridge Nikkelverk A/S ✓

cc: A.M. Clarke, H.T. Berry,
HaRosenqvist, R.B. Band

From: J.B. Gammon








Subject:

Please find attached Rosenqvist's account of a preliminary assessment of the ultrabasics in the Komagfjord area. Folldals operating Repparfjord Cu mine is in this area and any major programme would probably be best carried out jointly with that company. As a result of Rosenqvist's work we are now in possession of a representative suite of samples from the area which will be studied petrographically and chemically as a further step in our evaluation of the potential of this area.

Ed. Gammon

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KEY:

-  GABBRO (STEINBJELL FORMATION)
-  QUARTZITE (DOGGELV)
-  VOLCANIC / SEDIMENTARY SUPRACRUSTALS
-  ULTRAMAFICS
-  GABBRO
-  TROUSSEAUITE
-  SAMPLE 16-8/73

THE HOLMVANN FORMATION

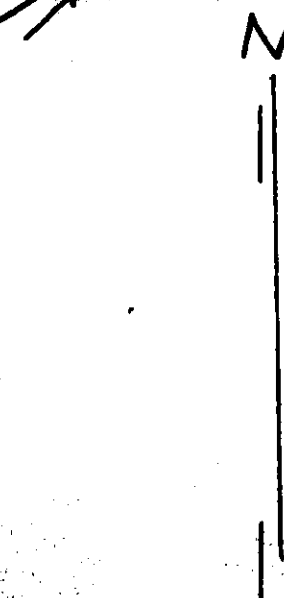
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KOMAGFJORD AREA, W-FINNMARK LOCATION OF ROCK SAMPLES (GEOLOGY AFTER REITAN 1960)	SCALE	OBS. <i>Har</i>	7-73
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