

**Copper – gold mineralisations in the Paleoproterozoic
Kautokeino Greenstone Belt, Finnmark county, Norway.**

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For Scandinavian Resources AB

Contents

1. Introduction	4
2. Working area	5
3. Exploration history	5
4. Geological setting	6
5. Bidjovagge-type copper-gold genetic model	9
6. Targeted copper-gold mineralisations	15
6.1 Suovrravarri – Njivloroavvi mineralisation	15
6.1.1 Summary of previous exploration	15
6.1.2 Results of field work 2011	16
6.1.2.1 Suovrrajavri	17
6.1.2.2 Suovrrarahppat	35
6.1.2.3 Area 22	35
6.1.2.4 Njivloroavvi digging	35
6.1.2.5 Suovrravarri South	37
6.1.2.6 Escarpment	38
6.1.2.7 Njivloroavvi area	38
6.1.2.8 Njivlojavri	38
6.1.3 Recommendations	39
6.2 Njivlojavri no. 2 and 4 claims; Adjavarri, Rahpenjunnas and Daccavarri	39
6.2.1 Summary of previous exploration	39
6.2.2 Results of field work 2011	41
6.2.3 Recommendations	41
6.3 Gorvvesjavri claims	42
6.3.1 Summary of previous exploration	42
6.3.2 Results of field work 2011	42
6.3.3 Recommendations	44
6.4 Æppergielas mineralisation	44
6.4.1 Summary of previous exploration	44
6.4.2 Results of field work 2011	45
6.4.3 Recommendations	46
6.5 Gæssamaras claim	46
6.5.1 Summary of previous exploration	47
6.5.2 Results of field work 2011	47
6.5.3 Recommendations	50
6.6 Uccavuovdas mineralisations	50
6.6.1 Summary of previous exploration	50
6.6.1.1 Uccavuovdas South	52
6.6.1.2 Area 36	52
6.6.1.3 Uccavuovdas North	53
6.6.1.4 Suhkkesmaras	53
6.6.1.5 Area 34	54
6.6.1.6 Logejavri	54
6.6.1.7 Area 35	54
6.6.1.8 Beatnat	55
6.6.2 Results of field work 2011	55
6.6.3 Recommendations	56
6.7 Hoallomaras mineralisation	57
6.7.1 Summary of previous exploration	57

6.7.2 Results of field work 2011	58
6.7.3 Recommendations	58
6.8 Ragatmaras claims	58
6.8.1 Summary of previous exploration	58
6.8.2 Results of field work 2011	59
6.8.3 Recommendations	59
6.9 Riednjajavri mineralisation	60
6.9.1 Summary of previous exploration	60
6.9.2 Results of field work 2011	60
6.9.3 Recommendations	61
7. Summary	61
8. References	69

Appendix 1: List of rock samples

Appendix 2: List of soil samples Suovrravarri-Njivloroavvi

Appendix 3: Assay results rock samples

Appendix 4: Assay results soil samples Suovrravarri-Njivloroavvi

Enclosure 1: Geological map Suovrrajavri



Copper-gold mineralisation (red line) was discovered at Suovrrajavri, at the mountain to the left in the background. Njivloroavvi gold trend to the right. Viewed north-east.

1. Introduction

This report contains a summary of previous exploration results obtained by predecessors within Scandinavian Resources AB's claim areas as well as results from field work during the summer of 2011.

Scandinavian Resources AB holds exploration licences within 7 separate areas (fig. 1). Other current claim holders within the Kautokeino Greenstone Belt include Arctic Gold, Mineralia ANS, Drake Resources, REE Mining, and Norwegian Minerals Group/Kloster Rederi AS.

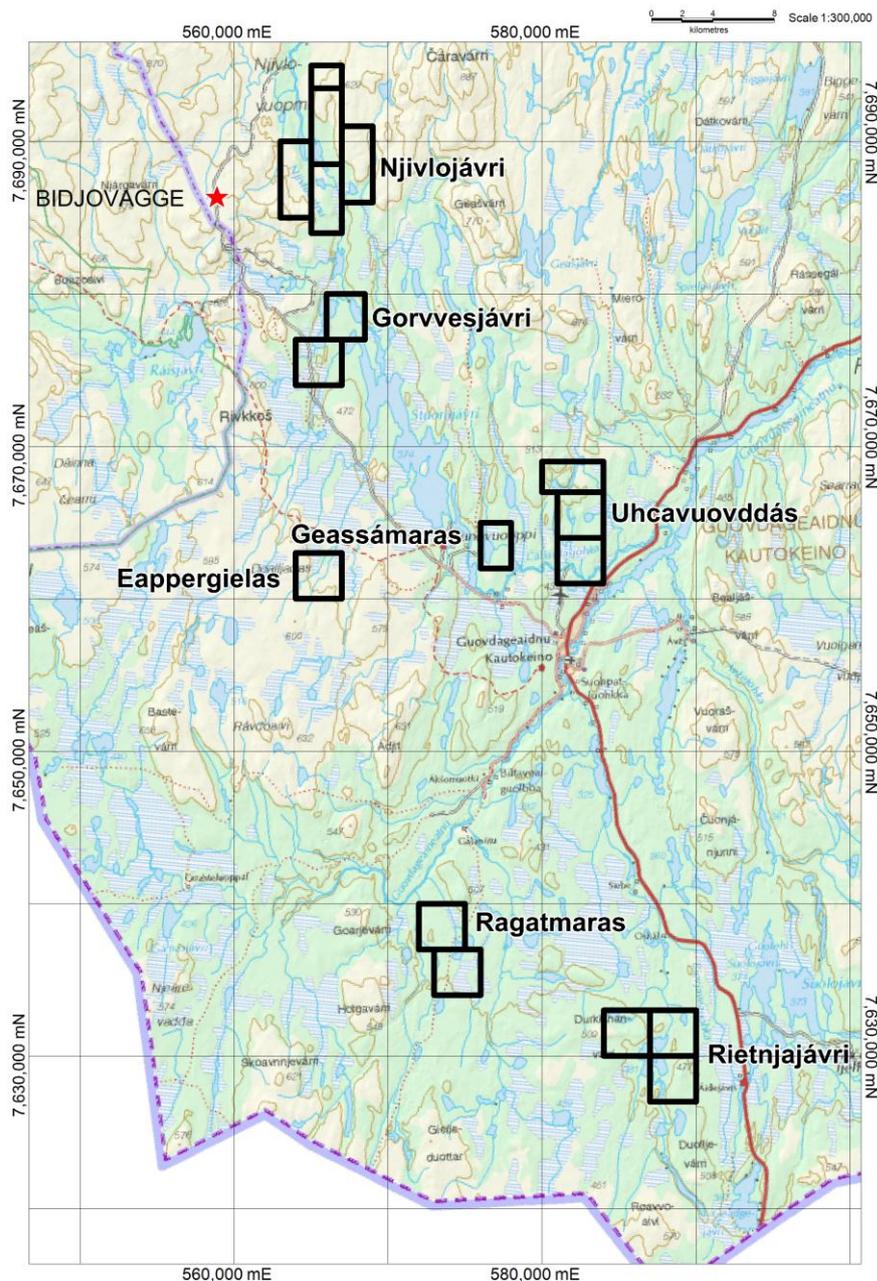


Fig. 1 Exploration licenses held by Scandinavian Resources November 2011.

2. Working area

The Finnmarksvidda area is heavily covered with glacial drift. Overburden is highly variable, typically 2-10 m thick. Depressions and low-lying areas can have greater thickness of glacial till and are typically wet and boggy. At higher elevations (500-700 m.a.s.l.) the glacial cover is generally thin, and vegetation is limited to scrub brush. The degree of exposure is fairly reasonable. At lower altitudes (400-500 m.a.s.l.) small birch and alder cover much of the area, besides open bogs, and exposures are scarce.

The target areas are accessible from the all weather roads by a network of ATV trails.

3. Exploration history

The discovery of the Bidjovagge deposit, two Samis reported a sulphide occurrence at the Caskijas mountain c. 1950, initiated exploration in Western Finnmark. Boliden Mining Company conducted introductory exploration during 1952-53. Their application for a concession in 1953 was, however, rejected (Hollander 1979). In 1955 Norwegian public authorities made an agreement with the claim owners, bought the geological and geophysical reports from Boliden, and started exploration. During 1954-1956 NGU conducted regional geological mapping.

From 1956 geological mapping, geophysical surveys, geochemical sampling, and diamond drilling were carried out by Kautokeino Kobberfelter - Statens Undersøkelser (KKSU), which was specially formed by the Ministry of Industry with the intention to undertake exploration in the Bidjovagge area. In 1964 KKSU was taken over by NGU which continued the Bidjovagge investigations, as well as regional exploration during 1964-67 as a follow-up of airborne geophysical surveys conducted in 1959-62.

In 1967 A/S Bidjovagge Gruber was formed by A/S Bleikvassli Gruber. The plant was completed in 1970 and production started in 1971. In 1974 A/S Sydvaranger bought A/S Bleikvassli Gruber and thereby also the Bidjovagge deposit. A systematic evaluation of the mine, and prospecting in the surroundings started in 1974, and continued into 1975, when falling prices and small production forced the Bidjovagge Mine to close down in mid-1975. During this four year period 0.43 Mt of ore yielding 23 000 t copper concentrate were produced. A/S Sydvaranger continued regional prospecting until the mid-80`s.

A/S Sydvaranger (during this period the company reorganized and changed name to ASPRO) continued exploration in the KGB subsequent to the mine closure, the first half of the 80`s in a joint venture with Norwegian Gulf. In 1983 Outokumpu Oy obtained an option agreement with A/S Sydvaranger and the mine was reopened in 1985. Outokumpu produced 6292 kg of gold and 23 752 t of copper from ten ore bodies with average grades of 1.2 % Cu and 4 g/t Au between 1985 and 1991, when the mine was closed again. During 1985-1993 Bidjovagge Gruber A/S (Norsulfid A/S / Outokumpu Oy) conducted exploration on a regional scale, targeting many of the objects considered in this report.

Subsequent to A/S Sydvaranger`s regional exploration, NGU has contributed substantially to the geological understanding of the Kautokeino Greenstone Belt and its mineralisations through `Finnmarksprogrammet` between 1982 and 1992.

Following the closure of the Bidjovagge Mine in 1991 the so-called BIP-Project was initiated. It ran until end of 1993 and was based on an agreement between Norsulfid A/S / Bidjovagge Gruber A/S and Outokumpu Finnmines Oy (both partners belonging to Outokumpu Mining Oy), and financed by Norsulfid, the Department of Industry and Finnmark County.

The main exploration target was the Bidjovagge Mine Area, whereas targets outside the mine area included the Uccavuovdas – Hoallomaras area, Riednjajavri, Gæssamaras, Æppergielas, Galaniito (Ragatmaras) and Dazzavarri. Galaniito (Ragatmaras), Uccavuovdas – Hoallomaras and Riednjajavri were objects for regional helicopter geophysical measurements by NGU in 1989 and 1991.

Sulfidmalm A/S carried out exploration during 1971-80 in the Masi area (Band 19776, Kreivi 1976).

Subsequent to 1993 the Bidjovagge Project was taken over by Norway Gold Exploration and a private Ontario company. In 1996 Hendricks Minerals Canada Ltd. was granted an option to acquire the entire share capital of Bidjovagge Gold Project, and carried out an exploration program including drilling. During 1996-2006 other participants were Geologiske Tjenester A/S, Baltic Resources Inc., and BCLX Consulting Ltd.

In 2006 International Gold Exploration (IGE) made an option with Geologiske Tjenester (who by then owned the licenses) to acquire the target within five years. IGE sold the mining rights to Arctic Gold in 2010. Arctic conducted a scoping study the same year. It is not known if any exploration is carried out on targets outside of the Bidjovagge area since 1993.

So far only one deposit within the Kautokeino Greenstone Belt, Bidjovagge, has been exploited.

4. Geological setting

The claim areas are located along the western and central parts of the Paleoproterozoic Kautokeino Greenstone Belt (KGB), from the Finnish border in the south to the Caledonian cover sequence in the north. This volcano-sedimentary sequence constitutes a NNW-SSE-trending, c. 40 km wide and 5-6 km deep synclinorium situated between two culminations of Archaean gneisses (Raiseatnu Gneiss Complex, RGC in the west and Jergol Gneiss Complex, JGC in the east) pierced by Early Proterozoic plutons (fig. 2). It is thought to represent an Early Proterozoic rift deformed by strike-slip faulting along the Bothnian-Kvænangen Fault Complex (BKFC) (Olesen & Sandstad 1993) (fig. 3). This intensely shear deformed NNW-trending fault complex comprises several steeply dipping shear zones with associated mineralisation. Large scale fold structures within the greenstone belt generally trend parallel to shear structures, NNW to NE (Holmsen et al. 1957).

The borders of this sheared rift can be outlined from geophysical images. The western Ciegnaljåkka-Boaganjavri Lineament (CBL) and the eastern Soadnjujavri-Bajasjavri Fault (SBF) are the main, steeply dipping bordering faults and are continuous along the entire length of the greenstone belt (Olesen & Sandstad 1993). The NE-SW-trending Mierujavri-Sværholt Fault Zone (MSFZ) is a 230 km long major fault (fig. 3). A system of duplexes can be delineated along the MSFZ from geophysical images, and Proterozoic albite diabases have intruded along faults within the MSFZ (e.g. in claim area Uccavuovdas).

The Kautokeino Greenstone Belt is subdivided in a number of formations (fig. 2). The oldest, the Goldinvarri (possibly of Archaean age), Vuomegielas and (partly) Masi formations, occupies only the eastern margin of the greenstone belt. The main body of the KGB is occupied by the Caskijas, Likca and Suolovuopmi formations (Siedlecka et al. 1985), all dominated by basic metavolcanites. They can be correlated to the Avzi, Stuorajavri and Baharavdojavri formations in the southern part of the KGB (Olsen & Nilsen 1985), but the detailed relationships are still controversial. The most recent interpretation by Olesen & Sandstad (1993) advocates two main volcanic cycles.

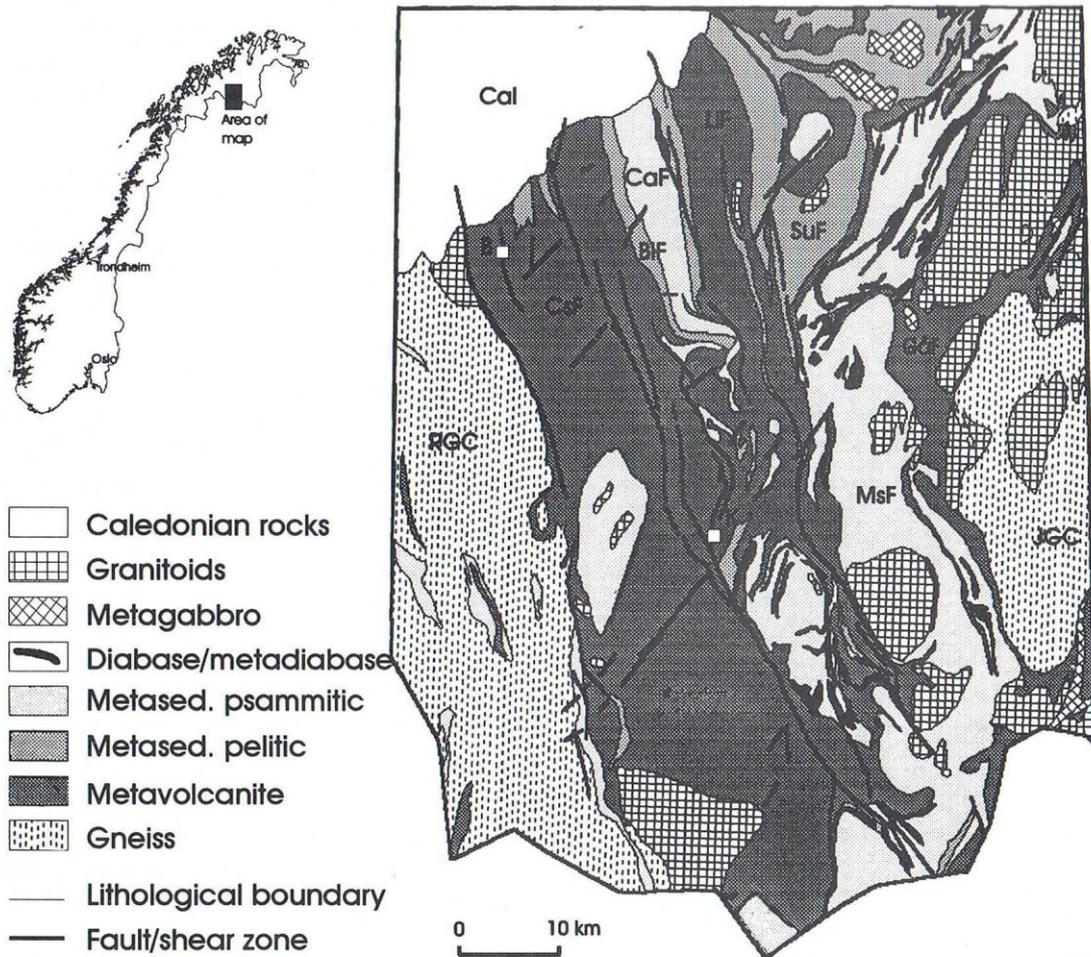


Fig. 2 Simplified geological map of western Finnmarksvidda (from Olesen & Sandstad 1993).
 JGC – Jergol Gneiss Complex; RGC – Raiseatnu Gneiss Complex; GåF – Goldinvarri Fm;
 MsF – Masi Fm; CsF – Caskijas Fm; SuF – Suolovuopmi Fm; LiF – Likca Fm; BiF –
 Bikkacåkka Fm; CaF – Caravarri Fm; Cal – Caledonian nappes and Dividal Group. B –
 Bidjovagge; K – Kautokeino; M – Masi.

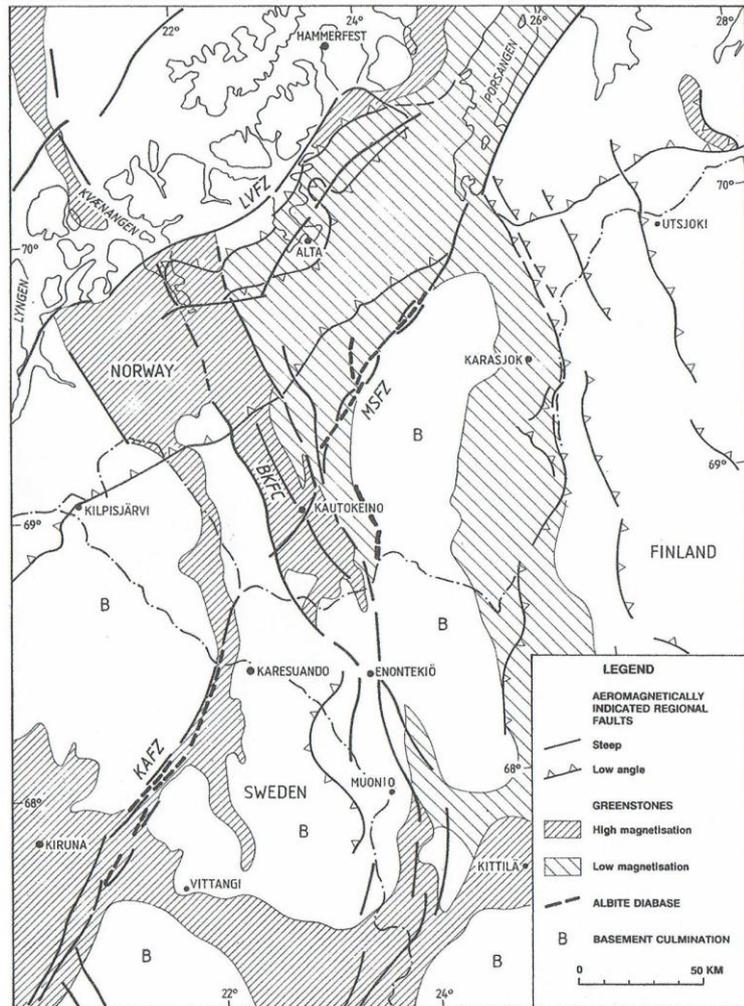


Fig. 3 Regional structures in Finnmark – Lapland (from Olesen & Sandstad 1993).
 BKFC – Bothnian-Kvænangen Fault Complex; KAFZ – Karesuando-Arjeplog Fault Zone;
 MSFZ – Mierujavri-Sværholt Fault Zone; LVFZ – Langfjord-Vargsund Fault Zone.

Most of SR's exploration licenses are underlain by metavolcanics of the Caskijas and Stuorajavri formations.

The volcanic rocks are dominated by basic tuffs and tuffites, but basaltic lavas and concordant diabases are also present, as well as subordinate komatiitic metavolcanites (mainly in eastern areas). Mica schists, interpreted as metamorphosed, fine-grained, clastic, terrigenous

sedimentary rocks are interbedded with the volcanites (mainly in the NE). The youngest rocks are found in the central northern KGB. Here it can be demonstrated that the volcanism in the Caskijas Formation gradually decreased and that the formation is concordantly overlain by pelites (Bikkacåkka Formation) and sandstones (Caravarri Formation) (Sandstad 1985).

Deformation and metamorphism are of low intensity in the central parts of the KGB, and increases towards the gneiss complexes to the west and east (Olesen & Sandstad 1993). Within the Caskijas Formation, the metamorphic facies increases gradually from east to west (Sandstad 1983). Metamorphic grades can be roughly correlated with stratigraphy. For example, the lower parts of the tectonostratigraphic section are amphibolite to upper greenschist facies, the middle portions of the section are upper to middle greenschist facies, while the upper parts are lower greenschist facies. Therefore, the metamorphic grades can roughly be considered to reflect crustal depths (Ettner et al. 1993).

Both bedding and foliation are generally NNW-SSE-trending and steep within the western and southern parts of the KGB, whereas in the NE`ern part the structural trend is NE-SW and the dip flattens out (Solli 1988).

To the NW, mudstones of the Upper Proterozoic/Lower Cambrian Dividal Group unconformably overlie the KGB. Above this are the Caledonian nappes which, in this area, consist mainly of feldspathic metasandstones (Zwaan 1988).

Albite felsites and albite-carbonate altered rocks occur locally within the greenstone belt (Holmsen et al. 1955, Gjelsvik 1958, Padget 1959). They often constitute thin layers or irregular zones associated with tectonic activity. Very fine-grained albite felsites representing altered pelitic metasediments and metatuffites occur primarily in the lower or upper part of the basaltic metavolcanic sequences (Olesen & Sandstad 1993). They are assumed to be formed in association with the intrusion of diabase sills in the unconsolidated sedimentary sequence (Vik 1985, Bjørlykke et al. 1993), and are commonly associated with copper-gold mineralisations as observed in the Bidjovagge Mine. Medium- to coarse-grained albite-carbonate rocks are common in the central part of the Alta-Kautokeino Rift, surrounding Kautokeino, in areas where brittle faulting is most intensive (Sandstad et al. 1992).

5. Bidjovagge-type copper-gold genetic model

The Kautokeino Greenstone Belt contains several shear zone-hosted Cu, Au and U-REE mineralisations, and albite-carbonate alteration within a cross-section of medium- to low-grade metamorphic facies. Similarities in hydrothermal alteration and mineralisation between different areas suggest that the fluids had related chemical and physical characteristics (Ettner et al. 1993).

The Bidjovagge gold-copper deposit is located in the NW`ernmost part of the KGB, 40 km NNW of Kautokeino. A sequence of tuffites, amphibolite, argillites, graphitic schist, carbonates and diabase sills is folded into an upright antiform (traceable over an axial length of 8 km) which is sheared, especially along the eastern limb. These numerous N-S trending faults are probably related to the N-S megashear (BKFC), and mapping has revealed a complex zone with dextral and sinistral strike-slip, as well as normal and reverse faults.

The Bidjovagge deposit consists of several lens-shaped ore bodies over a strike length of 2.5 km. 13 of these have been mined during the two periods. All known deposits, except the northernmost, occur along the eastern limb of the antiform.

The most common alteration is of sodic type and the widespread albite felsites and graphitic felsites (both are associated with diabase sills in the Bidjovagge stratigraphic level) are thought to represent albitised argillites, diabase, tuffites or partly metamorphosed chemical sediments. Two periods of albitisation are apparent, an early metasomatic period producing albite felsite at the contacts between diabase sills and metasedimentary rocks (generally graphitic schist), and later discordant albite felsite along shear zones. Bjørlykke et al. (1987) suggest that the earlier albite felsite formed when diabase sills intruded wet sediments, and albitisation resulted from the circulation of hot sea water. The alteration of the metadiabase in the foot-wall sequence is complex. Carbonatisation is very extensive, but there are also zones with biotite, scapolite, and hematite alteration (Bjørlykke et al. 1987). The ore is hosted in the albite felsite, and to a lesser degree in the adjacent graphitic felsite. The main ore is stratabound and occurs as veins, breccias, and low-grade disseminated mineralisation.

Syenodioritic dykes occur as lenses in the shear zones. They are located close to mineralisation, are cross-cutting shear fabric, and may be related to mineralisation (Ettner et al. 1993). Two periods of mineralisation have been identified (Bjørlykke et al. 1987): An early stage of gold mineralisation within brittle-ductile structures pre-dating the syenodioritic dykes, and a late copper-rich stage within brittle structures. There are always some gold in the copper mineralisations, but a positive correlation between copper and gold has only been observed in the southernmost ore body. The highest gold grades are always found in low sulphide zones.

The gold mineralisations occur in albite felsites where the shear zones intersect graphitic schists, which has been oxidised and albitised along dilatational structures in the shear zone, and the ore bodies are situated at discontinuities in the EM-anomalies and in low-mag anomalies (Mathiesen 1972). High gold values are usually related to quartz-carbonate veins containing tellurides and are often associated with weak uranium mineralisation (Bjørlykke et al. 1987). The ore minerals of economic significance are chalcopyrite and native gold. Other common metallic minerals are pyrite and pyrrhotite. Marcasite, magnetite, ilmenite, hematite, tellurides, rutile, sphalerite, galena, davidite, pentlandite, violarite, mackinawite and molybdenite occur in accessory amounts.

The mineralising fluids were high-saline and CO₂-rich (Ettner et al. 1994). U-Pb dating of davidite associated with gold yielded 1885 ± 18 Ma and a Sm-Nd date of 1886 ± 88 Ma, and uraninite containing gold inclusions gave U-Pb date of 1837 ± 8 Ma (Bjørlykke et al. 1990, Cumming et al. 1993). Bjørlykke et al. (1990) suggest that these dates indicate that the Bidjovagge mineralisation occurred during the early phases of the Svecofennian orogeny, and Ettner et al. (1993) suggest that gold mineralisation occurred at or slightly after peak metamorphic conditions. Cumming et al. (1993) argue that the later uraninite date may be a result of a closure temperature about 150° C lower than for davidite, consistent with slow cooling after a metamorphic event.

The deposits are generally tabular, with an individual strike length between 100 and 200 m and thickness varying from less than 5 m up to 35 m. Three types of chalcopyrite mineralisations in albite felsite can be distinguished, with gradual transitions (Bjørlykke et al. 1987):

1. Most of the chalcopyrite occurs in breccia veins with ankerite, actinolite and minor pyrite and pyrrhotite. Vein widths are generally 2-10 cm, rarer up to several metres, and they are folded and boudinaged.
2. Chalcopyrite with minor gangue minerals (ankerite and actinolite) in veinlets in a stockwork-like texture. In some areas the veinlets are parallel to the bedding.
3. Disseminated chalcopyrite in association with the vein mineralisation is common.

The gold-copper ore has been subdivided into three major types that warranted different processing during the mining (Ekberg & Sotka 1991):

1. Copper ore comprising 2-5 % Cu and typically less than 1-2 g/t Au. Chalcopyrite and subordinate bornite occur in sulphide-rich carbonate veins (C ore body).
2. Gold ore with 5-20 g/t Au and 0.1-0.5 % Cu. The mineralisation occurs as disseminated gold in sheared and brecciated albite felsites and partly in quartz veinlets. In addition to albite, the ore contains quartz, actinolite, sulphides (pyrite, pyrrhotite and chalcopyrite), tellurides, davidite and fine-grained native gold (commonly in the range 15-30 μm) (E and hanging-wall of D ore bodies).
3. Gold-telluride ore is structurally similar to the gold ore, but the gold mainly occurs in tellurides (cavalerite) (K ore body).

Bjørlykke et al. (1987) postulate that within each ore deposit there are three main zones of mineralisation: Zone A consists mainly of chalcopyrite and occurs in the centre of the albite felsite, and the most important copper mineralising event is related to brecciation of the host rock, formation of ankerite-actinolite veins, and oxidation of the graphite felsite. The gold-rich mineralisation in Zone B also contains some copper and minor uranium, and occurs in albite felsite near the border to graphite felsite. The brecciation is less intense and the carbonate-actinolite veins are thinner, and not as frequent as in Zone A. The mineralisation occurs partly in veins and veinlets, and as adjacent disseminations. Gold is often correlated with uranium; davidite, tellurides and chalcopyrite are parts of the same paragenesis. The gold-rich zones in the foot-wall are often associated with an actinolite-chlorite-hematite alteration. Zone C contains pyrite and chalcopyrite in graphite felsites near the border to albite felsite.

A spatial separation of mineralisation in Zone A and B, and the poor correlation between gold and copper indicate that the precipitation of the two metals was controlled by different factors. Boiling and drop in temperature may have been an important factor for the formation of copper mineralisation, some gold being precipitated together with the sulphides. The increased gold content near the oxidation front of the graphite felsite indicates that changes in oxygen fugacity or pH may have been responsible for gold-rich paragenesis (Bjørlykke et al. 1987). Ettner et al. (1994) suggest that a $\text{CO}_2+\text{H}_2\text{O}$ +high salinity fluid of high oxygen fugacity, transporting base metals and gold as chloride complexes, which was externally buffered, reacted with the graphitic schist to produce methane. A drop in pressure at the ductile-brittle boundary resulted in phase separation of CO_2 from the highly saline H_2O fluid, thus increasing the pH of the fluid. Buffered by the assemblages pyrite-hematite and pyrite-magnetite, the pH of the fluid was increased and the oxygen fugacity decreased. Red-ox reactions between the fluid and graphitic schist resulted in the oxidation of the schist, the production of hydrocarbons in the fluid, and decrease in oxygen fugacity of the fluid. Chloride metal complexes are dependent on both pH and oxygen fugacity and therefore, the combined effect of phase separation and fluid-rock interaction resulted in metal precipitation at the oxidation front with the graphitic schist (Ettner et al. 1993).

The Bidjovagge deposit can be classified as orogenic, mesothermal gold mineralisation with a distinct structural control and atypical metal association, which is widespread in Paleoproterozoic supracrustal belts in the Fennoscandian Shield. They are generally lens-shaped and shear-related, with stockwork structure and breccia texture. Deposits similar to the Bidjovagge deposit include for example Saattopora in the Central Lapland Greenstone Belt in Finland and the Pahtohavare deposit near Kiruna in Sweden (fig. 4 and 5). Even if they have been described as orogenic gold deposits, their high copper content and saline mineralising

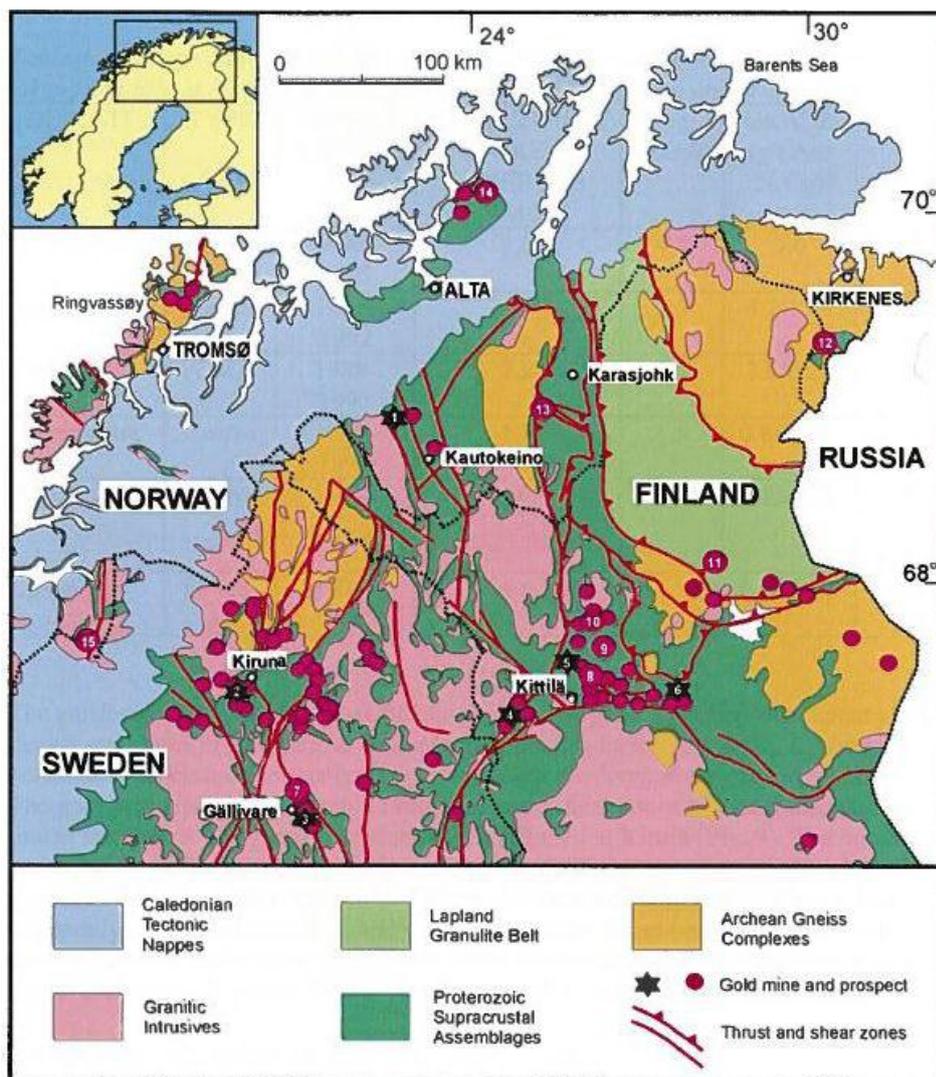


Fig. 4 Geology of northern Fennoscandia and gold occurrences.

fluids are more akin to IOCG deposits (Weihed et al. 2008), i.e. sulphide-dominated, Fe-oxide-poor end-members.

These shear-zone related deposits of Svecofennian age are characterised by the metal association $Cu \pm Au \pm Co \pm U$, lithologic association of mafic to intermediate tuffite, blackschist, carbonate rocks, albite felsite, dolerite and chert, and typical alteration is albite and carbonate. Intense albitisation is pre-dating the gold-related alteration, rendering affected units more competent than other lithological units and, hence, mechanically favourable for localising mineralisation. The most significant control on mineralisation is, regionally, structure, and locally it is structure (although most deposits occur preferentially in certain stratigraphic units, and are often described as stratabound) and rock type (e.g. deposits in the Peräpohja Schist Belt are hosted exclusively in metadolerites). They are lacking the strong spatial association with granitoids which is common globally for analogue deposits. In the Kuusamo and Peräpohja schist belts antiforms control all gold occurrences – in deposit scale the main controls for mineralisation within these belts are the intersections between antiforms and shear and fault zones, and probably also the regional pre-gold albitisation (Pankka & Vanhanen 1992). The orogenic quartz-vein type displays significant vertical continuity, commonly in excess of 1 km, without any sign of vertical zonation.

Most or all orogenic gold mineralisation in northern Finland took place during the continental collision epoch of the evolution of the Fennoscandian Shield, at 1.85-1.79 Ga, although some orogenic mineralisation (e.g. Bidjovagge) may be related to the earlier compressional stage, the microcontinent accretion, at 1.92-1.88 Ga (Eilu et al. 2007).

More than 60 drilling-indicated gold occurrences have been discovered in the Paleoproterozoic greenstone belts of northern Finland (Central Lapland, Peräpohja and Kuusamo) during 1985-2004 (Eilu et al. 2007). The apparent contrast in abundance of gold-bearing deposits in Sweden and Finland compared to Norway is probably an artefact caused by more systematic surveys and higher level of exploration activity during the last decades in the two former countries (Ihlen 2005).

Olesen et al. (1992) have evaluated areas in the KGB with potential for Bidjovagge-type Cu-Au mineralisations. It is attached importance to the following criteria which is characteristic for the Bidjovagge deposit:

- a) Electrical conductors representing graphite schists
- b) Irregular conductor extent and/or breaks along these (due to oxidation of graphite to albite felsite along shear zones)
- c) Hydrothermally altered rocks
- d) Magnetic metadiabase grading into geophysical mag-low, indicating alteration
- e) Transitional metamorphic facies between greenschist and amphibolite
- f) Distance 2-5 km away from regional shear zone
- g) Regional gravity anomaly
- h) High Cu content in stream sediments
- i) Low Mn content and medium to high Cu content in stream sediments

Olesen et al. (1992) outline targets in order of priority, using the above criteria, and top five are:

1. Bidjovagge (Arctic Gold)
2. Suovrarahppat (Arctic Gold)
3. Uccavuovdas (Scandinavian Resources)
4. Galanii`to east (same as Ragatmaras; Scandinavian Resources)
5. Riednjjavri (Scandinavian Resources, Mineralia)

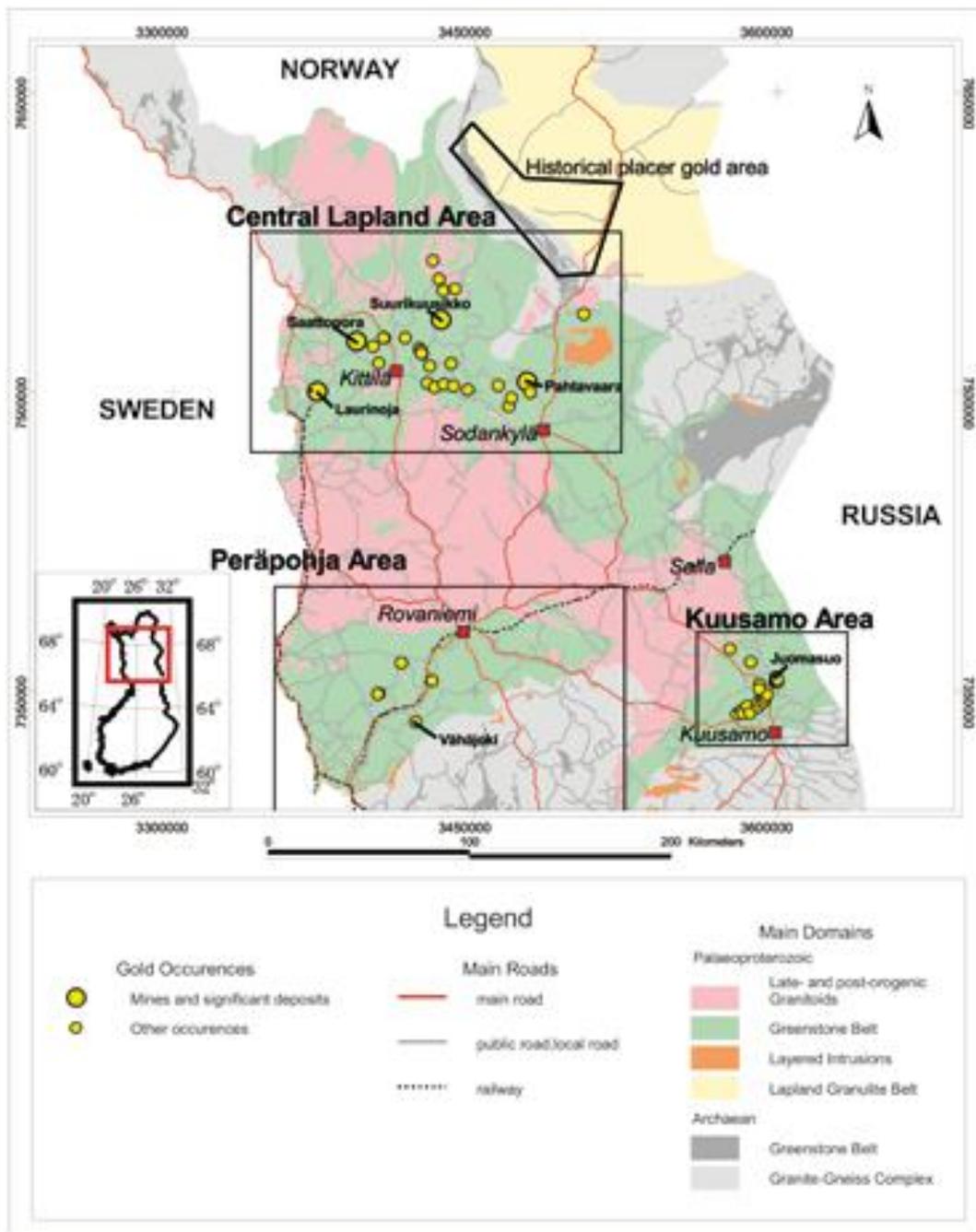


Fig. 5 Geological map and gold occurrences, northern Finland. From Eilu et al. (2007).

6. Targeted copper-gold mineralisations

Here is description of historic as well as this summer`s results of exploration directed at specific copper ± gold mineralisations, and follow-up of claimed boulder- and geophysical indications. Current work has included geological reconnaissance, mapping and rock sampling within all licenses except Ragatmaras, and soil sampling and detailed geological mapping within the Njivlojavri license.

64 rock samples (appendix 1) were collected and analysed at ALS Laboratory in Piteå.

For assaying, ALS multi-element (33) ME-ICP61, trace level, four acid digestion method using ICP-AES was applied to all samples, and Au was assayed by fire assay and ICP-AES, 30 g nominal sample weight, method Au-AA25. Assay results are given in appendix 3.

200 soil samples (appendix 2) were collected from the C-horizon at the Njivlojavri claims and analysed at ALS by aqua regia digestion with ICP-MS finish. Multi-element suite ME-MS41 and Au-TL43 were applied to all samples. Assay results in appendix 4.

Soil sampling was carried out with auger drill along 14 profiles with approximate sample density 50 m along the lines, and generally 200 m line separation. Sample medium was C-horizon at 0.4-0.6 m depth – deviating depths are noted in the sample description (appendix 2).

All coordinates refer to WGS84, UTM zone 34W.

6.1 Suovrravarri – Njivloroavvi mineralisations (map sheet 1833 IV Mollejus)

Access either by foot or ATV along a c. 7 km long trail from Bidjovagge to Bajit Njivlojavri, from where boat is necessary for the river crossing – then by foot uphill.

As the area occupies elevations above 500 m.a.s.l., quite a few exposures can be found along the Suovrravarri-Njivloroavvi ridges.

6.1.1 Summary of previous exploration

The Njivloroavvi digging and mineralisation at Suovrravarri are mentioned by Grip et al. (1955), Holmsen et al. (1957), Geis (1959) and Tan (1970). The latter concludes that `they do not fit the Bidjovagge-model`.

According to the Ore Data Base (NGU), the extent of mineralisation at the Njivloroavvi digging is 60 m by 3 m (NNW-SSE directed), and two assays show >10 % Cu, 4.0 g/t Au and 0.60 % Cu, 0.22 g/t Au respectively.

The Ore Data Base also has a registration of a similar Cu-Au mineralisation at Suovrravarri, 3.5 km to the NNW, from where an assay returned > 10 % Cu and 1.86 g/t Au.

The 1960 stream sediment sampling program (Tan 1970, bind III) shows a copper-anomaly NE and upstream from the Njivloroavvi digging, and also within an area 2-3 km SSE of the digging.

Since 1960 none of the exploration campaigns have targeted these mineralisations, while the Suovrrarahppat mineralisation (fig. 6) 3-4 km to the north has received significant attention since the discovery in 1958 (Tan 1970, Dehlin 1975 and 1976, Hagen 1986b). These studies did not, however, realise the potential for extensive auriferous structures continuing southwards.

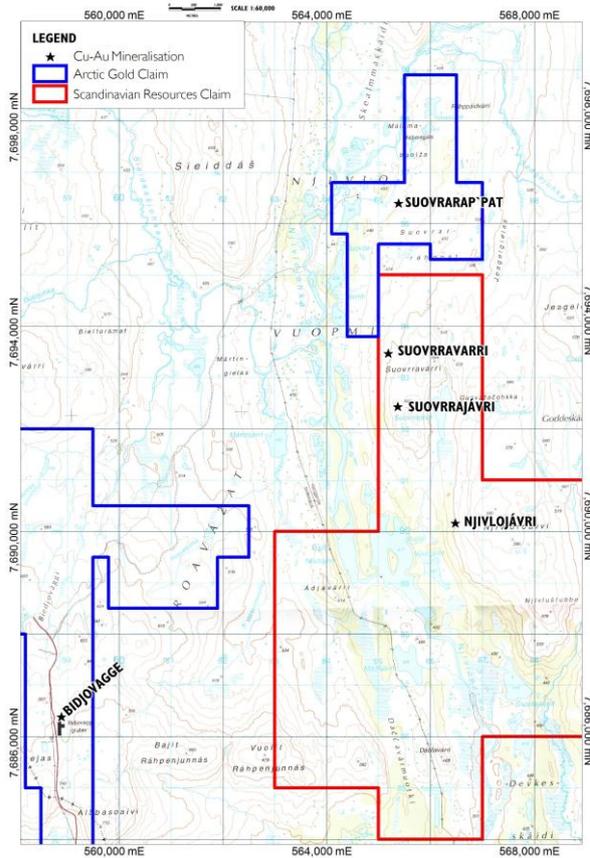


Fig. 6 Overview of the Bidjovagge-Suovrra area.

6.1.2 Results of field work 2011

Sulphide mineralisation was discovered 700 m west of Suovrrajavri, within the 3.5 km gap between the two previously known copper-gold occurrences at Njivloroavvi and Suovrravarri (fig. 7). This mineralisation is mapped in detail (enclosure 1). Reconnaissance mapping in the surrounding area revealed additional sulphide-bearing alteration structures, mainly bound to diabase sills.

The Suovrravarri-Njivloroavvi area is underlain by dominating basaltic metavolcanic rocks and diabase sills of low metamorphic grade belonging to the Caskijas Formation (fig. 8). A gradational transition to higher metamorphic facies (amphibolite) appears to the west, and a main NNW-trending fault runs along the river valley c. 1 km to the west.

Two south-plunging main anticlines are mapped within the NW^{ern} part of the KGB, one at Bidjovagge and another with axial trace through Suovrrahppat-Suovrravarri-Njivloroavvi (fig. 9), related to the first deformation phase, and the successions within these anticlines are presumably of the same stratigraphic level (Sandstad 1983, Bjørlykke et al. 1987). Growth of amphibole and chlorite along the axial plane cleavage is common, and faults of same direction are observed at Suovrrahppat (Sandstad 1983). Later deformation is characterised by NE-SW- and NW-SE-oriented faults and fractures, both having significance for mineralisation at Bidjovagge and Suovrrahppat-Njivloroavvi. These fracture orientations are similar to two of the main fracture directions interpreted by regional lineament analysis in Finnmark (Rindstad & Follestad 1982).

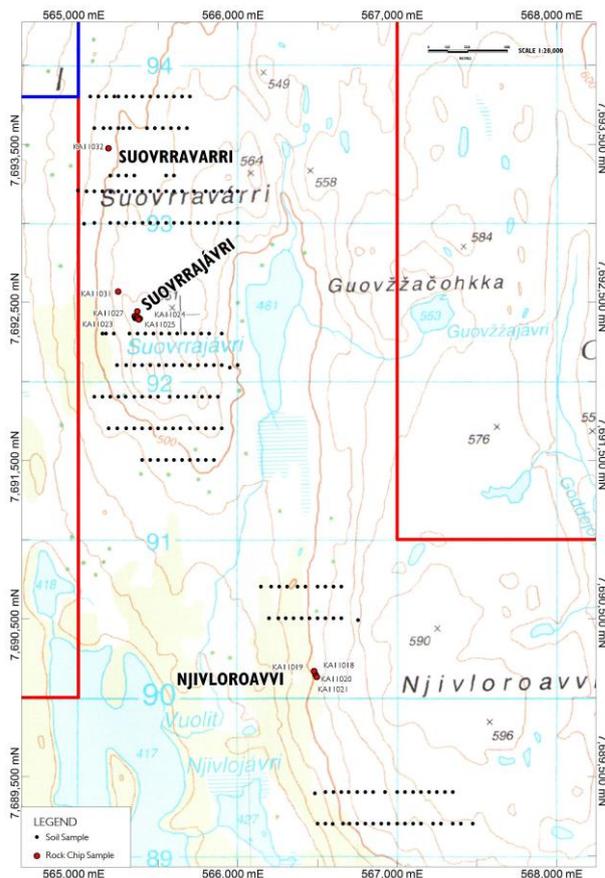


Fig. 7 Locations of copper-gold occurrences at Njivloroavvi, Suovrrajavri and Suovrravarri, and soil sample points.

Carbonatisation, albite-carbonate alteration and sulphidisation are coeval to and later than the first deformation phase, and are generally associated to faults and shears.

The mineralised trend between Suovrrahppat and Njivloroavvi is 6 km long. Structurally bound copper- and copper-gold mineralisations with associated carbonate-albite alteration appear at different levels along both anticline flanks:

6.1.2.1 Suovrrajavri

Within the detailed mapped area west of Suovrrajavri (enclosure 1) a supracrustal unit of greenstone, greenschist, calcite marble, argillite and albite felsite is intruded by diabase sills. The eastern sill is pervasively carbonate-albite altered and copper mineralised along and adjacent to an approximately 1 m thick intercalated albite felsite horizon, a competent bed that may have guided a N-S trending and west-dipping fault or shear zone with associated alteration and mineralisation. Alternatively, the albite felsite may have been formed from fluids that migrated along the shear zone, as observed in Bidjovagge where discordante albite felsite is associated with carbonatisation along faults (Ettner et al. 1993). A gradual transition from diabase to fine-grained albite felsite has been observed in drill cores at Bidjovagge (Bjørlykke et al. 1987).

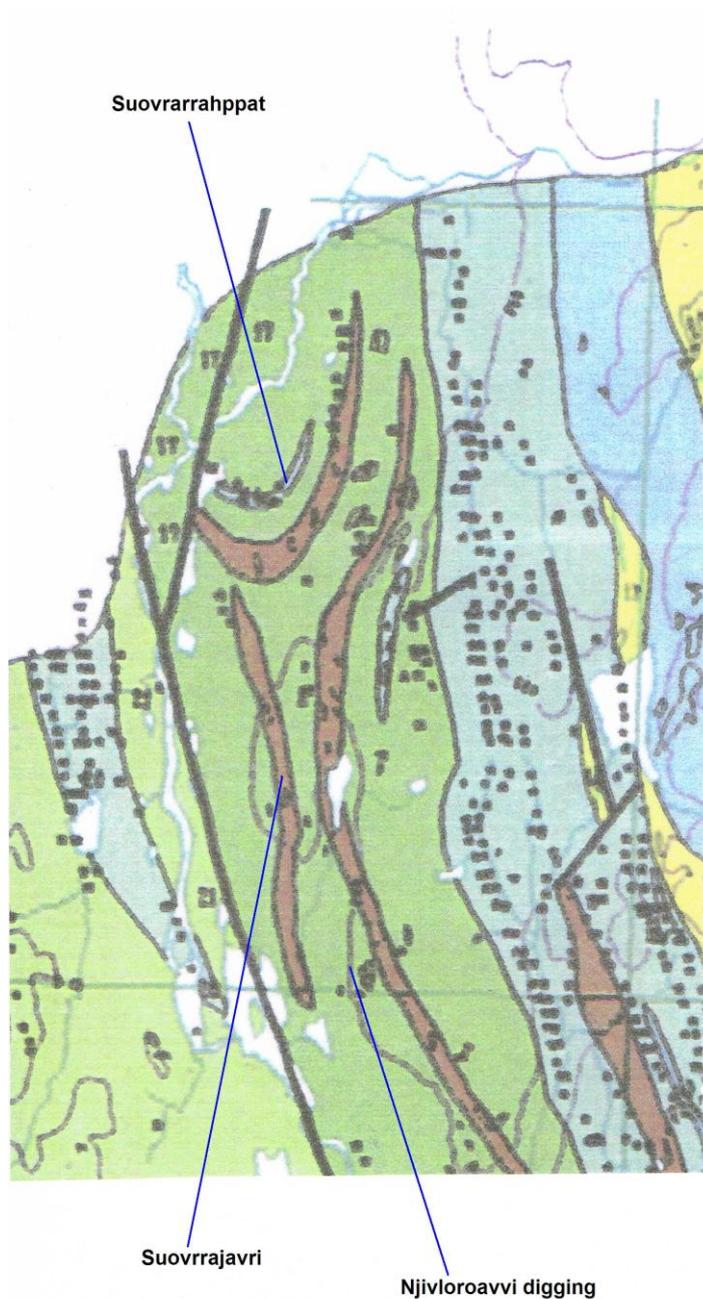


Fig. 8 Geological map Suovrra area (Sandstad 1992). 9 (brown)-diabase; 11 (yellow)-sandstone; 13 (blue)-limestone; 14 (blue-green)-phyllite; 17 (green)-greenstone; 21 (light green)-amphibolite; thick black line – fault; black dots – electrical conductor.

The mineralisation is outcropping over 330 m N-S length along the west-flank of the anticline. It is assumed to be continuous northwards with similar mineralisation at Suovrravari (see below), making up an overall length of at least 1.1 km, and possibly further northwards towards Suovrarahppat. The geochemical soil survey even indicates a southwards continuation for at least another 700 m (see below).

The mapping revealed multiple mineralised structures hosted by the diabase sill: 1) Pervasive carbonate-albite alteration of metadiabase, and adjacent quartz-carbonate-chalcopyrite breccia veining of diabase and greenschist, with associated Cu-Au mineralisation bound to an extensive bedding-subparallel N-S structure which seems to dip c. 40° W, and 2) two sets of late stage, cross-cutting auriferous quartz(-carbonate)-chalcopyrite veins intersecting the N-S altered domain and the breccia veining. These younger veins are enveloped by carbonate-albite alteration and strikes 50° and 125°. The apparent concordancy of the N-S shear zone, however, contrasts the airborne magnetic trends (fig. 9) which bend off NNW-wards, as do the diabase sills on the geological map (Sandstad 1985) – they are probably traced based on the geophysics.

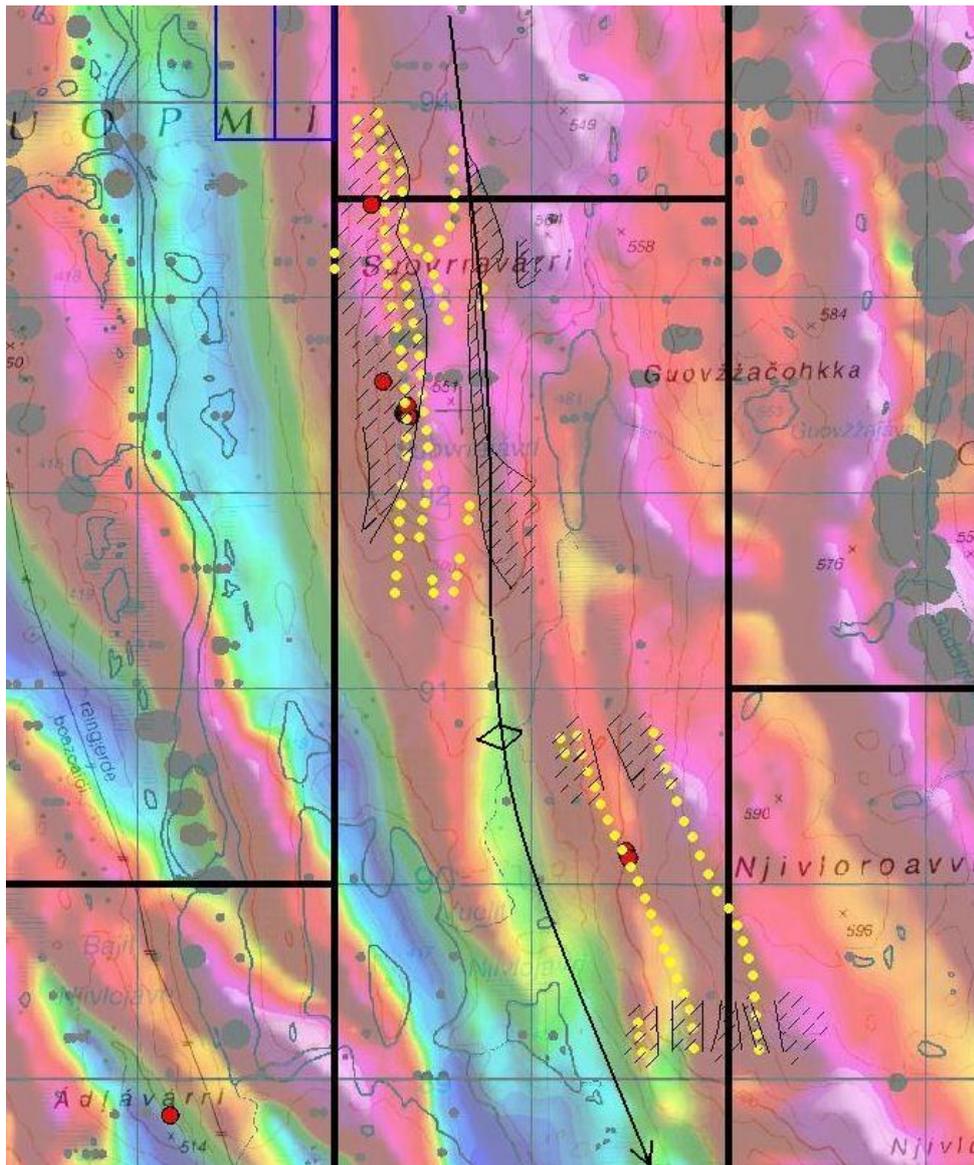


Fig. 9 Airborne magnetics and EM (black dots), Suovrra area. Yellow dotted line – gold soil anomaly trace; black hatched area – copper soil anomaly. Black line – assumed axial trace of anticline.

The N-S structure is mineralised (dissemination and veining of chalcopyrite and pyrite, and secondary malachite) in an up to 35 m wide zone (20-22 m lithologic thickness). The western limit is however not exposed. Adjacent unaltered diabase in the foot-wall is also chalcopyrite impregnated. Hanging-wall greenschist contains breccia-veining of carbonate, quartz and chalcopyrite. This veining is located near the contact between the intensely and weakly altered/unaltered rocks, i.e. in the upper part of the diabase sill and adjacent overlying greenschist. These breccia-like textures probably represent multiple veined stockworks rather than large-scale true breccia veins formed in one event of extensive fracturing.

Rock samples from this N-S running zone of chalcopyrite impregnated carbonate-albite altered diabase and albite felsite assayed 0.1-0.6 % Cu. Gold assayed low, but anomalous within the impregnation (up to 0.11 g/t). A small exposure close to the hanging-wall contact of the diabase sill revealed foliated, carbonate-albite altered amphibolite with concordant chalcopyrite bands, assaying 1.99 % Cu and 0.14 g/t Au (KA11058). The mineralised zone is not well exposed (fig. 10), and in situ, fist-sized floats of semimassive to massive chalcopyrite (fig. 11) found along the mineralised zone assayed 32.1 % Cu, 3.75 g/t Au and 7.46 % Cu and 5.93 g/t Au respectively. A bedrock sample (KA11059) of carbonate-albite altered diabase with both chalcopyrite dissemination and –veinlets returned 1.51 % Cu and 0.59 g/t Au. The in situ floats of massive chalcopyrite vein material are closely associated to the albite felsite horizon, suggesting that the copper-gold-rich vein(s) are restricted to a rather narrow zone.

The typically 1-2 m wide NE-SW and NW-SE structures consists of few-decimetres wide quartz-chalcopyrite veins enveloped in carbonate-albite alteration rock. These veins are weathered and eroded and seldom exposed (fig. 12). Up-heaved, in-situ floats of massive chalcopyrite and quartz-chalcopyrite are found along these cross-cutting alteration structures (KA11060, 16.1 % Cu and 3.7 g/t Au). NW-SE quartz-carbonate-chalcopyrite veins also occur within the mapped diabase sills to the west (fig. 13) (KA11031, 0.17 % Cu and <0.01 g/t Au), and north of the mapped area, at Suovrarri (fig. 14) (KA11061, 26.5 % Cu and 5.85 g/t Au, and KA11032, 24 % Cu and 1.56 g/t Au).

Some details from the rock sampling:

The first detection of the 35 m wide (20-22 m lithologic thickness) altered and mineralised zone was done at 565352 7692417, and 8 rock chip samples were collected in this area:

The western limit of brecciated mineralisation/alteration is located at 565352 7692417 (covered further to the west): Greenstone/greenschist with carbonate spots, and layers and veins of fine-grained carbonate-albite rock. Chalcopyrite dissemination in both (KA11022, 0.44 % Cu and 0.04 g/t Au). Foliation: 165°/50-65°.

Further SE, lower in lithostratigraphy, at 565357 7692405: KA11023 (0.34 % Cu and 0.05 g/t Au): same as KA11022, with some quartz veining.

565363 7692406: Subcropping pervasive carbonate-albite altered, medium-grained diabase with chalcopyrite dissemination (KA11024, 0.61 % Cu and 0.11 g/t Au).

565366 7692405: Subcropping fine-grained albite-carbonate rock with traces of chalcopyrite (KA11025, 62 ppm Cu and <0.01 g/t Au).

565372 7692410: Subcrop. Laminated, fine-grained, carbonaceous albite felsite with chalcopyrite and pyrite as dissemination and in < 1 mm thin carbonate veinlets cutting lamination (KA11026, 723 ppm Cu and 0.03 g/t Au).

565380 7692397: Subcropping pervasively carbonate-albite altered, medium-grained diabase with weak chalcopyrite dissemination (KA11027, 466 ppm Cu and 0.01 g/t Au). Viscaria Alpina is abundant.



Fig. 10 View towards NNW along the mineralised zone at Suovrrajavri, taken from UTM 565370 7692400.



*Fig. 11 Floats of massive to semimassive chalcopyrite, and the copper flower, *Viscaria Alpina*. UTM 565369 7692448.*



Fig. 12 NE-SW trending auriferous quartz vein with clusters of chalcopyrite. UTM 565370 7692625.



Fig. 13 NW-SE running, weakly copper mineralised quartz(-carbonate) veins hosted in the western, unaltered diabase sill. Rucksack as scale. Viewed ESE. UTM 565248 7692573.

565385 7692402: Less altered medium-grained diabase (weakly carbonate-albite altered) with weak chalcopyrite dissemination (KA11028, 0.18 % Cu and 0.07 g/t Au). 3 m to the east is unaltered diabase with magnetite dissemination.

565378 7692397: Small local floats of chalcopyrite-rich gossan (KA11029, 7.46 % Cu and 5.93 g/t Au).

NNW-wards to 565369 7692448: Local floats/subcrop of fist-sized massive to semimassive chalcopyrite with malachite (KA11030, 32.1 % Cu and 3.75 g/t Au). Growth of *Viscaria Alpina*.

At 565350 7692468: A small exposure close to the hanging-wall contact of the diabase sill revealed foliated, carbonate-albite altered amphibolite with concordant chalcopyrite bands, assaying 1.99 % Cu and 0.14 g/t Au (KA11058).

565365 7692525: A bedrock sample (KA11059) of carbonate-albite altered diabase with both chalcopyrite dissemination and –veinlets returned 1.51 % Cu and 0.59 g/t Au.

One rock sample of in-situ float of hydrothermal quartz with aggregates of massive chalcopyrite (KA11060, 16.1 % Cu and 3.7 g/t Au) is collected from one of the crosscutting structures, the NW-SE-trending at 565371 7692659. In-situ floats of massive chalcopyrite are also found above the other adjacent NE-SW-trending structures.

NW-SE-trending quartz-carbonate-chalcopyrite veins are also hosted in the little altered diabase sills west of the mineralised diabase (enclosure 1):

At 565248 7692573: The diabase is intruded by a quartz-carbonate vein swarm (fig. 13). The veins are up to 70 cm thick and strikes generally 140°, with some variation, and are subvertical. Hydrothermal quartz is totally dominant within the veins, with subordinate amounts of carbonate, which occasionally occurs as up to 5 cm fine-grained rims along the quartz veins, fading out into the fresh wall-rock diabase. Chalcopyrite and malachite occur both in the quartz (KA11031, 0.17 % Cu and <0.01 g/t Au) and in the carbonate rim.

Another quartz vein (305°/50°) with some chalcopyrite occurs in a small exposure at 565287 7692425. Alteration of adjacent hanging-wall greenstone to strongly red feldspar.

The above mentioned boulder field (at 565187 7693480) of auriferous hydrothermal quartz-carbonate-chalcopyrite bound to (west of) the northern part of the main zone is probably related to these NW-SE veins, which is assumed to be intruded during the folding event and formation of the antiform.

The strike-parallel mineralised zone can be followed northwards to 565365 7692683 (also some local floats of massive chalcopyrite along this distance). From here, the zone is covered NNW-wards to 565276 7693354 (the covered area contains very few boulders; at 565369 7692855 a few boulders with carbonate-chalcopyrite-veined diabase appear): Here and 15 m to the west is subcrops of light-coloured carbonate-albite altered diabase with chalcopyrite dissemination. Between these subcrops is outcropping a less altered (carbonate-chlorite) diabase with chalcopyrite dissemination. Growth of *Viscaria Alpina*.

Further NNW, at the west-slope of Suovrravarri, 565263 793441: Outcropping diabase carrying weak chalcopyrite dissemination and thin carbonate-chalcopyrite veins. At the foot of the exposure is a 10 cm thick vein of massive chalcopyrite (fig. 14) with direction 330°/60° (KA11061, 26.5 % Cu and 5.85 g/t Au). This sulphide vein grades into carbonate-chalcopyrite to the NW. The immediate wall-rock is unaltered, but adjacent carbonate-albite alterations occur within the diabase, as do additional, thin quartz-carbonate-chalcopyrite veins.



Fig. 14 Auriferous chalcopyrite vein at Suovrravarri, viewed north. UTM 565263 7693441.

The mineralised zone can be traced further to the N to NNW as subcrops and boulders in the covered terrain.

To the west, in the swamp at 565187 7693480: 20 x 10 m² boulder field densely covered with large boulders of hydrothermal quartz-carbonate with clusters of chalcopyrite (KA11032, 24 % Cu and 1.56 g/t Au). The boulders indicate several parallel veins, at least up to 0.5 m thick, in carbonate-albite altered diabase, and are possibly derived from late, cross-cutting structures. Airborne mag (fig. 9) indicates NW-SE faults in this area, and a discordant soil gold anomaly (fig. 9) suggests a possibility for the boulders being sourced in an auriferous NW-SE trending vein structure. This boulder occurrence is previously sampled by the Ore Data Base, NGU (9.91 % Cu and 1.86 g/t Au).

Conclusively, the copper-gold mineralised N-S trending fault or shear zone is indicated over 1.1 km length by geological observations, and extends possibly further northwards towards Suovrrahpapat. An associated soil Au-Cu anomaly is more than 2.1 km long. NE- and NW-trending cross-cutting copper-gold mineralised fault veins intersect the former at both Suovrrajavri and Suovrravarri. The intersections of N-S shears and cross-cutting faults, both auriferous, define excellent targets for the concentrations of copper-gold mineralising hydrothermal fluids.

In Bidjovagge Hollander (1979) emphasises the importance of folding and faulting for the localisation of the metals. According to him faulting and fissuring were of significant importance for improving the ore grade, and the most prominent fault directions are coinciding with Suovrrajavri, NE and NW. The Bidjovagge C and D ore bodies are located in areas with movements in NE'arly direction, in addition to the N-S shears (Hollander 1979).

Analogue orogenic gold deposits in the Peräpohja and Kuusamo schist belts in Finland show conspicuous similarities to the Suovrrajavri mineralisation. The overall control of gold mineralisation is antiform structures and the cross-cutting faults. All orogenic gold deposits within the Peräpohja Schist Belt are exclusively hosted by metadolerites metamorphosed under upper greenschist facies conditions, and have a metal association of Au-Cu (Eilu et al. 2007).

Contrary to Bidjovagge, where the highest gold grades are always found in low-sulphide zones, ore grades of gold found so far exclusively occur in the copper-rich veins at Suovrrajavri. Adjacent sulphidised alteration zones are `low` in gold (< 0.11 g/t). Gold has co-precipitated with copper at Suovrrajavri, but no inter-element correlation exists between them (also confirmed by the soil assays, see below). Three samples of copper-rich mineralisation at the Njivloroavvi digging show good negative correlation between copper and gold, i.e. gold is further enriched in the chalcopyrite-impregnation enveloping the copper-gold vein.

The Suovrravarri-Njivloroavvi mineralisations do not show the Bidjovagge characteristics in trace metal association. While Bidjovagge ore is anomalous (compared to other mineralisations in the KGB) in Zn, Pb, As, Co, Ni and U, only a few of the Suovrravarri-Njivloroavvi samples are enhanced in some of these elements, i.e. Co, As, U, Ni and P. The latter three are enhanced in the mineralisation in the Njivloroavvi digging.

Occurrences of graphitic schists or -felsites, important fluid traps in the Bidjovagge deposit, were not detected at the Suovrrajavri mineralisation (but may well exist), but appear in the Suovrrarahppat sequence which is underlying Suovrrajavri.

Considering the wide spacing in the soil sampling program, anomaly trends of various elements prove remarkable consistency. The thickness of the till cover is generally less than 1-2 m at the ridges, and in excess of this along slopes and in swampy areas. Within the Kautokeino area the transport distance is considered very short in areas of thin glacial drift where the till cover formed mainly during the last glaciation (Olsen 1984). Consequently, auger sampling of the C-horizon is considered to be a reliable and effective method in areas with thin to moderate till cover.

The widely spaced soil profiles show a distinct gold anomaly bound to the mineralised N-S trending fault or shear zone running through the grid for > 2.1 km (fig. 15a). A parallel and weaker gold anomaly appears c. 100 m to the east and indicates potential for additional auriferous N-S shear structures. The outcropping mineralised structure and its accompanied gold soil anomaly has, as expected, an associated distinct copper anomaly (fig. 15b), which is also extending westwards up into the hanging-wall rocks of the mineralised structure. The mentioned parallel gold anomaly is only partly covered by coinciding copper anomaly, the copper forming a broad enrichment halo beside or around the gold-enriched zones. An extensive copper (without gold) anomaly appears along the eastern part of the grid.

Shorter and more inconsistent gold anomalies, without associated copper, occur on either side of the two extensive gold trends.

The anomalous concentrations of copper, as well as associated cobalt (fig. 15g) and nickel (fig. 15h), the latter two with very good inter-element correlation, are believed to delineate the pervasively carbonate-albite altered, chalcopyrite-impregnated diabases and do not define the exact location of the gold lodes. The Cu(-Co-Ni) anomalous zones occur beside or partly overlap the gold-enriched zones. This may indicate that copper- and gold mineralisation has taken place at different time intervals, or that the former form a distal alteration zone. This

could explain why some of the anomalous gold concentrations also occur in sulphide (Cu)-poor and apparently weakly altered rocks.

Whereas davidite is a constituent in the gold mineralisation at Bidjovagge, and gold and uranium has good correlation, the mapped gold structure with associated >2.1 km long gold soil anomaly at Suovrrajavri has associated low-uranium anomaly (fig. 15c). The eastern, parallel gold anomaly, however, has partly overlapping uranium anomaly. Uranium shows good correlation with tungsten (fig. 15d).

Arsenic (fig. 15e) is partly gold-affiliated in the northern part of the parallel anomalies, but neither arsenic nor antimony (fig. 15f) is correlated to gold.

A possible scenario deduced from the soil geochemistry is that within a broad shear-influenced N-S trending zone across Suovrrajavri-Suovrravarri, metals have precipitated along localised, narrow shear structures within this wide zone. The lack of co-precipitation of metallic elements might be due to different mineralising pulses, giving rise to the indicated pattern, with e.g. Au, Cu, U deposited in more or less separated structures.

The Suovrravarri – Njivloroavvi area with Cu-Au mineralisations:

- probably same stratigraphic level as Bidjovagge
- located south of, and hosted in the same anticline as Suovrrarahppat which is of Bidjovagge-type
- the anticline plunges SSE and the Suovrrarahppat lithology (albite felsite, graphite schist, diabase) underlies the Suovrravarri – Njivloroavvi area
- parallel, extensive and consistent soil sediment Au-Cu anomalies
- both strike-parallel and cross-cutting alteration structures with associated Cu-Au mineralisation
- structurally bound Cu-Au mineralisations are found at different levels along both flanks of the anticline, within 3.5 km length, and indicated over 7.5 km length (stream sediments), 10 km including Suovrrarahppat
- mix of lithologies with significant competence contrast; albite felsite, pervasively altered metadiabases, schists and carbonate beds
- approximately 1 km distance to major NNW-SSE fault
- significant portions of the area are covered; potential for hidden mineralisations
- never drill-tested or received much attention (the most promising mineralisation not previously known)

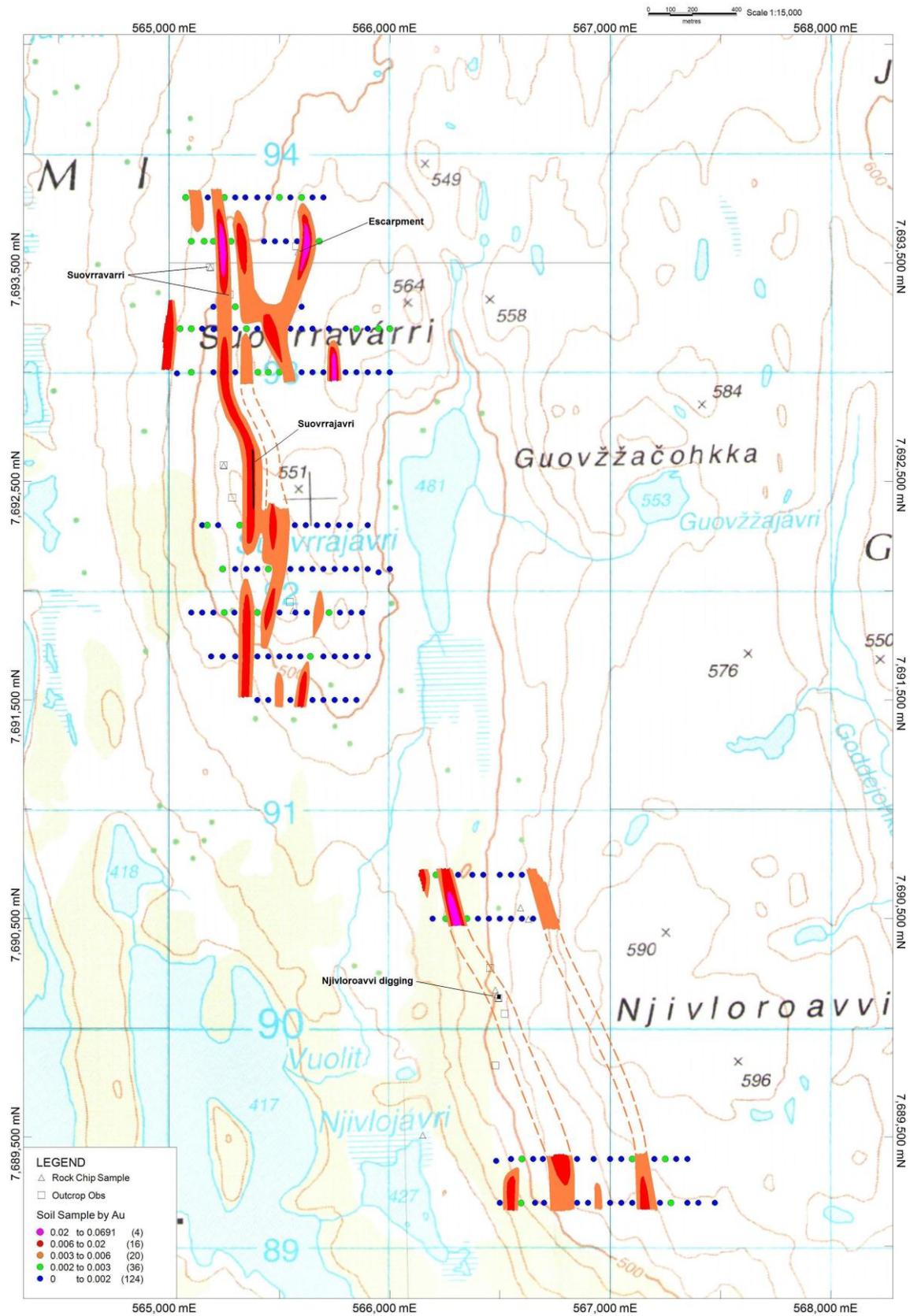


Fig.15a Au in C-horizon soil.

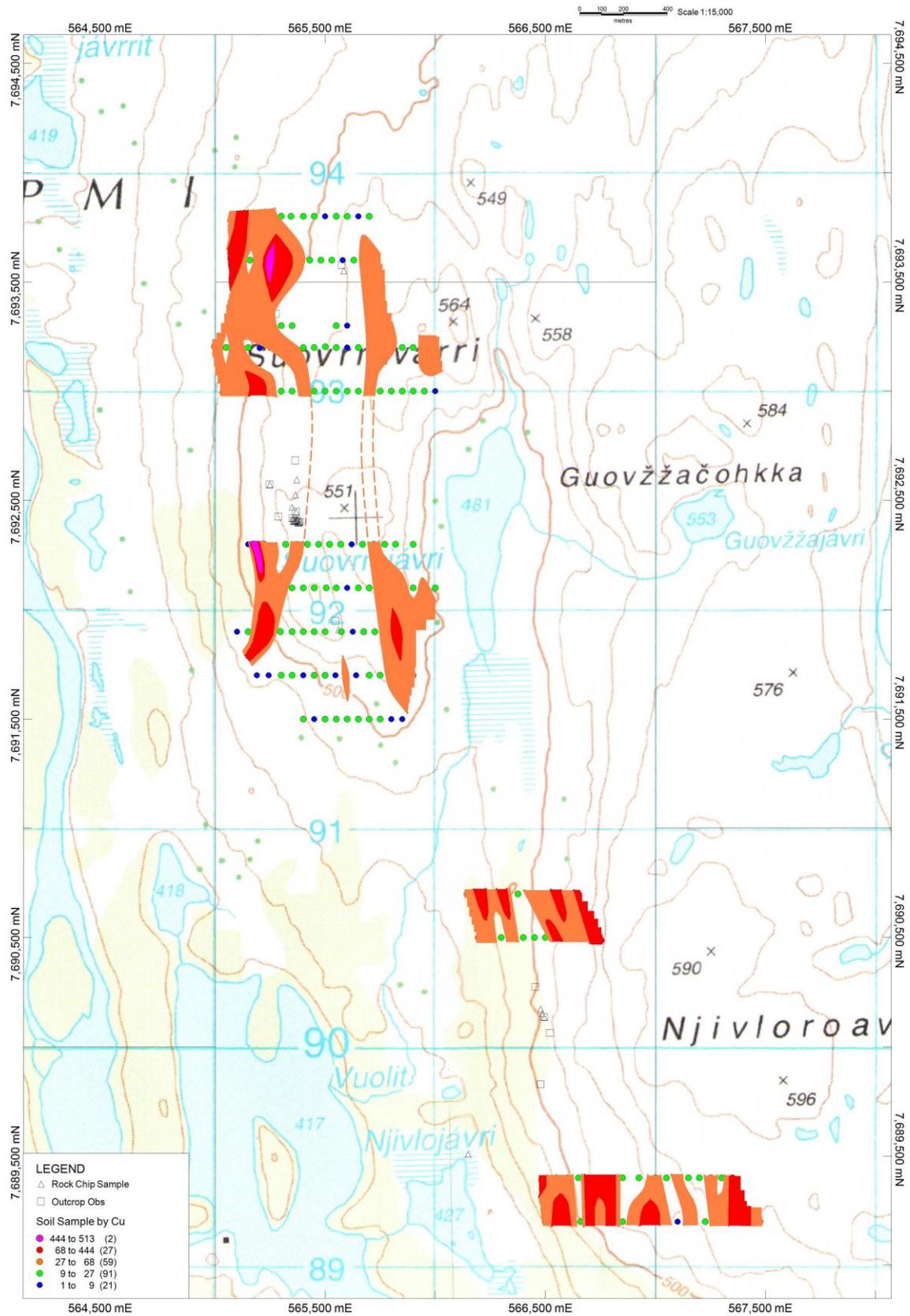


Fig. 15b Cu in C-horizon soil.

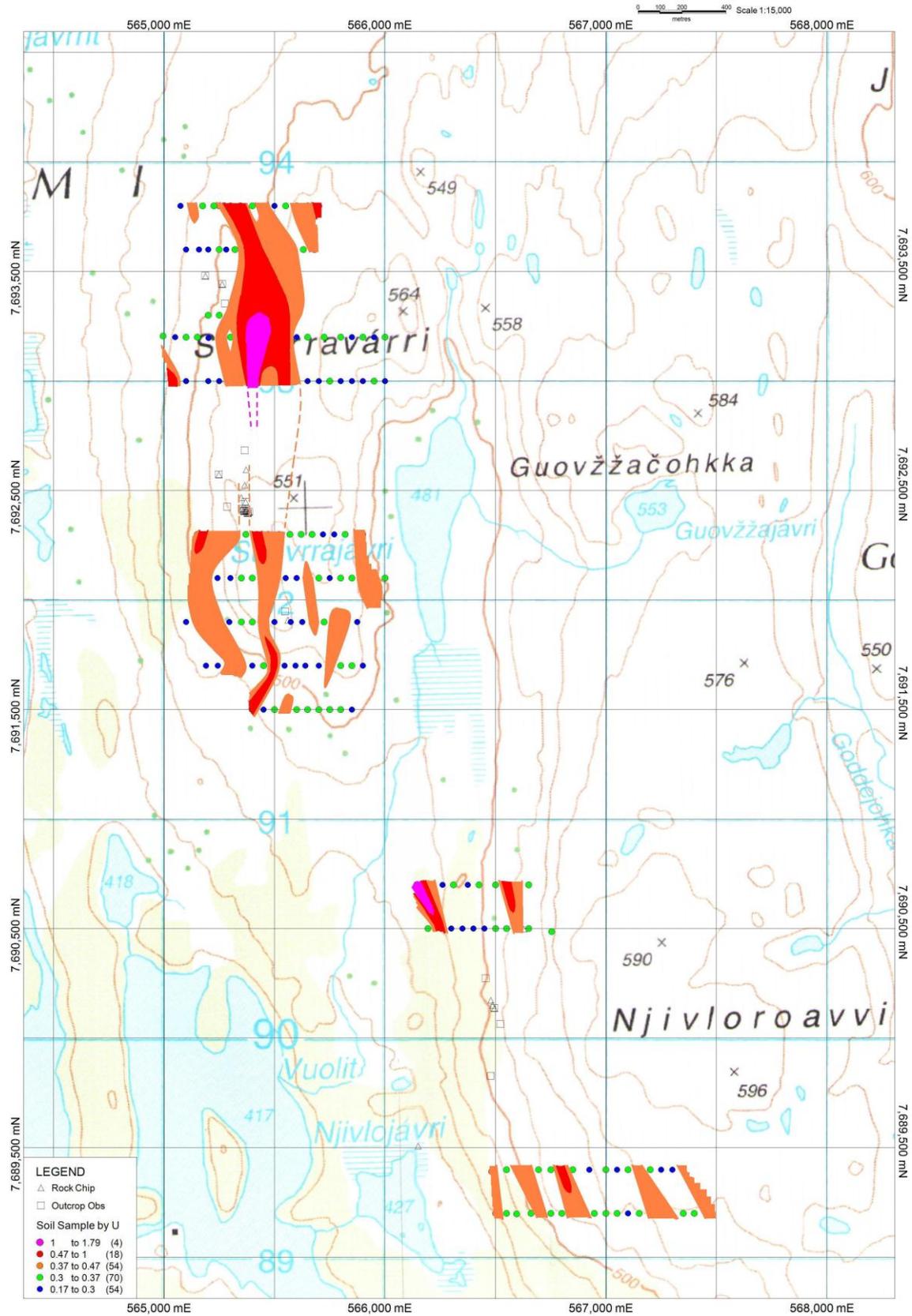


Fig. 15c U in C-horizon soil.

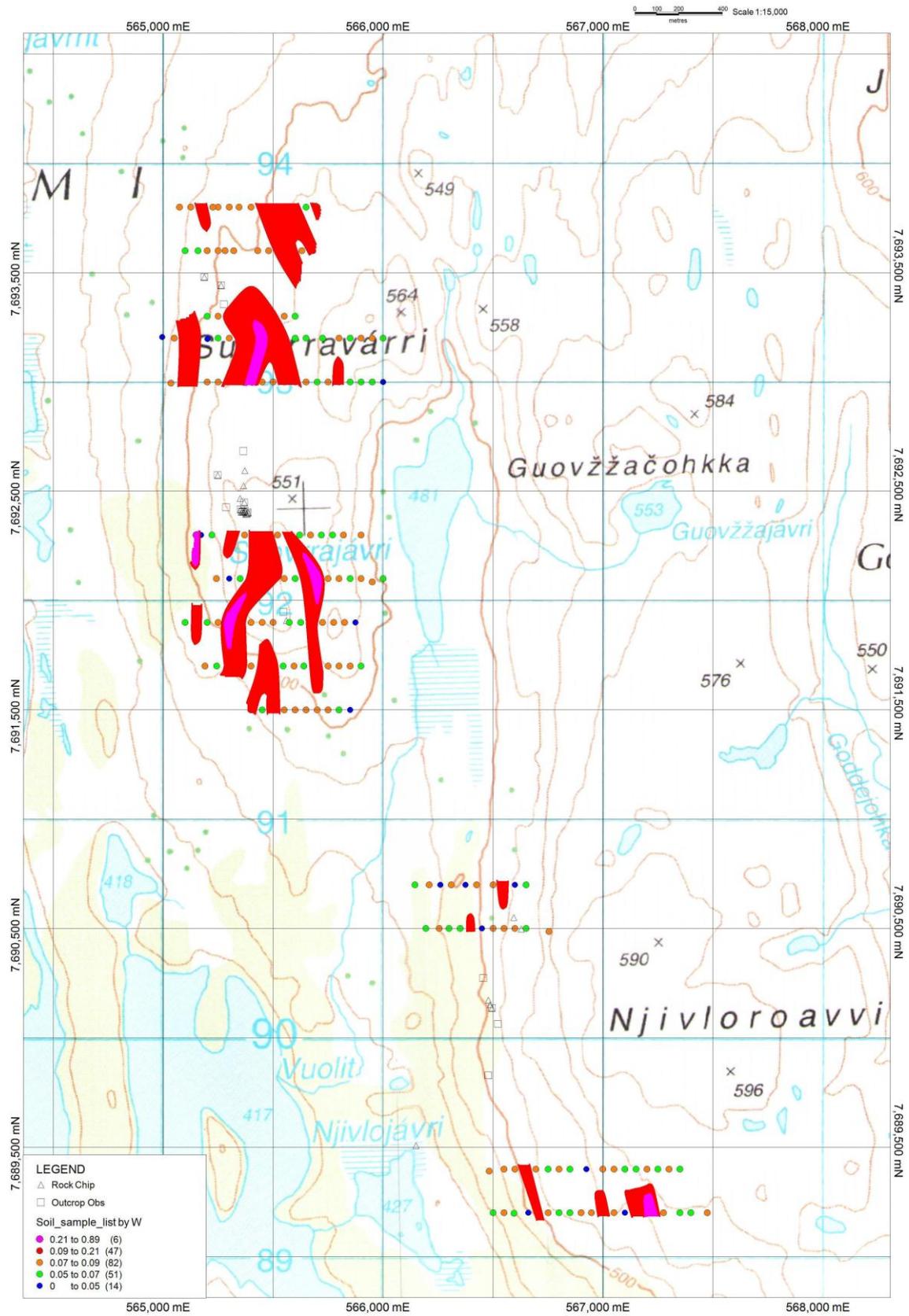


Fig. 15d W in C-horizon soil.

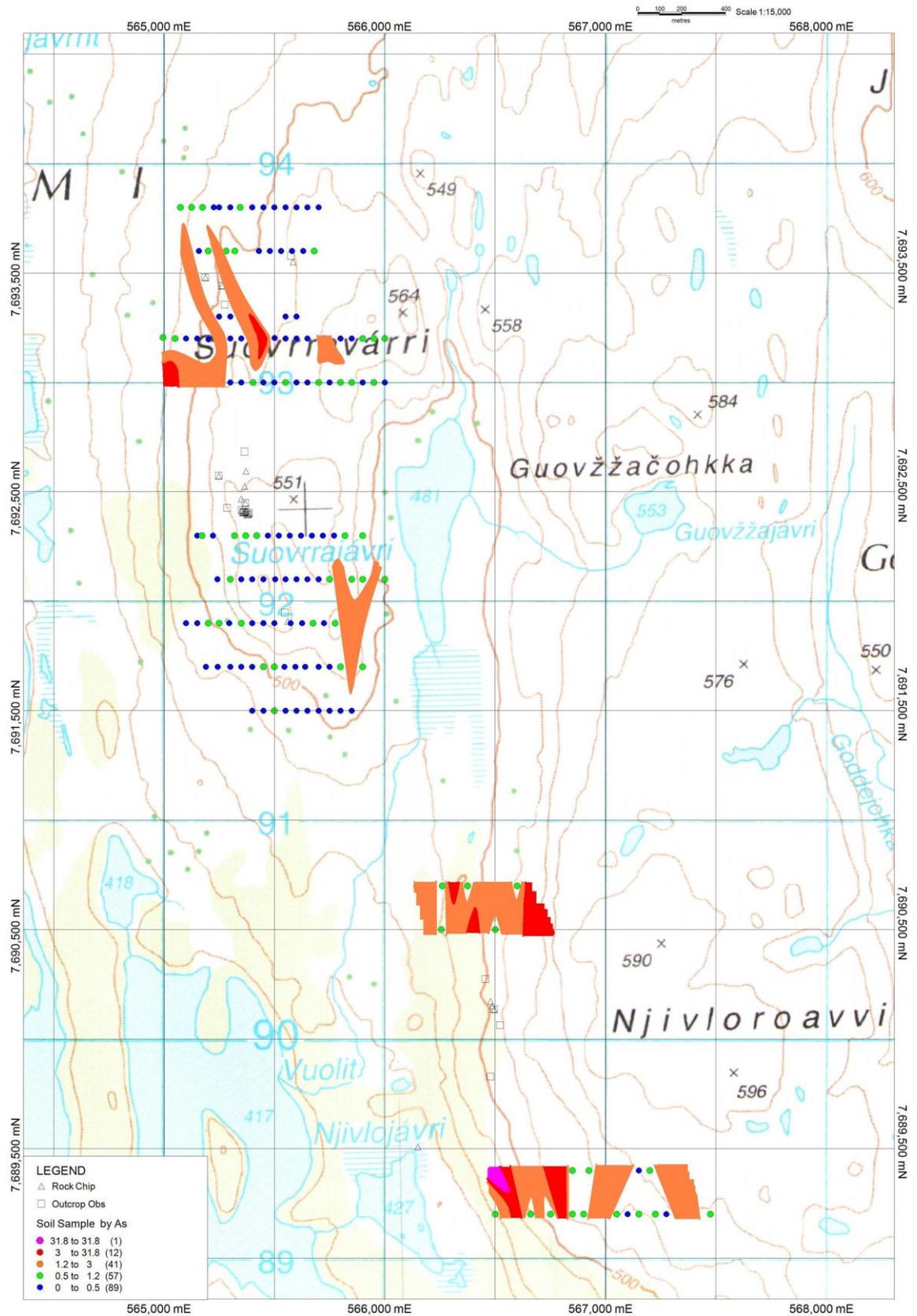


Fig. 15e As in C-horizon soil.

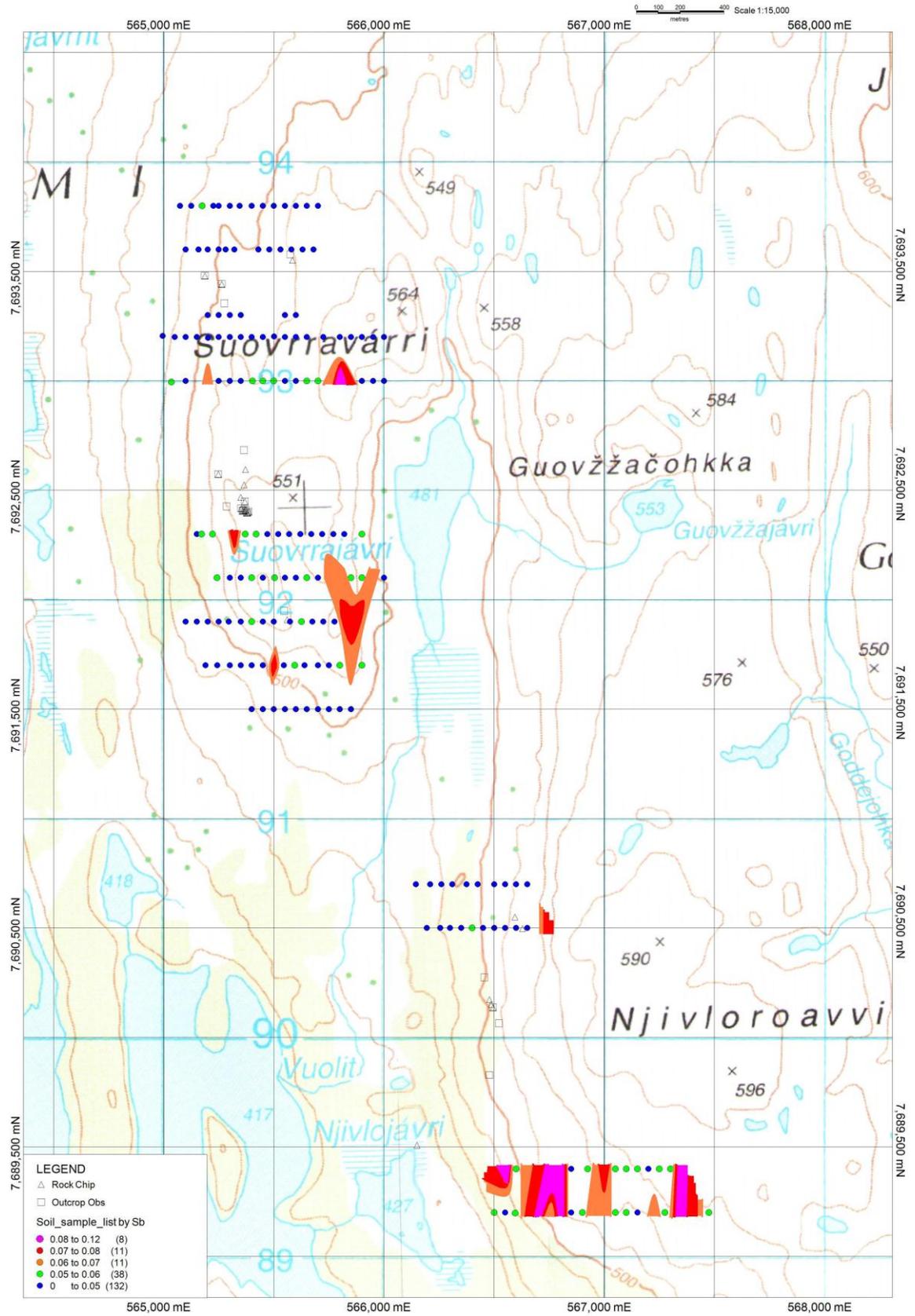


Fig. 15f Sb in C-horizon soil.

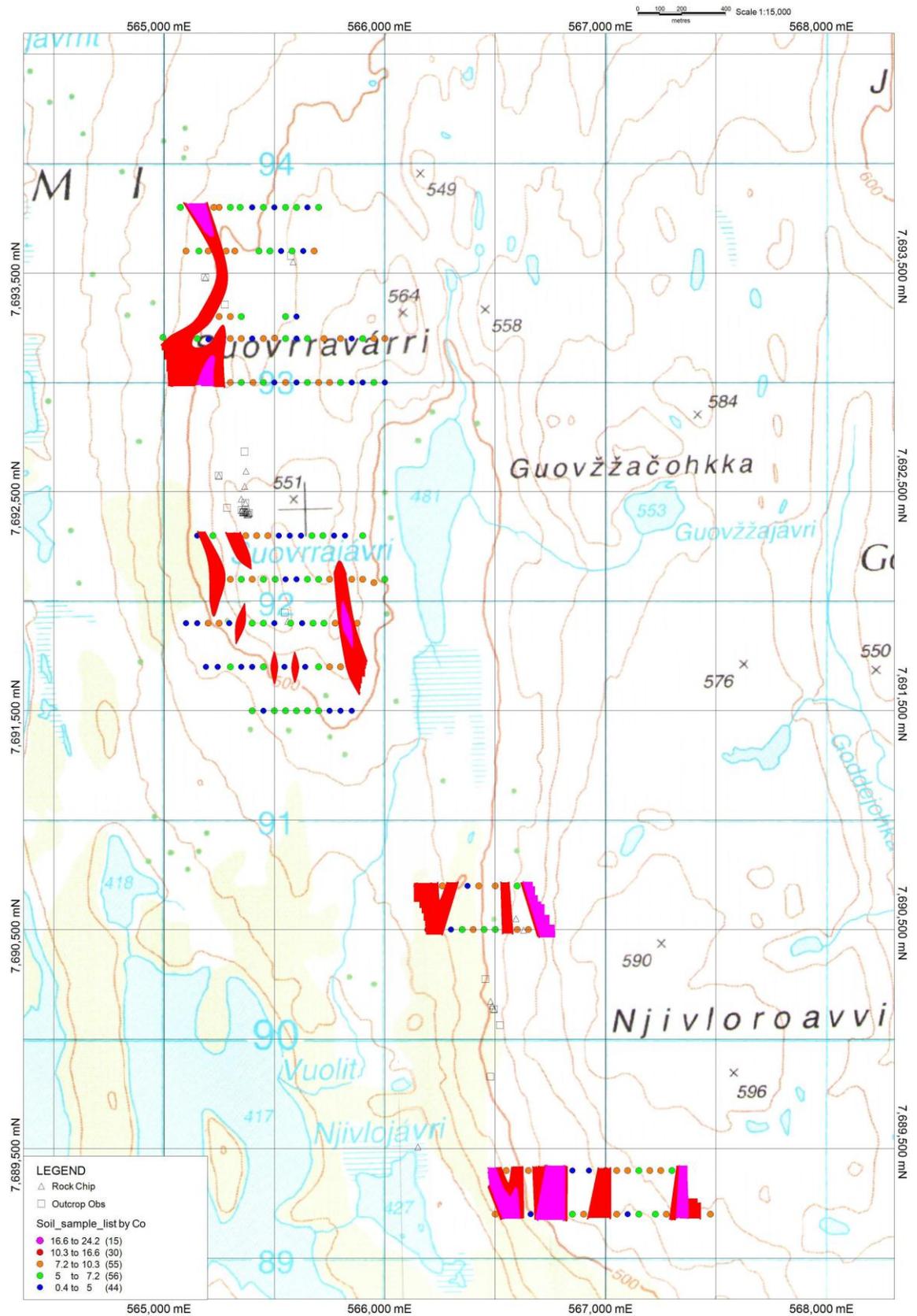


Fig. 15g Co in C-horizon soil.

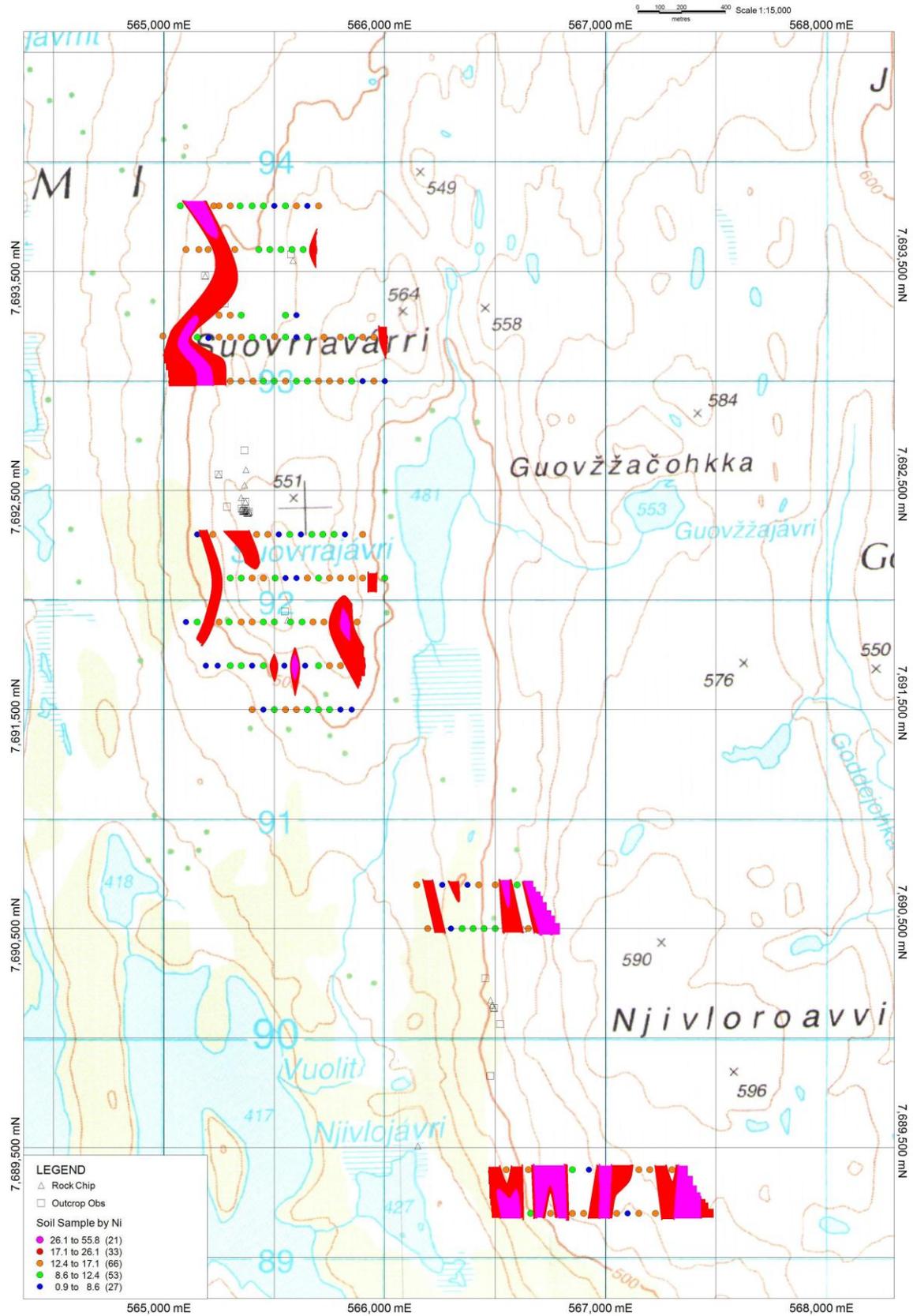


Fig. 15h Ni in C-horizon soil.

6.1.2.2 Suovrarahppat

3 km north of the above described mineralisation at Suovrravarri is the Bidjovagge-type Suovrarahppat copper-gold occurrence (fig. 8) which is claimed by Arctic Gold and Kloster Rederi AS. Since the discovery in 1958 it has been subjected to exploration by NGU/GM in the 1950-60th (Tan 1970), A/S Sydvaranger in the -70th (Dehlin 1975 and 1976) and ASPRO in 1986 (Hagen 1986b). Drilling in 1958 proved up to 16 m ore intersections grading c. 5 % Cu (Tan 1970). The ore is dominated by vein network and dissemination of chalcopyrite, pyrite, bornite and locally chalcocite in albite felsite. It is assumed that the richest mineralisation is bound to a N-S fault zone (Ore Data Base).

The Suovrarahppat Øst mineralisation (1.2 km ESE of Suovrarahppat) occurs as vein network in argillitic metasediments adjacent to albite felsite at the east flank of the anticline, at approximately corresponding lithological level as the Suovrrajavri mineralisation at the west flank.

6.1.2.3 Area 22

Combined geophysics/geochem anomalies 1 km east of Suovrravarri led to trenching by ASPRO in 1986. Mineralisation was not detected but the stripping revealed intermix of graphite schist and albite felsite, and gossan (Hagen 1986b).

6.1.2.4 Njivloroavvi digging at UTM 566479 7690173

This Cu-Au mineralisation is hosted in a diabase sill at the east flank of the anticline (fig. 8 and 9), formed in a brecciated, carbonate-albite altered zone, the richer part close to its hanging-wall contact to greenstone. Alteration/mineralisation is here c. 20 m wide.

The mineralisation is shown in fig. 16 and 17: A c. 0.8 m wide(?) lens of semimassive to rich dissemination of chalcopyrite (+malachite and chrysocolla or azurite) in carbonate-albite altered diabase (KA11019, 7.96 % Cu and 1.79 g/t Au). The texture suggests tectonisation, with chalcopyrite-infill around grain boundaries. Within this lens occurs a 5 cm thick vein of massive chalcopyrite (KA11018, 19.45 % Cu and 0.32 g/t Au). Samples at the dump show up to 10 cm diameter of massive chalcopyrite. One assay from the Ore Data Base (NGU) shows > 10 % Cu and 4.01 g/t Au.

Unaltered diabase occurs in contact to the semimassive lens, however its occurrence is within the 20 m wide breccia-alteration zone.

The digging occurs 2 m below the contact to fine-grained greenstone with magnetite dissemination. Primary banding and foliation is 158°/50°. The few-meter thick greenstone is overlain by lighter-coloured, intermediate volcanogenic sediments/tuffite. 7-8 m stratigraphically above the ore lens, the extrusives are brecciated, with vein network of calcite, within a zone of 3-4 m thickness. The up to 2 cm thick calcite veins are enveloped by chlorite rims, with chlorite grown perpendicular to the veins. The diabase is 20 m thick, and underlain by fine-grained greenstone.



Fig. 16 Njivloroavvi digging. Vein of massive chalcopyrite (at hammer head) within semimassive chalcopyrite mineralisation.

20 m south of the working, exposed greenstone is pervasively albitised with weak chalcopyrite as dissemination and in thin veinlets \pm calcite. Also subcropping carbonate-albite rock with quartz-carbonate veins with minor chalcopyrite and bornite(?) in both.

SSE-wards, the zone can be followed to 566522 7690064 where it seems to be thinner and weaker.

566495 7690136: Semimassive chalcopyrite in carbonate-tourmaline(?) rock (KA11020, 12 % Cu and 1.24 g/t Au).

5664877790151: Fine-grained albite-carbonate altered greenstone with weak chalcopyrite as dissemination and in thin carbonate veins (KA11021, 0.14 % Cu and 0.03 g/t Au).

Carbonate-albite altered rocks with traces of chalcopyrite dissemination can be traced NNW-wards to 566456 7690273, from where it is covered.

Due to observed strong alteration and weak copper impregnation in diabase sills in this area, several parallel copper anomalies occur along the soil profiles. More interesting is that a > 1.5 km long gold trend can be traced through the digging, with the highest assay, 69 ppb Au, appearing 400 m NNW of the digging along the mineralised structure. One soil sample SSE of the digging, along the same structure, shows elevated scandium (14 ppm).

NGU/GM's 1960 stream sediment sampling program (Tan 1970, bind III) shows a copper-anomaly NE and upstream from the Njivloroavvi digging, and also within an area 2-3 km SSE of the digging.



Fig. 17 Njivloroavvi digging viewed north. Suovrrajavri lake in the background.

6.1.2.5 Suovrravarri South

This weak mineralisation is hosted in assumingly the same diabase sill as the Suovrrajavri occurrence, but at a lower stratigraphic level, closer to the foot-wall of the sill. They are not assumed to be connected – both geological observations and soil geochem support that. A more than 100 m long and 2-4 m wide pervasively carbonate-albite altered zone outcrops at 565561 7691909. The zone has direction 173° and follows a low escarpment, possibly a fault scarp, indicating the fault as the locus for the mineralising fluids. Chalcopyrite, pyrite and magnetite occur as dissemination (KA11057, 0.54 % Cu and 0.14 g/t Au) (typical values for both copper and gold in disseminated mineralisations in the area), and chalcopyrite in 2-3 cm wide carbonate (\pm quartz) veins. No associated soil anomaly is related to this alteration zone. The adjacent medium-grained diabase, covering the ridge westwards, is more weakly altered along diffuse zones, i.e. chlorite-carbonate alteration, magnetite impregnation and carbonate veining.

6.1.2.6 Escarpment

Approximately 400 m east of the Suovrravarri occurrence, and separated by till-covered terrain, altered greenstone or diabase is exposed in a 2 m high fault(?) escarpment at 565585 7693551 (fig. 15a). The fine-grained, pervasively carbonate-albite altered rock contains weak chalcopyrite-pyrite mineralisation as dissemination and in thin quartz-carbonate veins. One assay (KA11062) returned 830 ppm Cu, 0.01 g/t Au and anomalous Co (295 ppm). Viscaria Alpina grows down-drainage some tenth of metres to the west, which might be an indication that the mineralisation is wider than the exposed scarp. The exposed escarpment continues south to 565592 7693418, and the alteration zone can be traced northwards to 565612 7693685.

One soil profile traverses this mineralisation without showing any related copper anomaly. Neither do the profiles to the north and south. However, the third highest gold assay is encountered 40 m east of the escarpment and can possibly be traced SSW-wards through the subsequent two profiles. C. 50 m to the east appears an extensive copper anomaly.

Airborne EM picks are associated with the escarpment and with the copper anomaly to the east (fig. 9).

6.1.2.7 Njivloroavvi area

In the Njivloroavvi area (at the east flank of the anticline), diabase sills at different levels are altered and weakly copper mineralised:

566800 7689200: Carbonate-albite altered diabase with chalcopyrite dissemination.

567020 7689200: Boulders of altered diabase along the ridge.

567450 7689200: Boulders of altered diabase along the ridge.

566750 7690500: Altered diabase.

Samples from a boulder field of carbonate-albite altered diabase: KA11063 (566594 7690550) of carbonate-quartz rock with pyrite dissemination 0.12 % Cu, 0.03 g/t Au and 489 ppm Co. KA11064 (566629 7690498) of fine-grained massive magnetite (in carbonate rock) assayed 150 ppm Cu and <0.01 g/t Au.

Sandstad (1983) reports albite felsite at Sivdajavrit, 3 km SSE of the Njivloroavvi digging.

As can be expected, the altered and weakly copper mineralised diabase dykes are mirrored in the soil samples. As above mentioned a gold anomaly indicates potential for strike extent of the structure through the digging.

6.1.2.8 Njivlojavri

566150 7689508: Within a 40 x 20 m² sized boulder field, dominated by greenstone, are a few boulders of limestone with weak chalcopyrite dissemination (KA11056). One assay returned 0.64 % Cu, 2.5 g/t Ag and 0.01 g/t Au. This indicates that it might be potential for carbonate-hosted copper mineralisations within the KGB, which can be correlated to the Alta-Kvænangen Tectonic Window to the north, where such occurrences are widespread (Vik 1985, Wilberg 2011). The Caskijas Formation is correlated with the Kvenvik Formation within the Alta-Kvænangen Window, and the latter has proved to be less prospective for dolomite-hosted copper than the younger Storviknes Formation (Wilberg 2011).

No copper mineralisations were detected in limestone layers at 567139 7690233 and 567899 7690259.

Focus will be kept on carbonate beds in the area, motivated by discoveries elsewhere. Scandinavian Highlands (media release 2011) recently detected gold mineralised carbonate in the Paleoproterozoic Mauken tectonic window in Troms. Samples of apparently barren carbonate returned up to 2 g/t Au. The carbonate was found to have an elevated arsenic content, but did not otherwise show signs of mineralisation.

Single samples of copper-mineralised dolomite of the Storviknes Formation at Kvartpååttevannet (Wilberg 2011), and also from an analogue mineralisation at Nabar (Wilberg 2005), which is hosted in Caledonian Nappe rocks c. 25 km north of Bidjovagge, have returned up to 0.5 g/t Au and significant copper contents.

The Bikkacåkka Formation (fig. 2) with pelites and carbonates is correlated with the Storviknes Formation, and crops out 4-5 km east of Suovrrajavri. A reconnaissance survey should be carried out, e.g. around Cuolbmajavri (I was told by a Kautokeino inhabitant that he assisted in Bolidens exploration in the -50th, and they laid down significant efforts in the area of lake Cuolbmajavri). At the moment the exploration licenses in this area belong to Kloster Rederi.

6.1.3 Recommendations

Geological mapping of the whole Suovrra-Njivlo area should be carried out, with emphasis on explaining geochemical anomalies, and also at airborne EM picks (fig. 9). Additional soil sampling should be carried out along infill lines and along some extended lines to the west. Ground geophysics, including mag, IP, VLF or HLEM should be conducted. The magnetic contrast between the altered, mineralised zones with broken down magnetite, and the magnetic, unaltered wall-rocks, makes magnetometry a useful tool. VLF will probably indicate structures and potential massive-sulphide veins of any extent. IP could possibly be of lesser value, as it will probably pick up sulphidic alteration zones, and the soil geochemistry indicates that gold is not exclusively associated to these. However, a combination of geophysical methods and soil geochemistry will be useful. The geophysical grid should cover combined geochemical and geological indications.

As above mentioned, the Bikkacåkka Formation carbonate beds should be explored.

6.2 Njivlojavri no. 2 and 4 claims; Adjavarri, Rahpenjunnas and Daccavarri (map sheet 1833 IV Mollejus)

These objects are located within SR's exploration licenses no. 2 (Adjavarri and Rahpenjunnas) and 4 (Daccavarri) on the west side of river Njivloeatnu, 7-8 km east of Bidjovagge (fig. 18).

The mafic sequence in the claim area is abruptly by two adjacent, parallel main faults running NNW-SSE through the lake Njivlojavri. The area west of them is underlain by amphibolite with intercalations of mica schist, partly graphite-bearing, with layers of marble and albite felsite. The metamorphic grade decreases towards the east, and bedrock east of the faults consists of greenstone with extensive metadiabase sills, and subordinate sediments.

6.2.1 Summary of previous exploration

A NGU stream sediment survey from the 1960th (Tan 1970, bind III) shows an interesting east-west-trending geochemical anomaly from streams draining the north- and east-side of an

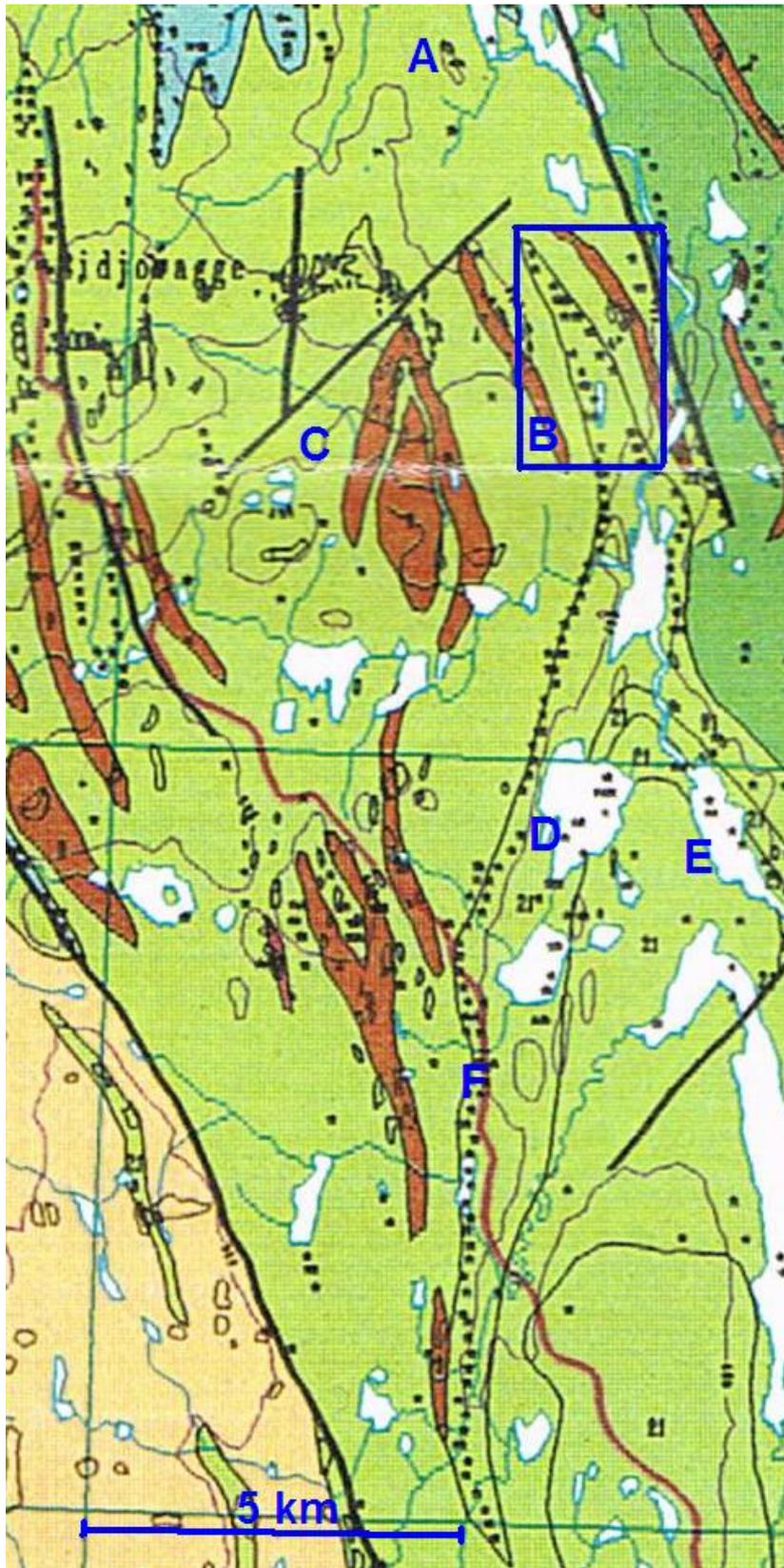


Fig. 18 Geological map (Sandstad 1992) and location of targets. Green-greenstone; light green-amphibolite; blue-mica schist; brown-diabase; beige-Raiseadno Gneiss Complex. Black dots-EM conductor; black lines-faults. A-Adjavarri; B-Daccavarri; C-Rahppenjunnas; D-Gorvvesvarri; E-Devkesjavri; F-Cievrranjunni.

east-west-oriented ridge (Rahpenjunnas, fig. 18), which is underlain by isoclinally folded amphibolite and diabase sills (Bull & Hultin 1976). A NE-SW directed fault cuts through the ridge.

Positive criteria for mineralisation, like intense folding and faulting are present in this area. With experience from the nearby Bidjovagge deposit Hollander (1979) emphasises the importance of folding for the localisation of the sulphides, and `in addition it seems that faulting and fissuring were of significant importance for improving the ore grade, i.e. it was observed that as faulting decreases, the amount of ore minerals also decreases. The faulting has taken place after the folding. The most prominent faults have NE-SW direction. Another system strikes NW-SE. In addition there is a third (very weakly shown) with direction E-W. These represent a combination of block-faulting and fissuring. The Bidjovagge A deposit is limited to the north by E-W faulting. The C and D deposits lie in areas with movements in NE-SW direction` (Hollander 1979).

As a follow-up of the 1980 geophysical helicopter survey, Sydvaranger/ASPRO carried out a geophysical ground survey and diamond drilling during 1984-85 in Area 56 and Area 57 (Daccavarri, fig. 18) (Hagen 1984 and 1986a). They revealed Bidjovagge-type copper-gold mineralisation hosted in albite felsite and graphite schist. The best intersection was 2.0 m with 1.62 % Cu and 1.36 g/t Au. The rest of the holes showed hydrothermal alteration but levels of copper and gold were low, seldom above a couple of tenth percent copper and the same in g/t gold.

Norsulfid/Bidjovagge Gruber continued diamond drilling in 1991. Their best intersection was 1.1 m at 0.83 % Cu and 0.36 g/t Au (Nessvoll 1994b).

Totally 14 holes were sunk during these two periods along a strike length of 2 km.

The airborne geophysics indicates that this target is situated close to a macro fold hinge. The graphitic conductor extends southwards, and is the same stratigraphic level that is targeted at Gorrvesvarri and Cievrranjunni (fig. 18), 6 and 9 km to the south respectively (see 6.3 Gorrvesjavri).

6.2.2 Results of field work 2011

Due to favourable geology and enhanced copper-levels in stream sediments, a short visit was paid to the Rahpenjunnas ridge. 4 rock samples were collected of carbonate altered volcanics with pyrite dissemination. Assays returned less than 500 ppm Cu and 10 ppb Au.

At Adjarri, from 564198 7688784 to 564145 7788837: Up to 2.1 m thick hydrothermal quartz-carbonate vein with chalcopyrite and pyrite (KA11017, 0.41 % Cu and 0.05 g/t Au). The vein is striking N-S, with westerly dip. It is semi-concordant (locally discordant) to wall-rocks, which is limestone, diabase, greenschist and more or less chloritised greenstone. To the north and south the vein is covered.

6.2.3 Recommendations

No follow-up is proposed for Rahpenjunnas and Adjarri.

The Daccavarri area still has potential (Nessvoll (1994b) claims they were forced to abrupt their drill program due to fierce winter temperatures.) and should not be left. ASPRO's ground geophysical data (Hagen 1984 and 1986a) will be studied when received early 2012 (currently unavailable due to a project of scanning the historical reports).

6.3 Gorvvesjavri claims (map sheet 1833 III Raisjavri)

The Kautokeino – Bidjovagge road runs centrally through the Gorvvesjavri 2 license. The historic boulder train showing copper mineralisation at the west side of Devkesjavri (Gorvvesjavri 1 license) is accessible along a 6-7 km long ATV trail taking off the Bidjovagge road just north of Stallovvarri.

6.3.1 Summary of previous exploration

Extensive copper-mineralised boulder trains were detected by Geofysisk Malmleting/NGU in 1959. They are covered by license 1 and stretch from Suvdos and northwards, along the west side of Devkesjavri (fig. 18), and along the east side of Devkesjavri northwards to Jietmejavri. Skjerlie (1959) classifies the mineralisation types in the area, and one of them he designates 'Devkis type': 'Typical vein filling of Fe-carbonate, minor quartz, chalcopyrite, pyrite and magnetite, in brecciated greenstone. Width of veins varies from mm to occasionally several meters. Carbonate dominates but occasionally very Cu-rich veins occur. This type is very widespread in the area east of river Njivlojohka from Devkesjavri and north to the Caledonian nappe contact. The Devkis type has no economic interest.' According to Tan (1970) it does not fit the Bidjovagge model.

Just outside the claim area to the east is the insignificant Devkesjavri digging. According to the Ore Database (NGU) it is network of brown carbonate veins (mm-3 cm thick) within a small area (1.5x7 m²), with minor chalcopyrite and pyrite, in greenstone. Average of two samples is 0.5 % Cu and up to 0.25 g/t Au.

License 2: Airborne conductors run through the claim area. These are related to graphite horizons, assumed to correspond to the ore-bearing zone at Bidjovagge. SE of Cievrranjunni (fig.18) and just west of the Bidjovagge road, Bidjovagge Gruber covered these conductors with Slingram, mag and till sampling in 1989 (Anttonen & Nessvoll 1994a). This survey indicated alteration of the graphitic conductors. Two diamond drill holes located c. 564650 7675750 proved only weak alteration and no sulphide mineralisation.

These graphite-related conductors extend northwards to Gorvvesvarri (fig. 18) (currently claimed by Arctic Gold, expires January 2012) where a copper-mineralised albite felsite boulder was found in 1959 (Skjerlie 1959, Tan 1970). As follow-up of the 1980 airborne survey, A/S Sydvaranger carried out VLF and magnetic measurements, and detected chalcopyrite-bornite-bearing boulders of amphibolite in 1981. Subsequent diamond drilling intersected rich pyrite- and weak chalcopyrite mineralisation in the graphite schist (A/S Sydvaranger 1981).

6.3.2 Results of field work 2011

This claim area is underlain by metabasalt and intercalated graphite schist with diabase sills, and a major NNW-SSE fault appears c. 2 km to the east. The above mentioned Bidjovagge level graphite conductors that are drill-tested SE of Cievrranjunni and at Gorvvesvarri occupy the hinge of a large fold at the north edge of claim 1, between Gorvvesjavri and Devkesjavri. The hinge between these lakes reflects a significant mag-high and several weak EM anomalies, as well as producing the previously mentioned mineralised boulder trains. These

boulder fields of assumingly almost in-situ, frost-heaved, partly edged boulders were inspected and sampled:

567379 7679454: 0.5 m³ boulder of albite-carbonate altered greenstone with chalcopyrite-magnetite-pyrite dissemination (KA11005, 0.17 % Cu and 0.13 g/t Au). The greenstone is fine-grained, with quartz-feldspar porphyroblasts with carbonate(-chalcopyrite) rims. Also carbonate spots. Also boulders of less altered, chloritised greenstone rich in disseminated magnetite and no chalcopyrite.

567340 7679484: Boulder of albite altered greenstone with chalcopyrite-magnetite-pyrite dissemination (KA11006, 702 ppm Cu).

567308 7679568: 0.5 m³ boulder in boulder field. Pervasively albite-carbonate altered greenstone with weak chalcopyrite-magnetite-pyrite dissemination (KA11007, 442 ppm Cu).

567368 7679393: Large edged boulders of carbonate-albite rock with magnetite, chalcopyrite, pyrite and malachite (KA11008, 0.31 % Cu and 0.27 g/t Au).

Local boulders of Cu-mineralised hydrothermal quartz-carbonate veins between Devkesjavri and Suvdos:

567813 7678032: 50 kg hydrothermal quartz-carbonate boulder with chalcopyrite clusters enriched along contacts, plus malachite (KA11013, 6.92 % Cu and 1.24 g/t Au). Several similar boulders up to 1 m³ size occur along a distance of more than 100 m to the north.

567814 7678018: 2.5 m³ quartz-carbonate boulder (+ several others adjacent large, similar boulders) with chalcopyrite-magnetite-pyrite enriched at the contacts (KA11014, 0.30 % Cu and 0.07 g/t Au).

567803 7677972: Outcropping fine-grained albite-carbonate rock rich in magnetite dissemination and minor pyrite and traces of chalcopyrite.

567739 7677883: 200 m² outcrop of albite-carbonate altered greenstone with weak chalcopyrite-magnetite dissemination. Minor chalcopyrite and malachite enriched along thin carbonate veins (100 m to the east: boulders show up to 15 cm thick carbonate vein rich in magnetite, and up to 2 cm thick carbonate veins with chalcopyrite and malachite). Parts of the outcropping greenstone are less altered.

567745 7677812: Exposure of more or less altered greenstone with magnetite(-chalcopyrite-pyrite) dissemination.

567780 7677786: Exposure of altered greenstone with carbonate porphyroblasts with biotite rims, with magnetite and traces of sulphides.

567805 7677878: Several up to 1 m³ boulders of moderately altered, magnetite-bearing greenstone with sporadic, up to 1 cm thick carbonate veins with chalcopyrite(+malachite)-magnetite (KA11015, 0.40 % Cu and 0.13 g/t Au).

567715 7678239: Outcrop of altered greenstone.

567611 7678706: 300 x 50 m² boulder field. Carbonate-albite rock rich in magnetite and subordinate chalcopyrite dissemination, with cm-thick calcite-chalcopyrite-quartz-pyrite-magnetite veins (KA11016, 1.09 % Cu and 0.49 g/t Au).

Samples KA11009-12 are collected at the transfer point from road to boat transport along the old Bidjovagge route. The mineralised samples are certainly derived from Bidjovagge, but the many large jasper boulders (KA11012, 828 ppm Cu) are puzzling. Also sample KA11004 (2.22 % Cu and 0.52 g/t Au) of small floats of semimassive pyrite-chalcopyrite in carbonaceous, weathered rock from 567426 7679395 is probably transported from

Bidjovagge. These samples from Bidjovagge are typically enhanced in Co, Ni, Zn, Pb, As and Ag, as well as significant Cu-Au contents.

Outside of claim area, at 563544 7678915: Two small outcrops north of the track of albitised, fine-grained amphibolite/greenstone with magnetite dissemination and mm-thin carbonate veins. Chalcopyrite in carbonate veins and as dissemination (KA11003, 451 ppm Cu). *Viscaria Alpina* is growing 100 m to the north.

Reconnaissance, claim 2:

Frequent exposures were registered west of the Biddjovagge road between Stohkasluoppal and Stallovvarri of unaltered and barren diabase/amphibolite, banded greenstone and intermediate tuffites. No outcrops or interesting boulders were found in the marshland east of the road.

6.3.3 Recommendations

The mineralised boulders are assumed to be almost in-situ. They demonstrate strong albite-carbonate alteration of diabase and greenstone, but copper and gold grades are not convincing. Highest gold content is 1.24 g/t, from a subcropping hydrothermal quartz-carbonate vein. It is, however, sampled from the copper-rich part of the vein, while a less copper-rich boulder assayed only 0.07 g/t Au. The uranium content in the altered and copper-mineralised boulders is anomalous, generally 20-30 ppm

The boulder fields should be looked at more closely before concluding, especially the area immediately west of Devkesjavri where the 1.09 % Cu/0.49 g/t Au sample was collected. If more encouraging observations and assays are obtained, a geophysical ground survey between Gorrvesjavri and Devkesjavri should be considered. However, as pointed by Skjerlie (1959) and Tan (1970), the boulders do not indicate a buried Bidjovagge-type mineralisation. Boulders of albite felsite or graphite schist/felsite were not detected during the short reconnaissance. Very few outcrops were found in the area.

An explanation to the airborne mag-anomaly is indicated by the magnetite-content in diabase and greenstone, associated with chalcopyrite both as dissemination and vein-bound.

6.4 Æppergielas mineralisation (map sheet 1833 III Raisjavri)

This mineralisation (fig. 19) is located in a rather till-covered and boggy terrain. Access is along an ATV track, 7 km SW-wards from the Kautokeino – Bidjovagge road, and almost 2 km of this distance is accessible by car.

6.4.1 Summary of previous exploration

This mineralisation was found in 1959 during boulder searching by Geofysisk Malmleting/NGU (Skjerlie 1959). ASPRO conducted soil sampling and geophysical VLF/SP/mag survey in 1982-83. During the period 1989-91 Bidjovagge Gruber (Norsulfid/Outokumpu) conducted geological mapping, heavy mineral sampling, geophysical Slingram, mag and IP surveys, trenching and diamond drilling of 4 holes totalling 655 m.

In the trenches it was detected about 0.5 m wide copper mineralisation, hosted in biotite schist, which assayed between 0.1-1.4 % Cu and 0.2-0.3 g/t Au. The drill holes intersected

mainly diabase/amphibolite with weak copper dissemination (max 0.5 % Cu). The zone containing weak copper dissemination can be tracked over 5 km length (Anttonen & Nessvoll 1994b).

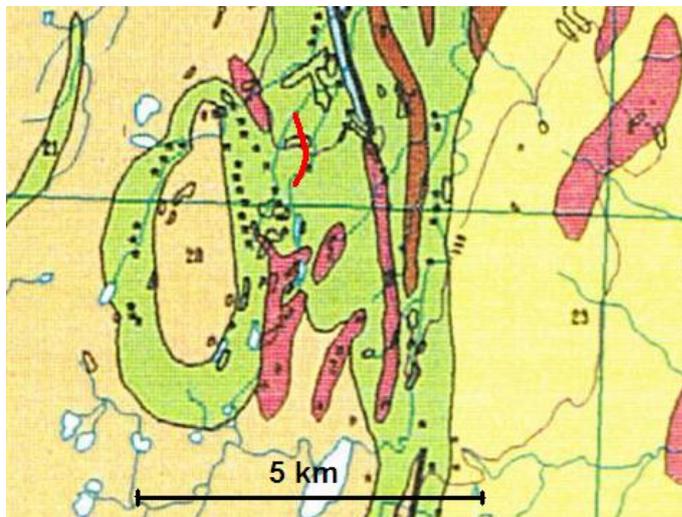


Fig. 19 The Aepperiellas copper mineralisation (red line). Geology from Sandstad (1992): green-amphibolite; yellow-quartzite; beige-Raiseadno Gneiss Complex; blue-mica schist; brown-diabase; red-granite. Black dots-EM conductor.

6.4.2 Results of field work 2011

Irregular dissemination of chalcopyrite, bornite and chalcocite was reported to occur over more than 1 km length in pyroxene-amphibolite adjacent to the border of Reiseadno Gneiss Complex. The Ore Database gives average grade to 0.7 % Cu (low in Au), and characterises the mineralisation as `possibly important deposit area`.

The mineralisation can be followed over at least 900 m length as subcrops, small outcrops and as poisoning of vegetation. Thickness was not possible to determine. Cu-minerals and magnetite are impregnated along a fine-grained carbonate-biotite altered horizon in pyroxene-amphibolite. Subcrops show that parts of the mineralisation are hosted in a pervasively altered carbonate rock, probably altered diabase.

The northernmost sign of mineralisation is at 565369 7661120, where subcropping carbonate-biotite altered amphibolite with magnetite-chalcopyrite dissemination (KA11038, 0.33 % Cu and 0.37 g/t Au) was found at the rim of a bog. Outcrop of mineralisation few meters to the south which strikes 173°/40°.

A low ridge to the SSW exposes the hanging-wall, which is fine- to medium-grained pyroxene-amphibolite.

565368 7661044: Outcropping fine-grained Cu-magnetite disseminated biotite-carbonate schist (KA11039, 0.74 % Cu). Strike/dip is variable, relatively flat. The small exposures suggest a fold hinge here.

565393 7660974: Small outcrop of sub-vertical mineralisation (KA11040, 0.38 % Cu and 0.34 g/t Au).

565394 7660703: 40 m long outcrop of magnetic biotite schist with cm-sized carbonate-pyroxene-epidote lenses, along the wall of a depression with direction 144°. Strikes 315°/60°. This is west of the mineralised horizon.

565515 7660635: Small outcrop of rich chalcopyrite-magnetite-disseminated biotite-carbonate rock (KA11041, 1.11 % Cu and KA11042, 0.85 % Cu). Strikes 174°/40°. Poisoning to the east. A few small outcrops to the west of hangingwall pyroxene-amphibolite.

565519 7660594: Subcrop with poisoning and growth of *Viscaria Alpina* to the east in the bog. Floats of biotite schist with rich chalcopyrite-dissemination, no magnetite (KA11043, 1.04 % Cu). Also floats of pervasively carbonate-altered rock with weak chalcopyrite-magnetite-dissemination, and floats of amphibolite.

565500 7660441: Weak poisoning and local floats of pervasively carbonate-altered rock with weak magnetite-chalcopyrite-dissemination. 10 m to the NE is subcrop of fine-grained biotite-pyroxene-amphibolite with magnetite-chalcopyrite-dissemination.

565488 7660390: Local frost-heaved floats of less altered (biotite-carbonate) pyroxene-amphibolite with weaker magnetite-chalcopyrite-dissemination. Chalcopyrite is frequently bound to thin carbonate-pyroxene veins.

565360 7660204: Small outcrop and subcrops of more massive, fine-grained amphibolite (from strong to weak carbonate alteration) with biotite and weaker chalcopyrite-magnetite-pyrite-dissemination.

The geological map Raisjavri has a plot of sulphide mineralisation 1.3 km along strike to the south.

(565801 7660085: Subcrops of carbonate(-biotite-amphibole) rock with magnetite-dissemination follows a depression with direction 55°.)

The biotite-altered mineralised horizon I traced over c. 900 m length is the same that Bidjovagge Gruber trenched in the southern part and revealed 0.5 m width. Assays returned 0.3-1.1 % Cu and up to 0.37 g/t Au (generally far less). The drill holes, however, intersected mainly diabase with very low copper dissemination. The structural trends are complicated, which is demonstrated in very variable dips of foliation from one outcrop to another, from flat to vertical. A westerly dip is often prevailing, and the drill hole inclination is to the west. It is believed that the holes were collared wrong, which is also indicated by Anttonen & Nessvoll (1994b).

6.4.3 Recommendations

Mineralia ANS` exploration license predates SR`s licenses, consequently no further work is recommended for 2012.

6.5 Gæssamaras claim (map sheet 1833 II Guovdageaidnu)

This claim in the lowland, 7 km NW of Kautokeino, is located in marshland with low hills, and the lake Gæssajavri. It is practically no exposures within the claim area. Presumably no exploration has occurred within this license since the 60`s, when a mineralised boulder train sourced to the south was mapped to extend northwards into SR`s claim.

The best way to enter the area is to cross Cabardasjohka by boat east of Cunovuohppi, then it is less than a 1 km walk eastwards.

6.5.1 Summary of previous exploration

The Gæssamaras claim is underlain by low-grade metamorphic rocks belonging to the Caskijas Formation (fig. 20), at the western flank of a Bouguer gravity anomaly, though not that strong as in the Bidjovagge mine area or Riednjavri to the south. The area is underlain by greenschist (metabasaltic tuff and tuffite) with sills of diabase, and phyllite, partly graphite- and magnetite-bearing, with layers of albite felsite and tuffite, and subordinate marble layers. Bedding and foliation is generally north-south, dipping 70° to the east. A 4.5 by 1.5 km sized body of diabase with ophitic texture is almost touching the north-western corner of the claim. Two extensive, north-south running main faults cut through the claim area, and a third occurs just to the east. Second order faults (Riedel shears) appear between the first order faults. Airborne EM outlines conductive zones (fig. 20) along the main faults, due to graphite schist. Numerous weaker and shorter EM trends can be explained either by graphite schist, sulphide occurrences and/or the second order faults.

Magnetic anomalies correspond to magnetite-bearing horizons in the sediments and diabase sills (fig. 21). A distinct, negative magnetic anomaly, possibly due to alteration, crosses Gæssajohka east of Gæssajavri and is flanked by weak to moderate EM conductors. It is located south of a Cu-anomaly in stream sediments (Sandstad et al. 1992).

The claim area is located due north of Arctic Gold's claims (which expires in 2013). They have claimed on boulder indications, first mentioned by Boliden in 1955 (Grip et al. 1955).

According to Skjerlie (1959) the mineralised boulders are typical breccia mineralisation of chalcopyrite and Fe-carbonate in albite felsite and albite-carbonate rock, resembling Bidjovagge ore. According to Tan (1979) it is leucodiabase with very variable amounts of copper. 32 assays vary between 0.10 and 5.41 % Cu; average 1.2 %.

NGU/GM established a grid in 1959 and registered mineralised boulders. More than 150 mineralised boulders formed a 3 km long boulder fan (ending centrally in SR's claim), and the same year KKSU sunk two diamond drill holes (in the middle of the fan) with negative result. In 1960 a quaternary conclusion was that the boulders were part of the ablation material and thus could have been transported several kilometres from the source.

Subsequent to geophysical measurements drilling continued in 1961, stuck into problems and was abruptly. An EM survey in 1963 indicated heavily folded graphite schist. Geochemical till sampling in 1960-61 concluded that the method was not suitable for ablation till. According to Tan (1970), the target was left with no conclusion. The most recent activity aiming at sourcing the mineralised boulders was trenching and sampling, with negative result, by Bidjovagge Gruber in 1991 (Inkinen & Hakanen 1993, Nessvoll 1994d).

The above mentioned 4.5 x 1.5 km large diabase lens just outside the NW corner of the claim is mineralised at the SE`ern shore of Stuorajavri, south of Cuojavarri. According to Holmsen et al. (1957) chalcopyrite, magnetite and pyrite are bound to joints and zones in the diabase, and pyrite occurs as impregnation in a zone of 150 x 20 m² size at the contact between diabase and greenschist. One assay returned 0.05 % Cu and 0.1 % Zn. A sketch map in Holmsen et al. indicates albite-carbonate alteration at one locality.

6.5.2 Results of field work 2011

Only a short reconnaissance was conducted within the northern part of the claim. No exposures or mineralised boulders were located.

Two samples were collected from the above mentioned diabase lens NW of the claim. The magnetite-pyrite impregnation is very low in economic elements.

575365 7665065: 4 cm thick lens of massive magnetite and minor pyrite (KA11001) within leucodiabase rich in finely dispersed magnetite and minor pyrite dissemination (KA11002).

The diabase is weakly albite-carbonate altered, with laths of cleavelandite.

574859 7665076: Outcropping diabase rich in magnetite.

575673 7664789: Outcropping, more coarse-grained diabase (no magnetite)

575093 7665055: Diabase with magnetite-pyrite dissemination.

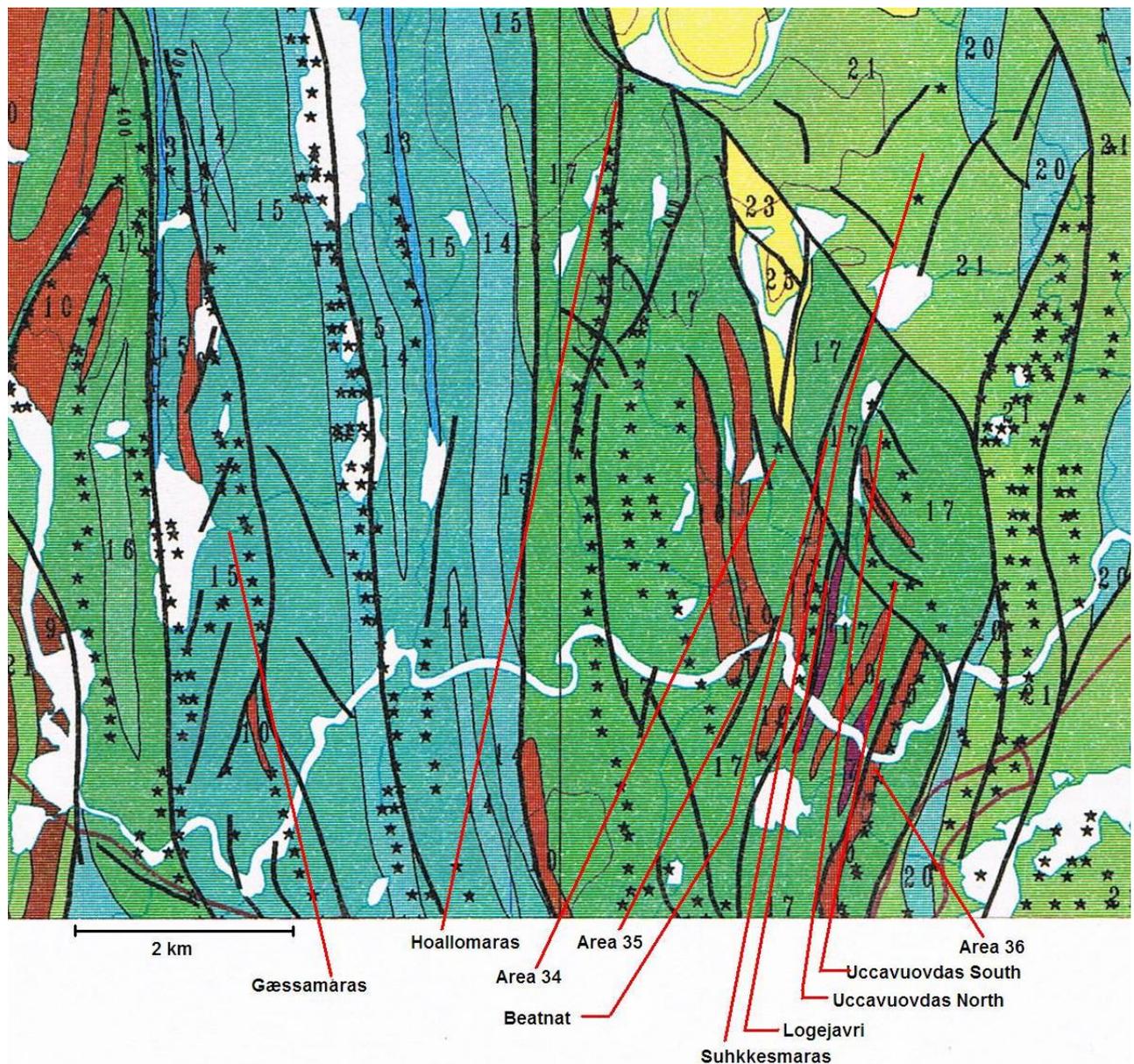


Fig. 20 Geological map (Sandstad et al. 1992) and targets in the Uccavuovdas-Gæssamaras area. Lithological units: 9-albite diabase; 10-diabase; 13-limestone/dolomite; 14-phyllite; 15-greenschist; 16 and 17-greenstone; 20-mica schist; 21-amphibolite; 23-quartzite. Black lines-faults. Black stars-EM anomalies.

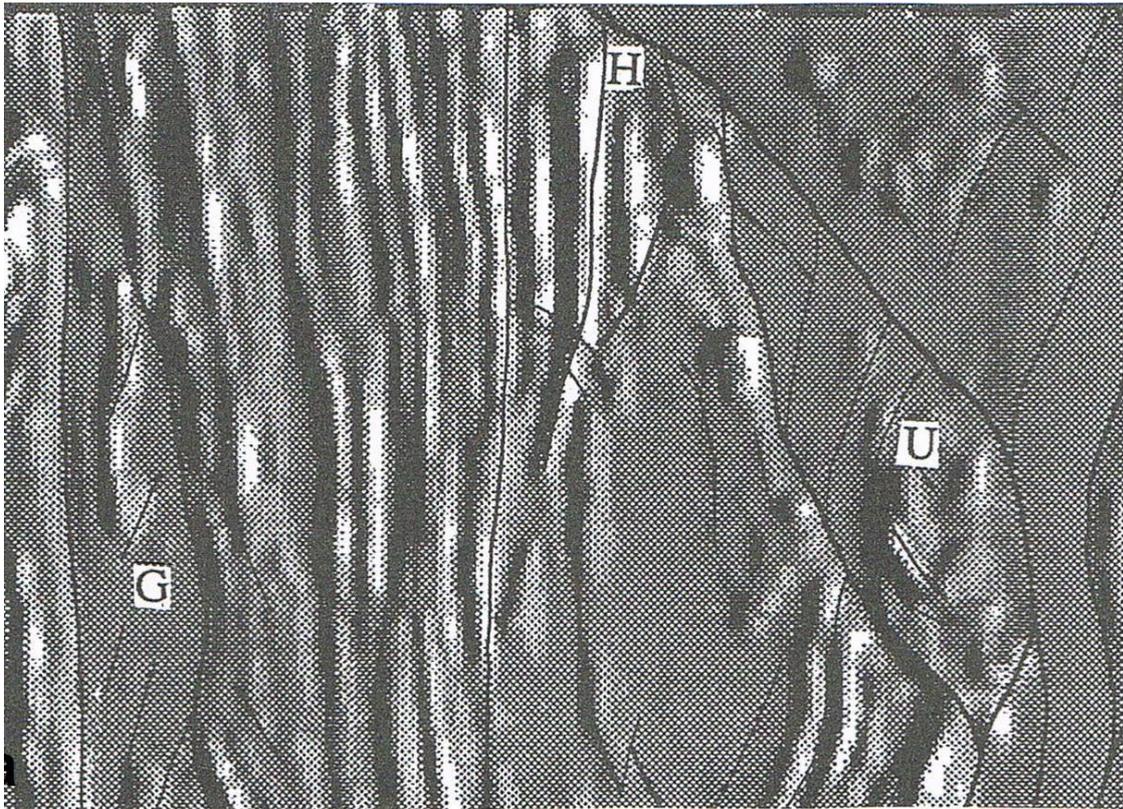


Fig. 21 Structures in the Uccavuovdas (U)-Hoallomaras (H)-Gæssamaras (G) area, interpreted from aeromagnetics (upper) and apparent resistivity (lower). From Sandstad et al. 1992.

6.5.3 Recommendations

A deep till sampling program is proposed to cover the airborne low-mag anomaly and adjacent 2. order faults with associated EM conductors east of Gæssajavri. Sample profiles should extend northwards to cover the stream sediment anomaly. Subsequently, a ground geophysical survey (IP, VLF, mag) should be considered.

6.6 Uccavuodas mineralisations (map sheet 1833 II Guovdageaidnu)

These three exploration permits covering 26 km² are located 5-10 km north of Kautokeino in an area with very few exposures. The area (fig. 20) occupies a central position in the Alta-Kautokeino Rift, and is partly cut by the central NNW-SSE faults and partly surrounded by them. Also occurring are NE-SW faults. The area has suffered a complex tectonic development and the possibility for structure-controlled mineralisations are assumed to be good (Sandstad et al. 1992).

Structurally the eastern part of the Cabardasjåkka area is dominated by NNW-SSE to NNE-SSW running main faults. These first order faults form shear lenses of kilometre scale and are possibly deep-seated structures (Sandstad et al. 1992). The orientation of some of the smaller, second order faults indicates sinistral movement along first order faults. The faults are partly coinciding with conductors, likely to be graphite schists.

The known mineralisations and alterations in the area are localised along structures. The minor NNW-SSE faults adjacent to some of the mineralisations (e.g. Uccavuodas North and -South) are probably bound to the formation of the shear lenses and might represent Riedel shears. Albite-carbonate altered rocks are formed along both first and second order faults. They are most frequent within the more tectonised eastern part of the area, which consequently is assumed to have greater potential for Bidjovagge-type mineralisations, as they also occur in a regional gravity anomaly, and the rocks, mainly greenstone, amphibolite (in the NE) and diabase, are metamorphosed at the transition greenschist/amphibolite facies. In addition, several conductor breaks occur (Sandstad et al. 1992).

Access: A dirt road taking off the Alta-Kautokeino road just north of the Cabardasjohka dam is more or less accessible by car a couple of kilometres WSW-wards. Further on, the easiest walk is to follow the power line WSW-wards.

6.6.1 Summary of previous exploration

Initiated by a boulder finding in 1961, exploration campaigns (including geophysics, geochem, geology and diamond drilling) have been carried out in the 1960th (NGU/GM), -80th (Bidjovagge Gruber/ASPRO) and -90th (Outokumpu/Norsulfid), focused on several mineralised structures (fig. 20).

20 diamond drill holes are sunk within 3 subareas, Uccavuodas North and -South, and Suhkkesmaras: 4 by NGU in 1964 and 16 by Outokumpu/Norsulfid in the period 1990-92. Bidjovagge Gruber/ASPRO drilled 3 holes in Area 34 and Area 36 in 1984.

Table 1 summarises drill hole information for the NGU and Outokumpu holes. The UTM coordinates are recalculated to WGS84, UTM zone 34W. Numbers in red for relocated and verified positions and hole directions.

Drill holes HM 1/93 – HM 5/93 are exploring the Hoallomaras mineralisation (6.7).

UV 17/92 – UV 20/92 are located within the northern part of the claim area (Suhkkesmaras), while the remaining holes are exploring the two conductive, second order structures at Uccavuovdas North and -South.

Outokumpu/Norsulfid also drilled 2 holes within current Arctic Gold's permit Jalgescorut in 1993.

Dh no	UTM east	UTM north	azimuth °	decl. °	length m
UV 1/64	582940	7664460	245	45	79.00
UV 2/64	582930	7664245	245	45	46.00
UV 3/64	583140	7663700	245	45	45.00
UV 4/64	583387	7662584	247	45	90.00
UV 5/90	583154	7663844	270	60	152.00
UV 6/90	583100	7663050	225	50	127.50
UV 7/91	582946	7663048	217	48	128.00
UV 8/91	582845	7663148	263	50	132.70
UV 9/91	582950	7663650	270	50	82.00
UV 10/91	582940	7664362	227	45	128.00
UV 11/91	582906	7664445	255	50	125.50
UV 12/91	583010	7664300	270	50	100.00
UV 13/91	583250	7662800	225	50	130.50
UV 14/92	583480	7662300	270	50	112.00
UV 15/92	583480	7662500	270	60	72.00
UV 16/92	582905	7664500	270	50	103.60
UV 17/92	583500	7666000	270	50	76.00
UV 18/92	582920	7667150	90	60	99.50
UV 19/92	583320	7667150	90	60	118.00
UV 20/92	582845	7667350	90	60	127.20
HM 1/93	580590	7667200	270	50	154.00
HM 2/93	580580	7667400	270	50	105.50
HM 3/93	580600	7667300	270	50	146.40
HM 4/93	580550	7667200	270	50	64.90
HM 5/93	580550	7667150	270	50	65.40

Table 1 Drill hole information, Uccavuovdas North and -South, Suhkkesmaras and Hoallomaras. Numbers in red are relocated and GPS positioned holes.

Exact positions are not known for ASPRO's 3 holes. Prior to drilling they conducted geophysics and deep till sampling in 3 areas (plus Hoallomaras-Jalgescorut).

Bidjovagge Gruber/Outokumpu/Norsulfid's exploration work in the period 1990-93:

1990: Ground geophysics (mag, slingram), 2 drill holes. In UV-6/90: 13 m containing 0.62 % Cu and 0.15 g/t Au.

1991: Ground geophysics (mag, slingram), helicopter geophysics (74 m²), bottom till sampling (459 samples), 7 drill holes. In UV-11/91: 6.62 % Cu and 0.35 g/t Au (? m).

1992: Ground geophysics, 7 drill holes. UV-19/92 from Suhkkesmaras: 1 m at 2.46 % Cu and 1.65 g/t Au in carbonate breccia.

1993: Ground geophysics at Suhkkesmaras, 5 drill holes at Hoallomaras and 2 holes at Jalgescorut.

Nessvoll (1994a) concludes that their shear zone–oxidation front model proved valid, and that there still are many interesting objects, especially within the southern part close to

Cabardasjåkka. Drill hole UV-13/91 is located in the southern part (Uccavuovdas South) and intersected 10.1 m at 0.53 % Cu and 0.47 g/t Au, and according to Nessvoll (1994a) this part of Uccavuovdas needs more investigation.

Previous exploration within each subarea, based on work by NGU (1961-67), Bidjovagge Gruber/ASPRO (1976-84), Outokumpu/Norsulfid (1990-93), and NGU's evaluation in 1992:

6.6.1.1 Uccavuovdas South

This mineralisation is associated with a c. 1.5 km long NNW-SSE second order fault (hypothesis by Sandstad et al. 1992). Its conductive character was indicated by GM's Slingram survey in 1963 (Tan 1970). Outokumpu targeted Uccavuovdas South during 1990-92 with Slingram, mag and drilling (Anttonen & Nessvoll 1993, Nessvoll 1994a).

Altogether 7 holes targeted the Uccavuovdas South mineralisation along a strike length of c. 1.1 km. All holes show effects of hydrothermal alteration bound to the second order shear structure, but the NNW-ern two and the SSE-ern three holes are very low in Cu (few metre-sections up to 0.2 %) and Au (0.0). The central part of 600 m length has two drill intercepts: UV-6/90 assayed 0.62 % Cu and 0.15 g/t Au over 13 m. UV-13/91 assayed 0.53 % Cu and 0.47 g/t Au over 10.1 m (according to Nessvoll 1994a, although the cross section in his report shows that the zone is not continuously assayed but includes none-analysed sections), and a c. 25 m wide overlying zone with approximately 0.5 g/t Au and 0.0 Cu (seems to contain some assay gaps).

Evaluation of the ore potential within the KGB by Sandstad et al. (1992) concludes that the postulated shear lens (fig. 20 and 21) surrounding Uccavuovdas North and –South is the most promising target area for deposits of Bidjovagge-type, and particularly within the southern apex of the shear lens (southern part of Uccavuovdas South). The Uccavuovdas South conductor fades out southwards towards a first order fault, and a NNE-SSW oriented conductor is in its northern end abruptly by this first order fault (see 6.6.1.2).

A distinct airborne uranium anomaly (favourable for Bidjovagge-type) occurs in this area. Its cause is sourced in locally derived boulders of sulphide-mineralised Bidjovagge-type albite felsite with enhanced uranium radiation (up to 175 ppm U) (Sandstad et al. 1992).

The mineralised boulders sampled by Sandstad et al. are low in Au and Cu (one points out with 0.7 % Cu and 0.19 g/t Au), but nevertheless they propose drill-testing of the main fault and the weakened conductor. The southernmost, very weakly mineralised drill hole (UV-14/92) might, however, have been drilled after Sandstad et al.'s recommendation, but also Nessvoll (1994a), subsequent to completion of UV-14/92, proposes additional drilling further south.

6.6.1.2 Area 36

Encouraged by sampling and gold assays of outcropping mineralisations at Uccavuovdas North and –South in 1982, ASPRO re-examined the NGU cores from 1964 and assayed selected sections (NGU did no assaying). The results showed weak Cu-Au mineralisation of Bidjovagge-type and did not encourage further work at the known mineralisations, but geochemical and geophysical anomalies (a conductive zone, and low-mag along the foot-wall diabase) indicated an extension of Uccavuovdas South to the south (Hagen 1985). According

to him, the airborne geophysics indicates that this trend continues southwards to the Alta-Kautokeino road.

Deep till sampling was carried out in Area 36, but due to technical problems, only a 40 m long profile was sampled. Dust samples of bedrock assayed up to 0.5 % Cu. In 1984 a 73 m long diamond drill hole (320°/50°) was sunk to test the combined anomaly. Approximate UTM coordinates for the hole are 582950 7661450. The drill intercept was a sedimentary succession (biotite schist, albite felsite, graphite schist and graphite-bearing schist) overlying a magnetite-rich metadiabase. Sporadic quartz-pyrite veining with traces of chalcopyrite occurred both in the schists and diabase. A 4 m section of graphite schist was brecciated, with carbonate veins and traces of chalcopyrite. This 4 m assayed 508 ppm Cu and < 0.02 ppm Au. Hagen (1985) concluded that the drill hole intersects the right stratigraphy, but the mineralising processes have been far too weak. The strike extension southwards contains no breaks or irregularities of the helicopter anomalies, which is characteristic for mineralised structures.

6.6.1.3 Uccavuovdas North

Subsequent to a boulder finding in 1961 by NGU/GM, their Slingram survey outlined a mineralised structure (Tan 1970, bind III), a NNW-SSE oriented second order fault (interpreted by Sandstad et al. 1992). Based on trenching and drilling of 3 holes, Tan (1970, bind II) concluded that the mineralisation was very weak, and hosted in a 20 m thick sequence of graphite schist and albite felsite, and also in adjacent `leucodiabase` (albite-carbonate altered diabase), as chalcopyrite-pyrite dissemination in irregular aggregates, along fractures and in few-cm wide carbonate veins. Outokumpu advanced exploration on this target during 1990-92 with Slingram, mag and drilling (Anttonen & Nessvoll 1993b, Nessvoll 1994a). Totally 8 (plus one adjacent) diamond drill holes targeted this altered and mineralised shear structure along 850 m strike length. Only the two northernmost holes intersect mineralisation of significance. UV-11/91 has two intercepts at 0.82 % Cu and 0.57 g/t Au over 4.4 m, and 1.45 % Cu and 0.66 g/t Au over 1.9 m respectively, and UV-16/92 0.4 % Cu and 0.6 g/t Au over 1.4 m (Nessvoll 1994a). The southern holes show very few metre-intercepts above 0.1 % Cu and up to 0.1 g/t Au.

Sandstad et al. (1992) emphasise that follow-up demands detailed geochemical sampling and geological mapping. By means of micro-boulder tracing NGU/GM revealed a 1000 m by 200 m sized till-geochemical dispersion anomaly extending NNE-wards from the drill hole UV-16/92 location (Tan 1970). This anomaly straddles a NNE-SSW second order shear.

6.6.1.4 Suhkkesmaras

This area is underlain by amphibolite, graphite schist, albite felsite and diabase of higher metamorphic grade than in the Uccavuovdas area.

As a follow-up of the 1991 helicopter geophysics, Outokumpu carried out Slingram, mag and deep till sampling in the Suhkkesmaras grid in 1992, and drilled 4 diamond drill holes. UV-19/92 intersected 1 m of breccia mineralisation in metatuff, assaying 2.46 % Cu and 1.65 g/t Au, and 3 m at 0.45 % Cu in albite-diabase. UV-20/92 intersected graphite schist and albite felsite with 1 m at 0.76 % Cu and 0.03 g/t Au (Nessvoll 1994a). UV-17/92 and UV-18/92 did not intersect mineralisation.

Enlargement of the geophysical survey area in 1993 resulted in a distinct, and > 450 m long Slingram anomaly just west of, and paralleling Madjetjohka. The SE`ern extension of this conductor corresponds to one of Sandstad et al.`s (1992) postulated second order shears. Adjacent to this structure Sandstad et al. sampled a weakly sulphide mineralised albite felsite with slightly enhanced radiation. Assay returned 1.1 g/t Au. This conductor remains untested and is not covered by deep till sampling.

Another untested conductor with associated low-mag is bound to a second order fault NNE-wards from Vuoskkojavri. This has, however, no associated geochemical anomaly.

6.6.1.5 Area 34

As the name indicates this is an ASPRO target – they named their grids `område` (=area) and numbered them. Based on a single EM pick with strong conductance (airborne EM 1982) ground Slingram and mag were carried out and outlined a 125 m long conductor striking east-west and dipping south. Bedrock is not exposed, but strong carbonatisation was observed 100 m to the west (Hagen 1985). The conductor is located between two north-south 1. and 2. order faults wuth 250 m separation (fig. 20). Dominating strike in the area is approximately north-south, but also the 1992 airborne indicates east-west trends in Area 34.

Two diamond drill holes were sunk at approximately UTM 582000 7664100, inclined north and south respectively. Only weak mineralisation was detected within a breccia zone at the contact between graphite felsite and albite felsite, assaying 0.55 % Cu and < 0.02 g/t Au in a 1 m section. Hagen (1985) did not propose follow-up.

6.6.1.6 Logejavri

This target is focused by Sandstad et al.`s (1992) evaluation. A strong electrical conductor is weakening northwards towards the same 1. order fault that is indicated in the southern apex of Uccavuovdas South (6.6.1.1). It is a conductor break 500 m to the south. It is displaced sinistrally and continues southwards along a 2. order fault and an albite diabase.

No detailed work is conducted at this target which is completely covered by bog and glacial drift. Sandstad et al. propose drill testing at UTM 582350 7662800 and 582350 7663300.

6.6.1.7 Area 35

This is an ASPRO target, and is located just south of Cabardasjohka, 2 km south of Area 34 (fig. 20). Slingram and deep till sampling were carried out in 1984 and outlined two double conductors at an angle to each other, one extensive conductive zone trending NW to NNW, and a short oriented NNE. The till sampling is incomplete due to technical problems. Underlying bedrock is dominated by diabase which is exposed along Cabardasjohka. Hagen (1985) recommends no further work.

According to Sandstad et al. (1992) the extensive NNW-trending conductor occupies the west flank of a large synform, and it is teared off at the hinge south of Cabardasjohka within Area 35. ASPRO`s short NNE-oriented conductor is coincident with a 2. order fault (Sandstad et al. 1992).

6.6.1.8 Beatnat

It is a large synform coinciding with a low-magnetic anomaly, and also a stream sediment copper anomaly (Olesen et al. 1992) between Uccavuodas and Hoallomaras. This area coincides with the postulated shear lens and is accompanied by a gravity anomaly (Sandstad et al. 1992).

Electrical conductors are absent in the northern part of the shear lens (fig. 20), and albite-carbonate-hematite alteration associated with brittle deformation is prevailing. The transitional zone between oxidised and reducing conditions, i.e. between hematite- and sulphide-bearing breccias, is potentially favourable for precipitation of ore-bearing solutions (Sandstad et al. 1992).

Outokumpu carried out Slingram and deep till sampling in the Hoallomaras-Jalgescorut grid (see 6.7) in 1992. Two deep till profiles are extended east of their geophysical survey area, and the end samples are anomalous in Cu (>380 ppm), S, Na and Au (weak). This geochemical anomaly is coincident with a 2. order fault along the hanging-wall of an extensive diabase sill. Only weak, single airborne EM picks are associated to this diabase. The soil anomaly is located outside Arctic Gold's Jalgescorut claim, at approximate UTM 564450 7681200, c. 500 m west of Area 34.

6.6.2 Results of field work 2011

The southernmost of the NNW-SSE running conductive shear zones, Uccavuodas South, is trenched at 583372 7662579 by a 60 m long NE-SW directed trench. Almost no outcrops exist, but some material of light albite felsite with weak chalcopyrite-magnetite-dissemination can be found.

To the north, another second order, mineralised structure is explored by a 40 m long NE-SW trench at Uccavuodas North (582913 7664340). Deficient exposures of the mineralisation show pyrite-chalcopyrite-disseminated carbonate rock (KA11047, 1.65 % Cu and 0.49 g/t Au), and grey-blue albite felsite with chalcopyrite-pyrite-dissemination (KA11048, 0.11 % Cu and 0.05 g/t Au). The rocks are not magnetic. Dump material shows aggregates of massive chalcopyrite up to 6x4 cm. Frequent mineralised boulders occur in the swamp to the west.

Small showing at 582866 7664296: albite felsite with pyrite-chalcopyrite-dissemination.

Small showing at 582890 7664477 in brecciated, light grey albite felsite with chalcopyrite as dissemination and in veins, and malachite (KA11049, 1.56 % Cu and 0.75 g/t Au).

583044 7663186: A small area of a relatively large boulder of carbonate rock with massive to semimassive magnetite and pyrite (KA11050) is exposed in the track. The assay returned very low in copper and gold, but high in V (0.17 %) and Co (720 ppm). There are frequent boulders in this area of carbonate rock with magnetite-chalcopyrite-pyrite-dissemination.

583310 7662761: 3 small boulders of graphite schist and some of carbonate rock.

East of Madjetjohka (outside the claim area, currently within Drake Resources' claim):

3 boulder fields of altered and mineralised rocks sourced, respectively, along the upper and lower contacts of a pelitic sequence in volcanics. a) is bound to a 1. order, east-west directed fault, b) is bound to a WNW-ESE boggy depression close to a 1. order NNW-SSE fault, and c) a WNW-ESE directed swampy topographic low.

a) 585540 7667527: Frequent local boulders of rusty carbonate rock and albite felsite with weak pyrite-chalcopyrite-magnetite-dissemination, and a large boulder of blue-grey chert with pyrite-dissemination 20 m to the north in an ATV track, located in an east-west running swampy depression.

b) 585048 7666776: Boulder field at the edge of a bog, showing various rock types: 1) dark grey, sheared albite felsite with few-mm thin, both concordant and cross-cutting carbonate-quartz bands with weak pyrite-pyrrhotite-chalcopyrite-dissemination (KA11051, 309 ppm Cu and 0.01 g/t Au). 2) carbonate-albite rock with magnetite(-chalcopyrite-pyrite)-dissemination, with and without breccia fragments of albite felsite and pervasively albite-carbonate altered fragments. 3) graphite felsite, some boulders show brecciation, with pyrrhotite(-chalcopyrite)-dissemination (KA11052, 475 ppm Cu, 0.20 % Zn and 0.03 g/t Au). 4) carbonate-biotite rock (similar to the one hosting the Æppergielas mineralisation, see 6.4).

Outcropping albite felsite (178°/80°) at 585114 7666729, and subcropping carbonaceous albite felsite at 585081 7666759.

c) 584732 7666706: Boulder field in a WNW-ESE running swampy depression. Carbonate-albite rock with weak pyrite-chalcopyrite-dissemination. Albite felsite. Carbonaceous garben schist.

6.6.3 Recommendations

Based on results from previous exploration campaigns within this area, some objects can be dropped, while others should be followed-up, and also Sandstad et al.'s (1992) evaluation brings forward valuable suggestions.

A first step would be the suggested (Sandstad et al. 1992) semi-regional geochemical sampling covering the wider Beatnat area between Uccavuodas and Hoallomaras, where the auger method sampling C-horizon is considered appropriate, excluding the swampy areas. This quick sampling method proved effective in the shallow to moderately covered Suovrravarri-Njivloroavvi area.

Depending on the geochemical results, airborne interpretation and experiences learned from detailed work at targets, areas for ground geophysics will be decided.

Slingram has proved successful in mapping graphite-related, Bidjovagge-oxidation front-type mineralisations. However, even if mineralisations at Uccavuodas tend to occur near graphitic schists, oxidation of the schist is much less pervasive than at the Bidjovagge deposit (Ettner et al. 1993). IP is previously not tested in this area, and should be considered, e.g. at targets like the none-graphite associated geochemical anomaly at Beatnat. Also potential geochemical anomalies in oxidised-reduced transitional zones, which could be expected in the northern part of the area, can be targeted by IP.

Logejavri seems to be a prospective target. Sandstad et al. (1992) propose drilling. Prior to that, a deep till/ground geophysical survey should be carried out.

The untested conductor at Suhkkesmaras, with associated 2. order fault and an auriferous albite felsite boulder, should be covered by deep till sampling.

Uccavuodas South and –North are defined mineralisations but they are rather low-grade. If historic drill cores can be obtained, they should be relogged with emphasis on structural observations, having Sandstad et al.'s shear model in mind. Anttonen & Nessvoll (1993b) and Nessvoll (1994a) left only partly illegible hand-written drill logs and cross sections, but their

drill cores might be stored at NGU Løkken, as also might be the case with 1964 NGU/GM cores. 46 drill holes totalling 3604 m are stored under `Kautokeino`, but not yet specified. Based on the unexplained geochemical (micro boulder) anomaly 1 km northwards from the Uccavuovdas North mineralisation, adjacent to a 2. order fault, and the fact that this northern part is not covered by the Outokumpu survey, a deep till/geophysical survey should be considered.

However, prior to these suggested target follow-ups, they should be inspected (only carried out at Uccavuovdas North and South so far). These observations, mainly boulder based, will be carried out simultaneously with the proposed auger sampling of the Uccavuovdas-Hoallomaras area.

6.7 Hoallomaras mineralisation (map sheet 1833 II Guovdageaidnu)

Hoallomaras is located within license 1, NW in the Uccavuovdas area (fig. 20 and 21). Access through a 2½ hour walk westwards from the Alta-Kautokeino road, mainly along an ATV trail (except the last 2 km).

6.7.1 Summary of previous exploration

Chalcopyrite-pyrite mineralisation of Bidjovagge type occurs vein-bound and disseminated in albite felsite and to lesser extent in graphite felsite/-schist. According to the Ore Data Base (NGU), the gold content is low, < 50 ppb. This is, however, not in accordance with drill results obtained subsequent to Data Base updates (see below). The albite felsite - graphite schist unit is 20-30 m thick, and is bordered by tuffitic metavolcanics to the west and partly albite-carbonate altered metadiabase to the east (Ore Data Base).

The mineralisation occurs along an extensive north-south main fault with an extensive, graphite related, associated conductor, which runs into Arctic Gold`s claim Jalgescorut just south of SR`s permit. Hoallomaras-Jalgescorut is explored by ground geophysics and deep till sampling both by ASPRO in the 80th and Outokumpu in the 90th.

ASPRO prioritized the Jalgescorut area based on a distinct weakening of the magnetic field over the diabase along the foot-wall of the conductor. The ground geophysics revealed a single, thin conductor extending through the entire grid area (Hagen 1985). No irregularities, breaks or weaker conductors were indicated. Based on the negative results ASPRO concluded no further follow-up.

Outokumpu drilled two holes at Jalgescorut in 1993, respectively 2 and 3.5 km south of the Hoallomaras mineralisation. According to Nessvoll (1994a) the `results were not promising`. According to Sandstad et al. (1992) it is several breaks along the electrical conductor in the Jalgescorut area, which might indicate hydrothermal alteration.

Outokumpu drilled 5 holes (HM 1/93 – HM5/93) in 1993 to explore the Hoallomaras mineralisation along a strike length of 250 m. Location of the holes are shown in table 1. Only one intercept showed significant mineralisation: HM 1/93 intersected 4.84 % Cu and 2.98 g/t Au in a 1.3 m section (Nessvoll 1994a).

6.7.2 Results of field work 2011

A quick field inspection was conducted at this poorly exposed mineralisation. The mineralisation crops out at 580483 7667197 as carbonate-spotted, grey-white albite felsite with chalcopyrite, pyrite and pyrrhotite as dissemination and in sulphide(±carbonate) veins. Overlying(?) graphite schist is exposed 20 m to the north. 3 rock samples (KA11053-55) assayed up to 3.22 % Cu and below 0.08 g/t Au.

6.7.3 Recommendations

Prior to expiration of Arctic Gold`s permit in April 2013 Jalgescorut should be over-claimed, and the Hoallomaras-Jalgescorut area should be evaluated as a whole.

6.8 Ragatmaras claims (map sheets 1832 I Siebe and 1832 IV Adjit)

The Ragatmaras area (fig. 22) is located along the western border of the Alta-Kautokeino rift and north of the Riednjajavri quartz monzonite. The area is underlain by supracrustals: schists, carbonates and blackschists of the same sequence as Bidjovagge. A N-S to NW-SE oriented fault centrally in the area is probably a branch of the main fault (CBL), which separates the greenstone belt from the gneisses within the Raiseadno Complex (Sandstad et al. 1992).

The area is remotely located 10-12 km south of the road end at Aksomuotki/Galaniito, a distance which is accessible by ATV along a track.

6.8.1 Summary of previous exploration

NGU/Outokumpu gave preference to this area because the structures were similar to Bidjovagge, regional gravity anomaly, transition greenschist-/amphibolite facies and vicinity to regional shear zone, and 130 km² of the area was surveyed by detailed airborne geophysics by NGU in 1989 (Håbrekke et al. 1989). They indicated that the N-S anticline NW of Riednjajavri is the most prospective target within the area. The survey proved a variable magnetic trend above the diabbases, and sudden variations in conductivity indicating hydrothermal alteration. Few significant conductor overlaps may be due to missing strong strike-slip movements.

63 pannings by Bidjovagge Gruber in 1989 resulted in up to 10 gold grains/pan, and the area was covered by a Slingram survey in 1990 (Anttonen & Nessvoll 1993). The structure was drill tested with negative result in 1990 (4 holes totalling 710 m) at the west flank, only weak alteration and low in copper and gold.

From comparison with Bidjovagge, the eastern flank is expected to be more prospective (Sandstad et al. 1992). The east flank has more breaks along the conductor, possibly due to hydrothermal alteration. It is two restricted copper stream sediment anomalies at the east flank (Olaissen & Jæger 1985, Olesen et al. 1992).

According to Sandstad et al. (1992) two targets point out for drill testing: at flight line 12/13 and 29. At line 29 is a combined uranium anomaly/weakening of conductivity indicating a positive correlation between Au and U, similar to Bidjovagge. At line 12/13 the conductors are displaced relative to each other, indicating sinistral movement at the conductor break.

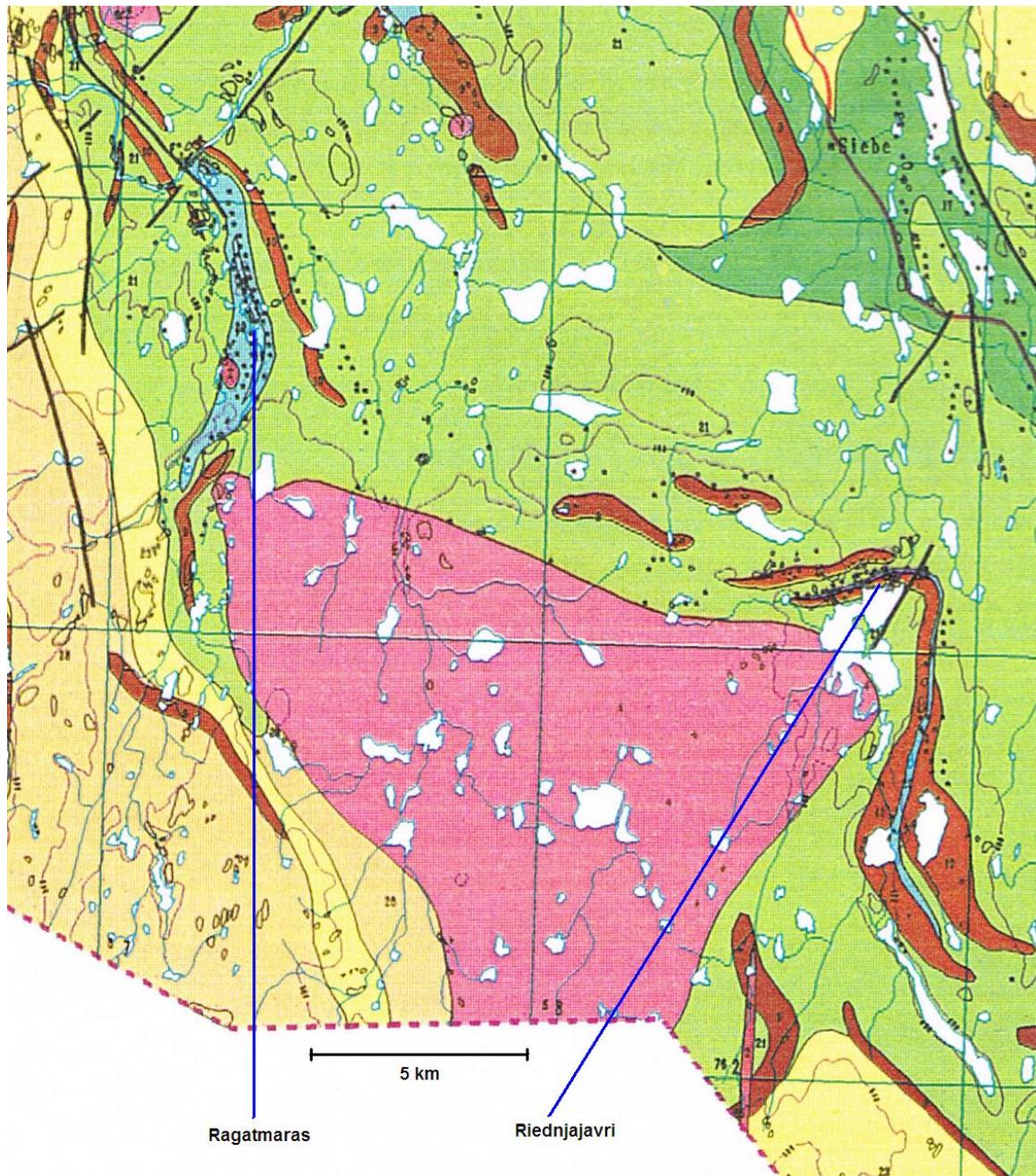


Fig. 22 Geological map Ragatmaras – Riednjavri (Sandstad 1992). Legend: see fig. 18 and 19. Red-quartz monzonite.

6.8.2 Results of field work 2011

No field work was conducted at this target in 2011.

6.8.3 Recommendations

A reconnaissance should be carried out in 2012, and the proposed drill-testing (Sandstad et al. 1992) should be considered, depending results from geophysics and deep till sampling.

6.9 Riednjavri mineralisation (map sheet 1832 I Siebe)

Copper mineralisations containing Au and Ni occur within a sequence assumed to be at the same stratigraphic level as Bidjovagge. Cu-Au mineralisation is hosted in albite-carbonate altered metadiabase, with Cu-Ni mineralisation within an overlying sedimentary sequence containing intermixed graphite schist, biotite schist, carbonate rock and albite felsite. The supracrustal sequence with diabase sills is folded around a large massif of quartz-monzonite (fig. 22).

Interpretation of gravimetrical data shows that the sequence occurs within a ca 5 km deep synclorium of subvertical and isoclinally folded meta-volcanics and –sediments.

Accessible by a two hours walk along an ATV track from Oskal to Riednjavri. Most convenient river crossing is 3 km ESE of Oskal.

6.9.1 Summary of previous exploration

As a follow-up of the airborne survey from 1959, Geofysisk Malmleting conducted a Slingram survey at Riednjavri in 1965 (Tan 1965). NGU conducted geological mapping, soil sampling and geophysics during the period 1982-84 (Dalsegg et al. 1986), and A/S Prospektering drilled 4 holes in 1984. Airborne geophysical surveys were conducted in 1986 (Mogaard & Skilbrei 1986) and 1991 (Walker 1991). Bidjovagge Gruber continued exploration in 1992 with geophysical measurements (Nessvoll 1994c). Their report will be available early 2012.

The NGU/Prospektering campaign concluded that the mineralised conductors north of the lake are low-grade in copper and gold. They (Dalsegg et al. 1986) recommend, however, to follow-up the north-south running conductors/gravity anomaly east of the lake. As stream sediments from creeks draining these conductors are enhanced in copper (Olaisen & Jæger 1985), soil sampling is recommended in an area west and SW of the Riednjavri hill.

Sandstad et al. (1992) evaluated the ore potential within the Kautokeino Greenstone Belt based on interpretation of geodata, and concluded that the known mineralisations at Riednjavri are not related to traceable faults. They point to the area NE and east of the lake as prospective, with displacement of strong conductors.

6.9.2 Results of field work 2011

North of lake Riednjavri six small diggings were found along 150 m strike extension (and one of the four drill holes was located, Dh 89.4 (140°/45°) at 587995 7631694):

588052 7631670: Carbonate-albite altered diabase with chalcopyrite-dissemination and malachite (KA11044, 2.12 % Cu and 0.46 g/t Au).

588019 7631661: Weaker altered diabase rich in magnetite-dissemination (KA11045).

587956 7631680: Graphite felsite with pyrrhotite-dissemination.

587939 7631673: Graphite felsite with pyrrhotite-dissemination (KA11046).

587921 7631679: Graphite felsite with pyrrhotite-dissemination.

587911 7631668: Graphite felsite with pyrrhotite-dissemination.

6.9.3 Recommendations

As Mineralia ANS` exploration license east of lake Riednjavri predates SR`s licenses, no further work is recommended for 2012.

Reconnaissance geology should be carried out in an area with stream sediment copper anomalies, c. 5 km south of Riednjavri.

7. Summary

Suovrravarri-Suovrrajavri-Njivloroavvi:

Sulphide mineralisation was discovered 700 m west of Suovrrajavri, within the 3.5 km gap between the two previously known copper-gold occurrences at Njivloroavvi and Suovrravarri. This mineralisation is mapped in detail. Reconnaissance mapping in the surrounding area revealed additional sulphide-bearing alteration structures, mainly bound to diabase sills.

The Suovrravarri-Njivloroavvi area is underlain by dominating basaltic metavolcanic rocks and diabase sills of low metamorphic grade belonging to the Caskijas Formation. A gradational transition to higher metamorphic facies (amphibolite) appears to the west, and a main NNW-trending fault runs along the river valley c. 1 km to the west.

Two south-plunging main anticlines are mapped within the NW`ern part of the KGB, one at Bidjovagge and another with axial trace through Suovrrarahppat-Suovrravarri-Njivloroavvi, related to the first deformation phase, and the successions within these anticlines are presumably of the same stratigraphic level. Growth of amphibole and chlorite along the axial plane cleavage is common, and faults of same direction are observed at Suovrrarahppat. Later deformation is characterised by NE-SW- and NW-SE-oriented faults and fractures, both having significance for mineralisation at Bidjovagge and Suovrrarahppat-Njivloroavvi. These fracture orientations are similar to two of the main fracture directions interpreted by regional lineament analysis in Finnmark.

Carbonatisation, albite-carbonate alteration and sulphidisation are coeval to and later than the first deformation phase, and are generally associated to faults and shears.

The mineralised trend between Suovrrarahppat and Njivloroavvi is 6 km long. Structurally bound copper- and copper-gold mineralisations with associated carbonate-albite alteration appear at different levels along both anticline flanks.

Within the detailed mapped area west of Suovrrajavri a supracrustal unit of greenstone, greenschist, calcite marble, argillite and albite felsite is intruded by diabase sills. The eastern sill is pervasively carbonate-albite altered and copper mineralised along and adjacent to an approximately 1 m thick intercalated albite felsite horizon, a competent bed that may have guided a N-S trending and west-dipping fault or shear zone with associated alteration and mineralisation. Alternatively, the albite felsite may have been formed from fluids that migrated along the shear zone, as observed in Bidjovagge where discordant albite felsite is associated with carbonatisation along faults. A gradual transition from diabase to fine-grained albite felsite has been observed in drill cores at Bidjovagge.

The mineralisation is outcropping over 330 m N-S length along the west-flank of the anticline. It is assumed to be continuous northwards with similar mineralisation at Suovrravarri, making up an overall length of at least 1.1 km, and possibly further northwards towards Suovrrarahppat. The geochemical soil survey even indicates a southwards continuation for at least another 700 m.

The mapping revealed multiple mineralised structures hosted by the diabase sill: 1) Pervasive carbonate-albite alteration of metadiabase, and adjacent quartz-carbonate-chalcopyrite breccia veining of diabase and greenschist, with associated Cu-Au mineralisation bound to an extensive bedding-subparallel N-S structure which seems to dip c. 40° W, and 2) two sets of late stage, cross-cutting auriferous quartz(-carbonate)-chalcopyrite veins intersecting the N-S altered domain and the breccia veining. These younger veins are enveloped by carbonate-albite alteration and strikes 50° and 125°. The apparent concordancy of the N-S shear zone, however, contrasts the airborne magnetic trends which bend off NNW-wards, as do the diabase sills on the geological map – they are probably traced based on the geophysics.

The N-S structure is mineralised (dissemination and veining of chalcopyrite and pyrite, and secondary malachite) in an up to 35 m wide zone (20-22 m lithologic thickness). The western limit is however not exposed. Adjacent unaltered diabase in the foot-wall is also chalcopyrite impregnated. Hanging-wall greenschist contains breccia-veining of carbonate, quartz and chalcopyrite. This veining is located near the contact between the intensely and weakly altered/unaltered rocks, i.e. in the upper part of the diabase sill and adjacent overlying greenschist. These breccia-like textures probably represent multiple veined stockworks rather than large-scale true breccia veins formed in one event of extensive fracturing.

Rock samples from this N-S running zone of chalcopyrite impregnated carbonate-albite altered diabase and albite felsite assayed 0.1-0.6 % Cu. Gold assayed low, but anomalous within the impregnation (up to 0.11 g/t). A small exposure close to the hanging-wall contact of the diabase sill revealed foliated, carbonate-albite altered amphibolite with concordant chalcopyrite bands, assaying 1.99 % Cu and 0.14 g/t Au (KA11058). The mineralised zone is not well exposed, and in situ, up-heaved, fist-sized floats of semimassive to massive chalcopyrite found along the mineralised zone assayed 32.1 % Cu, 3.75 g/t Au and 7.46 % Cu and 5.93 g/t Au respectively. A bedrock sample (KA11059) of carbonate-albite altered diabase with both chalcopyrite dissemination and –veinlets returned 1.51 % Cu and 0.59 g/t Au. The in situ floats of massive chalcopyrite vein material are closely associated to the albite felsite horizon, suggesting that the copper-gold-rich vein(s) are restricted to a rather narrow zone.

The typically 1-2 m wide NE-SW and NW-SE structures consists of few-decimetres wide quartz-chalcopyrite veins enveloped in carbonate-albite alteration rock. These veins are weathered and eroded and seldom exposed. Up-heaved, in-situ floats of massive chalcopyrite and quartz-chalcopyrite are found along these cross-cutting alteration structures (KA11060, 16.1 % Cu and 3.7 g/t Au). NW-SE quartz-carbonate-chalcopyrite veins also occur within the mapped diabase sills to the west (KA11031, 0.17 % Cu and <0.01 g/t Au), and north of the mapped area, at Suovrarri (KA11061, 26.5 % Cu and 5.85 g/t Au, and KA11032, 24 % Cu and 1.56 g/t Au).

The copper-gold mineralised N-S trending fault or shear zone is indicated over 1.1 km length by geological observations, and extends possibly further northwards towards Suovrarrahpatt. An associated soil Au-Cu anomaly is more than 2.1 km long. NE- and NW-trending cross-cutting copper-gold mineralised fault veins intersect the former at both Suovrarjavri and Suovrarri. The intersections of N-S shears and cross-cutting faults, both auriferous, define excellent targets for the concentrations of copper-gold mineralising hydrothermal fluids. In Bidjovagge Hollander (1979) emphasises the importance of folding and faulting for the localisation of the metals. According to him faulting and fissuring were of significant importance for improving the ore grade, and the most prominent fault directions are

coinciding with Suovrrajavri, NE and NW. The Bidjovagge C and D ore bodies are located in areas with movements in NE`erly direction.

Contrary to Bidjovagge, where the highest gold grades are always found in low-sulphide zones, ore grades of gold found so far exclusively occur in the copper-rich veins at Suovrrajavri. Adjacent sulphidised alteration zones are `low` in gold (< 0.11 g/t). Gold has co-precipitated with copper at Suovrrajavri, but no inter-element correlation exists between them (also confirmed by the soil assays, see below). Three samples of copper-rich mineralisation at the Njivloroavvi digging show good negative correlation between copper and gold, i.e. gold is further enriched in the chalcopyrite-impregnation enveloping the copper-gold vein.

The Suovrravarri-Njivloroavvi mineralisations do not show the Bidjovagge characteristics in trace metal association. While Bidjovagge ore is anomalous (compared to other mineralisations in the KGB) in Zn, Pb, As, Co, Ni and U, only a few of the Suovrravarri-Njivloroavvi samples are enhanced in some of these elements, i.e. Co, As, U, Ni and P. The latter three are enhanced in the mineralisation in the Njivloroavvi digging.

Occurrences of graphitic schists or -felsites, important fluid traps in the Bidjovagge deposit, were not detected at the Suovrrajavri mineralisation (but may well exist), but appear in the Suovrrarahppat sequence which is underlying Suovrrajavri.

Considering the wide spacing in the soil sampling program, anomaly trends of various elements prove remarkable consistency. The thickness of the till cover is generally less than 1-2 m at the ridges, and in excess of this along slopes and in swampy areas. Within the Kautokeino area the transport distance is considered very short in areas of thin glacial drift where the till cover formed mainly during the last glaciation. Consequently, auger sampling of the C-horizon is considered to be a reliable and effective method in areas with thin to moderate till cover.

The widely spaced soil profiles show a distinct gold anomaly bound to the mineralised N-S trending fault or shear zone running through the grid for > 2.1 km. A parallel and weaker gold anomaly appears c. 100 m to the east and indicates potential for additional auriferous N-S shear structures. The outcropping mineralised structure and its accompanied gold soil anomaly has, as expected, an associated distinct copper anomaly, which is also extending westwards up into the hanging-wall rocks of the mineralised structure. The mentioned parallel gold anomaly is only partly covered by coinciding copper anomaly, the copper forming a broad enrichment halo beside or around the gold-enriched zones. An extensive copper (without gold) anomaly appears along the eastern part of the grid.

Shorter and more inconsistent gold anomalies, without associated copper, occur on either side of the two extensive gold trends.

The anomalous concentrations of copper, as well as associated cobalt and nickel, the latter two with very good inter-element correlation, are believed to delineate the pervasively carbonate-albite altered, chalcopyrite-impregnated diabases and do not define the exact location of the gold lodes. The Cu(-Co-Ni) anomalous zones occur beside or partly overlap the gold-enriched zones. This may indicate that copper- and gold mineralisation has taken place at different time intervals, or that the former form a distal alteration zone. This could explain why some of the anomalous gold concentrations also occur in sulphide (Cu)-poor and apparently weakly altered rocks.

Whereas davidite is a constituent in the gold mineralisation at Bidjovagge, and gold and uranium has good correlation, the mapped gold structure with associated >2.1 km long gold soil anomaly at Suovrrajavri has associated low-uranium anomaly. The eastern, parallel gold anomaly, however, has partly overlapping uranium anomaly. Uranium shows good correlation with tungsten. Arsenic is partly gold-affiliated in the northern part of the parallel anomalies, but neither arsenic nor antimony is correlated to gold.

A possible scenario deduced from the soil geochemistry is that within a broad shear-influenced N-S trending zone across Suovrrajavri-Suovrravarri, metals have precipitated along localised, narrow shear structures within this wide zone. The lack of co-precipitation of metallic elements might be due to different mineralising pulses, giving rise to the indicated pattern, with e.g. Au, Cu, U deposited in more or less separated structures.

The Cu-Au mineralisation in the Njivloroavvi digging is hosted in a diabase sill at the east flank of the anticline, formed in a brecciated, carbonate-albite altered zone, the richer part close to its hanging-wall contact to greenstone. Alteration/mineralisation is here c. 20 m wide. Due to observed strong alteration and weak copper impregnation in diabase sills in this area, several parallel copper anomalies occur along the soil profiles. More interesting is that a > 1.5 km long gold trend can be traced through the digging, with the highest assay, 69 ppb Au, appearing 350 m NNW of the digging along the mineralised structure. One soil sample SSE of the digging, along the same structure, shows elevated scandium (14 ppm). NGU/GM's 1960 stream sediment sampling program shows a copper-anomaly NE and upstream from the Njivloroavvi digging, and also within an area 2-3 km SSE of the digging.

The Suovrravarri – Njivloroavvi area with Cu-Au mineralisations:

- probably same stratigraphic level as Bidjovagge
- located south of, and hosted in the same anticline as, Suovrrarahppat which is of Bidjovagge-type
- the anticline plunges SSE and the Suovrrarahppat lithology (albite felsite, graphite schist, diabase) underlies the Suovrravarri – Njivloroavvi area
- parallel, extensive and consistent soil sediment Au-Cu anomalies
- both strike-parallel and cross-cutting alteration structures with associated Cu-Au mineralisation
- structurally bound Cu-Au mineralisations are found at different levels along both flanks of the anticline, within 3.5 km length, and indicated over 7.5 km length (stream sediments), 10 km including Suovrrarahppat
- mix of lithologies with significant competence contrast; albite felsite, pervasively altered metadiabases, schists and carbonate beds
- approximately 1 km distance to major NNW-SSE fault
- significant portions of the area are covered; potential for hidden mineralisations
- never drill-tested or received much attention (the most promising mineralisation not previously known)

Geological mapping of the whole Suovrra-Njivlo area should be carried out, with emphasis on explaining geochemical anomalies, and also at airborne EM picks. Additional soil sampling should be carried out along infill lines and along some extended lines to the west. Ground geophysics, including mag, IP, VLF or HLEM should be conducted. The magnetic contrast between the altered, mineralised zones with broken down magnetite, and the magnetic, unaltered wall-rocks, makes magnetometry a useful tool. VLF will probably indicate structures and potential massive-sulphide veins of any extent. IP could possibly be of lesser

value, as it will probably pick up sulphidic alteration zones, and the soil geochemistry indicates that gold is not exclusively associated to these. However, a combination of geophysical methods and soil geochemistry will be useful. The geophysical grid should cover combined geochemical and geological indications.

The Bikkacåkka Formation carbonate beds should be explored for copper-gold mineralisations.

Njivlojavri no. 2 and 4:

The mafic sequence in the claim area is abruptly by two adjacent, parallel main faults running NNW-SSE through the lake Njivlojavri. The area west of them is underlain by amphibolite with intercalations of mica schist, partly graphite-bearing, with layers of marble and albite felsite. The metamorphic grade decreases towards the east, and bedrock east of the faults consists of greenstone with extensive metadiabase sills, and subordinate sediments.

As a follow-up of the 1980 geophysical helicopter survey, Sydvaranger/ASPRO carried out a geophysical ground survey and diamond drilling during 1984-85 in Area 56 and Area 57 (Daccavarri). They revealed Bidjovagge-type copper-gold mineralisation hosted in albite felsite and graphite schist. The best intersection was 2.0 m with 1.62 % Cu and 1.36 g/t Au. The rest of the holes showed hydrothermal alteration but levels of copper and gold were low, seldom above a couple of tenth percent copper and the same in g/t gold.

Norsulfid/Bidjovagge Gruber continued diamond drilling in 1991. Their best intersection was 1.1 m at 0.83 % Cu and 0.36 g/t Au.

Totally 14 holes were sunk during these two periods along a strike length of 2 km.

The airborne geophysics indicates that this target is situated close to a macro fold hinge. The graphitic conductor extends southwards, and is the same stratigraphic level that is targeted at Gorvvesvarri and Cievrranjunni, 6 and 9 km to the south respectively.

Gorvvesjavri:

Extensive copper-mineralised boulder trains were detected by Geofysisk Malmleting/NGU in 1959. They are covered by license 1 and stretch from Suvdos and northwards, along the west side of Devkesjavri, and along the east side of Devkesjavri northwards to Jietmejavri.

Skjerlie (1959) classifies the mineralisation types in the area, and one of them he designates 'Devkis type': 'Typical vein filling of Fe-carbonate, minor quartz, chalcopyrite, pyrite and magnetite, in brecciated greenstone. Width of veins varies from mm to occasionally several meters. Carbonate dominates but occasionally very Cu-rich veins occur. This type is very widespread in the area east of river Njivlojokka from Devkesjavri and north to the Caledonian nappe contact. The Devkis type has no economic interest.' According to Tan (1970) it does not fit the Bidjovagge model.

License 2: Airborne conductors run through the claim area. These are related to graphite horizons, assumed to correspond to the ore-bearing zone at Bidjovagge. SE of Cievrranjunni and just west of the Bidjovagge road, Bidjovagge Gruber covered these conductors with Slingram, mag and till sampling in 1989. This survey indicated alteration of the graphitic conductors. Two diamond drill holes located c. 564650 7675750 proved only weak alteration and no sulphide mineralisation.

The above mentioned Bidjovagge level graphite conductors that are drill-tested SE of Cievrranjunni and at Gorvvesvarri occupy the hinge of a large fold at the north edge of claim 1, between Gorvvesjavri and Devkesjavri. The hinge between these lakes reflects a significant mag-high and several weak EM anomalies, as well as producing the previously mentioned mineralised boulder trains. These boulder fields of assumingly almost in-situ, frost-heaved, partly edged boulders were inspected and sampled.

The mineralised boulders are assumed to be almost in-situ. They demonstrate strong albite-carbonate alteration of diabase and greenstone, but copper and gold grades are not convincing. Highest gold content is 1.24 g/t, from a subcropping hydrothermal quartz-carbonate vein. It is, however, sampled from the copper-rich part of the vein, while a less copper-rich boulder assayed only 0.07 g/t Au. The uranium content in the altered and copper-mineralised boulders is anomalous, generally 20-30 ppm

The boulder fields should be looked at more closely before concluding, especially the area immediately west of Devkesjavri where the 1.09 % Cu/0.49 g/t Au sample was collected. If more encouraging observations and assays are obtained, a geophysical ground survey between Gorvvesjavri and Devkesjavri should be considered. However, as pointed by Skjerlie (1959) and Tan (1970), the boulders do not indicate a buried Bidjovagge-type mineralisation. Boulders of albite felsite or graphite schist/felsite were not detected during the short reconnaissance. Very few outcrops were found in the area.

An explanation to the airborne mag-anomaly is indicated by the magnetite-content in diabase and greenstone, associated with chalcopyrite both as dissemination and vein-bound.

Æppergielas:

Irregular dissemination of chalcopyrite, bornite, chalcocite and magnetite is impregnated along a fine-grained carbonate-biotite altered horizon in pyroxene-amphibolite. Subcrops show that parts of the mineralisation are hosted in a pervasively altered carbonate rock, probably altered diabase.

The biotite-altered mineralised horizon can be traced over c. 900 m length, and is the same that Bidjovagge Gruber trenched in the southern part and revealed 0.5 m width. Assays returned 0.3-1.1 % Cu and up to 0.37 g/t Au (generally far less). The drill holes, however, intersected mainly diabase with very low copper dissemination. The structural trends are complicated, which is demonstrated in very variable dips of foliation from one outcrop to another, from flat to vertical. A westerly dip is often prevailing, and the drill hole inclination is to the west. It is believed that the holes were collared wrong.

The drill holes intersected mainly diabase/amphibolite with weak copper dissemination (max 0.5 % Cu). The zone containing weak copper dissemination can be tracked over 5 km length according to Anttonen & Nessvoll (1994b).

Gæssamaras:

The Gæssamaras claim is underlain by low-grade metamorphic rocks belonging to the Caskijas Formation, at the western flank of a Bouguer gravity anomaly, though not that strong as in the Bidjovagge mine area or Riednjavri to the south. The area is underlain by greenschist (metabasaltic tuff and tuffite) with sills of diabase, and phyllite, partly graphite- and magnetite-bearing, with layers of albite felsite and tuffite, and subordinate marble layers. Bedding and foliation is generally north-south, dipping 70° to the east. A 4.5 by 1.5 km sized body of diabase with ophitic texture is almost touching the north-western corner of the claim. Two extensive, north-south running main faults cut through the claim area, and a third occurs just to the east. Second order faults (Riedel shears) appear between the first order faults. Airborne EM outlines conductive zones along the main faults, due to graphite schist. Numerous weaker and shorter EM trends can be explained either by graphite schist, sulphide occurrences and/or the second order faults. Magnetic anomalies correspond to magnetite-bearing horizons in the sediments and diabase sills. A distinct, negative magnetic anomaly, possibly due to alteration, crosses Gæssajohka east of Gæssajavri and is flanked by weak to moderate EM conductors. It is located south of a Cu-anomaly in stream sediments.

The claim area is located due north of Arctic Gold's claims (which expires in 2013). They have claimed on boulder indications, first mentioned by Boliden in 1955.

According to Skjerlie (1959) the mineralised boulders are typical breccia mineralisation of chalcopyrite and Fe-carbonate in albite felsite and albite-carbonate rock, resembling Bidjovagge ore. According to Tan (1979) it is leucodiabase with very variable amounts of copper. 32 assays vary between 0.10 and 5.41 % Cu; average 1.2 %.

NGU/GM established a grid in 1959 and registered mineralised boulders. More than 150 mineralised boulders formed a 3 km long boulder fan (ending centrally in SR's claim), and the same year KKSU sunk two diamond drill holes (in the middle of the fan) with negative result. In 1960 a quaternary conclusion was that the boulders were part of the ablation material and thus could have been transported several kilometres from the source.

Subsequent to geophysical measurements drilling continued in 1961, stuck into problems and was abruptly. An EM survey in 1963 indicated heavily folded graphite schist. Geochemical till sampling in 1960-61 concluded that the method was not suitable for ablation till. According to Tan (1970), the target was left with no conclusion. The most recent activity aiming at sourcing the mineralised boulders was trenching and sampling, with negative result, by Bidjovagge Gruber in 1991.

A deep till sampling program is proposed to cover the airborne low-mag anomaly and adjacent 2. order faults with associated EM conductors east of Gæssajavri. Sample profiles should extend northwards to cover the stream sediment anomaly. Subsequently a ground geophysical survey (IP, VLF, mag) should be considered.

Uccavuovdas:

These three exploration permits covering 26 km² are located 5-10 km north of Kautokeino in an area with very few exposures. The area occupies a central position in the Alta-Kautokeino Rift, and is partly cut by the central NNW-SSE faults and partly surrounded by them. Also occurring are NE-SW faults. The area has suffered a complex tectonic development and the possibility for structure-controlled mineralisations is assumed to be good. Structurally the eastern part of the Cabardasjåkka area is dominated by NNW-SSE to NNE-SSW running main faults. These first order faults form shear lenses of kilometre scale and are possibly deep-seated structures. The orientation of some of the smaller, second order faults indicates sinistral movement along first order faults. The faults are partly coinciding with conductors, likely to be graphite schists.

The known mineralisations and alterations in the area are localised along structures. The minor NNW-SSE faults adjacent to the some of the mineralisations (e.g. Uccavuovdas North and -South) are probably bound to the formation of the shear lenses and might represent Riedel shears. Albite-carbonate altered rocks are formed along both first and second order faults. They are most frequent within the more tectonised eastern part of the area, which consequently is assumed to have greater potential for Bidjovagge-type mineralisations, as they also occur in a regional gravity anomaly, and the rocks, mainly greenstone, amphibolite (in the NE) and diabase, are metamorphosed at the transition greenschist/amphibolite facies. In addition, several conductor breaks occur.

Initiated by a boulder finding in 1961, exploration campaigns (including geophysics, geochem, geology and diamond drilling) have been carried out in the 1960th (NGU/GM), -80th (Bidjovagge Gruber/ASPRO) and -90th (Outokumpu/Norsulfid), focused on several mineralised structures.

Semi-regional geochemical sampling covering the area between Uccavuovdas and Hoallomaras is proposed as a first-step follow-up, where the auger method sampling C-

horizon is considered appropriate, excluding the swampy areas. Depending on the geochemical results, airborne interpretation and experiences learned from detailed work at targets, areas for ground geophysics will be decided.

Hoallomaras:

Chalcopyrite-pyrite mineralisation of Bidjovagge type occurs vein-bound and disseminated in albite felsite and to lesser extent in graphite felsite/-schist. According to the Ore Data Base, the gold content is low, < 50 ppb. This is, however, not in accordance with drill results obtained subsequent to Data Base updates. The albite felsite - graphite schist unit is 20-30 m thick, and is bordered by tuffitic metavolcanics to the west and partly albite-carbonate altered metadiabase to the east.

The mineralisation occurs along an extensive north-south main fault, with an extensive, graphite related, associated conductor, which runs into Arctic Gold's claim Jalgescorut just south of SR's permit. Hoallomaras-Jalgescorut is explored by ground geophysics and deep till sampling both by ASPRO in the 80th and Outokumpu in the 90th.

ASPRO prioritized the Jalgescorut area based on a distinct weakening of the magnetic field over the diabase along the foot-wall of the conductor. The ground geophysics revealed a single, thin conductor extending through the entire grid area. No irregularities, breaks or weaker conductors were indicated. Based on the negative results ASPRO concluded no further follow-up.

Outokumpu drilled two holes at Jalgescorut in 1993, respectively 2 and 3.5 km south of the Hoallomaras mineralisation. According to Nessvoll (1994a) the 'results were not promising'. According to Sandstad et al. (1992) it is several breaks along the electrical conductor in the Jalgescorut area, which might indicate hydrothermal alteration.

Outokumpu drilled 5 holes in 1993 to explore the Hoallomaras mineralisation along a strike length of 250 m. Only one intercept showed significant mineralisation: 4.84 % Cu and 2.98 g/t Au in a 1.3 m section.

Ragatmaras:

NGU/Outokumpu gave preference to this area because the structures were similar to Bidjovagge, regional gravity anomaly, transition greenschist-/amphibolite facies and vicinity to regional shear zone, and 130 km² of the area was surveyed by detailed heliborne geophysics by NGU in 1989. They indicated that the N-S anticline NW of Riednjavri is the most prospective target within the area. The survey proved a variable magnetic trend above the diabases, and sudden variations in conductivity indicating hydrothermal alteration. Few significant conductor overlaps may be due to missing strong strike-slip movements.

The structure was drill-tested at the west flank in 1990 (4 holes totalling 710 m) with negative result, only weak alteration and low in copper and gold.

From comparison with Bidjovagge, the eastern flank is expected to be more prospective. The east flank has more breaks along the conductor, possibly due to hydrothermal alteration. It is two restricted copper stream sediment anomalies at the east flank. Sandstad et al. (1992) propose drill-testing of specific geophysical anomalies. Initiated by a reconnaissance, drilling of these targets should be considered for 2012.

Riednjavri:

Copper mineralisations containing Au and Ni occur within a sequence assumed to be at the same stratigraphic level as Bidjovagge. Cu-Au mineralisation is hosted in albite-carbonate altered metadiabase, with Cu-Ni mineralisation within an overlying sedimentary sequence containing intermixed graphite schist, biotite schist, carbonate rock and albite felsite. The supracrustal sequence with diabase sills is folded around a large massif of quartz-monzonite.

Interpretation of gravimetrical data shows that the sequence occurs within a ca 5 km deep synclinorium of subvertical and isoclinally folded meta-volcanics and –sediments.

The NGU/Prospektering campaign concluded that the mineralised conductors north of the lake are low-grade in copper and gold. They recommend, however, to follow-up the north-south running conductors/gravity anomaly east of the lake. As stream sediments from creeks draining these conductors are enhanced in copper, soil sampling is recommended in an area west and SW of the Riednjarri hill.

Sandstad et al. (1992) evaluated the ore potential within the Kautokeino Greenstone Belt based on interpretation of geodata, and concluded that the known mineralisations at Riednjarri are not related to traceable faults. They point to the area NE and east of the lake as prospective, with displacement of strong conductors.

8. References

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Appendix 1

Appendix 2

Appendix 3

Appendix 4