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Finnmark project (N-81-2).

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A REPORT ON SUMMER ACTIVITIES
FINNMARK PROJECT (N-81-2)

FOLLDAL VERK A/S - AMOCO NORWAY OIL COMPANY

NOVEMBER, 1982.

Prepared by:
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SUMMARY, CONCLUSION AND RECOMMENDATIONS

As a continuation from the 1981 regional soil geochemistry and airborne geophysical survey, conducted in the Karasjok area of Northern Norway, the 1982 program was structured primarily to follow up several geochemical anomalies associated with airborne EM-mag as well as numerous strong airborne EM-mag conductors not previously covered by the 1981 geochemical survey. The project consisted of detailed ground geophysical (EM-mag and VLF) and geochemical surveys, several reconnaissance geochemical surveys, geological mapping and prospecting including 1310 m of diamond drilling.

The target was Au-Cu mineralization in a geological setting of ultramafic-mafic volcanics, banded iron formations and eugeosynclinal metasediments. The program was conducted by Folldal Verk A/S in a joint venture with Amoco Norway Oil Company.

Geophysical coupled with detailed geochemical surveys have thus far outlined fifteen zones which show characteristies of good sulphide conductors. To date eight of these zones have been drilled totalling eleven holes of various length. The last seven zones have been recommended for drilling in 1983. Thus far the majority of the geophysical conductors, as determined by diamond drilling, have been essentially graphite with various associated carbonate and sulphide mineralization. Pyrrhotite is the predominant sulphide mineral but can at times alternate with pyrite. Chalcopyrite and sphalerite are the only other visible sulphides which are generally only minor constituents. The conductors with very high mags usually reflect the magnetite-rich banded iron-formations.

Results have been received form all holes of which DDH-GÆT-82-02 has returned the better values. These range from 0.001 Au oz/ton to 0.011 Au oz/ton over 16 meters and average 0.0053 Au oz/ton.

The highest Au value detected, from all holes, was in this same hole (DDH-GÆT-82-02) and assayed 0.024 Au oz/ton over a 1 meter section. The remaining ten holes all had values less than 0.016 Au oz/ton and most often only traceable amounts were detected. Copper values range from 0.01 % Cu to 0.13 % Cu while Zn values were from 0.01 % Zn to 0.39 % Zn. Only trace silver and lead were detected in all holes.

A reconnaissance humus program was undertaken principally to act as an aid in outlining the more favourable areas for ground geophysical follow up from a much larger anomalous area determined from the 1981 airborne survey. Several good Au anomalies with coincident airborne EM-mag have been detected which will require ground geophysical follow up. Some lower order Au anomalies may also warrant ground geophysics, but should be supported by soil/humus geochemistry. Also some present ground geophysical anomalies should be surveyed with soil/humus samples prior to any further drilling. Lastly, ground geophysics and soil/humus geochemistry should be completed over those airborne anomalies not covered by this years program.

Ground geophysics (EM-mag, VLF) should begin in the area in mid-February, weather permitting, while geochemistry in mid to late June. It may be best for diamond drilling to be carried on during mid to late fall since there are numerous areas which should be surveyed with geochemistry prior to any drilling. Also, thus far at least one and possibly two anomalies have to be drilled during the winter months.

During July, 1982, ninety-eight new claims were staked while fifty-one old claims were dropped in October 1982. Folldal Verk A/S presently holds two hundred and three claims in sixteen groups within the Finnmark project area.

INTRODUCTION

A follow up program consisting of detailed ground geophysics, reconnaissance and detailed geochemistry, geological mapping and diamond drilling was carried out in the Karasjok area of northern Norway during the latter winter months and running till early fall of 1982. This is the second year of a six year joint venture agreement between Folldal Verk A/S and Amoco Norway Oil Company established for the purpose of mineral exploration in Norway. Work performed during the first season included a program of regional soil geochemistry and airborne geophysics.

The project's goal is Au-Cu mineralization in association with banded iron formations in an ultramafic-mafic volcanic environment. The project is centered in a district which has been previously noted for placer gold occurrences and also known, but uneconomic under present conditions, stratabound Cu-Au and Fe-Mn deposits.

Detailed geophysical coupled with detailed geochemical surveys have successfully outlined numerous zones which show characteristics of good sulphide conductors. The reconnaissance geochemical program has also outlined several anomalous zones, which will require ground geophysical follow up.

To date a total of eleven holes have been drilled on eight geophysical - geochemical anomalies. Of the eight grids which have been drilled thus far only Gætkevarri grid is recommended for further drilling. An additional 98 claims staked this summer in four new groups have been added to the group previously held by Folldal Verk A/S. However, 51 claims from four different groups were dropped in October 1982; a total of 203 claims in 16 groups is now held by Folldal Verk A/S within the project area.

LOCATION, ACCESS AND TOPOGRAPHY

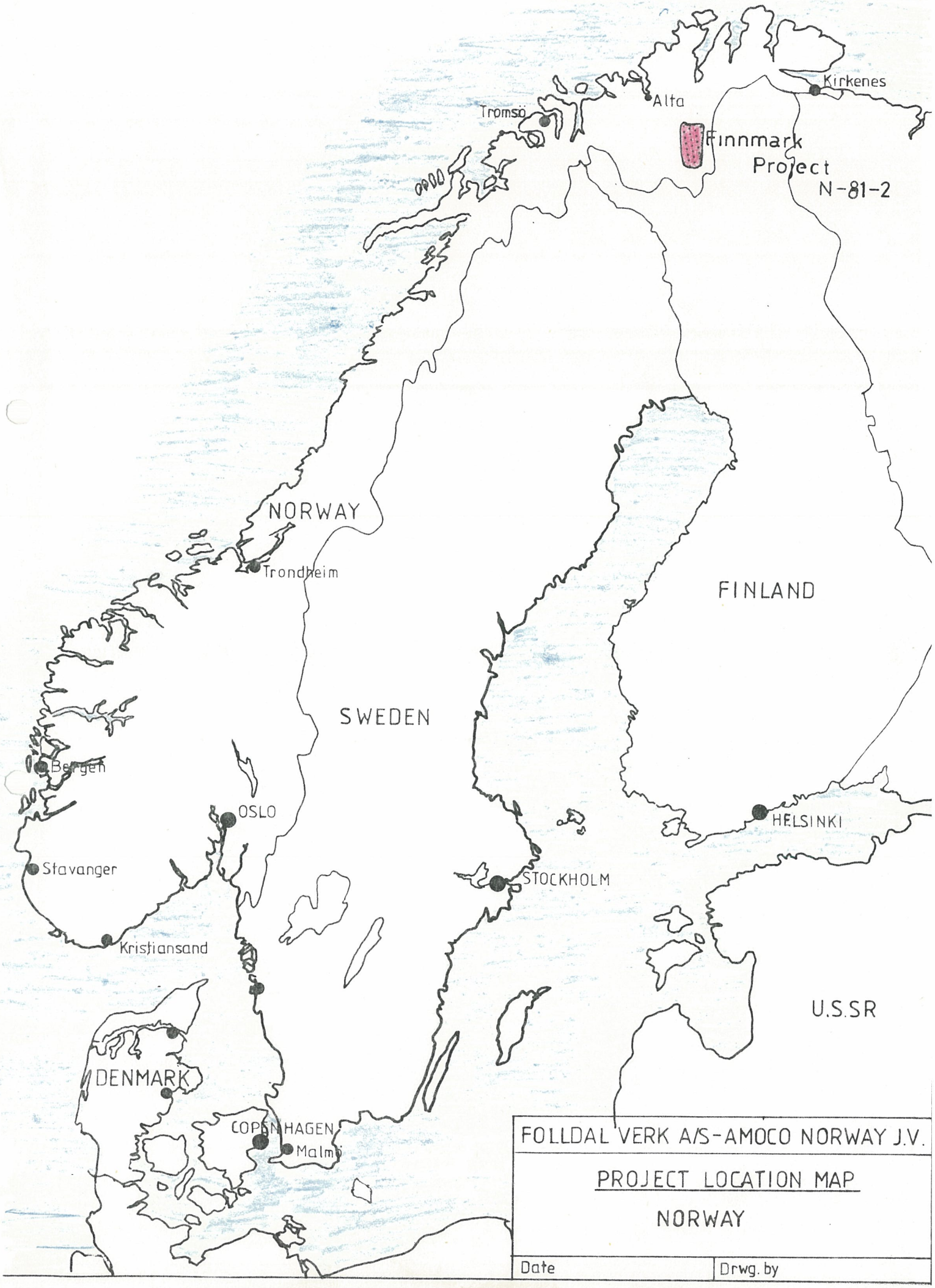
The project is located in the district known as Finnmark, in northern Norway, centered at Lat. 69 degr. 20 mins. Long 25 degr. 15 mins. (see Figure 1).

The town of Karasjok which is located in the northern corner of the project area is the nearest supply center. Good paved and gravel roads extend into the north half of the area along both sides of the Karasjok River from Karasjok. A power line extends into the north central part of the area also. The town is serviced by paved highways from Lakselv, to the north, and Alta, to the northwest, approximately 75 km and 170 km distance respectively, and also from Karigasniemi, Finland to the east approximately 15 km.

Both Lakselv and Alta are serviced by jet flights from Oslo and Trondheim. Helicopter service is available both from Lakselv and Alta, which are 70 km and 110 km by air, respectively, from Karasjok. Fixed wing service is also available from Alta.

During the winter months all work was performed in the northern half of the project area where there was good access to anomalies. A combination of either truck, van or car, snowmobile, snowshoe and cross country ski were utilized. In the summer months tractor - trailer and helicopter had to be used in the more isolated, southern end of the project when moving from area to area.

The topography within the project area, which is part of a region known as Finnmarksvidda (VIDDA meaning high plateau region) generally varies from 250 m to 500 m resulting in many small to large rolling hills connected by large flat marshy areas. The vegetation within the wide valleys consists mainly of birch, pine and smaller bushes. In the more open areas there are often stunted birch and "tea-brush". Many of the tops of the larger hills are only moss covered. Many



FOLLDAL VERK A/S-AMOCO NORWAY J.V.

PROJECT LOCATION MAP

NORWAY

Date	Drwg. by

shallow lakes, some excellent for trout (ørret) and pike (gjedde), are interconnected by their brooks and marshy areas and are numerous throughout the area.

LAND STATUS

As a result of good geophysical response and the appearance of another exploration company working within our project area, four more claim groups were staked during July. These 98 claims were added to the 156 previously staked by Folldal Verk A/S as a result of last years program (see Grid Location and Claim Map). After yielding disappointing results from grids - Jagilvarri, Sammulcåkka, Aslat-Pier-Varri and Lavvuvarri - these four groups, totalling 51 claims were dropped on October 31, 1982. To date Folldal Verk A/S holds 203 claims in 16 groups within the Finnmark project area.

JOINT VENTURE AGREEMENT

A "Heads of Agreement" dated June 01, 1981, established a joint venture for exploration and development of mineral deposits in the Folldal area of Norway between Amoco Norway Oil Company and Folldal Verk A/S. Grass roots exploration in other areas of Norway was included in this agreement as an "exhibit". A separate "Heads of Agreement" covering grass roots exploration has since been drawn up. This agreement establishes a 50/50 joint venture over a six year period from 1981 to 1986, subject to withdrawal by either party after September 01, 1983. Withdrawal would be effected by providing a written notice prior to December 01 of any year after that date, effective the following January 01.

Suggested funding of the joint venture was as follows:

	NOK
1981	1,000.000
1982	2,000.000
1983	2,500.000
1984	2,500.000
1985	3,000.000
1986	4,000.000
	15,000.000

TOTAL NOK EXPENDITURES	AMOCO FUNDING OBLIGATION	FOLLDAL VERK FUNDING OBLIGATION
0-1.000.000	100%	0%
1-5.000.000	80%	20%
5-15.000.000	65%	35%
Greater than 15.000.000	50%	50%

Folldal Verk is the designated operator of the joint venture.

HISTORY AND PREVIOUS EXPLORATION

The area has been noted for many years for the occurrence of placer gold with most of the occurrences concentrated in the ultramafic-rich portion of the volcanic pile. The first alluvial gold was found in the area by a mine inspector in 1866 in the Nitusjåkka river which happens to drain our Madiijavri grid. Most of the gold occurs in old erosion river terraces which often lie 6-8 meters above the present river level. Small plates of silver containing antimony have been noted in many of the placer gold occurrences, along with small quantities of platinum arsenides and sulphides. Native gold has been found in quartzitic boulders near Bæivásgied'di and Skiecamjåkka.

In 1966 a low grade, uneconomic, Cu-Au deposit was discovered by A/S Sydvaranger which is covered by that claim group in our Gårziroavvi (Storfossen) - Luossajarvarri area. It occurs in a 10-50 meter thick sequence of quartzites and micaceous gneisses which can be traced along strike for 4 km. The sequence includes garnet gneiss, graphite schists and calcarious sediments. Chalcopyrite and pyrite are the dominant ore minerals with an average grade of 0.4% Cu and "a few ppm Au". A/S Sydvaranger was working from Karasjok this summer, however, it is not known if they were still working this property.

Considerable drilling has been conducted in the southern part of the project area, primarily investigating the iron-manganese formations. Much of this work has been done by A/S Sydvaranger. They have encountered iron-bearing quartzites at several localities always overlying the ultramafic rocks. Frequently between the quartzites and ultramafics is a layer of amphibolite. The contact between the quartzite and amphibolite is sharp and marked by a sulphide-rich seam. The thickness of the iron-bearing quartzites ranges from 10-20 meters. They inturn are overlain by skarn in association with sulphide-rich black schists. Two types of ore occur -

1. quartz-banded garnet-biotite - plagioclase - gneiss with magnetite and hematite, and

2. an overlying banded rock that contains quartz and calcite with magnetite and hematite and manganiferous silicates and carbonate

The first type averages 22% Fe and 2% Mn and the second, skarn type, 27% Fe and 8% Mn.

In addition, Sulfidmalm A/S (Falconbridge) has apparently conducted exploration in search of Cu-Ni, mainly in the southern part of the area (see Grid Location and Claims Map).

REGIONAL GEOLOGY

Finnmarksvidda is underlain by Pre-Cambrian rocks of Svecokarelian age (1600-2100 Ma). The sequence, referred to as the Karasjok Group, consists of a central basement dome of granulites, granodiorite and quartz-diorite gneiss with minor migmatite, overlain by a basal conglomerate and meta-arenite, mica schists to quartz mica schists followed by ultramafic lavas, quartz banded iron formations and finally horneblende schists and amphibolites. Several late stage ultramafic, diabasic, gabbroic and granitic bodies occur throughout the sequence (see Figure 2).

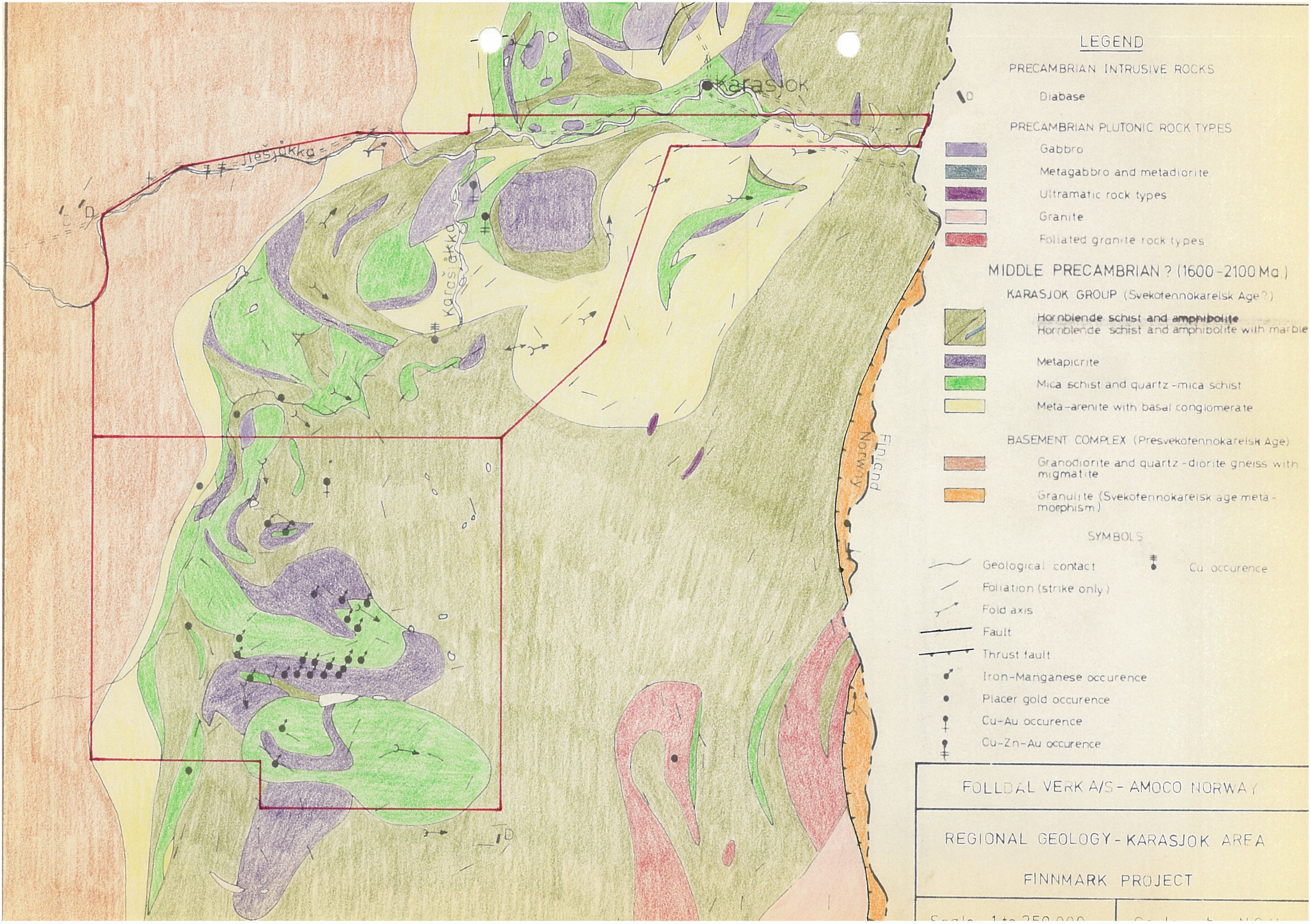
There are several occurrences of disseminated copper-iron sulphides found within the metasediments of the Karasjok Group. These occur within a series of banded iron-quartzites and manganiferous iron sediments in association with strata-bound ultramafics. The iron formations occur on the hanging wall of the ultramafics, with a sulphide-rich seam commonly occuring along the contact. This horizon is generally from 10-20 meters thick and is overlain by sulphide-rich black shales. The iron formations contain magnetite and hematite averaging 22-27% Fe and 2-8% Mn. Both types are represented by deposits within the project area, however, combined with grade and location a mining venture is unfavourable at present. The ultramafics are olivine-rich and are generally altered to talc and serpentine.

The Svecokarelian age of the Karasjok Group is not definite. The upper most part of the section is dominated by ultra-mafic lavas - suggesting the group may be older than Svecokarelian, possibly Early Precambrian (>2100 Ma.) (Bugge, 1974). Similar rocks in other regions of the world (Western Australia, Southwest Africa) are characterized by extraordinarily high ages within the Archean epoch. Also separate ultramafic lava streams are generally rare in younger geological epochs and usually found as minor flows associated with meta-basaltic lavas.

At least two phases of deformation have taken place in the Karasjok area. During the first, the rocks were folded with axes striking northwest-southeast. In the second phase the rocks, in a broad zone near the western front of the granulite nappe were deformed and rotated to a position sub-parallel to the thrust front.

1982 PROGRAM

The 1982 exploration season for the Finnmark Project (N-81-2), situated in the Karasjok area of northern Norway, commenced approximately mid-March and ended early in October.



LEGEND

PRECAMBRIAN INTRUSIVE ROCKS

- Diabase

PRECAMBRIAN PLUTONIC ROCK TYPES

- Gabbro
- Metagabbro and metadiorite
- Ultramatic rock types
- Granite
- Foliated granite rock types

MIDDLE PRECAMBRIAN ? (1600 - 2100 Ma)

KARASJOK GROUP (Svekofennokarelsk Age ?)

- Hornblende schist and amphibolite
- Hornblende schist and amphibolite with marble
- Metapicrite
- Mica schist and quartz - mica schist
- Meta - arenite with basal conglomerate

BASEMENT COMPLEX (Presvekofennokarelsk Age)

- Granodiorite and quartz - diorite gneiss with migmatite
- Granulite (Svekofennokarelsk age metamorphism)

SYMBOLS

- Geological contact
- Foliation (strike only)
- Fold axis
- Fault
- Thrust fault
- Iron-Manganese occurence
- Placer gold occurence
- Cu-Au occurence
- Cu-Zn-Au occurence
- Cu occurence

FOLLDAL VERK A/S - AMOCO NORWAY

REGIONAL GEOLOGY - KARASJOK AREA

FINNMARK PROJECT

During this period an area of 1000^2km was investigated for its gold-copper potential by means of detailed geophysical and geochemical surveys,geological mapping and prospecting, as well as 1500 meters of diamond drilling.

The project target is gold-copper mineralization in association with banded iron formations in an ultramafic-mafic volcanic environment.

The geophysical targets were chosen from an airborne survey flown the previous summer with priority given to those with coincident anomalous soil geochemistry which had been taken during the same 1981 summer season. The survey, flown by the Norwegian Geological Survey (N.G.U.), totalled approximately 2000 line kilometers, using a line spacing of 250 meters.

Ground geophysical instruments consisted of Duncan Crone's CEM, Geometrics proton magnetometer and a VLF manufactured in Trondheim Norway by Steinar Paulsen. Most ground geophysical grids were constructed using a 150 meter line spacing and 25 meter station spacing, CEM surveys were performed using a 100 meter coil separation. All readings were taken at 25 meter intervals.

From geophysical interpretation and later verified by drilling, overburden ranged from 3 to 20 meters and averaged 7 to 8 meters. Thus in all areas investigated by geophysics the airborne conductor was outlined quite well.

Airborne and ground geophysics indicated a general strike direction in the north, central and southern parts of the project area as NE-SW, N-S and NW-SE, respectively, all with an easterly trending dip generally ranging from 30° to 45°.

CEM curves were basically of two types:

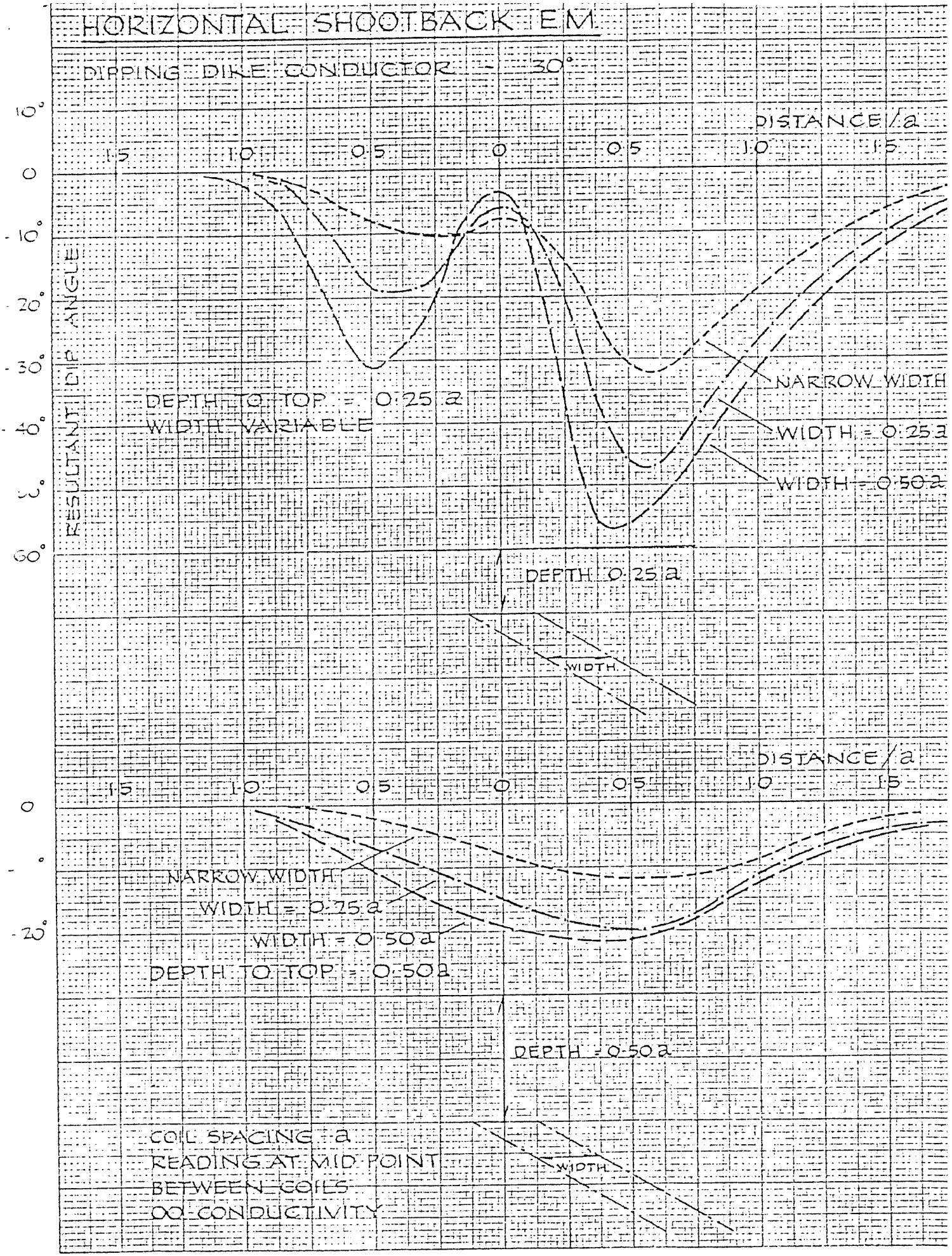

HORIZONTAL SHOOTBACK EM
DIPPING DIKE CONDUCTOR - 30°
RESULTANT DIP ANGLE
10°
0
-10°
-20°
-30°
-40°
-50°
-60°
DISTANCE/a
1.5
1.0
0.5
0
0.5
1.0
1.5
DEPTH TO TOP = 0.25 a
WIDTH VARIABLE
NARROW WIDTH
WIDTH = 0.25 a
WIDTH = 0.50 a
DEPTH 0.25 a
WIDTH
DISTANCE/a
1.5
1.0
0.5
0
0.5
1.0
1.5
0
-20°
NARROW WIDTH
WIDTH = 0.25 a
WIDTH = 0.50 a
DEPTH TO TOP = 0.50 a
DEPTH = 0.50 a
WIDTH
COIL SPACING a
READING AT MID POINT
BETWEEN COILS
∞ CONDUCTIVITY

Figure 3

1. Predominantly negative resultant dip angle profiles usually with small positive or low negative number angles representing a "positive" peak. There would usually be two negative peaks with much higher negative angles on either side of the "positive" peak.

2. "Saucer-shaped curves" - these are composed of a very wide entirely negative angle response (see Figure 3 for example curves).

Magnetic background throughout the project area is 52800 ɣ. Good anomalous zones were on average 1000ɣ above background. The VLF also picked up conductors well, usually up dip slightly from the main EM-mag body. For N-S striking conductors Bordeux, France (BOF) and Rugby, Scotland (GYD) were used. For E.W. conductors Cutler, Maine (NAA) in the United States was utilized.

The intended purpose of the reconnaissance geochemical program was primarily to assist in establishing priorities for further ground geophysical and geochemical follow up from a much larger anomalous area outlined by the 1981 airborne survey. Specifically, over the now established grids - Gårziroavvi (Storfossen); Marget - Jåvnaroavvi, Loussajavri; Loussajarvarri, Suolgajåkka, Gainujåkskai'di and finally Daigesvaddaucca. Detailed geochemistry was used in conjunction with geophysical surveys to determine whether a conductor was a potentially favourable drill target or not. Both programs consisted largely of humus sampling while in the later part of the season soil geochemistry was favoured. This decision to change resulted from abnormally low gold value in the humus when comparing the response received from soils. However, some very interesting humus anomalies with coincident EM-mag have been detected from the program. Humus background is generally $\leq$ 3 ppb Au and any samples $\geq$ 5 ppb Au were considered anomalous for the Karasjok area.

Geochemical programs commenced in early June and ended late in September, while the geophysical surveys were conducted from the beginning of the project in mid-March until the end on October 1st, 1982.

All samples for geochemical analysis, including core samples, were shipped to X-Ray Laboratories in Don Mills, Ontario, Canada. Humus samples were analysed for Au by neutron-activation methods while soils were analysed for Cu, Pb, Zn and Au by D.C.P. and F.A.D.C.P. methods, respectively. Core samples were analysed for Au and Ag by F.A. technique, Cu and Zn by X.R.F. and Pb by standard D.C.P. method.

Due to extensive overburden cover very few geophysical grids exposed any outcrop. However, outcrop which was observed tended to be found mainly along rivers and small brooks and occasionally following the sides and at the tops of the more prominent hills.

On June 19, 1982, Terranor A/S from Trondheim collared their first diamond drill hole of eleven which were drilled on various geophysical anomalies. The eleventh hole was stopped on September 12, 1982. Assays from all holes have been received and all have resulted in a negative gold response, except for the second hole on the Gaetkevarri grid. From this hole an assay of 0.024 Au oz/ton over one meter was detected. Interesting, but scattered copper and zinc values have been detected in many holes, however, none are high enough to warrant further drilling.

Four new groups totalling 98 claims were staked during July. While 51 of 156 previously held claims were dropped, Folldal Verk A/S now has 203 claims in 16 groups within the project area.

GRID GEOPHYSICAL AND GEOCHEMICAL RESULTS

The majority of the geophysical grids were established using a 150 x 25 m grid pattern. Detailed humus and/or soil geochemistry was taken over all geophysical grids whenever possible and thus followed the same pattern. Reconnaissance geochemical grids were set up using a 200 meter line spacing and 50 meter station spacing. Each grid unless otherwise stated can be regarded as having the same pattern.

In the following discussion of this year results, I will first deal with the detailed geophysical and detailed geochemical grids and later the reconnaissance geochemical grids.

Diamond drill results are only briefly mentioned here. For more detailed core descriptions and a discussion on results refer to Dr. F.D. Priesermann's report.

DETAILED GEOPHYSICAL AND GEOCHEMICAL GRID RESULTS

1. Iavrasmuotkenjarga Grid (30252)

A small geophysical grid was established over this short EM-mag anomaly. Geophysics has successfully outlined a strong coincident EM-mag-VLF conductor on a single line. The conductor appears to be cut off to the south but due to power lines parallelling the survey lines to the north it is not known whether it continues to the north. The magnetometer indicates weak mags in the NE-SW and NW-SE directions. Thus without additional EM or VLF a strike direction is difficult to determine.

Diamond drilling is recommended to explain this conductor. Possibly a good diamond drill location would by LO-00 2+50 W. Since the anomaly lies within the Karasjåkka River drilling will have to be performed during the winter months.

2. Madiijav'ri Grid (30253)

This is a single, strong, isolated airborne EM-mag anomaly with anomalous gold in the soils. From geological mapping it was discovered the anomaly occurred along a gabbro-garnitiferous paraphyllite-schists contact. Geophysics detected two EM-mag-VLF conductors, one with a much higher coincident mag. The better conductor was drilled to a depth of 75 meters. A 50 centimeter section of massive sulphide was intersected at 38 meters and graphitic schists between 46-54 meters. Only negative results were received from those core samples taken.

No further work is recommended.

3. Dak'tejåkka Grid (30254)

As indicated by airborne geophysics this grid encompasses a very strong EM-mag zone which is offset from a longer regional conductive body. Geochemistry indicated one copper anomaly at the north end of the grid, with several low order gold values scattered across the grid. Geophysics has outlined possibly two parallelling conductive zones with good EM-mag-VLF overlap occurring at several locations in the upper horizon. Power lines interferred with the survey where the lower horizon was detected. However, good overlap of all three instruments was encountered on one line.

Two diamond drill holes were put down to test each horizon. Mixed sulphide (mainly pyrite and pyrrotite and minor chalcopyrite) and graphite were the cause of the conductors. All core assays for these holes proved to be discouraging.

A few outcrops are exposed in the northern half of the grid. One of these is a paraphyllite with disseminated and stringer chalcopyrite and pyrrhotite which assayed 0.08% Cu, 0.02% Zn. Au, Ag and Pb were not detected.

No further work is recommended for this grid.

4. Jægilvarri Grid (30255)

Only a selected portion of last years geochemical grid was surveyed with geophysics. This is the stronger EM-mag area with associated arsenic anomalies. The geochemical survey did not reveal any significant Au, Cu, Pb or Zn anomalies. Geophysics did detect a significant EM-mag-VLF conductor over a strike length of six hundred meters. This zone does not directly overlap with the higher arsenic values. The anomaly can also be traced further along strike at both ends but the response is much weaker. Unfortunately, graphite in a paraphyllite-schist outcrop was observed in the vicinity of this strong geophysical anomaly.

This combined with an overall negative response from the soils (excluding arsenic) and the fact it appears to be a continuous conductor characteristic of a regional graphite horizon, drilling was not conducted this summer and is still not recommended on this anomaly. Trenching directly over the geophysical and soil anomalies may be warranted.

5. Sammalcåkka Øst Grid (30270)

This airborne EM-mag anomaly occurs on one edge of an area of high magnetics, flanking a large ultramafic body. Some geophysics and no geochemistry has been done in this area. CEM and VLF have been completed but mag has yet to be. One strong and one weaker EM-VLF anomaly has been detected. The stronger conductor is on an adjacent line to the weaker, however, it is offset from it and only occurs on one line. The weaker can be traced along two lines.

It is recommended mag be completed over this grid and if warranted, soil samples.

6. Sammalcåkka Grid (30256)

This is a strong, isolated airborne EM-mag anomaly on the western edge of the same magnetic high as Sammalcåkka Øst.

Last years geochemical grid which was to cover this conductor was improperly located. As a result only the eastern ends of the geophysical lines 3+005, 4+505 and 6+005 have been tested by soil geochemistry. The geophysical grid is properly located and as a result outlined a strong EM-mag-VLF anomaly over a strike length of three hundred meters. A 124 meter diamond drill hole intersected 30 meters of quartz-banded Fe-formation composed of many centimeter thick magnetite-rich bands alternating with magnetite-poorer bands. Deeper into the hole graphitic slates to schists were encountered. Only very minor spots and disseminated pyrite and pyrrhotite was observed. Assay results from core samples indicated no economic mineralization.

No further work is recommended.

7. Bakkilvarri Grid (30273)

A grid was established over this very isolated airborne anomaly which is situated in a area of high magnetics. The conductor lies near the top of a prominent hill which is reported to be composed entirely of ultramafics. Both geophysics and humus geochemistry resulted in an overall negative response. CEM and VLF picked up a conductor but with no coincident mag and no significant anomaly from geochemistry.

No further work is recommended for this area.

8. Gætkevarri and Gætkevarri Extension Grid (30258)

Gætkevarri Grid

This airborne EM-mag anomaly is situated between a large ultramafic body to the east and an equally large gabbro body to the west. In between are a series of metasediments and metavolcanics - meta-arenites, mica schists and quartz-mica schists, horneblende schists plus amphibolites. Several

soil samples were anomalous in gold, copper and zinc with occassional overlap of all three. There were only scattered anomalies from arsenic and lead, but these too did overlap at times with the previous three elements. The best gold values occurred on three adjacent lines with values of 15-56 ppb. The higher copper values were separate from the gold values and range from 120-260 ppm. The geochemical grid has been completely covered and extended by ground geophysics. It has outlined a wide continuous EM-VLF conductor striking N-S in the north end of the grid and NW-SE in the south end. There are several locations along single lines and within this wide conductive zone where there are medium to high (600-2000 γ above background) magnetics. Some mags can be traced from line to line resulting in areas where there is EM-mag and VLF overlap.

As a result of good geophysical response combined with co-incident anomalous geochemistry two diamond drill holes were recommended and drilled this summer to test what was believed to be two separate horizons. DDH-GÆT-82-02 which tested the upper horizon returned the better results. Over a 16 meter section values range from 0.001 Au oz/ton to 0.011 Au oz/ton and averaging 0.0053 Au oz/ton. Within the same section copper values range from 0.04% Cu to 0.07% Cu; Zinc from 0.07% Zn to 0.24% Zn with silver and lead not detected. DDH-GÆT-82.01, drilled into the lower horizon, proved to be much more discouraging with only two samples of eighteen returning gold values. Both were less than 0.003 Au oz/ton.

Gætkevarri Extension Grid

After observing interesting disseminated and stringer chalcopyrite-sphalerite in numerous locations in both holes combined with a second interpretation of the geophysical results, this second grid was established to 1) better define the strike of the conductor and thus attain more accurate results and 2) determine the extent and magnitude

of the conductor as it appeared to continue to the south in a SE direction. The survey was successful on both accounts. Three parrallel EM-mag-VLF horizons were detected each overlying the other. The upper, which is 125 meters to the east of DDH-GÆT-82-02 location, extends for over 600 meters and is cut off at both ends. DDH-GÆT-82-02 was found to have slightly parallelled the middle horizon. It can be traced along strike for over 900 meters and is cut off in the south but open to the north. The lower zone is a continuous conductor and it is open at both ends of the grid. This horizon is recognized by consisting of very high positive and negative resultant dip angles (greater than +100 and -100's) characteristic of a graphite horizon. Massive graphite has been observed in outcrop in this same area.

Soil samples have been taken over this new grid and have produced two significant on strike gold anomalies with several other scattered but weaker anomalies. The highest gold value detected is 44 ppb Au. The most northern Au anomaly is also in an area with high Cu and Zn values, 130 and 140 ppm, respectively. The Au geochemical anomaly appears to parallel the contact between the massive graphite horizon and mixed metasediment-volcanic sequence. DDH-GÆT-82-02, which has interesected some interesting but weak Au, Cu and Zn values, has sub-parallelled this contact and probably has not even intersected it.

It is recommended one diamond hole be spotted on the Gætkevarri Extension Grid to perpendicularily intersect all three horizons detected by ground geophysics. The massive graphite zone may be used as a marker horizon.

9. Aslat-Pier-Varri Grid (30259)

Last year soil survey returned scattered gold values ranging from 10-78 ppb over this airborne EM-mag anomaly. The better copper values, 110 and 480 ppm had coincident anomalous Zn, Au and Pb and were located at the end of the grid. VLF detected a strong conductor from L1+50N to L19+50S but CEM

and mag were very erratic throughout the grid. However, there is occasional overlap of all three. At one location (L12+005 1+00E) a rock sample from a gabbro outcrop assayed 0.004 oz/ton Au and 0.12% Cu. Based on the fact there was good disseminated copper mineralization in an area of EM-mag-VLF coincidence including overlapping geochemistry, DDH-APV-82-01 was collared at L12-005 2+00E. Graphite was the cause of the anomaly.

No further work is recommended.

10. Hannas-Pier-Laddo Grid (30275)

In the beginning a humus grid was established to cover this one flight line EM-mag anomaly in an area containing large fuchsite outcrops. A sample from one of these outcrops was analysed for Au, Ag, Cu, Pb and Zn but only trace amounts were detected. Humus results outlined three strong anomalous zones with the highest Au ranging from 6-10 ppb. Ground geophysics was recommended and as a result EM-mag and VLF overlap was indicated on two adjacent lines. The EM and mag (300-400 ɣ above background) are weak in an area with no direct geochemical coincidence.

Drilling is recommended but on a low priority basis.

11. Lavvuvarri Grid (30272)

A preliminary detailed geophysical grid was established over this large airborne anomaly followed by humus geochemistry. Both surveys were generally negative. There are EM-VLF conductors which could be traced from line to line but frequently without an associated mag. When a coincident mag did occur it was always less than 600 ɣ above background and commonly less than 300 ɣ above background. Six non-adjacent locations returned the highest Au values, all were 5 ppb Au except one which was 6 ppb Au. These anomalies did not overlap with any of the geophysical conductors.

No further work is recommended for this area.

12. Suolgajåknjal'bmi Grid (30271)

This is a strong, isolated EM-mag airborne anomaly which occurs in an area of high magnetics and previously known sulphide-quartz-carbonate boulders. Geological mapping has discovered three zones of quartz-carbonate veining in outcrop with associated Cu-Py-Po mineralization. In the area of the main mineralized zone the stratigraphical sequence is as follows:

(top of sequence)	mixed garnetiferous metasediments, metavolcanics and ultramafics, magnetite rich quartz-mica paragneiss(?)
	graphitic slate
	ultramafic to mafic volcanics
	sulphide-quartz-carbonate veining (sulphides are cp, py, po)
	ultramafics to mafic volcanics
(bottom of sequence)	garnetiferous metasediments

The main zone assayed 0.001 Au oz/ton and from 0.20 to 0.37% Cu. There is 0.01% Zn while Ag and Pb were not detected. Results from the other two zones including some scattered mineralized boulders all returned values less than those received from the main zone.

The magnetometer has outlined the magnetite-rich quartz-mica paragneiss (?) quite well, while the VLF appears to have detected the graphitic slate overlying the sulphide-quartz-carbonate veins and possibly a water-saturated talc-rich ultramafic unit in the upper most section of the sequence. The CEM responded with rather weak anomalies but appear to be traceable with the VLF cross-overs and magnetite highs.

After contouring humus results two slightly anomalous zones arose, one which is observable to overlap in the area of the main zone of sulphide-quartz-carbonate veins. The second

appears to cover the water-saturated talc-rich ultramafic zone. Soils have also been taken over this grid but no results have been received to this date.

If interesting gold anomalies arise from the soil program drilling is recommended on a first priority basis. If not, drilling may still be warranted to test the extent, magnitude and copper content of these interesting quartz-carbonate veins.

13. Gai'kenjavvi Grid (30274)

This grid was established to survey a strong EM-mag anomaly which is in the vicinity of the Suolgajåknjal'bmi grid. Geophysics has indicated three areas with good and coincident EM-mag and VLF results. The better anomaly can be traced along a strike length for approximately 400 meters and on L1+50N 2+00ø it has a 2500 ɤ above background coincident mag. A second zone occurs along two adjacent lines and is found 750 meters to the north and along strike of this first zone. The third anomaly is only present on one line and is also along strike but is 300 meters south of the main zone.

Humus has been done in the southern section of the grid while soils have been taken over the entire length of the grid. Humus results proved to be negative except for one anomalous value, of 6 ppb Au, present on the most southern line of the grid. Soil results are yet to be received from the lab.

It is recommended diamond drilling be conducted, possibly on L1+50N to intersect this stronger EM-mag-VLF conductor. The soil geochemistry may be used to aid in determining the final location.

14. Dabmutsuokkadas Nord Grid (30279)

This grid is situated at one end of extensive multiple conductive body with coincident high magnetics.

No geochemistry has been done on this grid.

As expected ground geophysics detected a large body of parallelling EM-VLF conductors with at times weak to strong overlapping mags. Most of these conductors are continuous along strike for greater than 1650 meters. One good anomaly was discovered which is offset from the main body. It occurs only on one line and is a good EM-VLF conductor with a co-inciding mag of 3000 γ above background. This was drilled during the summer (DDH-DAB-82-04) and a combination of magnetite and graphite was intersected. Minor (2 vol%) dis-semated and spotty pyrite and pyrrhotite was also observed. Assay results from core samples proved negative.

Since there are several areas within this large conductive body with coincident EM-mag and VLF which may reflect economic sulphide, it is recommended a combined program of soil and humus sampling be conducted, with special preference given to soil sampling when ever possible. This should be done prior to any further work.

15. Dabmutsuokkadas Grid (32067)

This grid is established over a good airborne EM-mag anomaly with associated strongly anomalous Au, Cu and Zn which was detected from last years regional soil program. Gold values range from 13-270 ppb, Cu from 50-110 ppm and Zn from 190-270 ppm.

From geophysics it appears there may be two distinctive rock types present within the grid area. This is characterized in the north by generally flat results except for a simple good conductor in the north east corner of the grid. It can be traced along three adjacent lines and is also seen to extend into the southern area of the grid. The south area, consisting of the last five lines, are characterized by being almost entirely composed of high negative dip angles from one end of the line to the other. An exception is the most southern line where the conductor is cut off.

The Au, Cu, Zn soil anomaly is located in the proximity of the above mentioned EM-mag-VLF anomaly in the northeast corner of the grid. DDH-82-03 was collared on L4+50N 6+00E to intersect this conductor. Graphite and magnetite with occasional minor disseminated and spotty pyrite, pyrrhotite and $\pm$ chalcopyrite was the cause of the conductor. One hole was spotted within the highly anomalous zone in an area with EM-mag and VLF coincidence. The conductor is a 30-40 meter section containing up to 60 vol. % sulphide (pyrite and pyrrhotite). Frequently a graphite-felsite breccia is observable.

Assay results from core samples have been received from the lab but all were discouraging.

No further work is recommended.

The following three grids, Gæs'saroavvi Nord, Gæs'saroavvi Central and Gæs'saroavvi Syd adjoin one another and were established over an area of strong EM and magnetics. These grids cover a long, curved, geological contact between reportedly hornblende schists, amphibolites and minor mica to quartz mica schists to the west and dominantly metapicrites to the east.

16. Gæs'saroavvi Nord Grid (30268)

From last years soil program anomalous Pb and Zn values were reported within the area.

A weak EM-mag-VLF anomaly, traceable over three lines, is present in the north. Two parallelling and stronger conductors are present in the central part of the grid. One of these which has a strike length of at least 750 meters can be connected by mag and VLF with the EM-mag-VLF anomaly to the north but is separated by a very weak EM. The other "stronger" anomaly just occurs on one line and it appears to sit near the trough or in the nose of this structural bend.

A planned 200-250 meter diamond drill hole which was to intersect both of the stronger anomalies was halted at 137 meters due to technical problems at the drill. Graphite-bearing quartzites and graphite-bearing quartz-rich metasiltstones appear to be the conductors thus far.

Humus taken over a small portion of the grid in the south section resulted in a negative response.

Drill core results have indicated no significant mineralization. It is recommended a combined program of soil and humus sampling be conducted with special preference given to soil sampling whenever possible. This survey may help to outline a more favourable drill target from the ground geophysics.

17. Gæs'saroavvi Central Grid (30268)

This grid was established over a dominantly anomalous zinc area with coincident airborne EM and especially high magnetics.

Geophysics detected two closely parallelling conductors which strike through the entire length of the grid. These two fan into several conductors on the two most southern lines where there is also especially high associated mags (6000-6200ɣ above background). The first and second most northern lines also have high mags, 1600ɣ and 3000ɣ above background, respectively. The central section of the grid is characterized by rather subtle mags ranging from 400ɣ to 800ɣ above background. EM, VLF and mag may be considered to be coincident.

Comparing the relatively wide line and sample spacing (300m x 100m) employed in last years soil program to the narrowness of this main conductive body, it is recommended a combined program of soil and humus sampling be conducted with special preference given to soil sampling whenever possible. This should be conducted prior to any drilling.

18. Gæs'saroavvi Syd Grid (30268)

Within the grid area is one main gold anomaly stretching over two adjacent lines with several other scattered areas anomalous in Au and Pb. The highest Au value is 63 ppb while Pb is 12 ppm.

Ground geophysics outlined a wide area consisting of multiple parallel conductors with very high corresponding magnetics. The anomaly is present through the entire length of the grid.

As previously mentioned an interesting Au anomaly was detected from last years soil program. This happens to be in the close proximity of a good EM-mag-VLF conductor.

It is recommended this conductor be tested by diamond drilling. Although a combined program of soil and humus sampling, with special preference given to soil sampling when ever possible, may be warranted before any drilling begins.

19. Hannoai'vi Syd Grid (32069)

Geochemistry had not been performed over this isolated one flight line anomaly priorto this year. Humus sampling was completed over the entire grid after the geophysical survey.

Geophysics has produced only negative results. On one line (L4+50E 0+25N) a mag of 1000 γ above background has been detected. There is a coincident VLF crossover, however, the CEM indicated only a very weak anomaly.

Humus results have produced two anomalies, with values ranging from 5-18 ppb Au, however, neither overlap with the geophysical anomalies.

No further work is recommended.

20. Hannoai'vi Nord Grid (30269)

The geophysical grid partially overlaps with some of the area covered by last years soil program. No significant soil anomalies arose from within the area. The geophysical grid was established over a very isolated, interesting airborne anomaly. A weak EM-mag conductor, but with a good associated mag. (max. 1200 ɣ above background) has been outlined for over 450 meters. This same conductor can be traced further along strike 450 meters to the west and 150 meters to the east. Although the EM is stronger to the west there is only a very slight coincident mag (200 ɣ above background). To the east the EM is weaker but the mag stronger.

Humus results have been received and have outlined too strong Au anomalies, one which is coincident with an EM-mag anomaly on L4+50E 3+25N.

A combined program of soil and humus sampling, with special preference given to soil sampling whenever possible, may be warranted over this EM-mag-VLF conductor prior to any further work. The results of this program should aid in deciding whether this conductor is a good drill target. Without the geochemistry drilling is recommended but on a low priority basis.

21. Gæs'sajav'ri Grid (30266)

This 3750 meter baseline was established to survey a relatively isolated, large and continuous EM-mag anomaly. A major part of the northern half of the grid has been tested with soil samples from last year's program. Only scattered Au and Pb values were detected. This year humus samples have been taken on every other line. Results have been received but no significant Au anomalies arose.

Ground geophysics, however, has detected a single strongly anomalous zone with very good EM-mag and VLF overlap traceable over a strike length of 1350 meters (L10+50E to L3+00W).

It is highly recommended additional soil sampling be conducted to aid in determining a diamond drill hole location.

22. Njuovčut Vest Grid (30265)

This is one of two grids (the second being Njuovčut Central) chosen from an area with several strong EM and strong coincident mags. Only the northern half of this geophysical grid has been surveyed by soil samples from last year's survey. A few isolated values anomalous in Au were detected. Humus has been taken but only directly over the conductor as outlined from ground geophysics. They have resulted in a negative response. Geophysicaly anomalous results occur through most of the grids length, however, the better results are confined between L9+00W to L12+00W and L16+50W to L19+50W. Two parallelling conductors are evident between the former. Of these the southern conductor is always associated with an extremely high mag (up to 4700 ɣ above background). While the mag to the north is only 1800ɣ above background and does not always overlap with the EM-VLF conductor, there is only one EM-mag-VLF conductor between L16+50W and L19+50W, however, it has good coincidence of all three instruments only on L18+00W. Here the mag is approximately 4000 ɣ above background.

Soil geochemistry directly over the better geophysical anomalies may be warranted prior to any further work.

23. Njuovčut Central Grid (30265)

This grid had been originally planned for ground geophysical surveying this year but due to uncommonly wet conditions in this principally marshy area it was decided to postpone surveying until the winter months of 1982.

24. Davvet-Aslat-Jav'ri Grid (30283)

This was the last airborne anomaly attempted during the 1982 season. It is situated in the vicinity of a reported contact between mica schists to quartz mica schists toward the west and metapicrites to the east. It is an isolated EM-mag anomaly within a larger area of magnetics. As a result of earlier than predicted wintery conditions, surveying had to be abandoned after only one day of work.

It is recommended this grid be completed with ground geophysics and soil and/or humus sampling.

RECONNAISSANCE GEOCHEMICAL GRID RESULTS

The following eight humus grids, with the exception of one, are all located within the central region of the project area. These have been established over very large areas consisting of multiple airborne EM-mag conductors. Many placer gold occurrences are reported with the area. A/S Sydvaranger has discovered a low grade, uneconomic, Cu-Au deposit within the vicinity.

1. Garziroavvi (Storfossen) Grid (30282)

This grid is established over several scattered airborne EM-mag anomalies with two known placer gold occurrences at the north end of the grid. Humus geochemistry outlined several areas anomalous in gold. The two better anomalies, which are found in the south end of the grid, both have a strike length of over 400 meters. Gold values range from 5 to 7 ppb Au. One isolated value of 11 ppb Au has been detected 600 meters to the north of these first two anomalies and another of 5 ppb Au 1600 m to the north. All of these humus anomalies have a corresponding airborne EM-mag anomaly.

During the staking procedure of this grid a 2 x 1 meter massive pyrrhotite-chalcopyrite pod was discovered at the north end of the grid. Samples of the pod and country rock (quartzites) assayed 0.44% Cu and 0.01% Cu, 0.01% Pb, respectively. No Au, Ag or Zn were detected. It is recommended all airborne EM-mag conductors in the vicinity of the geochemical anomalies be followed up with ground geophysics on a first priority basis. Abundant outcrop occurs throughout the area thus detailed geological mapping and prospecting is also recommended.

2. Luossajarvarri Grid (30261)

This grid is approximately 1-2 kilometers north of A/S Sydvaranger's Cu-Au deposit. Geochemistry has detected one major Au anomaly which stretches over 800 meters along strike and is up to 200 meters wide. Anomalous gold values range from 6-26 ppb Au. Several other isolated anomalous as well as slightly anomalous Au values occur nearby. The main anomaly lies predominantly along the bottom, and partially up slope of a steeply sided valley. Good EM-mag conductors occur on either side of the valley walls.

It is recommended this area be followed up with detailed ground geophysics and gelogical mapping on a first priority basis.

3. Luossajav'ri Grid (30282)

This grid is an extension of our Luossajarvarri Grid on its northern end and our Marget-Javnaroavvi Grid on its eastern end. Only one anomalous value of 8 ppb Au was detected in an area with airborne EM-mag coincidence. Several other slightly anomalous values are scattered throughout the grid which do not always have coincident airborne EM-mag anomalies.

Only those airborne EM-mag conductors with anomalous Au are recommended for detailed ground geophysical follow up as well as geological mapping.

4. Marget-Javnaroavvi Grid (30260)

This large grid is established over an area consisting of numerous closely spaced airborne EM-mag conductors. Two main geochemical anomalies arose in areas with coincident airborne EM-mag. Several other isolated anomalous to slightly anomalous Au values were also detected. The two main anomalies could possibly be along strike of each other and thus within the same stratigraphic horizon. One anomaly consists of two adjacent anomalous values (7 and 11 ppb Au).

It is recommended this main geochemically anomalous area be followed up with detailed ground geophysics, geological mapping and prospecting on a first priority basis. Two other single and isolated values which occur on L12+00N 7+50W and L12+00N 6+50E should also be followed up with ground geophysics, geological mapping and prospecting. Both of these occur in an area with good airborne EM-mag which is not connected to the main EM-mag conductive body in which the main geochemical anomalies occur.

5. Suolgajåkka Grid (30276)

This grid is situated three kilometers due south of our Suolgajåknjal'bmi grid in an area of predominantly amphibolites and mica schists. Two samples returned anomalous values, on 7 ppb Au, the other 6 ppb Au. Both have a corresponding airborne EM-mag anomaly. One slightly anomalous zone (4ppb Au) with an airborne EM-mag anomaly in the vicinity was also detected in the S.E. corner of the grid.

Ground geophysical follow up and detailed soil geochemistry are recommended for those airborne conductors in the vicinity of these humus anomalies.

6. Gæinujåkskaidi Grid (30278)

This large grid was established to cover two separate airborne EM-mag areas each with several EM-mag conductors. The

highest result (12 ppb Au) is located at the S.E. corner of the grid. Another anomalous value (5 ppb Au) is found 200 meters south and 550 meters to the west of the previous sample. The former overlaps a large coincident EM-mag anomaly, however, the latter does not. A large anomalous zone with airborne EM-mag anomalies nearby occurs on the north end of the grid. Isolated anomalous values range from 5-9 ppb Au.

Each of these geochemically anomalous areas with coincident airborne conductors are recommended for ground geophysical follow up, geological mapping and prospecting on a first priority basis.

7. Daigesvaddaucca Grid (30277)

This grid is situated 1-2 kilometers south of our Aslat-Pier-Varri grid. Two isolated humus anomalies, in the north end of the grid have been detected. Three adjacent samples, and on the same line, range from 5-7 ppb Au. The second anomaly, 800 m south and 1200 m to the west, consists of values ranging 4-7 ppb Au. Both geochemical anomalies overlap or have airborne EM-mag anomalies in the nearby vicinity. Several scattered slightly anomalous values (3 ppb Au) occur on areas of airborne EM-mag conductors.

Those airborne conductors with anomalous Au should be followed up with detailed ground geophysics, geological mapping and detailed soil geochemistry.

8. Njuovčut Grid (30265)

This grid is located 6 kilometers due east of our Njuovčut Vest geophysical grid in an area of predominantly horneblende schists and amphibolites. Only one anomalous value (6 ppb Au) was detected. However,several slightly anomalous (3-4 ppb Au) values were detected.

Only that portion of the airborne geophysical conductor with anomalous Au may warrant ground geophysical follow up as well as detailed soil geochemistry.

SUMMARY OF RECOMMENDED PROGRAM

Diamond drill targets should be defined from the following grids on a first priority basis:

(i) Iavrasmuotkenjarga (winter drilling) (30452)
(ii) Gætkevarri Extension (30258)
(iii) Suolgajakrjal'bmi (30271)
(iv) Gai'kenjavvi (30274)

Diamond drill targets should be defined from the following grids but on a low priority basis as some may still warrant further work:

(i) Hannas-Pier-Laddo (30275)
(ii) Hannoai'vi Nord (30269)
(iii) Gæs'saroavvi, Syd (30268)
(iv) Gæs'sajav'ri (30266)

Combined soil/humus geochemistry should be done prior to any further drilling on all or selected portions of these geophysical grids:

(i) Sammalcåkka Øst (30270)
(ii) Dabmutsuokkadas Nord (30267)
(iii) Gæs'saroavvi Nord (30268)
(iv) Gæs'saroavvi Central (30268)
(v) Gæs'saroavvi Syd (30268)
(vi) Hanoai'vi Nord (30269)
(vii) Gæs'sajav'ri (30266)
(viii) Njuoćut Vest (30265)

Ground geophysics should be completed on all or selected portions of the following airborne/humus geochemistry grids to define drill targets:

(i) Njuovčut Central (winter survey) (30265)
(ii) Garziroavvi (Storfossen) (30281)
(iii) Luossajarvarri (30261)
(iv) Loussajav'ri (30282)
(v) Marget-Javnaroavvi (30260)
(vi) Gæinujåkskaidi (30278)

Ground geophysics supported by soil/humus geochemistry should also be completed over all or selected portions of the following grids:

(i) Sammalcåkka Øst (Mag only) (30270)
(ii) Davvet-Aslat-Jav'ri (30283)
(iii) Suolgajåkka (30276)
(iv) Daigesvaddaucca (30277)
(v) Njuovčut Øst (30265)

Trenching is also recommended for the Jægilivarri grid.