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Tittel

Finnmark Project

Diamond Drill Program - April 2003. Summary and review

Forfatter	Dato År	Bedrift (Oppdragsgiver og/eller oppdragstaker)
Bradley. J	april 2003	Tertiary Gold Limited

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Karasjok	Finnmark		20342	Karasjok

Fagområde	Dokument type	Forekomster (forekomst, gruvefelt, undersøkelsesfelt)
Boring		Gallujavre
Råstoffgruppe	**Råstofftype**	
	Pt Pd Au	

Sammendrag, innholdsfortegnelse eller innholdsbeskrivelse

To borhull på tilsammen 377.20m ble boret for å teste overflateannomalier og to soner med "low resistivity" nær den østlige contakten til meta-olivin cumulate rocks and coincident with an extensive , linear chargeability anomaly of 3-4 times background, defined by gradient array Induced Polarization.

Dekker mutingområdene Unna Gallujavras 1-27

Tertiary Minerals plc.

Finnmark Project

Diamond Drill Programme - April 2003
Summary and review

J Bradley
April 2003

Gallujavre Diamond Drill Programme Report

Summary

PGE prospective surface mineralisation, hosted by a meta-olivine cumulate, was identified in the Gallujavre area, during the summer field season of 2001. Fieldwork was followed-up in the winter of 2001/02, by ground geophysical investigations comprising magnetometer, HLEM and Induced Polarization surveys.

The following report details a diamond drill programme, conducted in April 2003, comprising three diamond drill holes, totalling 377.20m. The purpose of the programme was to investigate surface mineralisation and two zones of resistivity low, close to the eastern contact of the meta-olivine cumulate and coincident with an extensive, linear chargeability anomaly of 3-4 times above background, defined by gradient array Induced Polarization.

Whilst the programme did not encounter PGE grades comparable with previous surface sampling, anomalous PGE intersections were made in all three holes with broad intersections of anomalous PGM values in composite samples and higher anomalous values in narrow sections.

The results are considered to be inconclusive until further assaying and mineralogical evaluation can be carried out.

Introduction

During the 2001 field season an extensive mapping and prospecting programme was completed in the Finnmark region by Tertiary Gold Ltd and SRK consulting. The programme was designed to evaluate the potential for platinum and palladium mineralisation in mafic/ultramafic rocks of the Karasjok Greenstone Belt (KGB).

Two grab samples, from a meta-olivine cumulate in the Galluyjavre area (Tertiary claim Block I) returned average grades of 2.5 grammes per tonne platinum (Pt) + palladium (Pd) + gold (Au), with a Pt-Pd ratio of approximately 1:1. As a result of these and other samples from the Gallujavre area, a ground geophysical survey was carried out by GeoVista of Lulea, on behalf of Tertiary Gold Ltd. A grid of approximately 19 line km was established in the vicinity of the sulphide showings, over which magnetometer, HLEM and Induced Polarization surveys were run in February-March, 2002. Details of the geophysical investigations can be found in the following reports:

- GeoVista — report GVR 02007 (Feb to Apr 2002)
- SRK Consulting — report 3CT009.00 (Apr 2002)

The main area of interest was defined as a linear chargeability anomaly (3 to 4 times background) outlined by the gradient array Induced Polarization survey. This zone of chargeability extends roughly north-south across most of the grid and corresponds roughly with the interpreted eastern contact of the ultramafic. Two zones of resistivity low were coincident with the chargeability anomaly and were targeted during the drill programme detailed below.

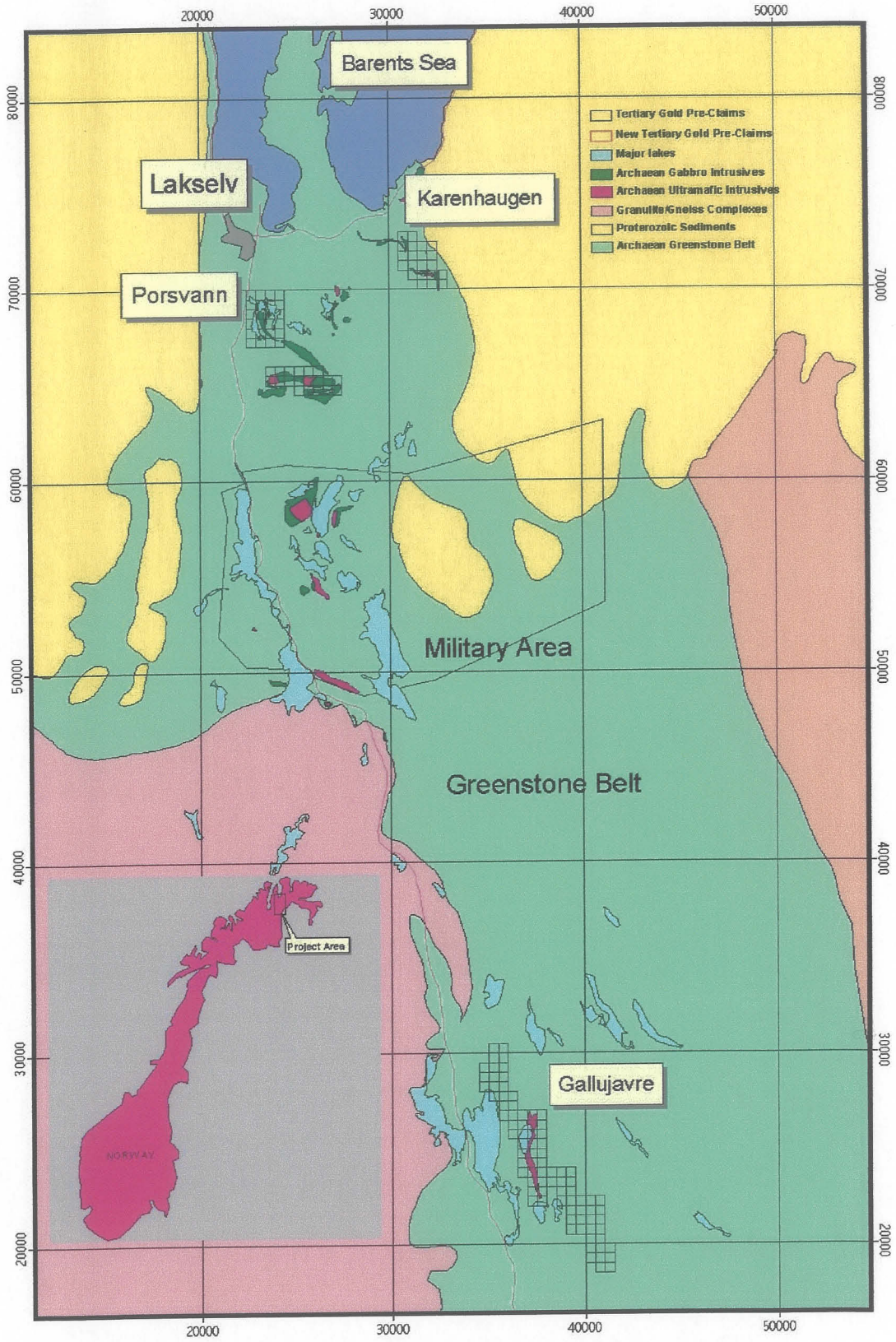

Figure 1: Tertiary Gold prospect locations, Finmmark project

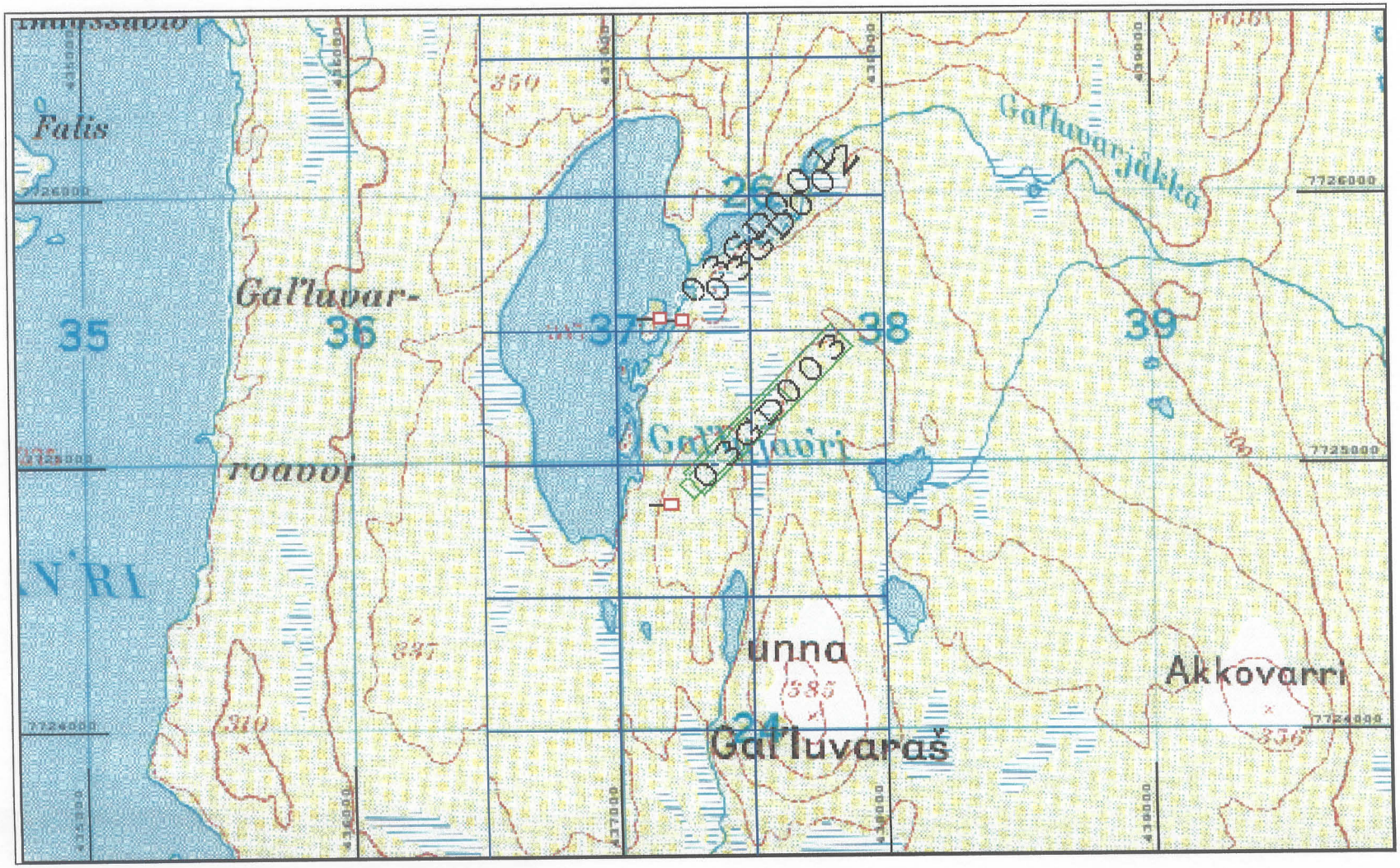

Figure 2: Tertiary Claims and drill collar locations

The following report details a diamond drill programme, conducted in April 2003, comprising three diamond drill holes, totalling 377.20m. The purpose of the programme was to investigate

a) Two zones of resistivity low, close to the eastern contact of a meta-olivine cumulate coincident with an extensive, linear chargeability anomaly of 3-4 times above background.
b) The possible down-dip extension of surface mineralisation discovered in 2001, located on the northern most island.

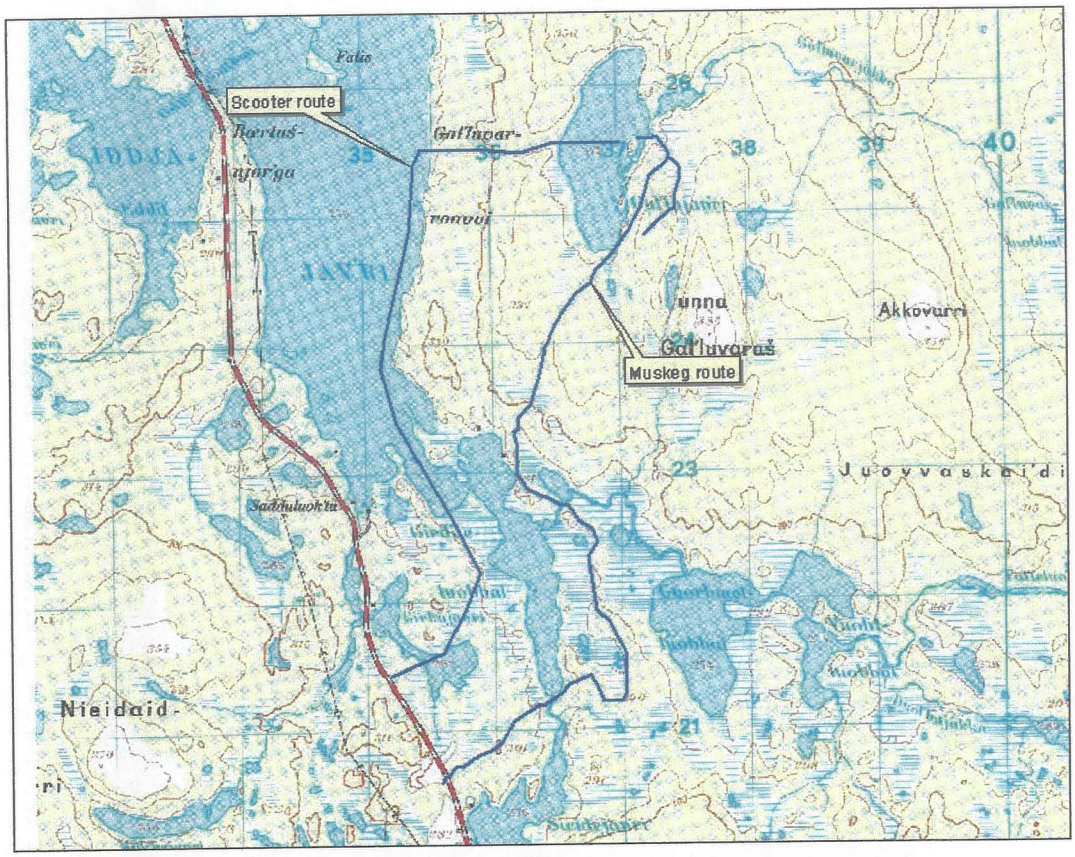

Figure 3: Topographic map showing Gallujavre area and access routes

Geology

The geology of the Gallujavre area represents a sequence from west to east of:

a) Metasediments
b) Gallujavre meta-olivine cumulate
c) Gabbro-Pyroxenite
d) Gabbro

Metasediments consist of meta-arenites and arkoses trending north south and dipping to the east. Intersected in holes 03GD002 and 03GD003, the meta-sediment can be described as fine-grained, light grey in colour with a quartz plus feldspar content of around 80 percent, mica 15 percent, amphiboles at 5 percent, with accessory garnet. Variations in mafic mineral content describes coarse banding, which appears to have been deformed in a ductile manner. Quartz veining and moderate alkali alteration associated with minor sulphide mineralisation was evident at 14.0m in hole 03GD003.

Within the metasediment stratigraphy is a thick (500m) ultramafic sill (olivine cumulate) composed of poorly differentiated amphibolite containing from 5% to 30% serpentine+magnetite (occuring as subhedral to anhedral dark green, opaque crystals) porphyrocrysts after olivine. The amphibole groundmass representing an

original pyroxenitic liquid. Meta-pyroxenites within the olivine cumulate probably represent primary segregation within the ultramafic melt.

The eastern contact of the olivine cumulate is characterised by a meta-pyroxenite with plagioclase from 0 to 5%.

Moving eastwards, the meta-pyroxenite grades into a gabbro composed of approximately 30% pale green-white plagioclase interstitial (intercumulus?) to green coarse-grained amphibole.

From drill core observations, the contact between the olivine cumulate and the meta-pyroxenite is considered to be intrusive, whereas the contact between the meta-pyroxenite and the gabbro is thought to reflect primary magmatic segregation.

No evidence of settling, represented by a systematic increase in serpentine+magnetite, was observed in the olivine cumulate.

Economic Geology

The ultramafic intrusive at Gallujavre hosts sporadic surficial sulphide mineralization consisting of up to 5% interstitial chalcopyrite and pyrrhotite, which is often intergrown. Sulphides occur as irregular blebs and disseminations at silicate grain boundaries, ranging in size from 1 to 10mm. Although only pyrrhotite and chalcopyrite were discerned in hand sample, microscopic investigations by Sydvaranger, indicate that pentlandite, mackinawite and violarite also occur in the sulphide assemblage (Grammelvtvedt, 1979).

Drilling revealed patchy interstitial sulphide mineralisation within the olivine cumulate, to a maximum of 1% locally.

Disseminated and fracture hosted sulphides (dominated by pyrrhotite and pyrite) where found to occur both within the ultramafics and gabbro-metapyroxenite, associated with alteration, faulting and contact zones. Two sulphide filled fractures (pyrrhotite > pyrite > chalcopyrite) of 5cm and 2cm width, occur at 26.0m and 41.1m close to the basal contact of the meta-sediments with the gabbro (drill hole 03GD002).

Table 1: Best drill intersections at Gallujavre

Hole No.	From (m)	Intersection Width (m)	Pt+Pd+Au g/t	Pt g/t	Pd g/t	Au g/t
03GD001	12.35	0.55	0.69	0.27	0.38	0.04
	52.40	1.00	0.12	0.05	0.06	0.01
03GD002	26.90	4.00 Composite	0.26	0.03	0.03	0.20
	30.90	4.00 Composite	0.11	0.05	0.04	0.02
	39.00	4.00 Composite	0.15	0.05	0.06	0.04
	43.00	0.55	0.12	0.05	0.06	0.01
	117.2	1.80 Composite	0.11	0.04	0.06	0.01
03GD003	48.4	2.00 Composite	0.10	0.05	0.04	0.01
	58.1	4.00 Composite	0.16	0.06	0.07	0.03

Location and access

The Muskeg mounted Diamec 251 drill rig accessed the Gallujavre area via the track from the main E6 Karasjok – Lakselv road. The track was difficult to locate under drifted snow cover, but was picked up using 58 GPS waypoint locations, taken during a visit the previous summer. Access for personnel and supplies was from the east, over lake Iddjajavre.

Contractor details

Contractor	Diamant Boring Nord, Kautokeinu, Norway
Contact	Terje Holman tel: +47 78486441
Supervisor	Per-Ovar Holman
Rig	Diamec 251, non-wireline, mounted on a Muskeg tractor

Collar summary

Collar positions were located using a Garmin 12 GPS in "average" mode, with location accuracy at plus/minus 3 to 4m.

	UTM WGS 84 Z35W				
Hole number	Easting	Northing	Dip	Azimuth	EOH (m)
03GD001	437165	7725540	-45	270	125.3
03GD002	437249	7725537	-45	270	124.9
03GD003	437201	7724844	-45	270	127.0
				Total	377.20

Drill collar azimuth was surveyed using a Suunto sighting compass and checked using GPS positioning.

No down-hole surveying or core orientation was carried out during the drill programme.

Geological logging

Detailed geological logging was carried out on the basis of Tertiary's established in-house lithological codes. Paper copy log data was entered and validated in Micromine. Printed log sheets can be found in the appendix section of this report.

Sampling protocol

Core sampling was based on visible sulphide mineralisation and lithology. Core containing sulphides to less than one percent was sampled, with representative samples taken on core containing sulphides to much less than one percent. Composite sets of four individual samples were taken in consecutive samples runs. All individual samples pulps are archived at SGS laboratories in Öjebyn, should any further assaying be warranted. A full list of sample numbers and intersection can be found in the appendix section of this report.

Sample shipment

Core boxes were transported by Diamant Boring Nord from the field to the their depot in Kautokeinu and from there to SGS in Öjebyn by DFDS Transport, Luleå, Sweden. A total of 39 core boxes were sent on three pallets, weighing roughly 1400kg.

Sample preparation

Sample preparation was carried out at the SGS laboratories in Ojebyn, Sweden, where the core was cut in half using a diamond saw. Half the core was to pulverised to 90% <75microns. Composites were made up of equal amounts of individual samples and 100g shipped to ALS Chemex, Canada for assay.

Assay

All samples were assayed by ALS Chemex, Canada, by methods PGM-MS24, with automatic over limit assays using method PGM-MS27.

Element	Chemex code	Analysis type	Detection limit
Au, Pt, Pd	PGM-MS24	Fire assay & ICP-MS	0.001 to 1 ppm
Au, Pt, Pd	PGM-MS27	Fire assay & ICP-MS	0.05 to 100 ppm

A total of 50 samples were sent for assay, including 18 composite samples (see attached sample spread sheet). The cost per assays is US$14.00.

Geotechnical logging
No geotechnical logging was carried out during this drilling programme.

Specific gravity
No measurements of SG were undertaken during this drilling programme.

Alteration

Pyroxenes within the mafic and ultramafic lithologies within the Gallujavre sequence have been pervasively altered to amphiboles. Olivine within the cumulate has been altered to dark-green, opaque aggregates of serpentine and magnetite.

Later stage alteration comprises dominantly talc (possibly brucite), associated with fractures and the contact zones of mafic dykes. Serpentine alteration is also found associated with fracturing and fracture fills.

Environmental issues

Contact of bare ground was made with the track of the Muskeg during demobilisation. However, very little impression was made due to the wide tracks and frozen ground.

On completion of each hole, soiled surface snow was collected into bin liners and disposed of at the county waste dump just outside Lakselv. A tarpaulin was placed under the water pump to collect any possible oil or diesel leaks and the residual liquid (mostly melt water) was transported away at the end of the programme.

The equipment for collecting drilling slimes was untested prior to the start of this programme and proved inadequate for the task. However, in all three holes, relatively little wastewater came to surface and the amount of slimes around the collar is considered to be negligible.

Casing for all three holes was cut down to ground level and capped with a removable metal lid.

All the cultural sites listed in the archaeologists report, were successfully avoided.

Political issues

Before mobilisation into the field, the Mayor of Karasjok, Kjell Seather, was asked his opinion regarding opposition to the scheduled drilling dates, voiced in a letter from the Reindeer Association, received by Tertiary via Simonsen Foyen, on Tuesday, 2 April. Mr Seather was of the opinion that kommun dispensation previously granted to Tertiary was still valid and any local objections during drilling should be referred to him. No local opposition to drilling was encountered during the programme.

Contractor appraisal

Total number of 12 hour shifts worked = 30
Average meterage drilled per shift = 12.57m
(over entire programme, including mob and de-mob)

A breakdown of invoiced charges by Diamant Boring Nord is given in the appendix section of this report.

Difficult weather conditions in the first week contributed to the initial low meterage rate per shift. Once continuous drilling got underway, the problems of freezing machinery were minimised. 03GD002 was drilled in milder weather with no major technical problems interrupting drilling. However, the primary water pump, started to give trouble and a smaller, reserve pump was used to complete 002. The drillers ordered a new pump at this stage from Oslo.

The reserve pump did not have the capacity to raise the water to the collar position at 03GD003. The drillers decided to bring in an old pump at this point, from Kautokeino, which hadn't been used or serviced for some time. On reflection, this was a bad decision, causing a lost of 3 shifts and a minor diesel leak (collected in the underlying tarpaulin). A newer, replacement pump was brought in, which performed effectively. The new pump ordered from Olso was delayed due to the onset of the Easter holidays.

Given the maximum rate of drilling achieved, it is felt that initial quoted duration of ten to fourteen days to complete the scheduled 600m programme was unrealistic.

In their favour, Diamant Boring Nord were attentive to the environmental constraints of the contract and were prepared to work over the Easter holidays.

Diamant Boring Nord would be worth receiving a quote from in the future, but it unlikely that they will be uncompetitive outside Finnmark, where they may also struggle without the logistical support afforded to drillers of larger Swedish or Finnish firms.

Conclusions

The Brain Williams interpretation of the geophysical data, states that magnetic and resistivity responses associated with the strongest part of the linear chargeability anomaly suggests a contact relation. Brain also suggests that the IP is "most likely responding to contact related disseminated sulphides."

Drill core geology and sulphide mineralisation seems to agree with Brian's interpretation in that the highest percentages by-volume of disseminated sulphides

are associated with the contact zones of the metasediments, gabbro-metapyroxinite and olivine cumulate. Secondary iron sulphide mineralisation, whether structurally hosted or associated with alteration, is considered to be the dominant style of mineralisation.

It would appear to be the case therefore that the chargeability anomaly reflects the presence of contact related disseminated sulphides, with weak mineralisation in sub-parallel ductile and brittle fault zones accounting for the width of the anomaly into the olivine cumulate, as seen in weakly mineralised ductile and brittle fault zones in hole 03GD003.

Primary sulphides, characterised by interstitial intergrowths of pyrrhotite and chalcopyrite, are common in the olivine cumulate, but generally occur to considerably less than one percent by volume.

Whilst the programme did not encounter PGE grades comparable with previous surface sampling, anomalous PGE intersections were made in all three holes with broad intersections of anomalous PGM values in composite samples and higher anomalous values in narrow sections.

The results are considered to be inconclusive until further assaying and mineralogical evaluation can be carried out.