GEOLOGICAL SURVEY OF FINLAND
Bedrock and Raw Materials
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29.12.2000

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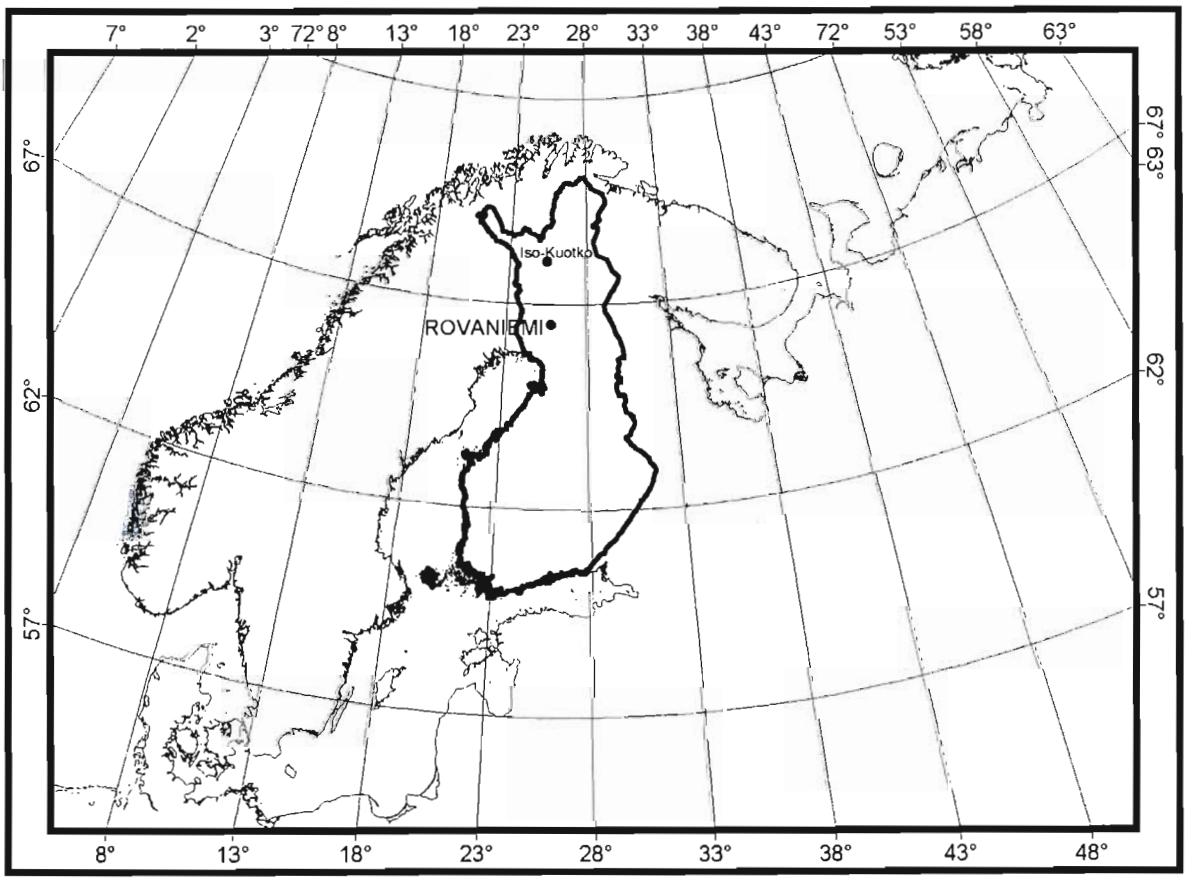
GTK

Summary report

The Iso-Kuotko gold prospects, northern Finland

Kuotko 8-10 (6314/1-3) and Kuotko 11-13 (6886/1-3)



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GEOLOGIAN TUTKIMUSKESKUS **KUVAILULEHTI**

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Tekijät	Raportin laji
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Raportin nimi

Summary report: The Iso-Kuotko gold prospects, northern Finland
Kuotko 8-10 (6314/1-3) and Kuotko 11-13 (6886/1-3)

Tiivistelmä

Iso-Kuotkon tutkimusalue sijaitsee Kittilän kunnassa noin 70 km kuntakeskuksesta koilliseen. GTK on tehnyt alueella geofysikaalisia mittauksia, geokemiallista näytteenottoa ja syväkairausta vuosina 1986 - 1999. Iso-Kuotkon kuudelta valtausalueelta tunnetaan neljä kultapitoista kiisuesiintymää: Kati, Tiira, Retu ja Nimetön. Kahdesta eniten tutkituista, Katista ja Tiirasta, on tehty alustavat mineraalivarantoarviot kairatuilta alueilta 40 m syvyyteen. Katin pystyleikkauksina tehty mineraalivarantoarvio osoittaa 170 000 tonnin varantoa 4.3 gramman keskimääräisellä kultapitoisuudella ja 2 gramman rajapitoisuudella. Tiiran mineraalivarantoarvioksi on laskettu 121 000 tonnia 2.7 gramman keskimääräisellä kultapitoisuudella ja 1 gramman rajapitoisuudella tai 71 500 tonnia 3.3 gramman keskipitoisuudella ja 2 gramman rajapitoisuudella.

Merkittävät lävistykset, jotka eivät sisälly mineraalivarantoarvioihin:
Kati: 3 m @ 23.5 g/t alkaen 124 m kairaussyvyydestä
Tiira: 5 m @ 7.51 g/t alkaen 52.8 m kairaussyvyydestä
Retu: 1.8 m @ 17.4 g/t alkaen 15.7 m kairaussyvyydestä
Nimetön: 2 m @ 10.4 g/t alkaen 46.6 m kairaussyvyydestä

Geologisesti alue kuuluu Keski-Lapin vihreäkivivyöhykkeeseen. Esiintymät ovat hyvin samantyyppisiä ja pääasialliset isäntäkivet ovat emäksisiä vulkaniitteja, joita leikkaavat ruhjevyöhykkeiden kontrolloimat kvartsi-karbonaattijuonistot. Isäntäkivet ovat hydrotermisesti muuttuneita ja sisältävät vaihtelevasti magneetti-, arseeni- ja rikkikiisua. Kulta esiintyy pääasiassa pieninä hippuina ja sulkeumina arseeni- ja rikkikiisussa. Noin 80 % kullasta on vapaana ja loput refraktorisena arseeni- ja rikkikiisun hilassa. Alustavien rikastuskokeiden perusteella kullan saanti pelkällä painovoima-erotuksella on noin 50 %, ja pelkällä syanidiliuotuksella noin 70%. Paras saanti saavutettaneen painovoima-erotuksen ja syadinoitiprosessin yhdistelmällä.

Alueella tehdyt tutkimukset ovat hyvin alustavia ja esiintymien jatkeet ovat avoimet, eikä kahta pienempää esiintymää ole juurikaan tutkittu. Kuitenkin saadut tulokset osoittavat Iso-Kuotkon alueen hyvin kultapotentiaaliseksi.

Asiasanat (kohde, menetelmät jne.)

malminetsintä, valtaus, raportti, mineraalivarantoarvio, kulta, sulfidiesiintymä

Maantieteellinen alue (maa, lääni, kunta, kylä, esiintymä)

Suomi, Lapin lääni, Kittilä, Iso-Kuotko

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Ilkka Härkönen Heikki Pankka Seppo Rossi	Claim report
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Title of report

Summary report: The Iso-Kuotko gold prospects, northern Finland
Kuotko 8-10 (6314/1-3) and Kuotko 11-13 (6886/1-3)

Abstract

The Iso-Kuotko gold deposit is situated in northern Finland, the province of Lapland and the municipality of Kittilä, about 70 km northeast from the Kittilä town. GTK has done a geophysical and geochemical exploration and diamond drilling between 1986 and 1999 in the area. Four sulfide rich gold lodes, Kati, Tiira, Retu and Nimetön, have been discovered in the Iso-Kuotko area. Indicated mineral resource estimates have been done for the best explored parts of the Kati and Tiira lodes. The mineral resource estimation of the Kati lode using vertical sections to the depth of 40 meters indicates a resource of 170 000 tons at the grade of 4.3 g/t with a cut off grade of 2 g/t. The mineral resource estimation of the Tiira lode based on vertical sections indicates a resource of 121000 tons of gold ore grading 2.7 g/t with a cut off grade of 1 g/t or 71500 tons grading 3.3 g/t with a cut off grade of 2 g/t.

Significant intersections not included in the resource estimates include:
Kati lode: 3 m @ 23.5 g/t from 124 m
Tiira lode: 5 m @ 7.51 g/t from 52.8 m
Retu lode: 1.8 m @ 17.4 g/t from 15.7 m
Nimetön lode: 2 m @ 10.4 g/t from 46.6 m

Country rocks in the Iso-Kuotko area are tholeiitic volcanic rocks which have been metamorphosed at greenschist facies conditions. These rocks are a part of the Central Lapland Greenstone Belt. Gold mineralisation is structurally controlled and is hosted by a sulfide-bearing quartz-carbonate vein system. Sulfide minerals associated with the gold mineralization are pyrrhotite, pyrite and arsenopyrite. Mineralogical testing indicates that about 80% of the gold is free milling and the rest is mainly refractory within arsenopyrite and pyrite. The preliminary metallurgical tests indicate about 50% gold recovery with a gravitational dressing method and about 70% recovery with cyanide leaching. The optimum recovery may be gained using a combination process of gravity separation and cyanide leaching of gravity tailings.

The current exploration results indicate potential for additional resources along the strike and down dip from the known gold mineralization in the Iso-Kuotko area, and the claims are placed for tender.

Keywords

exploration, claim, report, mineral resource estimation, gold, sulfide occurrence

Geographical area

Finland, Province of Lapland, Kittilä, Iso-Kuotko

Map sheet

2743 06 and 2744 04

Other information

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21 p + 9 Appendixes	English		Confidential

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1. INTRODUCTION

Background

Iso-Kuotko area is located in Lapland, northern Finland approximately 70 kilometers northeast of Kittilä (Fig. 1). The terrain consists of a low, gently sloping hill and some peat bogs in the low lying areas. The claim area covers approximately five square kilometers.

Exploration in the Iso-Kuotko area was commenced in 1986. Low altitude airborne geophysical survey of the area revealed magnetic and electromagnetic anomalies, which were interpreted to be result of a sulfide mineralisation. At the same time the Geological Survey of Finland (GTK) initiated a regional scale till geochemical study in northern Finland re-analyzing the old geochemical line samples from 1970's. These are till samples which were collected from the basal till in an average depth of two meters, and nine samples per four square kilometers were combined. Gold and other elements were analyzed from the finest fraction, -0.074 mm. Highly anomalous gold contents in the fine fraction of till indicated a gold mineralization in the Iso-Kuotko area. Subsequently GTK pegged an exploration claim over the area.

Exploration was conducted in different stages during the years 1986-1999. Different ground geophysical methods were used to define the first percussion drill targets, and diamond drilling followed in several stages. Four lodes were discovered and the current geological knowledge and drilling density allows resource estimation for two of the lodes to the Indicated Mineral Resource category (UN classification).

A small-scale mining project that was initiated by the municipalities of Kittilä and Sodankylä, the Ministry of Labor and the GTK studied the feasibility of mining of the Kati lode. The aim of the project was to study possibilities to exploit the Iso-Kuotko gold deposit in a small scale with simple recovery methods. The feasibility study was completed in 1997 after the metallurgical tests showed that gold recoveries with low-cost gravity concentration methods are not high enough for an economic small-scale mining project.

The Iso-Kuotko deposit consists of four lodes. The Kati lode is located in the claim area of Kuotko 8, the Tiira lode in Kuotko12, and the Nimetön and the Retu lodes in Kuotko 11.

Aim of the study and responsible personnel

The main objective of the exploration conducted by the GTK is to find new deposits and do the first stage evaluation. The GTK has no mining activities; therefore, new discoveries, which have economic potential, are tendered through the Ministry of Trade and Industry to mining companies.

Exploration in the Iso-Kuotko area has been supervised by Olavi Auranen until 1993 and after that by Erkki Vanhanen. Late Ilkka Härkönen was in charge of planning and supervising exploration activities, and interpreting the data.

Location and access

The Iso-Kuotko area is about 70 km northeast or Kittilä in the province of Lapland, northern Finland (Fig.1). Kittilä (population 2500) is the administration center of the municipality of Kittilä of which total population is about 6000. The claims are located on the 1:20 000 scale map sheet 2744 04 and 2743 06 (Fig.2). Road from Kittilä to Kiistala village is paved and the next 13 km is a gravel road passable for heavy vehicles all year round. The last 10 kilometers is a timber haulage road and GTK has made a 1 km access road to the Kati lode in the Iso-Kuotko area. The nearest railway stations are at Kolari and Rovaniemi, 100 km and 150 km from Kittilä, respectively. In Kittilä, there is a modern airport which is serviced by daily flights to Helsinki.

Physical features and infrastructure

In the Iso-Kuotko area, the gently sloping Iso-Kuotko hill dominates the landscape with small bogs and ponds at the foot of the hill. The average altitude is about 300 m above the sea level and area belongs to so called high altitude forest area where some restrictions to log exist. The only permanent structure nearby is reindeer herders' mustering pen about one kilometer south of the area (Fig.2). The distance to the nearest inhabited house is over five kilometers and there are no conservation areas within five kilometers radius. The weather conditions follow the typical northern European continental climate with temperate summer and cold winter. During summer months (June - August) temperature is mostly between 10 to 25°C and during winter months (November - April) - 5 to -30°C. Terrain is covered by snow annually 6 to 7 months and the maximum thickness will be from 0.6 to 1.2 m in March.

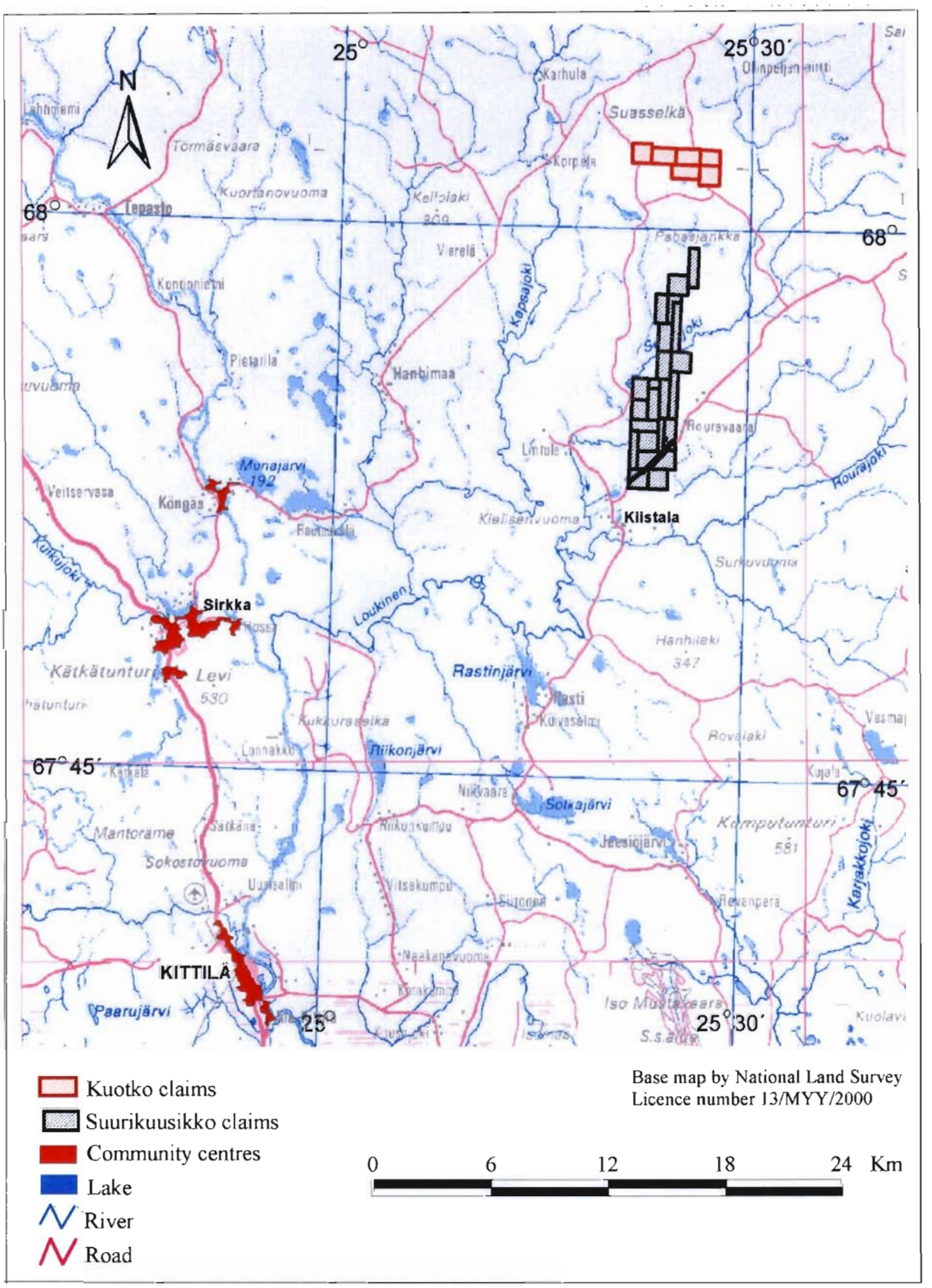

Figure 1. Location of Iso-Kuotko.

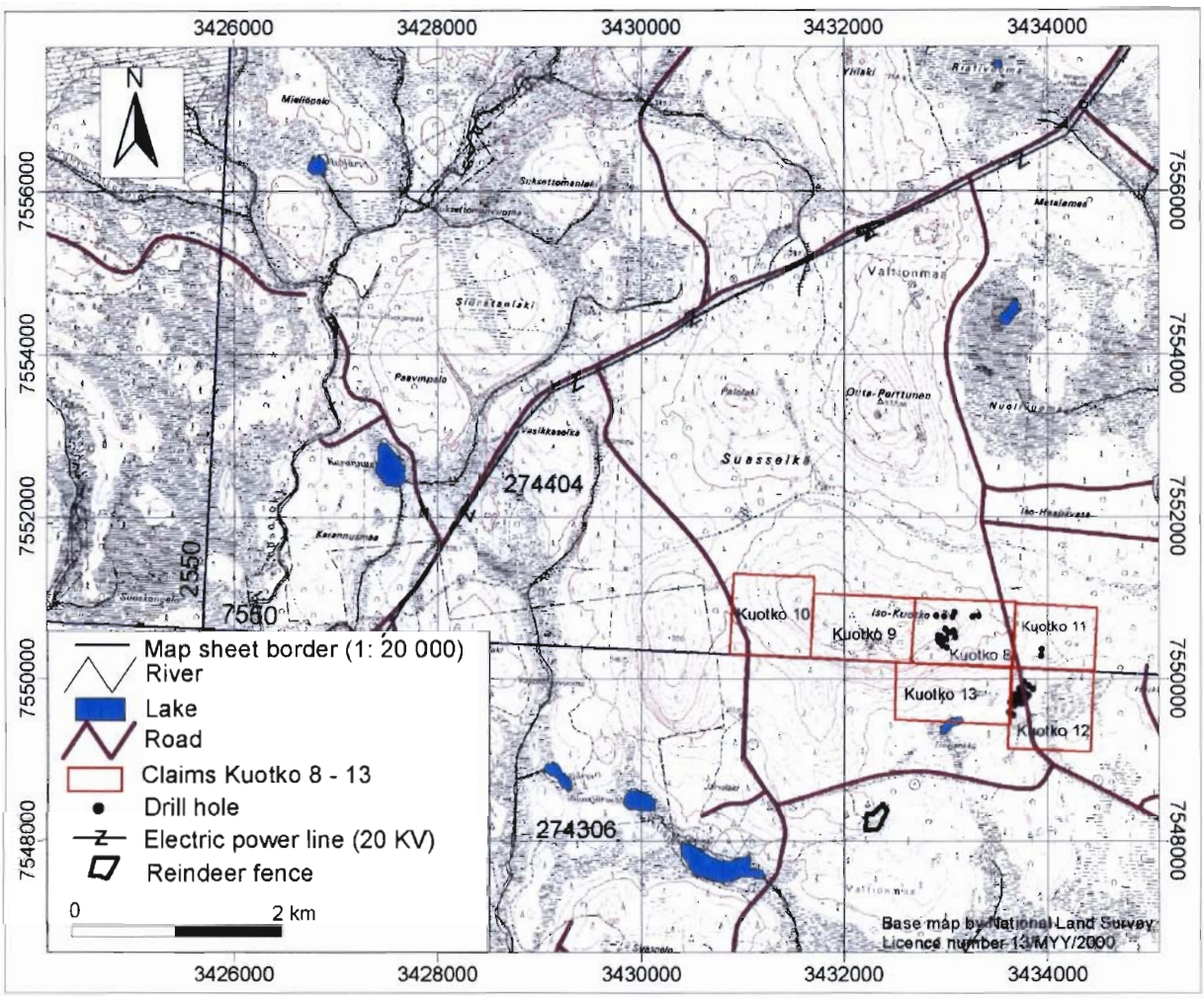

Figure 2. Kuotko claim areas on a topographic map.

The nearest power line (20 kV) follows the public road from Köngäs to Pokka village and the distance is about 6 kilometers north of the Iso-Kuotko area (Fig.2). Bedrock is covered by 1-5 m of till and lodes do not outcrop. The Suurikuusikko gold deposit, where Riddarhyttan has defined over a 1 Moz gold resource, is about 18 kilometer south of the area.

Titles

The GTK has six exploration claims in the Iso-Kuotko area. They cover all four known gold lodes and are shown in figures 2 and 4 and listed in Appendix 2. There are no other claims or claim reservations in the immediate vicinity of Iso-Kuotko. The nearest claims of Riddarhyttan Resources Ab are located some five kilometers south from the Iso-Kuotko area (Fig. 1).

2. EXPLORATION HISTORY

Geochemical exploration

Soil sampling and geochemical exploration was done in the years 1987 - 1992. The Iso-Kuotko claims and the surrounding area were sampled. 5530 samples were taken using a through-flow drilling bit and a hydraulic percussion drill. Samples were taken from the bottom part of the till and the average sampling depth was two meters.

Geophysical exploration

Most of the ground geophysical surveys in the Iso-Kuotko area, including magnetic, slingram, IP, VLF-R and gravimetric methods, were done between 1988-1992 (Appendix 1). Structural geology of the area is complicated and rocks are strongly altered (albitization, carbonatization and silicification). Soil cover is thin and the depth of the water table at the top of the Iso-Kuotko hill is about 60-70 m.

The Kati and Tiira lodes can be detected by all electromagnetic methods. The Kati lode is as a thin layer, which dips 40 degrees to northwest and it can be followed to the depth of 150 m. In the immediate vicinity of the Kati lode, SP measurements were conducted to the depth of 100 - 300 m to follow a possible continuation of the mineralized zone. In hole magnetic, electromagnetic and radiometric measurements were done in the drill holes drilled in 1998-99. Results indicate that there are narrow conducting layers in the depth of 100 - 300 m at least in the distance of 400 m to west and north of the lode. The in hole geophysical measurements also indicate several overlapping conducting layers near surface to north and west of the Kati lode. There are some indications of conducting zones beneath the depth of 100 m.

Drilling

From 1987 to 1999, a total of 79 diamond drill holes and 14 reverse circulation holes were drilled in the Iso-Kuotko area. All 14 reverse circulation drill holes (270 m) were drilled in the Kati lode in addition to 39 diamond drill holes (5000 m). Of the remaining, 29 diamond drill holes (2573 m) were drilled in the Tiira lode, 5 (562 m) in the Nimetön lode and 6 (760 m) in the Retu lode (Appendix 3). The diameter of the diamond drill core samples is 35 mm (T46 bit) in the holes drilled in 1987 (R301-304, R411-412) and 45 mm (T56 bit) in the subsequent drill holes.

3. GENERAL GEOLOGY

Quaternary geology

Iso-Kuotko area is covered by a thin (up to 5 m) layer of till. The pebbles in the till are mainly local metavolcanic rocks indicating a short glacial transport distance. Weathering is locally intensive, especially in the pervasively carbonate altered tuffs and sulfide-rich quartz-carbonate veins.

Precambrian geology

Iso-Kuotko area is situated in the Proterzoic Kittilä greenstone belt (Fig 3). Iso-Kuotko area consists mainly of Fe-rich tholeiitic tuffs and pyroclastic rocks and intercalated lavas which have metamorphosed at greenschist facies conditions (Fig.4). Rocks belong to the Kautoselkä formation of the Kittilä group. Conglomerates, quartzites, siltstones, greywacke schists, phyllites, graphitic schists are also common within the formation but absent in the Iso-Kuotko area. Sedimentary sulfidic, oxidic and carbonatic iron formations belong to this formation and many of them are outcropped in the vicinity of the Iso-Kuotko area. Kautoselkä formation is overlain by the Vesmajärvi formation which consists of Mg-rich tholeiites representing mainly pillowed lavas, pillowed breccia and hyaloclastites with basaltic composition. Occasionally MgO-content rises up to 15 % and rocks are classified as basaltic komatiites. Based on geochemistry these two volcanogenic formations represent different magma sources. Synorogenic granitoid intrusions are outcropping within few kilometers distance from the Iso-Kuotko area. They are mainly granodioritic and quartz dioritic in composition. The zircon U-Pb age of these intrusions is about 1.9 Ga.

The main structural features in the area are NE-SW and NW-SE trending shear zones and the Iso-Kuotko area is at the intersection of these shear zones (Fig.4). Shear zones have been active in several phases and the last movements occurred a few thousands of years ago after the last glaciation. In the Iso-Kuotko area, the shear zones are approximately 1 to 1.5 kilometers wide. The main shear is a NE-SW trending structure with many oblique secondary splay faults trending NW-SE. Shear zones have been intruded by numerous lamprophyre and felsic porphyry dykes. In general, lamprophyre dykes, which are minettes in composition, are some tens of centimeters thick but locally up to three meters. In addition to the different dykes, ankerite veins are found in the main shear.

4. GEOLOGY OF THE GOLD MINERALIZATION

Phases of mineralization

The main mineralization phase is subparallel with the NW-SE trending shear zone fabric, dipping 40-45 degrees to NE. The gold mineralization is related to a series of quartz-carbonate veins which are sulfide rich and consist of coarse-grained quartz,

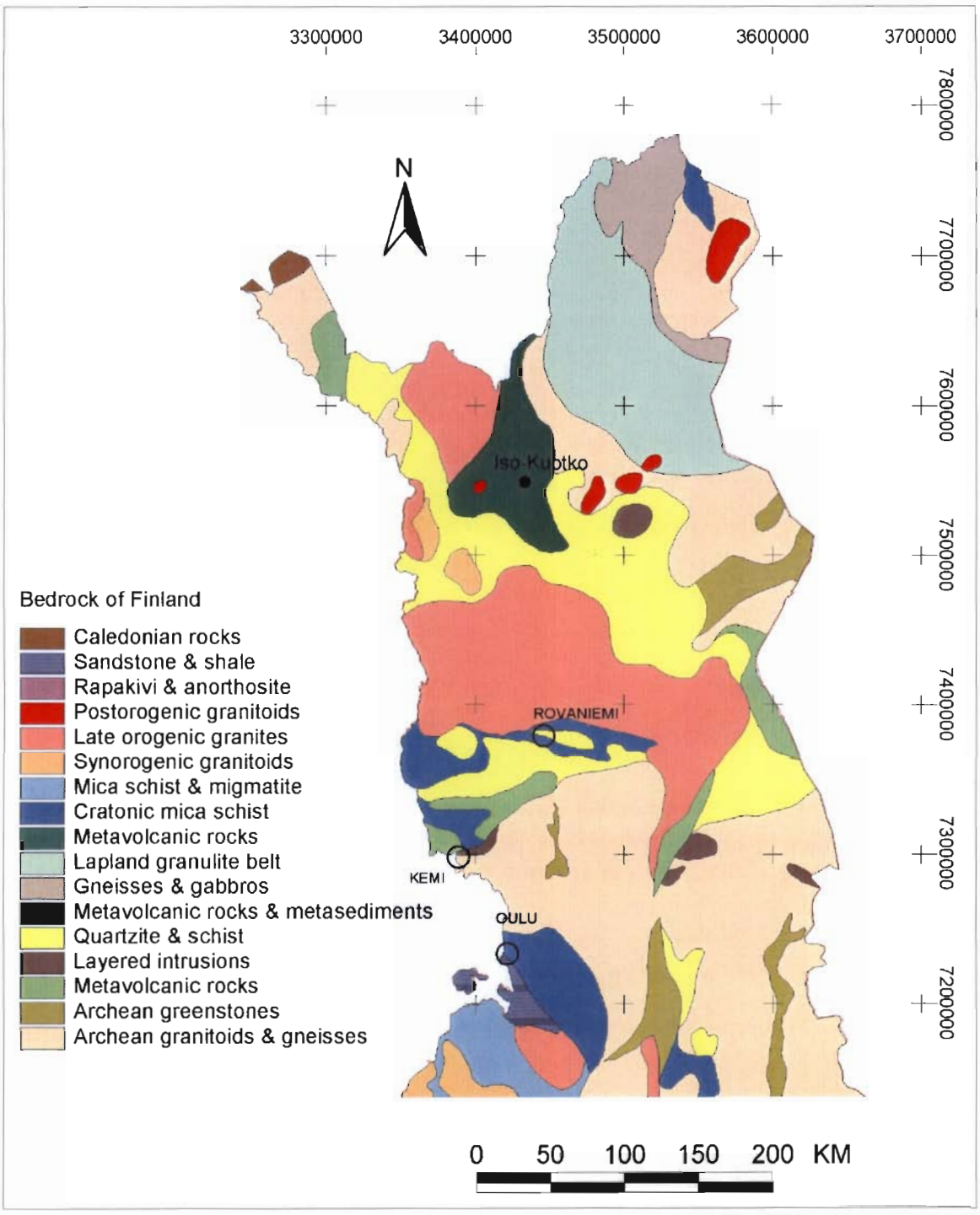

Figure 3. General geological map of northern Finland and location of Iso-Kuotko.

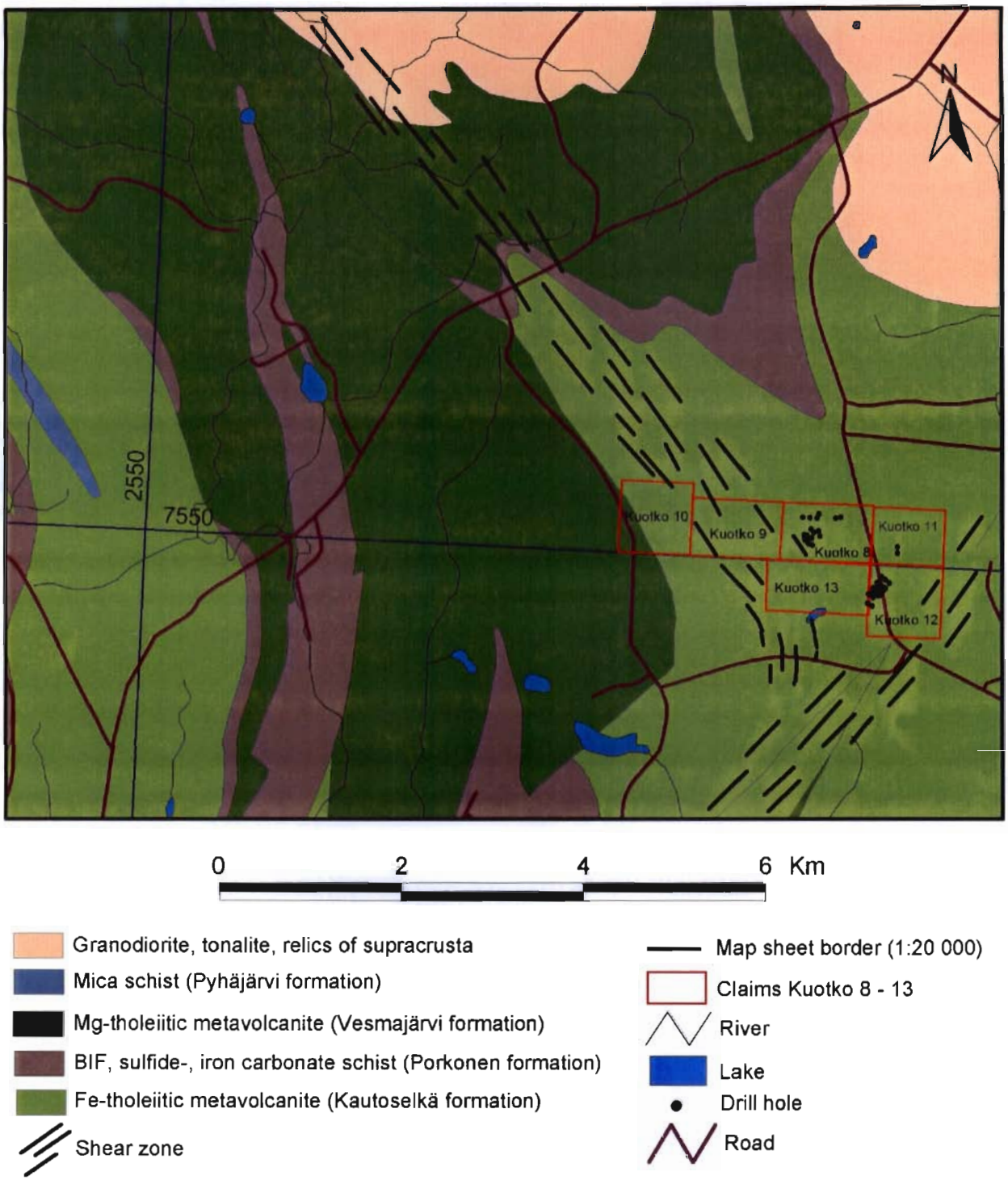

Figure 4. Geological map of Iso-Kuotko area.

dolomite and locally ankerite. Sulfides are mainly pyrite, arsenopyrite and pyrrhotite with minor chalcopyrite, sphalerite and galena. Gold occurs as native grains within the cracks of sulfides and at the contacts between quartz and carbonate grains.

The second mineralization phase is a quartz-carbonate vein system. The strike of the veins is the same with the main phase, but dips are subvertical. This phase is clearly younger, and it cuts both the main mineralization and porphyry dykes. Hydrothermal alteration of the country rock is a couple of centimeters up to ten centimeters wide and consists of carbonatized, albitized and sulfide disseminated zones. Veins carry coarse-grained gold, native bismuth with minor coarse-grained galena and chalcopyrite.

N-S trending quartz veins represent the third mineralization phase. They are typically narrow, less than five centimeters wide and are spaced several meters apart. Their sulfide content is low, and gold occurs as native grains with quartz.

Lodes

Four gold-bearing sulfide lodes, Kati, Tiira, Retu and Nimetön, have been discovered in the Iso-Kuotko area. All four lodes have similar mineralogical, chemical and structural characteristics. Gold is the primary economic metal and principal sulfide minerals associated with the gold mineralization are pyrrhotite, pyrite, arsenopyrite and minor chalcopyrite. The compositions of these sulfides are typical and there is no arsenic in pyrites. The arsenic content of the mineralization is high, up to 3 %. Gold occurs as native grains (about 50%) or as microscopic inclusions and refractory within arsenopyrite and pyrite. Native gold is typically fine-grained occurring in a size range of some tens of micrometers to few hundreds of micrometers, but up to 3 mm grains have been found. The silver content of gold grains varies between 9 and 20 % and the bismuth content is exceptionally high. Bismuth values are commonly high and it is present as native metal and as alloys with gold, like maldonite.

Kati lode

The Kati lode has been the main exploration target in the Iso-Kuotko area and it is located inside the claim Kuotko 8 (Figures 2 and 4). The dominant geologic feature of the Kati lode is a horse tail like northwards extending swarm of gold-bearing quartz-carbonate veins, which are the main host for gold and associated sulfides. The quartz-carbonate veins occur in the southernmost part of the lode as several separate parallel NW-SE trending zones dipping 40 – 50 degrees NE. The combined thickness of these

zones varies from a few meters to tens of meters with the strike length of at least 150 m. Alteration zones of the gold-bearing quartz carbonate veins contain sulfides as dissemination and locally as narrow massive veinlets. The alteration zone consist of albite-sericite rocks, albite-carbonate rocks and albite rocks. However, in places the wall rock alteration is characterized only by carbonation and sericitization. A cross section of the southern part of the deposit is shown in Appendix 4.

Tiira lode

Tiira lode is situated inside the claim Kuotko 12 (Figures 2 and 4). The mineralized zone strikes in a NE-SW direction and dip is subvertical. Distance between outermost drill profiles is just over 400 m (Fig.5). The lode consists of a series of lenses with combined thickness from 10 m to about 100 m. The lenses have been drilled to 50 - 60 m below surface. The lode is open at depth and along strike (Fig.5).

Retu and Nimetön

The less explored lodes of Retu and Nimetön are situated inside the claim Kuotko 11 (Figures 2 and 4). Gold occurs typically as coarse, native grains and therefore larger samples for further studies are needed to get reliable statistically more representative assay results.

5. MINERAL RESOURCE ESTIMATION

GTK has done preliminary mineral resources estimations from the Kati and Tiira lodes. The estimations are made by using the desktop edition of the GEMCOM Mining Software. The current level geological knowledge and drilling density places the resource estimates of the Kati and Tiira lodes in the Indicated Mineral Resource category in the United Nations international classification for reserves/resources.

Kati lode

These results is based on the resource estimation of Kati for the Small Scale Mining Project made in 1997 does not include the results of the 1998 and 1999 drilling. The

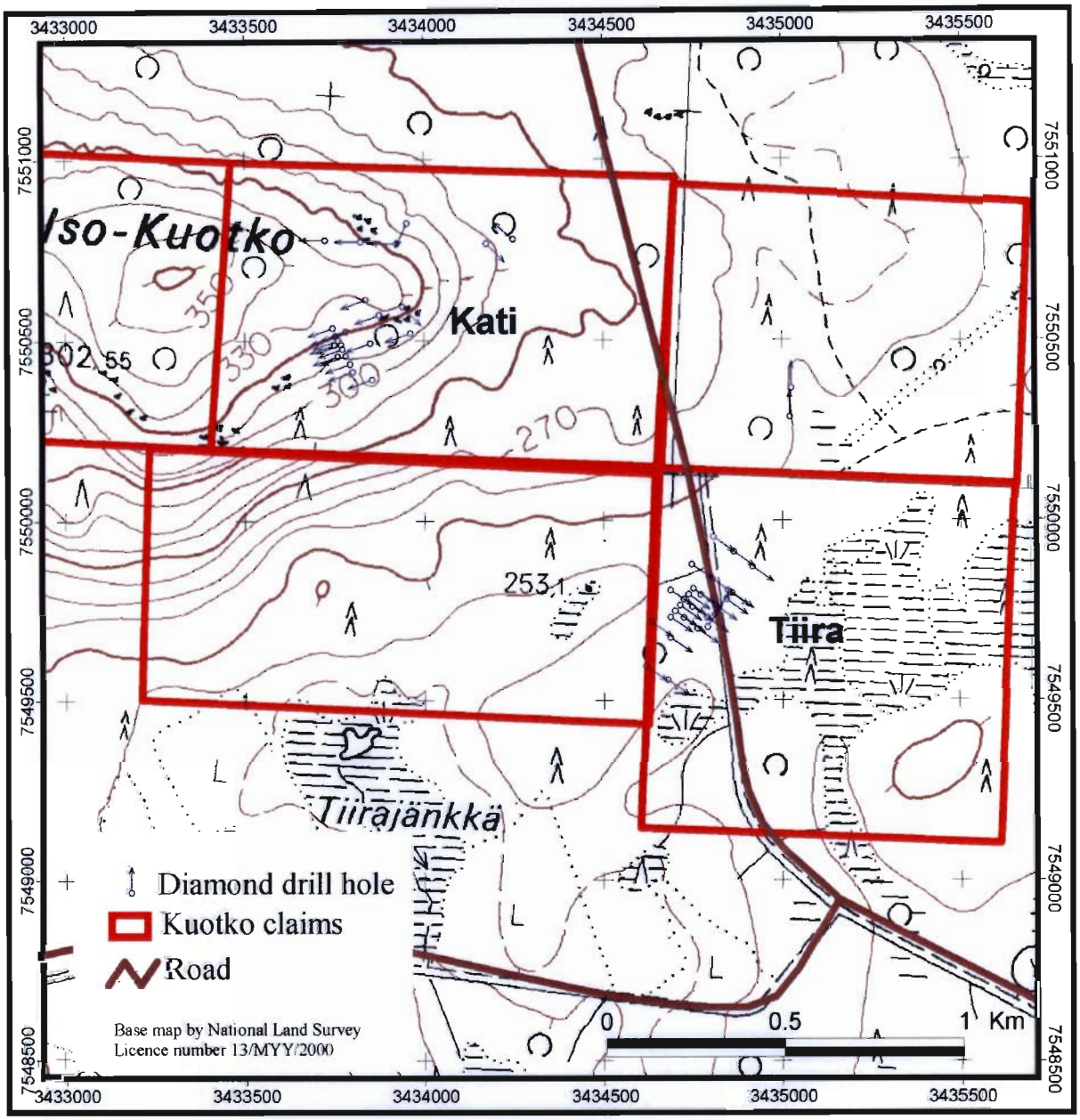

Figure 5. Diamond drill holes of the Kati and Tiira deposits.

preliminary mineral resource estimation of the Kati lode includes 29 drill holes which were drilled during 1987 - 1993 (drill core diameter 35 mm in 1987 and 45 mm afterwards). Another estimation of the uppermost 20 meters was made from the RC drilling (hole diameter 124 mm) data gained in 1997.

For the estimation the lode was divided in to A and B mineralized blocks which are cut by 16 drill holes. The mineralization in the A block is the most consistent and is composed of parallel veins which dip at 40-50 degrees to ENE. The shape and occurrence of veins in the B block is more complex. The mineral resource estimation includes only A and B blocks although there are several high gold assays outside these two blocks. The used cut off grade was 2 g/t. The calculation was done to the depth of 40 meters by using parallel vertical sections with spacing of 20 m. Accordingly, the deposit contains an indicated resource of 169 800 tons of gold ore grading 4.27 g/t. This includes a proved reserve of 23512 tons of higher-grade ore grading 5.1 g/t to depth of 20 m, which was considered suitable for the small-scale mining project. This estimate was done from the reverse circulation drilling results. The resource estimation and used material is fully documented in the report and appendixes of the Small Scale Mining Project (Härkönen, 1997).

Significant deeper intersections not included in the resource estimate:
Hole R327: 4.0 m @ 9.8 g/t from 54.0 m
Hole R338: 3.1 m @ 8.5 g/t from 131.1 m
Hole R341: 4.3 m @ 6.0 g/t from 77.0 m
Hole R341: 3.0 m @ 23.5 g/t from 124 m

Tiira lode

The mineral resource estimation of the Tiira lode is based on six vertical sections in which the ore intersections of drill holes were connected. Calculation indicates a resource of 121 000 tons of gold ore grading 2.7 g/t with a cut off grade of 1 g/t or 71500 tons grading 3.3 g/t with a cut off grade of 2 g/t. One vertical section may contain several separate ore connections.

Significant deeper intersections not included in the resource estimate:

Hole R436: 3.2 m @ 8.9 g/t from 90.8 m
Hole R435: 2.0 m @ 6.5 g/t from 82.0 m
Hole R453: 5.0 m @ 17.5 g/t from 52.8 m

Retu and Nimetön

As mentioned above, Retu and Nimetön lodes are less explored, and no mineral resource estimated have been done. Significant intersections from the Retu lode include 1.8 m @ 17.4 g/t from 15.7 m, and from the Nimetön lode 2 m @ 10.4 g/t from 46.6 m.

6. RESULT OF THE METALLURGICAL TEST WORK

The metallurgical tests of the Iso-Kuotko ore for the small-scale mine project, sponsored by Kittilä and Sodankylä municipalities, were done in the VTT Mineral Processing Laboratory. The bulk sample (300 kg) was a composite from 11 reverse circulation drill hole samples with cut off grade of 2 g/t and it contained 7.9 g/t of gold, 2.72 % of arsenic and 0.07 % of copper.

The main sulfide minerals are pyrrhotite, 18.2 %, and arsenopyrite, 6.0 %. The other sulfides are pyrite, 2.8 % and chalcopyrite, 0.19 %. Gold in the bulk ore sample was relatively coarse and over half of it was liberated after moderate coarse grinding. Part of the gold occurs as inclusions in sulfides and part as invisible gold within sulfides, especially in arsenopyrite.

Preliminary sodium cyanide leaching tests indicating " free milling gold " showed gold recovery of 60.1 % at a grind size of 47 % - 75 µm and recovery of 76.5 % at a grind size of 73.0 % - 75 µm. Iso-Kuotko ore is easy to grind and the Work Index of the ore is 8.8 kWh/t at 80 % - 60 µm.

In a gravity separation test for ore crushed to less than 1 mm the concentrate from shaking table yielded 824 g/t of gold with a recovery of 24.1 %. The arsenic content was 33.1 % and recovery 2.2 %.

Because of the high content of sulfides in the feed, the gold content of a flotation concentrate remained at 20 - 35 g/t in bulk flotation tests with a grind size of 85 % - 75 µm and the recovery was 82 % at highest. Arsenic content and gold recovery are not directly dependent on each other. When depressing sulfides in the flotation circuit, the concentrate had a higher gold grade, 300 - 400 g/t, but the recovery dropped down

to 40 %. The arsenic recovery dropped at the same time down under 1 % with arsenic content of 3 % in the concentrate.

In sodium cyanide leaching tests, the autoclave treated, oxidized bulk flotation concentrate yielded 93.3 % gold stage recovery. In direct leaching of the flotation concentrate, the gold recovery was 81.3 %. The total recovery with flotation and leaching is about 70 % when the losses in flotation are calculated.

The optimum results will be gained using a combination process of gravity separation and leaching of the gravity tailings. The costs to use bulk flotation and leaching the autoclave treated bulk concentrate are much higher because of large amounts of flotation concentrate is required to maintain the flotation recovery. This type of leaching beneficiation process has not been applied in Finland before.

Recommendation for further metallurgical studies

The metallurgical study was a preliminary test for the preconditions of the Iso-Kuotko gold ore beneficiation for the small-scale mine project. However, to obtain more precise estimation data for a process and plant design, further complementary laboratory studies and especially pilot trial with a representative sample of 200 t ore, minimum, is required. A pilot plant would show in reality the capabilities of the gravity separation and the optimization of the combination process for the beneficiation of Iso-Kuotko gold ore.

7. COMPARISON BETWEEN THE ISO-KUOTKO AND SUURIKUUSIKKO DEPOSITS

The Iso-Kuotko and Suurikuusikko gold deposits are both associated with the Fe-rich tholeiitic volcanic rocks of the Kittilä group. However, in the Suurikuusikko deposit, sulfide-facies iron formation layers are common. The metamorphic grade of the host rocks in both deposits is greenschist facies. The main type of gold mineralization at Suurikuusikko is hosted by brecciated, albitized tuffs and is characterized by high sulfide content. The breccia fill components are mainly graphite and chlorite. On some locations the mineralized tuff breccia is reworked and a new type of a breccia is formed with high gold content both in the fragments an in the graphite rich matrix. In addition to these main mineralization types, there is another type, which is hosted by

microcrystalline quartz. In all types, the main sulfide minerals, arsenopyrite and pyrite, are present as dissemination and as small grain aggregates (Härkönen et al. 1999). Minor constituents are chalcopyrite, pyrrhotite, sphalerite, galena, gersdorffite, tetrahedrite, gudmundite, jamesonite, different types of silver bearing minerals and stibnite, which forms occasionally massive, but thin(<10 cm) veins. The mineralization itself is refractory, ie. bulk of the gold is bound to the lattice of arsenopyrite and pyrite. The proportion of free milling gold is approximately 6-7%.

Despite of their close geographic location and similar host rocks the Iso-Kuotko and Suurikuusikko deposits have similarities and distinctive differences. In Iso-Kuotko, the gold mineralization is associated with the quartz-carbonate veins whereas in Suurikuusikko, the gold mineralization is related to more pervasive style alteration. Both deposits have exceptionally high arsenic content, up to 3%. In the Iso-Kuotko deposit, free milling gold is more abundant than in the Suurikuusikko deposit. In the Iso-Kuotko deposit bismuth is common element but in the Suurikuusikko deposit it is absent. In the Suurikuusikko deposit, silver and antimony are common but not in the Iso-Kuotko deposit.

8. CONCLUSIONS

Four gold-bearing sulfide lodes, Kati, Tiira, Retu and Nimetön, have been discovered in the Iso-Kuotko area. The Iso-Kuotko deposit is associated with tholeiitic volcanic rock group, which is metamorphosed at greenschist facies conditions.

Gold is the primary economic metal and principal sulfide minerals associated with it are pyrrhotite, pyrite and arsenopyrite. About 80 % of gold occurs as native grains or inclusions in arsenopyrite and 20 % is refractory within arsenopyrite and pyrite.

The mineral resource estimation of the Kati lode using vertical sections to the depth of 40 meters indicates a resource of 170 000 tons grading 4.3 g/t with a cut off grade of 2 g/t. The mineral resource estimation of the Tiira lode based on vertical section indicates a resource of 121 000 tons of gold ore grading 2.7g/t with a cut off grade of 1 g/t or 71500 tons grading 3.3 g/t with a cut off grade of 2 g/t.

Significant intersections not included in the resource estimates include:
Kati lode: 3 m @ 23.5 g/t from 124 m
Tiira lode: 5 m @ 7.51 g/t from 52.8 m
Retu lode: 1.8 m @ 17.4 g/t from 15.7 m

Nimetön lode: 2 m @ 10.4 g/t from 46.6 m

Preliminary sodium cyanide leaching tests showed gold recovery of 60-76 % depending on a grind size. In a gravity separation test for - 1 mm crushed ore the recovery was 24 %.

In the sodium cyanide leaching tests of the autoclave treated bulk flotation concentrate yielded 93.3 % gold stage recovery. In the direct leaching of the flotation concentrate, the gold recovery was 81.3 %. The total recovery with flotation and leaching is about 70 % when the losses in flotation are calculated. The metallurgical tests indicate that the optimum results will be gained using a combination process of gravity separation and leaching of the gravity tailings.

9. RECOMMENDATIONS FOR FURTHER STUDIES

The Kati lode and its extensions northwards have been interpreted to form horsetail fault geometry. Consequently, the selection of the optimum drilling direction is difficult. The deeper parts of the main A ore block and the southern extensions of B ore block as well as several intersections with high gold grades outside these ore blocks have not been tested and remain open. Since the general composition of the Retu lode and the Kati lode is similar, there could be a straight physical connection between these two, and the other occurrences.

The Retu lode is less studied. The gold is coarse, visible gold is common, and therefore, larger samples are needed to get reliable statistic results. Large diameter diamond core ore RC drilling could be suitable in this kind of mineralization.

Furthermore, in the southeast part of the main shear highly anomalous gold values have been assayed in the percussion drill samples of the weathered bedrock. These targets have not been tested.

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GROUND GEOPHYSICAL MAPS

Map code	Method	Type of map
Q22.21/274306D/88/1	Magnetic	Contour
Q22.23/274306D/88/1	Magnetic	Profile
Q22.21/274306D/92/1	Magnetic	Contour
Q22.23/274306D/92/1	Magnetic	Profile
Q24.11/274306D/88/1	Electromagnetic (Slingram)	Profile
Q24.111/274306D/88/1	Electromagnetic (Slingram, Imag)	Profile
Q24.112/274306D/88/1	Electromagnetic (Slingram, Real)	Profile
Q28.4/274306D/91/1	IP	Profile
Q28.41/274306D/91/1	IP, chargeability	Contour
Q28.42/274306D/91/1	IP, resistivity	Contour
Q21.1/274404/93/1	Gravimetric	Contour
Q21.1/274404/93/3	Gravimetric	Profile
Q22.21/274404C/88/1	Magnetic	Contour
Q22.21/274404/92/1	Magnetic	Contour
Q22.23/274404/92/1	Magnetic	Profile
Q24.11/274404C/88/1	Electromagnetic (Slingram)	Profile
Q24.111/274404C/88/1	Electromagnetic (Slingram, Imag)	Profile
Q24.112/274404C/88/1	Electromagnetic (Slingram, Real)	Profile
Q24.32/274404C/92/1	Electromagnetic (VLF-R)	Profile
Q24.321/274404C/92/1	Electromagnetic (VLF-R, Phase angle)	Contour
Q24.322/274404C/92/1	Electromagnetic (VLF-R, Resistivity)	Contour
Q28.1/274404/98/1	SP + CP	Contour
Q28.4/274404C/88/1	IP	Profile
Q28.4/274404C/88/2	IP	Profile
Q28.41/274404C/88/1	IP, chargeability	Contour
Q28.42/274404C/88/1	IP, resistivity	Contour
Q28.41/274404C/88/2	IP, chargeability	Contour
Q28.42/274404C/88/2	IP, resistivity	Contour
Q28.4/274404C/91/1	IP	Profile
Q28.41/274404C/91/1	IP, chargeability	Contour
Q28.42/274404C/91/1	IP, resistivity	Contour

Appendix 2
C/M06/2744/00/1/10

Claims of the Iso-Kuotko exploration area.

Name of the claim	Register number	Map sheet 1:20 000	Area	Registration day	Expiration day
Kuotko 8	6314/1	2744 04	100 ha	13.6.1996	13.6.2001
Kuotko 9	6314/2	2744 04	100 ha	13.6.1996	13.6.2001
Kuotko 10	6314/3	2744 04	100 ha	13.6.1996	13.6.2001
Kuotko 11	6886/1	2744 04	80 ha	14.7.1999	14.7.2004
Kuotko 12	6886/2	2743 06	100 ha	14.7.1999	14.7.2004
Kuotko 13	6886/3	2743 06	98 ha	14.7.1999	14.7.2004

Appendix 3

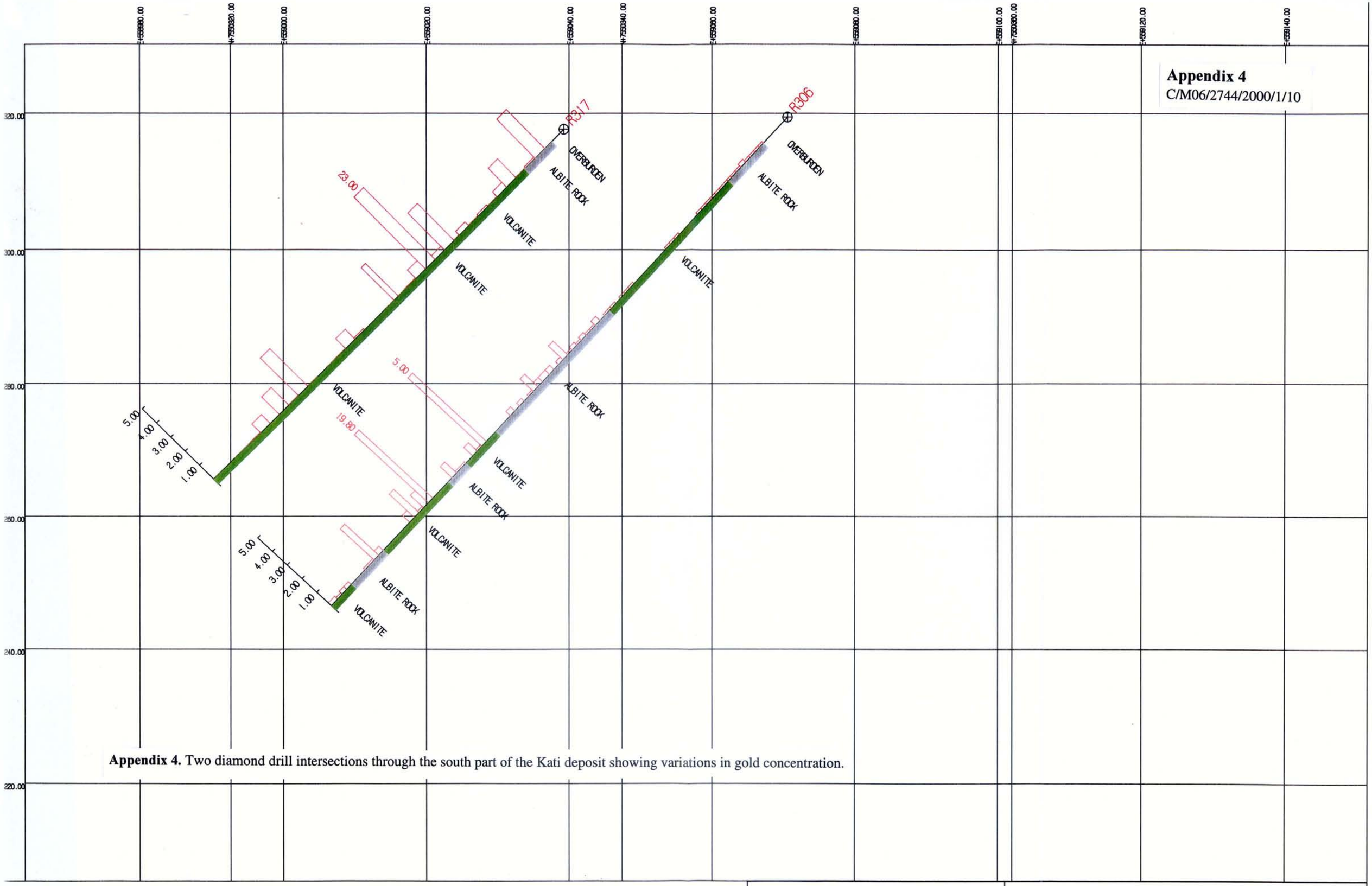
C/M06/2744/00/1/10

List of the diamond drill holes from the claim areas Kuotko 8 -13 including laboratory numbers.

Target drill hole label:	map/year/hole	x coordinate	y coordinate	elevation m	direction plunge	depth m	core	rc	laboratory number
Kati	2744/87/R301	7550.610	2559.450	295.00	135/45	104.20	x		37561
(Kuotko 8)	R302	7550.425	2559.225	321.00	135/45	148.15	x		37597
	R303	7550.657	2559.225	304.00	205/45	152.00	x		37596
	R304	7550.627	2559.525	286.00	310/45	69.30	x		37598
	2744/88/R305	7550.280	2559.050	312.91	250/45	74.00	x		37526
	R306	7550.350	2559.070	319.46	250/45	99.70	x		37562
	R307	7550.310	2559.040	316.19	250/45	69.50	x		37563
	R308	7550.400	2559.160	327.75	250/45	238.10	x		39960
	R309	7550.320	2559.140	312.93	250/45	152.90	x		39961
	R310	7550.220	2559.150	300.00	250/45	171.40	x		37841
	R311	7550.440	2559.120	327.21	250/45	150.20	x		37842
	2744/89/R317	7550.335	2559.040	317.70	250/45	73.70	x		37661
	R318	7550.358	2559.032	322.03	250/45	43.90	x		37662, 37695
	R319	7550.313	2559.057	316.51	250/45	81.00	x		37709
	R320	7550.313	2559.057	316.47	000/90	51.60	x		37663, 37695
	R321	7550.325	2559.050	317.89	250/45	82.80	x		37664, 37695
	R322	7550.325	2559.050	317.97	000/90	41.80	x		37665, 37695
	R323	7550.302	2559.063	315.12	250/45	81.40	x		37666, 37695
	R324	7550.302	2559.063	315.11	000/90	51.60	x		37667, 37686
	R325	7550.282	2559.073	311.48	000/90	60.00	x		37668
	R326	7550.282	2559.073	311.41	250/45	80.20	x		37669
	R327	7550.261	2559.085	307.55	250/45	87.20	x		37670
	R328	7550.261	2559.085	307.57	000/45	45.80	x		37671
	R329	7550.238	2559.095	302.99	000/90	53.60	x		37684
	R330	7550.238	2559.095	302.99	250/45	79.80	x		37683
	R331	7550.354	2559.249	308.06	250/85	244.20	x		37708
	2744/93/R338	7550.600	2559.000	325.00	270/45	172.50	x		47366
	R339	7550.600	2559.100	320.00	270/45	256.70	x		47368
	R340	7550.600	2559.200	315.00	270/45	174.20	x		47367
	2744/97/R102	7550.317	2559.003	316.60	000/90	24.00		x	63085
	R103	7550.308	2559.041	316.20	000/90	20.00		x	63085
	R104	7550.302	2559.045	315.60	000/90	20.00		x	63085
	R105	7550.296	2559.048	314.60	000/90	20.00		x	63085
	R106	7550.290	2559.056	313.50	000/90	20.00		x	63085
	R107	7550.282	2559.058	312.90	000/90	20.00		x	63085
	R108	7550.275	2559.061	311.60	000/90	18.00		x	63085
	R109	7550.270	2559.067	310.00	000/90	20.00		x	63085
	R110	7550.265	2559.070	308.90	000/90	19.00		x	63085
	R111	7550.257	2559.077	307.60	000/90	20.00		x	63085
	R112	7550.282	2559.013	314.60	000/90	20.00		x	63085
	R113	7550.288	2559.011	315.20	250/50	16.00		x	63085
	R114	7550.278	2559.017	313.10	250/90	15.00		x	63085
	R115	7550.298	2559.005	316.20	250/50	18.00		x	63085
	2744/98/R341	7550.277	2559.049	310.10	240/48	200.00	x		72459
	R342	7550.256	2559.016	309.00	240/42	157.50	x		72460
	R343	7550.308	2559.102	313.10	240/46	202.10	x		72466
	R344	7550.500	2559.103	329.90	240/45	155.30	x		72469
	R345	7550.471	2559.050	330.00	240/45	228.10	x		72467
	2744/99/R346	7550.520	2559.030	329.90	240/47	200.80	x		72468
	R347	550.384	2559.022	324.90	240/47	205.60	x		72477
	R348	550.620	2559.400	291.90	240/46	152.90	x		72473
	R349	550.690	2559.370	289.60	240/46	124.74	x		72476
	R350	550.667	2559.415	288.80	240/45	146.20	x		72474

continued

Target drill hole label:	map/year/hole	x coordinate	y coordinate	elevation m	direction plunge	depth m	core	rc	laboratory number
Nimetön	2744/88/R315	7550.150	2560.320	252.00	300/46	150.40	x		37815
(Kuotko 11)	R316	7550.190	2560.080	252.00	300/46	150.20	x		37816
	2744/92/R332	7550.190	2560.100	252.00	090/45	100.00	x		44294
	R333	7550.190	2560.030	252.00	090/45	101.90	x		44295
	R334	7550.190	2559.980	252.00	090/45	60.00	x		44297
Retu	2744/88/R312	7550.170	2560.320	252.00	100/45	156.80	x		37843
(Kuotko 11)	R313	7550.250	2560.320	252.00	100/45	137.80	x		37844
	R314	7550.375	2560.420	252.00	125/45	149.10	x		39911
	2744/92/R335	7550.200	2560.360	252.00	090/45	115.90	x		44296
	R336	7550.200	2560.290	252.00	090/45	100.80	x		44298
	R337	7550.200	2560.220	252.00	090/45	100.20	x		44299
Tiira	2743/87/R411	7549.680	2560.090	252.00	300/45	118.00	x		?
(Kuotko 12)	R412	7549.390	2559.680	252.00	320/45	84.70	x		?
	2743/90/R435	7549.675	2560.008	252.00	125/45	100.00	x		38305
	R436	7549.632	2560.070	252.00	125/45	97.60	x		38306
	R437	7549.358	2559.960	252.00	125/45	95.20	x		38311
	R438	7549.543	2560.015	252.00	125/45	100.00	x		38312
	R439	7549.460	2559.950	252.00	125/45	99.80	x		48458
	R440	7549.425	2560.012	252.00	125/45	105.50	x		48456
	R441	7549.748	2560.062	252.00	125/45	78.30	x		48455
	R442	7549.710	2560.123	252.00	125/45	102.10	x		48459
	R443	7549.675	2560.180	252.00	125/45	99.90	x		38310
	R446	7549.750	2560.233	252.00	125/45	99.60	x		48457
	2743/91/R444	7549.828	2560.120	252.00	125/45	100.00	x		48461
	R445	7549.790	2560.178	252.00	125/45	92.30	x		48463
	R447	7549.655	2560.165	252.00	125/45	83.20	x		48462
	R448	7549.680	2560.168	252.00	125/45	59.20	x		38313
	R449	7459,603	2560.112	252.00	125/45	44.80	x		44276
	R450	7549.638	2560.134	252.00	125/45	43.60	x		44277
	R451	7549.666	2560.092	252.00	125/45	101.55	x		44278
	R452	7549.682	2560.069	252.00	125/45	109.90	x		44286
	R453	7549.650	2560.045	252.00	125/45	107.60	x		44287
	R454	7549.570	2560.088	252.00	125/45	43.90	x		44288
	R455	7549.600	2560.047	252.00	125/45	109.80	x		44289
	R456	7549.617	2560.022	252.00	125/45	104.60	x		44291
	2743/92/R457	7549.612	2560.136	252.00	035/45	35.70	x		44292
	R458	7549.577	2560.115	252.00	034/45	57.50	x		44293
	R459	7549.665	2560.057	252.00	125/45	104.30	x		44300
	R460	7549.634	2560.034	252.00	125/45	99.00	x		44302
	R461	7549.600	2560.011	252.00	125/45	96.70	x		44471



Appendix 4. Two diamond drill intersections through the south part of the Kati deposit showing variations in gold concentration.

2744 04
Iso-Kuotko Kati

The table showing the 127 gold analysis of diamond drill samples which are over the cutoff 1 ppm Au.

HOLE-ID	FROM	TO	Lenght m	AU/ppm
R301	12.00	13.00	1.00	1.74
R301	21.00	22.00	1.00	3.50
R301	37.00	38.00	1.00	1.77
R301	65.20	66.20	1.00	1.84
R305	6.00	7.40	1.40	1.55
R305	7.40	8.70	1.30	16.40
R306	77.50	78.50	1.00	19.80
R306	80.50	81.50	1.00	1.70
R306	89.30	90.30	1.00	2.30
R307	7.00	8.00	1.00	5.90
R307	10.00	11.00	1.00	1.40
R307	12.00	13.00	1.00	2.20
R307	18.90	20.00	1.10	1.40
R307	22.00	23.00	1.00	2.20
R307	36.00	37.00	1.00	1.20
R307	66.00	67.00	1.00	10.60
R308	129.40	130.90	1.50	6.20
R309	66.00	68.00	2.00	1.90
R309	68.00	70.00	2.00	1.10
R309	74.00	76.00	2.00	6.90
R311	98.00	100.00	2.00	1.20
R311	112.00	114.00	2.00	1.60
R311	136.00	138.00	2.00	1.40
R317	4.00	6.00	2.00	2.68
R317	10.00	12.00	2.00	1.30
R317	23.10	25.10	2.00	2.56
R317	27.10	29.10	2.00	23.00
R317	34.80	35.70	0.90	2.30
R317	53.90	55.90	2.00	2.66
R317	57.90	59.90	2.00	1.24
R319	13.70	15.70	2.00	1.23
R319	19.40	21.40	2.00	1.57
R319	61.50	63.50	2.00	1.99
R320	29.00	31.00	2.00	2.58
R321	12.00	14.00	2.00	1.67

2744 04
Iso-Kuotko Kati

The table showing the 127 gold analysis of diamond drill samples which are over the cutoff 1 ppm Au.

HOLE-ID	FROM	TO	Lenght m	AU/ppm
R321	18.00	20.00	2.00	1.64
R321	20.00	22.00	2.00	2.18
R321	22.00	24.00	2.00	10.00
R321	24.00	26.00	2.00	1.19
R321	26.00	28.00	2.00	2.60
R321	36.00	38.00	2.00	9.15
R323	11.30	13.30	2.00	2.25
R323	15.30	17.30	2.00	2.14
R323	21.30	23.30	2.00	2.80
R323	55.00	57.00	2.00	1.02
R323	70.00	72.00	2.00	2.37
R324	15.30	17.30	2.00	10.50
R324	27.20	29.20	2.00	7.30
R324	31.20	33.20	2.00	9.80
R325	12.00	14.00	2.00	1.99
R325	18.00	20.00	2.00	5.40
R325	20.00	22.00	2.00	2.50
R325	26.00	28.00	2.00	8.20
R326	8.50	10.50	2.00	3.80
R326	16.00	18.00	2.00	16.10
R326	22.00	24.00	2.00	1.14
R326	24.00	26.00	2.00	1.13
R326	60.50	62.50	2.00	5.40
R326	72.00	74.00	2.00	5.30
R327	14.00	16.00	2.00	2.04
R327	16.00	18.00	2.00	2.82
R327	20.00	22.00	2.00	1.03
R327	30.00	32.00	2.00	6.65
R327	48.30	50.30	2.00	5.85
R327	54.00	56.00	2.00	6.15
R327	56.00	58.00	2.00	13.40
R327	72.00	74.00	2.00	1.30
R328	33.60	35.60	2.00	1.69
R331	124.50	125.50	1.00	3.55
R331	164.70	166.70	2.00	1.45
R331	216.70	218.70	2.00	3.50
R338	76.00	77.00	1.00	1.72

2744 04
Iso-Kuotko Kati

The table showing the 127 gold analysis of diamond drill samples which are over the cutoff 1 ppm Au.

HOLE-ID	FROM	TO	Lenght m	AU/ppm
R338	80.00	81.00	1.00	1.04
R338	92.00	93.00	1.00	1.77
R338	131.10	132.20	1.10	17.90
R338	132.20	134.20	2.00	3.25
R339	25.40	26.40	1.00	1.07
R339	167.20	168.20	1.00	3.69
R339	168.20	169.20	1.00	3.57
R340	12.30	13.30	1.00	1.42
R340	80.70	81.70	1.00	1.05
R340	148.30	149.90	1.60	8.93
R340	171.50	172.50	1.00	1.58
R340	172.50	173.80	1.30	1.54
R341	76.00	77.00	1.00	1.34
R341	77.00	78.00	1.00	2.20
R341	81.00	82.20	1.20	20.70
R341	93.00	94.00	1.00	1.12
R341	96.10	97.10	1.00	2.75
R341	97.10	98.10	1.00	16.40
R341	101.10	102.10	1.00	2.46
R341	124.00	125.00	1.00	2.74
R341	125.00	126.00	1.00	67.50
R341	137.00	138.20	1.20	7.72
R341	139.20	140.20	1.00	1.48
R341	153.00	154.00	1.00	1.53
R341	156.00	157.00	1.00	1.36
R341	157.00	158.00	1.00	6.64
R342	44.80	45.80	1.00	1.79
R342	50.00	51.00	1.00	1.41
R342	56.50	57.50	1.00	1.03
R342	57.50	58.50	1.00	1.52
R342	89.00	90.00	1.00	3.97
R343	33.50	34.60	1.10	22.40
R343	34.60	35.70	1.10	12.60
R343	40.70	41.70	1.00	1.84
R343	43.00	44.00	1.00	5.05
R343	48.70	49.70	1.00	2.00
R344	17.00	18.00	1.00	29.00
R344	32.00	33.00	1.00	2.00
R344	67.00	68.00	1.00	4.60

2744 04
Iso-Kuotko Kati

The table showing the 127 gold analysis of diamond drill samples which are over the cutoff 1 ppm Au.

HOLE-ID	FROM	TO	Lenght m	AU/ppm
R344	92.00	93.00	1.00	1.20
R345	31.00	32.00	1.00	1.00
R345	132.00	133.00	1.00	1.00
R345	192.30	193.30	1.00	1.00
R347	36.50	37.50	1.00	1.00
R348	25.90	26.90	1.00	2.30
R348	44.00	45.00	1.00	2.00
R348	52.00	53.00	1.00	1.50
R348	53.00	54.00	1.00	1.50
R348	78.00	79.00	1.00	1.20
R349	39.00	40.00	1.00	7.20
R349	45.00	46.00	1.00	8.60
R349	59.40	60.40	1.00	2.20
R350	58.80	59.80	1.00	1.00
R350	60.80	61.80	1.00	2.50
R350	61.80	62.80	1.00	1.50

2744 04
Iso Kuotko - Kati rc

The table showing gold analysis of reverse circulation drill hole samples. Number of samples is 53.

HOLE-ID	FROM	TO	Length m	AU/ppm	WEIGHT
R102	0.00	1.00	1.00	1.46	4647
R102	2.00	3.00	1.00	4.04	4026
R102	4.00	5.00	1.00	6.86	2890
R102	5.00	6.00	1.00	4.00	3069
R102	8.00	9.00	1.00	2.09	2471
R102	9.00	10.00	1.00	1.46	2469
R102	10.00	11.00	1.00	1.39	2849
R102	11.00	12.00	1.00	1.52	2675
R103	8.00	9.00	1.00	1.68	5500
R104	1.00	2.00	1.00	1.00	3505
R104	2.00	3.00	1.00	9.41	3026
R104	3.00	4.00	1.00	6.66	3012
R104	5.00	6.00	1.00	1.75	3902
R105	4.00	5.00	1.00	2.58	4940
R105	5.00	6.00	1.00	3.25	5161
R105	10.00	11.00	1.00	2.96	5500
R106	6.00	7.00	1.00	1.45	5110
R106	7.00	8.00	1.00	4.42	4833
R106	8.00	9.00	1.00	11.80	4692
R106	13.00	14.00	1.00	5.18	4620
R106	14.00	15.00	1.00	7.46	5500
R106	15.00	16.00	1.00	6.32	4804
R106	16.00	17.00	1.00	1.15	4932
R106	17.00	18.00	1.00	7.29	5027
R106	18.00	19.00	1.00	9.57	4739
R107	5.00	6.00	1.00	5.56	5035
R107	12.00	13.00	1.00	3.25	4480
R107	13.00	14.00	1.00	3.06	3844
R107	14.00	15.00	1.00	4.79	5500
R108	4.00	5.00	1.00	12.30	5500
R108	5.00	6.00	1.00	4.06	5500
R108	11.00	12.00	1.00	1.00	4810
R108	14.00	15.00	1.00	6.18	4391
R109	6.00	7.00	1.00	7.44	5500
R109	7.00	8.00	1.00	8.55	5500
R109	8.00	9.00	1.00	2.33	4282
R110	6.00	7.00	1.00	4.91	4809

2744 04
Iso Kuotko - Kati rc

The table showing gold analysis of reverse circulation drill hole samples. Number of samples is 53.

HOLE-ID	FROM	TO	Length m	AU/ppm	WEIGHT
R110	7.00	8.00	1.00	8.41	5500
R111	10.00	11.00	1.00	1.25	5186
R111	11.00	12.00	1.00	1.85	3853
R111	12.00	13.00	1.00	1.00	5500
R112	0.00	1.00	1.00	2.89	1005
R112	11.00	12.00	1.00	6.25	3078
R112	17.00	18.00	1.00	11.50	3513
R112	18.00	19.00	1.00	73.20	2770
R113	4.00	5.00	1.00	1.23	2977
R113	6.00	7.00	1.00	3.44	3293
R113	7.00	8.00	1.00	17.10	2936
R113	8.00	9.00	1.00	2.15	3593
R114	1.00	2.00	1.00	10.80	2129
R114	2.00	3.00	1.00	2.10	1802
R114	3.00	4.00	1.00	4.40	4042
R114	8.00	9.00	1.00	2.51	3843

2743 06
Iso-Kuotko Tiira

The table showing the 101 gold analysis of diamond drill samples which are over the cutoff 1 ppm Au.

HOLE-ID	FROM	TO	Length	AU/ppm
R435	43.00	44.00	1.00	2.60
R435	64.00	65.00	1.00	1.48
R435	66.00	67.00	1.00	1.40
R435	68.00	69.00	1.00	1.24
R435	82.00	83.00	1.00	7.10
R435	83.00	84.00	1.00	5.90
R436	17.50	18.50	1.00	1.48
R436	30.50	31.50	1.00	1.46
R436	33.50	34.50	1.00	4.53
R436	36.50	37.50	1.00	1.04
R436	38.50	39.50	1.00	1.39
R436	39.50	40.50	1.00	2.23
R436	54.50	55.80	1.30	2.45
R436	87.80	88.80	1.00	9.30
R436	90.80	91.80	1.00	4.77
R436	91.80	93.00	1.20	17.20
R436	93.00	94.00	1.00	3.17
R438	15.80	16.80	1.00	3.95
R438	20.80	21.80	1.00	2.26
R439	25.90	27.40	1.50	1.32
R439	75.40	76.40	1.00	1.30
R439	77.40	78.40	1.00	1.98
R441	39.40	41.30	1.90	1.86
R442	37.00	38.00	1.00	1.10
R442	38.00	39.10	1.10	3.53
R442	39.10	40.50	1.40	2.22
R443	13.50	14.50	1.00	1.42
R443	14.50	15.70	1.20	1.17
R443	18.60	19.80	1.20	2.20
R445	16.60	17.60	1.00	1.68
R445	22.60	23.60	1.00	1.77
R448	21.20	22.20	1.00	2.18
R451	36.00	37.00	1.00	1.82
R451	37.00	38.00	1.00	2.64
R451	38.00	39.00	1.00	2.63
R451	47.00	48.00	1.00	2.60

2743 06
Iso-Kuotko Tiira

The table showing the 101 gold analysis of diamond drill samples which are over the cutoff 1 ppm Au.

HOLE-ID	FROM	TO	Length	AU/ppm
R451	50.00	51.00	1.00	2.41
R451	52.00	53.00	1.00	2.24
R451	54.00	55.00	1.00	2.53
R451	61.00	62.00	1.00	2.96
R452	53.80	54.80	1.00	2.34
R452	70.90	71.90	1.00	1.02
R452	71.90	72.90	1.00	1.02
R452	73.90	74.90	1.00	10.80
R452	74.90	75.80	0.90	3.15
R452	75.80	76.70	0.90	3.67
R452	84.40	85.70	1.30	1.30
R452	94.50	95.50	1.00	4.30
R452	95.50	96.50	1.00	1.74
R453	32.50	33.50	1.00	4.61
R453	34.60	35.60	1.00	9.40
R453	36.60	37.60	1.00	2.41
R453	40.60	41.60	1.00	1.02
R453	52.80	53.80	1.00	3.21
R453	53.80	54.80	1.00	6.93
R453	54.80	55.90	1.10	8.38
R453	55.90	56.30	0.40	25.50
R453	56.30	57.80	1.50	5.34
R453	59.80	60.80	1.00	2.40
R453	60.80	61.80	1.00	2.86
R453	61.80	62.90	1.10	4.25
R453	74.05	74.25	0.20	3.53
R453	75.95	76.50	0.55	1.50
R453	85.00	86.00	1.00	6.10
R453	86.00	87.00	1.00	1.51
R453	88.00	89.00	1.00	3.51
R455	32.70	33.70	1.00	1.13
R455	33.70	34.70	1.00	1.84
R456	69.80	70.80	1.00	1.91
R456	73.80	75.40	1.60	2.73
R456	75.40	76.40	1.00	2.44
R456	76.40	77.40	1.00	6.51
R456	77.40	78.40	1.00	3.96
R456	83.30	84.30	1.00	4.22
R456	84.30	85.30	1.00	5.49
R456	85.30	86.30	1.00	10.40
R456	86.30	87.30	1.00	1.86

2743 06
Iso-Kuotko Tiira

The table showing the 101 gold analysis of diamond drill samples which are over the cutoff 1 ppm Au.

HOLE-ID	FROM	TO	Length	AU/ppm
R456	88.30	89.30	1.00	2.48
R456	89.30	90.30	1.00	2.20
R458	28.20	29.20	1.00	5.75
R458	32.20	33.20	1.00	1.56
R458	33.20	34.20	1.00	6.10
R458	35.20	36.20	1.00	3.83
R459	25.00	26.00	1.00	1.05
R459	30.00	31.00	1.00	2.00
R459	38.10	39.20	1.10	3.04
R459	52.70	53.70	1.00	1.17
R459	54.70	55.70	1.00	1.15
R459	85.00	86.00	1.00	9.90
R459	94.00	95.00	1.00	2.00
R459	95.00	96.00	1.00	1.60
R460	61.60	62.60	1.00	1.78
R460	62.60	63.60	1.00	2.32
R460	65.60	66.90	1.30	7.91
R460	66.90	69.00	2.10	2.90
R460	69.00	70.00	1.00	3.60
R460	91.50	92.70	1.20	3.23
R460	92.70	93.70	1.00	14.30
R460	93.70	94.70	1.00	3.05
R460	95.70	96.70	1.00	2.18
R461	74.00	75.30	1.30	4.15

2744 04
Iso-Kuotko Retu

The table showing the 19 gold analysis of diamond drill samples which are over the cutoff 1 ppm Au.

HOLE-ID	FROM	TO	Length m	AU/ppm
R312	15.70	17.50	1.80	17.40
R312	39.60	41.60	2.00	3.40
R312	47.60	49.60	2.00	5.90
R312	49.60	51.60	2.00	2.20
R312	55.50	56.90	1.40	1.10
R312	58.90	60.90	2.00	1.62
R312	60.90	62.90	2.00	1.36
R312	108.90	110.90	2.00	1.10
R313	100.00	102.00	2.00	1.18
R314	46.90	48.90	2.00	2.34
R314	85.50	87.50	2.00	2.90
R314	87.50	89.50	2.00	1.88
R335	14.75	15.90	1.15	12.60
R335	15.90	17.00	1.10	6.35
R335	17.00	18.00	1.00	3.00
R335	19.00	20.00	1.00	13.40
R335	33.80	35.00	1.20	16.00
R336	42.00	43.00	1.00	3.80
R337	17.40	19.40	2.00	1.15

2744 04
Iso-Kuotko Nameless

The table showing the 9 gold analysis of diamond drill samples which are over the cutoff 1 ppm Au.

HOLE-ID	FROM	TO	Length m	AU/ppm
R315	14.20	16.20	2.00	1.42
R315	37.70	39.20	1.50	10.00
R316	44.60	46.60	2.00	3.10
R316	46.60	48.60	2.00	10.40
R316	110.40	112.40	2.00	4.20
R316	137.50	139.50	2.00	3.30
R332	11.00	13.30	2.30	1.38
R332	39.40	41.00	1.60	3.34
R333	91.40	92.50	1.10	1.41