Scoping study of the Bidjovagge project

December 2010
Reijo Anttonen, M.Sc. and Senior Technology Advisor
Matz Jönsson-Forssell, consulting geologist
Krister Söderholm, consulting geologist

ARCTIC GOLD

Table of Contents

1. Summary

The current Scoping study shows that an ore reserve converted from an indicated mineral resource of 1.363 Mt at a 2 Aueq cut off to a mill feed assuming 90 % recovery and 20 % dilution in mining are sufficient to carry on five years life of mine. The marginal ore stockpiled in the area 0.3 Mt containing 1,79 g/t Au and 0,6 % Cu has been included in the mill feed.

The long term price scenario proposes marginal profitability to the project while the current prices for gold and copper proposes very good profitability. The profitability is sensitive for all major constituents like ore reserves, metal prices and costs.

The project does not contain any operational risk proved by the past experience. Increase in ore reserves improves profitability remarkably and this clearly supports the further development of the project.

Exploration, environmental studies and metallurgical testing to provide estimate for metallurgical performance for each orebody are recommended in the front line in project development. Preliminary planning of mining actions for each orebody is also a primary affair.

2. Introduction

2.1. Historical Background

Bidjovagge deposits are located in northern Norway about 40 kilometers northwest of Kautokeino village.

The first observations of copper mineralizations in the Bidjovagge district were made in the early 1950´s and by 1996 about 3.6 million tonnes of ore grading 1,8 % Cu had been discovered. A/S Bidjovagge Gruber was founded in 1968 to exploit the copper deposits with a planned processing capacity of 250 000 t ore/a. Production was commenced in 1971, but the mine was put in care and maintenance in1975 owing to low copper price and difficulties to meet the planned production rate.

In 1984 Outokumpu Oy took over the Bidjovagge Mine and developed it to mine and process the gold-copper ore lodes that were found in the immediate surroundings of the existing mine. The re-start of the Bidjovagge Mine took place in June 1985.

Bidjovagge Mill was originally built as a conventional flotation plant with three stage crushing and rod mill-ball mill grinding. With re-start the mill was refurbished and some new equipment was installed. The flowsheet consisted now primary crushing and SAG-ball mill grinding circuit. Gold-copper concentrate was produced by bulk flotation. After adding secondary crushing and another SAG grinding mill the capacity of the plant was increased to 380 000 tpa in 1988.

Totally 19 separate orebodies were mined 1985-1991 and usual practice to treat the orebodies separately on campaign basis due to differences in occurrence of gold and copper gold ration. The recoveries of copper and gold into bulk concentrate were typically 95 % and 85 % respectively. Concentrate grades were changing remarkable due to changes in the feed grades: low copper with high gold (concentrate 10 % Cu with 200 g/t Au) to high copper low gold (concentrate 20 % Cu with 20 g/t Au).

The ore reserves in 1984 when Outokumpu acquired A/S Bidjovagge Gruber were 750.000 tonnes grading 2,6 g/t Au and 1,1 % Cu. Due to extensive exploration work more ore was found and total amount of ore milled 1985-1991 summarized 1.936.624 tonnes with 3,92 g/t Au and 1,32 % Cu (see tabell below).

Taulukko 1. Bidjovaggen tonnit, pitois. ja kairaukset, 1985-8/1992 sekä vertailu in-situ pitoisuuden ja tuotannon välillä. Koonnut H Ask 1991.

Malmi	Tonnia	Cu %	Au g/t redus.	Kair.metr.	Tonnia/ metri	Pitoisuusero % malmiarvio/toteutunut		
						Cu	Au ei redus.	Au redus.
A	275 940	1,42	2,12	3 268	12,2	-29		+56
B	440 920	1,00	2,84	2 591	5,8	0		+31
BN/A	5 535	1,76	2,21	sis. A:han	12,2	-17		-8
BN/E	9 979	0,71	8,61	sis. Eva:an	29,9	+42		-10
C1	52 425	2,85	3,08	18 148	61,2	-15		+102
C2	175 302	2,63	2,36	sis. C1:een	61,2	-22		+20
C3	88 706	2,44	1,80	sis. C1:een	61,2	-28		-9
BN/C	12 408	2,48	1,68	sis. C1:een	61,2	-40		+57
C/Au	50 377	0,50	5,13	1 729	33,0	+138	-39	-13
D	245 486	0,88	4,14	3 764	15,3	-9	+29	+72
Eva-avolouhos	137 868	0,86	7,14	8 437	29,9	+125	-19	+16
E1	32 431	0,95	10,18	sis. Eva:an	29,9	-38	-27	+21
E2	61 896	1,33	4,82	sis. Eva:an	29,9	-25	-45	-12
E3	40 464	1,72	4,27	sis. Eva:an	29,9	+43	-19	+43
F	36 737	1,70	3,57	2 227	60,6	-2	-21	+13
Gerd	15 113	1,15	4,27	1 075	84,0	-16	+3	+8
I	88 131	1,21	3,44	1 670	20,2	+2	-3	+30
K	148 562	0,69	9,35	5 248	35,4	+10		+10
Hilde	18 344	1,69	2,41	3 808	168,5	-20		-20
TOTAL	1 936 624	1,32	3,92	51 965 (+10 000?)	37,27 31,25	-14 %		+29 %
Louhimattomat mineralisaatiot (tilanne 7/91)								
D/Dyp	145 000	1,17	2,81	3 344	23,1			
Nordfeltet	57 700	1,31	5,48	4 925	85,4			

Huom. A, B, C, D, C/Au (ja E-malmeissa) runsaasti vanhoja kairareikiä.
Kair.metrien jakauma os. arvioitu, metreihin sis. etsintäreiät.

Production in Bidjovagge during the two periods 1970-1975 and 1985-1991 is seen in the table below.

Production	Mill Feed	Head Grades		Metals in Concentrate	
Period	Tons	% Cu	ppm Au	Tons of Cu	Kg of Au
1970 - 1975	388 000	1,88	0,5	~ 6 565	~194
1985 - 1991	1 939 000	1,33	3,98	23 752	6 292
Sum produced	2 327 000			30 300	~ 6486

2.2. Recent Project Development

The Bidjovagge project development sofar has included 2.000 m core drilling during the summer period of 2010. Both one new mineralization and on known in the North Field was indicated. Both had approximately 80.000 tonnes but with different amount of gold and copper.

Verification of the heaps where made including assays and metallurgical tests.

Financing for the coming three year period has been finalized during the autumn 2010 so that applications for mining and processing can be performed as well as a drill program of 8000 m during 2011. Exploration both in the orefield and on the satellite occurrences will continue during the following years.

The first mineral resource estimation due to modern standard is reported and will be followed by a more complete study during the spring 2011.

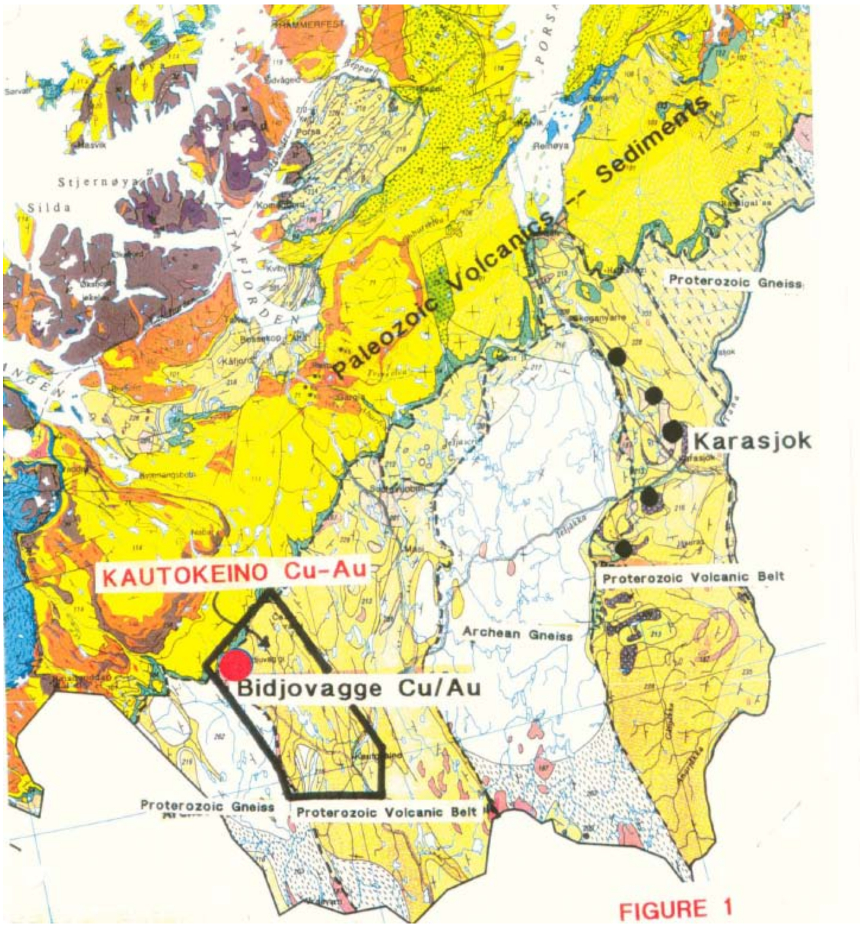
Further metallurgical studies are to come when drill cores are available.

The prefeasibility study should be carried out during the year 2011 and continue into a complete feasibility study during 2012.

3. Geology

3.1. Regional Geology

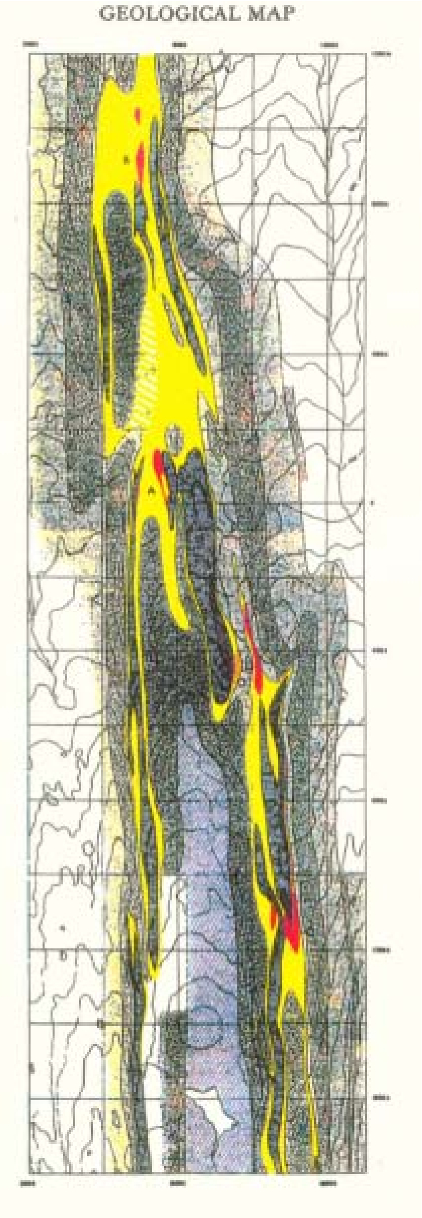
The deposits are located in the lower Proterozoic Kautokeino greenstone belt (see map below). They follow a north- south striking anticline and the deposit occurs in a north-south trending volcanic belt between domes with older Archean gneisses and amphibolites. The anti form can be followed over an axial length of 8.5 km. The Bidjovagge area is intersected by several north-south trending faults, which are probably related to the N-S-trending megashear. Detailed mapping has revealed a complex zone with dextral and sinistral strike slip as well as normal and reverse fault. Related to this shear zone, lenses of diorite occurs together with the ore as veins, breccias and low grade dissemination in a mostly strata bound environment.



Geological map including the Bidjovagge Orefield

3.2. Geology in the Bidjovagge Orefield

The geological setting of the ore is mostly in albitic felsite and graphitic albitic felsite. All known deposits but the northern one occurs on the eastern limb of the anticline. The general stratigraphy of the formation consists in the lowermost part of carbonates followed by argillites often carbonaceous and usually altered to albitic felsite. The upper part consists of tuffites and amphibolites and the sequence has been intruded by diabase sills. The carbonate rock is often albitized and most of the dolomite is replaced by albite. The most common alteration is of sodic type and the argillites are albitized as well and when completely altered it could be called an albitic felsite or graphitic felsite thou the carbon content can be up to 40 %. The normal stratigraphy is a graphitic unit with albitic felsite on both sides.



Most mineralizations are probably epigentic. There are indications that small scale faults acted as the channels for the ore forming solutions. There is a theory of three main zones of deposits. Zone A in the center of the light albitic felsite, contains mostly of chalcopyrite. The mineralization event seems to be related to brecciation of the host rock, formation of ankerite-actinolite veins and oxidation of the graphitic felsite. Zone B contains gold, some copper, minor uranium and occurs in light albitic felsite near the border of graphitic felsite and is hosted in grey and reddish albitic felsite. The brecciation is less intense and the carbonate actinolite veins are thinner than and not as frequent as in Zone A. The mineralization occurs partly in the veins and partly in veinlets and as dissemination near these veins. The gold is often correlated with the uranium content; davidite, tellurides and chalcopyrite are often part of the same paragenesis. There are also gold rich zones associated with an actinolite- chlorite-hematite alteration. Zone C contains pyrite and chalcopyrite in graphitic felsites near the border of light albitic felsite.

The spatial separation of mineralization in zone A and B and the poor correlation between gold and copper indicate that the deposition of the two metals was controlled by different factors. Boiling and temperature drop may have been an important factor for the formation of copper minerals and some gold within the sulfides. The increased gold content near the oxidation front of the graphitic felsite indicate that changes in oxygen fugacity or pH may have been responsible for the gold rich paragenesis.

3.3 Mineralizations

The deposits are generally tabular with an individual strike length between 100 and 200 meter. The thickness varies from less than 5 up to 35 meters. Copper and gold are the only metals of economic value. The ore is hosted in the albitic felsite but the graphitic felsite is often mineralized close to the albite felsites contact. Three types of chalcopyrite mineralization in albitic felsite can be distinguished but there are gradual transitions between them.

1. Most of the chalcopyrite occurs in veins with ankerite, actinolite and some pyrite and pyrrhotite. The sizes of the veins are usually 2 to 10 centimeters and forms a brecciated texture in the cherty-looking albitic felsite. There are also some wider veins, up to several meters, that are folded and boudinaged.
2. Chalcopyrite with minor gangue minerals (ankerite and actionolite) in veinlets and a stockwork-like texture. In some areas the veinlets are parallel to the bedding.
3. Disseminated chalcopyrite in association with the vein mineralization is common.

There are always some gold in the copper mineralizations but a positive correlation between copper and gold has only been observed in the southernmost orebody. The highest gold grades are always found in low sulfide zones. The chalcopyrite also forms irregular veins with small amounts of gangue minerals in the graphitic felsite. Copper grade are sometimes high but gold is low and poor recovery make mineralizations in the graphite felsites uneconomic.

There are also some typical occurrences of gold ore.

Fracture veins in microbrecciated albitic felsites with quartz, actinolite, sulphides (pyrite, pyrrhotite and minor chalcopyrite), tellurides, davidite and gold (Cu 0.1 % - 0.5% and Au 5 to 20 g/ t). These types are associated with a weak dissemination of the radioactive mineral davidite. The correlation between davidite and gold mineralization is common in the area and the host rock is usually reddish to brownish albitic felsite with quarts veinlets. The Eva orebody is a representative of this ore type and the hanging wall of D orebody also belong to this ore type

The gold can also be associated with tellurides and davidite and quartz veinlets. Gold-telluride ore is similar in structure as the gold ore type above, but it has different mineralogy. Gold occurs mainly as tellurides (calaverite). The Karin ore is a pure member of this type.

4. Mineral Resources

The tables below summarize the Mineral Resource Estimate by Outotec Oyj in Dec 2010. The North Field and Laura deposits are not mined yet whereas the other deposits represent the remaining resource under the old open pits. The limits and volumes of the underground working areas A, C and Hilde are not known in sufficient detail and they are not included in this estimation. The work of finding this missing information is going on and these possible remaining resources will be included when the data is available.

The bulk density used in all tonnage calculations is 2.8.

The Au equivalent (Aueq g/t), used as cut off, has been calculated using formula:

Aueq = Au + 2.1*Cu

Table below show Indicated and Inferred resources

Indicated Mineral Resource				
North Field				
Aueq cut off	Tonnes	Au	Cut15au	Cu
1	317800	2.75	1.23	1.31
2	225400	3.78	1.61	1.59
B				
Aueq cut off	Tonnes	Au	Cut15au	Cu
1	104300	1.91	1.61	1.00
2	87500	2.21	1.80	1.06
Karin				
Aueq cut off	Tonnes	Au	Cut20au	Cu
1	154700	2.93	2.74	0.48
2	117600	3.61	3.33	0.49
Fransesca				
Aueq cut off	Tonnes	Au	Cut10au	Cu
1	74200	2.34	1.85	1.10
2	70000	2.42	1.87	1.15
D				
Aueq cut off	Tonnes	Au	Cut10au	Cu
1	752500	2.38	1.50	1.15
2	711900	2.47	1.53	1.19
Laura				
Aueq cut off	Tonnes	Au	Cut10au	Cu
1	162400	2.07	1.54	1.34
2	150500	2.19	1.60	1.41
Total Indicated Mineral Resource				
Aueq cut off	**Tonnes**	Au	**Cut_Au**	**Cu**
1	**1 566 000**	2.44	**1.60**	**1.12**
2	**1 363 000**	2.74	**1.74**	**1.21**

Inferred Mineral resource				
North Field				
Aueq cut off	Tonnes	Au	Cut15au	Cu
1	35700	1.7	1.7	1.1
2	25200	2.3	1.9	1.2
D				
Aueq cut off	Tonnes	Au	Cut10au	Cu
1	8400	1.6	1.5	0.8
2	7000	1.9	1.8	0.8
Total Inferred Mineral Resource				
Aueq cut off	**Tonnes**	Au	**Cut_Au**	**Cu**
1	**40 000**	1.7	**1.7**	**1.0**
2	**30 000**	2.2	**1.9**	**1.1**

5. Mining

5.1. Mining Plan

Based on the first rough estimates and plans, most of the remaining ore will be mined underground. There are in some open pit positions also possibilities for continuing by expanding the existing open pits. The Karin open pit can possibly be deepened, and parts of the deposits in the North Field (N3000, N3200), Fransisca and Hilde can, perhaps be mined from open pits.

5.2. Ore Reserves-Mill Feed

The Indicated Mineral Resources of 1.363 Mt at a 2 Aueq cut off have in this report been converted to mill feed assuming 90 % recovery and 20 % dilution in mining. The marginal ore stockpiled in the area 0.3 Mt containing 1,79 g/t Au and 0,6 % Cu has been included in the mill feed.

Table below show the Ore Reserves used in this report

	tonne	g/t Au	% Cu
Ore Reserves	1 472 000	2,28	1,01
Heaps	300 000	1,79	0,6
Total Mill Feed	1 772 000	2,2	0,94

5.3. Mining Schedule

Mill capacity of 350.000 tpa has been considered as a realistic assumption at this stage of the project.

Total reserves support five years of production. It has been anticipated that 290.000 t of annual mill feed comes from the mine and 60.000 t from the old heaps.

Annual production is based on average head grades.

6. Metallurgy and Processing

6.1. Ore Types

In the last production period several ore types were recognized based on the mineralogy and gold/copper- ratio in the mineralizations. Three main types were identified:

1. Copper ores: Copper (3-4 % Cu) is typically coarse grained, rich in pyrite and chalcopyrite. Some native gold (1-2 g/t) and tellurides are met. Gold particles can measure up to 100 microns.
2. Gold ores: Vein type ore lodes contain little sulphides (Cu 0,1-0,5 %) , native gold (5-20 g/t) and tellurides. Most of the gold is occurring fine grained less than 50 microns.
3. Gold-Telluride ores: Similar in structure to Gold ore-type, but gold is occurring mostly as Au-tellurides like calaverite. Gold bearing minerals are very fine grained less than 20 microns.

6.2. Metallurgical Testwork- Historical Performance

In 1984 Outokumpu made bench scale laboratory tests with the samples from Bidjovagge ores. Tests included gravity concentration and flotation. Conventional sulphide flotation in natural pH recovered more than 90 % of Cu and 60-80 % of the gold. Because of the fine grained gold particles (mostly less than 50 microns) gravity concentration did not produce improvement in gold performance. On the basis of test work it was concluded that Bidjovagge ore can be successfully processed by conventional sulphide flotation and flotation was chosen as processing method for Bidjovagge ore.

Later on process was developed with regrinding of coarse flotation tails and subsequent flotation of grind product.

Typical metallurgical performance at Bidjovagge is shown in Table below.

Table below show milling performance at Bidjovagge in 1988.

	tons	Grades		Recoveries, %	
		% Cu	g/t Au	Cu	Au
Feed	311 325	1,4	3,88	100	100
Cu-Au-concentrate	27 748	15,4	37,0	96,0	85,1

In 1987 ore milling reached 380.000 tpa that was the highest annual production rate realized in the past production history.

6.3. Metallurgical Testwork with Heap Material

During the previous production period marginal grade material was stockpiled in mining lease area at Bidjovagge. The samples of the heaps were sent during summer 2010 to GTK Outokumpu laboratory for metallurgical test work. The assays of the samples are presented in Table below.

Table below show Head Grades of the ore heaps.

Stockpile	Au g/t	Cu %	S %
B	2,0	0,54	3,36
C	2,4	0,38	1,69
E-O	1,8	0,94	4,76
G	1,1	0,53	5,15
M-K	3,5	0,45	3,74
Y2	2,5	1,18	5,8

Gravity concentration with Knelson separator and flotation tests were conducted with samples B and E-O.

Gravity concentration as only processing method produced only 60 % Au-recovery to a low grade concentrate containing 15 g/t Au. Cu-recovery into gravity concentrate was about 30 %.

Flotation as only processing method produced Au-recovery of 75-78 % with concentrate grade of 10-15 g/t Au and Cu-recovery of 90 % grading 4-6 % Cu.

By combining gravity and flotation better performance was produced. The highest grade gravity concentrate contained 791 g/t Au with Au- recovery of 9 %. Higher Au-recovery, 31 % was achieved by accepting lower grade of concentrate 178 g/t

Au. Cu-recovery to sulphide concentrate was 83 % grading 5,8 % Cu and Au-recovery was 50 % at 15 g/t grade. Concentrate could be upgraded to 7, 6 % Cu.

Based on the test work it can be concluded that from the material tested it is possible to make concentrates that are saleable products. The detailed assaying of gravity and flotation concentrate did not reveal any harmful elements in the concentrates.

6.4. Flowsheet development

Historical ore treatment flowsheet in Bidjovagge included:

- Primary Crushing of ROM ore
- Secondary Crushing of 20-80 mm material
- Grinding in SAG-Ball Mill Circuit including Skim-Air Flotation Cell
- Sulphide flotation to recover of copper and gold minerals
- Concentrate Dewatering with Thickener and Pressure Filter
- Tailing Disposal

Supposing that the new ores are essentially similar in regards to processing response the former experience can be utilized in the project, subject to supplement by gravity concentration. Custom test work with ore samples representing mining schedule is anyhow required for finalizing the treatment plant flowsheet. After confirming physical properties of the ore, metallurgical performance and operating philosophy the planning of the plant can be commissioned. The proposed flowsheet will include following processes:

- Crushing of ROM ore
- Grinding including Skim-Air Flotation Cell
- Gravity Concentration
- Flotation of Cu-Au-concentrate
- Dewatering of Gravity Concentrate
- Dewatering of Flotation Concentrate
- Tailings Disposal

6.5 Predicted Metallurgical Performance

Prediction for metallurgical performance for the ores to be treated is based on former production experience with ore processing by flotation method only. The physicals for flotation results are shown in Table below:

Table . Estimated Metallurgical Performance.

	%	Grades		Recoveries, %	
		% Cu	g/t Au	Cu	Au
Feed	100	0,94	2,2	100	100
Flotation concentrate	5,9	15,0	31,4	95	85
Tails	94,1	0,5	0,35	5	15

On the basis of metallurgical testwork with heap ore samples there is a possibility to recover part of the gold to a higher grade concentrate. An estimate for metallurgical performance is shown in Table below.

Table . Estimated Metallurgical Performance with gravity and flotation.

	%	Grades		Recoveries, %	
		% Cu	g/t Au	Cu	Au
Feed	100	0,94	2,2	100	100
Gravity concentrate	0,1	5	500	0,5	20
Flotation concentrate	5,9	15,0	24,1	94,5	65
Tails	94,0	0,5	0,35	5	15

In the future metallurgical testwork with samples from each orebody is needed to establish the possibility to produce even higher grade gravity concentrate.

7. Production Plan

Preliminary production plan demonstrates the quantum of annual copper and gold metal production. Process includes only flotation process. Milling rate of 350.000 tpa ore is consistent with earlier production phase. Production physicals are presented in Table below.

Table. Estimated Annual Production

	t	Cu		Au		
		%	t	g/t	kg	tr.oz
Feed	350 000	0,94		2,2		
Flotation concentrate	20 800	15,0	3120	31,4	650	20200

8. Environmental and Permitting

Application for “utvinningsrett” and “driftkonsesjon” (exploitation permit) will be sent to mining inspector during the winter. Following will be work on the environmental impact study, where KLIF (Klima- Og Forurensnings- Direktioratet) is the authority. Further on the permitting due to Bygg och Planlagen will be discussed with the Kautokenio Community.

9. Operating Costs

The operating cost estimates has been provided for annual capacity of 350 000 t ore to be treated in an onsite concentrator. The costs reflect the experience from same size mining operations in Fennoscandia. The costs are estimated to be:

- Mining cost estimate 20 EURO/t
- Milling costs 12 EURO/t
- General&Administration 1,3 MEURO/a
- Concentrate delivery 45 EURO/wmt
- Reclaiming costs 1,0 MEURO

10. Capital Costs

Capital costs are presented in Appendix 1. All the capital costs include 15 % contingency.

10.1. Owners development costs

Owner’s pre-production development costs include exploration costs, feasibility studies, environmental base line studies and permitting and metallurgical testing, but not corporate costs.

The estimate for owner´s cost is 3,8 MEURO.

10.2. Mine

It has been assumed that mining operations will be carried out by contractor. Capital cost of 2,3 MEURO establishing organization, vehicles and other equipment has been estimated to 2,3 MEURO.

10.3. Plant

The estimated capital expenditure for the plant to treat 350 000 tpa ore by gravity and flotation process is 30 MEURO. The estimate is based on experience from similar size projects.

10.4. Infrastructure

Infrastructure capital cost are estimated to account 6,7 MEURO covering the improvement of access road, general mine site earth works, tailings storage facility, power delivery and water management.

11. Sales Value of Products

11.1. Gravity Concentrate

Gravity concentrate grading 500 g/t Au can be sold to copper smelters. The pricing terms are similar to flotation concentrate.

In order to sell gravity concentrate to a dedicated gold refinery the grade of the concentrate should be higher and this one of the task to be researched in the future metallurgical testwork.

11.2. Flotation Concentrate

Flotation concentrate can be sold to copper smelters. Typically selling agreements contains following terms for concentrate valuation:

- Treatment Charge USD/t concentrate and Refining Charge for Cu USc/lb Cu, eg. TC/RC can be 80/8
- Payable Cu 96,5 % subject to minimum deduction 1 %
- Payable Au 95 % subject to minimum deduction 1 g/t
- Refining charge for Au, typically 6 USD/tr.oz.

The terms contains also penalties for certain elements like As, Bi, Sb, Te, F and few more. In the case of Bidjovagge harmful elements are not expected to cause problems. In the past mining of Karin, the high tellurium content resulted in the selling of the concentrate to another smelter.

12. Project Economics

Discounted cash flow of the project is shown in Appendix 2.

Internal rate of return for the Bidjovagge project assuming copper price of 2,6 USD/lb and gold price of 1000 USD/tr.oz. and exchange rate USD:Euro 1,25 is 12,9 %.

Sensitivity for metal price changes of +- 10 % for gold is shown in table below and sensitivity for copper price is shown in Table below.

Table. Project Sensitivity for Gold Price

	900 USD/tr.oz (-10 %)	1000 USD/tr.oz	1100 USD/tr. oz (+10 %)
Internal rate of return, %	9,2	12,9	16,3
Net Present Value, MEUR at 5 % rate	6,4	12,5	18,5

Table. Project Sensitivity for Copper Price

	2,34 USD/lb (-10 %)	2,60 USD/lb	2,86 USD/lb (+10 %)
Internal rate of return, %	9,8	12,9	15,8
Net Present Value, MEUR at 5 % rate	7,3	12,5	17,6

It can be seen that the project is equally sensitive for both metals with suggested price level.

Financials for the project with metal priced and exchange rate of December 2010 are following:

- Gold price 1300 USD/tr oz
- Copper price 4 USD/lb
- USD:EURO 1,30
- IRR 32,9 %
- Net Present Value at 5 % rate 52,4 MEURO

The project shows high economical viability with current prices.

The project is also sensitive for operating costs, capital cost and ore reserves: 10 % change in each factor causes roughly 3 % movement in internal rate of return.

13. Conclusions

The current ore reserves are sufficient to carry on five years life of mine. The long term price scenario proposes marginal profitability to the project.

The profitability is sensitive for all major constituents like ore reserves, metal prices and costs.

The project does not contain any operational risk proved by the past experience. Increase in ore reserves improves profitability remarkably and this clearly supports the further development of the project.

Exploration, environmental studies and metallurgical testing to provide estimate for metallurgical performance for each orebody are in the front line in project development. Preliminary planning of mining actions for each orebody is also primary affair.

14. Appendices

Appendix 1. Bidjovagge Capital Cost Estimate 21.12.2010

Appendix 2. Bidjovagge Discounted Cash Fow Model 21.12.2010

Bidjovagge New Start

RTA 21.12.2010

Project Realization Costs

Contingency	15%			with contingency
Owners development costs,M€				
Exploration costs		1,20		
Feasibility Studies		1,00		
Base line studies, permitting		0,70		
Metallurgical testing		0,40		
Total			**3,30**	**3,8**
Mine Construction Investments, M€				
Mine			**2,0**	**2,3**
Plant				
Equipment installed		24,0		
Buildings		2,4		
Total			**26,4**	**30,4**
Infrastructure				
Access road, camp, site construction		1,0		
Tailings Storage Facility		2,2		
Power Delivery		1,0		
Water Management		1,0		
Miscellaneous		0,6		
Total			**5,8**	**6,7**
Project Realization Costs Total, M€			37,50	**43,125**

Scoping

	%	M€
NPV @	**0**	**25,6**
	5	**12,5**
	8	**6,8**
	10	**3,7**
IRR %		**12,9**

Exhange Rate	**1,25**	Us$/€
Au Price	**1000**	Us$/oz
Cu Price	**260**	Usc/lb
Mineral Resoutce		
Tonnes	**1 363 000**	t
Cu grade	**1,21**	%
Au grade	**2,74**	ppm
Mining rate	**350 000**	t/a
Concentrates		
Au rec to gravity conc	**0%**	
Cu Concentrate		
Cu grade	**15%**	
Cu Recovery	**95%**	
Au Recovery	**85%**	
Costs		
Opex	**1**	39,22 €/t
Capex	**1**	43,13 M€

Grants	Year		
	1	2	3
Investment subsidy k€	**0**	**0**	**0**

Sensitivities

Red if IRR < 10%

Capex (columns) / Opex (rows)

12,9	70%	80%	90%	100%	110%	120%	130%
70%	35,0	29,8	25,4	21,7	18,5	15,7	13,2
80%	31,7	26,7	22,5	18,9	15,8	13,1	10,7
90%	28,2	23,4	19,4	16,0	13,0	10,4	8,1
100%	24,5	19,9	16,1	**12,9**	10,0	7,6	5,3
110%	20,7	16,4	12,7	9,6	6,9	4,6	2,5
120%	16,6	12,6	9,2	6,2	3,7	1,4	-0,6
130%	12,4	8,5	5,3	2,6	0,2	-1,9	-3,8

Au Price Us$/oz (columns) / Cu Price Usc/lb (rows)

12,9	600	700	800	900	1000	1100	1200
200	-14,9	-8,8	-3,5	1,1	5,4	9,3	13,0
220	-10,8	-5,3	-0,4	4,0	8,0	11,8	15,3
240	-7,1	-2,0	2,5	6,7	10,5	14,1	17,5
234	-8,2	-3,0	1,7	5,9	**9,8**	13,4	16,8
260	-3,7	1,0	5,3	9,2	12,9	16,3	19,6
286	0,3	4,7	8,6	12,3	15,8	19,1	22,2
300	2,4	6,5	10,4	14,0	17,4	20,6	23,6
320	5,1	9,1	12,8	16,2	19,5	22,6	25,5
340	7,8	11,5	15,0	18,4	21,5	24,5	27,4

Mineral Resource t (columns) / Grant k€ (rows)

12,9	700000	900000	1100000	1300000	1500000	1700000	1900000
0,00	**-4,5**	2,8	8,0	11,9	14,9	17,1	18,9
2000	-2,9	4,3	9,5	13,3	16,3	18,4	20,2
4000	-1,2	6,0	11,1	14,8	17,7	19,9	21,6
6000	0,5	7,7	12,7	16,4	19,3	21,4	23,1
8000	2,5	9,6	14,5	18,2	21,0	23,0	24,7
10000	4,5	11,6	16,4	20,0	22,8	24,8	26,4
12000	6,8	13,7	18,5	22,0	24,7	26,6	28,2

Colors
calculated
input
sensitivity

					1	2	3	4	5	6	7	8
ASSUMPTIONS			YEAR									
			Base case									
Exchange rates		USD:EUR	1,25	1	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25
Cu-price		USc/lb	260	1	260	260	260	260	260	260	260	260
Au-price		USD/tr.oz	1000	1	1000	1000	1000	1000	1000	1000	1000	1000
Ag-price		USD/tr.oz	12	1	12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00
Co-price		USc/lb	15	1	15,00	15,00	15,00	15,00	15,00	15,00	15,00	15,00
Ni		USc/lb	6,5	1	6,50	6,50	6,50	6,50	6,50	6,50	6,50	6,50
Cu-price		EUR/kg			4,59	4,59	4,59	4,59	4,59	4,59	4,59	4,59
Au-price		EUR/kg			25721	25721	25721	25721	25721	25721	25721	25721
Ag-price		EUR/kg			309	309	309	309	309	309	309	309
Co-price		EUR/kg			26	26	26	26	26	26	26	26
Ni-price		EUR/kg			11	11	11	11	11	11	11	11
g/lb	453,6											
g/oz	31,1											

	tonnes		Au	Ag	Cu	Co	Ni	S
MINERAL RESOURCES	1363000		2,74	0	1,21	0	0	0
		1	2,740	0,000	1,210	0,000	0,000	0,000
Dilution, %	20							
Ore recovery,%	90							
ORE RESERVES	**1 472 040**		**2,28**	**0,00**	**1,01**	**0,00**	**0,00**	**0,00**
Ore Heaps	**300 000**		**1,79**		**0,60**			
Mill Feed Total	**1 772 040**		**2,200**		**0,939**			

PRODUCTION SCHEDULE					1	2	3	4	5	6	7	8
Mill feed	350000	t/a	Total									
Tonnes			1772040		0	0	175 000	350 000	350 000	350 000	350 000	197 040
Head grades												
	Cu	%	0,94	1	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
	Au	g/t	2,20	1	2,20	2,20	2,20	2,20	2,20	2,20	2,20	2,20
	Ag	g/t	0,00	1	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
	Co	%	0,00	1	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
	Ni	%	0,00	1	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
	S	%	0,00	1	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Gravity concentrate

Rec.	Au	%	0	**0,0**	1	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Concentrate grade													
	Au	%		**70**	1	70,00	70,00	70,00	70,00	70,00	70,00	70,00	70,00
	Ag	%		**10**	1	10,00	10	10	10	10	10	10	10
	Cu	%		**0,5**	1	0,50	0,5	0,5	0,5	0,5	0,5	0,5	0,5
	Co	%		**0,5**	1	0,50	0,5	0,5	0,5	0,5	0,5	0,5	0,5
	Ni	%		**0,5**	1	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50
	S	%		**5**	1	5,00	5,00	5,00	5,00	5,00	5,00	5,00	5,00
Metal in concentrate													
	Au	kg	0			0	0	0	0	0	0	0	0
	Ag	kg	0			0	0	0	0	0	0	0	0
	Cu	kg	0			0	0	0	0	0	0	0	0
	Co	kg	0			0	0	0	0	0	0	0	0
	Ni	kg	0			0	0	0	0	0	0	0	0
	S	kg	0			0	0	0	0	0	0	0	0
Moisture,%				2	1	2	2	2	2	2	2	2	2
Conc. tonnage,kg			0			0	0	0	0	0	0	0	0
Flotation concentrate	Cu												
Recovery	Cu	%		**95%**	1	95%	95%	95%	95%	95%	95%	95%	95%
Recovery Au				**85%**	1	85%	85%	85%	85%	85%	85%	85%	85%
Concentrate grade													
	Cu	%		**15%**	1	15%	15%	15%	15%	15%	15%	15%	15%
	Au	g/t		**31,4**	1	0,00	0,00	31,43	31,43	31,43	31,43	31,43	31,43
	Ag	g/t		**30**	1	30,00	30,00	30,00	30,00	30,00	30,00	30,00	30,00
	Co	%		**0%**	1	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
	Ni	%		**0%**	1	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
	S	%		**0%**	1	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Metal in concentrate													
	Cu	t	15811			0	0	1561	3123	3123	3123	3123	1758
	Au	kg	3313			0	0	327	654	654	654	654	368
	Ag	kg	3162			0	0	312	625	625	625	625	352
	Co	t	1			0	0	0	0	0	0	0	0
	Ni	t	1			0	0	0	0	0	0	0	0
	S	t	0			0	0	0	0	0	0	0	0
Moisture,%				10	1	10	10	10	10	10	10	10	10
Conc. tonnage,t				105406		0	0	10410	20819	20819	20819	20819	11721

NET SMELTER RETURN 000 EUR/a				1	2	3	4	5	6	7	8
Gravity concentrate											
Metal payable,%		payment-%	min. deduction								
	Au	98	0	98,00	98,00	98,00	98,00	98,00	98,00	98,00	98,00
	Ag	95	0	95,00	95,00	95,00	95,00	95,00	95,00	95,00	95,00

Metal paid													
	Au	kg		0		0	0	0	0	0	0	0	0
	Ag	kg		0		0	0	0	0	0	0	0	0
Value of metal ´000 EUR/a													
	Au					0	0	0	0	0	0	0	0
	Ag					0	0	0	0	0	0	0	0
Total	**000 EUR**					**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Freight, 1000 EUR/a	**000 EUR**					0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Freight, EUR/t			6000		1	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0
Flotation concentrate		USD/t											
TC Cu Conc		80				64	64	64	64	64	64	64	64
Total TC/a ´000 EUR						0	0	666	1332	1332	1332	1332	750
	c/lb	USD/kg											
RC Cu	8	0,18				0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
RC Au		2%				514,41	514,41	514,41	514,41	514,41	514,41	514,41	514,41
RC Ag		5%				15,43	15,43	15,43	15,43	15,43	15,43	15,43	15,43
RC Co	0	0,00				0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
RC Ni	0	0,00				0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Metal payable,%		payment-%	min. deduction										
	Cu	96,5	1%			93,3	93,3	93,3	93,3	93,3	93,3	93,3	93,3
	Au	95	1			0,0	0,0	95,0	95,0	95,0	95,0	95,0	95,0
	Ag	90	30			0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	Co	60	0%			60,0	60,0	60,0	60,0	60,0	60,0	60,0	60,0
	Ni	30	0%			30,0	30,0	30,0	30,0	30,0	30,0	30,0	30,0
Metal paid													
	Cu	tonnes				0	0	1457	2915	2915	2915	2915	1641
	Au	kg		3148		0	0	311	622	622	622	622	350
	Ag	kg				0	0	0	0	0	0	0	0
	Co	tonnes				0	0	0	0	0	0	0	0
	Ni	tonnes				0	0	0	0	0	0	0	0
Value of metal ´000 EUR/a													
	Cu					0	0	6477	12954	12954	12954	12954	7293
	Au					0	0	7836	15671	15671	15671	15671	8822
	Ag					0	0	0	0	0	0	0	0
	Co					0	0	2	3	3	3	3	2
	Ni					0	0	0	1	1	1	1	0
Total						0	0	14315	28630	28630	28630	28630	16118
Sales value of conc.,1000 EUR/a						**0**	**0**	**13649**	**27297**	**27297**	**27297**	**27297**	**15368**
Sales value of conc.,EUR/t conc.								1311	1311	1311	1311	1311	1311

					1	2	3	4	5	6	7	8
Freight, 1000 EUR/a					0	0	515	1031	1031	1031	1031	580
Freight, EUR/t conc.		45		1	45	45	45	45	45	45	45	45
Gross Revenus					**0**	**0**	**13649**	**27297**	**27297**	**27297**	**27297**	**15368**
NSR/t ore							75,05	75,05	75,05	75,05	75,05	75,05
DIRECT OPERATING COSTS		1000EUR/a			1	2	3	4	5	6	7	8
			Total									
General&Administration	1000 EUR	3,715	6583	1	0	0	650	1300	1300	1300	1300	732
Mining		20	35441	1	0	0	3500	7000	7000	7000	7000	3941
Milling		12	21264	1	0	0	2100	4200	4200	4200	4200	2364
Concentrate freights			5218		0	0	515	1031	1031	1031	1031	580
Reclaiming			1000									
Total			69506	1	0	0	6765	13531	13531	13531	13531	7617
Cash cost C2	USD/ttr.oz		724				724	724	724	724	724	724
Total cost	USD/ttr.oz		887				1425	1425	1425	1425	1425	1425
INVESTMENTS	1000 EUR/a				1	2	3	4	5	6	7	8
Owners Development Costs			0					0	0			
Mine			0									
Concentrator			0					0	0			
Infra			0						0			
Salvage value		0%	0					0	0	0	0	0
Contingency		15%	0		0	0	0	0	0	0	0	0
					13800	21850	7475					
TOTAL		**0**	**43125**	**1,0**	**13800**	**21850**	**7475**	**0**	**0**	**0**	**0**	**0**
GRANTS												
Investment subsidy	1000 EUR/a				0	0	0					
Other grants	1000 EUR/a											
Total	**1000 EUR/a**				**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
DEPRECIATION					0	0	4259	8518	8518	8518	8518	4795
WORKING CAPITAL		6			0	0	2275	4550	4550	4550	4550	2561
CHANGE INWORKING CAPITAL					0	0	2275	2275	0	0	0	-1988
GROSS SALES					0	0	13649	27297	27297	27297	27297	15368
Direct Deductions												
NET SALES					**0**	**0**	**13649**	**27297**	**27297**	**27297**	**27297**	**15368**
OPERATING COSTS AND EXPENCES												
Other cost of sales					0	0	-6765	-13531	-13531	-13531	-13531	-7617
Change in inventories												

Others										
OPERATING MARGIN			**0**	**0**	**6883**	**13766**	**13766**	**13766**	**13766**	**7750**
Depreciation			0	0	-4259	-8518	-8518	-8518	-8518	-4795
GROSS MARGIN			0	0	2624	5248	5248	5248	5248	2955
Selling and marketing expences										
Grants			0	0	0	0	0	0	0	0
OPERATING PROFIT			**0**	**0**	**2624**	**5248**	**5248**	**5248**	**5248**	**2955**
Financial income										
Financial expences	rate %	5								
Exchange gains/losses										
INCOME BEFORE EXTRAORDINARY ITEMS AND TAXES			**0**	**0**	**2624**	**5248**	**5248**	**5248**	**5248**	**2955**
CASH-FLOW STATEMENT			1	2	3	4	5	6	7	8
NET SALES			0	0	13649	27297	27297	27297	27297	15368
OPERATING COSTS AND EXPENCES			0	0	-6765	-13531	-13531	-13531	-13531	-7617
CHANGE IN WORKING CAPITAL			0	0	-2275	-2275	0	0	0	1988
INVESTMENTS			-13800	-21850	-7475	0	0	0	0	0
GRANTS			0	0	0	0	0	0	0	0
Salvage value										
	rate %									
Cash flow			**-13800**	**-21850**	**-2867**	**11492**	**13766**	**13766**	**13766**	**9738**
Cum. cash flow	0		-13800	-35650	-38517	-27025	-13259	508	14274	24012
Cum. cash flow	5		-14145	-37249	-42049	-32373	-19881	-6764	7008	17340
Cum. cash flow	10		-14490	-38882	-45780	-38291	-27666	-15978	-3121	6792

	interest rate, '	**1000 EUR**
Net present values	**0**	**25574**
	5	**12457**
	8	**6780**
	10	**3680**
Internal rate of return,%		**12,9**