Technical memorandum

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Blötberget and Håksberg

Mineral Resource Verification

August 2011

EXECUTIVE SUMMARY

Nordic Iron Ore AB has applied for mining concessions, with the intent to re-open the iron ore mines at Blötberget and Håksberg. To support their application, an attempt to re-establish mineral resource and ore reserve inventories has been made.

GeoVista AB has been asked to, if possible, declare a mineral resource in compliance with the requirements of JORC, by verifying the results of the recently carried out resource evaluations through re-logging and re-assaying of historical core stored at the National Drill Core Archive of the Swedish Geological Survey in Malå.

A total of 13 drillcores from Blötberget and 21 from Håksberg are available in Malå, of these 8 from Blötberget and 11 from Håksberg have been logged and sections for assays have been taken out. In addition, all assayed sections as well as a number of waste sections have been subject to density determinations.

The results are that, re-assays of old sample sections show that historical assays are of good quality with results very similar to the recent ones. It also indicates that the old cut-off criteria probably was set to hard, seen in the light of todays prices, the mineable width can probably be increased in many instances by going down in cut-off and still get an acceptable ROM grade.

The use of an average density of 4.0 ton/m^3 in the re-constructed mineral resource models is considered to have caused biased estimates.

The average grade for Blötberget, 42.8% Fe, would correspond to a density of 3.82 ton/m^3 rather than the 4.0 used in the model, as shown in Figure 5. This indicates that the overall tonnage is overestimated with approximately 5%.

The average grade for Håksberg, 36.4% Fe, would correspond to a density of 3.6 ton/m^3 rather than the 4.0 used in the model, as shown in Figure 6. This indicates that the overall tonnage is overestimated with approximately 11%.

The mineral resources presented by NIO are considered to be slightly overestimated, in view of the density-bias, the reported categories are considered too high in view of the need for more verifactory work to confirm the historical information.

Reasonable mineral resource estimates, after density-correction, compliant with JORC are, for Blötberget 13.9 Mton at 42.6 % Fe in the indicated category and 10.2 Mton at 42.9 % Fe in the inferred. For Håksberg 25.4 Mton at 36.4 % Fe in the indicated category and 11.6 Mton at 36.0 % Fe inferred.

GeoVista

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1 INTRODUCTION AND TERMS OF REFERENCE

Nordic Iron Ore AB has applied for mining concessions, with the intent to re-open the iron ore mines at Blötberget and Håksberg. To support their application, an attempt to re-establish mineral resource and ore reserve inventories has been made.

GeoVista AB has been asked to, if possible, declare a mineral resource in compliance with the requirements of JORC, by verifying the results of the recently carried out resource evaluations through re-logging and re-assaying of historical core stored at the National Drill Core Archive of the Swedish Geological Survey in Malå.

All units used in this report are metric.

Figure 1, Location map showing the general location of Blötberget and Håksberg respectively.

2 EXPLORATION

The two mines are located in the Bergslagen mining district of central Sweden as shown in Figure 1, the district has hosted several hundreds of mines in historical times. A more detailed map, showing the location of the two mining concessions, is shown in Figure 2.

Little is known about the historical exploration work carried out in the vicinity of the mines at Blötberget and Håksberg. Given that mining activities has been on-going in the area since the 16th century until closure in the late 1970's, it is reasonable to assume that they started by following outcropping mineralisations downward, without any further considerations.

Many, but not all, of the maps and sections related to the operations of the mines, have been delivered to the Inspector of Mines office in Falun upon closure of the operations. Most of the core-logs and related assays, together with a limited number of drill-cores have been delivered to the National Drill Core Archive of the Swedish Geological Survey in Malå. A large quantity of information has furthermore been located at the archive of SSAB Borlänge (formerly Stora Kopparberg). This material has been principal in the re-construction of the wireframe solids and estimation of tonnages and grades carried out by NIO as base for their mining concession applications [(1)] & [(2)]. The present compilations are far from complete, a lot of information still remains to be digitized.

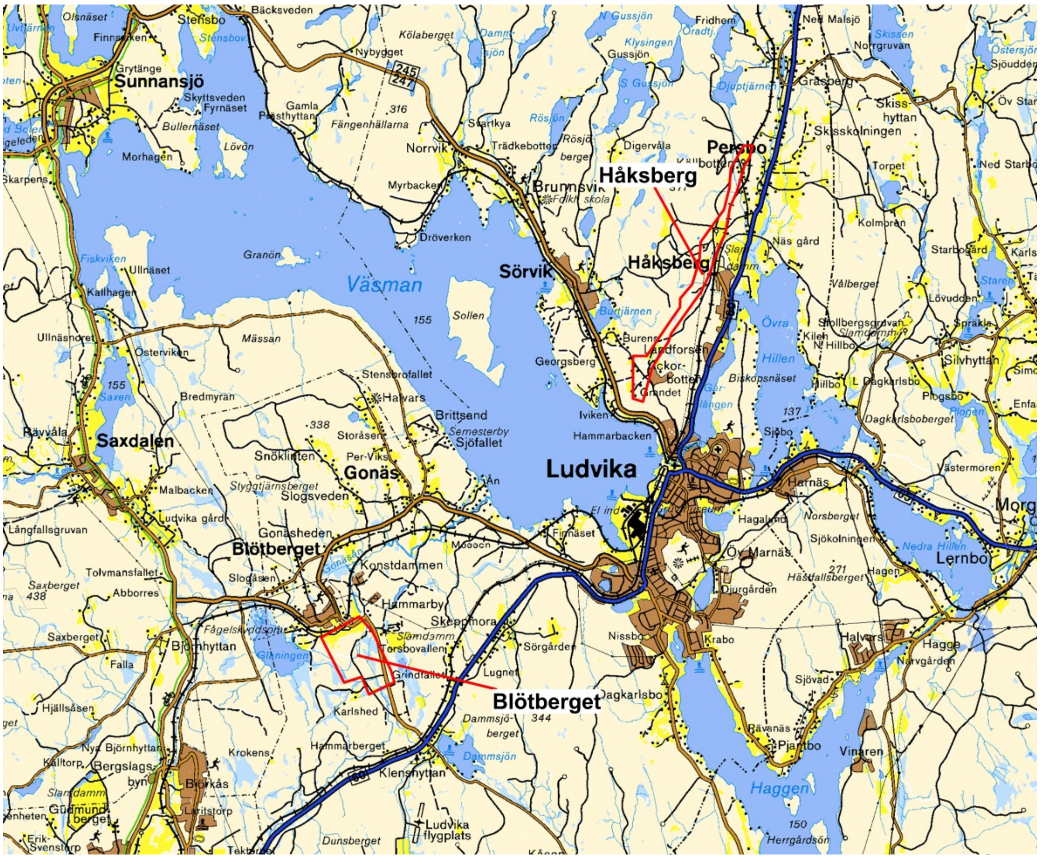


Figure 2, Location map showing the general Ludvika area and the location of the Blötberget and Håksberg mining concession applications respectively.

3 DRILLING

Historically, most of the drilling was carried out by different contractors such as Craelius, Hagby Bruk and Diamantborrbolaget.

In areas were mining was on-going or planned, regular drill fans, spaced 25m apart were done. Deeper parts of the deposits were investigated with more sparse drilling. Most of the drillholes are collared underground, with only the deeper holes located at the surface.

Typically, drilling at Håksberg was done with narrow diameter core, only 20mm, while the more recent drilling at Blötberget produced core of 36mm diameter.

Only holes longer than 150-200m were deviation surveyed on a regular basis, some of these records has been located and entered into the databases, some has been possible to re-construct from trace plots of the respective holes, others are lost or remains to be found. The lack of deviation survey information for holes shorter than 100m is not considered a problem, since generally they do not tend to deviate significantly.

3.1 Geological and geotechnical logging, sampling and assays

The core was logged following the industry standard of the epoch, sections were marked were grades were assessed to be "mineable" and assayed either at the mine or at the laboratory of Stora Kopparbergs steel mill, Domnarvet, in Borlänge.

The historical sectioning was based on visual estimates of contents of ironoxides (magnetite or hematite), there are very few assays below 30% Fe, and it is believed that this was a tentative, if not outspoken, cut-off.

Sample sections vary in length from below 1m up to 10-15m and can sometimes include gaps, for instance in hole Blötberget 168/67 there is an assay containing 75.5-76.2m and 76.4-83.0m, thus excluding a 0.2m section of sediments.

For the present study a selection of the drillcore stored at SGU in Malå was re-logged.

For Blötberget 8 holes of the 13 available in Malå have been logged geologically and geotechnically. These 8 cores have also been sampled and photographed. A total of 3879,12 m core has been logged. The re-logged holes are shown in relation to the reconstructed ore wireframes in Figure 3.

The relogged holes are principally representing the deeper parts of the deposit, none of the older cores, representing the more shallow parts of the deposit, are retained in Malå.

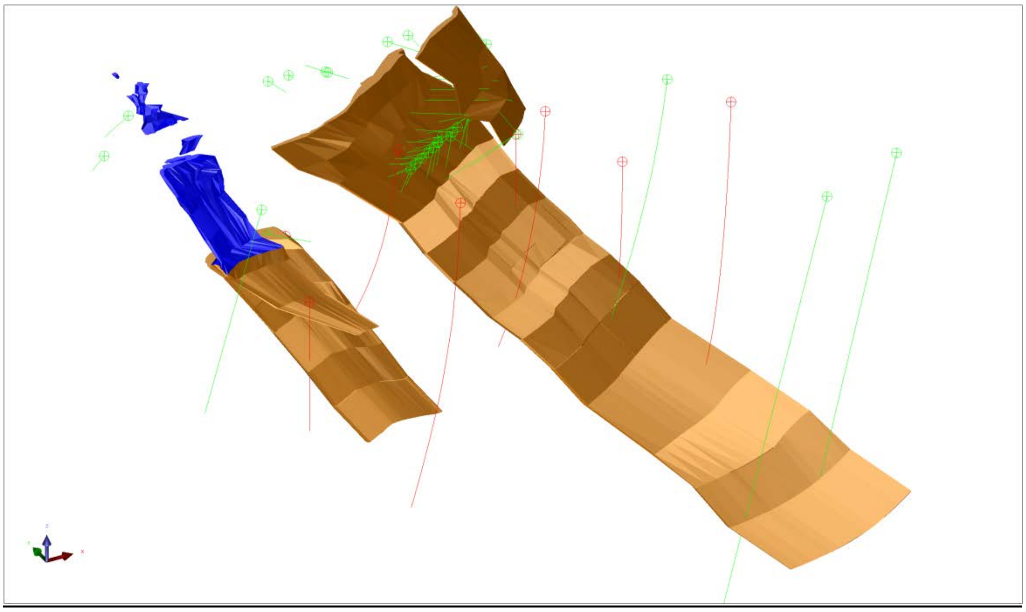


Figure 3, The relogged drillholes (in red) at Blötberget in relation to the reconstructed ore wireframes.

For Håksberg 11 of the 21 cores available in Malå have been logged geologically and photographed, of these, 8 have been sampled. The cores of Håksberg have not been logged geotechnically because of their small diameter, 20 mm, and thus showing a multitude of drilling and/or splitting induced fractures. A total of 1319,9 m core has been logged. The re-logged holes are shown in relation to the reconstructed ore wireframes in Figure 4.

The relogged holes at Håksberg are fairly well spread over the strike length of the mine field, and should thus be fairly representative.

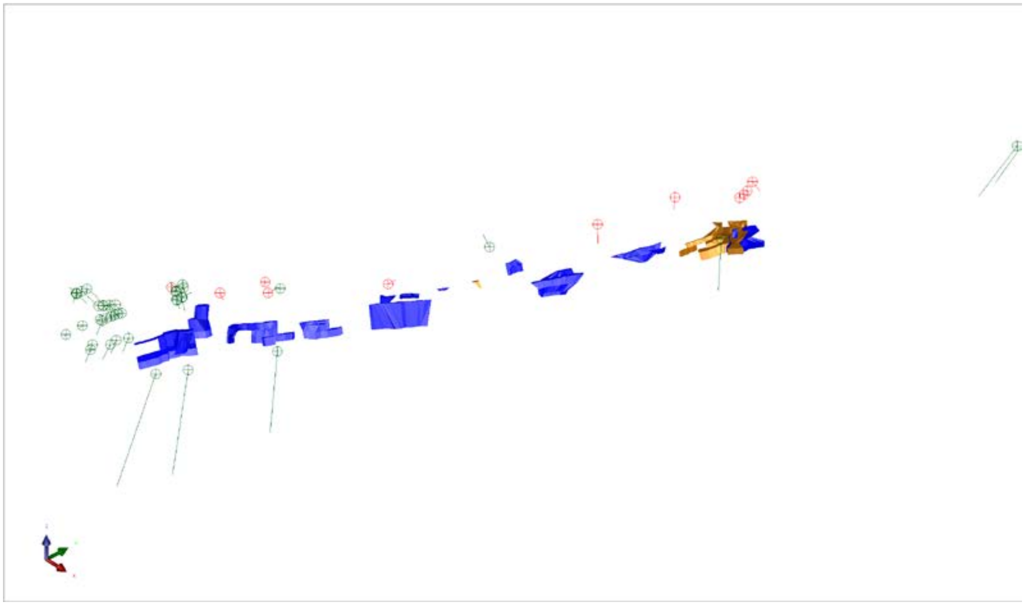


Figure 4, The relogged drillholes at Håksberg in relation to the reconstructed ore wireframes.

A more complete report, incuding section plots and interpretation of the geology, is presented separately by Mats Larsson, Berg och Gruvundersökningar [3].

3.2 Chain of Custody, Sample Preparation and Analyses

Little is known about the historical chains of custody and sample preparation. The present campaign of re-logging and re-sampling was carried out at the SGU facilities in Malå, with the core boxes transported over to CL Prospektering AB for splitting, bagging and transport to ALS Chemex in Piteå for sample preparation, directly after logging. The assays were then carried out at ALS Chemex in Perth. All of ALS Chemex' laboratories are accredited to ISO/IEC 17025:2005 standard. All samples were assayed with the two methods ME-XRF11b and ME-ICP61a, a selected number of samples were further assayed for gold with method Au-ICP21, a detailed lists of elements and their analytical ranges for these methods are presented in Appendix 1.

3.3 Bulk Density Determination

It is not known what method or methods were used during the production periods for determination of specific gravity, it is suspected that an assumed "average density" for respective deposit were used.

In the reconstruction of the mineral resources carried out by NIO, an average density of 4.0 ton/m^3 was set for each mineralised lens, for both mines, in the absence of hard data.

In the present work the bulk density has been determined for most assay sections, as well as for a number of lithological units in the hanging walls, using Archimedes principle of first weighing the sample dry, then submerged in water.

Density functions have been estimated for Blötberget as well as for Håksberg based on a fairly large number of density determinations. The model for Blötberget is shown below in Figure 2 and Håksberg in Figure 3.

The scatter for Blötberget is acceptable whereas the one for Håksberg is fairly large, probably mostly caused by the small diameter drillcore and the old core splitting method (by guillotine) that leaves a multitude of cavities in the split surface. The longer assay sections used due to the small diameter, in combination with the more heterogenous nature of the ore, has also made the selection of a representative sample for density determination difficult. However, the two functions are considered to be usable until further determinations of specific gravity can improve them.

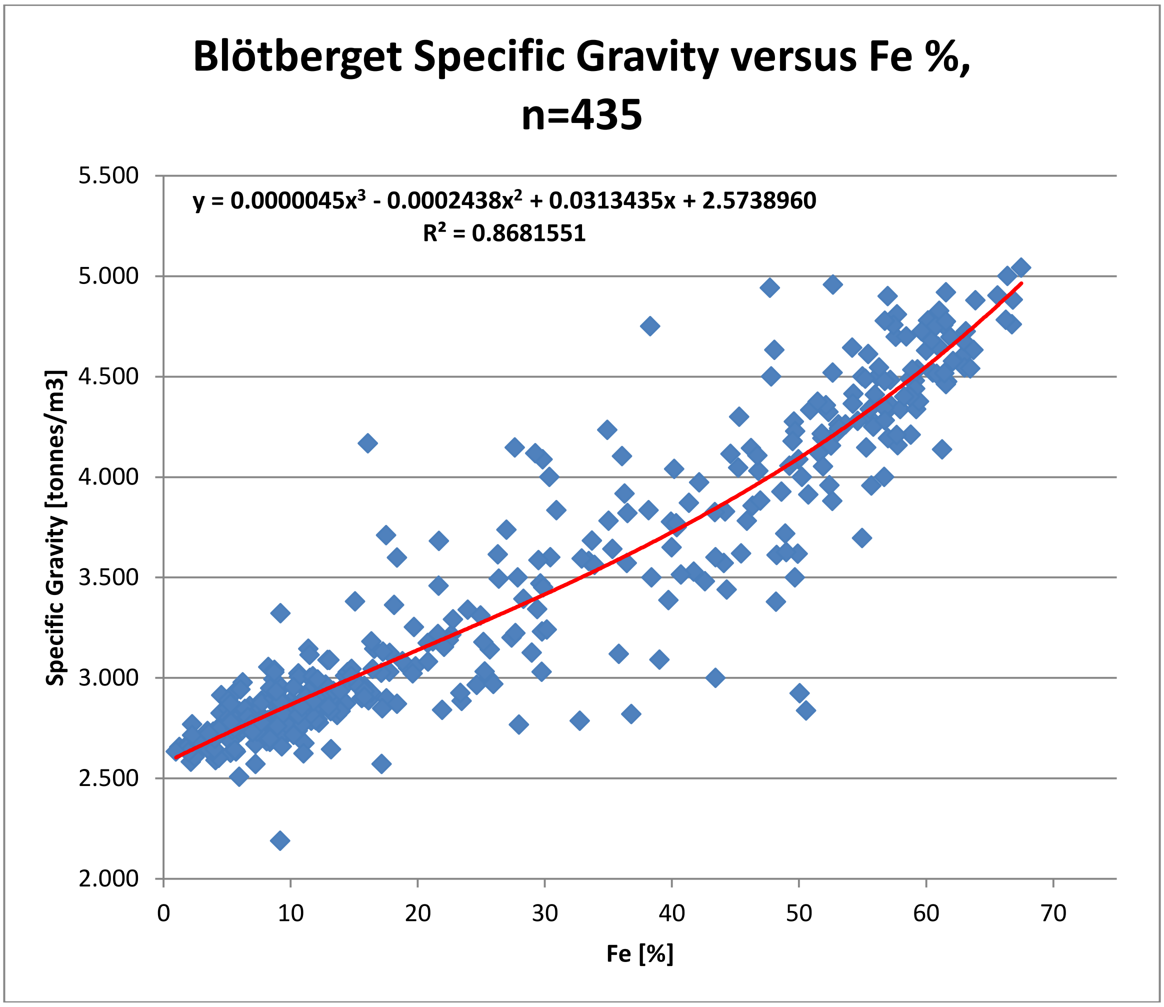


Figure 5, Specific Gravity versus Fe for Blötberget.

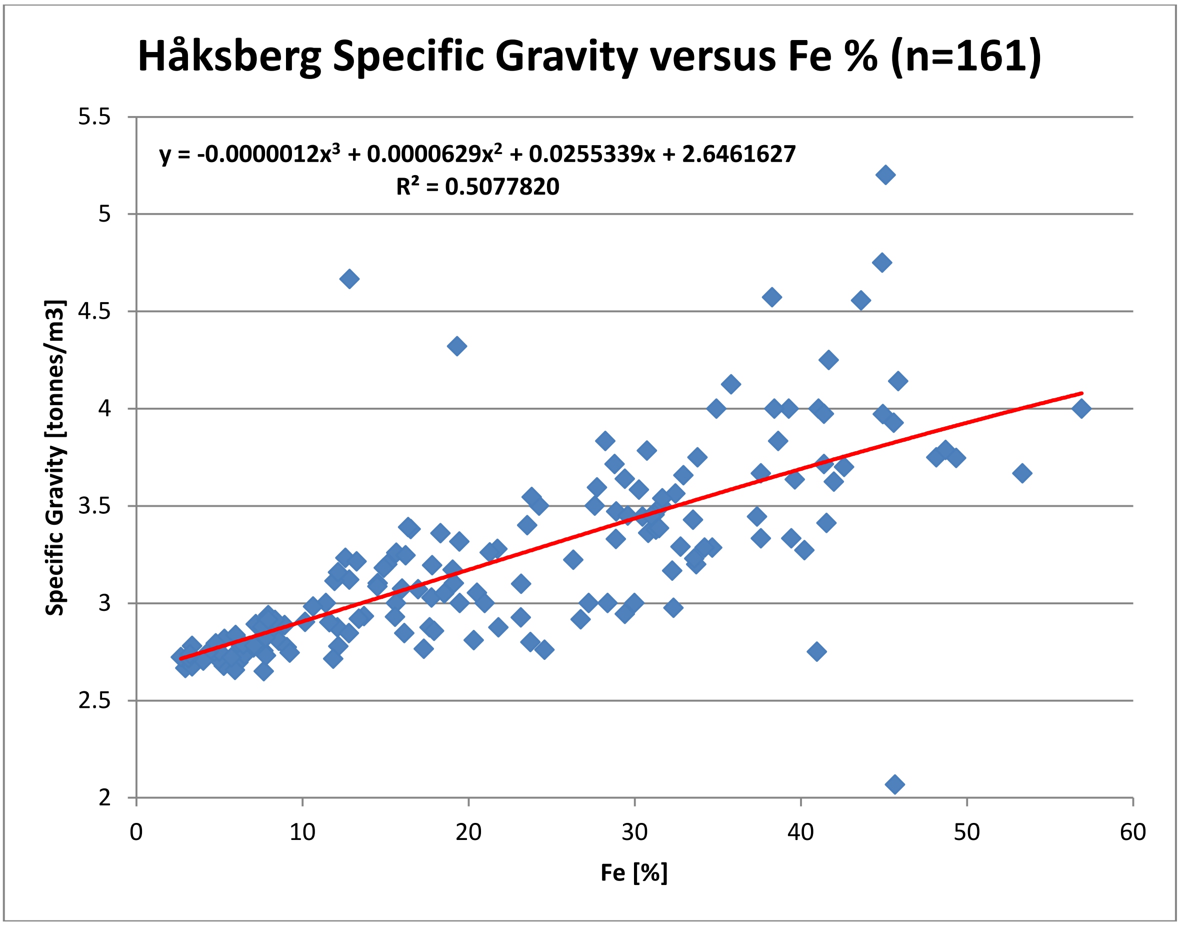


Figure 6, Specific Gravity versus Fe for Håksberg.

3.4 Density Assignments

The use of an average density of 4.0 ton/m^3 in the re-constructed mineral resource models is considered to have caused biased estimates.

The average grade for Blötberget, 42.8% Fe, would correspond to a density of 3.82 ton/m^3 rather than the 4.0 used in the model, as shown in Figure 5. This indicates that the overall tonnage is overestimated with approximately 5%.

The average grade for Håksberg, 36.4% Fe, would correspond to a density of 3.6 ton/m^3 rather than the 4.0 used in the model, as shown in Figure 6. This indicates that the overall tonnage is overestimated with approximately 11%.

3.5 Data Verification

Data has been verified in the sense that the results of re-logging have been compared to historical and found to be reasonable, albeit with an updated terminology. Historical assays have been compared to modern (re-assays) and found to be of good qualtity, a set of plots demonstrating this can be found in Appendix 2 for a selected set of holes.

It should be noted that all historical assay records lack information of the contents of deleterious elements except for P and occasionally S.

3.6 QA/QC program results

No independent QA/QC assays have been carried out at this initial stage, the laboratory's internal QA/QC results have been studied and found to be good, this is deemed sufficient for now.

4 MINERAL RESOURCE ESTIMATE

4.1 Background information and general data

The mineral resource estimates reconstructed by NIO for Blötberget and Håksberg are based on the mine maps and sections produced during production and in connection with the respective closure reports. These maps have been scanned and registered (georeferenced) into MapInfo Discover 3D, and the old ore contours have been traced to form a base for the construction of 3D wireframes. Generally, maps have been available for each 20m level in the mines, so the level of detail is high. Grades have been assigned to each block of ore according to the grades found on the maps. However, few of these grades have been verified by comparison with original assays.

The final resources, both at Blötberget and at Håksberg, have been categorized into measured/indicted and inferred mineral resources respectively, no parts of them have been converted to ore reserves at this time.

For Blötberget a measured/indicated mineral resource of 14.6 Mton @ 42.6% Fe is reported, in addition, there is an inferred mineral resource of 10.7 Mton @ 42.9% Fe. Håksberg is reported to contain a measured/indicated mineral resource of 28.5 Mton @ 36.4% Fe, and in addition, an inferred mineral resource of 13 Mton @ 36.0% Fe, is reported.

The historical production records supports, as referenced in the reconstructed mineral resource report, these grade assessments as well as confirms the continuous nature of the mineralisations.

The use of historical data in the reporting of current mineral resources is accepted, provided that the competent person has confirmed their usability for this purpose through independent verificatory work. Such work includes, but is not limited to, re-logging and re-assay of drillcore, verification of collar locations, drilling of twin holes etc.

Parts of this has been initiated with the work reported in the present study.

To a large part, the results concur with the conclusions of NIO regarding the classifications, the data density is high for this type of deposits, and plenty of underground workings such as drifts and stopes as well as historical production records support the interpretation. The lack of information regarding the distribution of deleterious elements is, however, a shortcoming. Based on this the author considers that the resources previously classified as measured/indicated merits a classification as indicated even though the density of data is higher than that required.

It is the authors' opinion that further confirmatory work is needed in order to classify any of the resources as measured.

4.2 Geological Model

The iron ore field of Blötberget consists of magnetite lava flows with a minor content of basalt horizon, in the footwall, surrounded by terrestrial and near shore sediments. The large thickness of the magnetite lava indicates that the ore is deposited near its eruption zone or pipe.

Both the terrestrial and the marine magnetite lava are superimposed by a thick zone with bands of detrital magnetite lava as granules and grains in both terrestrial and marine sediments.

In the lower levels of Blötberget iron ore deposit, the detrital magnetite lava zone is divided from the main magnetite lava zone (the main ore zone) by an up to 25 m thick zone with marine argillitic greywacke.

The geology of Håksberg mine field differs significantly from that of Blötberget. Håksberg is also a Magnetite Lava Flow deposit but it is deposed and interlayered in marine sediments such as mica-schist and argillitic greywacke.

In Håksberg there is no significant oxidation of the magnetite lava and it is very fine grained <1mm. The massive magnetite lava horizons have also interlayered basic pillow lava horizons.

In the mine field of Håksberg there is also an increasing content of exhalatively deposited magnetite alternating with thin chert layers i.e. banded iron formation, BIF. This magnetite formation was former called quartz banded iron ore (kvartsbandad järnmalm).

More detailed descriptions on the geology of the deposits can be found in the report by Mats Larsson, Berg och Gruvundersökningar ([3]).

4.3 Mineral Resource Evaluation

The author has considered the technical and economic criteria used to calculate a reasonable mineral resource cut-off grade for reporting mineral resources. The JORC Code definition of a mineral resource requires that “there are reasonable prospects for eventual economic extraction.”

A reasonable cut-off grade for modelling and reporting the Blötberget and Håksberg resources would probably be closer to 20 % Fe than the 30% Fe used in the historical work, as discussed earlier, the market price for iron ore has increased 15 fold since closure of the mines in 1979. A direct comparison with similar projects being developed also indicate that a 20 % Fe is a more reasonable cut-off. The outcome of this will be seen in coming updates of the mineral resource estimates for the deposits. A check on 7 holes from Blötberget show that lowering the cut-off to 20% Fe will increase the width of the intercept with an average of 71% while the grade will drop by 16 % relative to the original grade.

The current mineral resources at Blötberget and Håksberg, in compliance with JORC, can thus be stated to be, after correction for the bias caused by the used density, and in consideration of the classification criteria.

Category	Tonnage [Mton]	Grade Fe [%]
Indicated	13.9	42.6
Inferred	10.2	42.9

Table 1, Mineral resources at Blötberget as of August, 2011.

Category	Tonnage [Mton]	Grade Fe [%]
Indicated	25.4	36.4
Inferred	11.6	36.0

Table 2, Mineral resources at Håksberg as of August, 2011.

The re-assays indicate that phosphorous grades of < 0.5 % and sulphur grades of < 0.01 % are typical for Blötberget. For Håksberg the corresponding assays are even better, P < 0.1% and S < 0.01%, there are however several instances with elevated levels of molybdenum and tungsten through the occurrence of up to 0.2 % of the mineral Powellite ($Ca(MoO_4)$- $Ca(WO_4)$). These results should be seen as indicative since they only cover parts of the deposits.

None of the samples selected for gold assays showed anomalous values.

5 CONCLUSIONS AND RECOMMENDATIONS

The iron ore deposits at Blötberget and Håksberg are, at least to an extent, in need of more confirmatory work in order for them to be classified as Measured, however, in the authors’ opinion, the classification of indicated is reasonable, principally based on the fairly high density of drilling, the good verificatory results and the production records, and they can thus be included in economic evaluations.

The densities used in the reconstruction of the mineral resources are clearly overestimated. The grades of Fe at Blötberget, 42.8% average, would indicate a density of 3.82 ton/m^3 rather than the 4.0 used. It is therefore reasonable to say that the tonnage is overestimated by 5%.

Similarly for Håksberg, the average grade of 36.4% Fe would indicate a density of 3.60 ton/m^3 rather than the 4.0 used. The tonnage is therefore overestimated with approximately 11%. It should be noted that the density function for Håksberg still is uncertain, but the indication is as stated above.

In order to resolve the remaining uncertainties a set of confirmatory drill holes as well as a re-survey of the collar locations are needed, both requiring that the mines are pumped dry in order to be feasible. While waiting for this to happen, the following is recommended.

To start with, a second round of re-logging and assaying of the core that remains to be found in Malå is recommended. Secondly, the historical data entry needs to be completed as far as it is possible to recover data, requiring further archive studies.

The density of information is, in many places, quite satisfactory for a higher classification, but in the absence of more confirmatory work, mostly in comparing original assays to the grades assigned to the ore blocks, this is not yet possible.

6 REFERENCES

(1) Ansökan om bearbetningskoncession för Blötbergsgruvan, Ludvika kommun, Dalarnas län. Nordic Iron Ore AB, 2009.

(2) Ansökan om bearbetningskoncession för Håksbergsgruvan, Ludvika kommun, Dalarnas län. Nordic Iron Ore AB, 2009.

(3) Geological Logging and Sampling of Archive Cores at the Central Core Archive in Malå. Berg och Gruvundersökningar AB, 2011.

GeoVista

Analytical methods used for samples from Blötberget and Håksberg, information from ALS Minerals, Schedule of services & fees, 2011

ME-XRF11b

X-Ray Fluorescence (XRF) is the method of choice for analysis of oxide iron ores throughout the industry. The lithium borate fusion technique coupled with XRF, offers a robust and repeatable method, consistent with industry requirements. The relatively low flux to sample ratio offers good sensitivity for the majority of elements and creates a matrix which is not subject to particle size effects. With very few spectral interferences and high instrument stability, the XRF method delivers highly accurate and precise results across the full range of iron oxide ore types.

Loss on Ignition (LOI) is a critical component of iron ore analysis, providing a better understanding of mineral composition of the ore and how it will behave during processing. Single temperature or multi temperature LOI determinations are available. Temperatures can be customized as required.

24 elements by lithium borate fusion XRF

Element	**Analytical range (in %)**
Al_2O_3	0.01-100
As	0.001-1.5
Ba	0.001-10
CaO	0.01-40
Cl	0.001-6
Co	0.001-5
Cr_2O_3	0.001-10
Cu	0.001-1.5
Fe	0.01-75
K_2O	0.01-6.3
MgO	0.01-40
Mn	0.001-25
Na_2O	0.005-8
Ni	0.001-8
P	0.001-10
Pb	0.001-2
S	0.001-5
SiO_2	0.05-100
Sn	0.001-1.5
Sr	0.001-1.5
TiO_2	0.01-30
V	0.001-5
Zn	0.001-1.5
Zr	0.001-1
LOI (1000°C)	0.01-100

ME-ICP61a

Four Acid "Near-Total" Digestion

Four acid digestions are able to dissolve most minerals and although the term "near-total" is used, not all elements are quantitatively extracted in some sample matrices. Minimum sample size is 1g.

33 elements by 4-acid ICP-AES

Element	Analytical range (in ppm unless otherwise specified)
Ag	0.5-100
Al	0.01-50%
As	5-10,000
Ba	10-10,000
Be	0.5-1,000
Bi	2-10,000
Ca	0.01-50%
Cd	0.5-1,000
Co	1-10,000
Cr	1-10,000
Cu	1-10,000
Fe	0.01-50%
Ga	10-10,000
K	0.01-10%
La	10-10,000
Mg	0.01-50%
Mn	5-100,000
Mo	1-10,000
Na	0.01-10%
Ni	1-10,000
P	10-10,000
Pb	2-10,000
S	0.01-10%
Sb	5-10,000
Sc	1-10,000
Sr	1-10,000
Th	20-10,000
Ti	0.01-10%
Tl	10-10,000
U	10-10,000
V	1-10,000
W	10-10,000
Zn	2-10,000

Au-ICP21

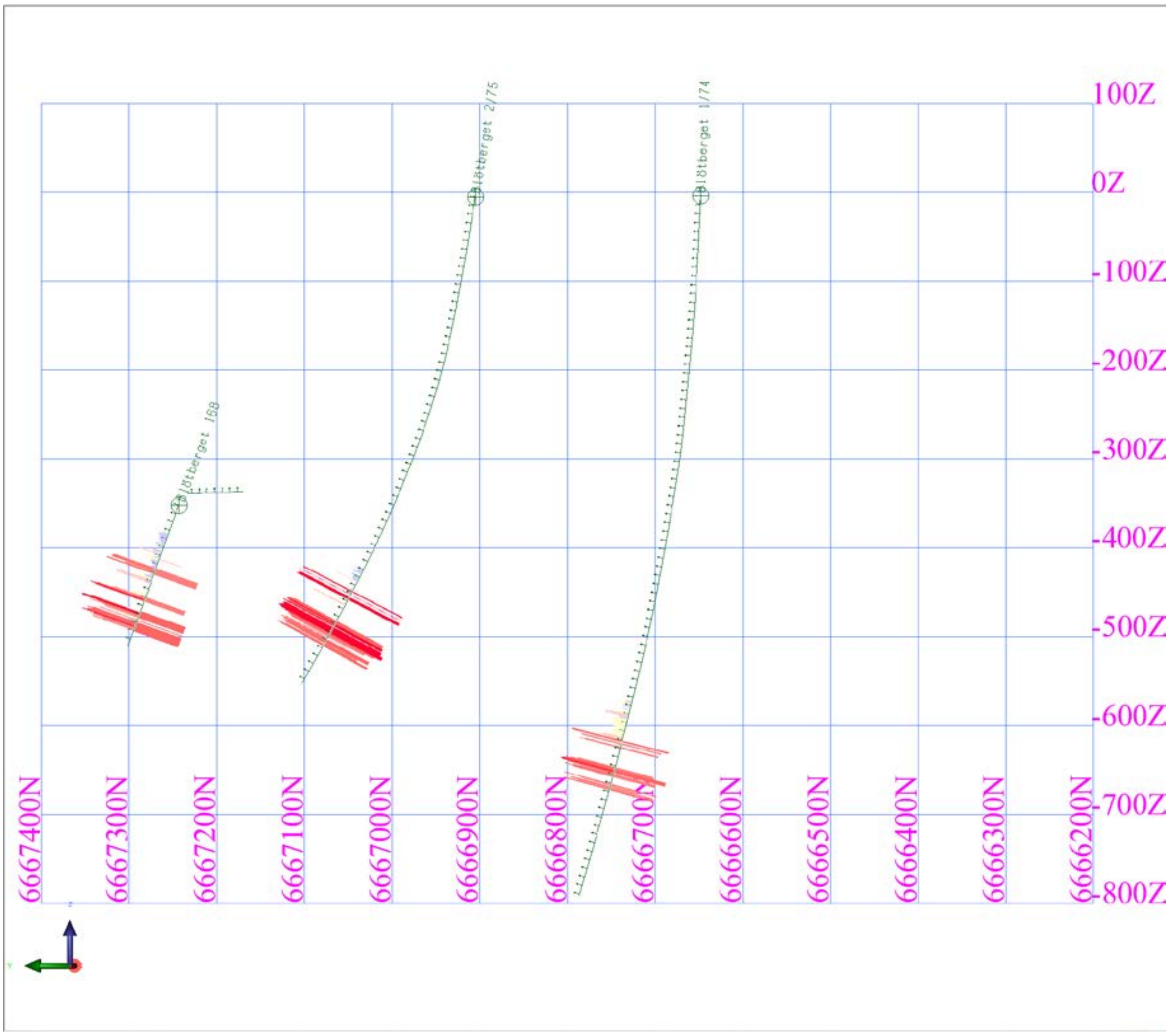
Fire Assay Fusion

For quantitative analysis of gold, the fire assay procedure is still the preferred choice globally. However, it should also be recognized that a wide variety of minerals and metals such as chromite, base metal sulfides and oxides, selenides and tellurides in moderate to high concentrations, can interfere with the fire assay process, generally leading to low precious metal recoveries. With prior knowledge of the presence of these minerals and metals, ALS Minerals can modify flux constituents and increase flux to sample ratios to improve recoveries. In most cases, a reduction in sample weight will yield higher precious metal recoveries, particularly
in the presence of the interfering species mentioned above. For optimum gold and PGE recoveries for most sample matrices, ALS Minerals recommends a 30g maximum charge weight.

Au by Au-ICP21

Element	Analytical range (in ppm)
Au	0.001-10

Comparison of historical assays (right side of hole trace) and modern assays (left side) for section 1 at Blötberget.



Comparison of historical assays (right side of hole trace) and modern assays (left side) for two holes at Stora Högbotten, Håksberg.