DANNEMORA
MAGNETIT AB
PROSPEKTERING / PLANERING

Evaluation of the Dannemora Ore Reserve

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December 23, 2011

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Report Issue Form

Issue Date:	23 December 2011
Document title:	Evaluation of the Dannemora Ore Reserve
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Content

1.0 Introduction

The scope of this Evaluation of the Dannemora Ore Reserve is to produce an update of the previously reported reserves (2010, March 22), reflecting the current situation. The framework of this evaluation is based on the Australian JORC code.

The work has been carried out by Thomas Lindholm (GeoVista AB) who is appointed a Qualified Person the reporting on mineral resources by Svemin and a Fellow member of the Australasian Institute of Mining and Metallurgy (FAusIMM), Daniel Eklund and Tommy Persson, Geologist/Mine planning, Dannemora Magnetit AB and Mats Larsson, Manager Mine planning, Dannemora Magnetit. Thomas Lindholm is the independent competent person who signs off on this report.

2.0 Mineral Resource

The interpretation and modeling of the Mineral Resources is described in detail in the following report:

- Mineral Resource evaluation, Dannemora Magnetit AB, 2011. Mikael Eriksson, Lena Landersjö, Thomas Lindholm & Gunnar Rauséus, August 2011.

Summary of Measured, indicated and inferred resources

The resources reported below includes all material from within the modelled volumes, and forms the base for further work. No cut-off grade for reporting has been applied.

Table 1. Present measured, indicated and inferred resources in the Dannemora iron deposit 2011-07-15

	Measured resource				Indicated resource				Inferred resource			
Mineralisation	**Tonnage**	**Fe %**	**Mn %**	**S %**	**Tonnage**	**Fe %**	**Mn %**	**S %**	**Tonnage**	**Fe %**	**Mn %**	**S %**
Norrnäs 1	2 187 852	38,69	2,08	0,06	619 891	37,74	2,08	0,08				
Norrnäs 2	1 667 919	36,34	2,11	0,17	251 031	37,09	1,97	0,12				
Norrnäs 3	1 448 328	34,31	2,06	0,41	29 434	35,10	1,86	0,51				
Botenhäll	1 388 960	33,80	1,98	0,39	274 513	33,30	1,38	0,50				
Strömsmalmen	677 299	34,38	2,01	0,37	189 570	34,86	1,63	0,39				
Sjöhag					709 614	41,66	0,42		264 874	40,94	0,68	
Svea	807 757	41,03	2,79	0,08	2 284 962	40,09	2,63		485 789	41,28	2,71	
Diamanten 2	2 065 472	41,54	3,44	0,21	2 100 085	43,73	3,22	0,18	549 361	43,42	3,22	0,10
Schaktmalmen	532 786	31,90	0,70	0,04	2 017 296	33,57	0,90					
Kruthus	3 197 847	43,05	0,52	0,35	1 252 194	38,85	0,94	0,27				
Konstäng 1-4	532 165	40,05	1,05	0,70	994 562	44,83	1,27					
Konstäng 2-3	2 468 676	36,03	3,56	0,35	1 240 550	34,51	3,23	0,36				
Lyndon 1	2 769 872	41,90	0,85	0,16	458 252	38,66	0,84	0,11				
Lyndon 3					1 431 781	29,18	3,06	0,28				
Total	**19 744 933**	**38,75**	**1,94**	**0,26**	**13 853 735**	**37,95**	**2,07**		**1 300 024**	**42,11**	**2,51**	

Table 2. Comparison of current estimates compared with those previously estimated in 2009.

	Total measured and indicated mineral resources							
Mineralisation	**Tonnage**		**Fe %**		**Mn %**		**S %**	
	2009	***2011***	***2009***	***2011***	***2009***	***2011***	***2009****	***2011***
Norrnäs 1	2 507 458	2 807 743	36,72	38,48	1,98	2,08	0,06	0,06
Norrnäs 2	1 895 753	1 918 950	35,35	36,43	1,95	2,09	0,17	0,17
Norrnäs 3		1 477 762		34,33		2,05		0,41
Botenhäll	1 551 044	1 663 473	32,12	33,71	1,77	1,88	0,19	0,41
Strömsmalmen	927 183	866 870	34,99	34,48	1,74	1,93	0,31	0,37
Sjöhag	737 601	709 614	41,90	41,66	0,45	0,42		
Svea	3 230 334	3 092 719	39,22	40,34	2,49	2,67	0,08	
Diamanten 2	4 715 679	4165 557	40,84	42,64	3,17	3,33	0,08	0,19
Schaktmalmen	2 281 488	2 550 082	36,83	33,22	0,76	0,86	0,05	
Kruthus	4 000 835	4 450 041	40,98	41,87	0,66	0,64	0,35	0,33
Konstäng 1-4	1 409 224	1 526 727	42,97	43,17	1,22	1,19	0,37	
Konstäng 2-3	3 012 235	3 709 226	36,36	35,52	3,49	3,45	0,74	0,35
Lyndon 1	2 929 300	3 228 124	40,60	41,44	0,86	0,85	0,17	0,15
Lyndon 3	1 649 077	1 431 781	27,09	29,18	2,89	3,06	0,26	0,28
Total	30 847 211	33 598 668	38,03	38,42	1,95	1,99	0,22	

There are principally three factors that cause the increase in tonnage; New wireframe models that are based on a 20% Fe cut-off instead of 30% Fe, a new and better density model based on larger sample population, and, the discovery and inclusion of a new mineralized entity, Norrnäs 3.

Concluding remarks:

- The historical Fe and Mn assays have been verified through re-assays, and are considered to be adequate for use in the resource estimates after the application of a correction.
- A new density function, based on 615 recent specific gravity determinations has been applied to the new resource estimate.
- The new resource block model has been validated and is considered to be satisfactory to use for a feasibility level mine planning if the internal waste rock inclusions are considered.
- The older resource models have been based on a 30% Fe model cut-of whereas the current one is based on a 20% Fe cut-off, where the availability of historic core has permitted sampling and assaying.
- The present estimated measured and indicated resources in the Dannemora Iron Deposit totals 33,60 Mt at an average grade of 38.42 % Fe and 1.99 % Mn.

Comments on the resource estimates

The largest difference between the current mineral resource and the previous ones, carried out on behalf of Dannemora Magnetit, is the inclusion of material in the 20-30% Fe range. This has permitted the creation of more roboust models as well as assessing grades of material previously modeled as waste inclusions. In addition, the newly discovered Norrnäs 3 contributes to a significant increase.

3.0 Conversion from Mineral Resource to Ore Reserve

The Mineral Resources are reported inclusive of the Ore Reserves.

4.0 Study status

4.1 Historical Ore Reserve calculation by Ingmar Lager (1992)

When closing down production in the mine in 1992, a report on remaining reserves and resources was elaborated by Ingemar Lager, chief geologist, the report was filed with the Mining Inspector as stipulated in the Mining Act.

Table 3. Ingmar Lager's final ore reserve calculation in 1992.

Summary of report of ore calculation at Dannemora Gruvor 1992-04-01 by Ingmar Lager					
Ore body	*Tillredd kton **	*Känd kton **	*Sannolik kton **	*Total*	*Comment*
Lyndonmalm 1		2,900		2,900	
Lyndonmalm 3		602	502	1,104	
Konstäng 1 & 4	313	659	144	1,116	
Konstäng 2 & 3	139	1,750	129	2,018	
Kruthus 1 & 2	258	493		751	
Kruthus 1		984	309	1,293	
Kruthus 2		1,071	492	1,563	
Diamanten 2		2,858	1,496	4,354	
Svea	27	1,761	393	2,181	
Sjöhagsmalm 1	54	209		263	
Sjöhagsmalm 2	51	33	20	104	
Strömsmalm 1		358		358	
Strömsmalm 2			140	140	
Myrmalm	286	115		401	
Botenhällsmalm			513	513	
Norrnäs 1		1,690	1,009	2,699	
Norrnäs 2		1,353	616	1,969	
Norrnäs 3			294	294	
Total	***1,128***	***16,836***	***6,057***	***24,021***	***Total tonnage is 24,021 million tonnes***

** Tillredd malm - Proven ore with drifts, * Känd malm - Proven ore, * Sannolik malm - probable ore.*

Table 4. Summary of Ingmar Lager's calculation of "möjlig malm" (Possible ore) which is described as Pillars etc in the Feasibility study.

Pillars and intermediate layers reported as "möjlig malm" (Possible ore) in report "Malmtillgångar i Dannemora Gruvor 1992-04-01" (Ore assets in the Dannemora mines 1992-04-01) by Ingmar Lager			
Ore body	***"Känd"(Proven) kton***	***"Sannolik" (Probable) kton***	***Comment***
Lyndonmalm 1			
Konstäng 1 & 4	26	116	Calculation of pillar 42 was transferred to möjlig malm in 1985 due to possible instability problems at ramp. 42
Konstäng 2 & 3	111	536	Calculation of pillar 42 was transferred to möjlig malm in 1985 due to possible instability problems at ramp. 43
Kruthus 1 & 2	32		Calculation of drift 3 layer 405 was transferred to möjlig malm in19989 due to instability reasons
Schaktmalmen		463	Calculation of the ore body was transferred to möjlig malm in 1981 due to vicinity to the shaft
Silvbergsmalmerna		188	Calculation of the ore bodies was transferred to möjlig malm in 1982 since the where not regarded economic to mine
Diamanten 1	110		Calculation of part of a pillar was transferred to möjlig malm in 1987 due to risk of mine collapse
Mellanfältsmalmen	727		Calculation of pillar 250-430 m was transferred to möjlig malm in 1987 due to difficult access and risk of mine collapse
Mellanfältsmalmen	398		Calculation of mellanbotten 250-280 was transferred to möjlig malm in 1987 due to difficult access and risk of mine collapse
Mellanfältsmalmen	155		South pillar 337-419 m was transferred to möjlig malm in 1987 due to difficult access and risk of mine collapse
Svea	39		level 442-462 was transferred to möjlig malm in 1991
Total	***1,598***	***1,303***	***That gives a total of 2,901 million tonnes of möjlig malm.***

- The calculation also includes an estimated 463,000 tonnes of "Sannolik malm" (Probable ore) from Schaktmalmen which is part of Schaktmalmen in the feasibility study.
- Ingmar Lagers calculation of "möjlig malm" (Possible ore) excluding Schaktmalmen then ends up to 2,438 million tonnes.

4.2 Previous work

A mineral resource estimation was carried out in 2007 by Hans-Eric Lundgren (Qualified Person appointed by Svemin). The final report was delivered in October 2007.

A feasibility study was conducted during 2007 and early 2008 by Vattenfall Power Consultant (VPC). The final version was delivered on the 11th of January 2008. The conversion of mineral resources to ore reserves reported in the feasibility study was not done by a Qualified Person.

A Due Diligence was conducted during the end of 2008 to mid-2009 by Micon.

Micon highlighted a number of issues that they wanted Dannemora to address before issuing their final report. This included:

- Distribution of deleterious elements such as S, As and Zn for the Mineral Resource estimate. Reported to MICON on March 11, 2009.
- Rock mass characterisation. Historical knowledge about the stability of the underground workings wasn't enough, they wanted some numbers. Reported to MICON on March 10, 2009 by VPC.
- Plastic model instead of an elastic model. The report is done and shows very good results. Reported to MICON on July 30 2009 (Appendix 1 in DD) by Golder Associates, England.

- A mine plan with more details for the first 18 month. The most important issue was to see if we could hold an even quality during production. Reported to MICON on June 9, 2009.

There was also a concern regarding the fact that Dannemora Mineral AB did not have an independent Qualified Person for the conversion of mineral resources to ore reserves.

All these uncertainties are addressed by now.

5.0 Cut-off parameters

The model cut-off is set to 20% Fe for the current Mineral Resource (2011). Previous models have all been based on a 30% Fe cut-off, principally due to the lack of assays on historical core with lower grades. A recent campaign of sampling and assaying of such core, where available, has permitted the inclusion of material in the 20-30% Fe range in the current model.

The results of the feasibility study show that it would be economical to mine grades down to 19.6 % Fe. Also, Excel sheet 20090818 Cut off calculation shows similar results with a theoretical cut off at 19,17 % Fe based on the model from June 2009. No consideration was taken to the possible changes in the expected proportion of fines and lumpy ore products. The calculation is done with a 60 % lumpy ore and 40 % fines ratio. It is likely that the proportion of lumpy ore will decrease if rocks with low Fe grade are mined since lower grades ore will have less (or smaller) accumulations of iron.
In this report it is taken into consideration that the average product price for 2012 is set to be 12 US$ higher compared to that used in the Due Diligence report. On the other hand the mining and processing cost are 40 SEK higher compared to in the Due Diligence report (in full production).

6 Mining parameters

6.1 Conversion of Mineral resource to Ore reserve

The following criteria were considered when converting the mineral resources to ore reserves in all studies carried out, from the feasibility study in 2008 and up to and including the current report. :

- Mining method, both out of a technical perspective and an economical perspective.
- Infrastructure and any limitations regarding any of the modelled envelopes.
- Geotechnical parameters.
- Waste rock dilution and ore loss.
- Cut off calculations.
- Recovery factors.
- Several other factors that could affect the reserve estimate are considered but only in a theoretical way.

These factors are then compared with the forecast of the final price of the products.

6.2 Selection of mining methods

Historically, the mining method started to change from sub-level stoping to sub-level caving in 1974 and in 1983 all of the mining was done by sub-level caving. Therefore the mining method sub-level caving is well tested and proven to work in Dannemora.

The reasons for choosing sub-level caving are:

- Low cost (per tonnes) mining method.
- In general, no collapses are expected due to competent bedrock. Thus, normal sub-level caving waste rock dilution does not occur in the Dannemora mine, or at least, hasn’t occurred historically. Therefore, in Dannemora, the sub-level caving mining method can be considered as an open stoping method when estimating waste rock dilutions.

6.3 Geotechnical parameters

Chapter 13 in the Feasibility study covers rock mechanics with historical descriptions and is the result of a mine visit in February 2007 by Per Erik Söder (VPC). During the Due Diligence work in 2008 and 2009 Micon suggested further studies of geotechnical parameters. This lead to a report on Rock Mass Characterisation in Dannemora by J. Petersson et.al (VPC) and later a plastic model was developed by Golder Associates (England).

The reports show very good results and the results are considered in chapters regarding:

- Waste rock dilution and ore loss
- Mining close to the central shaft
- Mining pillars and middle slices

There has been a concern regarding the possibility of mining pillars and middle slices. Per-Erik Söder at VPC and Kjell Klippmark regards the explanations and assumptions made in the Feasibility Study report as satisfactory. Their expertise is regarded as good enough in this evaluation of the Ore Reserve though more detailed descriptions would be appropriate in the future.

6.4 Mining dilution and ore loss factors

Waste rock

- The country rock is very stable and historically very few problems regarding stability have occurred. The VPC report Rock Mass Characterisation 2009-03-10 shows similar results. The results plotted in a Mathew stability graph are good. Though a risk of instable walls occur in large walls of limestone at great depth.
- Under normal circumstances, sub-level caving methods will cause the hanging wall rock to cave in and give a waste rock dilution of 20-30 %. In the Dannemora mine the wall rock normally does not cave. As far as waste rock dilution is concerned, the mining method can be regarded as an open stoping method even though it is done with a sub-level caving method.
- All mine planning is based on sub-level caving.
- Calculation of waste rock dilution is done by intersecting the mineral resource volumes with the stope model volumes.

- The stopes at greater depths (<650 m) for Diamanten 2 ore body have been expanded 2 m to simulate an increased waste rock dilution due to hanging wall failure.
- Kruthus is the only former ore body with some collapse of the wall rock. However, it still does not reach normal sub-level caving conditions.
- Small ore bodies are considered only to contain waste rock derived from blasting.
- Small ore bodies are judged to be mucked cleanly.
- Blasting damage is considered to correspond to 1 m of country rock in narrow ores.
- Blasting damage is considered to correspond to 1 m of country rock in wider ore bodies. This is done although it is considered that wall rocks can start to collapse at greater depth.
- It is considered that well planned drilling and blasting can keep the country rock dilution down to a 1 m zone.
- The Fe grade in the waste rock dilution was set to 5 %.
- Analyses of the waste rocks show that a calculated value would be higher than 5 % Fe. It is more likely to be in the range of 10 – 20 % Fe. Due to the risk of silica bound Fe (which could give benefication problems at low magnetite grades) and not enough data, a grade of 5 % Fe was set.

Ore loss

- Ore losses due to the irregular shape of the ore bodies can be a problem. Historically they used 13-14 m slice heights on some of the ore bodies to keep the ore loss down. Dannemora Magnetit has planned to use a slice height of 17 m even in narrow irregular ore bodies. One exception however is Lyndon 1 and 3 which are two shallow dipping ore bodies (50°- 45°). To minimize the ore loss and waste rock dilution, the level heights were reduced to 13-14 m. These two ore bodies are planned to be using one common mining ramp.
- Ore loss in the form of pillars and middle slices exist in many historically mined ore bodies. Why they left middle slices is regarded as a result of former mining methods such as magazine mining and sub-level benching. Pillars were left to limit the span in some ore bodies.
- Due to precaution regarding the stability of the shaft, the Kruthus ore body and the Schaktmalmen ore body will be mined at the last stage of the mine and even then large pillars will be left behind.
- There are ore bodies connected with mining ramps and other key areas that need to be provided with pillars (at least temporary ones). They are regarded to have a small impact on the ore reserve. The total tonnage is 10 % of the mineral resources.

Table 5. Summary of dilution and ore loss. From the ore reserve estimate March 2010 and October 2011

	2010		2011	
Ore body	Dilution [wt %]	Ore loss [Fe-tot %]	Dilution [wt %]	Ore loss [Fe-tot %]
Botenhäll	8%	14%	18%	11%
Diamanten 2	8%	4%	11%	4%
Konstäng 1-4	5%	15%	10%	10%
Konstäng 2-3	6%	11%	9%	9%
Kruthus	7%	9%	9%	8%
Lyndon 1	8%	12%	15%	10%
Lyndon 3	5%	56%	11%	7%
Norrnäs 1&2	7%	9%	15%	6%
Norrnäs 3			24%	29%
Schaktmalmen	4%	12%	8%	6%
Sjöhag	13%	14%	24%	14%
Strömsmalmen	6%	59%	25%	17%
Svea	5%	19%	8%	8%
Total:	**6%**	**11%**	**12%**	**9%**

6.5 Minimum mining width

The minimum mining width is set to 6 m due to mining method and the size of planned machinery in the mine.
Since the minimum mining width is set by technical and not economical parameters an in house calculation on minimum mined tonnage per 17 m level was carried out.
Dannemora Magnetit carried out a calculation based on information from Strömsmalmen development drift 162v2 and the calculation is done with Capex assumptions and Operating costs as stated in the Banking model, June 2009. The cost for developing every new level is between 4 – 4.5 million kr.

Dannemora Magnetit came to the conclusion that a tonnage of approximately 55,000 tonnes of ore with a Fe grade of 30% is required before we consider establishing a new level. This calculation only regards marginal ore where the cost of the main infrastructure was already covered by a better ore body below or above.

6.6 Infrastructure requirements

The Dannemora mine was operation until 1992. A lot of the former infrastructure will be used when the mine re-opens. The main infrastructure is planned in Surpac. The cost for the infrastructure can be viewed in the banking model.

6.7 Tonnage related to Refilling

Chapter (12.3) in the FS regarding filling mining stopes and then mine pillars and middle slices. An evaluation was carried out using excel, to check the economy in mining the middle slices and pillars in the Mellanfältsmalmen mined out ore body. It shows that the margin is good.

Table 6. Estimation regarding mining pillars.

	debet		Credit		Revenue	Profit- Cost for a 170 m ramp = Final profit
Stope	Capex assumptions (kr/ton)	Operating costs (kr/ton)	Price of lump ore 50% Fe (kr/tonne products)	Price of sinter fine 55% Fe (kr/tonne products)		
	31 kr	113 kr	456 kr	453 kr		
Mellanfältsmalmen 250 m-419 m	28 134 400 kr	101 606 400 kr	122 152 550 kr	80 899 277 kr	73 311 027 kr	28 311 027 kr
			RMG avarage price April 2011 - March 2013			
			Lumpy	Sinter		
			$1.14	$1.03		
			US $	8.00 kr		

It is however important to know that a full consideration of mining and stability was not done and has never been done. Reasonable general assumptions regarding mining and stability has however been done. The previous assumption regarding mining 1.7 million tonnes of pillars and middle slices was recalculated and the 1.7 million tonnes were decreased to 1.4 million tonnes due to an error in the mineral resource estimate. See calculation and figures below.

- Calculation of Pillars

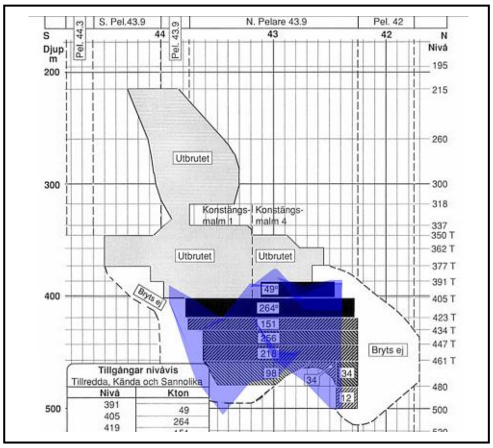

Fig 1. Konstäng 1&4. 142 kton in pillar 42 is included in the resource estimate.

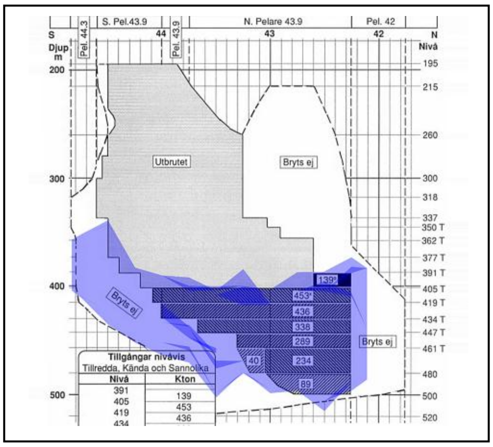

Fig 2. Konstäng 2&3. 478 out of 647 kton pillar 42 is included in the resource estimate. 169 kton had to be excluded due to overlapping

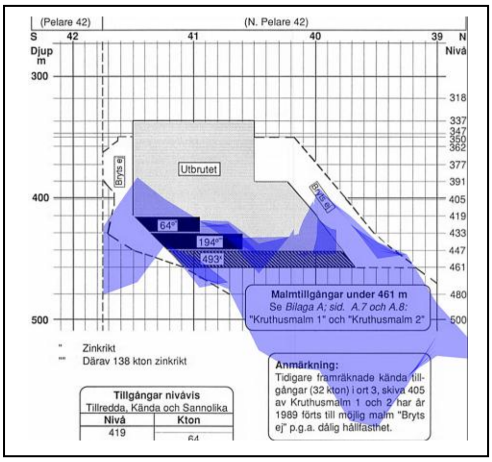

Fig 3. Kruthus. 32 kton in at level 405 is included in the resource estimate. All of it had to be excluded due to overlapping.

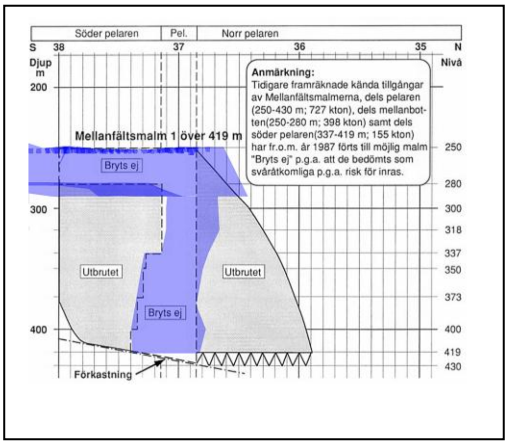

Fig 4. Mellanfältsmalmen. The blue area in this map was never modeled in the feasibility study. All tonnage can be used as in the resource estimate.

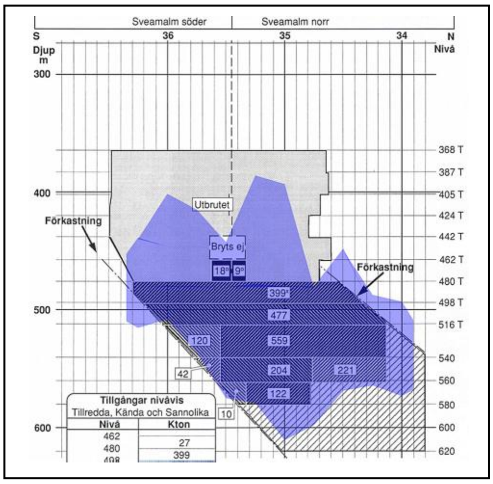

Fig 5. Svea. 39 kton at level 442-462 overlaps the resource estimate and had to be excluded due to overlapping.

Table 7. Recalculation of pillars compared to figures used in the resource estimate.

Pillars and intermediate layers reported as möjlig malm in report Malmtillgångar i Dannemora Gruvor 1992-04-01 by Ingmar Lager. Recalculation done by Peter Svensson 2009-08-05					
Ore body	*Känd kton*	*Sannolik kton*	*kton before adjustment*	*kton after adjustment*	*Comment*
Konstäng 1 & 4	26	116	142	142	Historic information used with no restrictions
Konstäng 2 & 3	111	536	647	478	169 kton is already modeled in the resource estimate
Kruthus 1 & 2	32		32		Already modeled in the Resource estimate and therefore excluded.
Schaktmalmen		463			Modeled in the resource estimate and already clearly excluded from the Pillar category in the feasibility study
Silvbergsmalmerna		188	188		The ore bodies are excluded since there is not enough up to date information
Diamanten 1	110		110	110	Historic information used with no restrictions
Mellanfältsmalmen	727		727	727	Historic information used with no restrictions
Mellanfältsmalmen	398		398	398	Historic information used with no restrictions
Mellanfältsmalmen	155		155	155	Historic information used with no restrictions
Svea	39		39		Already modeled in the Resource estimate and therefore excluded.
Total	***1,527***	***652***	***2,438***	***2,010***	***That gives a total of 2,010 which can be used as a base for the reserve estimate.***

Table 8. Recalculation of the ore reserve estimate. 70 % of the resource calculation was transferred into the reserve estimate.

Pillars - Konstäng 1& 4				99.4	39	2.4	70 % of 142 is used in the calculation see table 8 for further information.
Pillars - Konstäng 2& 3				334.6	39	2.4	70 % of 478 is used in the calculation see table 8 for further information.
Pillars - Diamanten 1				77	39	2.4	70 % of 110 is used in the calculation see table 8 for further information.
Pillars - Mellanfältsmalmen				508.9	39	2.4	70 % of 727 is used in the calculation see table 8 for further information.
Pillars - Mellanfältsmalmen				278.6	39	2.4	70 % of 398 is used in the calculation see table 8 for further information.
Pillars - Mellanfältsmalmen				108.5	39	2.4	70 % of 155 is used in the calculation see table 8 for further information.

- 1.7 million tonnes out of 2.4 million tonnes end up 70 %.
- 70 % out of 2.0 million tonnes end up 1.4 million tonnes.

7.0 Metallurgical process

Several tests have been done on material from the Dannemora magnetite mineralization. The main part of the test work was done with material from the Head frame pocket at Dannemora, with material left from historical mining operations. There is, however, some uncertainty as to the provenance of this sample and it's representativity for all the mineralizations in the Dannemora field. All major tests and calculations are done from this material. The tests were carried out by Minpro in Stråssa and SGA in Germany. Both of the labs are well known. The tests were designed and supervised by Proing's Alf Jedborn in cooperation with Dannemora personnel. In the FS, the calculation for the products is made in two straight production lines for lump ore and fines respectively.

Table 9

Production of 2,534 Mt Crude ore with a grade of 35.2 % Fe gives.

	Fines	Lump	Total
kton	540	960	1.5
Fe %	55	50	51.7
w %	21.3	37.3	59.2
Fe rec %	33.3	53.9	87.2

These calculations are considered good and reasonable by Kjell Klippmark. The recovery factors for new mining projects are always an issue of debate.

As a result of the tests, a dry magnetic separation process was selected. A simplified process scheme is shown in Figure 6.

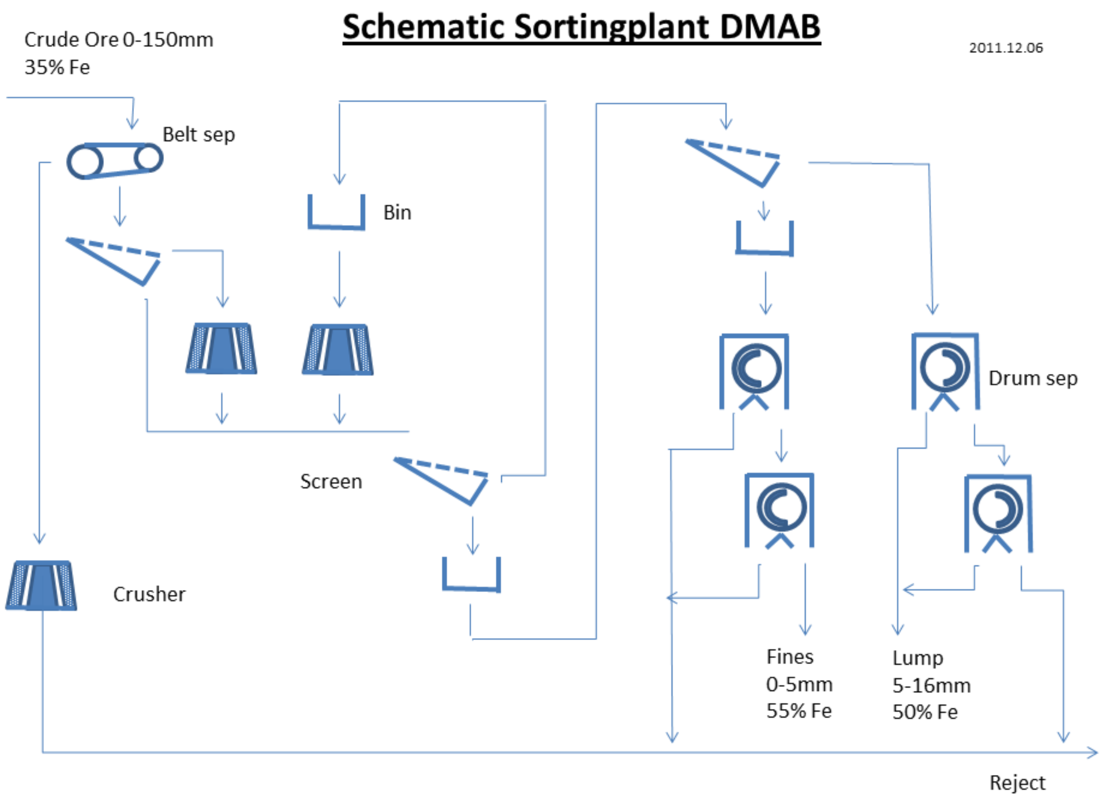

Figure 6. Simplified process scheme for Dannemora.

Reports of tests are:

- Report missing but a compilation was done by Eric Austin Hegarth. Ao 6774 (2). MINPRO AB. Anrikning och borttagning av sulfider ur malm 50kg finkrossad malm (ALS-provrester) och 56 kilo krossade borrkärnor (DBH 219 & 492).
- Report Ao 6823. MINPRO AB, 2008-04-04. Halvskaleförsök malmprodukter (sinter fines+styckemalm) vid torr anrikning. 1,8 ton material från lavficka.
- Report Ao 6867. MINPRO AB, 2008-09-04. Framställning av material för sintertester (tester gjorda av SGA).
- Report Ao 6892. MINPRO AB, aug-08. Jämförande studie, anrikningsbarhet sinter fines för 0-4mm krossat material järmfört med ALS grovkrossade provrester.
- Report Ao 6892. MINPRO AB, aug-08. Framtagning av malmprodukter (0,5 ton sinter fines + 0,5 ton styckemalm) vid torr anrikning 2 ton material från lavficka.
- Report Ao 6921. MINPRO AB, dec-08. Anrikning ALS krossrester för malmkvalité sinter fines. ALS coarse rejects från strömsmalmen, botenhäll och norrnäs.
- Paper 20090604 Increased recovery. By Kjell Klippmark with calculations from Proing.

7.1 Distribution of deleterious elements

The Dannemora Iron ore field contains 14 ore bodies. There are differences between these ore bodies regarding grade, grainsize and, whether the magnetite is pre-dominantly in limestone or in skarn. Historically they were divided into Mn-rich and Mn-poor Iron ore. Deleterious elements exist mainly in the form of Arsenic, Sulphur, Zinc, and Copper.

There are tests done at SGA in Germany. The tests were done with material from one of the head frame pockets. At the time of testing this material was considered the only reasonable material to use. The material is probably a mix from several ore bodies which were mined before closure in 1992.

Reports of tests are:

- Report A6970_E10710. SGA, 2008-04-29. Report on Chemical, Physical and Metallurgical Properties of Dannemora Lump Ore.
- Report A6995. SGA, 2008-10-10. Report on Sintering tests with addition of Dannemora fines to a hematite ore blend.

Assumptions made regarding deleterious elements:

- A mine plan aiming to produce an even blend of Fe and Mn grades during production has been elaborated for the updated mine plan. Deleterious elements are not regarded in the report since there is a lack of data in several modelled envelopes. However, Jan Vestlund (Marketing Manager) regards the existing data (on deleterious elements) from the mineral resource estimate to be below the levels required by customers.
- This report makes the assumption that it will be possible to produce an even blend of ore, regarding deleterious elements, in the same way as the updated mine plan shows that it is possible to keep an even blend of Fe and Mn grades.
- During the start-up period the mine production will take place from a limited number of stopes. Although DMAB believe that the final product specification can be met.

Two things need to be declared:

- In 2010 Dannemora Mineral AB shipped around 40 kton fines and 40 kton lump ore for test in a production blast furnace in Europe. The shipping analyses show a relatively high sulphur content and a low Fe content in fines. The available crude ore was mined in Strömsmalmen which is high in sulphur. The sorting was done by contractors and the process was slightly different from the ordinary plant being constructed.
- Full knowledge of deleterious elements will not be possible until the whole mine is accessible for drilling from the underground.

8.0 Cost and revenue factors

8.1 Project capital and operating costs

- See banking model and Dannemora Magnetit AB budget PM 2012.

8.2 Assumptions on revenue, including head grade, metal or commodity prices, exchange rate, transportation and treatment charges, penalties

- See banking model and Dannemora Magnetit AB budget PM 2012.

8.3 Royalties

There are no royalties to be paid.

9.0 Market assessment

9.1 Demand, supply and stock situation, consumption trends

In December 2011 there are delivery plans for 62 % of the production in 2012, for another 23 % the negotiations are very close to be completed. Negotiations have started in a positive atmosphere for 10 % of the production and the last five percent is planned to be traded on the spotmarket.

9.2 Customer and competitor analysis, identification of likely market windows

RMG reports: Dannemora Mineral AB Iron Ore Market Study, RMG 20081027.

9.2.1 Short summary of upsides and downsides

Upsides:

- Logistic (close to the market)
- Low cost enrichment process
- Good enough Fe grade
- Very low phosphorous grade
- Limestone in the products
- Mn in the products

Downsides:

- Low Fe grade
- Sulphide content. The Dannemora products will contain S, Cu, Zn and As. No calculated values are higher than accepted levels according to Jan Vestlund (Marketing manager).

9.3 Price and volume forecast

RMG reports: Dannemora Mineral AB Iron Ore Market Study, RMG 20081027
and Dannemora Magnetit AB budget PM 2012. The average price for 2012 is 12 US$ higher compared to that used in the Due Diligence report.

9.4 Customer specifications, testing and acceptance requirements

- See section 7.1
- A potential costumer have listed a specification with upsides and downsides of the Dannemora Ore. Their view of the Dannemora ore quality is shown below in figure 7:

Chemical Analysis; Grain Size

	Dannemora Fines DF
Specification	Dannemora
% H_2O	n.d.
% Fe	55,00
% FeO	23,00
% SiO_2	8,10
% CaO	5,00
% MgO	4,45
% Al_2O_3	0,80
% TiO_2	0,019
% K_2O	0,09
% Na_2O	0,03
% P	< 0,005
% Mn	1,20
% S	0,150
% F	n.d.
% Cl	n.d.
% Cr	< 0,0005
% Cu	0,0200
% Ni	< 0,0005
% Pb	n.d.
% Zn	0,0140
% V	0,0012
% GLV	n.d.
[%] 0,125 mm	17,0
[%] 0,200 mm	20,0
[%] 0,400 mm	27,0
[%] 0,630 mm	31,0
[%] 1,00 mm	44,0
[%] 2,00 mm	69,0
[%] 3,15 mm	88,0
[%] 4,00 mm	
[%] 5,00 mm	100,0
[%] 6,30 mm	100,0
[%] 8,00 mm	100,0
[%] 10,00 mm	100,0

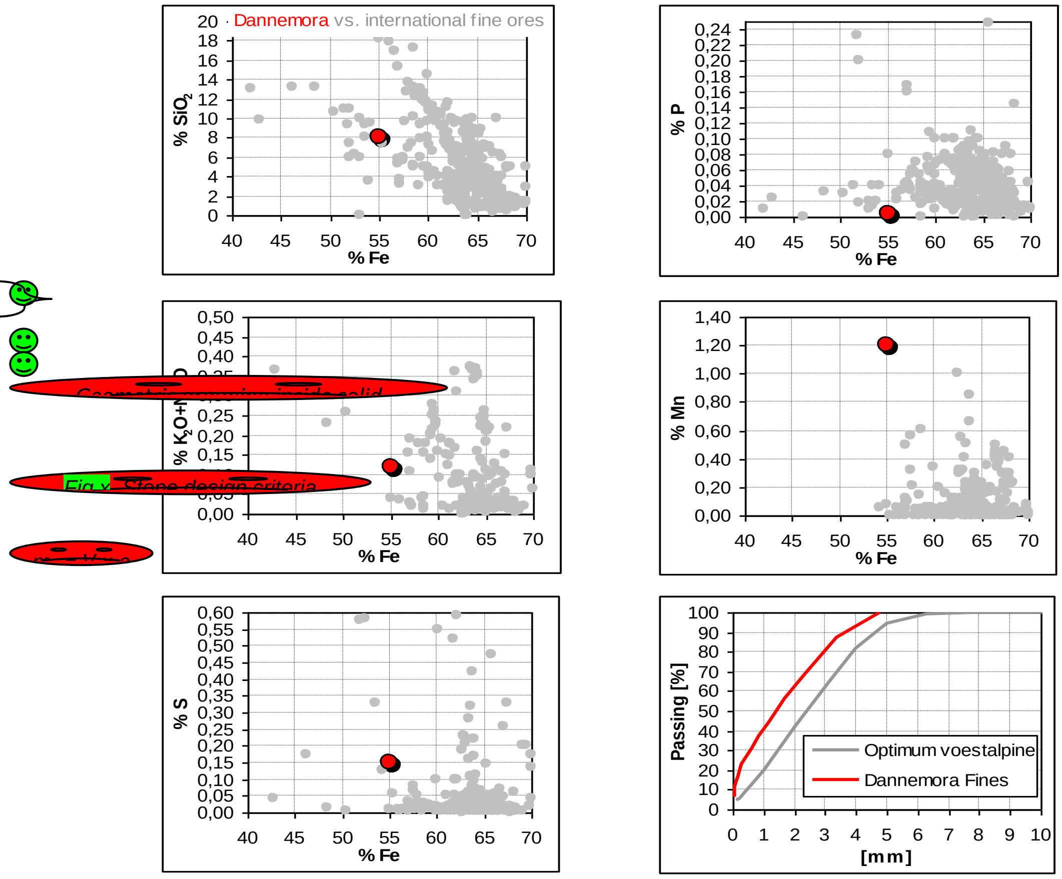

Fig 7. One example of a potential customers view of the Dannemora ore quality.

Blast furnaces requirements vary and different customers have different views of the Dannemora products. Below is a list of positive and negative aspects of the products:

- A grade of 55 % Fe on fines and 50 % Fe on lump ore is considered as low in a global perspective.
- A grade of 1-2 % Mn in our product is considered good for some costumers but there are some customers which consider it high.
- The relationship between CaO (5.00 %), MgO (4.45 %), SiO_2 (8.10 %) and Al_2O_3 (0.80 %) gives a good basicity (CaO + MgO / SiO_2 + Al_2O_3 ≈ 1).
- <0.005 % P is considered good.
- 0.09 % on K_2O and 0.03 % on Na_2O in close to a world market mean. K_2O and Na_2O are therefore not considered a problem for the Dannemora products.
- 0.15 % S is not considered too high. S never gives an upside to an iron ore product.
- 0.02 % Cu is not considered too high. Cu never gives an upside to an iron ore product.

- 0.014 % Zn is not considered too high. Zn never gives an upside to an iron ore product.

10.0 Other factors that might have an impact on the project

10.1 Risk assessment

A report assessing risks has been elaborated, AON Risk mapping, Fredrik Ösund. The report has been done together with the Dannemora Mineral management group. It highlights several risks that could have an impact on the ore reserve estimate.

- Dredging of Hargshamn harbor is planned. They have the permit to dredge but not the permit for deposition of the spoils. The shipping size is therefore limited until this problem is solved.
- There can be problems with mine collapses. This is considered in the ore reserve estimate but you can never be a hundred percent sure that those estimates are the exact right ones.
- Problems with machinery and long lead times should not affect an ore reserve estimate but with a real worst case scenario then it might have an effect.
- Defect in quality. The blast furnaces have many different requirements regarding iron ore quality. If the forecast of the positive sides are too low and the deleterious elements are less than expected it would mean a lower price than Dannemora Mineral AB could have gotten. And of course there could be a risk of the opposite. This will be something that the report highlights as a problem likely to occur and it will have an impact on the company whether it is in a positive way or a negative way will be shown in the future.

10.2 The status of permits and titles

All permits necessary for the operation of the mine are in place and listed below:

- A permit, dated 1966, to drain Lake Gruvsjön remains valid.
- A permit, dated 1996, to drain Lake Gruvsjön remains valid.
- Exploitation concession, December 29, 2006.
- Permit for dewatering the mine, July 13, 2007.
- Environmental court decision, June 18, 2008.
- New community plan, 2008.
- Exemption permit (historic buildings) 2008.
- New road permit, 2008.
- Building permit, 2008.
- Designation of land authorisation at Dannemora Gruva, December 3, 2008.

This report is based on the approved permits.

11.0 Classification of the ore reserve

A 'Mineral Resource' is a concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.

The Mineral Resources of the Dannemora iron ore field have been estimated in several recent campaigns by H.-E. Lundgren, 2007, E. Austin Hegart & T. Lindholm, 2008 as well as by M Eriksson, L Landersjö, T Lindholm and G Rauséus, 2011. The principal differences between the campaigns are:

- Calibration of old assays to correspond to more recent ones has been carried out, permitting a more realistic grade modelling.
- Previously very long assay sections have been re-assayed in shorter sections, thus permitting better control of grade variation.
- Additional assays for deleterious elements have permitted modelling of their variation for parts of the interpreted tonnage.
- More specific gravity determinations has allowed for a better control of density variations with Fe-grade and thus better control of accumulated tonnage.
- The lack of information concerning the distribution of deleterious elements led to an automatic downgrading of material otherwise classified as measured resources to indicated category.
- The latest estimate includes the modelling of a new mineralised entity, Norrnäs 3, discovered through a recent drill campaign.

The mineral resources stemming from the first estimate are the ones used in the mine planning and economic evaluation as presented in the Feasibility Study report. The current mine plan developed for the first 18 months of production is based on the most recent block model results.

An 'Ore Reserve' is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors.

These assessments demonstrate at the time of reporting that extraction could reasonably be justified. Ore Reserves are sub-divided in order of increasing confidence into Probable Ore Reserves and Proved Ore Reserves.

The conversion of Mineral Resources to Ore Reserves as presented in the FS report is based on a proper evaluation of all modifying factors necessary, as they were known at the time. It was assumed, rather than demonstrated with test work, that:

- Blending of ore from different ore lenses will produce an even feed to the process plant with respect to the contents of deleterious elements.
- The beneficiation process will be able to separate the deleterious elements from the products, resulting in a marketable product.

The success of both of these factors are of vital importance to the economy of the project.

The Dannemora Magnetit test work at Minpro and SGA shows that it is possible to produce a marketable product. The tests are carried out with acceptable volumes of material and by well-known laboratories. They are, however only done with test material from one place, since this was the only available. It is therefore the Qualified Person's view that more test work from several parts of the mine is required before any of the Ore reserve can be classified as a Proven Ore reserve. The Ore reserves of the Dannemora iron ore field are therefore classified as Probable Reserves.

Based on the uncertainty of the distribution of deleterious elements, whether blending different qualities will produce a marketable product or not and, whether the process can produce a Fe-recovery of 87,1 % on a blended product, the entire ore reserve is classified as *probable*. It is, however, considered likely that Dannemora Magnetit will be successful in the work to produce marketable products with good recovery, but it isn't known for a fact yet.

12.0 Audits or reviews

The Mineral Resource estimates and the Feasibility study, which forms the basis for this Ore reserve estimate, have been reviewed by Micon during the Due Diligence process.

Micon highlighted a number of issues where they required more detailed work. This included:

- Distribution of deleterious elements such as S, As and Zn for the Mineral Resource estimate. Done March 11, 2009.
- Rock mass characterisation. Historical knowledge about the stability of the underground workings wasn't enough, they wanted some numbers. Done March 10, 2009.
- Plastic model instead of an elastic model. The reports are done and show very good results.
- A mine plan with more details for the first 18 month. The most important issue was to see if we could hold an even quality during production. Done June 9, 2009.

All these questions are satisfactorily answered. The reports produced during de Due Diligence also gave better confidence for the conclusions presented in this report.

13.0 Ore reserve estimate 2011

The final ore reserve estimate is classified by Thomas Lindholm (GeoVista) who is a Qualified Person appointed by Svemin and a Fellow of the Australasian Institute of Mining and Metallurgy (AusIMM). The new updated ore reserve estimate of 2011 is carried out by Daniel Eklund (Dannemora Magnetit), Tommy Persson (Dannemora Magnetit) under supervision of Thomas Lindholm (GeoVista), Kjell Klippmark (Dannemora Magnetit) and Mats Larsson (Dannemora Magnetit).

The updated ore reserve estimate 2011 is based on the new mineral resource (measured + indicated) (Mineral Resource Estimation Dannemora Magnetit AB 2011, 11 August 2011, M. Eriksson, L. Landersjö, T. Lindholm, G. Rauséus) and the new stope models (modeled by D. Eklund and T. Persson).

13.1 Stope design criteria

The stope 3D-models, used in the ore reserve estimate calculation, are based on the following design criteria:

- Sublevel heights = 17 m (with the exception for the lower parts of the shallowly dipping ore bodies Lyndon 1 and 3 where sublevel height is reduced to 14 m)
- Initial stopes maximum height 20 m
- Only blocks above 20 % Fe
- Caving angle on the foot wall = 70°
- Smooth stope shapes
- Minimum mining width = 6 m
- Stope models expanded 1 m beyond the mineral resource outline to simulate waste rock dilutions
- Minimum tonnage = 55 kton for isolated stopes (no surrounding infrastructure)

The modeling process is shown in figure 8.

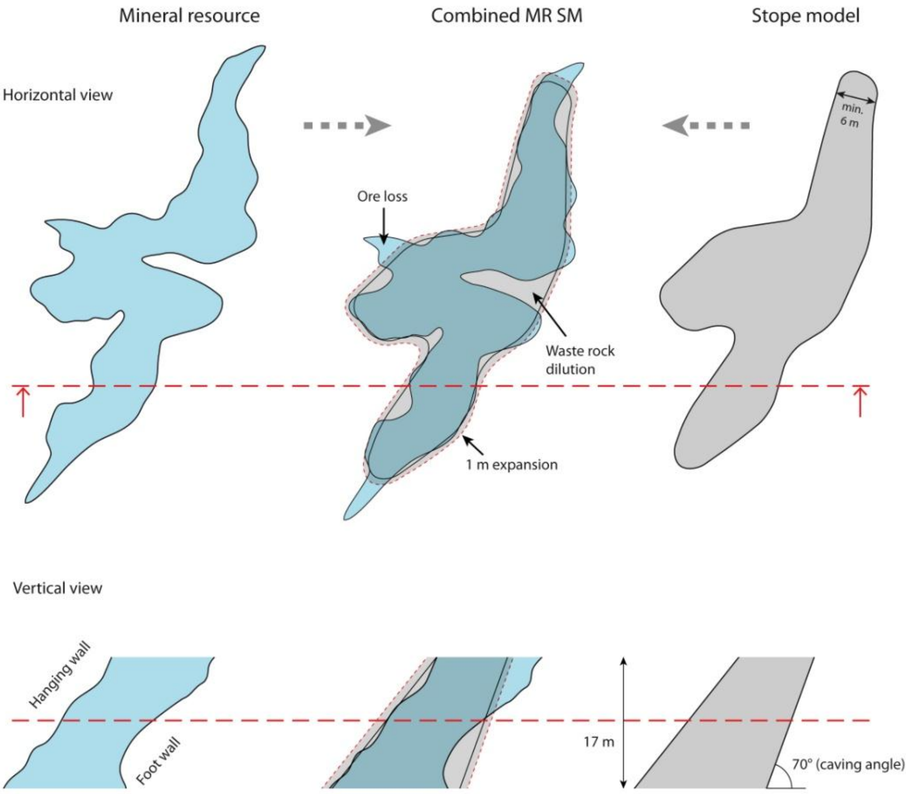

Fig 8. Stope design criteria

13.2 Ore reserve estimate

The stope models (Surpac solids *.dtm) are used as constraints (geometric grouping inside solid, partial percentage precision 3) in the mineral resource (Surpac block model *.mdl), in order to include waste rock dilutions and to exclude the ore losses. The input data from Surpac (grades, tonnages and volumes inside the stopes) for each level and for every ore body are imported into an Excel spread sheet.

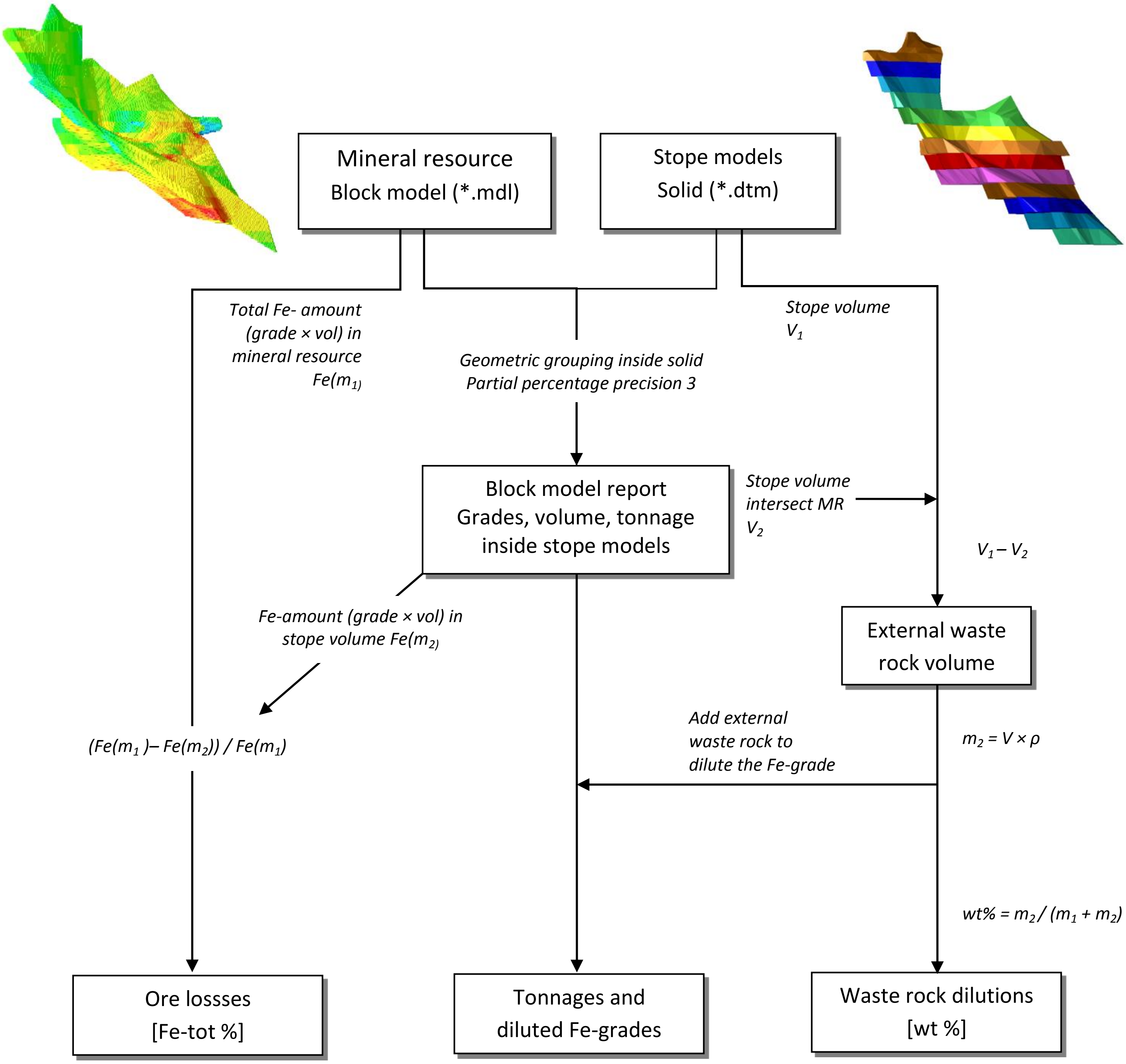

Fig 9. Ore reserve estimate calculation

13.3 Waste rock dilution

The external waste rock dilution is based on the volume inside the stope models that not includes the mineral resource. That is: stope volume minus the combined intersected volume of the stope and mineral resource volume. The waste rock volume is then recalculated to tonnes by taking volume × density. The density is based on the average Fe-grade in the proximity of each ore body. The waste rock Fe-grades ranges from 10-15 % Fe and is converted to densities by the simplified density function: SG = 0,0271×Fe + 2,6926. The waste rock tonnages are added to the mineral resource tonnages to give diluted tonnages. The Fe-grades from the waste rock combined with the Fe-grades from the mineral resource gives a weighted average to the diluted Fe-grade (see fig. 9 for the calculation steps).

13.4 Ore loss

The ore losses are calculated by taking the total amount of iron in the mineral resource and subtract with the amount of iron inside the stope models (see fig. 9 for the calculation steps).

13.5 Results

The new total ore reserve estimate is 35.1 Mton at a mean Fe-grade of 35.3 wt%. This is an increase of 6.9 Mt and a decrease of 0.94 Fe percent units compared to the 2010 estimate. The results are summarized in fig. 10 and table 9. The reserves per mineralized body are shown in figure 11, and in comparison with the results of 2010 in figure 12. The reasons for this increase in tonnes are mainly caused by:

- New mineral resource with 20-30 %Fe regions included with a better density function.
- Addition of a new ore body (Norrnäs 3)
- Zones of 20-30 %Fe are included in the stope models
- The new stope models generates a higher amount of waste rock

The main reasons for the decrease in the average Fe-grade are:

- Higher proportion of waste rock dilution, mainly from the narrower ore bodies
- Parts of low grade mineralization (20-30 %Fe) are included in the stope models (mostly from Lyndon 3)

The total waste rock dilution is 11 wt% which is higher, and the ore loss is 9 % total Fe which is lower compared to the previous estimations. The waste rock dilutions and ore losses are summarized in table 10. The differences are caused by:

- Higher waste rock dilution due to smoother and larger stope model envelopes
- Lower ore losses because of larger stope envelopes and more mining-friendly mineral resource envelopes.

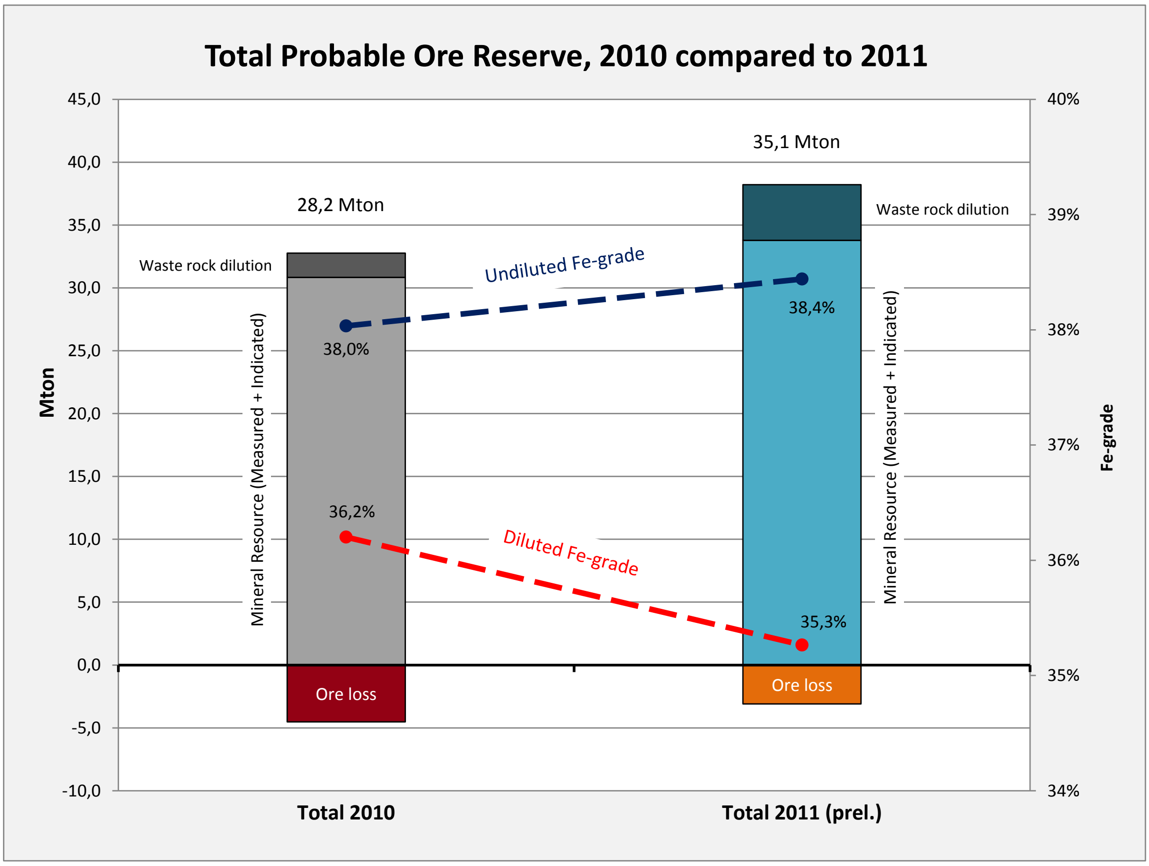

Fig 10. Summary of the total probable ore reserve 2011 compared with 2010

Table 9: Updated Ore reserve October 2011

Updated ore reserve calculations done October 2011 by Tommy Persson and Daniel Eklund					
	Probable ore reserve 2011-10-18				
Ore body	**kt**	**% Fe**	**% Mn**	**% S**	**Comments**
Botenhäll	1 817	29,75	1,88	0,41	
Diamanten 2	4 465	39,39	3,27	0,18	
Konstäng 1 & 4	1 530	39,81	1,19	-	
Konstäng 2 & 3	3 696	33,39	3,47	0,36	
Kruthus	4 503	39,01	0,61	0,34	Consolidation of "Kruthus >500" and "Kruthus <500"
Lyndon 1	3 413	37,22	0,85	0,15	Reduced sublevel heights in the lower parts
Lyndon 3	1 506	27,28	3,09	0,27	Reduced sublevel heights in the lower parts
Norrnäs 1 & 2	5 227	34,18	2,10	0,12	Consolidation of "Norrnäs 1" and "Norrnäs 2"
Norrnäs 3	1 495	30,06	2,09	0,39	New ore body
Schaktmalmen	2 658	31,85	0,88	-	
Sjöhag	784	34,59	0,37	-	
Strömsmalmen	938	29,24	1,96	0,37	Consolidation of "Strömsmalmen 1" and "Strömsmalmen 2"
Svea	3 077	38,09	2,69	-	
Total probable ore reserve:	***35 108***	***35,26***	***1,99***	***0,24***	

Pillars - Konstäng 1 & 4	99	39,0	2,4	-	From the Final ore reserve calculation 2009-08-28
Pillars - Konstäng 2 & 3	335	39,0	2,4	-	From the Final ore reserve calculation 2009-08-28
Pillars - Diamanten 1	77	39,0	2,4	-	From the Final ore reserve calculation 2009-08-28
Pillars - Mellanfältsmalmen	509	39,0	2,4	-	From the Final ore reserve calculation 2009-08-28
Pillars - Mellanfältsmalmen	279	39,0	2,4	-	From the Final ore reserve calculation 2009-08-28
Pillars - Mellanfältsmalmen	109	39,0	2,4	-	From the Final ore reserve calculation 2009-08-28
Total:	1 408	39,0	2,4	-	
Total probable ore reserve including pillars:	36 516	35,41	2,00		

Table 10: Waste rock dilutions and ore losses 2011 compared to previous 2010 estimates

Ore body	Dilution [wt%]			Ore loss [Fe-tot %]		
	2010	2011	Difference	2010	2011	Difference
Botenhäll	8%	18%	10%	14%	11%	-4%
Diamanten 2	8%	11%	3%	4%	4%	-1%
Konstäng 1 & 4	4%	10%	7%	15%	10%	-5%
Konstäng 2 & 3	6%	9%	2%	11%	9%	-1%
Kruthus	7%	9%	2%	9%	8%	-1%
Lyndon 1	8%	15%	7%	12%	10%	-2%
Lyndon 3	5%	11%	6%	56%	7%	-49%
Norrnäs 1 & 2	7%	15%	8%	9%	6%	-2%
Norrnäs 3		24%			29%	
Schaktmalmen	4%	8%	5%	12%	6%	-7%
Sjöhag	13%	24%	11%	14%	14%	0%
Strömsmalmen	6%	25%	19%	59%	17%	-41%
Svea	5%	8%	3%	19%	8%	-11%
Total:	**6%**	**11%**	**5%**	**12%**	**9%**	**-3%**

Table 11. Comparison of the 2010 and 2011 ore reserve estimate, grades and tonnages

Ore body	Diluted tonnes [Mton]			Diluted Fe-grade [wt%]			Mn-grade [wt%]		
	2010	2011	Difference	2010	2011	Difference	2010	2011	Difference
Botenhäll	1,4	1,8	0,4	30,13	29,75	-0,38	1,80	1,88	0,09
Diamanten 2	4,9	4,5	-0,4	38,27	39,39	1,12	3,15	3,27	0,12
Konstäng 1 & 4	1,3	1,5	0,3	41,42	39,81	-1,61	1,22	1,19	-0,03
Konstäng 2 & 3	2,9	3,7	0,8	34,37	33,39	-0,98	3,50	3,47	-0,03
Kruthus	3,9	4,5	0,6	38,56	39,01	0,46	0,65	0,61	-0,04
Lyndon 1	2,9	3,4	0,5	36,33	37,22	0,88	0,87	0,85	-0,02
Lyndon 3	0,7	1,5	0,8	29,30	27,28	-2,01	2,73	3,09	0,36
Norrnäs 1 & 2	4,3	5,2	0,9	33,93	34,18	0,25	1,98	2,10	0,13
Norrnäs 3		1,5	1,5		30,06			2,09	
Schaktmalmen	2,1	2,7	0,6	35,57	31,85	-3,72	0,76	0,88	0,12
Sjöhag	0,7	0,8	0,1	37,50	34,59	-2,91	0,42	0,37	-0,05
Strömsmalmen	0,4	0,9	0,5	34,27	29,24	-5,03	1,75	1,96	0,21
Svea	2,8	3,1	0,3	37,51	38,09	0,58	2,59	2,69	0,10
Total:	**28,2**	**35,1**	**6,9**	**36,20**	**35,26**	**-0,94**	**1,94**	**1,99**	**0,05**

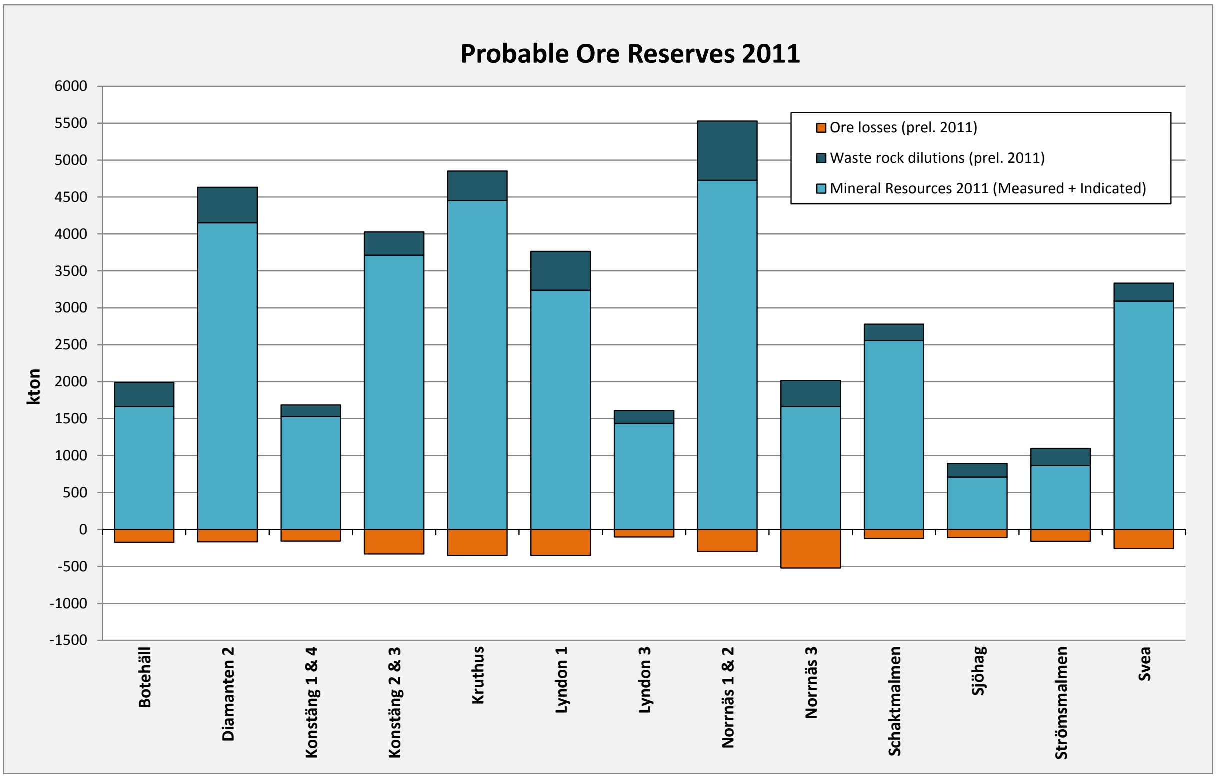

Fig 11. Updated ore reserve estimates October 2011

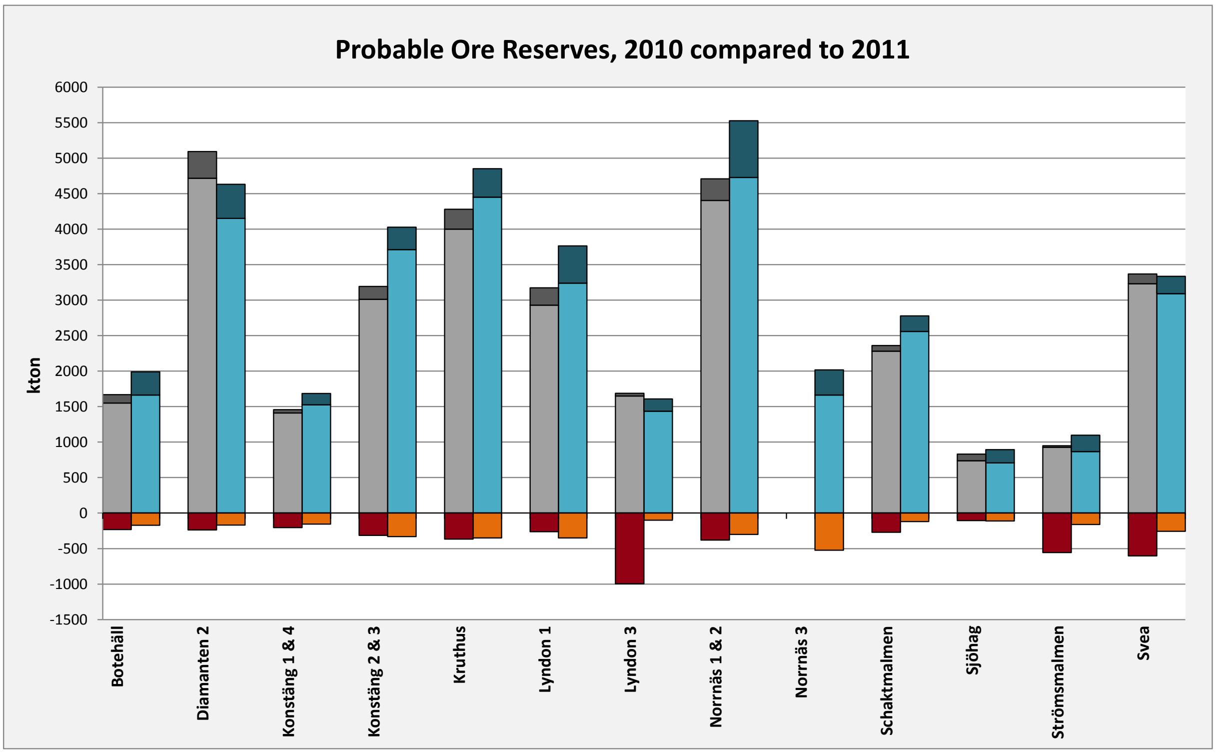

Fig 12. Ore reserve estimates 2010 compared with 2011