

D Zone Extensional Drill Program Greatly Exceeds Expectations by Doubling Mineral Resource to 30Mt

Summary

The objective of the recently completed extensional drill program at the D Zone Prospect on the Viscaria Copper Project in northern Sweden was to increase the Mineral Resource by 45,000t copper metal and 1.4Mt recoverable iron (see Development Case A and C from the Viscaria Copper Project Scoping Study detailed in ASX Announcement 11 October 2012). The Scoping Study results indicated that such increases to the copper metal and recoverable iron could have a considerable, positive impact to the value of the Viscaria Copper Project. The increases achieved for both contained copper and iron have greatly exceeded the objectives as detailed below. Avalon is currently revising the Scoping Study economics for the overall Viscaria Copper Project and will announce these results within the next 2-3 weeks.

Copper Resource (0.4% Cu cut-off)	Mt	Cu %	Estimated Copper Metal (t)	Increase Copper Metal (t)	Objective Increase for Copper Metal (t)	Increase as a % of Objective
June 2013	13.6	1.00	136,000	88,000	45,000	195
October 2012	5.4	0.89	48,000			
Iron Resource (15% Mass Recovery cut-off)	Mt	Fe %	Estimated Recoverable Iron (Mt)	Increase Recoverable Iron (Mt)	Objective Increase for Recoverable Iron (Mt)	Increase as a % of Objective
June 2013	25.6	26.4	5.7	2.5	1.4	180
October 2012	14.8	25.8	3.2			

ASX: AVI

REGISTERED OFFICE

Avalon Minerals Ltd
 ABN 68 123 184 412
 65 Park Road
 Milton Qld 4064 Australia
 P + 61 7 3368 9888
 F + 61 7 3368 9899
 info@avalonminerals.com.au
 www.avalonminerals.com.au

CONTACTS

Jeremy Read
 Avalon Minerals
 P +61 7 3368 9888

James Harris
 Professional Public Relations
 P +61 8 9388 0944

MANAGEMENT TEAM

Managing Director
 Jeremy Read

Business Manager
 Ian Wallace

Exploration Manager
 Dr Quinton Hills

Country Manager
 Louise Lindskog

Chief Financial Officer
 Linda Cochrane

Company Secretary
 Roslynn Shand

Highlights

- **Overall Mineral Resource at D Zone increased to 30.0 million tonnes from 15.5 million tonnes reported prior to recently completed extensional drill program;**
- **Copper Metal increased by 183% to 136,000t, with the copper Mineral Resource tonnage increased by 152% to 13.6 million tonnes @ 1.00% Cu above a 0.4% copper cut-off grade, an 11% increase in copper grade;**
- **Estimated recoverable iron increased by 78% to 5.7 million tonnes and the iron Mineral Resource increased by 73% to 25.6 million tonnes @ 26.4% Fe at a 15% Mass Recovery cut-off;**
- **At a 0.8% Cu cut-off, the higher grade section of the copper Mineral Resource has significantly increased from 2.0 million tonnes to 7.6 million tonnes at 1.4% Cu, an increase of 280%, enhancing the possibility that sections of the D Zone Mineral Resource will be able to be mined via underground methods;**
- **Avalon's objectives for extending the D Zone Mineral Resource, as announced in the October 2012 Scoping Study, significantly exceeded with 88,000t of copper metal added;**
- **D Zone Mineral Resource is still open at depth and along strike to the southwest;**
- **Upgraded D Zone Mineral Resource is currently being used to revise the overall Viscaria Project economics to assess the value added to the project, with results expected to be announced within the next two to three weeks weeks.**

Australian resources company, Avalon Minerals Limited ('Avalon' or 'Company') (ASX: AVI), is pleased to announce a Mineral Resource estimate upgrade at the D Zone Prospect on the Viscaria Project in northern Sweden (Figures 1 and 2). This resource upgrade is the culmination of the recently completed 2012-2013 northern hemisphere winter extensional drill program where 43 drill holes were completed at the D Zone prospect for 12,442 metres.

The D Zone Mineral Resource has been reported in terms of both iron and copper Mineral Resources separately in accordance with the guidelines of the 2004 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2004; Table 1 and 2):

Incorporating drilling information from the 2012-2013 winter extensional drill program as well as historical data deemed suitable for estimation, the new Mineral Resources for the D Zone Prospect are reported as:

- 13.6 million tonnes (Mt) @ 1.00% Cu above a 0.4% copper cut-off grade, and is classified as being 5.1 Mt @ 1.07% Cu Indicated and 8.5 Mt @ 0.96% Cu Inferred;
- 25.6 million tonnes (Mt) @ 26.4% Fe at a cut-off above a 15% Fe Mass Recovery grade, and is classified as 11.7 Mt @ 27.5% Fe Indicated and 13.9 Mt @ 25.7% Fe Inferred.

Table 1: D Zone Mineral Resource for Copper reported above a 0.4% Cu cut-off grade

Mineral Resource Category	TONNES (Mt)	Cu (%)	Copper Metal (t)
Indicated	5.1	1.07	55,000
Inferred	8.5	0.96	81,000
Indicated + Inferred	13.6	1.00	136,000

Table 2: D Zone Mineral Resource for Iron reported above a 15% Mass Recovery cut-off

Mineral Resource Category	TONNES (Mt)	Fe (%)	Mass Recovery (%)	Contained Iron (Mt)	Estimated Recoverable Iron* (Mt)
Indicated	11.7	27.5	33.4	3.2	2.7
Inferred	13.9	25.7	31.0	3.6	3.0
Indicated + Inferred	25.6	26.4	31.9	6.8	5.7

*Estimated Recoverable Iron = Tonnes x Mass Recovery x Fe % in concentrate (69% Fe) and is based on DTR test work at a 75 micron grind size.

Note that the total Indicated and Inferred Mineral Resource reported for Copper (Table 1) and for above 15% Mass Recovery (Table 2) are not mutually exclusive; the Mineral Resource for above 15% Mass Recovery excludes 4.4Mt at 0.9% Cu above a cut-off grade of 0.4% Cu. Therefore, the overall Mineral Resource contains 30Mt; 25.6Mt from the Mineral Resource reported at a 15% Mass Recovery cut-off and 4.4Mt at 0.9% Cu above a cut-off grade of 0.4% Cu.

Avalon's Managing Director, Jeremy Read, said "one of our major objectives for the extensional drilling at D Zone was to add 45,000t of copper to the Mineral Resource, so it is extremely pleasing to be able to announce that we have added 88,000 tonnes of copper, an increase of 183%. The copper Mineral Resource has increased by 152% to 13.6Mt at 1.00% Cu, which is further bolstered by the fact that the copper grade has also increased by 11%. When the copper and iron Mineral Resources are combined, the overall Mineral Resource at D Zone has almost doubled from 15.5Mt to 30Mt."

“Importantly, at a 0.8% Cu cut-off, the copper Mineral Resource has grown from 2.0 to 7.6Mt at 1.4% Cu, an increase of 280%, which has strengthened the possibility of mining sections of D Zone via underground methods. This increase in high grade copper resource indicates our drill program was very successful in preferentially adding higher grade tonnes of copper mineralisation. The indication that the D Zone copper-iron mineralisation has the potential to be mined underground and is still open at depth and along strike to the southwest, should further strengthen the project’s economics” Mr Read added.

Resource Reporting taking into account depth

Incorporating the 2012-2013 northern hemisphere winter extensional drill program into the D Zone modelling has led to a depth extension of the Mineral Resource beyond 350m to approximately 500m below surface. An economic study is currently being undertaken using the Mineral Resource but at this stage it is not possible to accurately determine a depth of mineralisation that could be reasonably expected to be economic for open pit mining. Underground mining would be expected to target higher-grade copper mineralisation as a priority and therefore the Mineral Resources below approximately 350m depth (-600 mRL) have also been stated above a higher copper grade cut-off of 0.8% Cu (Table 3 and Table 4).

The Indicated and Inferred Mineral Resources reporting under these criteria are:

- 13.4 million tonnes at 1.02% Cu containing 135,000t of copper.
- A total Indicated and Inferred Mineral Resource of 25.0 million tonnes at 32.1% mass recovery and 26.4% total Fe above a cut-off grade of 15.0% mass recovery and above -600 mRL
- Note that the total Indicated and Inferred Mineral Resource reported for the copper (Table 3) and for mass recovery (Table 4) are not mutually exclusive; the Mineral Resource for the mass recovery excludes 3.7 million tonnes at 0.85% Cu above a cut-off grade of 0.4% Cu.

Table 3: D Zone Mineral Resource for Copper reported above and below -600mRL

Mineral Resource Category	TONNES (Mt)	Cu (%)	Copper Metal (t)
Indicated (above -600mRL and 0.4% Cu)	5.1	1.07	55,000
Inferred (above -600mRL and 0.4% Cu)	7.6	0.94	70,000
Subtotal Indicated and Inferred	12.6	1.00	125,000
Inferred (below -600mRL and 0.8% Cu)	0.8	1.32	10,000
Subtotal Indicated and Inferred	0.8	1.32	10,000
Total Indicated + Inferred	13.4	1.02	135,000

Table 4: D Zone Mineral Resource for Iron reported above 15% Mass Recovery cut-off and above -600mRL

Mineral Resource Category	TONNES (Mt)	Fe (%)	Mass Recovery (%)	Contained Iron (Mt)	Estimated Recoverable Iron* (Mt)
Indicated	11.7	27.5	33.4	3.2	2.7
Inferred	13.3	25.7	31.0	3.4	2.8
Indicated + Inferred	25.0	26.4	32.1	6.6	5.5

*Estimated Recoverable Iron = Tonnes x Mass Recovery x Fe % in concentrate (69% Fe) and is based on DTR test work at a 75 micron grind size.

Geological setting of D Zone

The Viscaria D Zone deposit consists of a northeast-southwest oriented, magnetite ± chalcopyrite ± pyrite mineralised lens that steeply dips to the northwest. In the hanging wall of the mineralised lens is a sequence of rheologically strong mafic intrusive/extrusive rocks and in the footwall is a sequence of rheologically weak tuffaceous siltstones. This rheological difference has caused strain from a regional deformation/metamorphic event to be partitioned at this geological boundary, resulting in intense shearing. The shear zones appear to completely envelop the mineralised lens and therefore, it is possible that additional mineralised lenses could have been sheared away, representing further exploration targets.

The magnetite-rich mineralised lens appears to be fine-grained around the margins where it is in contact with the enveloping shear zones and semi-massive to massive towards the core of the lens. It is interpreted that the fine-grained nature of the magnetite around the margins of the mineralised lens is the result of deformational recrystallization controlled by the ductile shear zones.

Chalcopyrite is closely associated with pyrite and most often occurs as veinlets, cross-cutting the semi-massive to massive magnetite mineralisation and is also commonly observed to be coating the individual magnetite grains. On a larger scale, this relationship is displayed by the chalcopyrite and pyrite mineralisation being concentrated along the outer margin of the overall magnetite mineralised lens, resulting in the best copper grades around the margins with decreasing copper grade towards the core of the lens of magnetite. This observation is interpreted to indicate that a copper and sulphur rich hydrothermal fluid came into contact with the magnetite mineralised lens (focused by the enveloping shear zones) and that the oxidised chemistry of the magnetite then caused copper and sulphur to be precipitated. It is also interpreted that this hot, copper and sulphur enriched fluid would have most likely been transported up from a deeper, hotter zone within this orogenic belt and therefore the best copper sulphide mineralisation should be associated with the magnetite mineralised lens at depth, where it first came into contact with the magnetite. Therefore, it is interpreted that the exploration potential to increase the mineral resource for the D Zone mineral deposit at depth is high.

Drilling

For this Mineral Resource upgrade, Avalon provided 43 additional drill holes totalling 12,442m for the D Zone deposit, which made a total of 157 holes (25,792m) that were suitable for estimation or within resource model limits from previous drill programs. Drill holes are supported by detailed collar records, as well as down hole surveys and some quality assurance and quality control (QAQC) data. The Viscaria D Zone deposit has been drilled on northwest-southeast sections spaced approximately 50 metres apart

along the strike of mineralisation extending 1,260 metres. There are generally between five and eight drill holes per section, spaced approximately 25 to 50 metres across strike. The majority of the holes are drilled at an approximate angle of 60° from the horizontal at an azimuth of 135° (90° in local mine grid) in order to intersect the plane of mineralisation at a high angle. Xstract Mining Consultants (Xstract) has reviewed the data provided by Avalon and confirms that the information used for modelling is of sufficient quality to support a Mineral Resource for public reporting purposes.

Mineral Resource Interpretation

The mineralised zone of the Viscaria D Zone deposit has been interpreted on 50 metre sections coincident with drilling. Mineralisation is generally dipping between 70° to the northwest and 85° to the southeast and has been intersected from the base of till and extends in places to around 500 metres below surface. Mineralisation is tightly constrained within 12 copper and 4 iron zones comprising high and low grade domains.

Avalon provided all 3-dimensional (3D) interpretations of the zones of mineralisation (domains) to Xstract for use in the Mineral Resource estimation. The 3D geological interpretation of the copper mineralisation is based primarily on cut-off grades in the drill hole data. Boundaries for low grade copper were generated where the copper grade was above 0.2% Cu, with high grade copper domains being created where grade was above 0.8% Cu over at least a 2 metre width down hole. Copper grades also exist outside of these domains and within the iron domains.

The iron interpretations were created by Avalon using a combination of grades and lithological units. The high grade iron follows the boundary of the ironstone along strike, and extends away from the boundary where the composited grade was greater than 25% Fe. The low grade iron is based on grades of less than 25% Fe but greater than 15% Fe and generally forms a shell around the high grade iron domains. Very low grade areas were also interpreted where Fe% is less than 10%, and are commonly found to the west of the low grade domains. There is also one further iron domain occurring in the upper shear zone, where the zone outlines an area of 10% to 20% Fe.

Mineral Resource Estimation Methods

Ordinary Kriging (OK) was used to estimate copper and iron into block models of the mineralisation wireframes/domains. The block model parent cells have dimensions of 5 mE by 20 mN by 10m Elevation, with sub-celling used to accurately represent the geometry and volume of the mineralisation models. The estimation parameters were optimised based on the drillhole data spacing and the models of grade continuity produced by an updated variography study of copper and iron.

Specific gravity data provided by Avalon was used to determine dry bulk density factors for estimating material tonnages. A relationship between iron grade and bulk density was derived and the resultant regression formula was applied across the model to determine dry bulk density. Where no iron grade was calculated in the model, a dry bulk density value of 2.9 t/m³ was applied.

The Mass Recovery (%) values within the block model were calculated from total Fe (%) estimates using a regression formula. The regression formula was determined by carrying out a regression analysis between Mass Recovery (%) and total Fe (%) results from Davis Tube Recovery (DTR) test work.

There was no material difference in the bulk density and Mass Recovery regression analyses between the new drilling data used in the June 2013 update and that used for the October 2012 Mineral Resource estimation. Therefore the same formulae were used for the two estimates.

Comparison with D Zone Mineral Resource reported prior to 2012-2013 Winter drill program

The D Zone Mineral Resource prior to the recently completed 2012-2013 winter drill program was announced on 2 October 2012 and is displayed in Tables 5 and 6. The overall tonnage of the new revised Mineral Resource is approximately 30Mt, compared to approximately 15.5Mt in the previous D Zone Mineral Resource. This represents an increase of 14.5Mt or 94%.

Importantly, the increased tonnage of the overall mineral resource has also been achieved with an increase in copper and iron grade.

The tonnage of the copper Mineral Resource itself increased from 5.4 to 13.6Mt or 152%. As the grade of the copper Mineral Resource has also increased from 0.9% Cu to 1.0% Cu, this has also resulted in a 183% increase to the contained tonnes of copper. Importantly for the possibility of mining parts of D Zone via underground methods, if a 0.8% Cu cut-off is used, the copper Mineral Resource has grown from 2.0 to 7.6Mt at 1.4% Cu or 280%.

The tonnage of the iron Mineral Resource itself increased from 14.8 to 25.6Mt, or 73%. As the grade of the iron Mineral Resource has increased this has also resulted in a 78% increase to the estimated recoverable iron tonnes.

Cu and Fe grade tonnage data and curves comparing the new revised D Zone Mineral Resource and the previous D Zone Mineral Resource in detail are displayed in Tables 7, 8, 9 and 10 and Figures 3 and 4.

Table 5: October 2012 D Zone Mineral Resource for Copper reported above a 0.4% Cu cut-off grade

Mineral Resource Category	TONNES (Mt)	Cu (%)	Copper Metal (t)
Indicated	3.5	0.9	33,000
Inferred	1.9	0.8	15,000
Indicated + Inferred	5.4	0.9	48,000

Table 6: October 2012 D Zone Mineral Resource for Iron reported above a 15% Mass Recovery cut-off

Mineral Resource Category	TONNES (Mt)	Fe (%)	Mass Recovery (%)	Contained Iron (Mt)	Estimated Recoverable Iron* (Mt)
Indicated	9.5	25.9	31.3	2.5	2.1
Inferred	5.3	25.6	30.8	1.4	1.1
Indicated + Inferred	14.8	25.8	31.1	3.9	3.2

*Estimated Recoverable Iron = Tonnes x Mass Recovery x Fe % in concentrate (69% Fe) and is based on DTR test work at a 75 micron grind size.

Revision of Scoping Study Economics

An estimate of how much value has been added to the Viscaria Project from the recently completed 2012-2013 Winter extensional drill program will be announced within the next 2 to 3 weeks, as the new D Zone Mineral Resource is currently being used in re-estimating the project economics.

For further information please visit www.avalonminerals.com.au or contact:

Mr Jeremy Read - Managing Director
 Avalon Minerals Limited
 Tel: 07 3368 9888
 Em: jeremy.read@avalonminerals.com.au
www.twitter.com/avalonminerals

Mr James Harris
 Professional Public Relations
 Tel: 08 9388 0944
 Mob: 0400 296 547
 Em: james.harris@ppr.com.au

Competent Persons Statement

The information in this report that relates to Mineral Resources and exploration targets is based upon information reviewed by Mr Jeremy Read BSc (Hons) who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Read is a full time employee of Avalon Minerals Ltd and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Read consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The Mineral Resource estimate for the D Zone Prospect was compiled and prepared by Matthew Readford (MAusIMM) of Xstract Mining Consultants who is a Competent Person as defined by the Australasian Code for the reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code) 2004 Edition and who consents to the inclusion in this report of the matters based on the information in the form and context in which it appears.



Figure 1 – Project Location

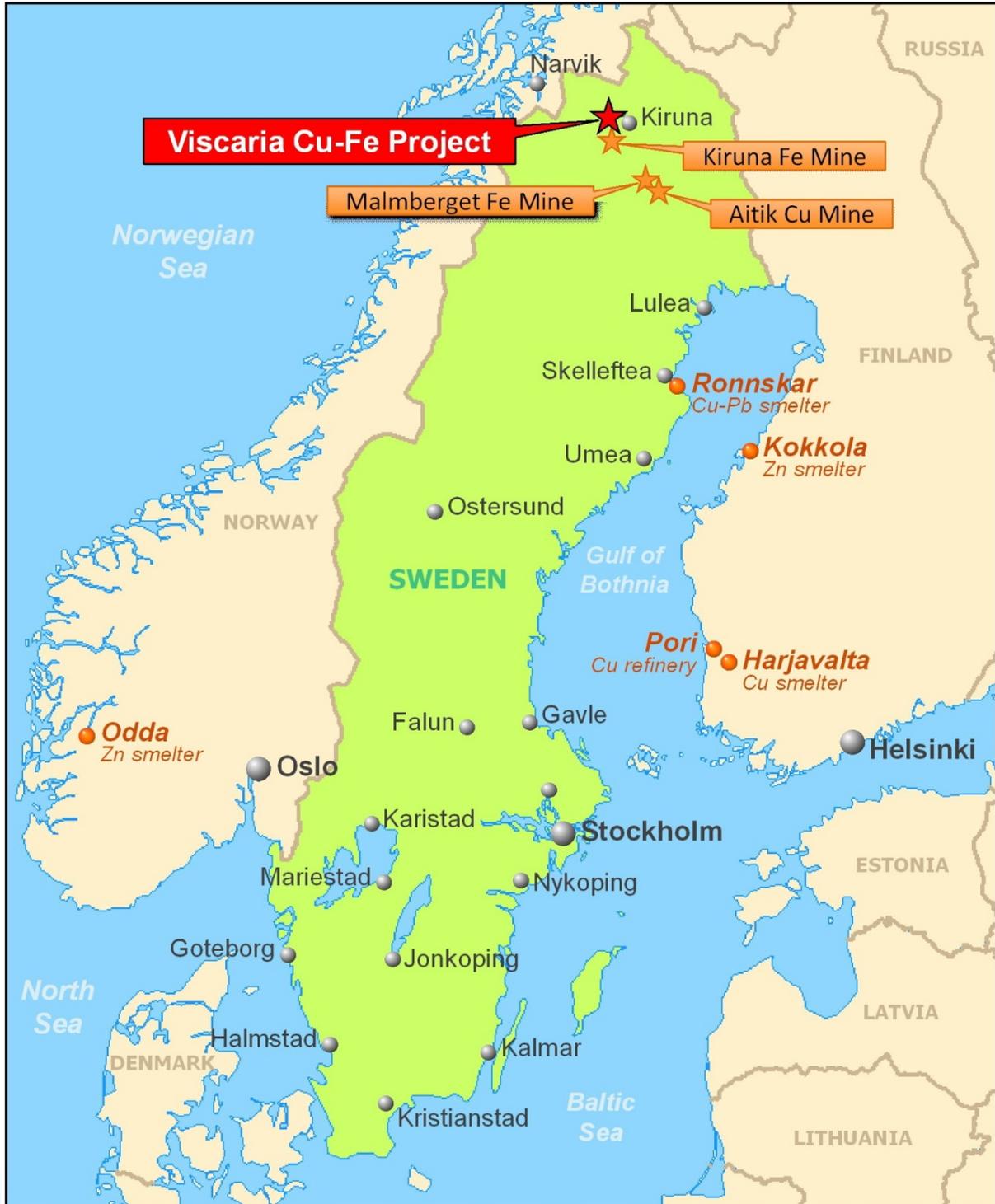


Figure 2 – Location of D Zone Mineral Resource, in relation to the A Zone and B Zone Mineral Resources (in mine grid)

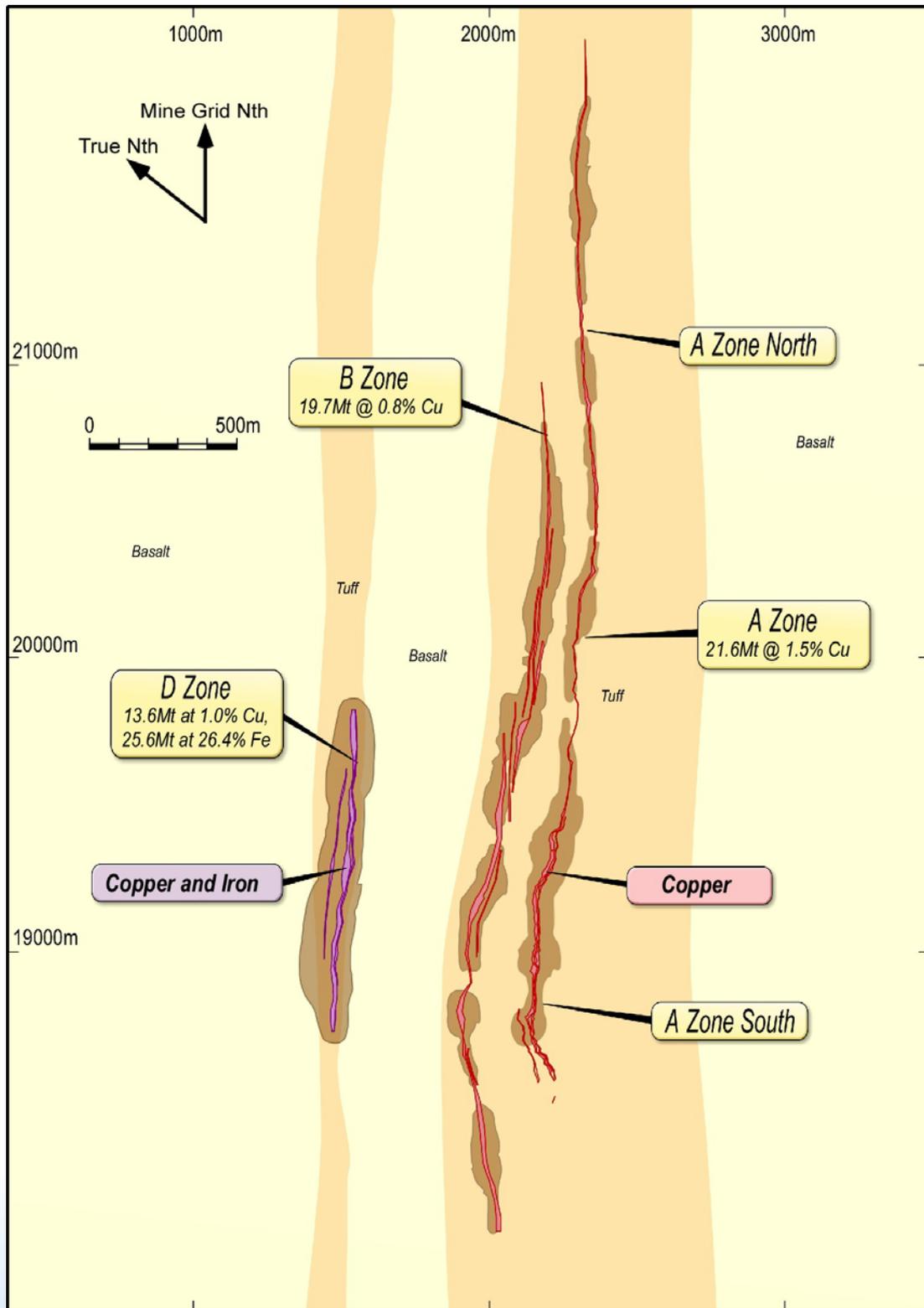


Figure 3 - Grade tonnage chart for copper for June 2013 and October 2012 models

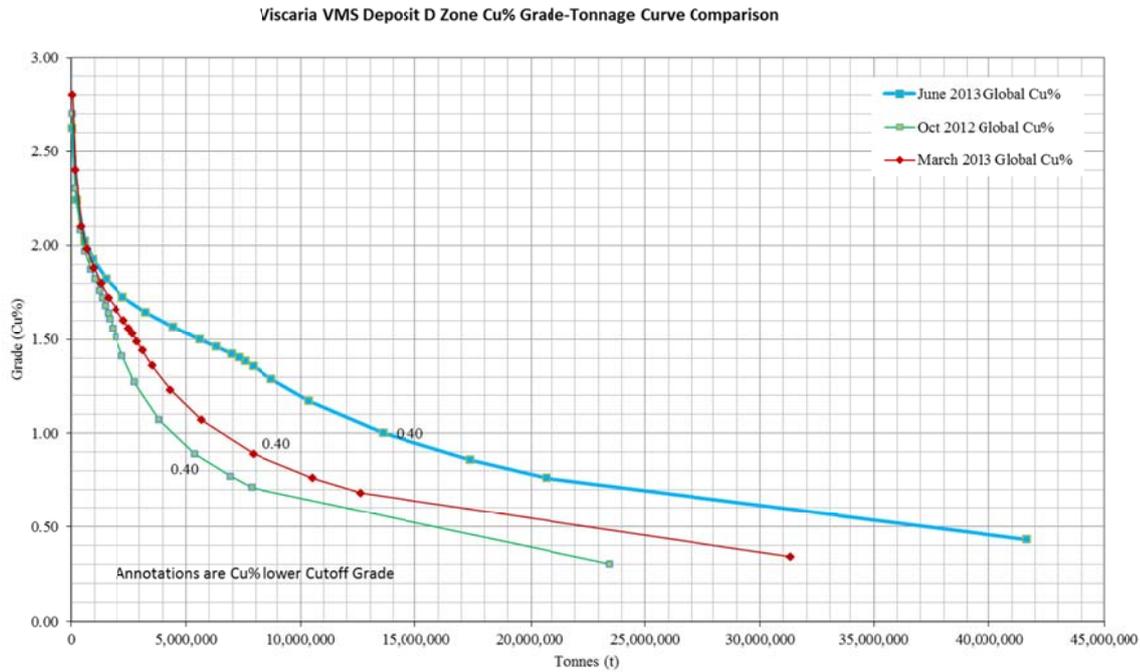


Figure 4 - Grade tonnage chart of iron for June 2013 and October 2012 models

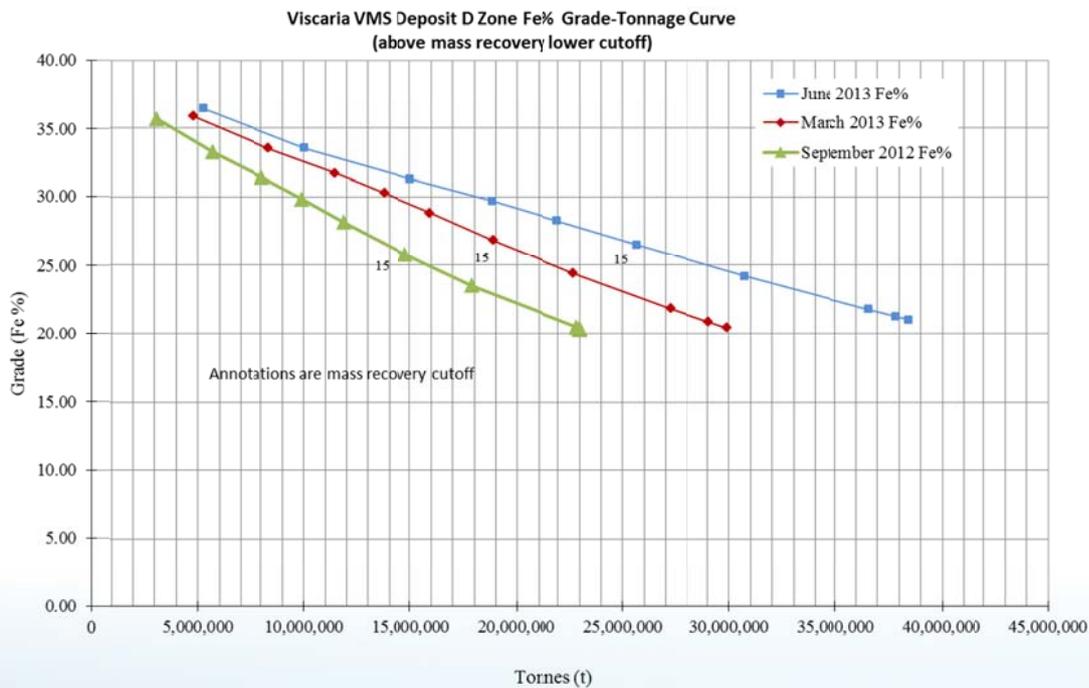


Table 7: June 2013 block model Cu grade tonnage data

CUTOFF (Cu %)	TONNES	Cu (%)
0.01	41,647,000	0.43
0.2	20,671,000	0.76
0.3	17,373,000	0.86
0.4	13,597,000	1.00
0.5	10,355,000	1.17
0.6	8,741,000	1.29
0.7	7,892,000	1.36
0.8	7,554,000	1.38
0.9	7,306,000	1.40
1	6,971,000	1.42
1.1	6,310,000	1.46
1.2	5,614,000	1.50
1.3	4,464,000	1.56
1.4	3,280,000	1.64
1.5	2,296,000	1.73
1.6	1,511,000	1.82
1.7	945,000	1.92
1.8	608,000	2.02
2	240,000	2.24

Table 8: October 2012 D Zone block model Cu grade tonnage data

CUTOFF (Cu %)	TONNES	Cu (%)
0.01	23,473,000	0.30
0.2	7,856,000	0.71
0.3	6,919,000	0.77
0.4	5,369,000	0.89
0.5	3,865,000	1.07
0.6	2,794,000	1.27
0.7	2,258,000	1.41
0.8	1,962,000	1.51
0.9	1,822,000	1.56
1	1,693,000	1.61
1.1	1,602,000	1.64
1.2	1,497,000	1.68
1.3	1,365,000	1.72
1.4	1,240,000	1.76
1.5	1,027,000	1.82
1.6	866,000	1.87
1.7	594,000	1.97
1.8	400,000	2.08
2	189,000	2.30

Table 9: June 2013 D Zone block model Mass Recovery grade tonnage data

CUTOFF (Mass Rec %)	TONNES	Fe (%)	Mass Rec (%)
0.01	38,424,000	21.0	24.4
3	37,849,000	21.2	24.7
5	36,584,000	21.7	25.4
10	30,739,000	24.2	28.9
15	25,641,000	26.5	32.1
20	21,973,000	28.3	34.6
25	18,826,000	29.7	36.6
30	15,013,000	31.3	38.8
35	10,049,000	33.5	41.9
40	5,278,000	36.4	45.9

Table 10: October 2012 D Zone block model Mass Recovery grade tonnage data

CUTOFF (Mass Rec %)	TONNES	Fe (%)	Mass Rec (%)
0.01	23,034,000	20.3	23.5
3	23,000,000	20.3	23.5
5	22,878,000	20.4	23.6
10	17,905,000	23.5	27.9
15	14,782,000	25.8	31.1
20	11,888,000	28.1	34.4
25	9,927,000	29.8	36.8
30	8,009,000	31.4	39.0
35	5,683,000	33.3	41.6
40	3,107,000	35.6	44.9