ASX: AVI

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24% increase in tonnage delivered in updated D Zone Mineral Resource on the Viscaria Project, Sweden

Highlights

- **A new revised mineral resource for the D Zone Prospect has delivered an increase of 24% in tonnage from approximately 12.5Mt to 15.5Mt.**
- **For JORC (2004) purposes the new revised D Zone Mineral Resource has been reported in terms of both iron and copper mineral resources separately:**
  - **14.8Mt @ 25.8% Fe above a 15% Fe Mass Recovery cut-off grade**
  - **5.4Mt @ 0.9% Cu above a 0.4% copper cut-off grade**
- **The new D Zone Mineral Resource is not closed off along strike in either direction, which means there is potential for it to be further increased, especially within areas that could be mined by open pit methods.**
- **The new D Zone Mineral Resource has higher copper grades at higher copper cut-off values and is getting thicker and higher grade at depth, all of which significantly increase its potential to be mined by underground methods as well.**
- **The observation that the D Zone Mineral Resource is not closed off along strike and is getting thicker and higher grade at depth will drive a significant drill program on the Viscaria Project to be completed between November 2012 and May 2013.**
- **The new increased D Zone Mineral Resource, along with the previously announced mineral resources at the A Zone and B Zone prospects, are currently being used in a Scoping Study which is expected to be completed within three weeks.**

Australian resources company Avalon Minerals Limited ('**Avalon**' or '**Company**') (**ASX: AVI**) is pleased to announce a new revised Mineral Resource at the D Zone Prospect on the Viscaria Project in northern Sweden (Figures 1 and 2). For JORC (2004) purposes the new revised D Zone Mineral Resource has been reported in terms of both iron and copper mineral resources separately (See Tables 1 and 2):

- 14.8Mt @ 25.8% Fe at a cut-off above a 15% Fe Mass Recovery grade, and is classified as 9.5Mt @ 25.9% Fe Indicated and 5.3Mt @ 25.6% Fe Inferred according to the guidelines of the JORC Code (2004);
- 5.4Mt @ 0.9% Cu above a 0.4% copper cut-off grade, and is classified as being 3.5Mt @ 0.9% Cu Indicated and 1.9Mt @ 0.8% Cu Inferred according to the guidelines of the JORC Code (2004);

The Mineral Resource reported for the Viscaria D Zone deposit is 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). Note that the total Indicated and Inferred Mineral Resource reported for the Copper (Table 7) and for above 15% Fe Mass Recovery (Table 8) are not mutually exclusive; the Mineral Resource for above 15% Fe Mass Recovery excludes 0.72 million tonnes at 0.77% Cu above a cut-off grade of 0.4% Cu.

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	3.5	0.9	33,000
Inferred	1.9	0.8	15,000
Indicated + Inferred	**5.4**	**0.9**	**48,000**

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

Mineral Resource Category	TONNES (Mt)	Fe Mass Recovery (%)	Fe (%)	Recovered Iron (Mt)
Indicated	9.5	31.3	25.9	3.0
Inferred	5.3	30.8	25.6	1.6
Indicated + Inferred	**14.8**	**31.1**	**25.8**	**4.6**

Avalon's Managing Director, Jeremy Read, said "the overall tonnage of the D Zone Mineral Resource has been increased by 24% from 12.5 million tonnes to 15.5 million tonnes, which is an extremely pleasing result. This new revised D Zone Mineral Resource also has an increased iron grade and contains significantly more iron."

"Importantly the D Zone Mineral Resource has not been closed off along strike which indicates that there is scope to increase the tonnes of mineralisation that could be extractable using open pit mining methods. While the observation that the D Zone Mineral Resource is getting thicker and higher grade at depth suggests there is scope to increase the tonnes of mineralisation which has the potential to be extracted using underground mining methods."

"The indication that the D Zone mineralisation also has underground as well as open pit potential, in addition to the A Zone mineralisation, adds a new dimension to the project" Mr Read said.

Geological setting of the 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 probable that additional mineralised lenses could have been sheared away (boundinaged), 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 recrystallisation 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.

The entire rock package is overprinted by an upper greenschist facies alteration assemblage of chlorite + talc + carbonate + tremolite ± scapolite ± biotite ± quartz, which is interpreted to be related to both the regional deformation/metamorphic event and a later, overprinting hydrothermal skarn alteration associated with the chalcopyrite and pyrite mineralisation. The skarn hydrothermal alteration and associated chalcopyrite and pyrite mineralisation appear to be most intense within the enveloping shear zones and therefore, it is interpreted that these structures have focused the chalcopyrite and pyrite mineralising event.

It has also been observed that the chalcopyrite and pyrite has predominantly precipitated directly onto the magnetite mineralisation. On the small scale this relationship is displayed by chalcopyrite and pyrite mineralisation coating individual magnetite grains. While on the large 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. 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.

As drilling of the D Zone mineral deposit has progressed it has been shown that the overall geometry of the mineralised zone is getting thicker and higher grade with depth. This observation suggests the possibility that the copper mineralisation associated with the D Zone mineral deposit could extend and even get better at depth. Supporting this interpretation is the observation that chalcopyrite and pyrite mineralisation is related to a later, overprinting hydrothermal alteration event. It is 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

The D Zone Prospect area contains 202 drill holes totalling 21,983 metres of which 170 holes fall within the area for resource evaluation. Drill holes are supported by detailed collar records as well as downhole 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 1,150 metres. There are generally between five and eight drillholes per section, spaced approximately 25 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 has reviewed all 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° and 85° to the northwest, and has been intersected from the base of till and extends in places to around 350 metres below surface. Mineralisation is tightly constrained within 19 copper and 4 iron zones comprising high and low grade domains.

Avalon provided all 3-dimensional (3D) interpretations of the zones of mineralisation (domains), as well as providing 3D interpretations for three zones of oxidation, geological intrusive features as well as 2D layers representing the lithology.

The 3D geological interpretation of the copper mineralisation is based primarily on cut-off grades in the drillhole 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. Low grade iron is based on grades of <20% Fe and generally form a shell around the high grade iron domains. Very low grade areas were also interpreted where Fe < 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 10 m 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 a variography study of copper and iron.

Dry bulk density 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 2.9g/m^3 was applied.

The Fe 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 Fe Mass Recovery (%) and total Fe (%) results from Davis Tube Recovery (DTR) test work.

Comparison with previously reported D Zone Mineral Resource

The previous D Zone Mineral Resource as announced in November 2011 is displayed in Table 3, while the new revised D Zone Mineral Resource described in similar terms is display in Table 4. The overall tonnage of the new revised mineral resource is approximately 15.5 million tonnes, compared to approximately 12.5 million tonnes in the previous D Zone Mineral Resource as announced in November 2011. This represents an increase of 3 million tonnes or 24%.

The increased tonnage in the main portion of the mineral resource that is above a 15% Fe Mass Recovery has been achieved with a minor increase in iron grade but also a minor decrease in copper grade. However, while the overall copper grade has decreased, the copper grade of the D Zone Mineral Resource at higher copper grade cut-off values has increased as shown in the grade tonnage data displayed in Tables 5 to 8 as well as Figures 3 and 4. This increase in the copper grade also increases the potential for the D Zone deposit to be mined by underground methods as well as open pit methods.

Table 3: Previous 2011 D Zone block model reporting

Reporting Criteria	Cut-off	Tonnes	Cu%	Fe%	Fe Mass Rec%
Above 15% Fe mass recovery	15.0	11,942,000	0.6	24.1	35.6
Copper above 0.4% Cu in remaining blocks	0.4	585,000	0.9	17.1	8.1

Table 4: New 2012 D Zone block model reporting

Reporting Criteria	Cut-off	Tonnes	Cu%	Fe%	Fe Mass Rec%
Above 15% Fe mass recovery	15.0	14,782,370	0.4	25.8	31.1
Copper above 0.4% Cu in remaining blocks	0.4	715,288	0.8	4.6	4.5

Future Mineral Resource Extension Plans

Geological analysis of the D Zone Mineral Resource indicates that it is not closed off in either direction along strike or at depth. In fact, the deposit appears to be getting thicker and higher in copper and iron grades at depth (Figure 5). This observation indicates that there is potential for the D Zone Mineral Resource to be further increased in areas that could be mined by open pit as well as underground mining methods. This potential will drive a significant drill program to increase the D Zone Mineral Resource on the Viscaria Project to be completed between November 2012 and May 2013.

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

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Table 5: New 2012 D Zone block model Cu grade tonnage data

CUTOFF (Cu %)	TONNES	Cu (%)
0.01	**23,473,041**	**0.30**
0.2	7,855,613	0.71
0.3	6,918,914	0.77
0.4	5,369,376	0.89
0.5	3,864,745	1.07
0.6	2,794,312	1.27
0.7	2,258,371	1.41
0.8	1,961,557	1.51
0.9	1,821,664	1.56
1	1,693,233	1.61
1.1	1,601,581	1.64
1.2	1,497,056	1.68
1.3	1,364,524	1.72
1.4	1,240,267	1.76
1.5	1,026,711	1.82
1.6	865,673	1.87
1.7	594,389	1.97
1.8	399,844	2.08
2	189,036	2.30

Table 6: Previous 2011 D Zone block model Cu Grade tonnage data

CUTOFF (Cu %)	TONNES	Cu (%)
0.01	**13,620,465**	**0.54**
0.2	9,126,718	0.75
0.3	7,818,777	0.83
0.4	6,796,709	0.90
0.5	6,001,320	0.96
0.6	5,202,480	1.03
0.7	4,307,293	1.10
0.8	3,533,253	1.18
0.9	2,782,843	1.27
1	2,165,254	1.36
1.1	1,666,173	1.46
1.2	1,281,447	1.55
1.3	986,860	1.64
1.4	740,885	1.74
1.5	552,218	1.84
1.6	405,429	1.94
1.7	298,171	2.05
1.8	223,869	2.15
2	126,033	2.35

Table 7: New 2012 D Zone block model Fe Mass Recovery grade tonnage data

CUTOFF (Fe Mass Rec %)	TONNES	Fe Mass Rec (%)
0.01	23,034,209	23.45
3	22,999,683	23.48
5	22,878,271	23.58
10	17,904,543	27.85
15	14,782,370	31.10
20	11,888,004	34.40
25	9,927,468	36.76
30	8,008,711	38.97
35	5,683,490	41.56
40	3,107,036	44.89

Table 8: Previous 2011 D Zone block model Fe Mass Recovery grade tonnage data

CUTOFF (Fe Mass Rec %)	TONNES	Fe Mass Rec (%)
0.01	13,581,595	27.10
3	13,229,218	27.77
5	12,927,931	28.33
10	12,113,250	29.73
15	11,134,400	31.22
20	9,766,400	33.11
25	7,851,395	35.67
30	5,536,795	39.08
35	3,542,748	42.86
40	2,117,520	46.54

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)

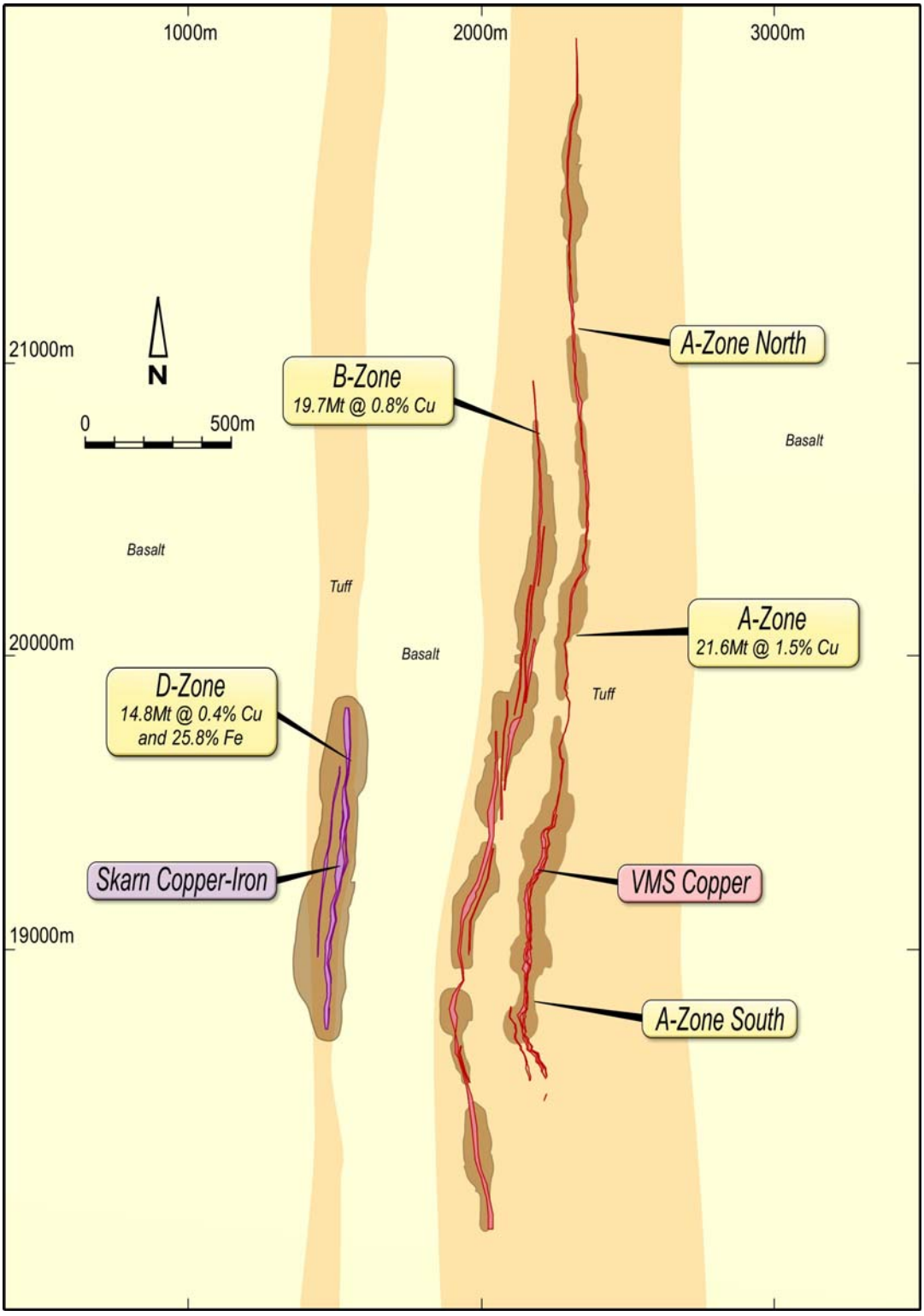


Figure 3: Grade tonnage chart for copper comparing Xstract 2012 block model vs 2011 block model

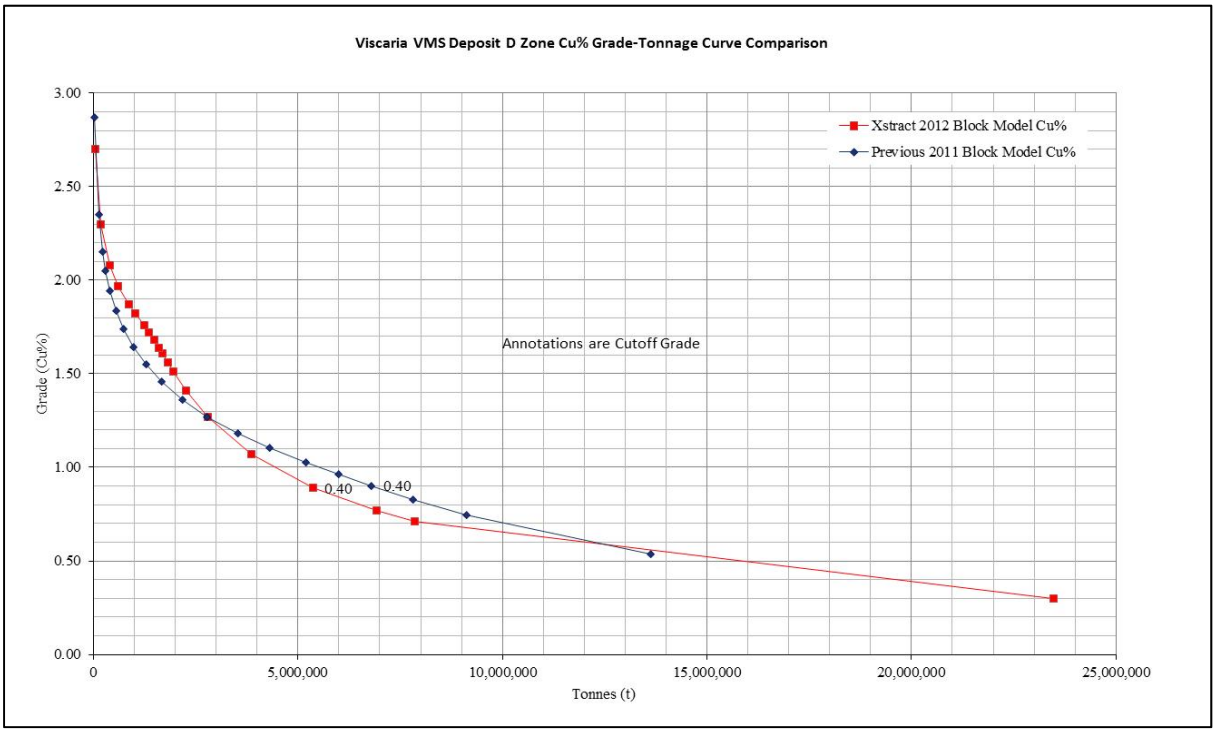


Figure 4: Grade tonnage chart for Fe Mass Recovery comparing Xstract 2012 vs 2011 block models

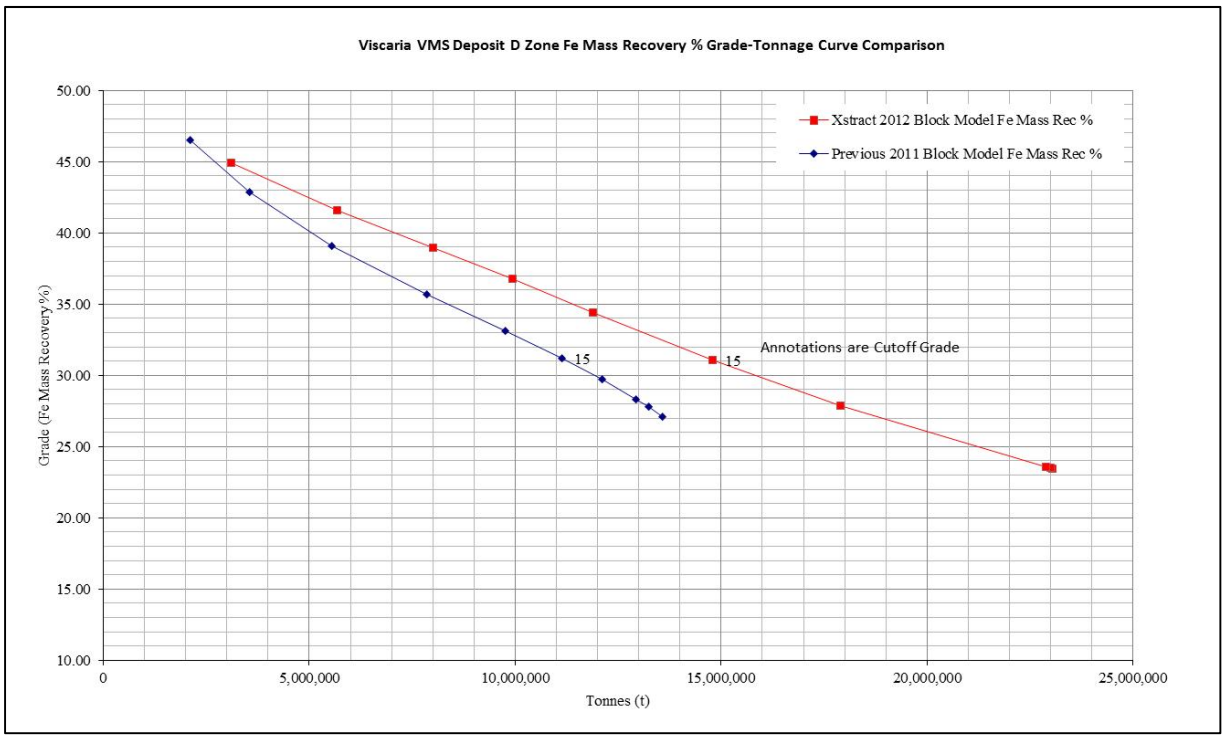
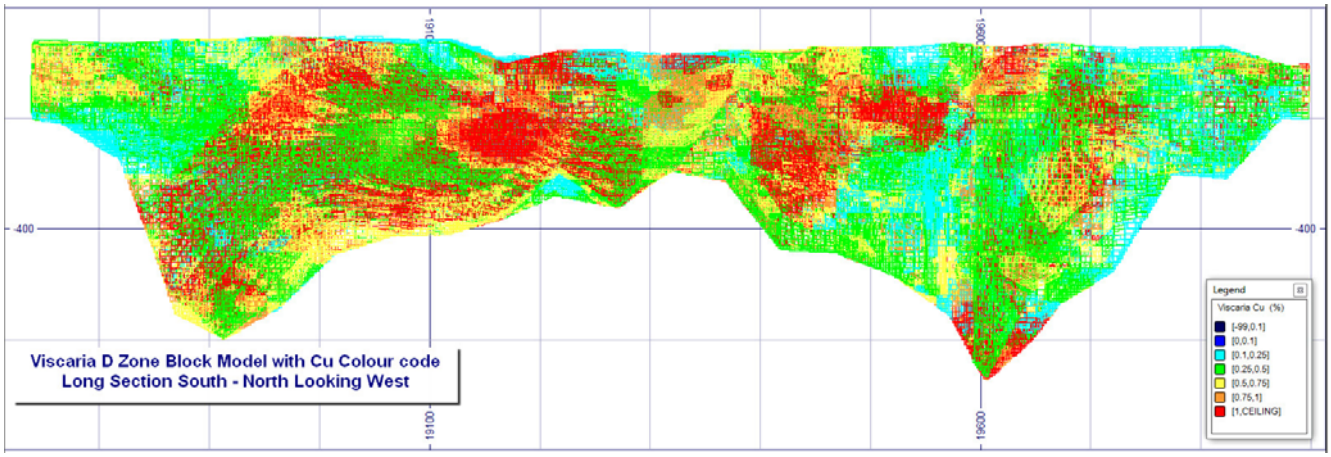


Figure 5 – Long sectional view of the D Zone Mineral resource displaying the distribution of copper grade



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 Stefan Mujdrica (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.