## ASX ANNOUNCEMENT

## COPPER-IRON GRADES IMPROVE AT D ZONE PROSPECT

## Highlights

- Latest assay results from D Zone at the Viscaria Project show two thick high-grade copper-iron zones improving at depth and consistently intersecting grades in excess of $2 \%$ CuEq;
- Best intersections include:
- VDD0159: 8.0m @ 2.7\% CuEq*, within a larger mineralisation zone of 12.0m @ 2.1\% CuEq*;
- VDD0160: 10.7m @ 2.4\% CuEq*, within a larger mineralisation zone of 19.1m @ 1.6\% CuEq*;
- VDD0165: 8.0m @ 2.2\% CuEq*, within a larger mineralisation zone of 31.0m @ 1.2\% CuEq*;
- VDD0161: 7.0m @ 1.8\% CuEq*, within a larger mineralisation zone of 26.0m @ 0.9\% CuEq*;
- Intersections have extended the known mineralisation zones between 70 m and 150 m down dip and up to 150 m along strike;
- Drilling at D Zone is ongoing and continues to extend the two relatively thick, high grade copper-iron plunging zones at depth;
- Drilling results continue to indicate that the D Zone Mineral Resource will be significantly increased in size.

Australian resources company Avalon Minerals Limited ('Avalon' or 'Company') (ASX: AVI) is pleased to announce assay results for the next five drill holes of the current drill program from the D Zone Prospect on the Viscaria Project ('Viscaria'), in northern Sweden (Figure 1).

Four of the drill holes intersected thick, high-grade copper and iron mineralisation. All five drill holes have extended the area of known mineralisation by up to 150 metres down dip and 150 metres along strike. This drill program will comprise approximately 25,000 metres of drilling of which approximately half has been drilled. The objective of this drilling is to extend the known Mineral Resources at the $A$ and $D$ Zone prospects and deliver on the potential increases to the project Net Present Value outlined in the Scoping Study (see ASX announcement 11 October 2012).

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The Company's Managing Director Mr Jeremy Read said, "The latest assay results from D Zone show the high-grade plunging copper-iron zones are getting better grade with depth, with grades from this batch of drill holes consistently in excess of $2 \%$ CuEq, over 8 to 10 metre widths."
"In addition to the zones grading greater than $2 \%$ CuEq, the overall mineralisation package is still up to 30 metres thick, which is very encouraging. The continued success of the D Zone resource extension drill program indicates that there is excellent potential for the D Zone Mineral Resource to be significantly extended at depth. This should then enhance the economics of the D Zone Mineral Resource and deliver Development Cases A and C, which would result in a $\$ 78 \mathrm{M}$ increase to the NPV of D Zone, to $\$ 126 \mathrm{M}$," he added.

## D Zone Mineral Resource Extension Drill Program

Of these five drill holes, four were drilled in the northeast of the D Zone Prospect (VDD0159, VDD0160, VDD0164 and VDD0165), while the other hole was drilled in the southwest of the D Zone Prospect (VDD0161). As highlighted in previous announcements, this drilling was designed to follow up on excellent previous drill intersections that appear to delineate two southwest plunging, relatively thick, high grade copper-iron mineralisation zones in these areas.

The success of VDD0159, VDD0160, VDD0164 and VDD0165 follows the success of the previously announced drill holes VDD0153, VDD00157, VDD0156, VDD0141, VDD0134, VDD0138, VDD0147 and VDD0150 in the northeast of the D Zone Prospect. These drill holes further delineate a relatively thick, moderately plunging, high grade copper-iron mineralisation zone by extending it at least a further 150 metres along strike and at least 150 metres further down dip. At this stage, there is no indication that this mineralisation is diminishing at depth. In fact, the mineralisation is increasing in copper grade with depth.

The success of VDD0161 follows the success of previously announced drill holes VDD0152, VDD0155, VDD0151, VDD0132, VDD0140, VDD0144, VDD0149, VDD0142 and VDD0146 in the southwest of the D Zone Prospect. These drill holes indicate that the second relatively thick, moderately plunging, high grade copper-iron mineralisation zone extends at least 100 metres further down dip and over 70 metres along strike.

The details of the geochemical assay data for these drill holes are shown in Table 1 with the location of each hole outlined in Figure 2.

Drilling is continuing and further geochemical results are expected to be available within the next two weeks.

## VDD0160: Northeast D Zone (Figure 3)

Drill hole VDD0160 intersected 19.1m @ $1.6 \%$ CuEq $^{*}$ from 258.0 m down hole, including a high grade interval of 10.7 m @ $2.4 \%$ CuEq*. This drill hole was completed more than 70 metres down dip of VDD0150 and over 120 metres along strike from VDD0138. Therefore, the success of VDD0160 could potentially result in a significant increase to the D Zone Mineral Resource.

The results of the previously announced Viscaria Project Scoping Study indicate that the mineralised intersections from VDD0160, especially $10.7 \mathrm{~m} @ 2.4 \%$ CuEq$^{\star}$ from 266.4 m down hole, has the potential to increase the tonnes of mineralisation which could be extractable using underground mining methods at D Zone (Development Case C).

## VDD0165: Northeast D Zone (Figure 3)

Drill hole VDD0165 intersected 31.0m @ 1.2\% CuEq* from 339.0m down hole, including 8m @ $2.2 \%$ CuEq* from 362 m down hole. It was drilled approximately 70 metres down dip of VDD0160 and over 80 metres down plunge from VDD0153. Therefore, the success of VDD0165 could potentially result in a significant increase of the D Zone Mineral Resource.

The results of the previously announced Viscaria Project Scoping Study indicate that the mineralised intersections from VDD0165, especially $8.0 \mathrm{~m} @ 2.2 \% \mathrm{CuEq}^{*}$, has the potential to increase the tonnes of mineralisation which could be extractable using underground mining methods at D Zone (Development Case C).

## VDD0164: Northeast D Zone (Figure 4)

Drill hole VDD0164 intersected 6.7 m @ $0.9 \%$ CuEq* $^{*}$ from 302 m down hole. It was drilled over 150 metres down dip of drill hole VDD0137 and over 70 metres along strike from drill hole VDD0156. Therefore, VDD0164 could potentially result in a significant increase of the D Zone Mineral Resource.

This drill hole was planned to test the most northern margin of the D Zone mineralisation at depth. It is interpreted that this drill intersection indicates that in this area the D Zone mineralisation is thinning out.

## VDD0159: Northeast D Zone (Figure 5)

Drill hole VDD0159 intersected 12.0m @ 2.1\% CuEq* from 224m down hole including 8.0m @ 2.7\% CuEq* from 224m down hole. It was drilled over 70 metres down dip of drill hole VDD0134 and over 150 metres along strike from drill hole VDD0130. Therefore, VDD0159 could potentially result in a significant increase of the D Zone Mineral Resource.

The results of the previously announced Viscaria Project Scoping Study indicate that the mineralised intersections from VDD0159 have the potential to increase the tonnes of mineralisation which could be extractable using underground mining methods at D Zone (Development Case C).

## VDD0161: Southwest D Zone (Figure 6)

Drill hole VDD0161 intersected 26m @ 0.9\% CuEq* from 302m down hole, including 7.0m @ 1.8\% CuEq* from 321m down hole. This mineralised intersection extends the known mineralisation over 100 metres down dip from previous drill hole VDD0142 and over 70 metres along strike from previous drill hole VDD0152. Therefore, VDD0161 could potentially result in a significant increase of the D Zone Mineral Resource.

The results of the previously announced Viscaria Project Scoping Study indicate that the mineralised intersection from VDD0161 has the potential to increase the tonnes of mineralisation which could be extractable using underground mining methods at D Zone (Development Case C).

Table 1: Drill hole details and assays results

| Hole | Prospect | $\begin{aligned} & \text { Easting } \\ & \text { (RT90, m) } \end{aligned}$ | Northing <br> (RT90, m) | Azi. <br> ( ${ }^{\circ}$ ) | Dip ( ${ }^{\circ}$ ) | From <br> (down hole m) | To (down hole m) | Interval Width (down hole m) | $\begin{aligned} & \text { \% } \\ & \mathrm{Cu} \end{aligned}$ | \% Fe | \% CuEq | End of Hole(m) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VDD0159 | D Zone | 1,680,952 | 7,537,620 | 134.6 | -55.2 | 224.00 | 236.00 | 12.00 | 1.6 | 27.7 | 2.1 | 294.00 |
|  |  |  |  |  |  | including |  |  |  |  |  |  |
|  |  |  |  |  |  | 224.00 | 232.00 | 8.00 | 2.2 | 29.7 | 2.7 |  |


| VDD0160 | D Zone | 1,680,643 | 7,537,362 | 135.8 | -55 | 258.00 | 277.10 | 19.10 | 1.1 | 32.4 | 1.6 | 321.00 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | including |  |  |  |  |  |  |
|  |  |  |  |  |  | 266.40 | 277.10 | 10.70 | 1.7 | 42.4 | 2.4 |  |


| VDD0161 | D Zone | 1,680,222 | 7,536,926 | 134.4 | -58 | 302.00 | 328.00 | 26.00 | 0.5 | 27 | 0.9 | 348.00 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | Including |  |  |  |  |  |  |
|  |  |  |  |  |  | 321.00 | 328.00 | 7.00 | 1.3 | 30.3 | 1.8 |  |


| VDD0164 | D Zone | $1,680,878$ | $7,537,613$ | 134.16 | -55 | 322.00 | 328.70 | 6.70 | 0.7 | 14.3 | $\mathbf{0 . 9}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |


| VDD0165 | D Zone | 1,680,590 | 7,537,399 | 136.4 | -55 | 339.00 | 370.00 | 31.00 | 0.9 | 20.9 | 1.2 | 402.28 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | Including |  |  |  |  |  |  |
|  |  |  |  |  |  | 362.00 | 370.00 | 8.00 | 1.8 | 28.9 | 2.2 |  |

## *Copper Equivalent Formula

\% CuEq $=\% \mathrm{Cu}+((\% \mathrm{Fe} \times$ Fe price US\$/tonne $\times$ Fe recovery $) /($ Cu price US\$/tonne $\times$ Cu recovery $)$ )
Cu price US\$/tonne = \$7,163.00 (US\$3.25/lb)
Cu Recovery = 90\%
Fe price US\$/tonne = \$144.93 (calculated from US\$100 Net Price per tonne of magnetite
concentrate containing 69\% Fe)
Fe Recovery = 70\%
Results from extensive metallurgical test work completed by Avalon Minerals Limited indicate that both copper ( Cu ) and iron (Fe) have a reasonable potential to be recovered from the D Zone Mineral Resource contained within the Viscaria Project.

Table 2: Currently Defined Mineral Resources on the Viscaria Project

| Resource Name | Classification | Tonnes (t) | Cu Grade (\%) | Cu Metal <br> (t) |
| :---: | :---: | :---: | :---: | :---: |
| A Zone* | Measured | 14,439,000 | 1.66 | 239,000 |
|  | Indicated | 4,690,000 | 1.22 | 57,000 |
|  | Inferred | 2,480,000 | 1.03 | 26,000 |
|  | Subtotal | 21,609,000 | 1.49 | 322,000 |
|  |  |  |  |  |
| B Zone* | Measured | 123,000 | 1.33 | 2,000 |
|  | Indicated | 4,118,000 | 0.72 | 30,000 |
|  | Inferred | 15,410,000 | 0.77 | 118,000 |
|  | Subtotal | 19,650,000 | 0.76 | 150,000 |
|  |  |  |  |  |
| D Zone Cu Resource | Indicated** | 3,500,000 | 0.94 | 32,900 |
|  | Inferred** | 1,870,000 | 0.80 | 14,960 |
|  | Subtotal | 5,370,000 | 0.89 | 47,860 |
| Overall Cu | Total | 46,629,000 | 1.01 | 519,860 |


| Resource <br> Name | Classification | Tonnes (t) | Fe Grade <br> $(\%)$ | Fe Mass <br> Recovery <br> $(\%)$ | Fe Metal (t) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| D Zone | Indicated $^{* * *}$ | $9,470,000$ | 25.90 | 31.3 | $2,964,110$ |
| Fe Resource | Inferred*** | $5,320,000$ | 25.60 | 30.8 | $1,638,560$ |
| Overall Fe | Total | $\mathbf{1 4 , 7 9 0 , 0 0 0}$ | $\mathbf{2 5 . 8 0}$ | $\mathbf{3 1 . 1}$ | $\mathbf{4 , 6 0 2 , 6 7 0}$ |

* 2011 Mineral Resources for A Zone and B Zone are reported above a cut-off grade of $0.4 \% \mathrm{Cu}$.
** 2012 Copper Mineral Resource for D Zone above a cut-off grade of 0.4\% Cu.
*** 2012 Iron Mineral Resource for D Zone above a cut-off grade of 15\% Fe Mass Recovery.


## ABOUT AVALON

Avalon is an ASX listed mineral exploration company with high quality assets in Sweden, one of the leading metal producing countries in the European Union.

Avalon's flagship asset is the Viscaria Copper-Iron Project located 1,200km north of Stockholm where the Company has delineated a global resource of 66.2 million tonnes of mineralisation, containing 51,000 tonnes of copper and 2.4 million tonnes of iron.

The Viscaria Project is surrounded by established infrastructure, lying immediately adjacent to LKAB's Kirunavaara Iron Ore operation and in close proximity to high-capacity rail and ports.

## ABOUT SWEDEN

Sweden has a 1,000 year mining history, is the largest producer of iron ore in the European Union and is a leading producer of base metals (copper, zinc, lead) and precious metals (gold and silver).

There are excellent discovery opportunities, with much of the country underexplored by modern standards. Furthermore, Sweden possesses a world-class geological database and favourable minerals legislation, is politically and economically stable and has mining know-how, highly trained personnel and excellent infrastructure.

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

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#### Abstract

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.

The Scoping Study results were compiled and prepared by Tim Horsley (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



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| :---: | :---: | :---: | :---: |
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|  |  |  |  |


|  |  | AVALON |
| :---: | :---: | :---: |
| D ZONE PROSPECT - VISCARIA PROJECT, SWEDEN LOCATION OF DRILL HOLES |  |  |
|  |  | FIGURE |




Depth (m)



