

## Viscaria Base Case NPV Increases to US\$97M

### HIGHLIGHTS

- Updated Scoping Study results indicate that the potential NPV of the Base Case open pit mining scenario is now US\$97 million dollars (using US\$3.25/lb copper price, US\$150/t magnetite concentrate price and 60° pit slope), increased by US\$46M from prior to current drill program;
- Increase in Base Case NPV relates to revised open pit analysis of the upgraded D Zone Mineral Resource released on 4 April 2013;
- Result shows that converting part of the Development Case A exploration target into Mineral Resources has been achieved and is still ongoing with further drilling at D Zone;
- Updated Scoping Study results indicate that the Base Case open pit mining scenario produces 10,000t of Cu and 343,000t of Fe per annum at a C1 cash cost (net of Fe credits) of US\$0.65/lb, over a 7 year mine life;
- At US\$3.50/lb copper price the Base Case open pit mining scenario has a NPV of US\$119M;
- The upgraded D Zone Mineral Resource is currently being subjected to further economic analysis to estimate the value of any potentially underground mineable tonnes (Development Case C).

Australian resources company Avalon Minerals Limited ('Avalon' or 'Company') (ASX: AVI) is pleased to announce the results of a revision of the Base Case open pit mining scenario Net Present Value ('NPV') from the Scoping Study completed on the Viscaria Project by Xstract Mining Consultants (announced 11 October 2012).

The updated Scoping Study revised the Base Case open pit mining scenario using the interim updated Mineral Resources currently defined on the Viscaria Project, which were announced to the ASX on 4 April 2013. The economic assessments used price assumptions of US\$3.25/lb copper and US\$150/t magnetite concentrate as well as a 60° pit slope.

### 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

The Company's Managing Director, Mr Jeremy Read, said "By recalculating the Base Case open pit mining scenario using the upgraded interim D Zone Mineral Resource announced last week and revised pit slopes, the NPV has increased by US\$46 million dollars to US\$97 million dollars, which is an excellent achievement. This shows that we are well on the way to delivering on Development Case A from the October 2012 Scoping Study."

"As the D Zone resource extension drill program still has approximately 30% to go to complete the planned program, there is still potential to continue to grow the D Zone Mineral Resource and deliver further value creation through conversion of exploration targets to Mineral Resources, which should further increase the NPV of D Zone" he said.

"Currently, we are assessing various options for underground mining the plunging shoots of +2% CuEq mineralisation at D Zone and we believe there is further value to be created through understanding the full underground mining potential of D Zone" Mr Read said.

### Revised Base Case open pit mining scenario

The revised Base Case open pit mining scenario assessed the viability and potential value of the currently defined Mineral Resources on the Viscaria Copper Project, which are based upon the interim Mineral Resources announced to the ASX on 4 April 2013 (see Table 1). These interim Mineral Resources were subjected to open pit optimisations using the parameters and revenue assumptions outlined in Table 2. Using these parameters several open pit shells were generated along the near-surface trends of the A Zone, B Zone and D Zone Mineral Resources (Figure 1). During this exercise it was established that only the D Zone Pit and the A Zone Pit-A significantly contributed to the project NPV and therefore, only these prospects were included in the Base Case open pit mining scenario. Figure 2 and Table 3 show the production profile developed for the Base Case scenario.

Table 1: Currently Defined Mineral Resources on the Viscaria Project.

Resource Name	Classification	Tonnes (t)	Cu Grade (%)	Cu Metal (t)
A Zone*	Measured	14,439,000	1.7	240,000
	Indicated	4,690,000	1.2	57,000
	Inferred	2,480,000	1.0	26,000
	<b>Subtotal</b>	<b>21,609,000</b>	<b>1.5</b>	<b>323,000</b>
B Zone*	Measured	123,000	1.3	2,000
	Indicated	4,118,000	0.7	30,000
	Inferred	15,410,000	0.8	118,000
	<b>Subtotal</b>	<b>19,651,000</b>	<b>0.8</b>	<b>150,000</b>
D Zone Cu Resource	Indicated**	5,200,000	0.9	48,000
	Inferred**	2,700,000	0.8	23,000
	<b>Subtotal</b>	<b>7,900,000</b>	<b>0.9</b>	<b>71,000</b>
<b>Overall Cu</b>	<b>Total</b>	<b>49,160,000</b>	<b>1.1</b>	<b>544,000</b>

Resource Name	Classification	Tonnes (t)	Fe Grade (%)	Fe Mass Recovery (%)	Fe Metal (t)
D Zone Fe Resource	Indicated***	12,100,000	27.3	31.3	4,000,000
	Inferred***	6,800,000	25.6	31.6	2,200,000
<b>Overall Fe</b>	<b>Total</b>	<b>18,900,000</b>	<b>26.9</b>	<b>32.6</b>	<b>6,200,000</b>

\* 2011 Mineral Resources for A Zone and B Zone are reported above a cut-off grade of 0.4% Cu.

\*\* 2013 Copper Mineral Resource for D Zone above a cut-off grade of 0.4% Cu.

\*\*\* 2013 Iron Mineral Resource for D Zone above a cut-off grade of 15% Fe Mass Recovery.

Note that the total Indicated and Inferred Mineral Resource reported for Copper (Table 1) and for above 15% Fe Mass Recovery are not mutually exclusive; the Mineral Resource for above 15% Fe Mass Recovery excludes 1.8 million tonnes at 0.8% Cu above a cut-off grade of 0.4% Cu.

Table 2: Pit optimisation parameters and revenue assumptions

Parameter	Unit	Value	Comments
Overall pit slope angle	Degrees	55	
Copper Price	US\$/t	US\$7,165	US\$3.25/lb Cu
Magnetite Price	US\$/t	US\$150	Magnetite Concentrate price
Mining Cost (ore)	US\$/t	US\$4.55	
Mining Cost (waste)	US\$/t	US\$4.55	
Mining Recovery	%	95%	
Mining Dilution	%	5%	
Metallurgical Recovery	% Cu	90%	
	% Fe	76%	
Concentrate Grade	% Cu	25%	
	% Fe	69%	
Processing Costs	US\$/t ore	US\$12.04	
Admin Costs	US\$/t ore	US\$3.08	
Payable Copper	% Cu contained	98%	
Payable Magnetite	% Fe contained	98%	
Copper Conc. Treatment charge	c/lb Cu	45	
Copper Conc. Refining charge	c/lb Cu	4.5	
Magnetite Conc. Treatment charge	US\$/dmt	28	

Figure 1: Site overview showing pit optimisation shells

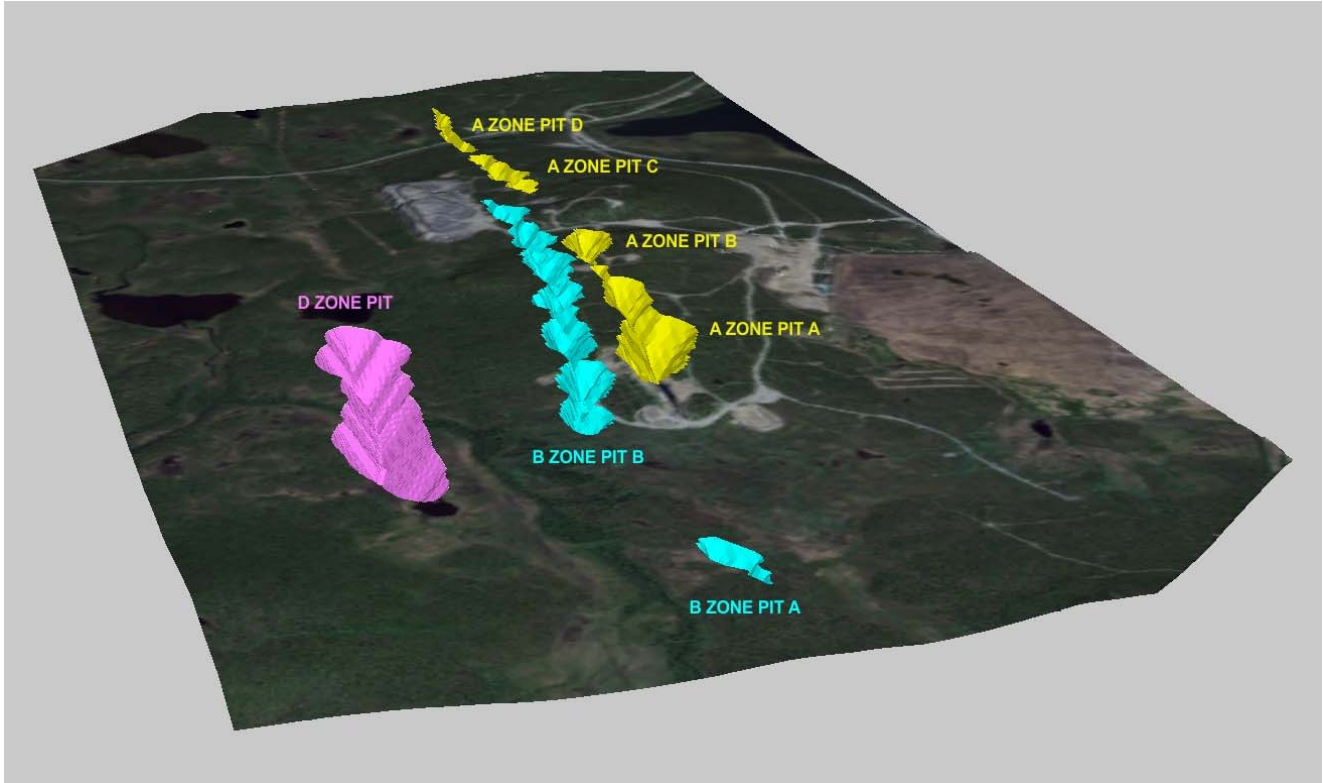


Figure 2: Base Case production profile

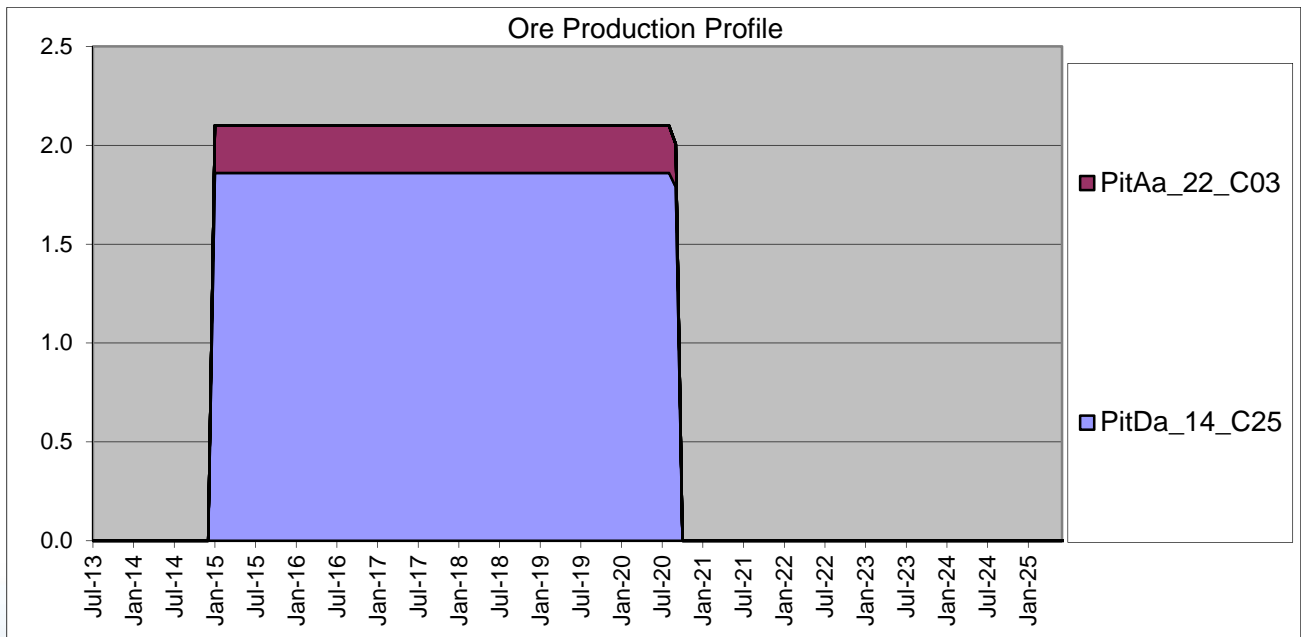


Table 3: Base Case production summary

Year	Tonnes Mined (kt)	% Cu	% Fe	Copper Conc Produced (kDMT)	Contained Copper (kt)	Magnetite Conc Produced (kDMT)	Contained Iron (kt)
2014							
2015	2,100	0.53	20.4	40	10	494	343
2016	2,100	0.53	20.4	40	10	494	343
2017	2,100	0.53	20.4	40	10	494	343
2018	2,100	0.53	20.4	40	10	494	343
2019	2,100	0.53	20.4	40	10	494	343
2020	1,600	0.53	20.4	30	17	369	256
2021							
<b>Total</b>	<b>12,100</b>	<b>0.53</b>	<b>20.4</b>	<b>230</b>	<b>57</b>	<b>2,865</b>	<b>1,971</b>

The economic Base Case open pit mining scenario was assessed using pit slope angles of 55° and 60°. The 55° pit slope angle option is given in Table 4 and the 60° pit slope angle option is given in Table 5.

Table 4: Summary of the economic assessment of the Base Case open pit mining scenario at 55° overall pit wall slope

Base Case	Revised D Zone Open Pit and A Zone Open Pit-A at 55° Overall Pit Slope	
Resource Base	11.5 Mt @ 0.55% Cu 21.4% Fe	Undiluted by mining factors
Optimum Mining Rate	2.1 Mtpa	
Mine Life	6 years	
Pre-Production Capex	US\$138 M	Includes US\$17.2M pre-strip
Life-of-Mine Capex	US\$150 M	Excludes closure costs
NPV <sub>10% REAL</sub>	<b>US\$76 M</b>	US\$3.25/lb Cu      US\$150/t Magnetite concentrate
NPV +	US\$96 M	US\$3.50/lb Cu
NPV -	US\$55 M	US\$3.00/lb Cu

Table 5: Summary of the economic assessment of the Base Case open pit mining scenario at 60° overall pit wall slope

Base Case	Revised D Zone Open Pit and A Zone Open Pit-A at 60° Overall Pit Slope		
Resource Base	13.3 Mt @ 0.54% Cu 22.2% Fe	Undiluted by mining factors	
Optimum Mining Rate	2.1 Mtpa		
Mine Life	7 years		
Pre-Production Capex	US\$138.7 M	Includes US\$17.9M pre-strip	
Life-of-Mine Capex	US\$152.2 M	Excludes closure costs	
NPV <sub>10% REAL</sub>	<b>US\$97 M</b>	US\$3.25/lb Cu	US\$150/t Magnetite concentrate
NPV +	US\$119 M	US\$3.50/lb Cu	US\$150/t Magnetite concentrate
NPV -	US\$75 M	US\$3.00/lb Cu	US\$150/t Magnetite concentrate

### Cost and Revenue Assumptions

The capital costs used in the Base Case open pit mining scenario have been summarised in Table 6, with the operating costs assumptions in Table 7. The C1 copper cash operating costs, net of iron credits, for the Base Case open pit mining scenario are predicted to be \$0.65/lb Cu, which is in the lower quartile of copper producers.

Table 6: Capital Cost assumptions

Item	Base Case US\$M	Comments
Process Plant	111.7	Scalable on production capacity
Pit D site establishment	2.5	Includes provision of site services and access roads
Pit A site establishment	1.7	
Pre-Strip	17.2	
Tailings Storage Facility	5.0	
Replacement Capital	11.7	
Closure Costs	-	Not Included
<b>Total</b>	<b>150</b>	

Table 7: Operating Cost assumptions

Parameter	Unit	Value	Comments
Mining Cost (ore)	US\$/t	\$4.55	
Mining Cost (waste)	US\$/t	\$4.55	
Processing Costs	US\$/t ore	\$12.04	Variable – assumes 40% fixed costs and 12.04/t @ 1.5Mtpa
Admin Costs	US\$/t ore	\$3.08	
Copper Conc. Transport	US\$/DMT conc	15.75	Assumes local smelter
Magnetite Conc. Transport	US\$/DMT conc	1.50	Assumes slurry pipe to LKAB

### Comparison with previous Base Case results

The economic summary of the previous Base Case open pit mining scenario as announced in October 2012 is displayed in Table 8. The current Base Case open pit mining scenario economic summary has an increased resource base of 0.5Mt but more importantly, a higher copper grade of 0.55% Cu, compared to 0.50% Cu previously. The increased grade and size of the potential open pit portion of the D Zone Mineral Resource, as well as a reduction to the pre-production capital costs has increased the Base Case open pit mining scenario NPV from US\$61 million dollars to US\$76 million for the 55° pit slope angle option and the NPV to US\$97M for the 60° pit slope angle option.

Table 8: Summary of the economic assessment of the previous Base Case mining scenario

Base Case	D Zone Open Pit and A Zone Open Pit-A	
Resource Base	11.0 Mt @ 0.50% Cu 22.2% Fe	Undiluted by mining factors
Optimum Mining Rate	2.1 Mtpa	
Mine Life	5.5 years	
Pre-Production Capex	US\$144 M	Includes \$18.3M pre-strip
Life-of-Mine Capex	US\$155 M	Excludes closure costs
NPV <sub>10% REAL</sub>	US\$61 M	US\$3.25/lb Cu US\$150/t Magnetite concentrate

### Further Resource Definition Drill Program

The current resource extension drill program at the D Zone Prospect is only 70% complete. Therefore, there is potential to continue to grow the D Zone Mineral Resource and deliver further value creation through conversion of exploration targets to Mineral Resources.

## Economic Analysis of Underground Mining Potential

Currently, the upgraded D Zone Mineral Resource is being subjected to further economic analysis to estimate the value of any potentially underground mineable tonnes (Development Case C from the October 2012 Scoping Study). This estimate is expected to be announced within the next few weeks.

**For further information please visit [www.avalonminerals.com.au](http://www.avalonminerals.com.au) or contact:**

Mr Jeremy Read - Managing Director  
Avalon Minerals Limited  
Tel: 07 3368 9888  
Em: [jeremy.read@avalonminerals.com.au](mailto:jeremy.read@avalonminerals.com.au)  
Web: [www.twitter.com/avalonminerals](http://www.twitter.com/avalonminerals)

Mr James Harris  
Professional Public Relations  
Tel: 08 9388 0944  
Em: [james.harris@ppr.com.au](mailto: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.

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.

The Scoping Study referred to in this announcement is based on low level technical and economic assessments and is insufficient to support Ore Reserves or to provide assurance of an economic development case at this stage or to provide certainty that the conclusions of the Scoping Study will be realised.

**The Base Case** includes material that from Inferred Mineral Resources and therefore, exploration drilling and re-estimation may result in changes to the economically minable portion of the resources.

**Development Case A, B and C** includes material that has not yet been discovered or defined and is considered an exploration target.

### JORC – Exploration Targets

It is common practice for a company to comment on and discuss its exploration in terms of target size and type. The information relating to exploration targets should not be misunderstood or misconstrued as an estimate of Mineral Resources or Ore Reserves. Hence the terms Resource(s) or Reserve(s) have not been used in this context. The potential quantity and grade is conceptual in nature, since there has been insufficient work completed to define them beyond exploration targets and that it is uncertain if further exploration will result in the determination of a Mineral Resource.