

21 July 2010

ASX ANNOUNCEMENT

Kroombit Zinc/Copper Project Scoping Study confirms development potential

Study highlights:

- **Positive IRR and NPV based on previously estimated zinc-copper Resource and Exploration Potential and grade assumptions**
- **Combined zinc/copper ore production estimated at 1.5 million tpa**
- **Low cost mining scenario - Open cut operation with estimated low stripping ratio of 1.3:1**
- **Conventional processing route with low technology risk**
- **High grade zinc concentrate of 54% Zn**
- **Capital cost estimated at \$87 million**
- **Further expansion of the resource base required to underpin project economics**

Argonaut Resources NL (ASX: ARE) today announced the results of a Scoping Study assessing the economics of the company's Kroombit Zinc and Copper project in Central Queensland.

The study showed:

- **an IRR of 20%, an NPV of \$15 million and cash flow before tax of \$71 million** under the current taxation system using the estimated Resource and Exploration Potential at a 0.3% copper cut off, uplifted grades and a Discount Rate of 12%.

Background

Following the estimation of a maiden zinc-copper resource at Kroombit, Argonaut engaged Intech Engineers of Brisbane to undertake the Scoping Study with support and input from Mineral Processing Consultants, Optimet Laboratories and Hellman & Schofield. The study involved:

- preliminary mine planning and site layout;
- preliminary cut-off grade optimisation;
- flotation and comminution testing;
- preliminary plant design and equipment selection;
- transport, logistics and infrastructure requirements; and
- capital and operating cost estimates.

The aim of the study was to: provide grade and tonnage targets for future resource drilling programs, establish the scope for further work programs to advance the project, provide justification for further major expenditure; and to provide a basis for a detailed Feasibility Study.

Scoping Study context: scoping or conceptual studies usually are not sufficiently accurate to carry out a meaningful assessment of the economic viability of any [mining] project. Rather, their role is to determine whether, and to what extent, further predevelopment efforts are warranted.

Scoping Studies typically have an accuracy level of +/-30-40%

Financial Analysis

A number of resource cases were developed based on:

- the reported mineral Resource estimate;
- potential ore derived from reported Exploration Potential; and
- uplifted grades based on possible underreporting of grade in RC drill samples.

Modelling was completed to determine potential project economics.

An uplifted grade was applied in Case 2 and Case 3 - based on reasoning detailed below – to model the impact of perceived underreporting of grades.

The financial analysis found the following major conclusions:

- Case 1 (current Resource using spot metal prices) has a positive net cash flow before tax of \$27.5 million but an NPV of \$1.4 million at a discount rate of 12% and an IRR of 13.2%.
- Case 2 (current Resource plus Exploration Potential and uplifted grades using spot metal prices) has a positive net cash flow before tax of \$55.9 million and an NPV of \$9.0 million at 12% discount rate and an IRR of 18.5%
- Case 2a (current Resource plus Exploration Potential using notional long term metal prices) has a negative net cash flow before tax of \$9.1 million and an NPV of -\$21.7 million at 12% discount rate and an IRR of -3.7%
- **Case 3 (current Resource plus Exploration Potential and uplifted grades using 0.3% Cu cut off grade and spot metal prices) has a positive net cash flow before tax of \$71.4 million and an NPV of \$9.0 million at 12% discount rate and an IRR of 18.5%**
- Case 3a (current Resource plus Exploration Potential and uplifted grades using 0.3% Cu cut off grade and notional long term metal prices) has a positive net cash flow before tax of \$4.0 million and an NPV of -\$18.1 million at 12% discount rate and an IRR of 1.3%

The financial breakdown shows that copper is profitable but zinc is marginal, suggesting that an improvement to the zinc grade and/or additional copper resource would contribute positively to the project's financial performance.

Mineral Resources

Resource estimates were prepared from the 2007-8 drilling results. The maiden Resource Estimates were announced on [11 June 2009](#).

During the course of this scoping study additional resource reporting work was completed with the major activities being:

- the Resource estimate was reported in tonnes, volume and grade for 10m levels of the proposed open pit;
- a revised resource report was produced for copper contained within the zinc wireframe for blocks with copper greater than 0.5% and less than 1% zinc not previously reported. This would provide additional, potentially economic, copper feed; and

- revised resource estimate reports were produced that included estimated tonnes, volume and grades for copper and zinc mineralisation previously described as Exploration Potential. (Mineralisation defined as Exploration Potential has had insufficient exploration to define a Mineral Resource. It is uncertain whether further drilling will convert this to a Mineral Resource).

These figures were used as the basis for cases 2 and 3 in the financial model.

Financial model cases 2 and 3 used uplifted grades. This was based on the results of four diamond core holes twinning four RC holes which suggested that the diamond drill core contains higher overall zinc grades for the intercepts, implying that the RC data is slightly understating the zinc values. It should be noted that this conclusion is based on limited data. Bivariate analysis of the individual samples shows that the twinned RC holes have an average grade of 2.76% Zn whilst the diamond holes have an average grade of 3.17% Zn.

Appendix 1, Table 1 provides a summary of the Resource and Exploration Potential reported and Tables 2, 3 and 4 provide the details of the quantities of mineralised material included in the revenue models and the basis of adjustments made.

The following are noted in relation to adjustments made to the Resource and Exploration Potential figures provided:

- mineralised oxide and transitional material was reduced as noted in Tables 2-4; and
- the tonnage of copper modelled in certain mineralised zones was reduced by 50% to avoid possible overstating of potential copper feed.

Mining

The study considered mining at a rate of 1.5 mtpa and conclusions drawn from the preliminary investigation of the mining found:

- the Resource is defined to a depth of 140m below the surface making it suitable for extraction by open pit mining methods; and
- indications are that the stripping ratio will be low – in the order of 1.3 waste rock to ore – resulting in a low mining cost.

Mineral Processing

Preliminary metallurgical test work for processing of zinc and copper for the Kroombit deposit has been completed. The testing results indicate that both copper and zinc primary sulphides can be extracted by flotation with good recoveries.

Infrastructure and Services

Infrastructure investigations were able to resolve concept designs for the majority of the infrastructure and identified the following:

- grid power can be provided within an economic distance of the project site;
- water supply to the area is committed and investigation will be required to identify and provide a suitable supply for the project; and
- potential tailings storage facilities were identified and a concept was developed for a location to the east of the pit.

Operating and Capital Cost Estimate

The total project capital cost is estimated at \$87 million and the life or average on-site operating cost is estimated at \$22.5/tonne of ore (Cu/Zn).

Future Work

The Argonaut board is assessing possible resource drilling programs to expand the known resource and consolidate the project's economics.

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The data in this report that relates to Mineral Resources for the Mt Kroombit Deposit is based on information evaluated by Mr Simon Tear who is a Member of The Australasian Institute of Mining and Metallurgy (MAusIMM) and who has sufficient experience 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 (the "JORC Code"). Mr Tear is a full-time employee of Hellman & Schofield Pty Ltd and he consents to the inclusion in the report of the Mineral Resource in the form and context in which they appear.

The resource estimate is based on a total of 16,972 assays from 201 drill holes completed by Argonaut within the past two years. Drilling has consisted of predominantly RC with some minor diamond drilling. Drill hole spacing is a nominal 25m by 25m but locally drops to 20m on cross section lines. A 1m composite interval for the drill hole assay data was used in conjunction with constrained Ordinary Kriging modelling to generate resource estimates for the deposit. Maximum search distances used for copper and zinc are 45 metres with 16 minimum data required for Indicated and 8 for Inferred with data required in 4 and 2 octants, respectively. Zinc mineralisation was defined by a single wireframe. The copper wireframes were based on a series of quartz hematite zones within which the copper mineralisation largely occurs. Some of the copper mineralisation is outside the zinc mineralisation wireframe. Density is based on 173 samples from four diamond drill holes and was modelled using inverse distance weighting on average density values for the RC coded geology.

Sections of information contained in this report that relate to Exploration Results were compiled or supervised by Mr Lindsay Owler BSc, MAusIMM who is a Member of the Australasian Institute of Mining and Metallurgy and is a full time employee of Argonaut Resources NL. Mr Owler has sufficient experience which is relevant to the style of mineral deposits 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 Mineral Resources and Ore Reserves". Mr Owler consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

Kroombit Scoping Study
APPENDIX 1

Table 1 Resource Summary

Description	Details	Volume	Tonnes	Zn %	Cu %	Zn t	Cu t
Zn Wireframe 1% Zn	Zinc resource inside the Zn mineral wireframe at a 1% Zn cut off	1,855,500	5,157,649	1.875	0.151	96,706	7,788
Cu 0.5% in Zn Wireframe 1% Zn	Copper resource in the zinc mineralisation wireframe where the zinc grade is <1% ie "extra copper"	114,250	345,618	0.51	0.816	1,763	2,820
Cu Wireframe 0.5%	Copper resource outside zinc mineral wireframe but inside Qtz_hematite lodes at a 0.5% Cu cut off	260,500	839,989	0.314	1.038	2,638	8,719
Zn Exp Potential	Zinc Exploration Potential from unconstrained modelling, with blocks outside the zinc wireframe	873,000	2,470,925	1.67	0.167	41,264	4,126
Cu Exp Potential	Copper Exploration Potential from unconstrained modelling, with blocks outside the copper wireframes and the zinc wireframe	232,000	686,747	0	0.849	1,662	5,830
Totals		3,335,250	9,500,928			144,033	29,284
Zn Wireframe 1% Zn	Zinc resource inside the Zn mineral wireframe at a 1% Zn cut off	1,855,500	5,157,649	1.875	0.151	96,706	7,788
Cu 0.3% in Zn Wireframe 1% Zn	Copper resource in the zinc mineralisation wireframe where the zinc grade is <1% ie "extra copper"	249,500	733,108	0.549	0.585	4,025	4,289
Cu Wireframe 0.3%	Copper resource outside zinc mineral wireframe but inside Qtz_hematite lodes at a 0.3% Cu cut off	417,500	1,334,785	0.381	0.796	5,086	10,625
Zn Exp Potential	Zinc Exploration Potential from unconstrained modelling, with blocks outside the zinc wireframe	873,000	2,470,925	1.67	0.167	41,264	4,126
Cu Exp Potential	Copper Exploration Potential from unconstrained modelling, with blocks outside the copper wireframes and the zinc wireframe	232,000	686,747	0	0.849	1,662	5,830
Totals		3,627,500	10,383,214			148,743	32,659
Zn Wireframe 1.5% Zn	Zinc resource inside the Zn mineral wireframe at a 1.5% Zn cut off	1,118,750	3,114,053	2	0.153	71,561	4,765
Zn Wireframe 1.25% Zn	Zinc resource inside the Zn mineral wireframe at a 1.25% Zn cut off	1,452,500	4,042,272	2.085	0.151	84,281	6,104
Zn Wireframe 2% Zn	Zinc resource inside the Zn mineral wireframe at a 2% Zn cut off	609,500	1,689,571	2.783	0.159	47,021	2,686
Cu Wireframe .3	Copper resource outside zinc mineral wireframe but inside Qtz_hematite lodes at a 0.3% Cu cut off	417,500	1,334,785	0.381	0.796	5,086	10,625
Cu Wireframe .4	Copper resource outside zinc mineral wireframe but inside Qtz_hematite lodes at a 0.4% Cu cut off	327,250	1,051,822	0.353	0.918	3,713	9,656
Zn Wireframe 0.1%Cu	Copper Mineralisation at 0.1% cut off inside Zinc wireframe	1430750	4042758	1.38	0.311	55,790	12,573
Zn Wireframe 0.2%Cu	Copper Mineralisation at 0.2% cut off inside Zinc wireframe	813000	2334912	1.312	0.437	30,634	10,204
Zn Wireframe 0.3%Cu	Copper Mineralisation at 0.3% cut off inside Zinc wireframe	498500	1450608	1.233	0.556	17,886	8,065
Zn Wireframe 0.4%Cu	Copper Mineralisation at 0.4% cut off inside Zinc wireframe	315500	927388	1.182	0.676	10,962	6,269
Zn Wireframe 0.5%Cu	Copper Mineralisation at 0.5% cut off inside Zinc wireframe	212250	629576	1.135	0.787	7,146	4,955

Minor rounding errors. The use of significant figures does not imply precision. Mineralisation reported as Exploration Potential has been converted from ranges (as required under JORC) for the purpose of financial modelling.

Table 2 Case 1 Resource Summary

Reported Mineral Resource and Exploration Potential						As applied to Financial Model			Notes
Volume	Tonnes	Zn %	Cu %	Zn t	Cu t	Tonnes	Zn t	Cu t	
1,855,500	5,157,649	1.875	0.151	96,706	7,788	4,161,551	76,508	6,363	0% oxide, 75% transitional, 15% Zn uplift
114,250	345,618	0.51	0.816	1,763	2,820	327,549	1,641	2,705	0% oxide, 75% transitional, 15% Zn uplift
260,500	839,989	0.314	1.038	2,638	8,719	839,030	2,634	8,715	0% oxide, 75% transitional, 15% Zn uplift
2,230,250	6,343,256			101,107	19,327	5,328,130	80,783	17,783	

Table 3 Case 2 Resource Summary

Reported Mineral Resource and Exploration Potential						As applied to Financial Model			Notes
Volume	Tonnes	Zn %	Cu %	Zn t	Cu t	Tonnes	Zn t	Cu t	
1,855,500	5,157,649	1.875	0.151	96,706	7,788	4,161,551	76,508	6,363	0% oxide, 75% transitional, 15% Zn uplift
114,250	345,618	0.51	0.816	1,763	2,820	327,549	1,641	2,705	0% oxide, 75% transitional, 15% Zn uplift
260,500	839,989	0.314	1.038	2,638	8,719	839,030	2,634	8,715	0% oxide, 75% transitional, 15% Zn uplift
873,000	2,470,925	1.67	0.167	41,264	4,126	2,277,371	37,979	3,937	0% oxide, 75% transitional, 15% Zn uplift
232,000	686,747	0	0.849	1,662	5,830	339,286	811	2,887	50% Exploration Potential, 0% oxide, 75% transitional, 15% Zn uplift
3,335,250	9,500,928			144,033	29,284	7,944,785	119,574	24,606	

Table 4 Case 3 Resource Summary

Reported Mineral Resource and Exploration Potential						As applied to Financial Model			Notes
Volume	Tonnes	Zn %	Cu %	Zn t	Cu t	Tonnes	Zn t	Cu t	
1,855,500	5,157,649	1.875	0.151	96,706	7,788	4,161,551	76,508	6,363	0% oxide, 75% transitional, 15% Zn uplift
249,500	733,108	0.549	0.585	4,025	4,289	677,161	3,654	4,034	0% oxide, 75% transitional, 15% Zn uplift
417,500	1,334,785	0.381	0.796	5,086	10,625	1,326,982	5,099	10,642	0% oxide, 75% transitional, 15% Zn uplift
873,000	2,470,925	1.67	0.167	41,264	4,126	2,277,371	37,979	3,937	0% oxide, 75% transitional, 15% Zn uplift
232,000	686,747	0	0.849	1,662	5,830	339,286	811	2,887	50% Exploration Potential, 0% oxide, 75% transitional, 15% Zn uplift
3,627,500	10,383,214			148,743	32,659	8,782,349	124,051	27,863	

Minor rounding errors. The use of significant figures does not imply precision. Mineralisation reported as Exploration Potential has been converted from ranges (as required under JORC) for the purpose of financial modelling.