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Project Memo

Client:	Redbank Mines	**Date:**	13 May 2011
Attention:	Russell Birrell	**From:**	Phil Jankowski
Project/Proposal No:		**Revision No**	1
Project/Proposal Name:			
Subject:	Prince Model		

1 Redbank and Azurite

1.1 Data

The update to the database was supplied by Redbank on 11 February 2011. This data update contained 5 new generation drillholes each at Azurite (AZRC10-01 to AZRC10-05) and Redbank (RBRC10-01 to RBRC10-05). Assays were supplied for total Cu by AAS, acid-soluble Cu by AAS and Cu as measured by the portable XRF device.

The data was composited to 1m lengths downhole, and a global variogram of the composites was generated and used to smooth the Leapfrog output.

1.2 Wireframe

Leapfrog™ software was used to create a model of the mineralisation.

Leapfrog interpreted shells at a 0.5% Cu cutoff were generated from 3m composited downhole data. A moderate amount of smoothing was used (20% relative nugget, range of 50m). A shallowly north-plunging anisotropy was used for the Redbank deposit (dipping 20 degrees to grid north, anisotropy ratios of 1.2:1.2:1), with a steeply east dipping anisotropy for the Azurite deposit (dipping 70 degrees to 090 grid, anisotropy ratios of 2:1:1)

A Base of Oxide surface was created interpreted from the base of the acid-soluble copper assays. Mineralised blocks above this surface were assigned to the Oxide Zone, blocks below it to the Fresh Zone.

1.3 Resource Composites

The 3m composite dataset was subset using SURPAC to create a set of 3m composite with a centroid that fell within the wireframes (Table 4). The data is moderately skewed, with a relatively low CV.

Table 1. 1m composite statistics inside 0.7% Cu wireframe

Statistic	Azurite	Redbank
Count	206	244
Minimum	0.02	0.04
Maximum	12.45	32.77
Mean	1.64	2.28
Median	0.96	0.97
Standard Deviation	1.95	3.87
Coefficient of Variation	1.19	1.7

1.4 Block Model

A block model was created in SURPAC (Table 5); the block size of 10 mX by 10 mY by 5mZ was chosen to match the approximate drillhole spacing and the expected bench height.

The block model is a partial model; the proportion of the wirefram within each block was estimated in SURPAC and written to the block. The fiull list of block model attributes is presented in Table 6.

Table 2. SURPAC block model parameters

Type	Y	X	Z
Minimum Coordinates	809 7005	790 805	52.5
Maximum Coordinates	809 7205	791 005	227.5
User Block Size	10	10	5
Min. Block Size	10	10	5
Rotation	0	0	0

Table 3. SURPAC block model attributes

Attribute Name	Type	Decimals	Background	Description
classification	Character	-	waste	JORC Classification
cu	Float	2	0	Cu estimate
density	Float	2	0	ISBD
material	Character	-	rock	air or rock
mean distance	Float	2	0	Mean distance to composites used
neighbours	Float	2	0	Number of composites used
proportion_ore	Float	3	0	Proportion inside 0.7%Cu wireframe
sr	Float	2	0	Slope of regression of Cu estimate

1.5 Resource Estimation

Grades were interpolated using Ordinary Kriging. No top cut was applied, due to the moderate variability of the two datasets; there are a few very high grade samples in the Redbank dataset that may represent a high grade supergene zone similar to that previously mined by Masterton (average grades of >30% Cu reported).

1.6 Density and Classification

From the previous density testwork, an oxide density of 1.9t/m^3 was applied. As there is no testwork in the Fresh Zone, the previously applied assumed density of 2.1 t/m^3 was used.

In the Redbank model, blocks that had an average distance to the composites used in the estimation of less than 20m were initially classified Indicated. On visual inspection, isolated Indicated blocks were transferred to Inferred and some Inferred blocks adjacent to the Indicated were upgraded to Indicated to create a compact core of Indicated. All remaining blocks were classified Inferred; these are predominantly the blocks to the north of the existing pit, as well as all blocks below 130RL. Recent drillholes have closed off the Redbank resource to the north, south and west; it may still be plunging steeply to the northeast, however further drilling is required to confirm this. The resource can be considered to be still open in this direction.

A similar approach was adopted with Azurite, except a maximum average distance of 25m was used as an initial Indicated classification. The Inferred blocks in Azurite are predominantly to the east of the area of greatest data density. Much of this area is extrapolation out from known drillholes into areas of no data; the resource is open to this direction.

2 Prince

2.1 Data

The update to the database was supplied by Redbank on 11 February 2011. This data update contained 26 new generation drillholes at Prince, from PRRC10-01 to PRRC10-26 inclusive. Assays were supplied for total Cu by AAS, acid-soluble Cu by AAS and Cu as measured by the portable XRF device.

On inspection, an obvious transcription error was noted in the downhole survey file: in drillhole PRRC10-03, the dip and grid azimuths were transposed. This was rectified before further processing. The data was added to the most recent SURPAC drillhole database available (September 2008).

The data was composited to 1m lengths downhole, and a global variogram of the composites was generated and used to smooth the Leapfrog output.

2.2 Wireframe

Leapfrog™ software was used to create a model of the mineralisation. An assumption was made that the mineralisation was in a sub-vertical breccia pipe similar to the nearby Sandy Flat deposit.

A range of cut-offs from 0.3% Cu to 1.0% Cu were initially modelled; on inspection, the 0.7% Cu shell was found to have the most coherent geometric shape and the fewest data artefacts. An apparent plunge to the south-east was also noted. The final shell (Figure 1; Figure 2) was created using an anisotropy plunging 70° to 160° grid with an anisotropy ratio of 1.5 down plunge. The surface footprint of the interpreted mineralisation is approximately 45 m N-S and 35m E-W, which is much larger than the existing Prince open pit; at depth it is somewhat smaller. This suggests there may be some relatively weak supergene remobilisation near the surface. The wireframe has a down-plunge extent of 70m and is open at depth. Low-grade Cu mineralisation in the drill dataset has not been included and may present some upside if it fell within any open pit, 0

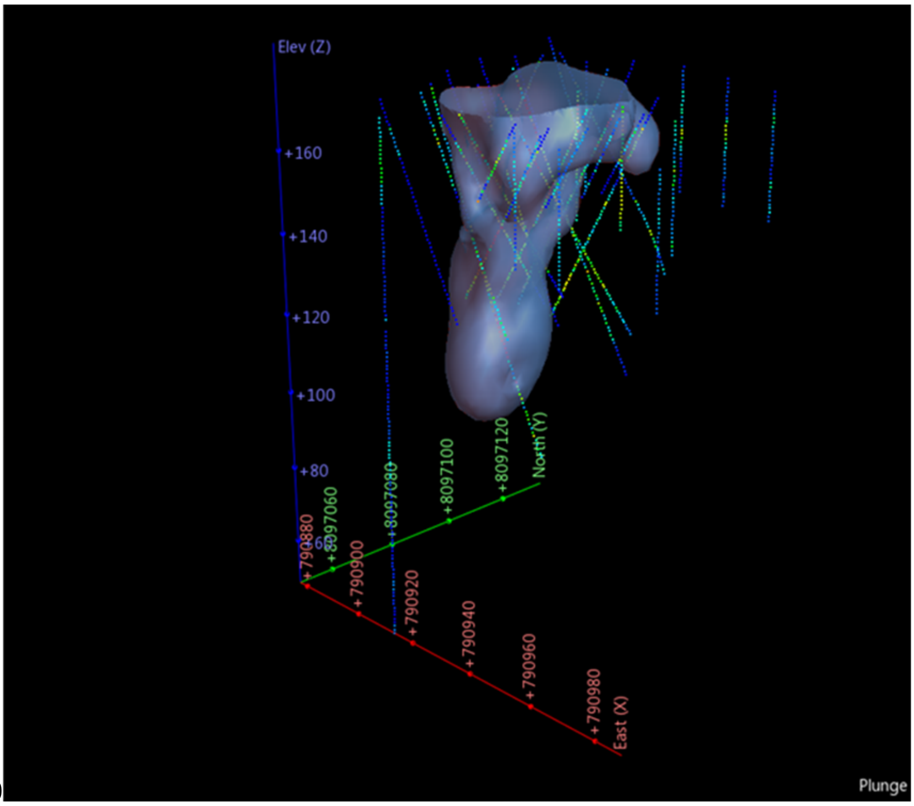

Figure 1. **0.7% Cu wireframe viewed from southeast**

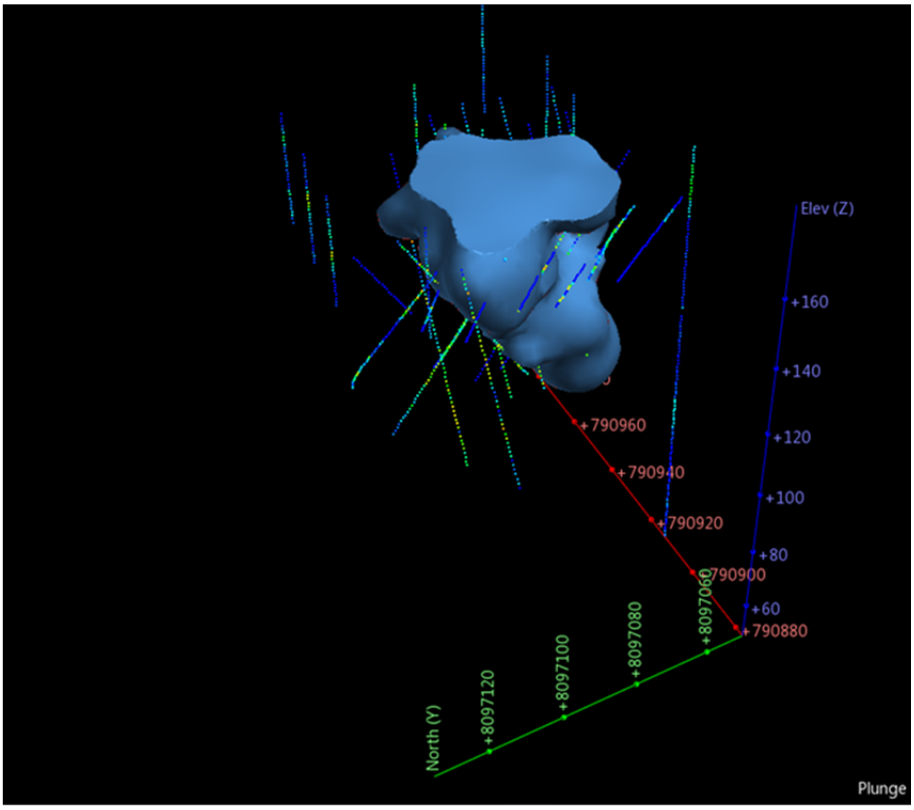

Figure 2. **0.7% Cu wireframe viewed from northwest**

2.3 Resource Composites

The 1m composite dataset was subset using SURPAC to create a set of 1m composite with a centroid that fell within the wireframe. This resulted in a set of 392 composites (Table 4). The data is moderately skewed, with a relatively low CV but a small population of particularly high grade values (Figure 3). It was not possible to domain these separately, however they may form a discrete higher grade structure within the larger breccia pipe,

Table 4. 1m composite statistics inside 0.7% Cu wireframe

Statistic	Value
Count	392
Minimum	0.00
Maximum	8.14
Mean	1.23
Standard Deviation	1.19
Coefficient of Variation	0.97

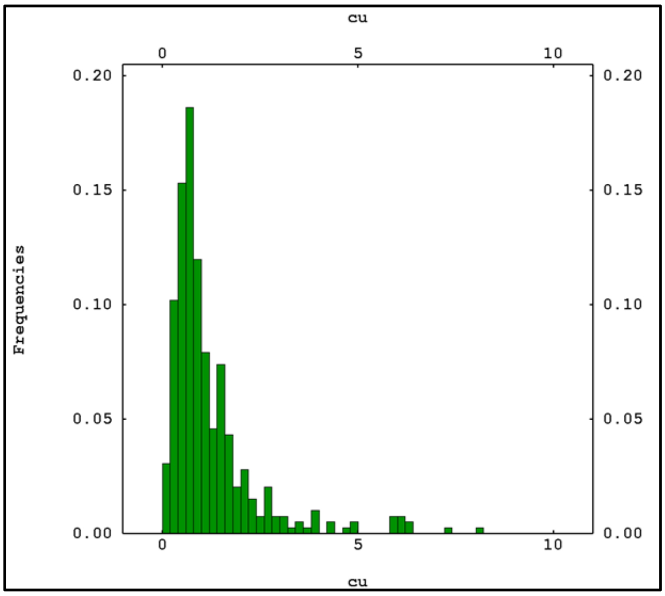

Figure 3. 1m composite dataset inside 0.7% Cu wireframe.

2.4 Block Model

A block model was created in SURPAC (Table 5); the block size of 10 mX by 10 mY by 5mZ was chosen to match the approximate drillhole spacing and the expected bench height.

The block model is a partial model; the proportion of the wirefram within each block was estimated in SURPAC and written to the block. The fiull list of block model attributes is presented in Table 6.

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neighbours	Float	2	0	Number of composites used
proportion_ore	Float	3	0	Proportion inside 0.7%Cu wireframe
sr	Float	2	0	Slope of regression of Cu estimate

2.5 Resource Estimation

The Cu grade was estimated by Ordinary Kriging. Experimental variography on the set of 1m resource composites produced poorly structured, highly erratic variograms. As a result, a Gaussian Anamorphosis was applied to the data; a reasonably well-structured omnidirectional variogram could be produced from the Gaussian dataset; this variogram was modelled and then back-transformed into normal data space. The resultant variogram model (Figure 4) was used to estimate the Cu grade.

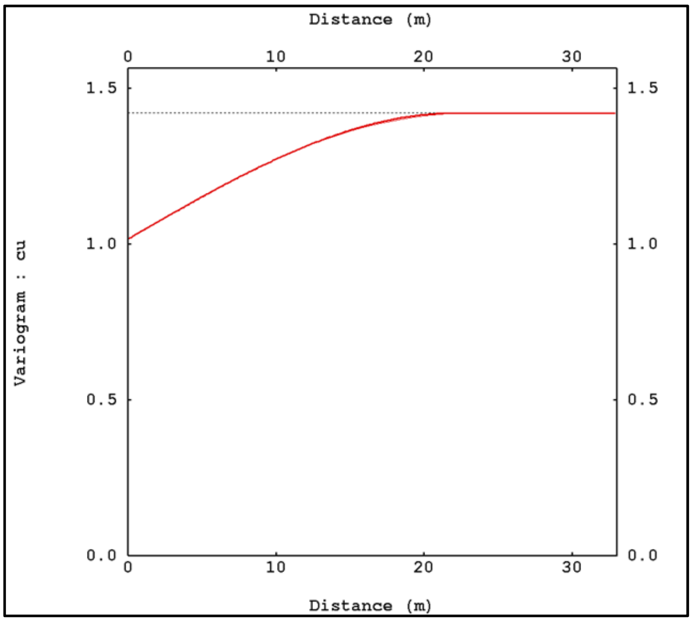

Figure 4. Omnidirectional back-transformed variogram

The kriging estimation parameters are tabulated in Table 7.

Table 7. Kriging estimation parameters

Parameter	Value
Search distance	50
Minimum	8
Maximum	48
Search type	Octant

2.6 Density and Classification

The acid-soluble Cu assays were used as a guide to the oxidation state; oxidised Cu minerals such as chrysocolla, malachite and azurite are far more readily digested by acids than sulphide Cu minerals such as chalcopyrite. There is only acid-soluble data available for the 26 new generation drillholes. A DTM model of the base of oxide was created by wireframing together the interpreted downhole point where a step change in the acid-soluble Cu was noted. The base of this oxidation is at approximately 160mRL, which is approximately 20 vertical metres below the natural surface.

There has been no density testwork on samples from the Prince deposit. A density of 2.2 t/m^3 was applied to Oxide, and 2.4 t/m^3 to Fresh, by analogy with the Sandy Flat deposit densities. Blocks above the current natural surface or Prince open pit pickup were assigned a density of 0 t/m^3.

The entire resource has been classified as Inferred. The drillhole density would be adequate for an indicated resource classification, however the lack of relevant density data downgrades the confidence in the resource estimate.

3 Resource Estimate

The current resource is tabulated in Table 8. The current estimates are for a bulk mining option, i.e. no further selectivity within the current interpreted mineralisation wireframe is envisaged. Given the small size of the resource, selective mining is highly unlikely to be economic.

Table 8. Redbank, Azurite and Prince Resource estimate as at 28 February 2011

		Azurite		Redbank		Prince	
Classification	**Weathering**	**Tonnes**	**Cu (%)**	**Tonnes**	**Cu (%)**	**Tonnes**	**Cu (%)**
Inferred	**Fresh**	14,000	1.37	112,000	1.03	58,000	1.3
	Transition	1,000	1.42	14,000	1.76		
	Oxide	5,000	1.29	59,000	1.08	43,000	2.2
Inferred Total		**20,000**	**1.35**	**184,000**	**1.10**	**101,000**	**1.7**
Indicated	**Fresh**	79,000	1.5	64,000	2.14		
	Oxide	132,000	1.6	101,000	2.11		
	Transition	11,000	1.38	31,000	2.49		
Indicated Total		**222,000**	**1.55**	**195,000**	**2.18**		

Rounding to nearest 1,000t, 0.1% Cu and 10t Cu may lead to minor inconsistencies

The information in this report that relates to Mineral Resources or Ore is based on information compiled by Mr Phil Jankowski, who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Jankowski is employed by SRK Consulting Pty Ltd. Mr Jankowski 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 Jankowski consents to the inclusion in the report of the matters based on his information in the form and context in which it appears".