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# Memo

SUBJECT:	T: NOVEMBER 2009 RESOURCE UPDATE			
CC:		Project No:	RML005	
Attention:	Craig Hall	From:	Phil Jankowski	
То:	Redbank	Date:	4 December 2009	

### 1 TOPOGRAPHY

The most recent topography contour file was used to create a DTM. There are some significant discrepancies between this surface and the previously supplied drillhole collars and the previous Sandy Flat open pit pickup. The supplied drillhole collars have been pressed down onto this surface to remove the discrepancy. At Bluff, the elevation differences were in the order of  $\pm 4m$ .

A new set of base of Oxide and Top of fresh surfaces were created from the supplied logging.

## 2 ROMAN NOSE

To create an interpretation for the Roman Nose mineralisation, a Leapfrog shell at a 0.5% Cu cutoff was created from a global set of 5m downhole composites using a vertical anisotropy (X:Y:Z factors 1:1:1) a 30% nugget and a range of 50m. The resultant shell (Figure 1) does not reach the surface, however it is not closed off and a surface sampling or shallow drilling programme may identify its outcrop. The shell has a volume of 640,006m<sup>3</sup>, and is open at depth, to the east, west and north. The mineralisation interpretation is roughly circular in plan, and below 50mRL (approximately 170m below natural surface) it is poorly constrained laterally. Above 50mRL the current drill data gives a reasonable number of contact points to define the mineralisation.

To estimate the resource, a Surpac block model was created (Table 1). The 5m downhole composite set within the interpretation was selected; the sample statistics are presented in Table 2. Grades were estimated by Ordinary Kriging, with an omnidirectional variogram with a 30% nugget and a 20m range derived from the composite data. An assumed density of 2.0 t/m<sup>3</sup> was applied; the total resource is classified Inferred and is tabulated in Table 3.

The higher average grade of the resource compared to the input data is due to the influence of the high grade intersection in drillhole RNRC09-005, which cannot be domained separately with the current resource data. The grade profile (Figure 2) shows that in the better sampled levels the mean grade is in the range of 0.8-1.0% Cu; further data at depth is required to confirm that the grade is increasing with depth. Due to the low level of data, lack of density data and uncertainty of the grade estimate the resource is classified as Inferred.

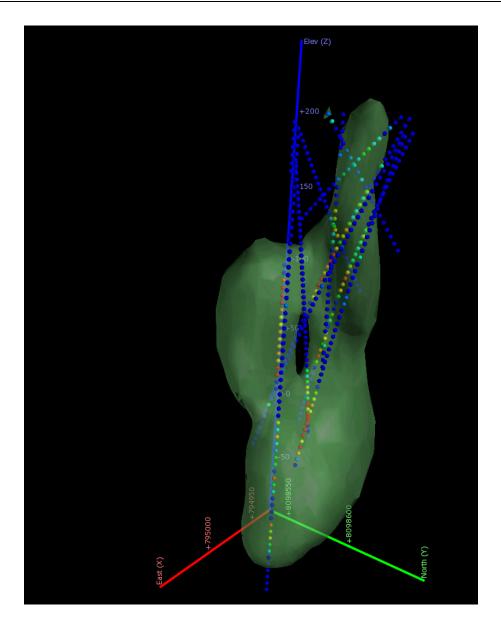


Figure 1. Roman Nose 0.5% Cu shell.

	Minimum	Maximum	Block Size
Easting	794 800	795 200	10
Northing	8 098 200	8 098 800	10
RL	-50	250	5

# Table 1: Roman Nose block model parameters

Statistic	Cu (%)
Count	144
Minimum	0.19
Maximum	7.72
Mean	1.15
Median	0.88
Standard Deviation	1.00
CV	0.87

#### Table 2: Roman Nose 5m downhole composite file



Classification	Tonnes	Cu (%)
Inferred	1,270,000	1.39

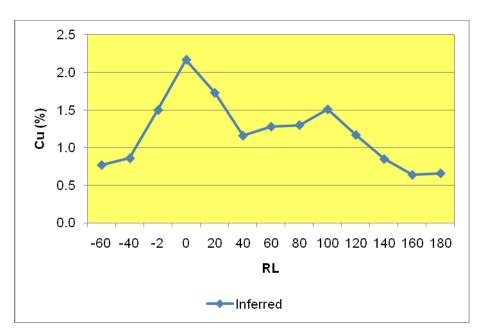


Figure 2. Roman Nose grade by level.

## 3 SANDY FLAT

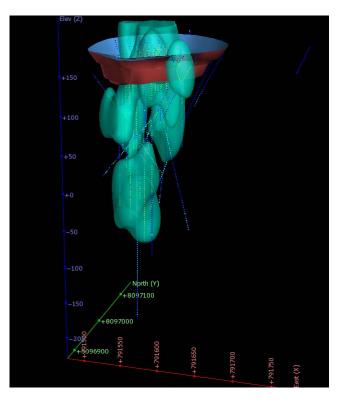
The Sandy Flat resource was regenerated, using the same methodology as the previous (August) resource, with an inner 3.5% supergene Cu shell (entirely mined out by the open pit) and an outer low grade 0.7%Cu shell. With the additional data from the most recent drilling programmes, the need to create two separate shells for the upper and lower mineralisation has been avoided. The 0.7%Cu shell was chosen instead of the 0.4%Cu shell used previously, as the new data has allowed a tighter definition of the ore/waste boundary.

The shell (Figure 3) has a well defined bifurcation about 40m below the floor of the current open pit that is defined by both old and new drilling. At depth, a single breccia pipe is apparently only weakly joined to the upper parts of the mineralisation. This may represent a structural offset, however the limited amount of data available makes this a speculation only.

Grades were interpolated by Ordinary Kriging. The new resource is tabulated in Table 4. Densities were carried over from the previous model. The new total estimate of 1.54Mt @ 1.61 %Cu for 24,800t Cu represents almost the same amount of contained metal as the previous estimate (2.04Mt @ 1.32%Cu for 26,900t), however at a higher grade.

Material above the 50mRL was classified Indicated; lower material was classified Inferred. The Indicated/Inferred boundary has been extended about 40m deeper to reflect the influence of the recent deeper drilling.

The grade-tonnage chart (Figure 4) shows limited grade improvements are available by mining selectively at a cutoff of less than 1% Cu.



### Figure 3: Sandy Flat deposit Leapfrog shells viewed from the south-east

Classification	Tonnes	Cu (%)
Indicated (to 50mRL)	851,000	1.50
Inferred (below 50mRL)	688,000	1.75
Total Indicated+Inferred	1,540,000	1.61

#### Table 4: Sandy Flat Resource 30 November 2009

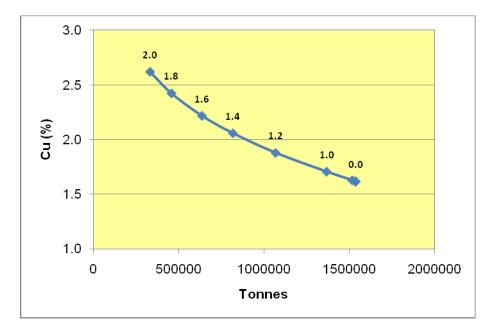


Figure 4: Sandy Flat Indicated plus Inferred grade-tonnage chart.

## 4 BLUFF

The Bluff resource was regenerated, using the same methodology as the previous (September 2008) resource, with an inner 2% Cu shell and an outer low grade 0.5%Cu shell (Figure 5). Grades were interpolated by Ordinary Kriging. Given the recent drilling intersections near the 100mRL, the boundary between the Indicated and Inferred was moved to the 70mRL The new resource is tabulated in Table 5.

Densities were carried over from the previous model. The new total estimate of 1.98Mt @ 1.61 %Cu for 31,900t Cu (Table 5) represents about the same amount of contained metal as the previous estimate (2.06Mt @ 1.54%Cu for 31,700t), however at a higher grade.

The grade tonnage curve (Figure 6) shows there is some scope to increase the grade by mining selectively; there is a fairly regular concentric grade decrease outwards in the breccia pipe.

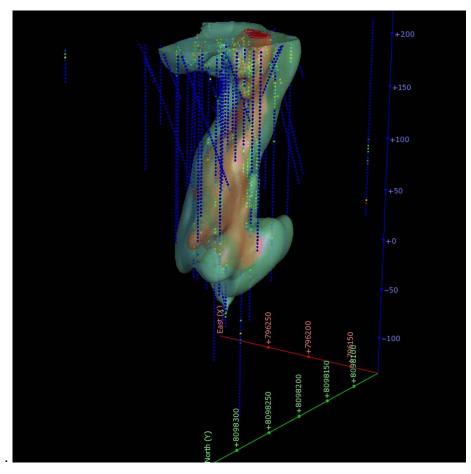


Figure 5: Bluff deposit Leapfrog shells viewed from the north-west

Classification	Weathering	Tonnes	Cu (%)
Inferred	Sulphide	921,501	1.58
Indicated	Sulphide	625,834	1.87
	Oxide	436,175	1.31
Indicated+Inferred	Total	1,983,510	1.61

Table 5:	Bluff Resource 30 November 2009

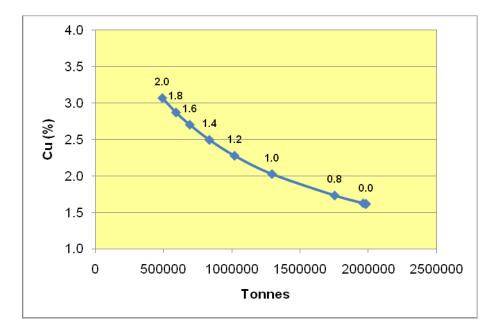


Figure 6: Bluff deposit grade-tonnage curve.

# 5 PUNCHBOWL

The Punchbowl resource was regenerated, using the same methodology as the previous (August 2009) resource, however with a 0.6%Cu shell (Figure 5), which was similar in volume to the previous 0.5% Cu shell. A set of composites inside this shell is tabulated in Table 6. Grades were interpolated by Ordinary Kriging. The new resource is tabulated in Table 6.

Blocks above the 70mRL are relatively well estimated, and the volume is reasonably constrained by the drilling data; below this level the volume is largely an extrapolation. Blocks above the 70mRL are classified Indicated and below 70mRL Inferred. Additionally, the grade below 70mRL is much higher than at higher levels (Figure 8); this may be due to the relatively sparser sampling giving a biased grade estimate.

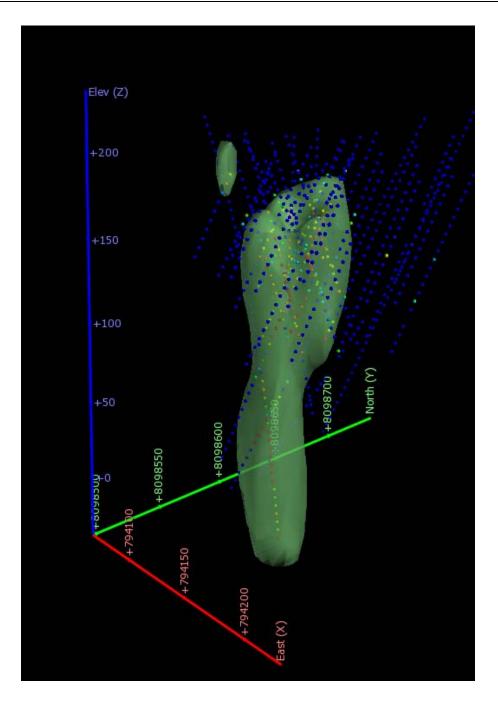


Figure 7: Punchbowl 0.6% Cu shell.

Statistic	Cu (%)
Count	220
Minimum	0.03
Maximum	4.30
Mean	1.23
Median	1.05
Standard Deviation	0.80
CV	0.65

Classification	Tonnes	Cu (%)
Indicated	435,000	1.18
Inferred	259,000	1.61
Total Indicated+Inferred	693,000	1.34

#### Table 7: Punchbowl resource 30 November 2009.

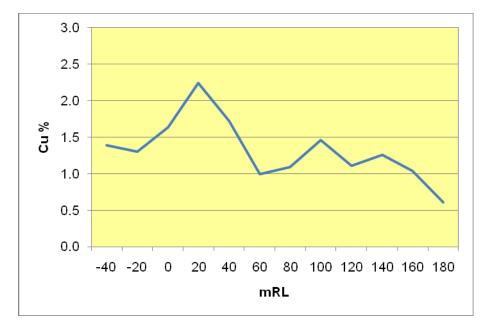


Figure 8. Punchbowl grade by level.

### 6 REDBANK AND AZURITE

For Redbank and Azurite, newly constructed surfaces of the bottom of oxide and top of transition were used to flag the previously constructed model. Revised densities were applied: 1.9 for Oxide (same as previously), 2.0 for transition and 2.1 for Sulphide. The revised resource statements are in Table 8 and Table 9.

	Indicated		Inferred	
	Tonnes	Cu (%)	Tonnes	Cu (%)
Oxide	99,000	2.13	47,0004	1.09
Transition	35,000	2.43	16,000	1.78
Sulphide	64,000	2.19	118,000	1.05
Sub-total	198,000	2.20	180,000	1.12
Total			378,000	1.69

#### Table 8: Redbank revised resource

	Indicated		Inferred	
	Tonnes	Cu (%)	Tonnes	Cu (%)
Oxide	128,000	1.61	28,000	1.2
Transition	11,000	1.39	9,000	1.29
Sulphide	80,000	1.5	65,000	1.36
Sub-total	218,000	1.56	102,000	1.31
Total			321,000	1.48

## Table 9: Azurite revised resource