JORC (2012) Code - Table One Summary

Section 1 Sampling Techniques and Data	
Criteria	***Panguna Specific Information***
Mineral Tenement	Under the Bougainville Copper Agreement Bougainville Copper Limited (BCL) has the right to renew the Panguna Special Mining Lease. BCL has made the required application for renewal of the Special Mining Lease.
Sampling techniques	• No additional fundamental resource data has been collected from the deposit since the suspension of operations in 1989. • Initial diamond core drilling of the 0.3 per cent copper contour at an approximate spacing of 122m (400 feet) and comprised 253 holes for 80,778m. This phase of drilling was completed in 1969 prior to commencement of mining in 1972. Two adits, crosscuts and rises, totalling 4,700 m were excavated. Approximately 3,700 m of these underground excavations were pre-drilled and sampled. • Further in-pit and extension drilling was carried out up the cessation of operations in 1989. • Sampling interval usually 3m unless there was a change of core size, poor recovery, or retention of core for records. • A representative 3m sample was retained every 60m. • A 0.1 metre bulk density sample collected approximately every 10m. • Approximately 0.5 kilograms per metre of core sampled for metallurgical testing. • All primary assaying was completed in an on-site laboratory. • Copper assay determined by aqua regia digest and atomic absorption spectrometry. • Gold determined by aqua regia/ methyl isobutyl ketone digest and atomic absorption spectrometry. • Reconciliation of blast hole and metallurgical plant data with the reserve model, indicates that the copper and gold drill hole composite database is biased towards underestimation in several key domains due to a combination of the following: o mineralisation loss during core loss o core loss (minor) o vertical drill holes failing to intersect sufficient sub-vertical mineralised fractures and veins o drill hole spacing too wide o variable diamond drill hole core size
Drilling techniques.	• PQ, HQ, NQ and minor BQ diamond core, mix of standard and triple-tube coring.
Drill sample recovery.	• Incomplete sample recovery data recovered from data archives, though assessment of available data has been completed. • No recovery-grade relationship identified, but a sampling bias (towards underestimation) due to loss of fines has been documented. • Triple-tube drilling and improved mud systems were introduced to combat loss of fines during the drilling programs

Logging.	• Detailed logging sample by sample (3m intervals) was recovered from drill data archives. • Core photos taken but not recovered from data archives.
Sub-sampling techniques and sample preparation.	• Whole core submitted for assay. • Sample preparation procedures developed by sampling expert. • Duplicate core samples (riffle-split sample of whole-core crushed to 90% passing -3mm) taken at a rate of 1 in 10 samples for check assaying and checking sample preparation.
Quality of assay data and laboratory tests.	• Assay quality assurance and control (QAQC) techniques applied during the initial resource definition program mainly consisted of internal and external check assaying and comparisons with bulk underground samples. • Limited documentation pertaining to QAQC techniques and results from 1970 recovered from data archives. Documental evidence suggests that check assaying continued to be used to verify results during drilling programs.
Verification of sampling and assaying.	• Duplicate core samples (riffle-split sample of whole-core crushed to 90% passing -3mm) taken at a rate of 1 in 10 samples for check assaying and checking sample preparation • Internal and external check assaying used to verify assays. • Holes twinned in the oxide and transition zone mainly to test for sulphide oxidation rate in response to lower than expected flotation recovery. • No twinned holes were drilled specifically to assess grade repeatability and continuity. There are several instances where two or more holes intersected in the course of drilling.
Location of data points.	• Drill hole collars surveyed using a theodolite. Early exploration drilling was down-hole surveyed by Tropari directional surveying instrument and acid etching. • Bougainville Copper Limited drilling (infill during mining phase) was down-hole surveyed by Tropari and multi-shot down-hole camera. • Detailed satellite digital elevation model generated over project area as part of 2012 Order of Magnitude Study.
Data spacing and distribution.	• Diamond drilling on a regular 120m x 120m grid – combined with 17 years of production history, sufficient to define indicated and inferred mineral resources. • Blast hole assay dataset (8m x 8m) was recovered for validation and comparison purposes • Copper and gold drill hole composite database is biased towards underestimation due mainly to too wide drill hole spacing.
Orientation of data in relation to geological structures and the extent to which this is known, considering the deposit type structure.	• Copper and gold drill hole composite database is biased towards underestimation due in part to vertical drill holes failing to intersect sufficient sub-vertical mineralised fractures and veins.
Sample security.	• All primary assaying completed in an on-site laboratory.

Audits or reviews.	• Sampling techniques and data verified during 2008 Order of Magnitude study. • Numerous reviews during operating phase

Section 3 Estimation and Reporting of Mineral Resources	
Criteria	***Deposit Specific Information***
Database integrity.	• Resource model recovered directly from data archives and imported into modern mining software.
Site visit.	• No site visits by Competent Persons undertaken since mine closure (1989). Mr G Clarke (ex-BCL Geology Manager at Panguna Mine) is a JORC Competent Person for the reporting of the Mineral Resource.
Geological interpretation	• High confidence in geological interpretation, well understood geology (multiple journal publications, 17 years of production history including blast hole database) • Geology model accurately transferred to resource model • Grade continuity controlled by geological units. Geological control used in grade estimation. • Original section/plan interpretations not recovered, geological assessment used was based on coded model geology only
Dimensions.	• Mineral Resource estimate based on the evaluation of the resource model recovered from data archives against a conceptual design to extend the existing open pit mining void. • Approximate plan dimensions of the Mineral Resource are 2km x 3km • Mineralisation occurs from surface and extends to over 450m below surface.
Estimation and modelling techniques.	• The resource model has not been updated since the suspension of operations in 1989. The resource model recovered from archives utilised domain-based geostatistics (ordinary kriging) introduced in 1981 with assistance and on-going review from contemporary geostatistical experts. • Resource model validated as part of the 2008 Order of Magnitude Study. • The Resource model used supported a 17 year mining operation at Panguna. • An independent estimate produced as part of the 2012 Order of Magnitude Study reconciles globally within 5 per cent of the reported estimate • Low-grade molybdenum mineralisation was also modelled and assessed as part of 2008 Order of Magnitude Study.
Moisture.	• Tonnages are estimated on a dry basis.
Cut-off parameters.	• Based on 60Mtpa ore processing capacity, cut-off grades for direct feed and pre-concentration and screening ore were calculated by applying recovery, cost and Rio Tinto long-term price assumptions (11 August 2012). • Costs were estimated using industry data derived from similar operations and the cut off grade assumptions remain valid after applying broker consensus metal prices. • Both direct feed and pre-concentration and screening ore were mined and processed from the Panguna open pit. Current assumptions align with the processing routes historically applied

Mining factors or assumptions.	• The conceptual open pit mine design was prepared based on conventional open pit mining techniques and a range of power generation and tailings storage options. The Mineral Resource estimate is based on an open pit operation.
Metallurgical factors or assumptions.	• The Panguna processing plant operated successfully from 1972 to 1989. The 2012 Order of Magnitude Study assumed that the existing processing equipment was not suitable for re-use and allowed for a completely new plant. Ore processing throughput and recovery parameters were estimated based on historic performance and potential improvements available using current technologies and practices.
Environmental factors or assumptions	• Panguna is an historical mine site with existing open pit void, non-rehabilitated waste dumps, tailings disposal and infrastructure sites. • BCL has not had site access to assess remediation and rehabilitation requirements but the 2012 OMS includes expenditure allowances to undertake this work.
Bulk density.	• The resource model recovered from data archives did not include density data in block estimates. Historical bulk density values determined by standard water displacement methods were applied to the resource model by rock type. These figures were ratified by Mr G Clarke (ex-BCL Geology Manager) and are consistent with the primary ore bulk density of 2.51t/m^3 from the 1969 feasibility study.
Classification.	• Measured - Despite the 17 years of historical production, no measured material is defined due to grade uncertainty in the resource model , specifically the identified grade bias (underestimation) as evidenced by comparisons with grade control data, historical production reconciliation and other technical documentation. • Indicated - Indicated material is defined within the volume intersected by the nominal 122m x 122m drilling grid. • Inferred - All other material outside the volume intersected by the nominal 122m x 122m drilling grid is classified as Inferred.
Audits or reviews.	• Independent estimate produced as part of the 2012 Order of Magnitude Study and contained metal of 2012 estimate reconciles globally within 5 per cent.
Discussion of relative accuracy/confidence.	• The definition of Indicated and Inferred Mineral Resources only is appropriate for the level of study and the geological confidence imparted by the nominal 122m x 122m drilling grid,