The Use and Abuse of Metal Equivalents

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ABSTRACT

Metal equivalents provide a useful and concise indication of the value of mineralisation that contains more than one valuable metal or mineral. They provide a single number that reflects the contributions of two or more assay results, providing a simpler presentation of information. This works particularly well in operating mines with well established recoveries and sales histories. Another application of metal equivalent is to present unfamiliar or minor exotic metals or minerals in terms that are more widely understood in the market – though usage can be problematic. Calculation of metal equivalent is dependent on assay data, metal/mineral pricing and metallurgical recoveries. Shortcomings in the calculation can occur when values are derived before actual metallurgical recoveries are known or using unrealistic metal prices.

When reporting Exploration Results, Mineral Resources, or Ore Reserves, for polymetallic deposits, the JORC Code 2012 Edition, Clause 50, sets out clearly the minimum reporting requirements under five bullet points and requires the following to be reported:

- individual grades for all the metals in the metal equivalent calculation
- assumed commodity prices for all the metals
- assumed metallurgical recoveries for all metals
- a clear statement that all elements have a reasonable potential to be sold
- show the calculation formula used

This paper provides a discussion of how to calculate metal equivalent values, and then shows why and where they are useful. The paper then identifies where errors can be made, distortions introduced, and lastly sets out the expectations for reporting metal equivalents using the JORC Code.