# A novel innovation for reconciliation

*W Hunt*[1], *H Boucher* [2]*, D La Rosa*[3] *and L Julian*[4]

1. Principal, OreControl Blasting Consultants, Denver, CO. Email: will@ocblasting.com
2. Senior Mining Geologist, MECS Pty Ltd, Johannesburg, Gauteng. Email: hein.boucher@angloamerican.com
3. Principal, OreControl Blasting Consultants, Brisbane, 4000, QLD. Email: david@ocblasting.com
4. Regional Manager, OreControl Blasting Consultants, Brisbane, QLD 4000. Email: lee@ocblasting.com

## ABSTRACT

Mine value chain reconciliation (MVC) is a necessary operation to evaluate a mine's performance against the assumptions and models used to plan mining and processing operations. Using nomenclature from Parker (2012), F2 reconciliation is the ratio between material received to the mill compared with material sent to the mill, and is commonly reported in terms of tonnes, grade and metal. Measurements of material sent to the mill can be estimated in many ways including fleet management systems (FMS) records, truck counts, or volume reduction. Most time-based reconciliations (for example, month-end reconciliation) use short-term model depletions of in-situ rock measured by periodic scans or surveys.

There are three main problems with existing reconciliation practice:
1. In-situ delineation of material types has been used to estimate tonnes and grade of material sent to the mill, despite blasting causing the geology to change (dip/strike/location/density). The disconnect between achievable value pre-blast and achievable value post-blast is not respected, nor has the swell for each individual blast been used to determine mass inside of any grade control polygon.
2. An in-situ model cannot accurately represent a blast that has been partially mined.
3. Blasted material sometimes occupies the same place at different times.

In attempting to solve these problems, two solutions have been investigated:
- Creating an in-situ diluted polygon block model (IDPB)
  - Post-blast polygon block model moved back to the in-situ locations
  - Solves problem 1, but does not solve problems 2 or 3.
- Creating a Static Model in Time (SMT)
  - Assembling pre and post-blast models into a single time-dependent model
  - Swelled densities measured and used for blasted rock

As no existing software could create an SMT, OrePro Recon was purpose-built to perform these functions, and to provide more accurate reconciliation. Building on Parker's (2012) methods, an F2' reconciliation (ratio of post-blast delineation to what the mill receives) is proposed.