

Validating Reserves Calculations

One of the most important steps when you have either built or been provided a new block model is to perform some simple validation checks. Whether the model is a no-ore percent, single-ore percent, or a multi-ore percent model, you should check that volumes are reported correctly and that grade values match up.

The two most commonly used tools to compute reserves for 3D block models are MineSight® Compass™ (MSCompass) Procedure PITRES and the MineSight Interactive Planner (MSIP).

What are we checking?

Both PITRES and MSIP have options to deal with topography, multi-ore percent models, and model coding, to name but a few. These options affect the results.

As an example, both PITRES and MSIP have an option to deal with the effect of topography on blocks at the air/ground interface. Selecting the wrong method to deal with topography can result in a severe miscalculation of volume leading to serious errors for scheduling and planning.

What do you do?

To ensure that you have chosen the correct reserves options, check a single model block. Perform a hand calculation using the block values retrieved in MineSight 3-D (MS3D) to check against the values computed by PITRES or MSIP.

Depending upon your model type, you may need to hunt around for a suitable block, but the best test block is usually at the air/ground interface, has grade, and if it's a multi-ore percent model, lies at the contact between multiple rock types.

First, display the single block in MS3D. Use the **3D blocks Style** on the **Display** page of the **Model View Editor**. From the **Range** page, limit the view to a single block. Make sure the **Scale by block percent** values on the **Options** page are all set to 100% (Figure 1).

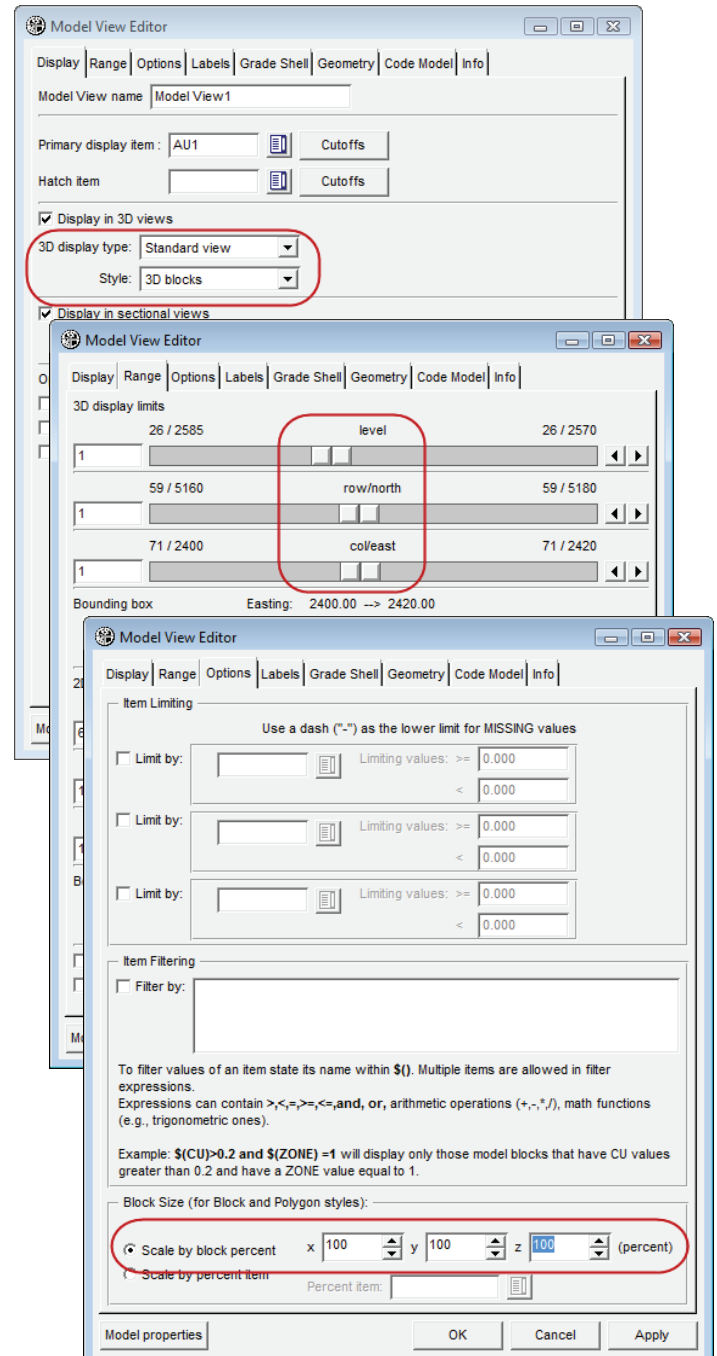


Figure 1. Model View Editor options to display a single block

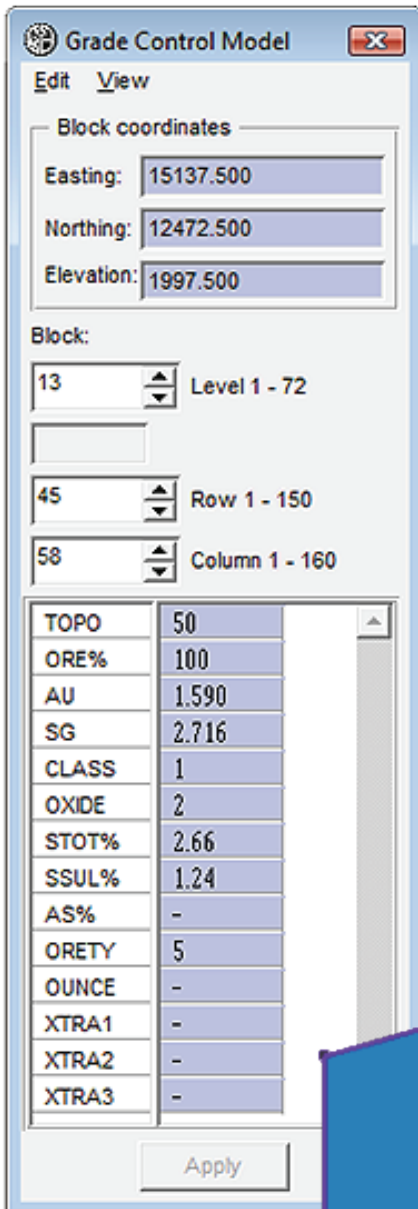


Figure 2. Query values for the single block

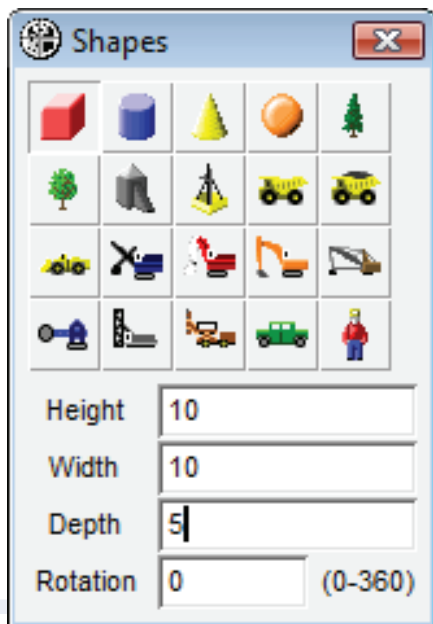
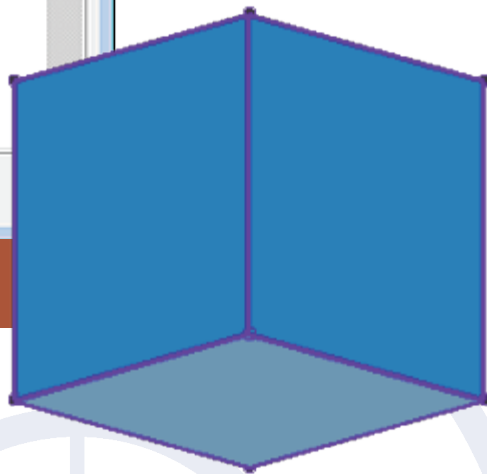


Figure 3. Use the **Surface | Create | Insert Shape** function to create a cube solid coincident with the single model block

Query your block and note the grades, rock types, percentages, topo%, and SG (Figure 2). Make a hand calculation to compute the expected volumes and tonnes. These values will be compared to the values computed by PITRES or MSIP.

Now, make a solid encasing the single block. Use either the **Surface | Create | Insert Shape** function (Figure 3) to overlay a cube on the block, or use **Polyline | Extrude** to create a solid from a polygon digitized to the block base (make sure to connect the polylines to generate a solid).

Use the solid to generate partials for a PITRES validation or import the solid into MSIP as a cut.

After running reserves and generating reports, compare the results with your hand calculation. Are they the same? If you have any doubts about the validation, re-verify the setup options in PITRES and MSIP.

The MS3D Helpdoc has a lot of information regarding these options. Even if you're an experienced user, it's a very good idea to learn and understand the main options before you use the tools. New models can take some time to understand and should always be validated.

After validation, if you have any doubts about the model reserve values then contact your local technical support branch. To help us rapidly resolve your query, send us some test data including your MSCompass Project File (.prj), PCF (file 10), block model (file 15), and the partials.

