

Assigning Variable Mining Cost

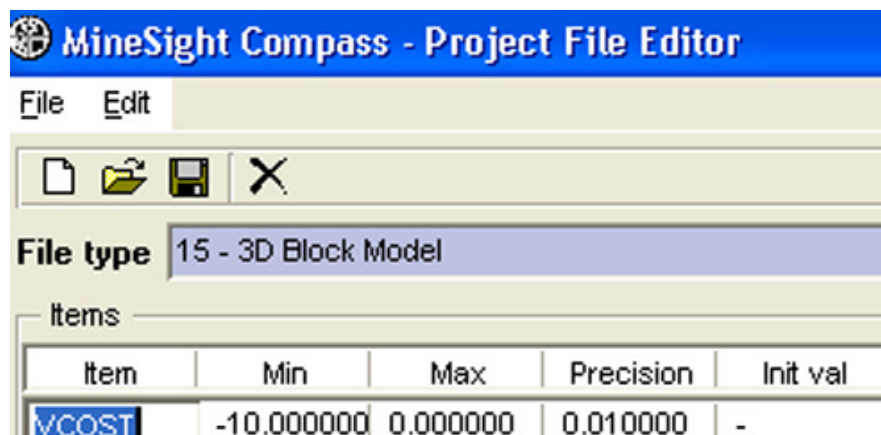
IN MINESIGHT® SCHEDULE OPTIMIZER

Among the recent additions to the MineSight suite of mine planning software is the MineSight Schedule Optimizer (MSSO). This tool takes a set of MineSight Interactive Planner (MSIP) cuts and applies rules in order to sequence the cuts. The sequencing can be based on maximizing/minimizing Net Present Value (NPV), Metal Contents, or Stripping Ratio. Constraints, such as mill/waste/stockpile tonnage requirements, grade restrictions, equipment utilization, and blending, can be directly entered into the tool for consideration in the sequencing. The introduction of MSSO has been very well received, and is in use at many sites throughout Mintec's client base.

One question that occasionally arises is how to assign variable mining cost in MSSO. The term 'variable mining cost' refers to an extra mining cost which may be applied to the fixed base mining cost. The variable mining cost accommodates the increased costs due to, for example, depth of mining or different material types.

To apply a variable mining cost, an item representing the block-by-block incremental mining cost value is added to the 3D Block Model (3DBM) used in MSSO.

Start by using MineSight Compass to define an item in the 3DBM representing the variable mining cost (say VCOST); its minimum value should be less than zero (Figure 1). VCOST values are calculated and stored as negative values so the cost will be a penalty on each block.



The screenshot shows the 'MineSight Compass - Project File Editor' window. The 'File type' is set to '15 - 3D Block Model'. Below, the 'Items' section contains a table with the following data:

Item	Min	Max	Precision	Init val
VCOST	-10.000000	0.000000	0.010000	-

Figure 1. VCOST will hold the variable mining cost for each 3DBM block. Its range is less than or equal to zero.

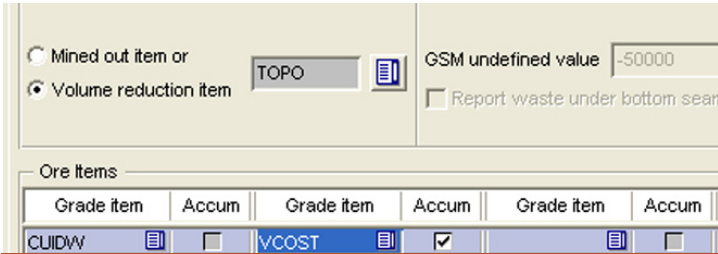


Figure 2. VECOST is added to the IP Object on the Area tab as an accumulative Grade Item.

This item is then populated via one of the standard methods such as a user calculation or the model calculation script (`cp-ModelCalc.pyz`) for incremental cost (\$/ton) data. Please remember the cost values should be negative.

Once populated, this item (VEVCOST) is added to the IP Object. Enter the item in the MSIP **Area** tab as an “accumulative” **Grade item** (Figure 2).

Finally, in MSSO VECOST is added to all schedule material types under the **Destination Economics** section of the **Economics** tab (Figure 3) with a Recovery of 100 and Price of 1. This cost is applied as a penalty to all schedule material types such as mill, waste, and stockpile.

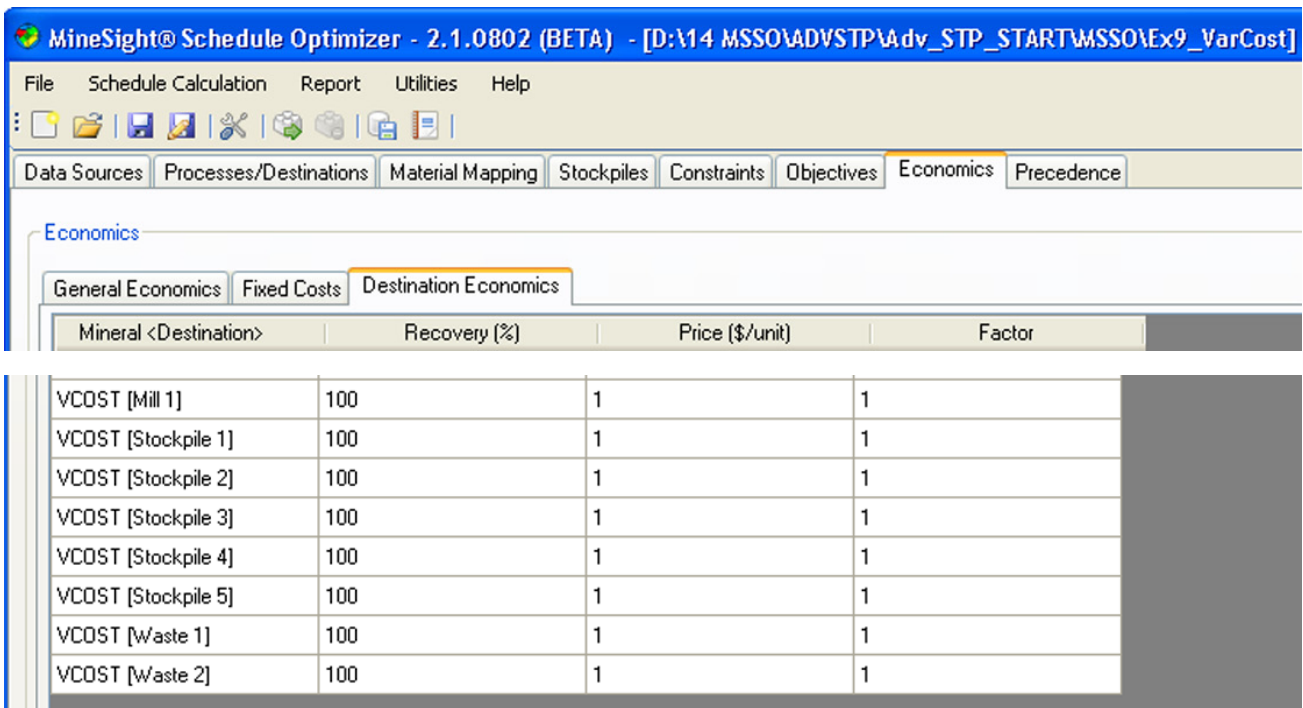
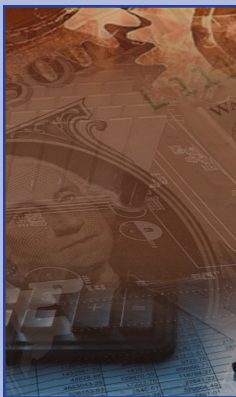


Figure 3. MSSO Destination Economics under the Economics tab shows the variable cost item applied to all schedule material types.



Hint: Another method to do the same task would be to enter the incremental cost as positive values in the VECOST item in 3DBM and then in MSSO use a Selling Price of “-1”. If following this method, the item VECOST should be defined with a range greater than or equal to zero.

