



# Fixed Length and Horizontal Compositing Options in MineSight®

There are 3 types of composites within MineSight:

- Bench (with the 3-D model)
- Seam (with the GSM)
- Fixed length

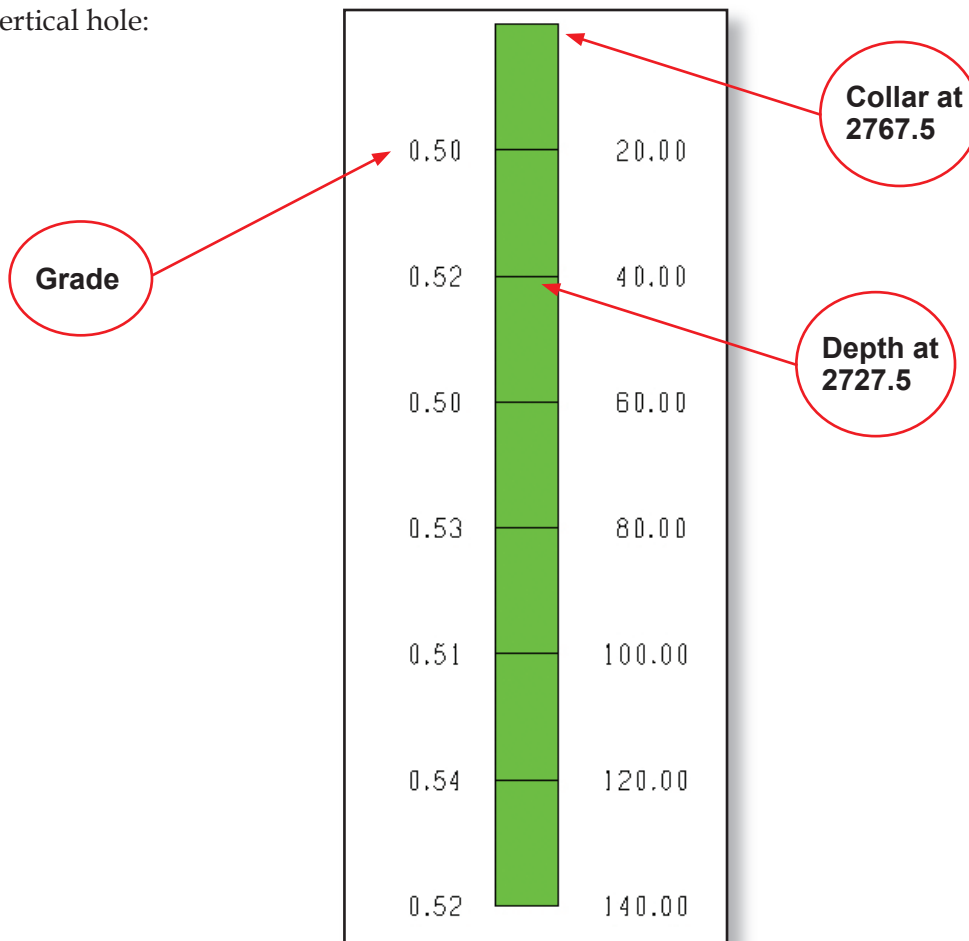
In the following article, only bench and fixed (or horizontal) length compositing as performed by procedure **p50101.dat** will be discussed.

## Fixed Length vs Bench Compositing

The composite value calculated in bench compositing is based on the following formula:

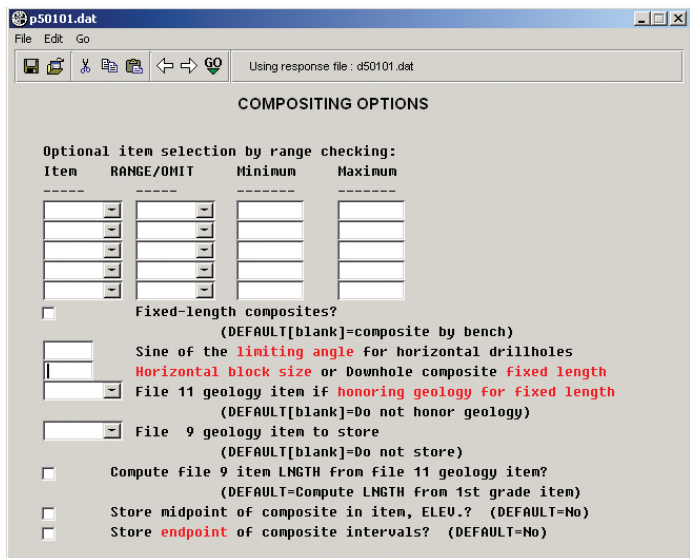
$$\text{Composite grade} = \frac{\sum (\text{vert. distance} \times \text{assay value})}{\sum \text{vert distance}}$$

Assume a vertical hole:



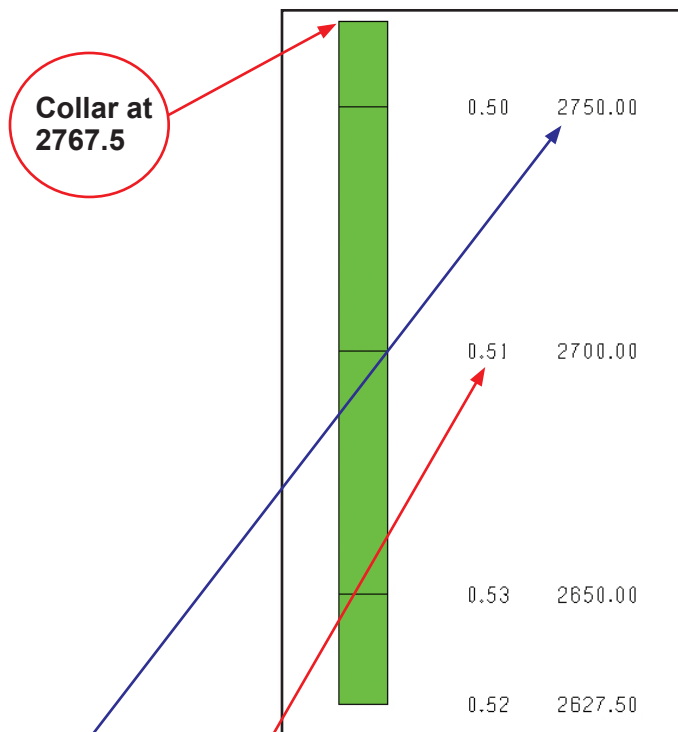
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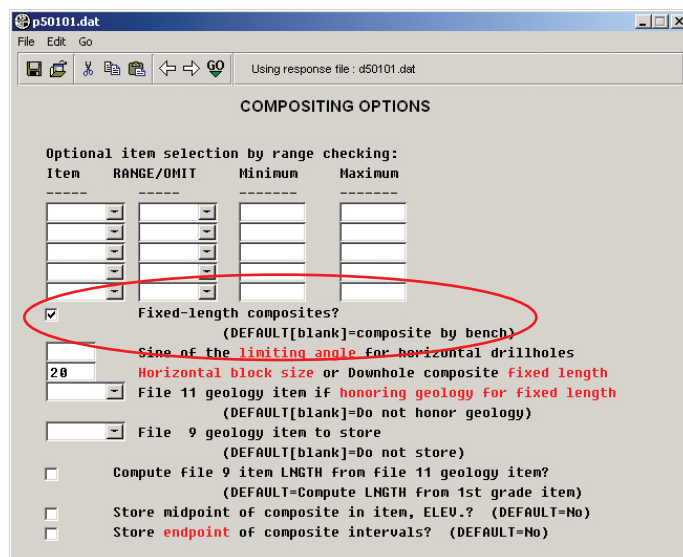


In procedure **p50101.dat** if you want to composite by bench, leave the **Compositing Options** panel blank (shown above).

Then for a bench height of 50m, the composites will be calculated as in the following:



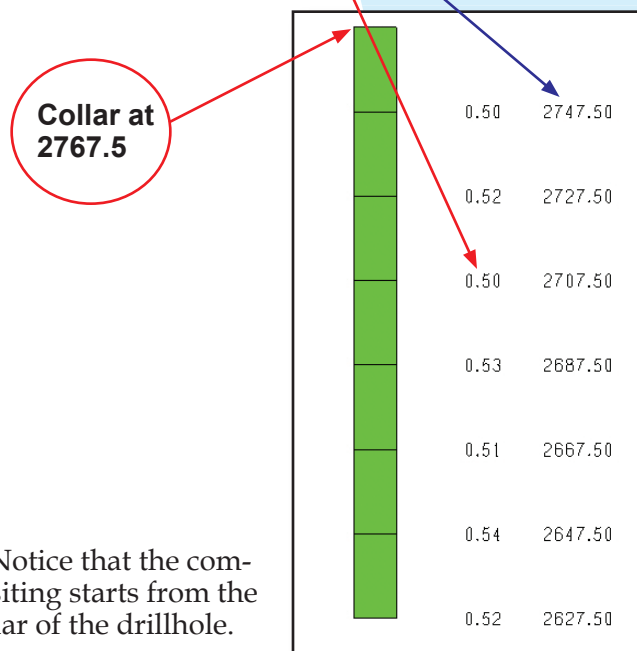
Elevation	Grade	Length	Depth
2750.00	0.50	17.50	17.50
2700.00	0.51	50.00	67.50
2650.00	0.53	50.00	117.50
2627.50	0.52	22.50	140.00



To perform fixed length compositing for all drillholes, the fixed length compositing option needs to be used in the main panel in procedure **p50101.dat** (you need to specify a fixed length as well, as shown above).

The calculation in this case (20m fixed length) is going to be as in the following:

Elevation	Grade	Length	Depth
2747.50	0.50	20.00	20.00
2727.50	0.52	20.00	40.00
2707.50	0.50	20.00	60.00
2687.50	0.53	20.00	80.00
2667.50	0.51	20.00	100.00
2647.50	0.54	20.00	120.00
2627.50	0.52	20.00	140.00

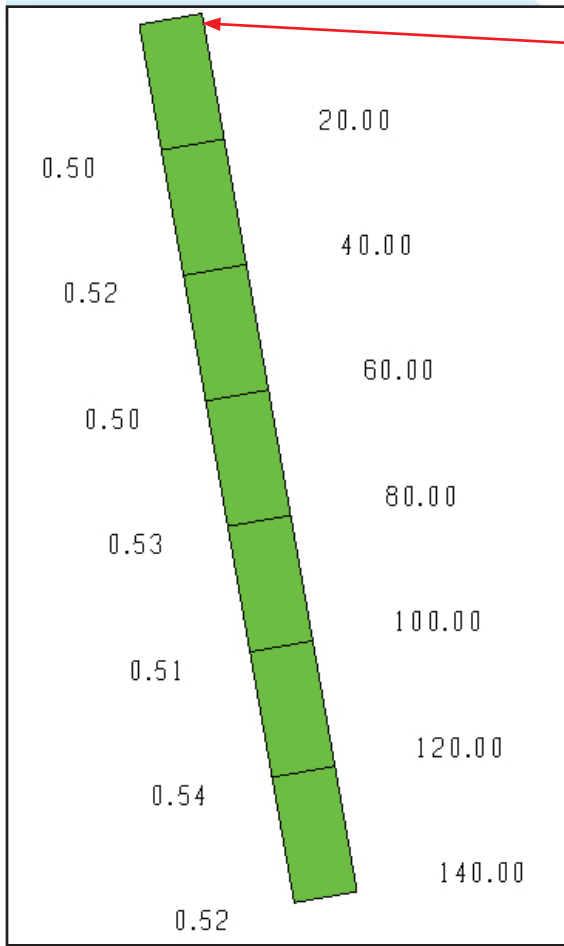


Notice that the compositing starts from the collar of the drillhole.

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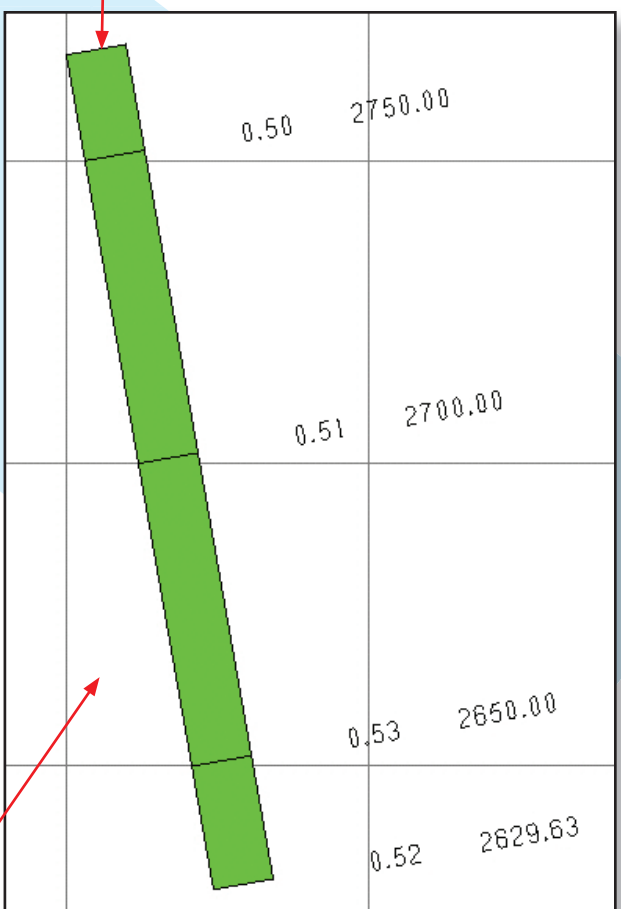
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If drillhole was inclined (-80 degrees for example):



**Collar at 2767.5**

then the calculation in the case of 50m bench compositing would be:



Elevation	Grade	Vertical Interval Length	Depth Along Hole
2750.00	0.50	17.50	17.77
2700.00	0.51	50.00	68.54
2650.00	0.53	50.00	119.31
2629.63	0.52	20.37	140.00

In the case of fixed 20m composites:

Elevation	Grade	Vertical Interval Length	Depth Along Hole
2747.80	0.50	20.00	20.00
2728.11	0.52	20.00	40.00
2708.41	0.50	20.00	60.00
2688.72	0.53	20.00	80.00
2669.02	0.51	20.00	100.00
2649.32	0.54	20.00	120.00
2629.63	0.52	20.00	140.00

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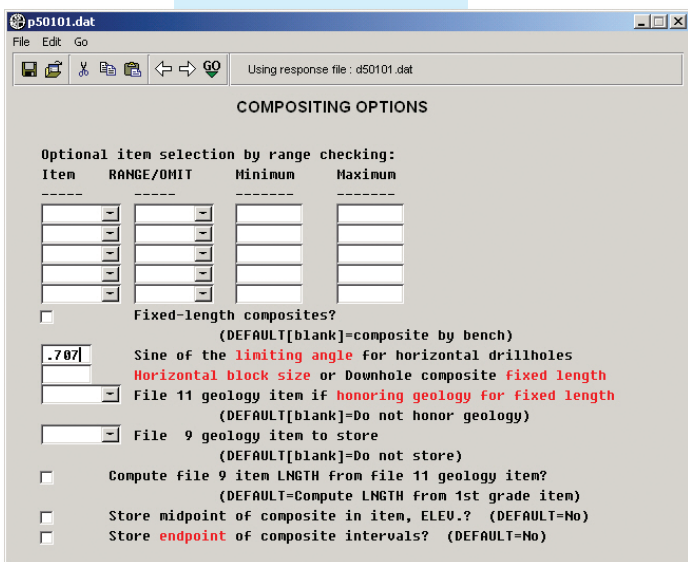
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### Vertical vs Horizontal Composites

Another possible application in **p50101.dat** is to simultaneously composite vertical holes (using bench compositing) and horizontal drillholes (using fixed horizontal length compositing).

The concept of horizontal composites is the same as with the fixed length composites. They are formed by breaking the drillhole into uniform (fixed) lengths and averaging the assays inside each length.

There is an option to treat inclined drillholes as horizontal composites or as vertical composites. The user can specify the sine of the angle where the changeover from vertical to horizontal occurs using the appropriate options in **p50101.dat** (shown below).



Do not click on the **Fixed length composites** option because this will force fixed length compositing for all drillholes (vertical or horizontal).

By default, the limiting angle is:

$$\text{Limiting Angle} = \text{ARCTAN} (DZ/DX) \text{ where}$$

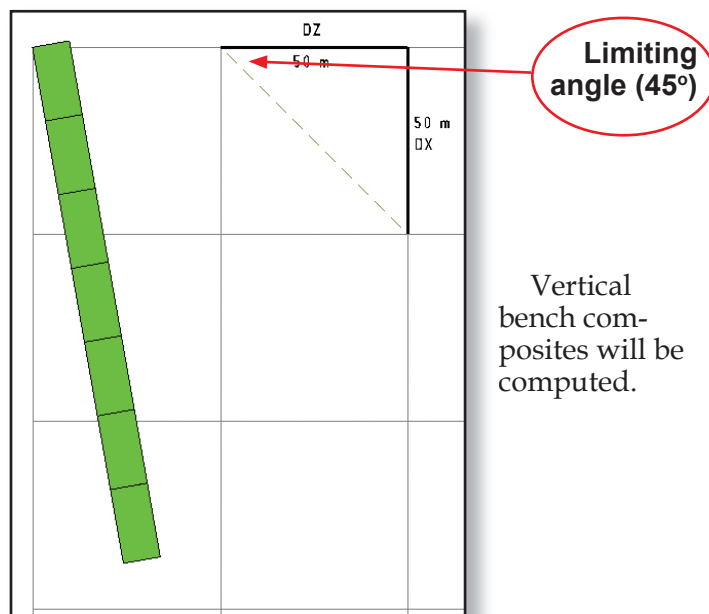
DZ = PCF Bench Height

DX =PCF E-W direction Block Size

or

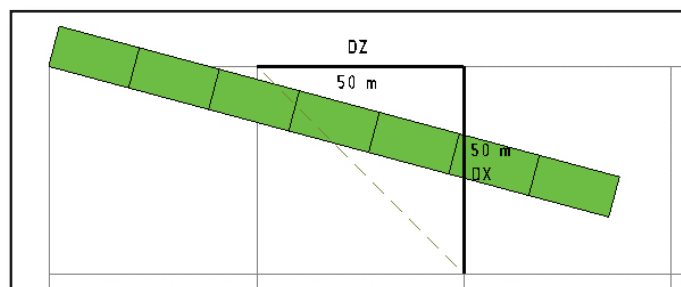
$$\text{Sine value of limitng angle} = (DZ / \text{SQRT}(DX**2+DZ**2)).$$

In the example above, sine of 0.707 corresponds to 45 degrees limiting angle. When the dip angle of a drillhole is less than 45 degrees, a horizontal composite is calculated.



Vertical bench composites will be computed.

In the figure below, horizontal fixed length composites will be computed.



The horizontal length used is by default equal to DX (length of block in the E-W direction)

You can specify your own horizontal length in procedure **p50101.dat** (shown below).

