Adding Supplemental Points When Creating Stratigraphic Models

7/5/22

Stratigraphic models are based on the data within the *Borehole Manager / Stratigraphy* table. There may come a time, however, when additional points are required. Examples include points on surface outcrops or "professional judgement" points that are used to fine-tune surfaces in ways that are not possible with the gridding algorithms. To address these instances, RockWorks includes an option within the *Strat. Rules* tab located at the top of the stratigraphic modeling menus labeled "*Include Additional Contacts Defined Within RwDat File*" (Figure 1).

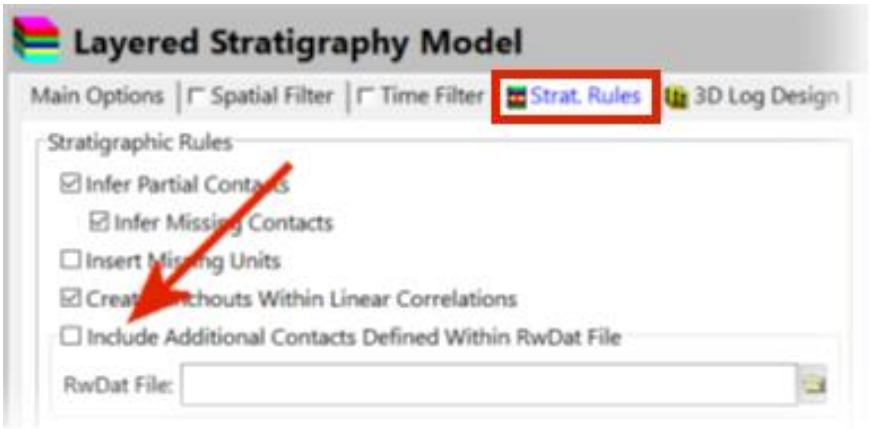

Figure 1

If activated, this option will add points from a *DataSheet* to the borehole input during the grid modeling. Because the stratigraphic modeling creates all of the necessary grids in one step, it is necessary to specify the stratigraphic surface that each point should be applied to followed by the columns described within Table 1.

Table 1

Column	Status	Description
Stratigraphic Unit	Required	The formation name must be entered exactly as it appears within the *Stratigraphy Types* table.
Easting	Required	The coordinate system must be specified. It's okay if the Eastings are not the same as the *Project Coordinate System* - they will be automatically converted.
Northing	Required	The coordinate system must be specified. It's okay if the Northings are not the same as the *Project Coordinate System* - they will be automatically converted.
Top Elevation	Optional	The elevation at the top of the designated stratigraphic unit. The units must be specified. It's okay if the units are not the same as the *Project Units* - they will be automatically converted.
Base Elevation	Optional	The elevation at the base of the designated stratigraphic unit. The units must be specified. It's okay if the units are not the same as the *Project Units* – they will be automatically converted.
Top Dip Direction	Optional	Direction (0 to 360) of contact at top of specified stratigraphic unit. Ignored if *Top Elevation* field is blank. This data will only be used if the *Dip* algorithm is selected.
Top Dip Amount	Optional	Dip amount (0 to 90) of contact at top of specified stratigraphic unit. Ignored if *Top Elevation* field is blank. This data will only be used if the *Dip* algorithm is selected.
Base Dip Direction	Optional	Direction (0 to 360) of contact at base of specified stratigraphic unit. Ignored if *Base Elevation* field is blank. This data will only be used if the *Dip* algorithm is selected.
Base Dip Amount	Optional	Dip amount (0 to 90) of contact at base of specified stratigraphic unit. Ignored if *Base Elevation* field is blank. This data will only be used if the *Dip* algorithm is selected.

Creating a *Supplemental Stratigraphy Datasheet* can be made easier by selecting the *Use Template* option from the *New Datasheet* menu and selecting the *Supplemental_Stratigraphy.rwDatTemplate* option (Figure 2).

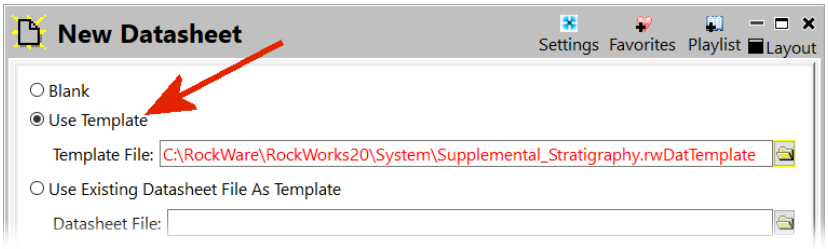

Figure 2

The Samples folder contains a *DataSheet* titled "Supplemental_Stratigraphy.RwDat" (Figure 3). This example contains 100 supplemental points.

Row#	Use	Stratigraphic Unit	Easting	Northing	Top Elevation	Base Elevation	Top Dip Direction	Top Dip Amount	Base Dip Direction	Base Dip Amount
			UTM Meters	UTM Meters	Meters	Meters				
1	☑	Leadville Ls.	482,133.4	4,399,989.5	1,670.5	1,660.5				
2	☑	Leadville Ls.	481,880.6	4,399,989.9	1,753.9		47	11		
3	☑	Leadville Ls.	482,078.9	4,399,808.9	1,671.8					
4	☑	Leadville Ls.	481,981.3	4,399,820.5		1,736.5				
5	☑	Spergen Fm.	482,119.3	4,399,892.7	1,708.8					
6	☑	Spergen Fm.	481,878.6	4,399,761.2		1,751.4				
7	☑	Spergen Fm.	481,880.4	4,399,892.2	1,661.3	1,651.3				
8	☑	Spergen Fm.	481,897.2	4,399,829.1	1,734.1					
9	☑	Spergen Fm.	481,992.9	4,399,988.7	1,693.7					
10	☑	Spergen Fm.	482,168.0	4,399,863.6		1,738.3				
11	☑	A-Horizon	481,898.9	4,399,804.2		1,640.6			135	15
12	☑	A-Horizon	482,156.8	4,399,827.5		1,731.6				

Figure 3

A comparison of a stratigraphy model based solely on the borehole data with a stratigraphy model based on the borehole data plus 100 supplemental points is depicted within Figure 4.

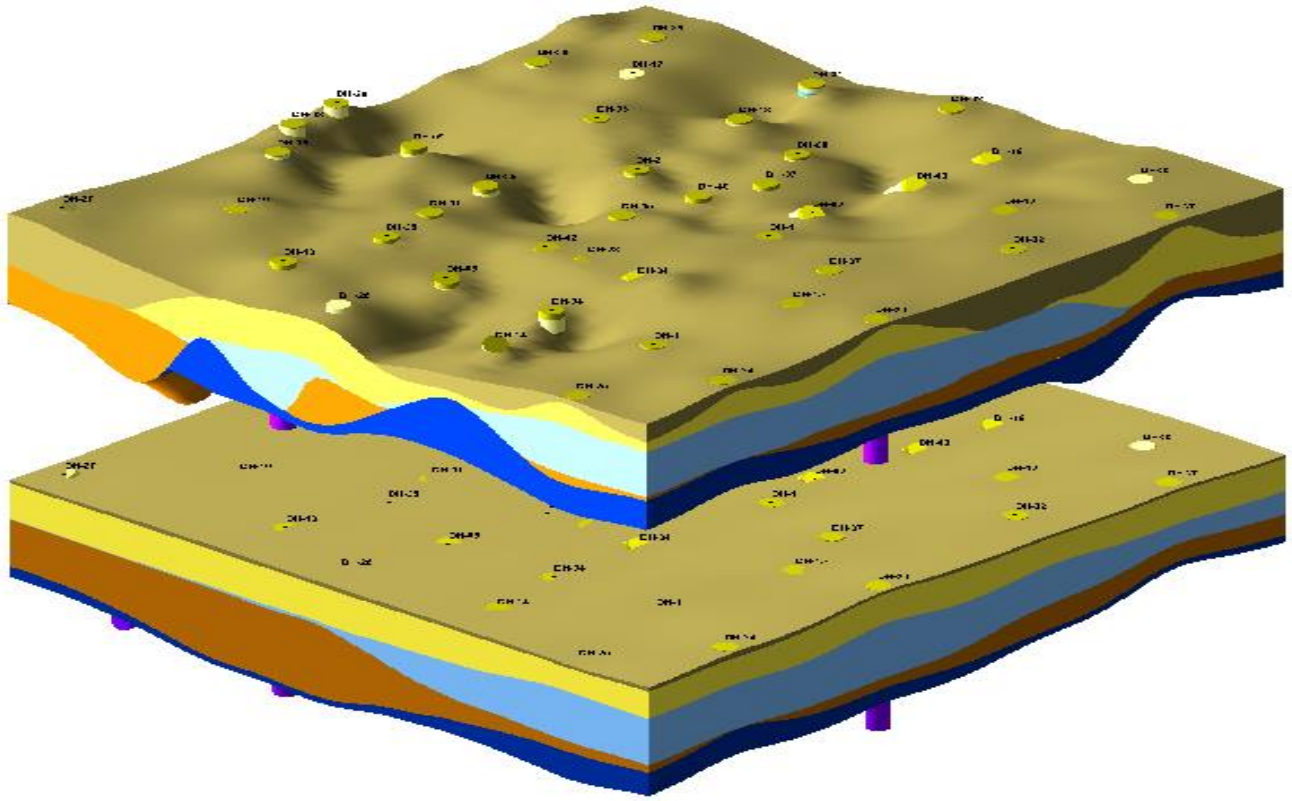

Figure 4. Top: Model based on borehole data plus 100 supplemental points. Bottom: Model based solely on borehole data.