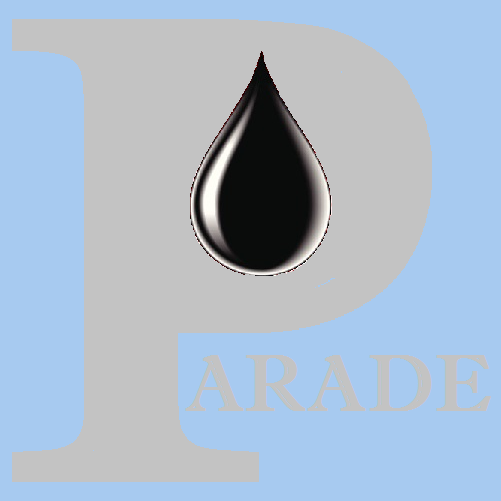
**PARADE USER GUIDE**

**Worked example**

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**Version 1.27 Aug 2020**

**Version History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Author** | **Comments** |
| 1.27 | Aug2020 | K Wilson | Initial version |
| 1.28 | Aug2020 | K.Wilson | Updated plots and screen images |

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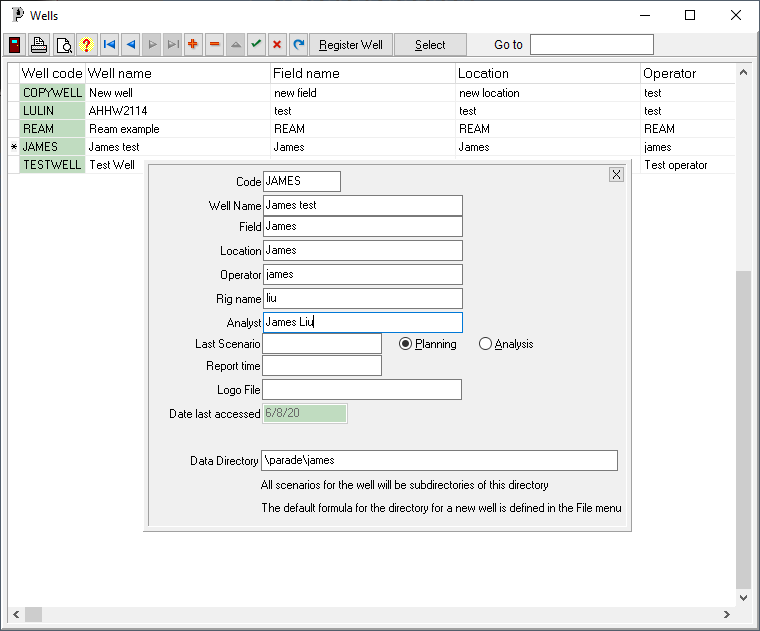
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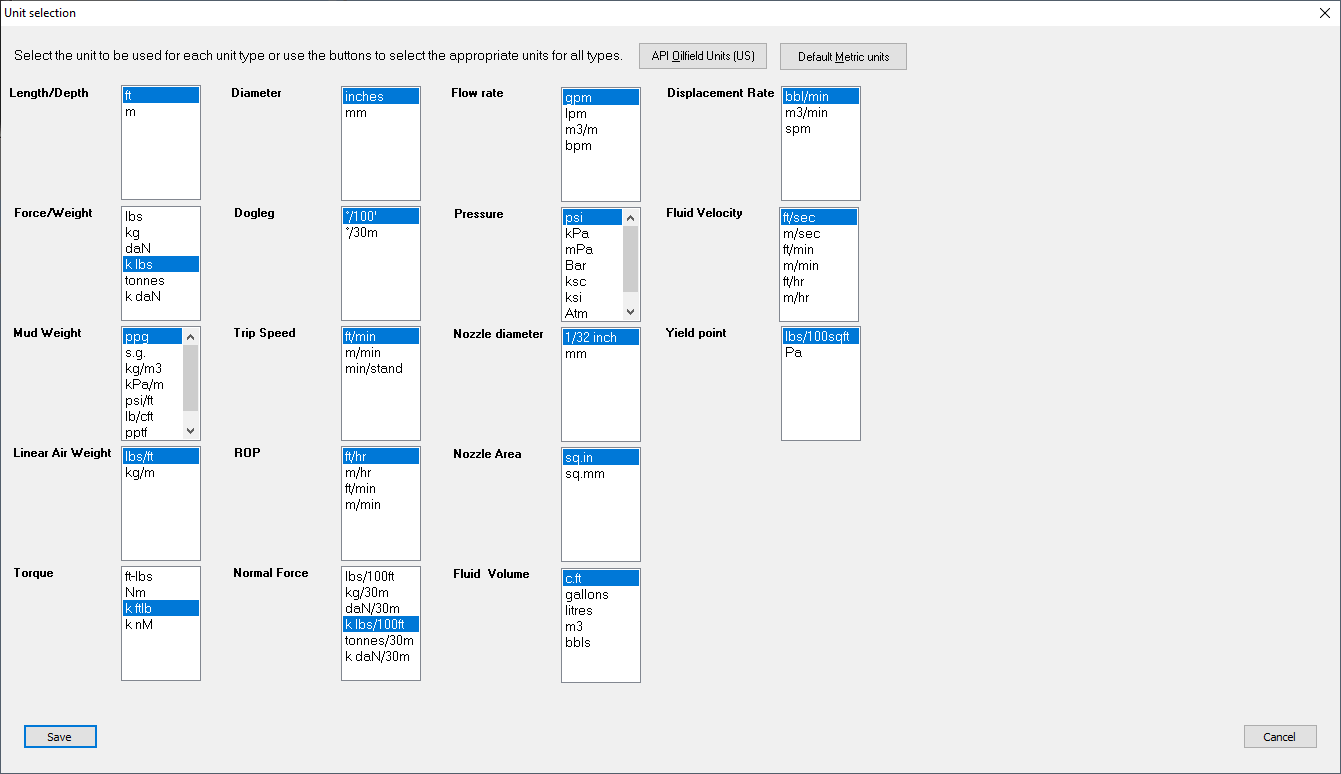
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# Setting up a well

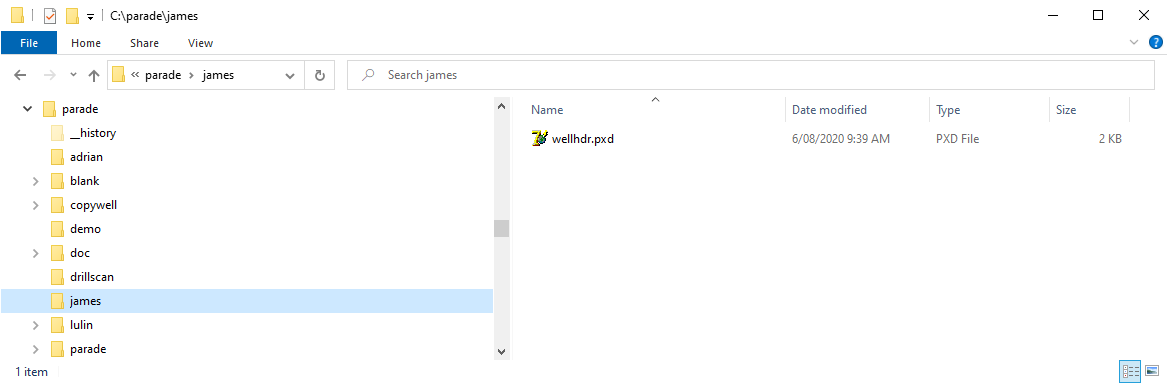
In Wells option on File menu, click on + button and enter information on the well, then click on Tick button to save.



Set units screen is then displayed, select via the 2 default buttons and/or each unit type separately, then click on [Save].



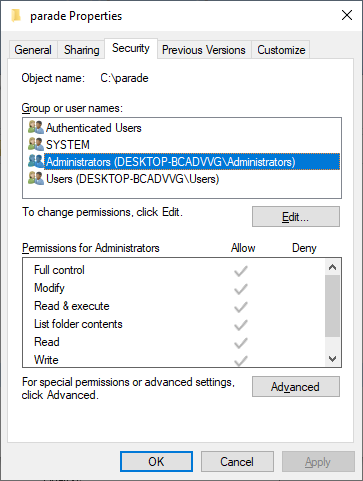
This will create a new subdirectory James containing just the wellhdr.pxd file



If this step doesn’t work then it may mean that the permissions are not set up correctly in Windows for the c:\parade directory.

Right click on the parade directory in Windows explorer and click properties.

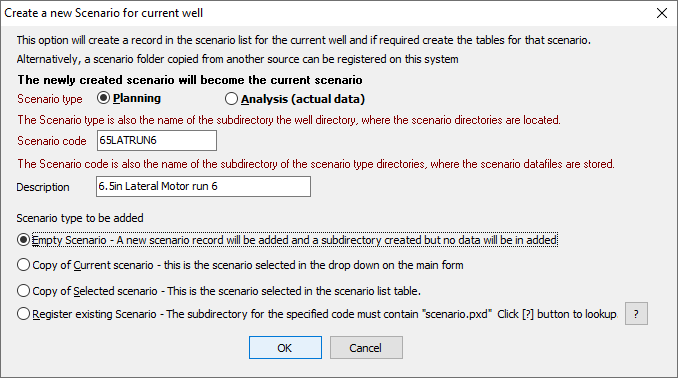
In the security tab, make sure all groups have full control



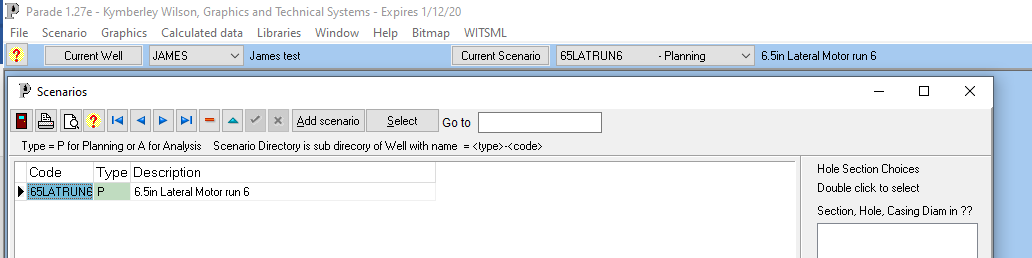
# Creating a scenario

Select the Scenarios for well option on the File menu.

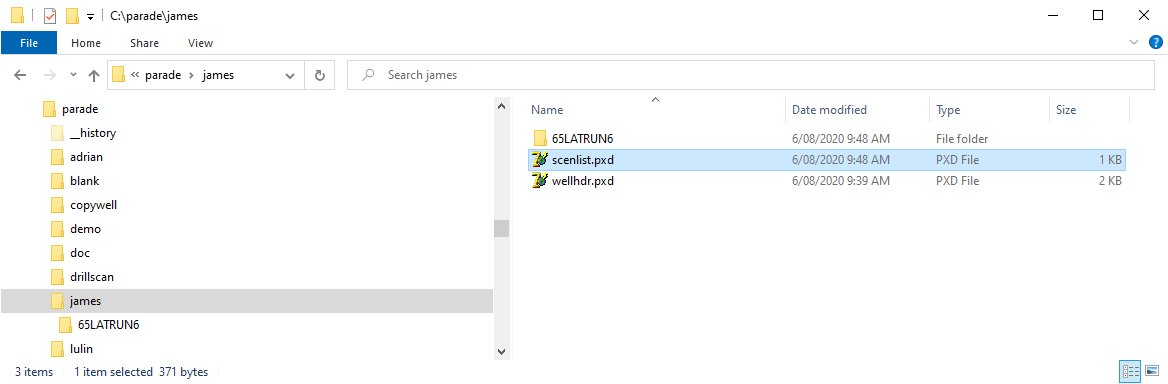
A blank table will be displayed. Click on the [Add scenario] button to display this form.



Fill in the form and click [OK]. A scenario record created, and selected automatically.

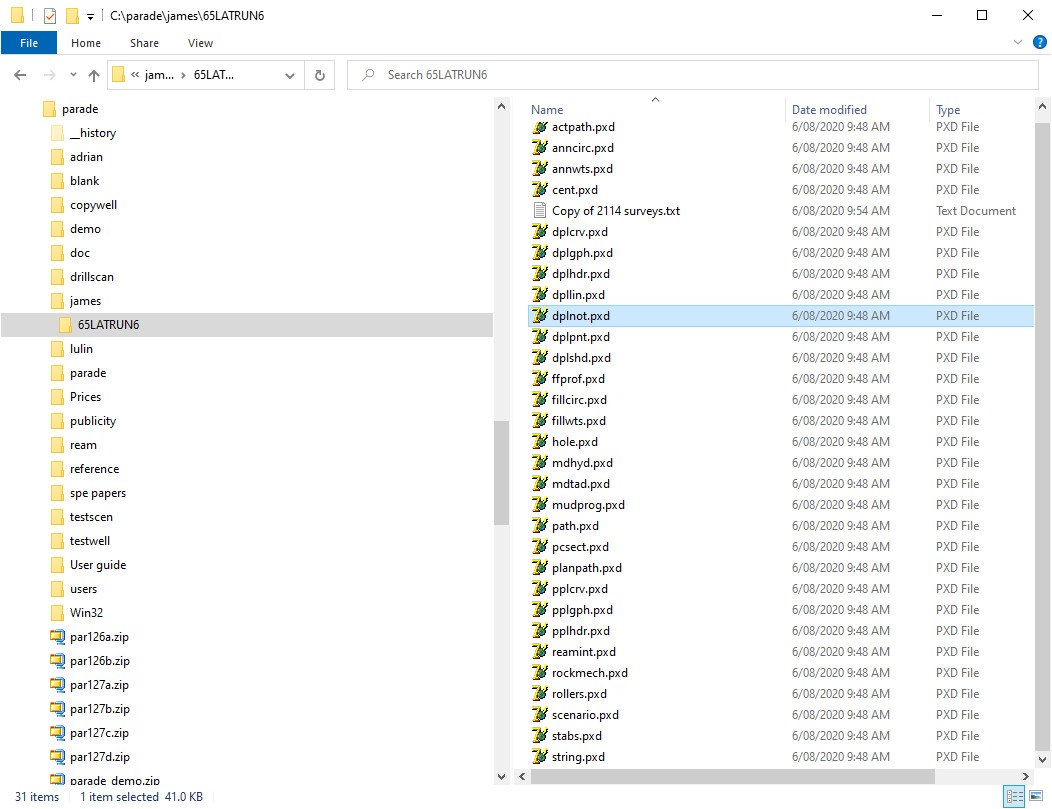


In the well directory, the file scenlist.pxd has been created to store this information and subdirectory created for the scenario with empty tables



This subdirectory contains empty copies of the data tables.

The scenario record will be created using the values entered in this form and defaults set.



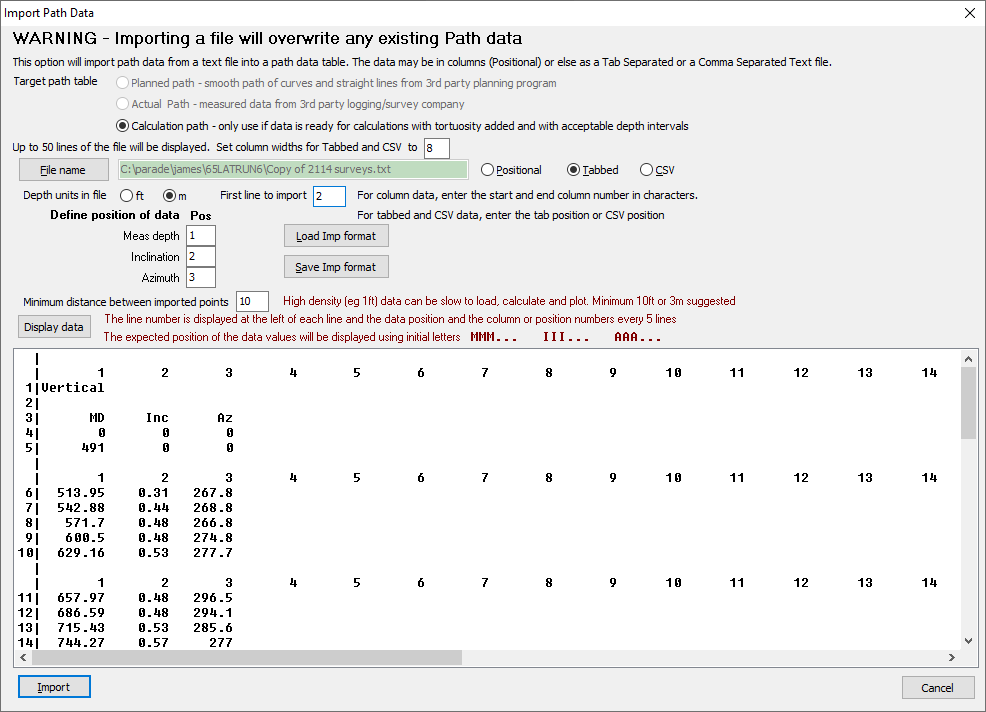
# Setting up scenario

## Importing the well path

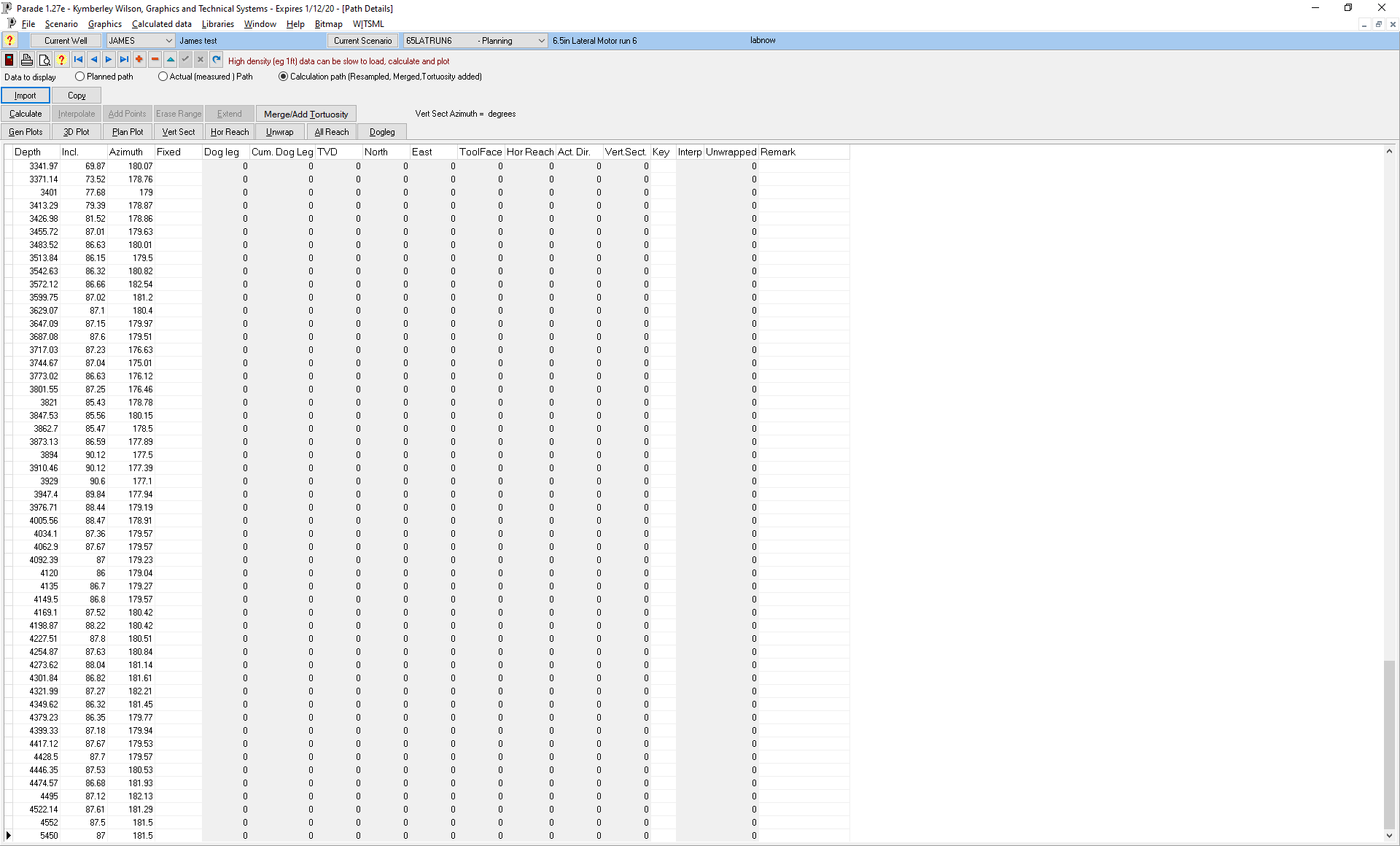
Data from a supplied excel file containing Third party path data was saved as a tab delimited text file.

Open Path option in the Scenario menu and clicked [Import]

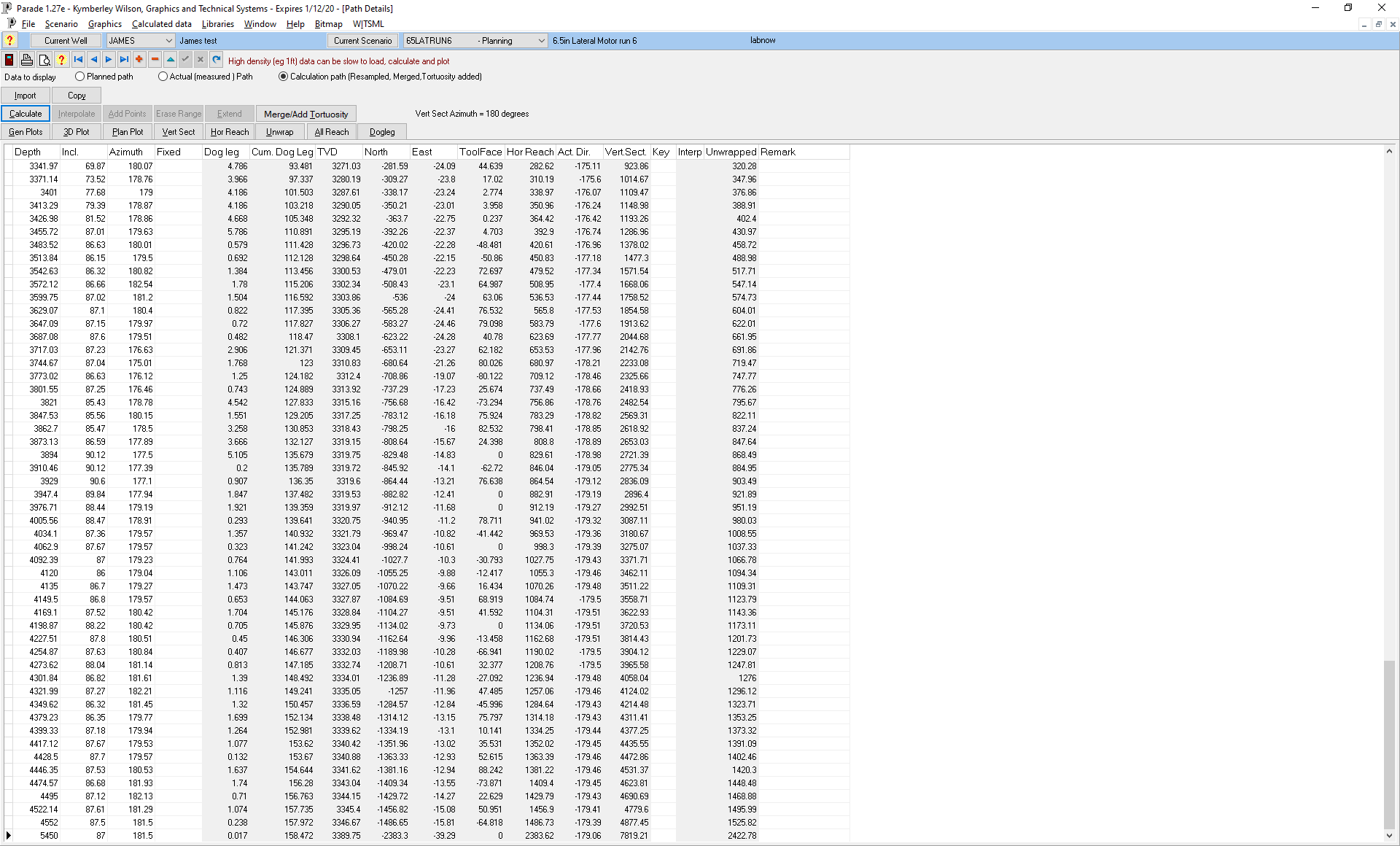
Selected the text file that was saved from Excel and fill in the start line and columns to import, then click [Import]

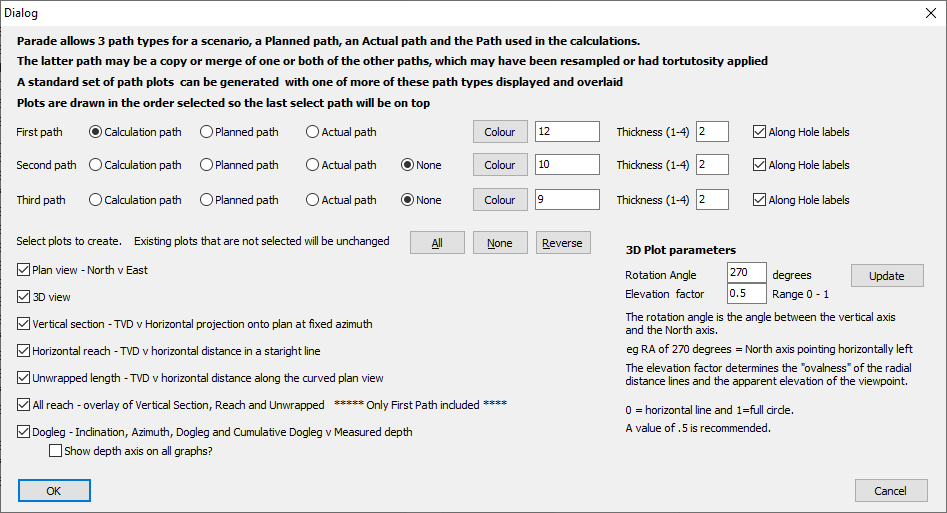


Imported data



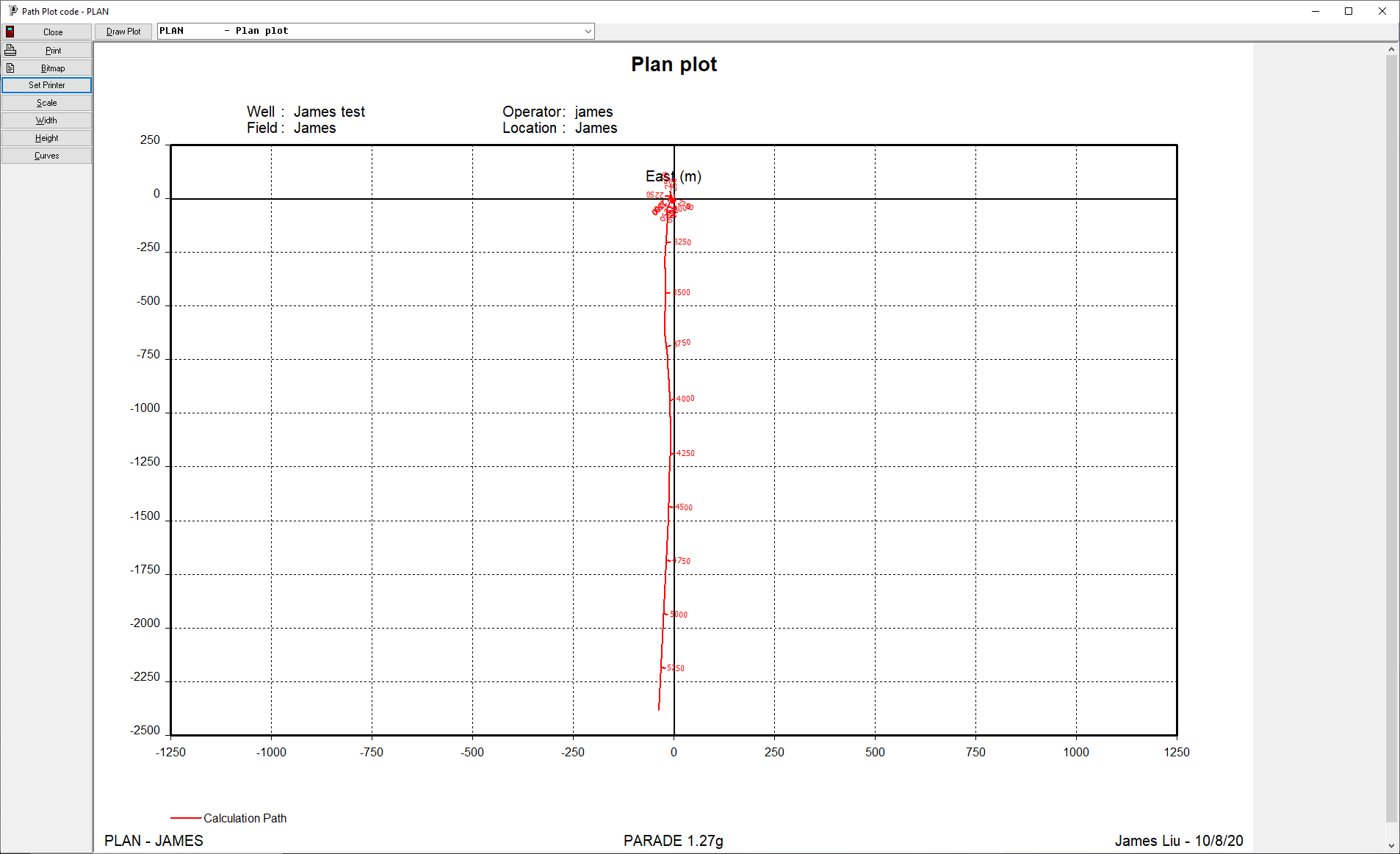
Click on [Calculate], setting Vert Sect Azimuth to 180. This calculates the Doglegs, North, East, TVD and various horizontal measurements

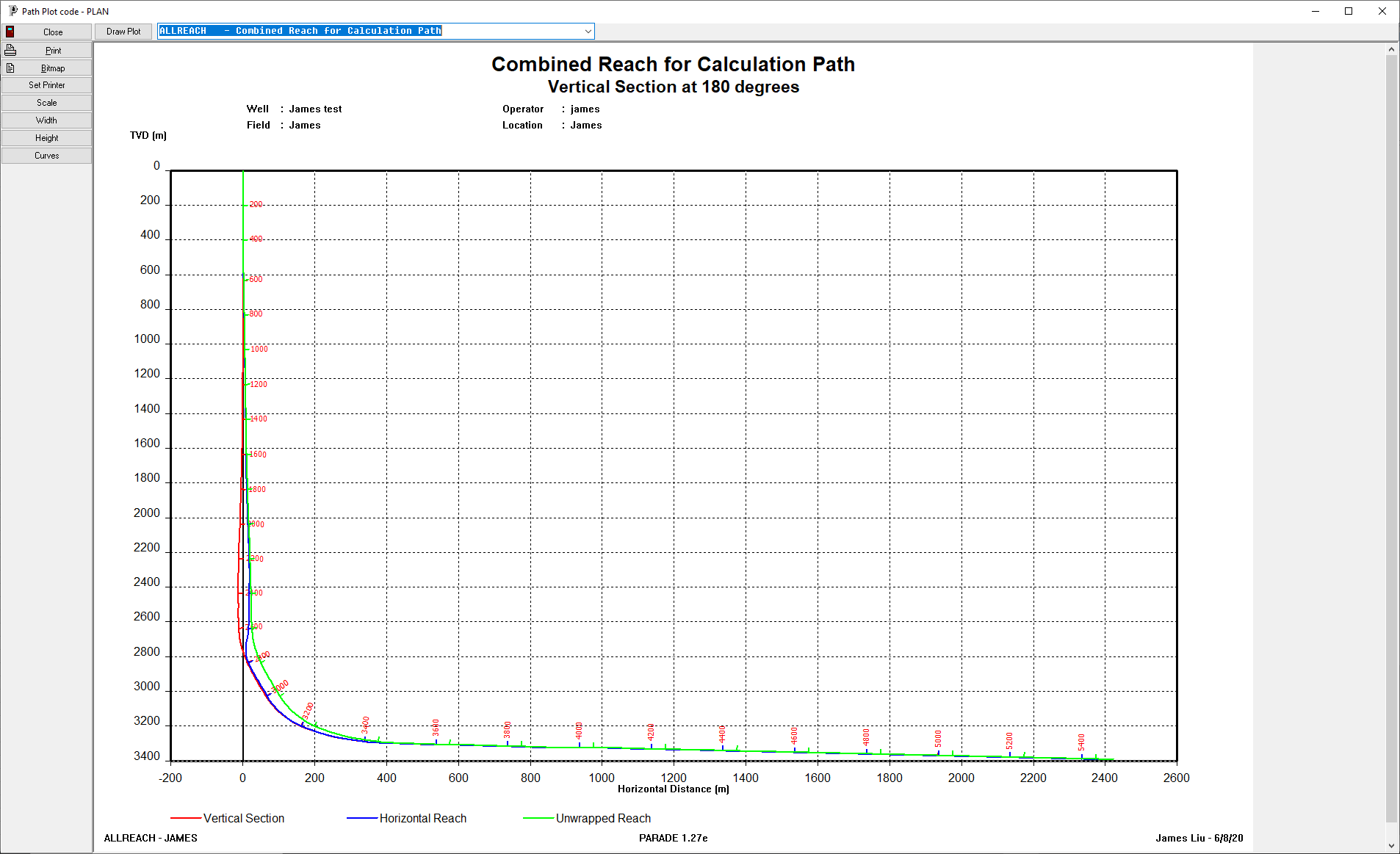
  
Click on [Gen plots]

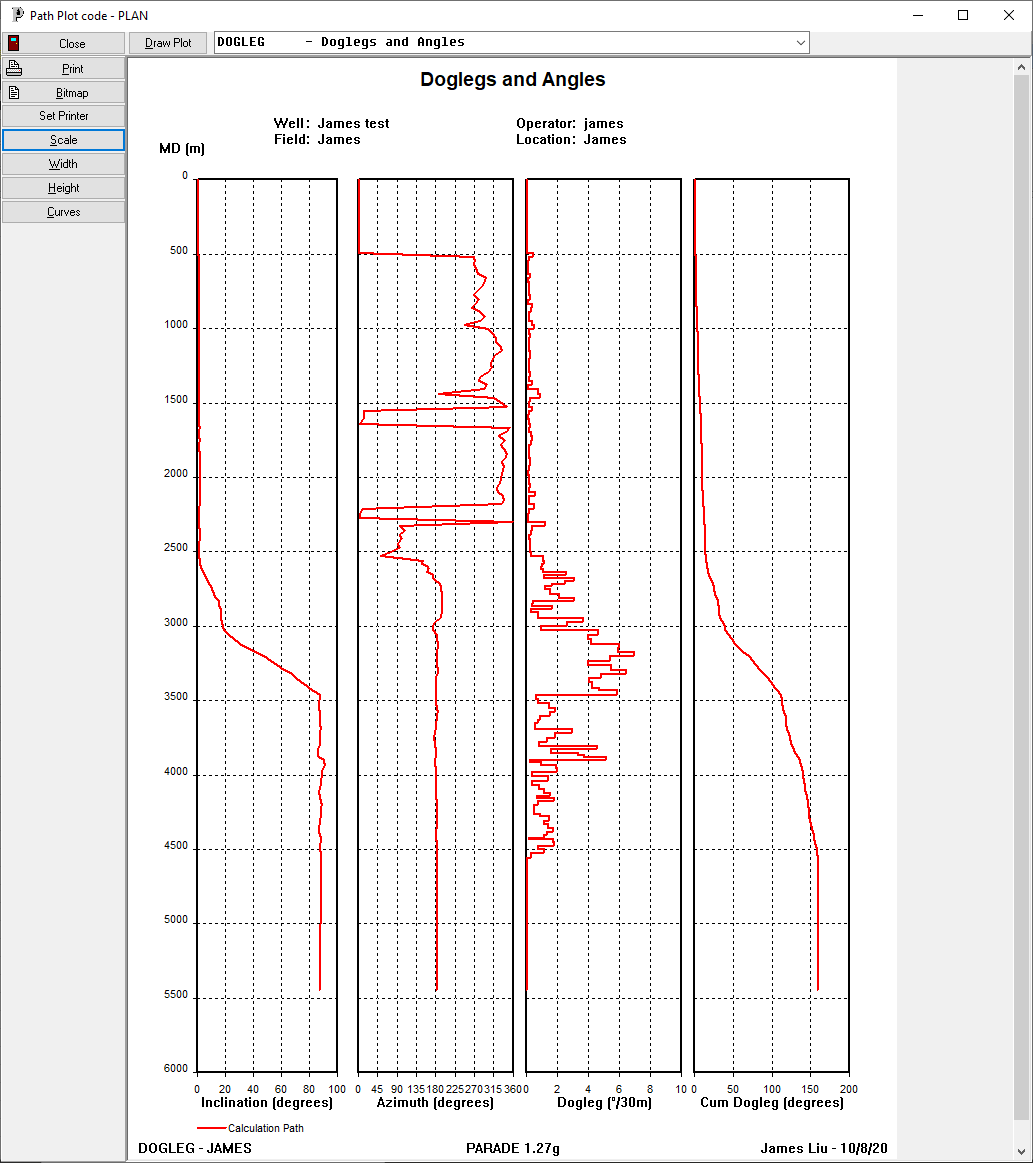
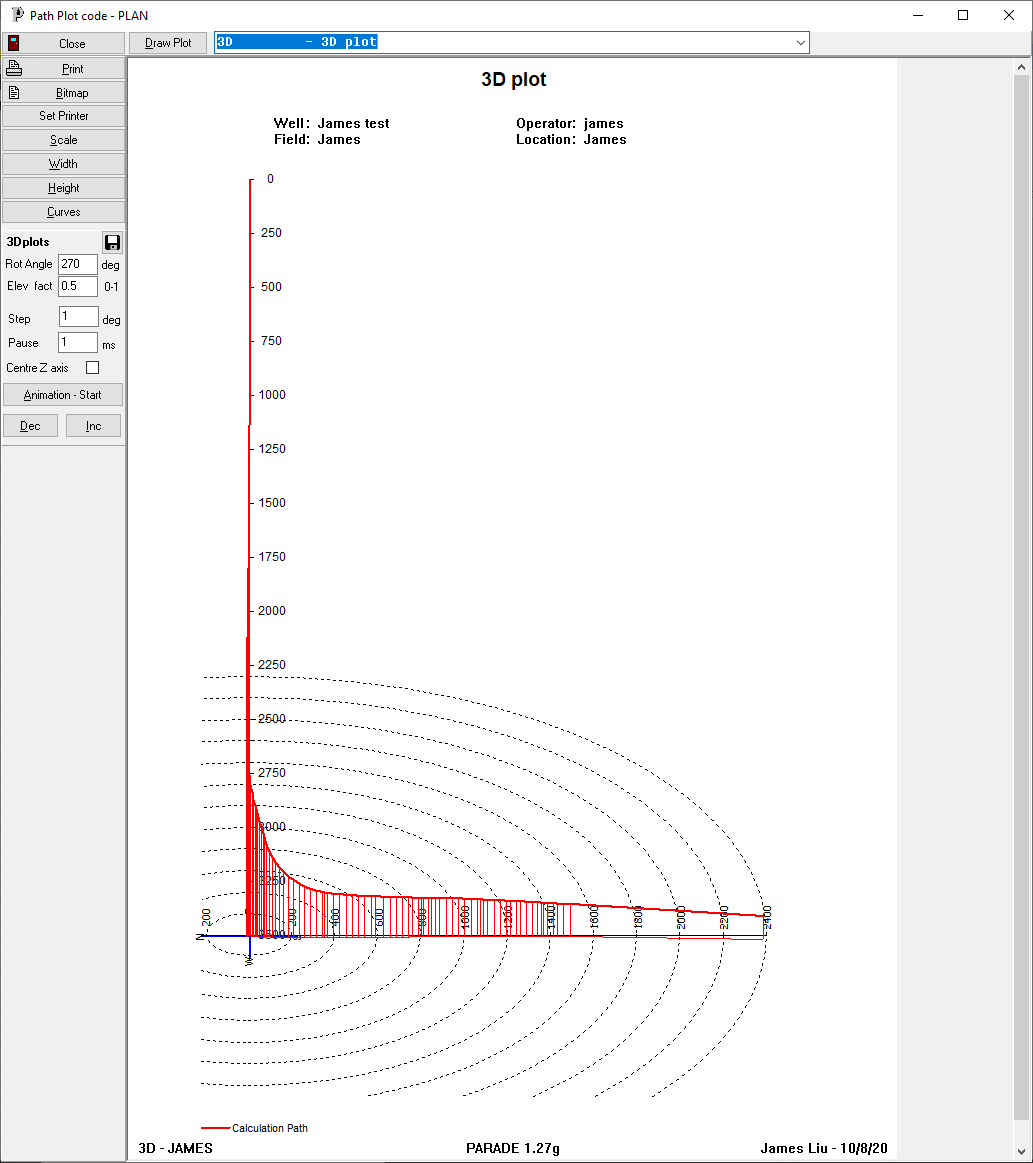


The 3d rotation angle is usually set to 90 degrees from the vertical section azimuth. Elevelation factor of 0.5 is usually a good value.

Example path plots follow.







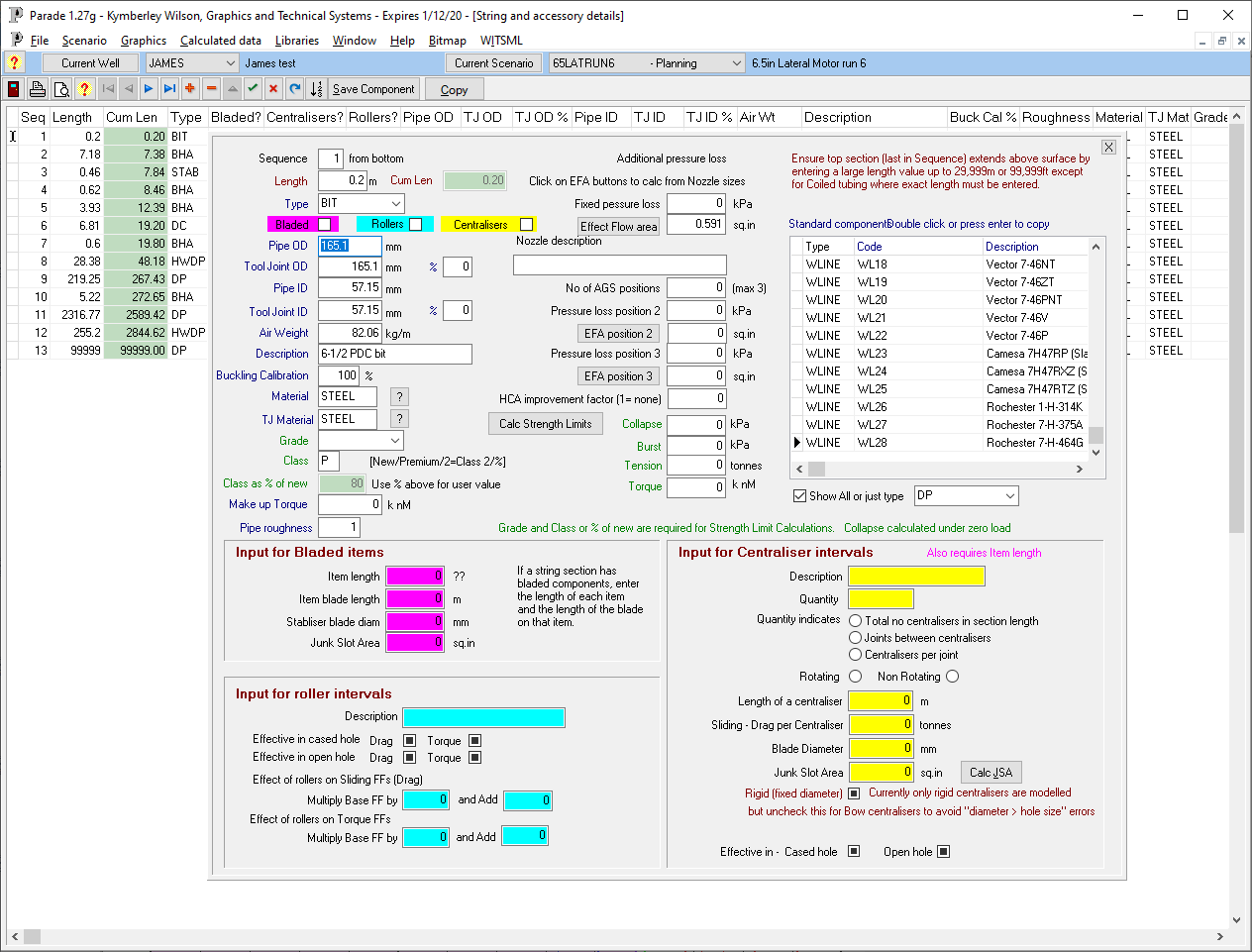
## Set up String

Click on String and accessories option on Scenario menu

Items are entered from the bottom up and can be entered in full or copied from the string component library. The last item should have an arbitrary large length (eg 99999ft) so that the total length will exceed the depth of the hole.

If present, rollers and centralisers can be added to items and their parameters defined.

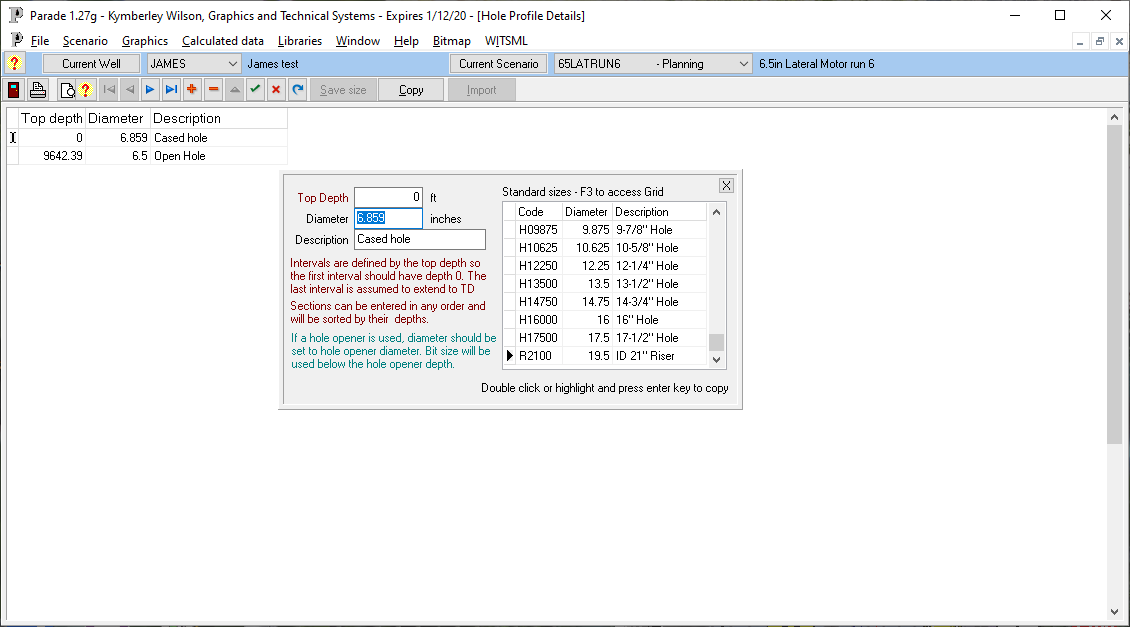
EFAs can be calculated from nozzles.



## Hole profile

The sections of the hole profile are defined from the top down, by Top depth.

The last section is assumed to describe the section from its top to the TD.



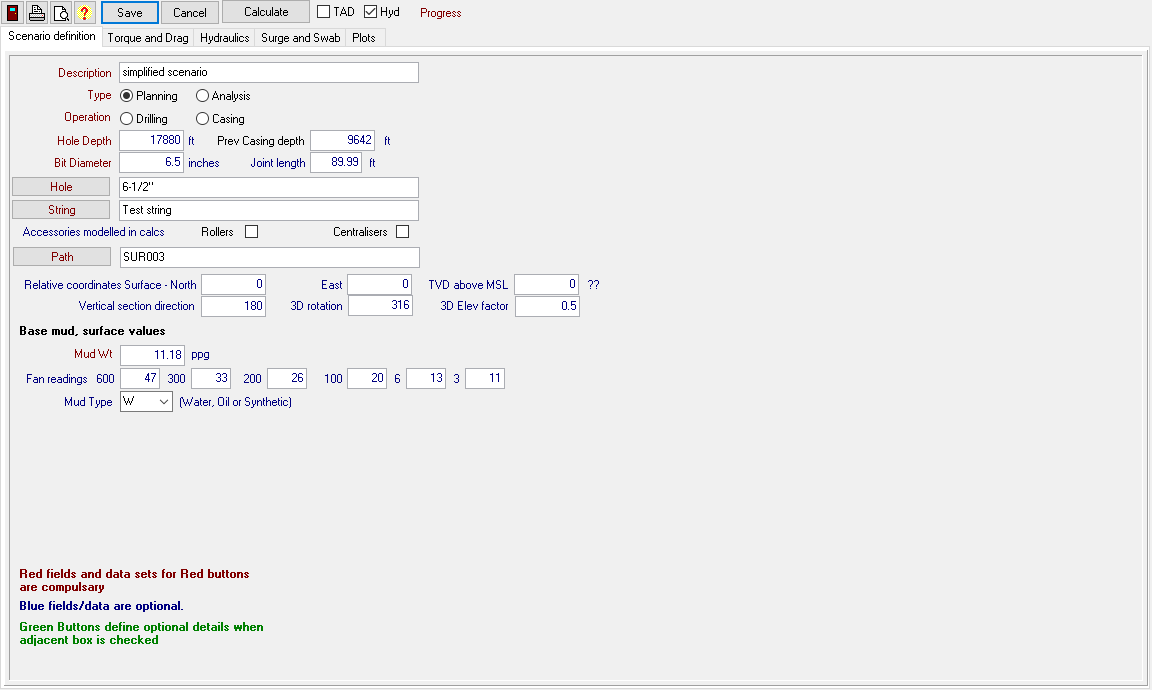
## Define scenario parameters

Click on the Definition option in the Scenario menu.

The scenario table has a single record so is displayed only as a form. Due to the large number of parameters, this has been split into several tabs

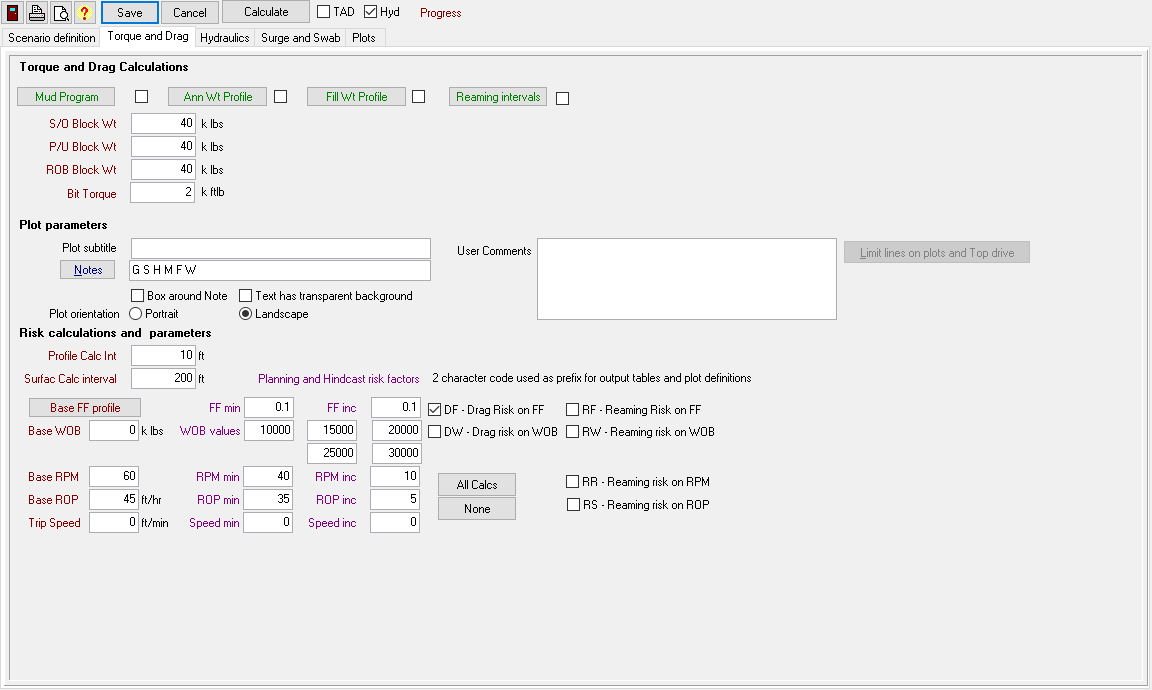
The Scenario definition tab is used to set up common parameters for different calculation types. Depths, sizes, mud etc.

You can also access the tables for hole, string and path data.



### Torque and Drag Calculations

The Torque and Drag tab is used to set specific T&D parameters, plot options and risk parameters for different calculation types and to select the risk calculations to perform.



You can also access the tables for defining mud variations.

The Mud program is used when the base mud properties change at different bit depths, e.g. circulating out at some stage.

The 2 fill weight profiles define the initial static mud profiles, for situations where mud properties change at different depths for a fixed bit depth. E.g., floated casing runs have a fill weight profile. An annulus weight profile may occur of mud is circulated during a trip.

If reaming intervals are expected these can also be defined. These extra tables are only used when the associated check box is ticked.

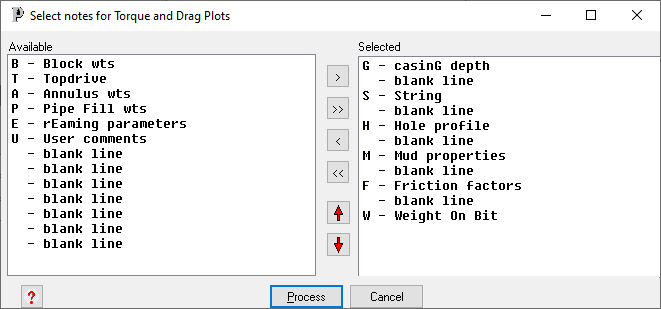
PARADE allows you to add automatically defined Notes to your plots using a short hand notation.

These can include a User defined comment.

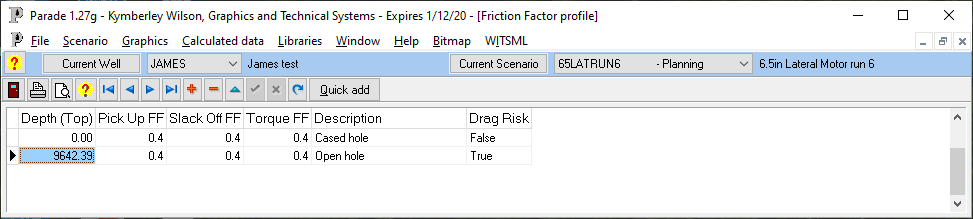
They can optionally include a surrounding box and can either have a transparent or solid background.

Click on the [Notes] button to display the list of options.

Note types can be copied from the available to selected lists and blank lines inserted.



The base parameters for calculations are then defined with the range or values for risk calculations. A required definition is the base Friction Factor profile. Click the button to display the table form.



You can fill this automatically by clicking [Quick add] and entering a FF value.

Two records will be added with that value used for all FFs. The first record will be for cased hole with FF risk turned off. The second will have its top at the casing depth and have risk factors applied in FF drag risk calculations.

On the TAD tab, the check boxes are used to select which risk calculations are to be performed.

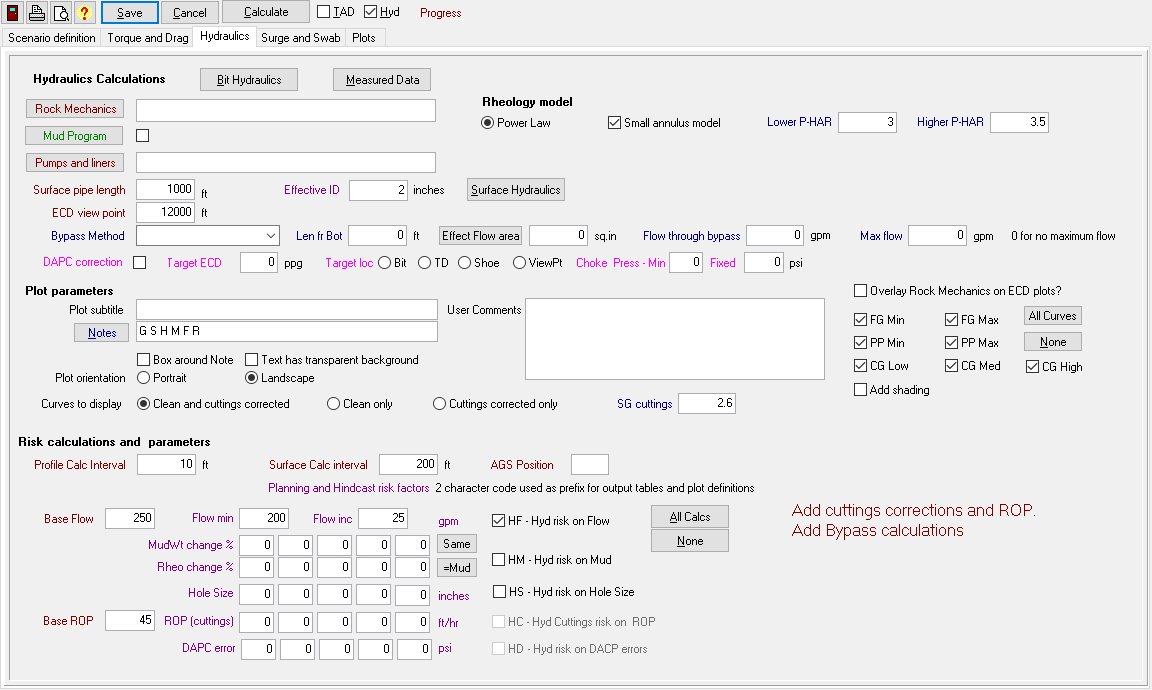
These calculations are run when the TAD check box at the top is checked and the [Calculate] button is clicked.

The calculations create two sets of calculated data for each calculation and a set of automatic plots of these data sets.

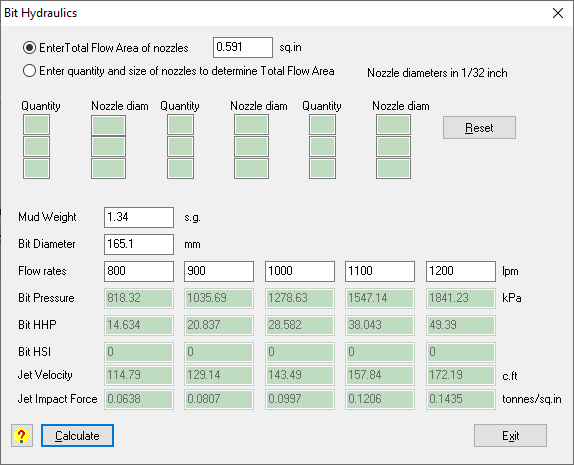
Each risk calculation consists of 5 parallel calculations, one for each risk factor value. A profile calculation is performed at each calculation depth and the surface value is saved in the surface data table at each calculation depth. The along hole profile data is only saved for TD, but can be recalculated later at other depths.

### Hydraulics calculations

The Hydraulics tab is likewise used to define parameters and tables related to Hydraulics calculations.



A [Bit Hydraulics] toolbox is available from this form. It uses the flow rate risk and other parameters for the scenario as defaults. Calculated data is displayed only and not used to update scenario or string data.

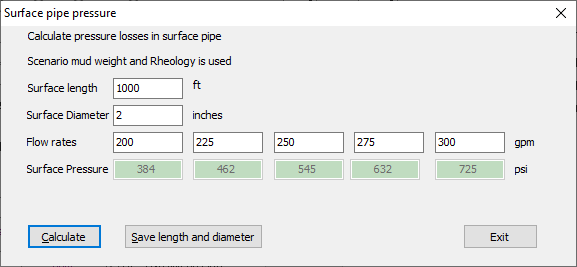


Rock Mechanics data can be accessed from this screen and if available overlaid on ECD plots

The rheology model can be selected.

Surface pipe details are added to calculate to surface pressure losses.

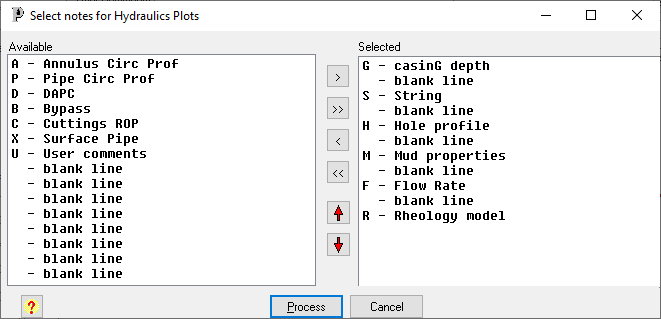
A toll box is available to calculate Surface pressure by clicking the [Surface Hydraulics] button.



A viewpoint depth can be set for ECD calculations, in addition to the casing, bit and TD values.

PARADE also models Bypasses and DAPC pressure corrections and if those are applicable, parameters should be entered.

Similar plot options are available as for Torque and Drag plots with slightly different note options.



In addition, the Rock mechanics curves that are to be overlaid on ECD plots can be selected and shading between these curves and the side of the plot can be turned on.

If the cuttings SG and a ROP are defined, either or both of the clean and cuttings affected calculated values can be plotted.

Again, base rates and risk factors can be defined and the risk calculations selected.

Check the Hyd checked box at the top of the form and click [Calculate] to start the calculations. These create surface and profile datasets for each risk calculation and a set of plots.

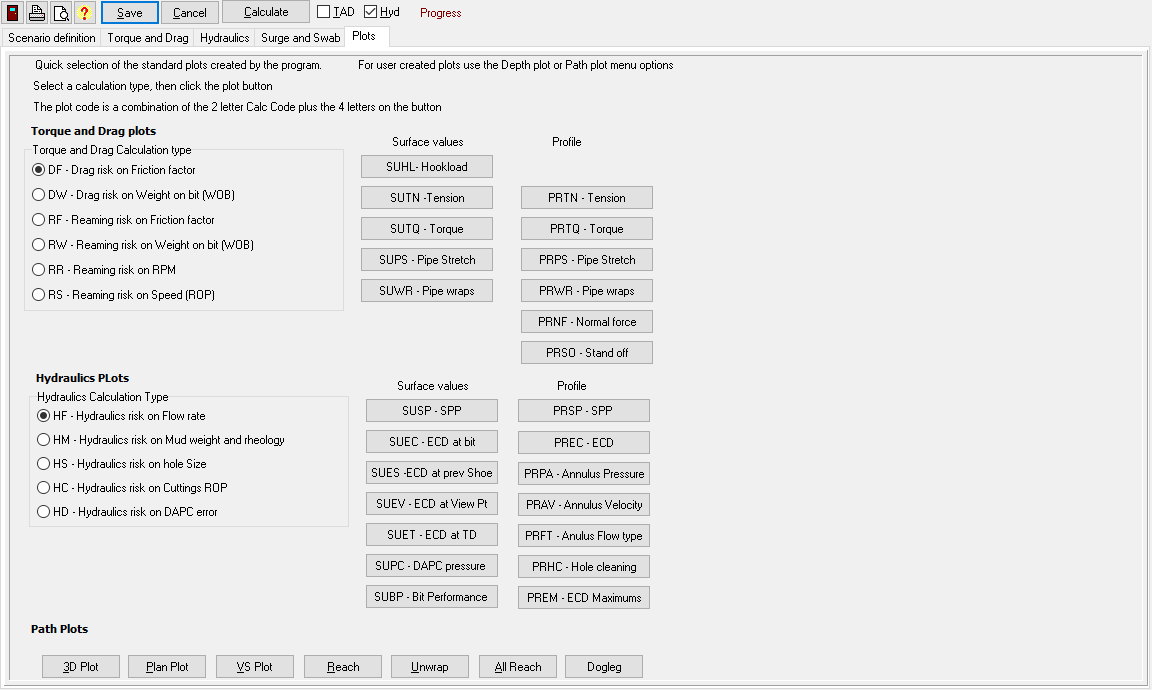
### Viewing plots

The Plots tab displays the risk calculations for each calculation type and the standard set of plots.

The selected plot will be displayed for the selected risk factor calculation for Torque and Drag and Hydraulics calculations.

You can also access the path plots from here as well as on the Path edit screen.

(This tab is essentially the same as the Select Plots option in the Graphics menu)



Select plots for the Drag risk on FF and Hydraulics risk on Flow rate follow:

