

Section

15

15 Math Pack

A math pack output is created by a formula applied to one or more values from existing databases.

A math pack job consists of one or more math pack outputs. Each math pack job is saved in a file with the extension ".wmp".



FIG: 15.1 Warrior Utilities-Math Pack

Math Pack user interface

The Math Pack job file contains:

A presentation file name and scale.

Each output name, output units, data id, sample rate, description, and the formula used to create the output.

The units for each input variable.

Math Pack can be run from the command line - "Math Pack.exe [wmp file name]" to load a job file

When the program loads. Note that the presentation file and scale will not be necessary if a Report is being generated.

15.1 File Menu

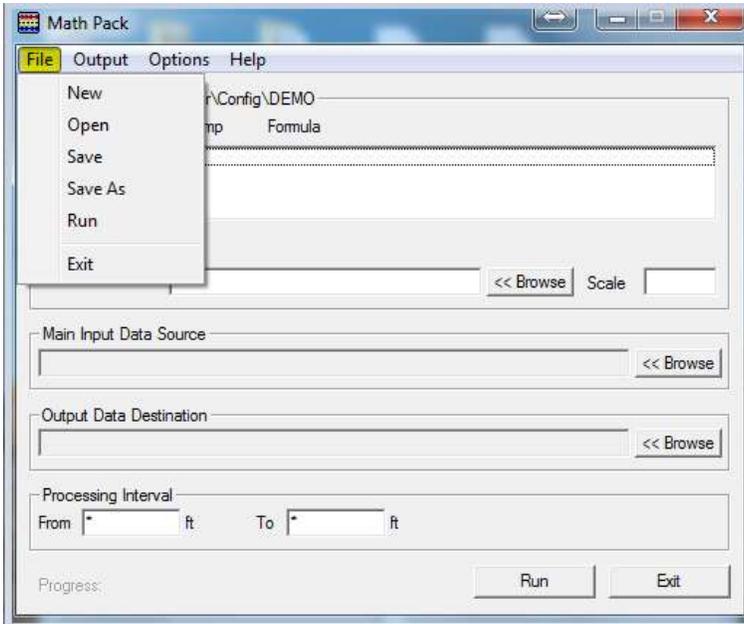


FIG: 15.2 Math Pack window.

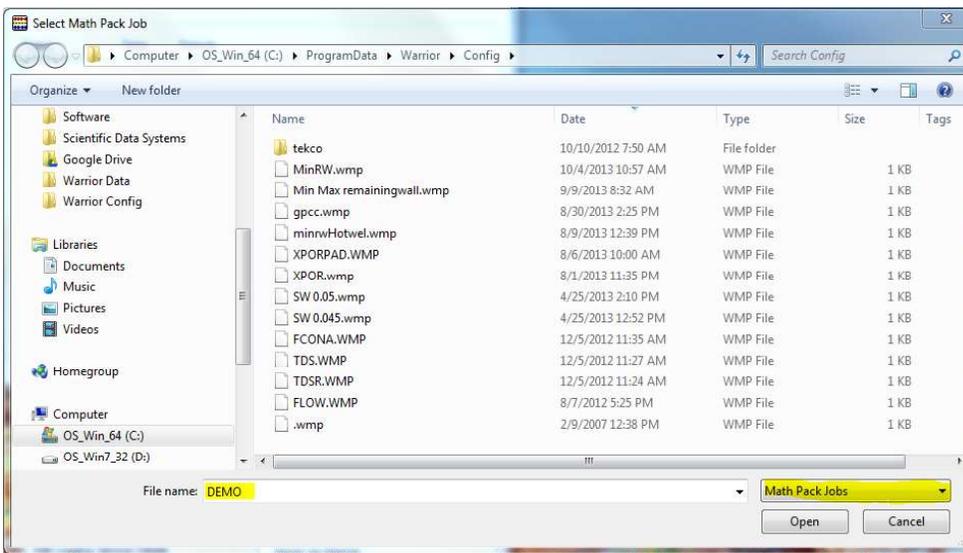


FIG: 15.3 Save Math Pack Job

The file menu controls the Math Pack job files. The default directory for Math Pack jobs is "C:\ProgramData\Warrior\Config". The default extension is ".wmp".

15.2 Output

Each output requires a formula to create the output.

To create a formula, either select **Output/Add** from the main menu, or press the Insert key when inside the Output box in the Math Pack window.

To delete a formula, first highlight the formula to be deleted. Then either select **Output/Delete** from the main menu, or press the **Delete** key.

To edit a formula, first highlight the formula to be edited. Then either select **Output/Edit** from the main menu, or press the **Enter** key.

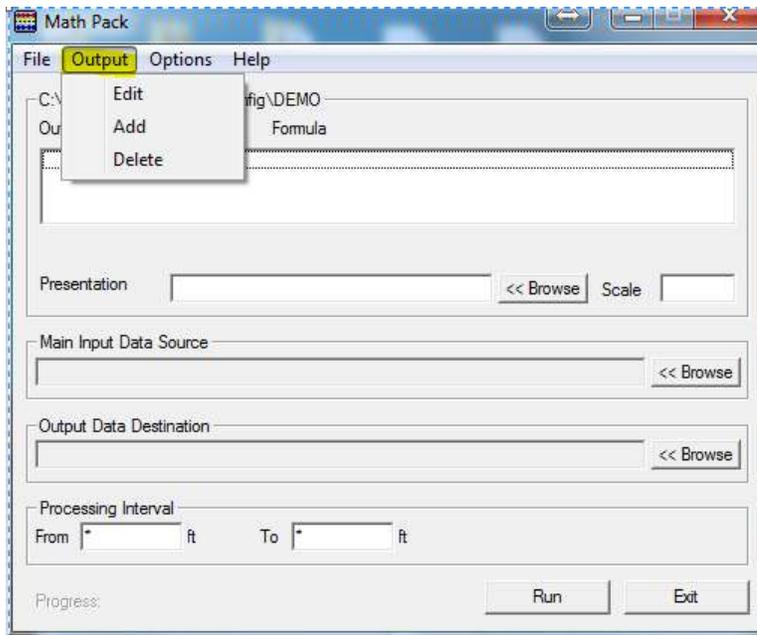
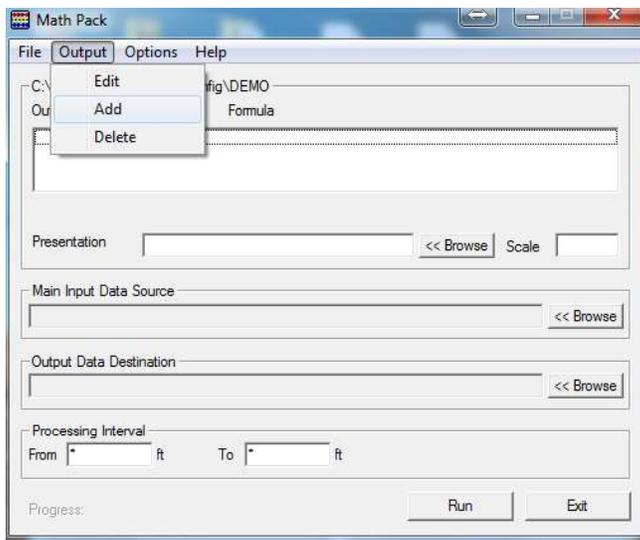


FIG: 15.4 Output options



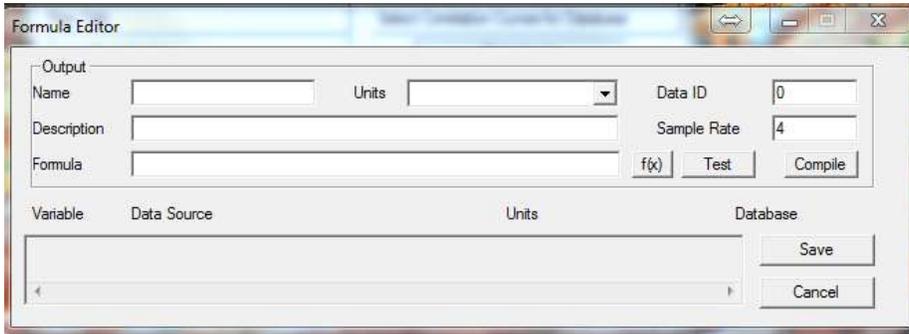


FIG: 15.5 Output /Add

15.2.1 Output Units

If an input variable has units selected as "None", then the units for that variable will come from the database, otherwise the selected units will be used. If the units for the output or input are "None", then no unit conversion will be done. Otherwise, an attempt will be made to convert the value from the input units to the output units. An example may be:

$$\text{CalAvg} = (\text{Cal1} + \text{Cal2}) / 2$$

CalAvg units may be inches, Cal1 units may be mm, Cal2 units may be cm.

Cal1 and Cal2 will be converted to inches before they are added together.

15.2.2 Output Box

The output box shows the output name, output sample interval, and the formula used to create the output. If the output sample interval is 0, then it will be calculated when the Run button is selected.

The calculated output interval will be the maximum of the intervals of the input curves. Any zoned variables will be sampled at a rate of 600.

15.2.3 Presentation / Scale

The presentation file and scale to be used when creating a new pass. If the data is going to an existing pass, then the existing presentation and scale will be used.

15.2.4 Main Input Data Source

Will overwrite any data sources that were selected for particular curves. Will default data source for each formula variable to: field/well/run/pass/[variable name]/*

At runtime, if it cannot locate field/well/run/pass/[variable name]/* then it will try to locate it as a zoned variable: field/well/run/pass/_vars_[variable name]

If that cannot be located, then a warning message will appear "Unable to connect to input [variable name] in [database]:[pass]"

If the Output Data Destination is blank when this is selected, then a default new database name will be created. The new name will be: field/well/run/mpk_[x] where x increments for each math pack run.

15.2.5 Output Data Destination

This can be created automatically by selecting the Main Input Data Source first. This can be an existing database if the created curves do not exist already. If the created curves exist then the following message will appear: "Unable to create output [database]:[pass]/[variable name]/1"

If you select Generate Report from the Options menu, then the destination will be the location of the embedded text report.

15.2.6 Processing Interval

To process the entire input interval, leave **FROM** and **TO** values as "".

15.3 Formula Editor

15.3.1 DataID

A value used for Warrior databases. Default is 0.

15.3.2 Description

This will be written to the output database along with the output name.

15.3.3 Formula

To see what functions are available, select the **"f(x)"** button. This will also show what parameters are needed for each function. There is a different set of formulas for the Report output and for the Curve output. The AVG curve formula will create a new curve which will be the average of one or more curves - i.e. AVG(GR1, GR2, GR3). The AVERAGE Report will create the average value of the curve(s) over the entire interval. The MIN, and MAX functions are similar to the AVG function, and the MINIMUM and MAXIMUM functions work like the AVERAGE function.

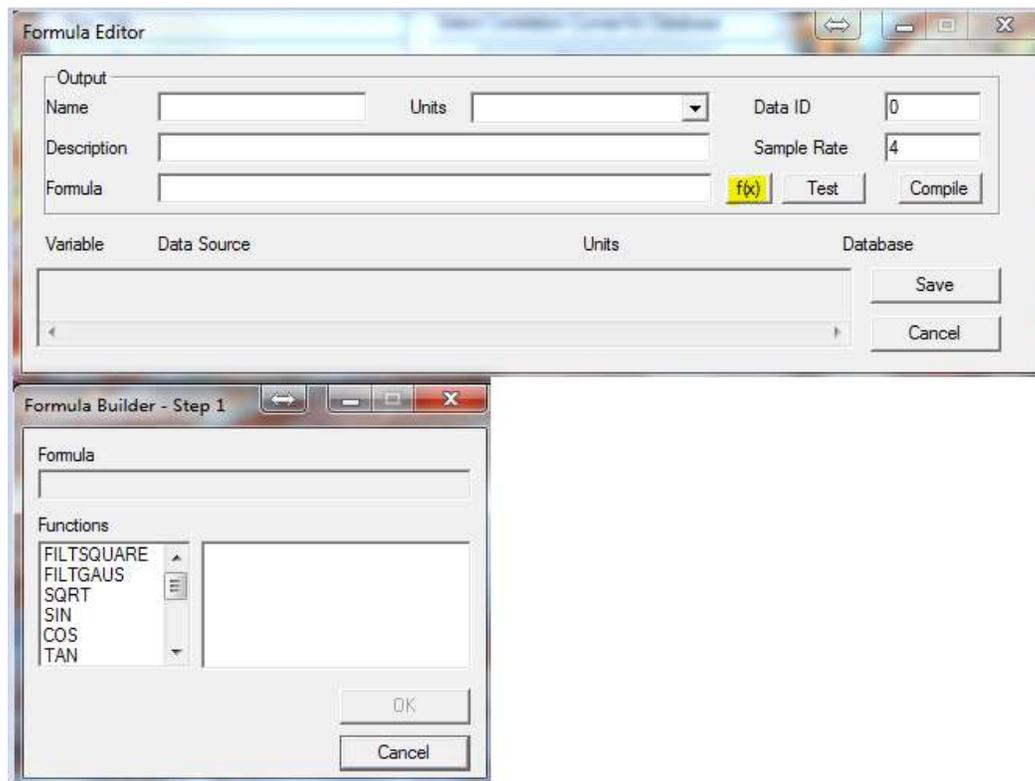


FIG: 15.6 Formula Editor

15.3.4 Test

This will run sample values through the formula and show the result. It will automatically fill the variables with values starting with 1 and incrementing for each variable. You can also test the formula with other values by placing a number in the Data Source box next to the variable name.

15.3.5 Compile

This will determine if the created formula will be able to compute a value. The Formula Editor window will change after the compile to show the new variable list.

15.3.6 Data Source

Select the Curve button to select a curve from a dataset. Select the Var button to select a zoned variable from a dataset. This will be the source of the data for each variable. This will also be filled in if the Main Input Data Source from the Main Window is selected.

15.3.7 Variable Units

To override the units from the database, change this setting; otherwise leave it "None". Also see output units.

15.4 Options

The Math Pack program will generate two types of outputs - curves and reports. The curve output will create another log pass with the output curves generated by applying the formula at each data point. A report output will generate an embedded text report, which will contain the results of the formula(s) applied to all of the data points over the entire interval. The output data destination will be the location of the embedded text file in the database.

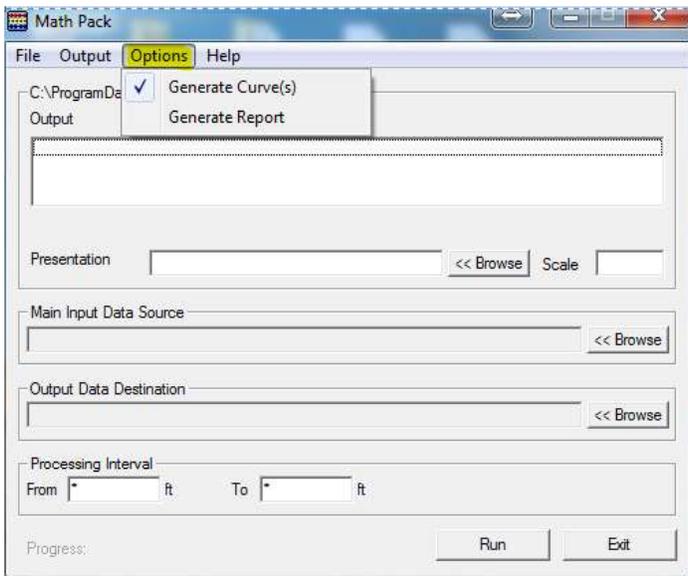


FIG: 15.7 Options

15.5 Demo example

Create a new Math Pack Job (demo), Add new output curve (GRADD), Select GR curve from DB CBLDEMO, ADD 200 API, and plot.

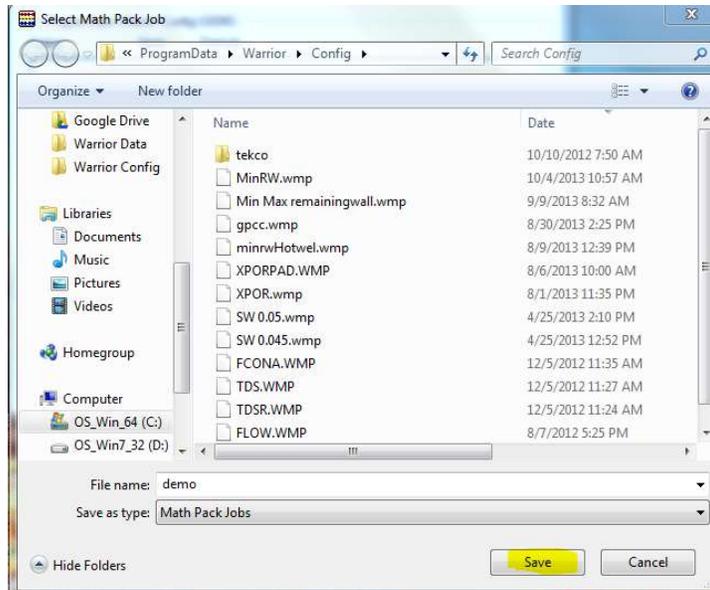


FIG: 15.8 New Job Math Pack

Type new Math Pack job "demo"

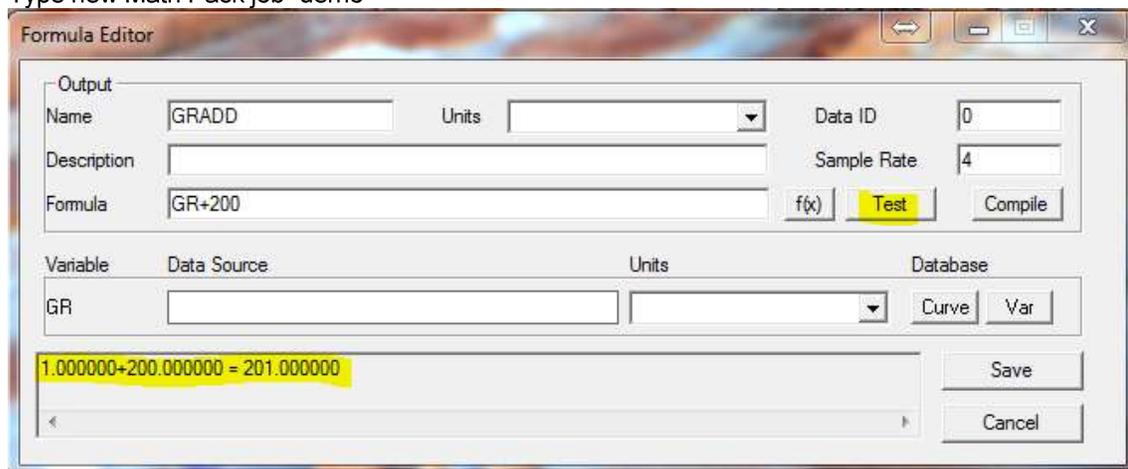


FIG: 15.9 Formula Editor Setup

ADD or create a formula, either select **Output/Add** from the main menu, or press the Insert key

Type on Name box "GRADD"

Type on description box "Gamma Ray ADD "

Type the formula GR+200

Type the formula and click on **Test**

Click on **Save**

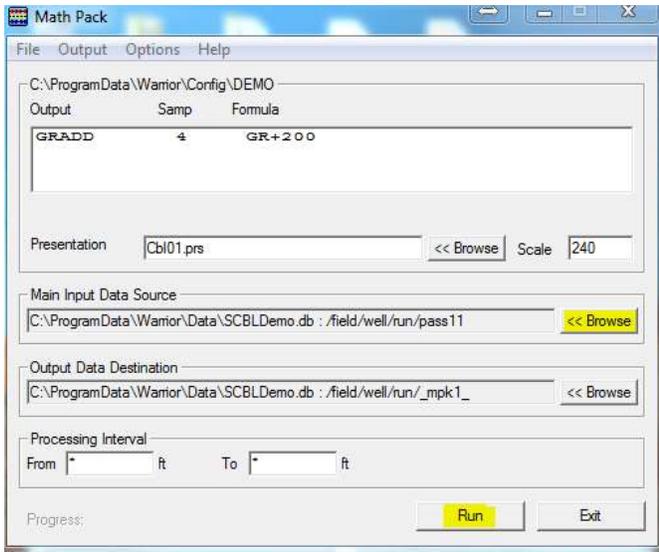


FIG: 15.10 Run Math Pack

Select Main input data source from the warrior Data Base (SCBLDEMO)
 The Output Data Destination can be created automatically by selecting the Main Input Data Source first.
 Click on **Run**

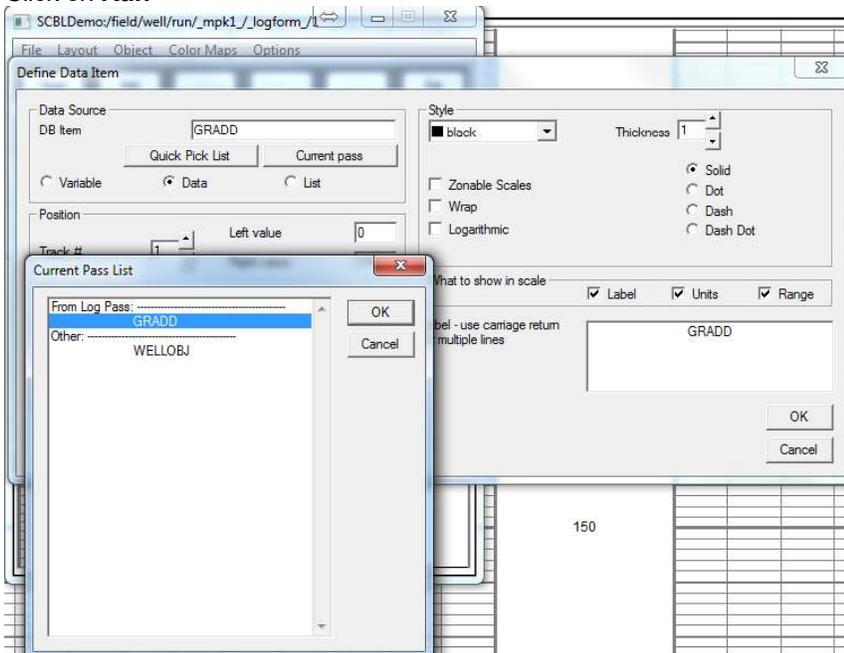


FIG: 15.11 Select New Curve

Add a new curve GRADD

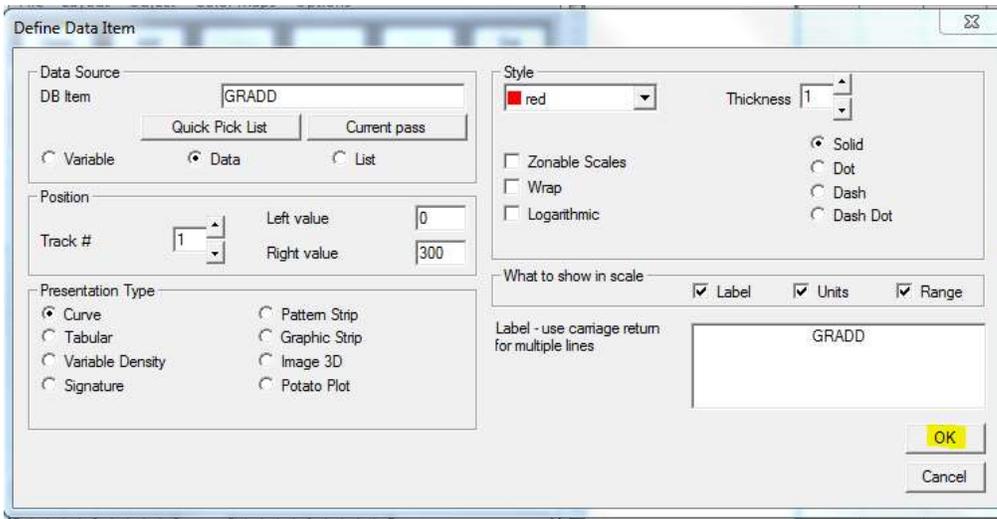


FIG: 15.12 Set Curve

Set Scales and Track values

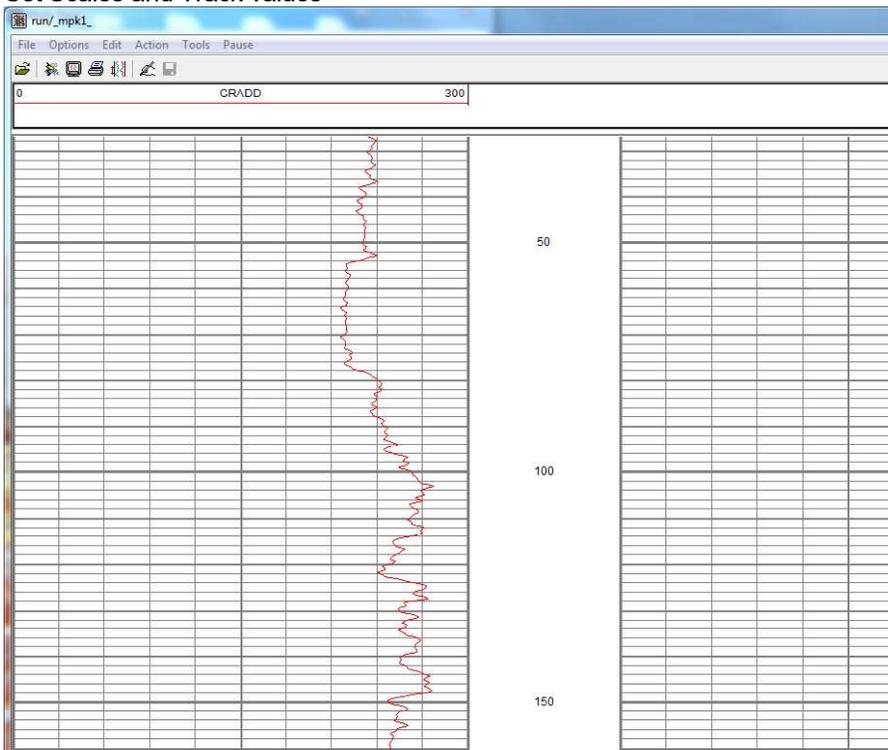


FIG: 15.13 Plot Curve

Plot the Curve GRADD