

POWER LOG

Version 12 Metric Tutorial



Suite 314, 602 – 11th Avenue S.W.

Calgary, Alberta T2R-1J8

Phone: (403) 777-9454 Fax: (403) 777-9455

Website: www.powerlogger.com Email: info@powerlogger.com

Introduction	3
The Toolbar	3
The Selection Bar	3
Import Toolbar	4
Export Toolbar	4
RTF Font Toolbar	4
RTF Line and Boxes Toolbar	5
Connecting to the Database	6
Creating a new Well / Log	6
The System Options Window	10
General Tab	10
Fonts Tab	11
Display Tab	12
Favorites Tab	15
The Log Configuration Builder window	16
Fundamentals of the Log Configuration Builder Window	17
Deleting the Date and the Framework tracks on the Tutorial Log	18
Adding a Slide - Rotate Track to the Tutorial Log	18
Resizing a track	18
Moving the Oil Show track	18
Deleting the Bit Record layer from the Drilling Progress track	19
Turning off a track	19
Resizing and Configuring the Drilling Progress Track	19
Importing ASCII File Data into the Drill Rate & Total Gas curve layers:	20
Adding values to the Drill Rate curve layer:	21
Adding values to the Total Gas curve layer:	23
Changing Curve Scales	23
Adding Sample Descriptions	24
Printing out Sample Descriptions to Word. (Only if you have Word for Windows)	27
Printing out Sample Descriptions (If you do not have Word for Windows)	27
Drawing Interpreted Lithology	28
Editing Sample Descriptions	30
Overview of RTF Font Toolbar buttons.	31
Overview of RTF Lines and Boxes Toolbar buttons.	32
Drawing Porosity (%)	33
Drawing Grain Size	34
Drawing Oil Shows	35
Drawing Sorting	35
Drawing Rounding	36
Drawing Porosity Type	36
Drawing on the Slide / Rotate Track	37
Drawing Accessories	37
Adding another Accessory	38
Adding a Cored Interval to the log	40
Adding Core Descriptions	41
Editing Core Descriptions	42
Changing the Font Sizes over an Interval	43
Changing the Display Scale options	44
Deleting Core Descriptions	44
Importing an LAS Core Rate Curve	45
Adding Coring Times to the existing Drill Rate curve	47
Changing Curve Scales in the Curve Editor window	47
Adding a Formation Top	49
Adding Annotations	51
Adding a Curve Fill layer to an existing log	51
Setting up the (2) Two Curve Fill options	52
How to Print the Log	54
Adding a Link (Attachment) to your Log	56

Introduction

Power*Log™(Petrographical Office Wellsite Evaluation and Reporting) is a chip and core logging management program that utilizes single-entry data capturing to produce geological striplogs. The geological data is entered into the system through the use of intuitive data entry forms to ensure standardization of data. This data is stored in an RDBMS(Relational Database Management System) to allow data manipulation using SQL access tools.

Power*Log™ software consists of four (4) main parts:

- 1.) A log editor module that allows you to change the striplogs to suit your needs and preferences.
- 2.) A data transfer module.
- 3.) Report printing modules.
- 4.) An on-line help system that is designed to familiarize you with the commands and functions available in **Power*Log™** and lead you through many of the processes involved in creating welllogs.

A note about navigating through Power*Log™ Reports:

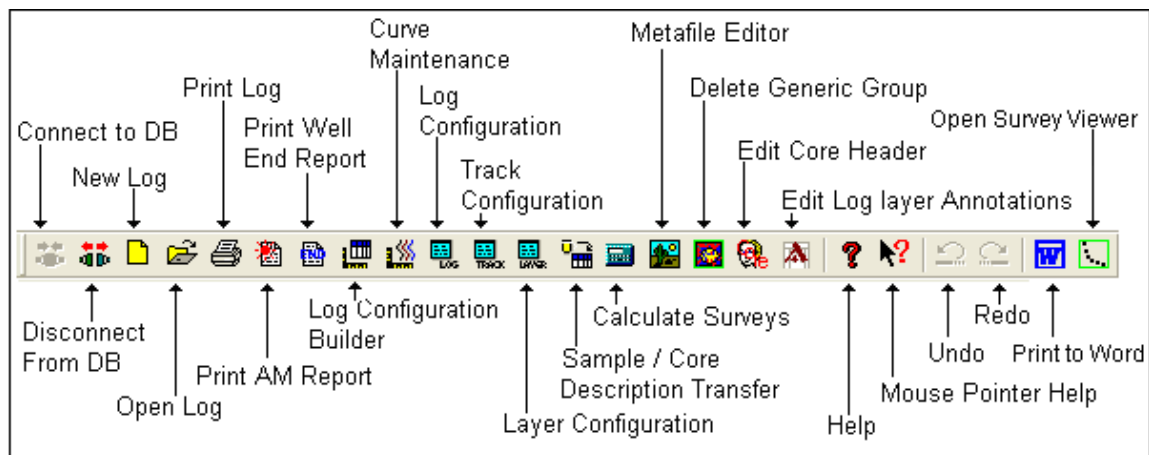
When you are entering information into data forms, you may move between boxes/fields by **pressing the Tab key** to go forward and **Shift +Tab keys** to move backwards. To exit forms that do not have an **Exit, OK, or Cancel** button, **press the Esc key** on the keyboard.

To access the On-line Help System in Power*Log™:

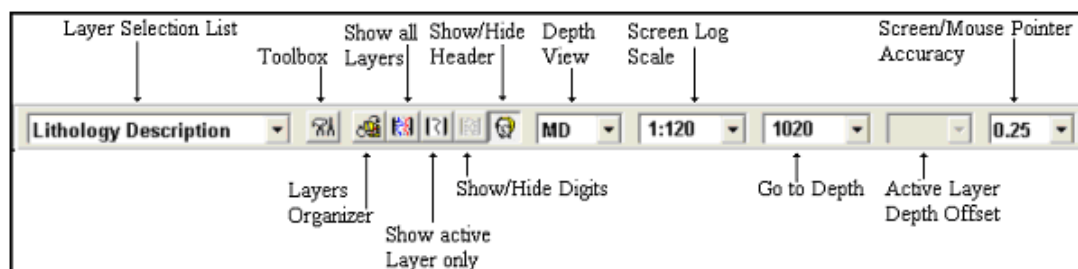
You can make use of the context sensitive help by **pressing the F1 key** when you are in a dialogue box. A pertinent help file will appear, opened to the topic relevant to the dialogue box you are in.

Below are some examples of common features within Power*Log™:

The Toolbar



The Selection Bar...



The Status Bar...

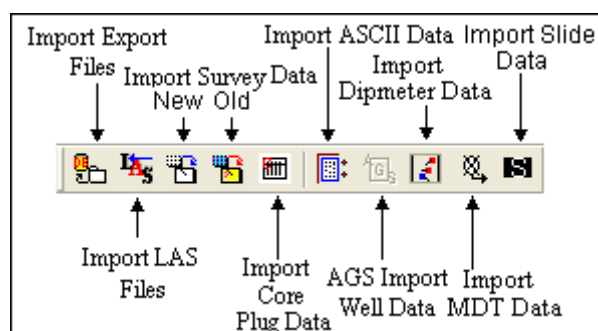
For Help, press F1 paeology UPDATE KB: 567.6

The Status Bar displays system status messages and any error message (associated with a field entry), in the far left corner. The KB elevation is displayed in the lower right corner of the **Status Bar**.

Import Toolbar

This toolbar is dockable and can be moved to different places on the screen.

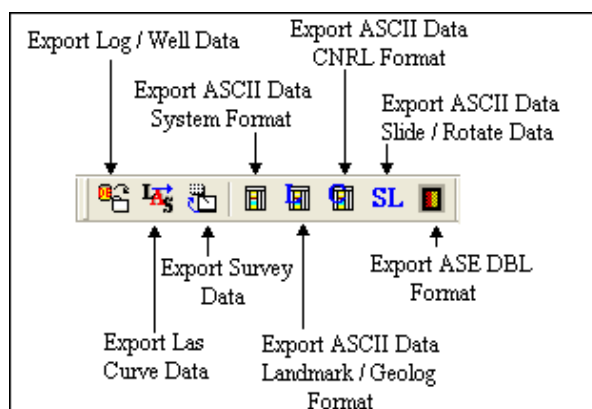
The Power*Log / Core & Curve™ Import Toolbar...



Export Toolbar

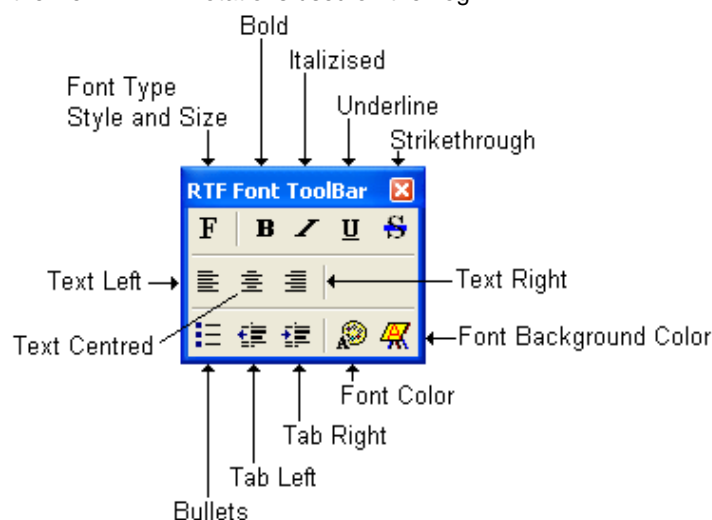
This toolbar is dockable and can be moved to different places on the screen.

The Power*Log / Core & Curve™ Export Toolbar...



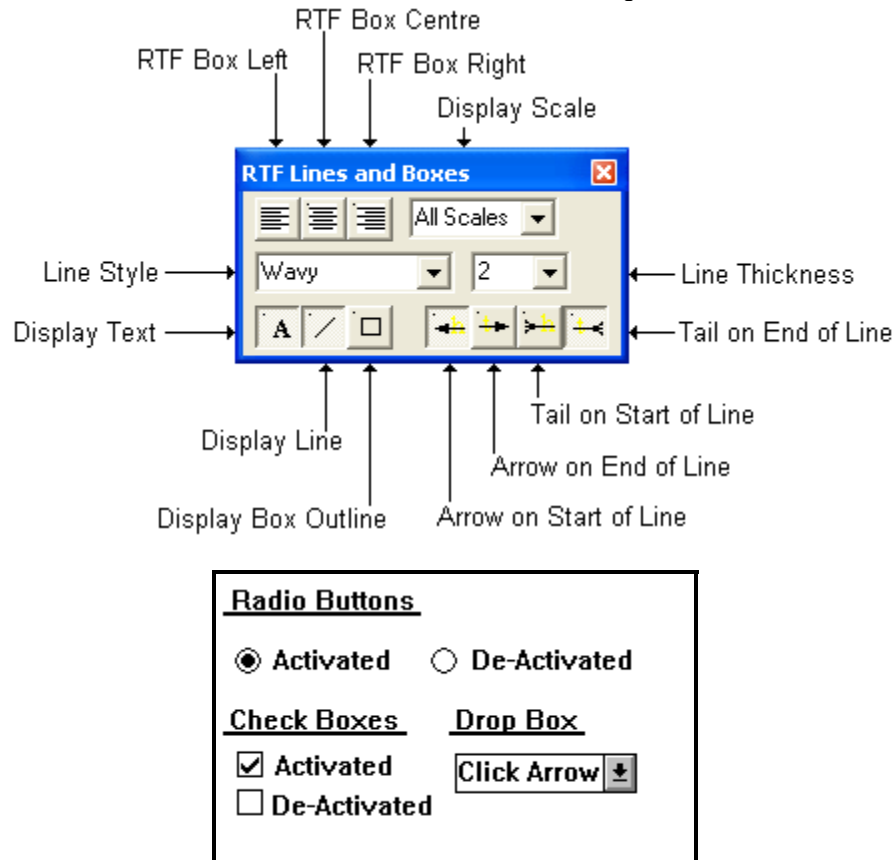
RTF Font Toolbar

Turns the RTF Font Toolbar on and off. This toolbar is dockable and can be moved to different places on the screen. This is used with the New RTF Annotations used on the Log.



RTF Line and Boxes Toolbar

Turns the RTF Line and Boxes Toolbar on and off. This toolbar is dock able and can be moved to different places on the screen. This is used with the New RTF Annotations used on the Log.



The On-line Help is divided into four(4) main categories:

Commands - Descriptions of each menu command within **Power*Log™**.

Toolbar - Shortcuts to common commands are explained.

Database Table Operations - Commands/functions related to the Database Table are described.

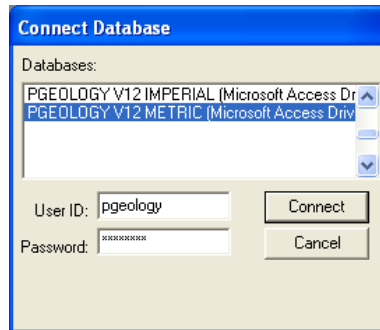
Quick Reference Guide - The portion of the **On-line Help System**, that quickly refers you to some of the more commonly performed tasks.

This tutorial will guide you through the process of creating and editing a new striplog (hereafter referred to simply as a log), with curves and interpreted lithology.

Connecting to the Database



- 1.) Double click on the **Power*Log V12** icon. Acknowledge the Security Information window by clicking on the **OK** button. This will initiate the program and activate a **Connect Database** window.



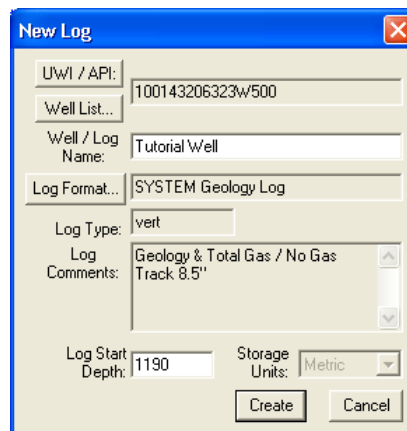
- 2.) Highlight the **PGEOLGY V12 METRIC (Microsoft Access Driver[*].mbd))** database by clicking on it once.
- 3.) Move your mouse pointer to the **User ID** field and click. This will activate a flashing cursor in the **User ID** field. Type "pgeology" in the **User ID** field. Press the **Tab** key on the keyboard to move to the **Password** field.
- 4.) Type "pgeology" in the **Password** field and then click on the **Connect** button. The program will now load various dictionaries and then activate an **Open Log** window.

Creating a new Well / Log

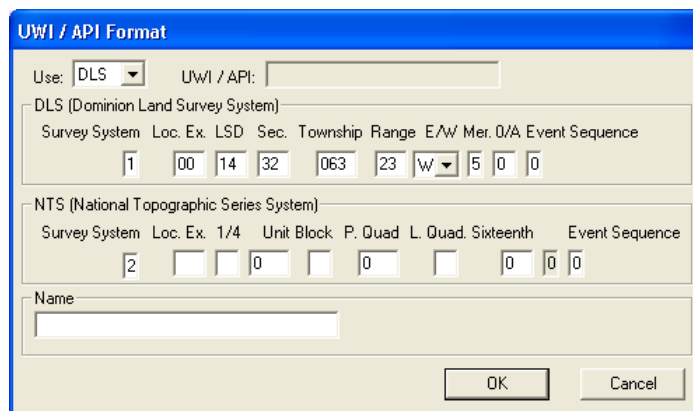


The first step in creating a new log is to click on the **New Log** button on the **Toolbar** or to select **New** under **File** on the **Selection Bar**. This will open the **New Log** window below..

This more than likely will appear after connecting to the Database without you have to do the above procedure if this was the first time you have activated Power*Log.




- 1.) The **Well/Log Name** field is where you enter the name of the well (no more than 50 characters long). Type "Tutorial Well" into the **Well / Log Name** field.
- 2.) Click on the **UWI / API:** button to activate the **UWI Format** window.



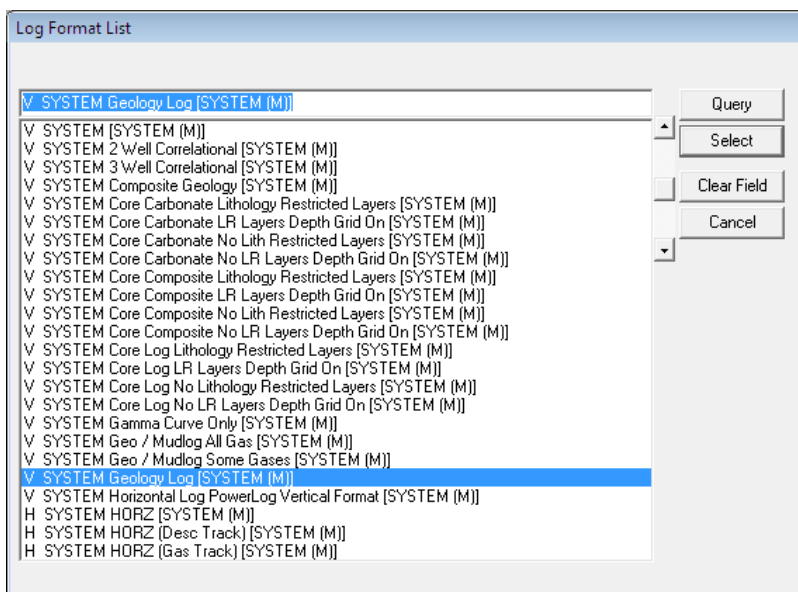
The UWI / API Format dialog box has a blue title bar. It contains two main sections: 'DLS (Dominion Land Survey System)' and 'NTS (National Topographic Series System)'. The DLS section has fields for Survey System (1), Loc. Ex. (00), LSD (14), Sec. (32), Township (063), Range (23), E/W (W), Mer. (5), O/A (0), and Event Sequence (0). The NTS section has fields for Survey System (2), Loc. Ex. (), 1/4 (), Unit Block (0), P. Quad (), L. Quad (), Sixteenth (0), and Event Sequence (0). There is a Name field at the bottom and OK/Cancel buttons.

- 3.) You will be using the **DLS (Dominion Land Survey System)** format (for Alberta, Saskatchewan, Manitoba and some of BC). Enter the following information into the empty **DLS** fields and remember to **Tab** between fields.



Loc. Ex.: **00**(two zeros) LSD: **14** Sec.: **32** Township: **063** Range: **23**
 E/W: **W** Mer.: **5** O/A: **0** (zero) Event Sequence: **0** (zero)

- 4.) Click on the  button when you have finished entering the **UWI**. An extended **UWI** is created by **Power*LogTM** from the many small fields that you just filled in.

- 5.) Click on the  button to activate the **Log Format List** window.




The Log Format List dialog box has a title bar and a list of log formats. The first item, 'V SYSTEM Geology Log [SYSTEM (M)]', is highlighted. To the right of the list are buttons for Query, Select, Clear Field, and Cancel. The list includes various system logs such as 'V SYSTEM [SYSTEM (M)]', 'V SYSTEM 2 Well Correlational [SYSTEM (M)]', 'V SYSTEM 3 Well Correlational [SYSTEM (M)]', 'V SYSTEM Composite Geology [SYSTEM (M)]', 'V SYSTEM Core Carbonate Lithology Restricted Layers [SYSTEM (M)]', 'V SYSTEM Core Carbonate LR Layers Depth Grid On [SYSTEM (M)]', 'V SYSTEM Core Carbonate No Lith Restricted Layers [SYSTEM (M)]', 'V SYSTEM Core Carbonate No LR Layers Depth Grid On [SYSTEM (M)]', 'V SYSTEM Core Composite Lithology Restricted Layers [SYSTEM (M)]', 'V SYSTEM Core Composite LR Layers Depth Grid On [SYSTEM (M)]', 'V SYSTEM Core Composite No Lith Restricted Layers [SYSTEM (M)]', 'V SYSTEM Core Composite No LR Layers Depth Grid On [SYSTEM (M)]', 'V SYSTEM Core Log Lithology Restricted Layers [SYSTEM (M)]', 'V SYSTEM Core Log LR Layers Depth Grid On [SYSTEM (M)]', 'V SYSTEM Core Log No Lithology Restricted Layers [SYSTEM (M)]', 'V SYSTEM Core Log No LR Layers Depth Grid On [SYSTEM (M)]', 'V SYSTEM Gamma Curve Only [SYSTEM (M)]', 'V SYSTEM Geo / Mudlog All Gas [SYSTEM (M)]', 'V SYSTEM Geo / Mudlog Some Gases [SYSTEM (M)]', 'V SYSTEM Geology Log [SYSTEM (M)]', 'V SYSTEM Horizontal Log PowerLog Vertical Format [SYSTEM (M)]', 'H SYSTEM HORZ [SYSTEM (M)]', 'H SYSTEM HORZ (Desc Track) [SYSTEM (M)]', and 'H SYSTEM HORZ (Gas Track) [SYSTEM (M)]'.

- 6.) Click on "**V SYSTEM Geology Log [SYSTEM (M)]**" to highlight it and then click on the  button. You may also **double click** on "**V SYSTEM Geology Log [SYSTEM (M)]**."
- 7.) Once you have been returned to the **New Log** window, **double click** in the **Log Start Depth** field. This will highlight the zero (**0**) and activate a flashing cursor. **Type 1190** in the **Log Start Depth** field.
- 8.) Once the information is entered, click on the  button.
- 9.) This will initiate a **New Log**. During this process, the curves associated with the selected log format will be added. **Drill Rate** will be the first Add curve window.

The 'Add Curve' dialog box is shown with the following settings:

- UWI / API: 100143206323W500
- Curve Heading:
 - Name: Drill Rate
 - Curve Units: min/m
 - Depth Units: m
 - Null Value: -1.00000
- Curve Scale:
 - Depth Interval: (Use 0 to 0 for the whole log) 0.00 to 0.00
 - Scale: (Left / Bottom) (Right / Top) 0.00000 to 15.00000
 - Backup Scale: straight shift
 - Grid Type: Linear

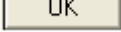
Buttons: OK, Cancel

- 10.) Click on the  button in the Add Curve window for Drill Rate. This will activate the second Add Curve window for **Total Gas**.

The 'Add Curve' dialog box is shown with the following settings:

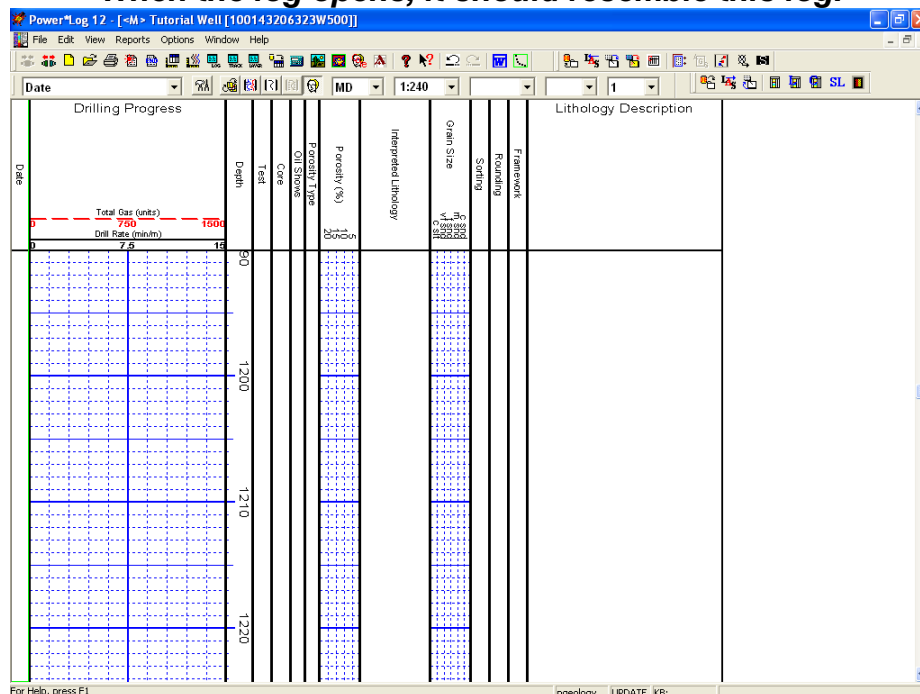
- UWI / API: 100143206323W500
- Curve Heading:
 - Name: Total Gas
 - Curve Units: units
 - Depth Units: m
 - Null Value: -1.00000
- Curve Scale:
 - Depth Interval: (Use 0 to 0 for the whole log) 0.00 to 0.00
 - Scale: (Left / Bottom) (Right / Top) 0.00000 to 1500.0000
 - Backup Scale: straight shift
 - Grid Type: Linear

Buttons: OK, Cancel

- 11.) Click on the  button in the **Add Curve** window for **Total Gas**. This will activate well and it's log layout

You have just added two curves to the database that will be displayed as curve layers in the Drilling Progress track on the new Tutorial log showing the Tutorial Wells information.

**** When the log opens, it should resemble this log. ****



- 12.) You can now fill in your pertinent well information by selecting **Well** under **Edit** pull down menu on the **Selection Bar** to activate the **Well** window.

Well

Save Undo New Del First Prev ? Next Last Storage Units: Metric Original Units: Metric

UWI: 100143206323W500 Surf. Location: 14 - 32 - 63 - 23 W5M

Well Name: Tutorial Well Btm. Location:

Operator: ABC Oil Resources Ltd. Licensee: ABC Oil Resources Ltd. License #: 12424

Drilling Contractor: Total Deepmess 35 Pool: Lamba C Pool Field: Anywhere

County: Province/State: Alberta Rig #: Elevations:

Country: Canada Reference: Ground Ground / Collar: 21.1

KB: 24.9 Casing Flange: 21.08

Surface Coordinates

Latitude: 0.12148 N/S: 324.23 meters North of the South boundary Of Sec. 23-45-12 W4

Longitude: 10.0577 E/W: 310.12 meters East of the West boundary Of Sec. 23-45-12 W4M

Intermediate Casing Point Coordinates

Latitude: N/S:

Longitude: E/W:

Bottom hole Coordinates

Latitude: N/S:

Longitude: E/W:

UTM Surface Coordinates

Northing: 23452.23 Easting: 3124545.21

Hole Direction: Faulted ☐ Deviated ☒ Hole ID: 14 - 32 - 63 - 23 W5M

Depths

Drillers T.D. (Tally) MD	Drillers T.D. (Tally) TVD (Strap) MD	Drillers T.D. (Strap) TVD	Loggers T.D. MD	Loggers T.D. TVD
1037	1037	1037	991	991
KB to Ground	Cut	Fill	Plugback	Sidetrack
3.8	1.5	1	300	305

Water Depth Reference: Mean Water Depth: 12.5

Date Time Work Schedule

Spud: Feb 25, 2012 22:15 Curves

T.D.: Mar 7, 2012 06:15 Mud Types

Rig Release: Mar 10, 2012 12:00 Dir. Surveys

Well Status: Potential Lower Sephton Oil Well Det. Lith.

Abstract

- 13.) Type In 24.9 the KB field with ad then fill in the information you feel is necessary (The well window shown

above has been filled in to give you an idea of how to complete the fields) and then **click** on the **Save** button to save any changes you have made to the database.

Note: Some of the fields in the **Well** window have character restrictions or mandatory requirements. Consequently, if any of these restrictions have been violated or if any requirements have not been met, the offending field will be highlighted. The nature of the problem will be displayed on the **Status Bar** (lower left corner of the screen), and you will be prompted with a system error message window.

- 14.) If the record has been successfully saved, **click** on the **Exit** button, when prompted with the **Shortcut Options** system window.

Shortcut Options

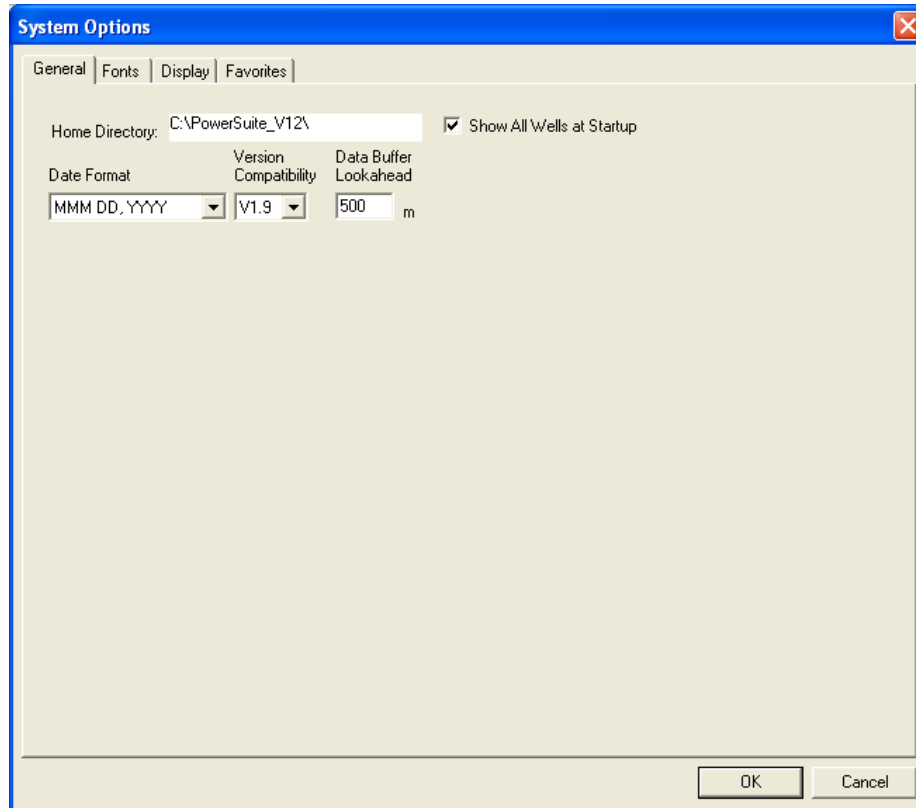
Record saved successfully. Choose one of the following shortcuts.

Start New Record Move to Next Record Exit Cancel

The System Options Window

To activate the System Options window **click** on **System Options** under the **Options** menu selection.

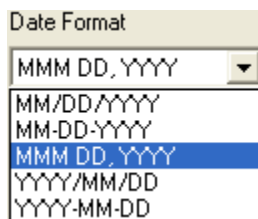
General Tab



Home Directory - This is the directory on your hard drive where **Power*Log**, **Power*Core** and **Power*Curve** is being executed. The user will not see any symbols on their log or print out any of our reports if you have the wrong home directory.

☒ **Show All Wells at Startup** This check box when ☒ activated will populate the Open Log window with all the wells in the database. If it is unchecked it may help our corporate users and the time it take to retrieve thousands of wells from the database and to populate the Open Log window with that information. If this check box is deactivated and

you wish to see all your wells then simply **click** on the **Clear Query** button in the Open Log window to see all their wells if this option is deactivated.



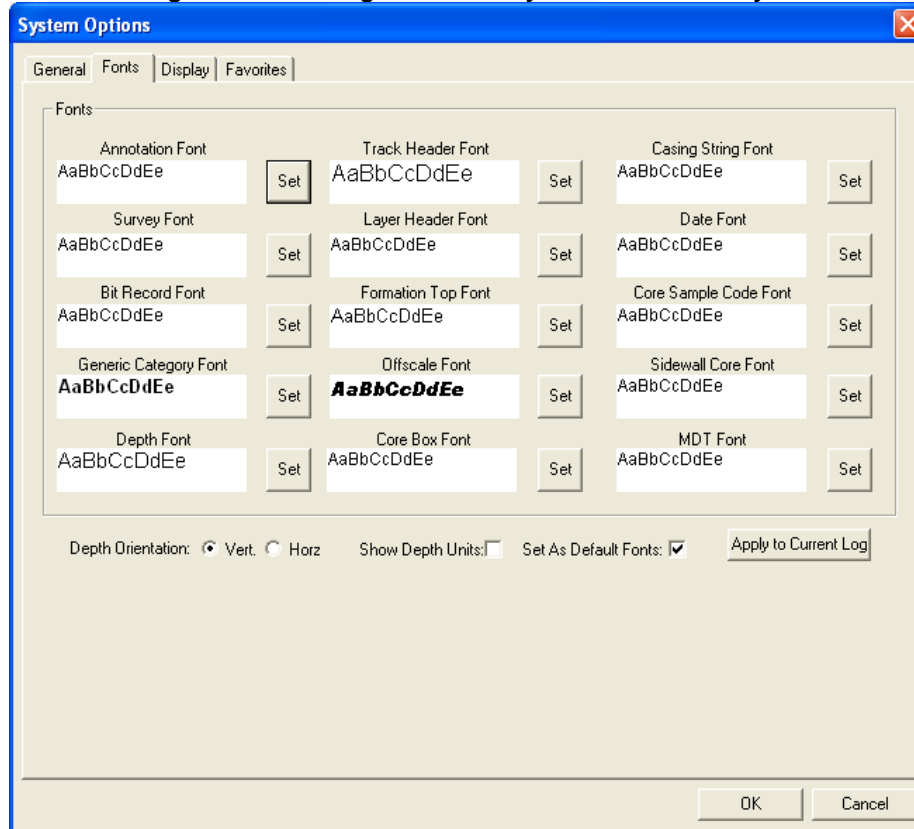
Date Format - From this drop box, you can select the date format. This selection determines how every date in **Power*Log / Core & Curve** will be entered and displayed. If you import a log with different date formats, **Power*Log / Core & Curve** will change the dates to comply with the format you've chosen here. The user can change this at any time and all the Date formats will be changed in the database.

Version Compatibility - Enables the user to achieve compatibility for Annotations in the older Versions of Power*Suite (V1.81 and before) and the Annotations in the newer Versions of Power*Suite (V1.9 and later).

Data Buffer Lookahead - The number placed in this field determines how far ahead and behind the current top depth will be stored in the computers buffer. The larger the look ahead number, the longer it takes for Power*Log / Core & Curve to refresh the screen when you exceed the look ahead value. However, until you meet or exceed the look ahead value, scrolling will be much faster, because the database is not yet being accessed.

Fonts Tab

This tab allows the user to set up most of the fonts used in Power*Log, Core and Curve. You can set it up to be used on the current log as well as using the fonts as your defaults when you are making new logs.



Annotation Font - Allows you to determine the default font style, type, color and size of your annotations on your log. Also this is the default when you use any of the Sample Description Transfer options.

Survey Font - Allows you to determine the font style, type, color and size of your survey data associated with the Survey Layer on your log.

Bit Record Font - Allows you to determine the font style, type, color and size of your bit record data associated with the Bit Record Layer on your log.

Generic Category Font - Allows you to determine the font style, type, color and size of your Long or Short Name display option in all the Generic Category Layers displayed on your log.

Depth Font - This allows you to determine the font style, type, color and size of the depth markers in the **Depth** track of the log.

Depth Orientation: ☐ Vert. ☒ Horz - These radio buttons allows the user to change the orientation of the Depth Font on the Layer. Beware you may have to change the Track Width to accommodate the Font size and orientation. Refer to the Log Configuration Builder to do this.

☐ **Show Depth Units** This check box ☒ when activated will display the depth units with the depth on the Depth Layer. ie. 1000 ft or 1000 m vs. 1000

Track Header Font - Allows you to determine the font style, type, color and size of your Track Headers on your log. All track headers use the same font across the entire log.

Layer Header Font - Allows you to determine the font style, type, color and size of your Layer Headers on your log. All Layer headers use the same font across the entire log.

Formation Tops Font - Allows you to determine the font style, type, color and size of your Formation Tops data associated with the Formation Tops Long and Expanded Layers on your log.

Offscale Font - Allows you to determine the font style, type, color and size of your curve values displayed when the curve pegs off scale.

Core Box Font - Allows you to determine the font style, type, color and size of your Core Box data entered in the Core Box layer.

Casing String Font - Allows you to determine the font style, type, color and size of your Casing string data displayed on the Casing String layer. This data is entered through the Casing String Report.

Date Font - Allows you to determine the font style, type, color and size of your Date data entered in the Date layer.

Core Sample Code Font - Allows you to determine the font style, type, color and size of your Core Plug data entered through the Core Plug Report. This font is displayed on the Core Sample Code layer.

Sidewall Core Font - Allows you to determine the font style, type, color and size of your Sidewall Run and Sample Number data entered through the Sidewall Core Report. This font is displayed on the Sidewall Core layer.

MDT Font - Allows you to determine the font style, type, color and size of your MDT Run and Test Number data entered through the MDT Report. This font is displayed on the MDT layer.

☒ **Set As Default Fonts** This check box ☒ when activated will make the font setting in this window your defaults for any new log created regardless on the Fonts stored in the template.

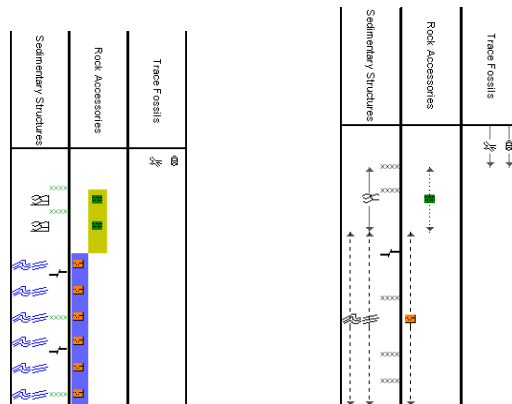
Display Tab

The screenshot shows the 'System Options' dialog box with the 'Display' tab selected. The dialog has four tabs: General, Fonts, Display, and Favorites. The 'Display' tab contains several sections for configuring the log display:

- Symbology:** Includes checkboxes for 'Arrowed Subintervals', 'Transparent', 'Use Global Symbols', 'Interbed Line Display Type', and 'Curve Backup Fill'. It also has a 'Frequency @ 1:240: 1 symbol every' dropdown set to '2' and a 'Lithology Profile' checkbox checked.
- Grain Size:** Includes a 'Scale' dropdown set to 'Wentworth', 'Verbal Display' and '(mm) Display' radio buttons, and 'Hard Edges' and 'Soft Edges' radio buttons.
- Fill Pattern:** Includes a dropdown set to 'Upward hatch (left to right) at 45 degrees' and a 'Pattern Color' button.
- Carbonate Textures:** Includes a 'Fill Pattern' dropdown and 'Hard Edges' and 'Soft Edges' radio buttons.
- Interpreted Lithology Layer:** Includes 'Show Bedding Contacts' and 'Show Accessories' checkboxes checked.
- Monitor:** Includes 'Height' and 'Width' input fields set to '9' and '12' inches respectively.
- Other:** Includes a 'Directional Survey display' dropdown set to 'Azimuth', and checkboxes for 'Display TVD', 'Display SSL', and 'Sidewall Core Run and Core No.'.

At the bottom right of the dialog are 'OK' and 'Cancel' buttons.

Arrowed Subintervals - This check box ☒ when activated will indicate the top and bottom of your subintervals (portion of an interval) with an arrow rather than a set of symbols. An example is shown below.



Normal Subintervals

Arrowed Subintervals

Transparent - This check box ☒ when activated, this function makes the background of the accessory symbols transparent, so that the bed in the background shows through. If deactivated, a white background surrounds the accessory symbols in order to separate them more from the beds.

Use Global Symbols – With the ability to edit existing metafiles the user may have imported a well that has used metafiles or symbols that have been modified to look differently than the one existing within your system symbols. If you wish to use your symbol set instead of the revised imported ones you can select this check box ☒ to make that change.

Interbed Line Display Type - This check box ☒ when activated will display the interbed data with a line display splitting the two lithology types or when unchecked will display the lithology in an interbed fashion as displayed below.

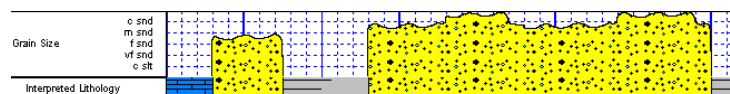


Curve Backup fill – This check box ☒ when activated will show a sideways hatching fill pattern when a curve goes off scale or in the backup mode. If unchecked there will be no hatching pattern when the curve goes off scale.

Frequency @ 1:240 – This drop box determines how often symbols are drawn on a **Lithology Layer**, with the scale of 1:240. For example: 1 symbol every 1 meter at 1:240, 2 symbols every 1 meter at 1:120, 1 symbol every 2 meters at 1:480, and so on. These frequencies are only in effect if you utilize the entire interval in **Oil Shows**, **Rounding**, **Sorting**, **Framework**, or designated an interval in **Sedimentary Structures**, **Traces Fossils** and **Rock Accessories**.

Lithology Profile - This check box ☒ when activated will fill in the Carbonate Texture and Grain Size layers with the interpretive lithology. It will draw the lithology to the maximum size filled in over the interval.

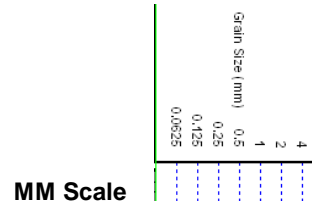
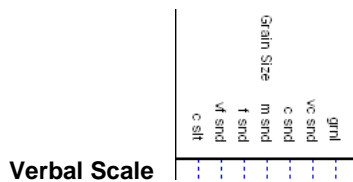
Note: The user may wish to turn off the track borders when this option is selected. You will see an example of this shown below.



Grain Size Scale:

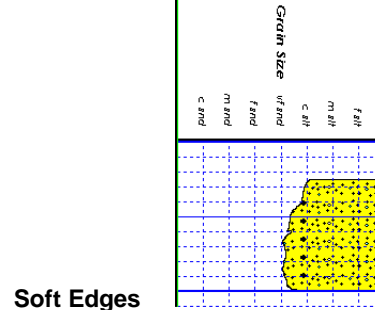
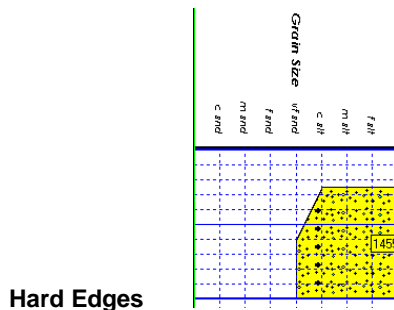
Grain Size Scale List box - You may choose between **Wentworth**, **Canstrat** or **Amstrat** scales, when using the **Grain Size Builder**. The Wentworth Grain size only allows full grain size while Canstrat / Amstrat allow half grain sizes when drafting in the Grain size and matrix layers.

Verbal Display: ☐ This ☒ radio button will display the **Grain Size Track header** with the equivalent verbal grain sizes such as C silt, VF snd, F snd, M snd, C snd etc.



(mm) Display: ☐ This ☒ radio button will display the **Grain Size Track header** with the equivalent numeric grain sizes (in mm) such as .0625, .125, .25, .5, 1, 2 etc. as shown above.

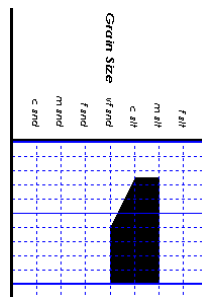
Hard Edges ☐ This ☒ radio button will display the grain size with strait edges and right angles between the grain sizes. The illustration below is shown with Lithology Profile activated.



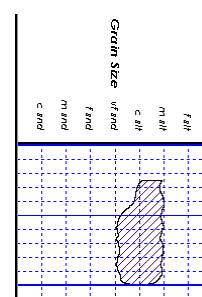
Soft Edges ☒ This ☐ radio button will display the grain size with curved edges and rounded angles between the grain sizes.

Grain Size **Fill Pattern** Upward hatch (left to right) at 45 degrees This drop box allows the user to select a hatching pattern when using the Grain Size Layer with the Lithology Profile not activate.

Grain Size **Pattern Color:** This color selector allows the user to pick the line color (foreground) when the fill pattern option is used. The background color is found in the Layer configuration for the Grain Size.



Grain Size No Pattern Hard edges




Grain Size Pattern Soft edges

Carbonate Texture **Fill Pattern** Upward hatch (left to right) at 45 degrees This drop box allows the user to select a hatching pattern when using the Carbonate Texture Layer with the Lithology Profile not activate.

Carbonate Texture **Pattern Color:** This color selector allows the user to pick the line color (foreground) when the fill pattern option is used. The background color is found in the Layer configuration for the Carbonate Texture Layer.

Carbonate Textures **Hard Edges** ☐ This ☒ radio button will display the grain size with strait edges and right angles between the Carbonate Textures. The illustration below is shown with Lithology Profile activated.

Carbonate Textures ☒ **Soft Edges** This  radio button will display the grain size with curved edges and rounded angles between the Carbonate Textures.

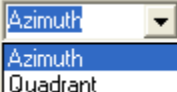
Interpreted Lithology Layer - Show Bedding Contacts: ☒ -When this check box ☒ is activated the bedding contacts (lines) between the drawn lithology types in the Interpretive Lithology Layer will be shown.

Interpreted Lithology Layer - Show Accessories: ☒ When this check box ☒ is activated it will turn on the accessories in the Interpretive Lithology Layer.

Monitor Height - This option allows you to scale your monitor for Power*Log / Core so you may correlate on-screen wells with hard copy logs that you may have. It is recommended that you take an opportunity to measure the vertical viewing area of your monitor in inches and then insert that value in the **Monitor Height** field. Be aware, however, that if you adjust the screen height knob on your monitor, this will affect the monitor height setting.

Monitor Width - This option allows you to scale your monitor for Power*Curve so you may correlate on-screen wells with hard copy logs that you may have. It is recommended that you take an opportunity to measure the horizontal viewing area of your monitor in inches and then insert that value in the **Monitor Width** field. Be aware, however, that if you adjust the screen width knob on your monitor, this will affect the monitor width setting.

Note: You must restart **Power*Log / Core & Curve** for the **Monitor Width / Height** changes to take effect.

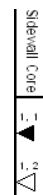
Directional Survey display: 

This drop box option will display your directional surveys on your log in either Quadrant format N 62 ° W) or Azimuth (AZ 298 °) format

Display TVD check box ☒ when activated will display the survey with TVD values

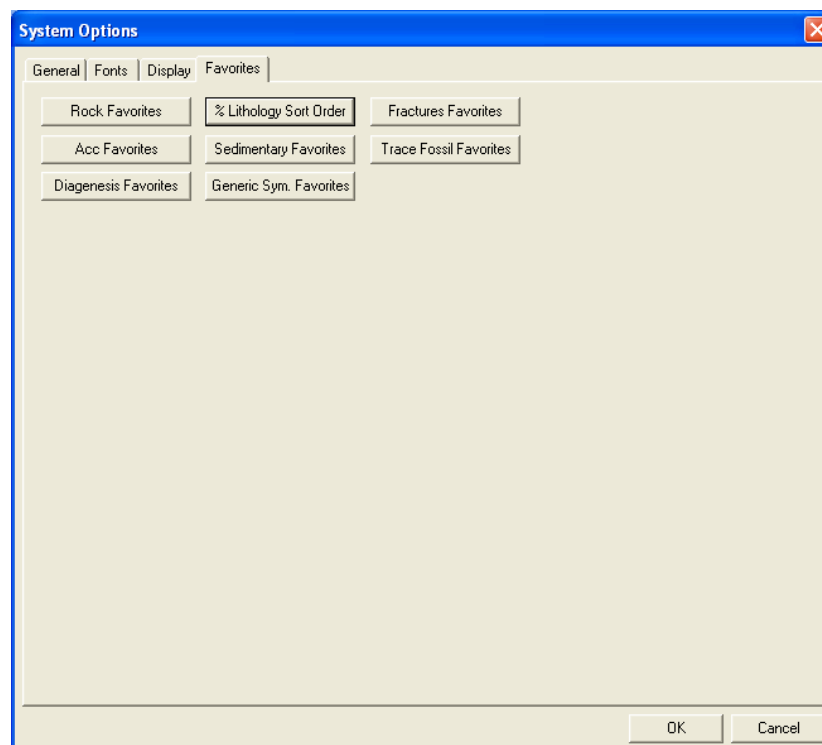
Display SSL check box ☒ when activated will display the survey with SSL values


☒ **Sidewall Core Run and Core No.** This check box ☒ when activated will display the Sidewall Run & Core numbers above the core triangle indicator on the Sidewall Core layer.

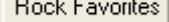
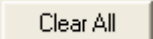


Favorites Tab

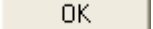
This tab allows the user to define their System favorites for all the data categories that support these choices. This tab dialogue also allows the user to access the % Lithology Sort order for the % Lithology Track.



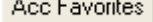
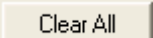
Rock Favorites - The  button when activated allows the user to determine the number of the activation of the Rock Type Builder window in the Interpreted and Detailed Lithology tracks.

- 1.) Click on the  button in the **System Options** window.
- 2.) Click on the  button in the Rock Type Favorites list window to prepare it for the selection of your Rock Favorites.
- 3.) Select the following **Rock Types** from the **Rock Type Favorites** list window:

Anhy (prim) [Anhydrite (primary)]
Sh m gy [Shale medium gray]
Ss [Sandstone]
Plus any other rock types you would use a lot.

- 4.) Click on the  button to return to the **System Options** window.

Accessory Favorites - Allows the user to determine their favorite **Accessories** and then displays them in a pop-up menu generated by the activation of the **Accessory Builder** window in the **Interpretive Lithology** track.

- 1.) Click on the  button in the System Options window.
- 2.) Click on the  button in the **Accessory Favorites** list window to prepare it for the selection of your **Accessory Favorites**.
- 3.) Select the following **Accessories** from the **Thinbed**, **Components**, and **Cement** headings in the **Accessory Favorites** list window:

Thinbed

cht dk pebbles [chert dark pebbles]
sh gy stringers [shale gray stringers]

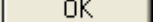
Component

aren [arenaceous]
fld grs [feldspar grains]
pyric [pyritic]
sac [salt casts]
slty [silty]

Cement

sils [siliceous]
Plus other components that you would use a lot.

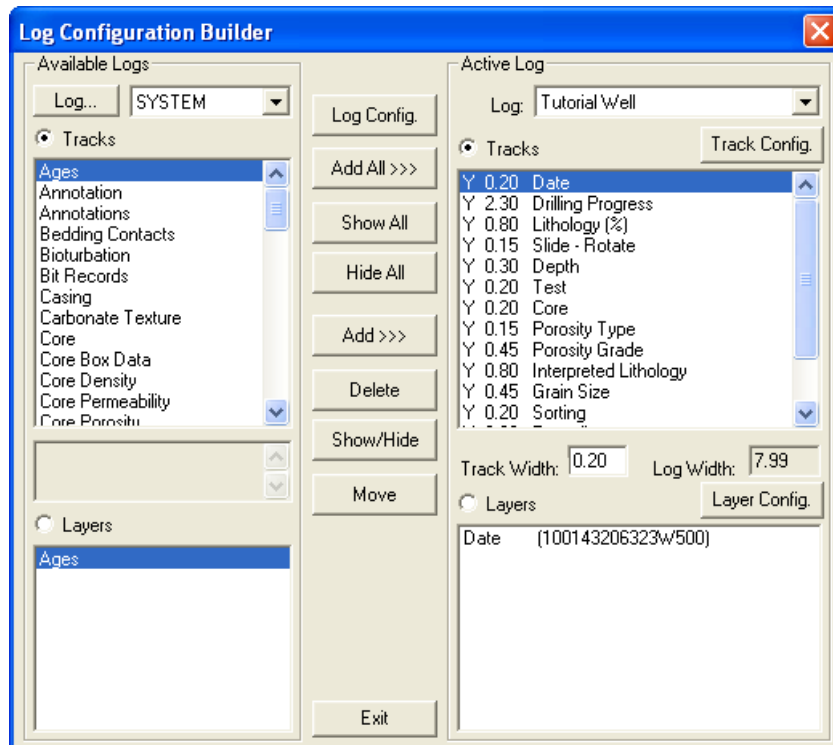
- 4.) Click on the  button to return to the System Options window.

- 5.) Click on the  button to return to the Main Power*Log window.

The Log Configuration Builder window

- This is the heart of the Log/Track/Layer configurations and controls the way your well's information is displayed on the log.
 - The well may have a lot of information stored in the database, but that information cannot be shown graphically on the log until the necessary layers are added to illustrate that information.
- 1.) Click on **Log Configuration Builder** under the **Options** menu on the **Selection Bar** or click on the **Log**

Configuration Builder  button on the **Toolbar** to activate window:



Fundamentals of the Log Configuration Builder Window

The left side of the Log Configuration Builder window: Available Logs

The **Available Logs** section or **left** side of the **Log Configuration Builder** window allows you to take any track or layer from **Available Logs** and add it to the log you are currently creating/building. On the **left** side of the window, below the **Tracks** radio button is a list of the tracks available for adding to the **Active Log**.

The **Available Logs** section or left side of the window contains the track and layer configuration of the **SYSTEM** **[SYSTEM]** log, when the window first opens. You have the option of using any of the existing **Tracks** and their associated layers or any of the existing **Layers** that are associated with any of the system logs in the log database.

The user can **click** on the **Log...** **SYSTEM** button on the left side of the screen to activate a selection list of all log formats that are in your database. The list is comprised of two (2) names with the first name in the list being the system **Log Name** and the second name (in brackets), being the **UWI** of its primary well. **Double click** on the log format you wish to copy from.

Below the **Layers** radio button, on the **left** side of the window, is a list of the layers available in the track highlighted above. They will be added all at once, if you add their parent track. However, they can also be added on an individual basis, if you only want to add one(1) layer to an existing **Active Log** track.

The right side of the Log Configuration Builder window: Active Log

The **Active Log** section or the **right** side of the window displays the track and layer configuration of the **Active Log** (the log you are currently creating), in the main **Power*Log** window. The name of the log is viewed in the **Log** field. In this case, it will be "Tutorial Well." Below the **Tracks** radio button on the **right** side of the window, is a list of the tracks that are currently found within the **Active Log**. The track at the top of this list is drawn on the left side of the log, while the track on the bottom of the list is drawn on the far right of the log with all of the other tracks drawn in between, respectively. Below the **Layers** radio button on the **right** side of the window, is a list of the layers that are associated with the track highlighted above.

The middle of the Log Configuration Builder window: Selection Buttons


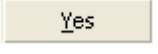
The **selection** buttons, found in the middle column of the window, are for adding layers or tracks from the **Available Logs** to the **Active Log**, activating/deactivating the **Active Log's** tracks, deleting active log tracks or

layers, and moving tracks or layers within the **Active Log** itself. Step-by-step instructions for accomplishing these tasks are provided on the following pages.

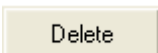
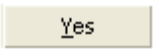
Working with the Log Configuration Builder Window

Deleting the Date and the Framework tracks on the Tutorial Log...

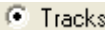

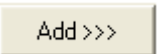
- 1.) Highlight the **Date** track on the right side of the window by **clicking on it**.

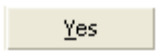

- 2.) Click on the  button. This action will prompt you with a system message, "**Do you want to delete the selected track in your log?**" Click on the  button. The **Date** track has now been removed from the Tutorial Log.

- 3.) Highlight the **Framework** track by clicking on it once.

- 4.) Click on the  button. This action will prompt you with a system message, "**Do you want to delete the selected track in your log?**" Click on the  button. The **Framework** track has now been removed from the Tutorial Log.

Adding a Slide - Rotate Track to the Tutorial Log

- 1.) On the left side of the Log configuration window scroll down the list of tracks and **click** on the **Slide - Rotate** track. The track will become highlighted and the  **Tracks** radio button will become activated.
- 2.) On the right side of the Log configuration window **click** on the **Depth Track**. The track will become highlighted and the  **Tracks** radio button will become activated.
- 3.) In the middle of the Log configuration window **click** on the  button. This will activate a System Message asking the user "Do you really want to ADD the selected (track) from the available log to the active log?"

- 4.) Click on the  button. This will activate a Get Name window asking the user to name the track.
- 5.) The user may change the name or accept the Slide - Rotate as a name by **clicking** on the  button and the track will be added above the Depth Track or to the left on the vertical log.

Resizing a track...

- 1.) Scroll down the tracks list, on the **right** side of the **Log Configuration Builder** window and **click** on the **Lithology Description** track.
- 2.) **Double click** in the **Track Width** field (2.24) and **Type** in the new value of **2.5** Then, **press** the **Tab** key and the total width of the log itself will change to reflect the increase in the width of the **Lithology Description** track as well as the Log width field.

Note: For paper 8.5" wide, 8.00" is the widest that you want your log to be, especially if you are printing out the log in the **Portrait** paper orientation.

Moving the Oil Show track...

- 1.) Scroll down the tracks list, on the **right** side of the **Log Configuration Builder** window, and **click** on the **Oil Show** track to highlight it.

- 2.) Click on the **Move** button and it will change to **Move Start**. Then, click on the **Lithology Description** track. The **Oil Show** track will then be placed above the **Lithology Description** track (to the left of the **Lithology Description** track on the actual log).

Deleting the Bit Record layer from the Drilling Progress track...

- 1.) Scroll up through the tracks list, on the **right** side of the **Log Configuration Builder** window, and click on the **Drilling Progress** track to highlight it. Notice that the layers associated with this track are displayed below, in the **Layers** list box.
- 2.) Highlight the **Bit Record** layer, in the **Layers** list box, by clicking on it once. Notice that the **Layers** radio button is automatically activated by highlighting a given layer.
- 3.) Click on the **Delete** button. This action will prompt you with a system message, "**Do you want to delete the selected layer in your log?**" Click on the **Yes** button. The **Bit Record** layer has now been removed from the log

Turning off a track...

- 1.) Scroll down the tracks list, on the **right** side of the **Log Configuration Builder** window, and click on the **Test** track.
- 2.) Click on the **Show/Hide** button to turn the "Y"(yes), to the left of the track name, to "N"(no), indicating that the track will not be shown on the log, until it is reactivated.
- 3.) Alternatively, you can simply **double click** on the **Test** track to turn the "Y"(yes) to "N"(no). The user will notice the log width has now decrease in size from 8" to 7.8" wide.

Resizing and Configuring the Drilling Progress Track


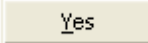
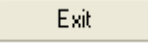
- 1.) Scroll up the tracks list, on the right side of the Log Configuration Builder window, and then highlight or click on the **Drilling Progress** Track.
- 2.) **Double click** in the **Track Width** field (2.25) and **Type** in the new value of **2.45**. Then, **press** the **Tab** key and the total width of the log itself will change to reflect the increase in the width of the **Drilling Progress** Track as well as increase the Log width field to 8".
- 3.) Click on the **Track Config.** button (to the right of tracks), to activate the Track Configuration window. The changes in step four have already been done in this example.

The screenshot shows the 'Track Configuration' dialog box for the 'Drilling Progress' track. The dialog has a title bar with a close button. Inside, there are several sections:

- Buttons:** Save, Undo, New, Del, First, Prev, ?, Next, Last.
- Name:** Drilling Progress (highlighted in yellow).
- Sequence:** 1
- Width:** 2.45
- Foreground Color:** (dropdown menu)
- Background Color:** (dropdown menu)
- Depth Offset:** (text field)
- Current Layer...** Drill Rate
- Remarks:** (text area)
- Heading:**
 - Drilling Rate
 - Tutorial Well
 - 14-32-63-23 W5M
- Borders:**
 - ☒ Left / Bottom
 - ☒ Right / Top
 - ☒ Header Border


- 4.) Currently, the name of the track is **Drilling Progress**. To change the track name, **Type "Drilling Rate"** in the **Name** field. Then, change the **Heading** name by typing "**Drilling Rate**" into the first **Heading** field. In the

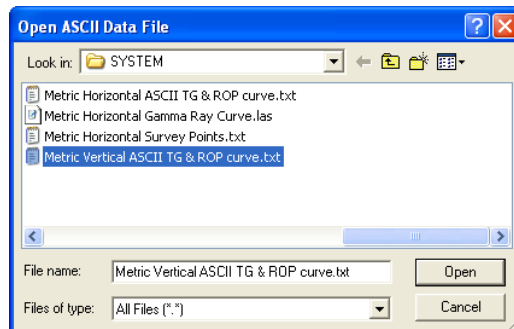
second heading field, **Type** in the well name "**Tutorial Well.**" In the third heading field, **Type** in the location for the Tutorial Well, "**14-32-63-23 W5M.**" This would be beneficial if you were faxing or printing to Adobe the log only. It would identify to the client the location of the well data that is being transmitted.


- 5.) Click on the  button to save your changes
- 6.) A system message will appear asking the User. "Record saved successfully. Do you wish to exit?" Click on the  button. This action will return you to the **Log Configuration Builder** window, where you will see the new name of your track displayed on the log you are creating. Later, when you exit from the **Log Configuration Builder** window, you will notice that the track headings have conformed to your changes.
- 7.) Press the **Esc** key on the keyboard or click on the  button to exit from the **Log Configuration Builder** window. You will be returned to the main log window, where you will see the changes you have made to the new log.

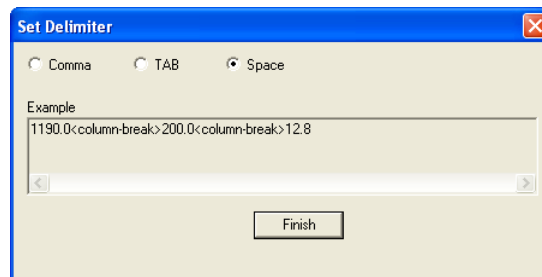
Importing ASCII File Data into the Drill Rate & Total Gas curve layers:


You will be able to do this import only if you have the LAS / ASCII Import Utility. If you do not have the LAS Import Module you will have to input the curve data manually as instructed on pages 21 and 22.

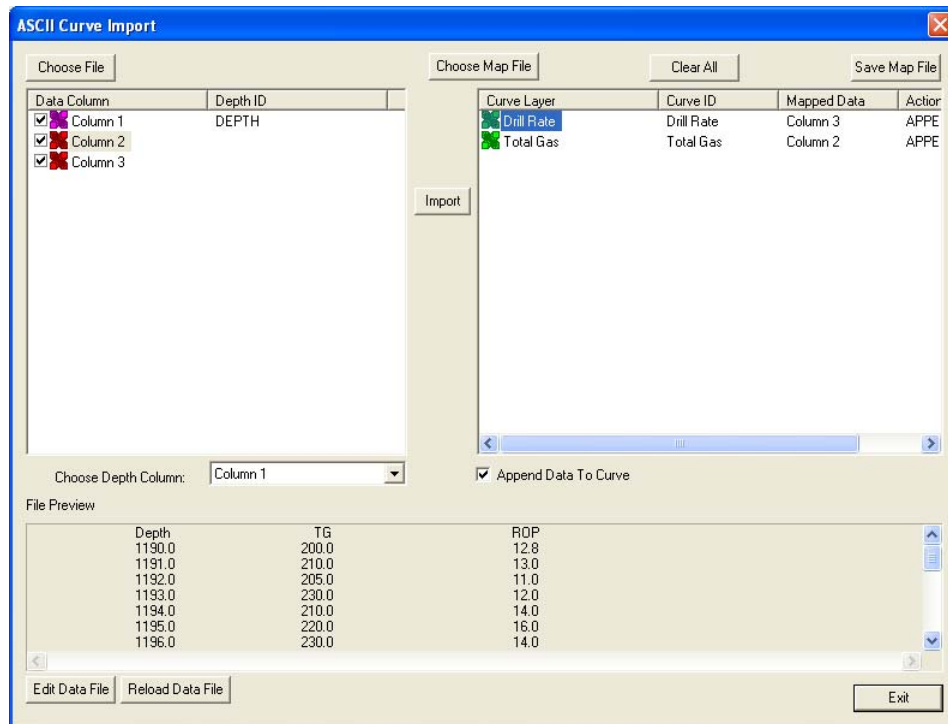
- 1.) Click on the **File** pull down menu, select **Import / Export** and then select **ASCII Import** from the pop out menu. OR the user can select the  Icon from the Import Tool Bar. This will activate an Open ASCII Data File window.




- 2.) Navigate to the **C:\Powersuite_V12\system** folder and select the **Metric Vertical ASCII TG & ROP curve.txt** file. Click on the  button. Once the file has been selected, the Set delimiter window will be activated.





- 3.) This file is a Space delimited file and the default on this window is space delimited. You will see <column break> between the data points. Click on the  button. This will open the Import window.




- 4.) The default on the Depth column is Column 1 which is indicated by the purple X. **In our case the depth is the first column so we do not have to change the depth column indicator.**
- 5.) **Click on the Column 2 on the left side and drag it to the Total Gas Curve layer on the right side of the window.** You will see Column 2 in the mapped Data field and an APPEND in the action field.
- 6.) **Click on the Column 3 on the left side and drag it to the Drill Rate Curve layer on the right side of the window.** You will see Column 3 in the mapped Data field and an APPEND in the action field.
- 7.) **Click on the  Button.** This will import the curve data and prompt you with a database message saying Imported successfully.



- 8.) **Click on the  button** to close the window.
- 9.) **Click on the  button** to close the ASCII Import window. **Skip to page 23 Changing Curve Scales**

Adding values to the Drill Rate curve layer:

- 1.) **Click** anywhere in the **Drilling Rate** track on the Tutorial log. Notice that a **green** border highlights or surrounds the track. This is used to indicate that the track is **ACTIVE**.
- 2.) Use the drop down arrow in the **Layer Selection List** field (located at the far left side of the **Toolbar**), to display a list of the layers in the **Drilling Rate** track.
- 3.) **Click on Drill Rate** to make it the active layer and the **Layer Selection List** will close automatically after you have made your selection.
- 4.) **Double click** within the active **Drilling Rate** track or **click on the Data Editing Tool of Active Layer  button** on the **Toolbar** to activate the **Curve Editor** window for the **Drill Rate** curve

Measured...	Value
1190.0000	12.80000
1191.0000	13.00000
1192.0000	11.00000
1193.0000	12.00000
1194.0000	14.00000
1195.0000	16.00000
1196.0000	14.00000
1197.0000	12.00000
1198.0000	14.00000
1199.0000	13.00000
1200.0000	7.00000
1201.0000	5.50000
1202.0000	-1.00000
1203.0000	-1.00000
1204.0000	7.50000
1205.0000	5.50000
1206.0000	5.50000
1207.0000	5.00000
1208.0000	5.00000
1209.0000	5.00000
1210.0000	12.00000
1211.0000	11.00000
1212.0000	13.00000
1213.0000	12.50000
1214.0000	31.00000
1215.0000	27.50000
1216.0000	33.50000
1217.0000	33.40000
1218.0000	33.40000

- 5.) When the **Curve Editor** window opens, the cursor will be in the **Depth (m)** field. **Type 1190** into the **Depth (m)** field and then **press** the **Tab** key on the keyboard to move the cursor to the **Value (min/m)** field.
- 6.) **Type 12.8** into the **Value (min/m)** field and **press** the **Enter** key on the keyboard. The value will be entered and the **Depth (m)** field will automatically advance by the number specified in the **Auto Depth Increment** field, which is currently set at **one (1)**.
- 7.) **Type** in the remaining **Value (min/m)** values and **press** the **Enter** key on the keyboard after each entry. As noted above, pressing the **Enter** key on the keyboard, after each **Value (min/m)** entry, automatically advances the **Depth (m)** field by the number in the **Auto Depth Increment** field.

1191m 13.0min/m	1199m 13.0min/m	1207m 05.0min/m
1192m 11.0min/m	1200m 07.0min/m	1208m 05.0min/m
1193m 12.0min/m	1201m 5.50min/m	1209m 05.0min/m
1194m 14.0min/m	1202m 06.0min/m	1210m 12.0min/m
1195m 16.0min/m	1203m 07.0min/m	1211m 11.0min/m
1196m 14.0min/m	1204m 7.50min/m	1212m 13.0min/m
1197m 12.0min/m	1205m 5.50min/m	1213m 12.5min/m
1198m 14.0min/m	1206m 5.50min/m	

Note: You don't have to re-enter values if they are identical to the previous value. The previous value is already displayed in the **Value (min/m)** field, so you can just **press** the **Enter** key to insert the same value again.

- 8.) When you have finished adding values to the curve, **click** on the **Save** button.
- 9.) **Press** the **Esc** key on the keyboard to exit from the **Curve Editor** window and return to the main log.

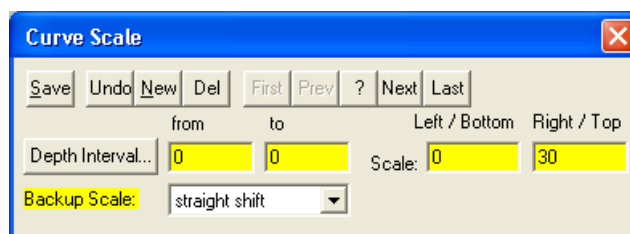
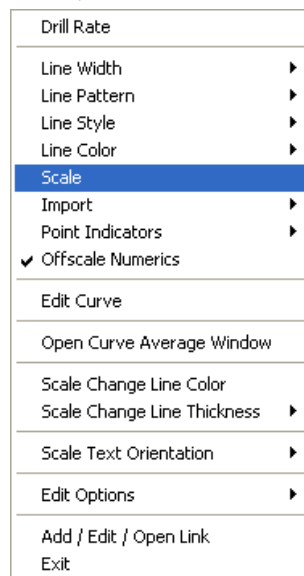
Adding values to the Total Gas curve layer:

- 1.) Click on the **Layer Selection List pull down menu** item on the Selection toolbar and **Select** the **Total Gas Layer** by clicking on it. This will make it the Total Gas layer active.
- 2.) **Double click** on the Total Gas Layer to activate the builder.
- 3.) **Type** in **1190** in the depth field.
- 4.) **Depress Tab key** and **Type 200** in the units field.
- 5.) **Depress** the **Enter key** on your keypad
- 6.) Enter the rest of the data meter by meter from the data below by typing in the value and hitting your **Enter key** on your keypad. **Save**

1191	210	1197	235	1203	980	1209	200
1192	205	1198	220	1204	560	1210	210
1193	230	1199	450	1205	450	1211	195
1194	210	1200	900	1206	345	1212	200
1195	220	1201	970	1207	230	1213	210
1196	230	1202	950	1208	190		

Changing Curve Scales

- 1.) Click anywhere in the **Drilling progress track** to make it active. It will have a green outline. Go to the **layer selection list** and select drill rate layer from the list to make it the active layer.
- 2.) **Right click** anywhere within the **Drilling Rate** track (Drill Rate Layer) to activate the pop-up menu.

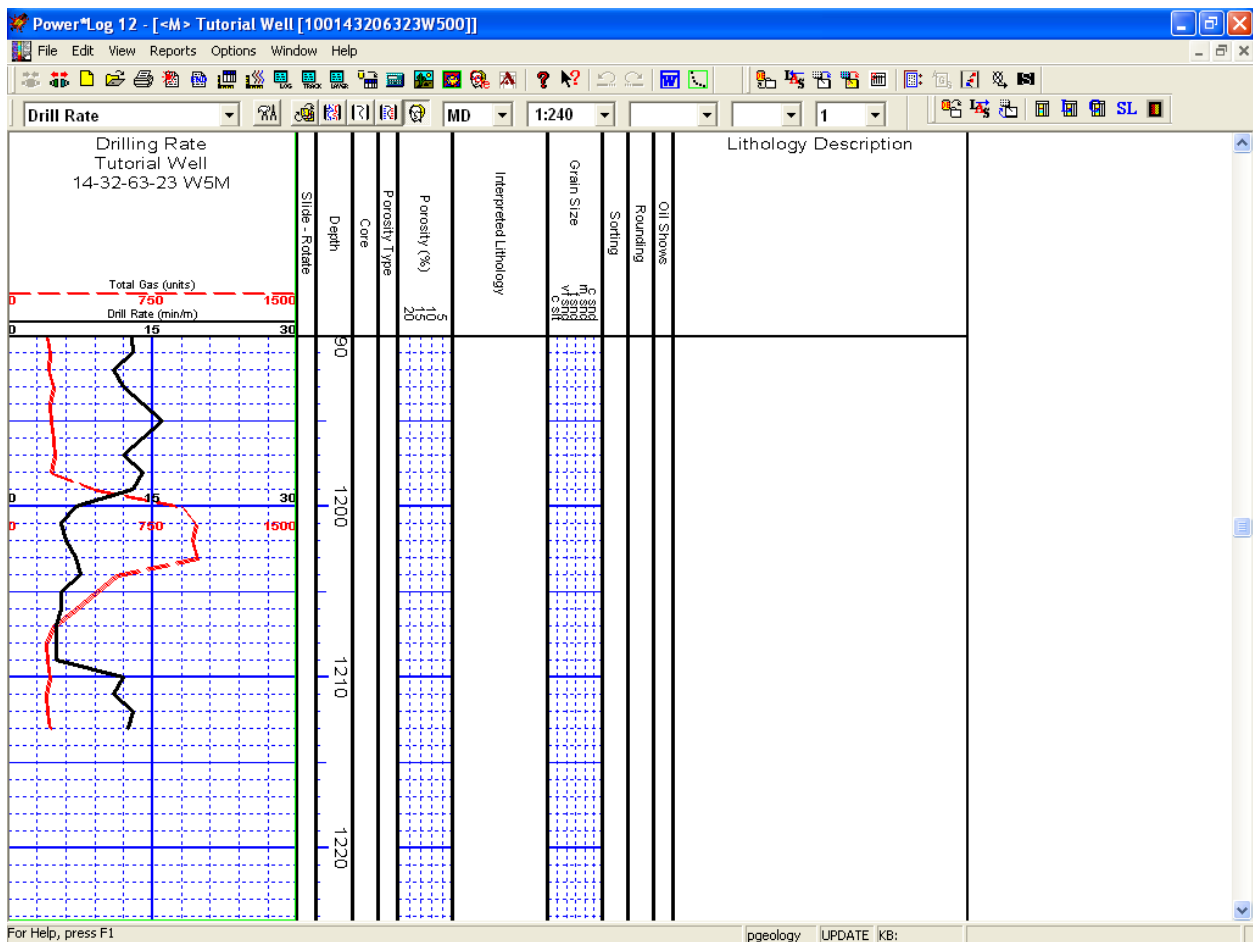


- 3.) **Select Scale** from the pop-up menu to activate the **Curve Scale** window for the **Drill Rate** curve. In this figure the user will notice the Scale has already been changed.
- 4.) Notice that the default scale (when the curve was originally added to the log), was **0 to 15 min/m**, as you would see in your window. To change the original scale from **0 – 15 min/m** to **0 - 30min/m**, simply adjust the **Right / Top Scale** value to **30** by **double clicking** in the **Right Scale** field and typing in a value of **30**.

Note: The backup scale (in this case **straight shift**), is there in case the curve values go off-scale (more than **30 min/m**). A **straight shift** backup scale for an original scale of **0 to 30min/m** would be **30 to 60min/m** for **Left** and **Right Scale** values, respectively.

- 4.) Click on the **Save** button and select **Exit** from the ensuing **Shortcut Options** window.

****Your log should now look like the log below.****



Adding Sample Descriptions

- 1.) Click on **Sample Description**, under **Reports** on the **Menu Bar** to open the **Sample Description** window.

N.B. The way the data entry windows work is that we will always open the data entry window with the deepest record entered for that record set. If you want to change that record then you can modify it and then click on the

Save button. But, if you want a new record remember to always **click** on the **New** button. If you do forget to click on the **New** button and change the record and you have not saved yet you can **click on the Undo** button. Then **click** on the **New** button and proceed with entering the new data record for that data entry window.

- 2.) **Type 1190** into the **Interval (From)** field and **press** the **Tab** key.
- 3.) **Type 1199** into the **Interval (To)** field and **press** the **Tab** key.
- 4.) **Type Anhy** into the **Rock Type / Heading** field and then **press** the **Tab** key **4 times** to get to the short description field.

Note: The rock types have to be typed in correctly in the Short form field (according to our Geological Expansion Dictionary) in order for the Rock Type to be filled in when the **Enter** key is depressed.

- 5.) **Type** the following description into the **Short Description** field, exactly as it appears below:

wh, lt gy, crpxl, com sacs, sft, dns, ns.

Note: The **Short or Long Descriptions** can be transferred to the **Lithology Description** layer and only the **Long Description** will be printed out in the **Sample Description**.

- 6.) **Select** the **Automatic Transfer**, **Transfer Depth Range** and **Transfer Short Form** check boxes (☒), as shown in the preceding sample description window.

- 7.) **Click** on the **Save** button and then **select** **Start New Record** from the ensuing **Shortcut Options** window. You will see your sample description on the log at 1190m with the options selected in step 6.

- **Adding another Sample Description to the same interval...**

- 1.) **Type Sh** into the **Rock Type** field, **tab 4 times** and **Type** the following description into the **Short Description** field:

lt gy, wxy, bentic, occlly slty, tr aren grs, sft, blk.

- 2.) **Deselect** **Transfer Depth Range** check box (☒).
- 3.) **Click** on the **Save** button and then **select** **Start New Record** from the ensuing **Shortcut Options** window. Your description will now be viewed at 1192m.

Note: If you have made any typing errors the user can **click** on the **Cancel** button, then you can make any necessary corrections and then **Save** the record once again to replace the old record with the new one.

- **Adding another Sample Description to a new interval...**

- 1.) Click on the **Auto Next** button to advance the description interval **from depth to 1199**. **Type** in a new depth to **1204**.
- 2.) **Type Ss** into the **Rock Type** field, **tab 4 times** and then **Type** the following description into the **Short Description** field:
wh, lt gy, vf - f gred, w srt, sbang, qtz, tr wthrd fld grs, sils cmt, p intgran por (3-7%), sl tr ptch brn o stng, dull yel flor, fr stmg mky yel cut flor.
- 3.) Select **Transfer Depth Range** check box (☒).
- 4.) Click on the **Save** button and then select **Start New Record** from the ensuing **Shortcut Options** window. You will see your description at 1199m.

Sample Description

Save Undo New Del First Prev ? Next Last Dictionary

Auto Next Auto Inc ☒ Ascending Interval... Rock Type / Heading ☒ % Remaining: %

1199 5 1199 to 1204 Ss

Short Description % Lithology: To Long Desc

wh, lt gy, vf - f gred, w srt, sbang, qtz, tr wthrd fld grs, sils cmt, p intgran por (3-7%), sl tr ptch brn o stng, dull yel flor, fr stmg mky yel cut flor.

Long Description To Short Desc

Sandstone

white, light gray, very fine to fine grained, well sorted, subangular, quartz, trace weathered feldspar grains, siliceous cement, poor intergranular porosity (3-7%), slight trace patchy brown oil staining, dull yellow fluorescence, fair streaming milky yellow cut fluorescence.

Transfer Options

☒ Automatic Description transfer

Transfer to Annotation Group: lithtext1

☒ Transfer Depth Range ☐ Top Depth Only ☐ Transfer % ☒ Transfer Short Form

- **Adding more Sample Descriptions to a new interval...**

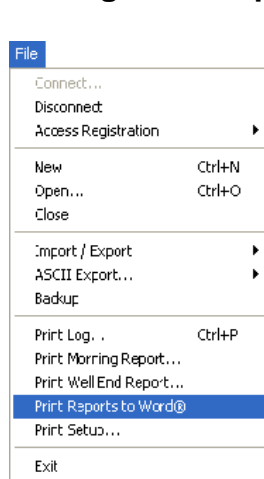
- 1.) Click on the **Auto Next** button to advance the description interval **from depth to 1204**. **Type** in a new depth to **1209**.
- 2.) **Type Ss** into the **Rock Type** field, **tab 4 times** and then **Type** the following description into the **Short Description** field:
wh, lt gy, vf - m gred, modly w srt, sbang, qtz, tr wthrd fld grs, tr dk cht pbls, sils cmt, fr intgran por (6-10%), q brn o stng, no cut flor.
- 3.) Deselect **Transfer Depth Range** check box (☒).

- 4.) Click on the **Save** button and then select **Start New Record** from the ensuing **Shortcut Options** window. You will see your description at 1204m.

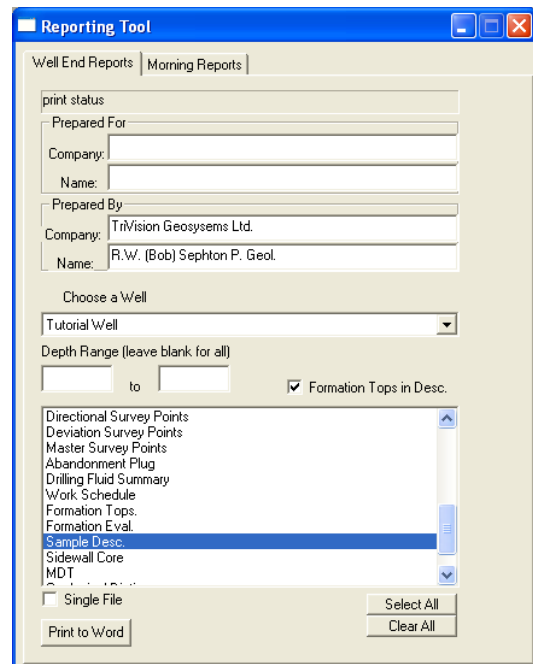
• Adding our Last Sample Descriptions utilizing the Auto Next button...

- 1.) Click on the **Auto Next** button to advance the description interval from depth to 1209. Type in a new depth to 1213.
- 2.) Type **Sh** into the **Rock Type** field, tab 4 times and then Type the following description into the **Short Description** field:
m - dk gy, micmica, v carb, calcs, fis.
- 3.) Deselect **Transfer Short Form** check box (☒).
- 4.) Click on the **Save** button and then select **Exit** from the ensuing **Shortcut Options** window. You will see your description at 1209m.

Printing out Sample Descriptions to Word. (Only if you have Word for Windows)



- 1.) Click on the **Print Reports to Word** button on the **Toolbar** or select **Print Reports to Word Selection**, under the **File** menu, on the **Selection Bar** to activate the **Power*Log Report: Well End Report** window.
- 2.) The **Reporting Tool** print window will automatically default to the active **Well/Log Name**:. You will see **Tutorial Well** in the **Choose a Well** field If it is not the defaulted well then go to the **Well** list drop box and select it from the List.

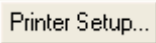



- 3.) Highlight **Sample Desc** in the **Reports** field by clicking on it once.
- 4.) Leave the **Depth Range** field blank to print all the descriptions.
- 5.) Click on the ☒ **Formation Tops in Desc.** check box
- 7.) Click on the **Print to Word** button in the **Well End Report** window to printout the **Sample Descriptions**. This will activate you word program and you will get the Sample descriptions and Formation tops that were input through the Reports window.
- 8.) When you are finished, press the **Esc** key on the keyboard to exit from the **Well End Report** window and to



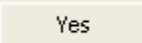
activate the following system message, "**Do you want to save the setup**" Clicking on the **Yes** button and the window selections you have just made will be remembered for the next time. Clicking on the **No** button will remember the default selections that were set for this window.

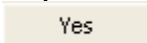
Printing out Sample Descriptions (If you do not have Word for Windows)

- 1.) Click on the **Print Well End Report** button on the **Toolbar** or select **Print Well End Report**, under **File**, on the **Selection Bar** to activate the **Power*Log Report: Well End Report** window.

- 2.) The **Well End Report** print window will automatically default to the active **Well/Log Name** and its associated **UWI**: you will see **Tutorial Well (100143206323W500)** in the **Well List** field and it should be highlighted. If it is not highlighted, move the mouse pointer to the **Well List** field and **click** on the desired **Well / Log Name** to highlight the **Well** you wish to print information from.
- 3.) Highlight **Sample Descriptions** in the **Reports** field by **clicking on it once**.
- 4.) **Select Printer** from the **Output** drop box field list.
- 5.) **Click** on the  button, in the upper right corner of the **Well End Report** window, to activate the **Print Setup** window. Notice that the currently selected printer is listed beneath the **Default printer** radio button () at the top left of the **Print Setup** window. Use the **Printer** section of the **Print Setup** window to specify the use of a printer other than the default printer.

Note: Power*Log™ automatically defaults to a **Paper Orientation** of **Portrait** and a **Paper Size** of **8 5 x 11**, as specified in the **Orientation** and **Paper** sections, respectively, of the **Print Setup** window. Please do **NOT** change these default settings.

- 6.) Make sure that the **All** check box () in the **Sample Description** section at the lower right of the **Well End Report** window, is activated.
- 7.) **Click** on the  button in the **Well End Report** window to printout the **Sample Descriptions**.
- 8.) When you are finished, **press** the **Esc** key on the keyboard to exit from the **Well End Report** window and to activate the following system message, "**Do you want to save the setup configuration?**" **Click** on the  button and all of the printer selection/settings information utilized in the **Well End Report**

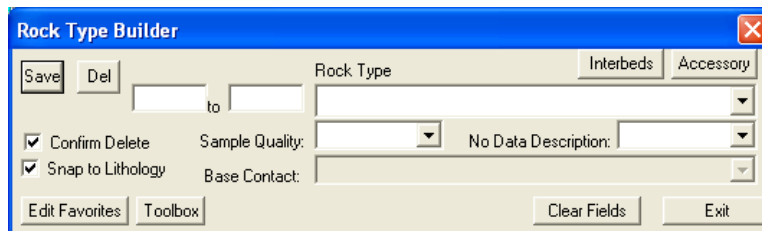
window will be saved to the database for any future **Well End Report** print jobs. Clicking on the  button will also return you to the main log window.

Drawing Interpreted Lithology

Note: To work on any layer in any track, simply **double click** on the track in which you wish to work to activate the "**builder**" window for that particular layer. Once the "**builder**" window for a given layer is active, you are then able to access the **pop-up** menu [**right click**] associated with that "**builder**" window and may proceed to enter any necessary intervals and graphical descriptions for the given layer.

- **Drawing Rock Types...**

- 1.) **Double click** anywhere within the **Interpreted Lithology** track to activate the **Rock Type Builder** window and the Toolbox with your Favorites Rock Type List.



- 2.) The user can move the Tool Box to a position where it is out of the way by clicking and dragging the Tool Box menu bar.

Note: The graphical images utilized in the Tool Box window represent specific **Rock Types** selected by the user in the **System Options** window (See **System Options** earlier in this tutorial). The written descriptions of the **Rock Types** illustrated in the above diagram were included as a visual aid and do not normally accompany a pop-up menu.

- 3.) **Select** the **Rock Type** for **Anhydrite (primary)** from the Tool Box window and it will automatically be displayed in the **Rock Type** field within the **Rock Type Builder** window.
- 4.) Define the top interval by **clicking and holding** the **left** mouse button at **1190m** on the **Interpreted Lithology** track.
- 5.) Define the bottom interval by **dragging** the mouse pointer to **1199m** on the **Interpreted Lithology** track.
- 6.) Release the mouse button and the interval will be drawn accordingly.

- **Drawing another Rock Type...**

- 1.) **Select** the **Rock Type** for **Sandstone** from Tool Box window and it will automatically be displayed in the **Rock Type** field within the **Rock Type Builder** window.
- 2.) Define the top interval by **clicking and holding** the **left** mouse button at or close to (if the ☒ Snap to Lithology is activated) **1199m** on the **Interpreted Lithology** track.
- 3.) Define the bottom interval by **dragging** the mouse pointer to **1210m** on the **Interpreted Lithology** track.
- 4.) Release the mouse button and the interval will be drawn accordingly.

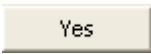
And another...

- 1.) **Select** the **Rock Type** for **Shale (medium gray)** from the Tool Box window and it will automatically be displayed in the **Rock Type** field within the **Rock Type Builder** window.
- 2.) Define the top interval by **clicking and holding** the **left** mouse button at **1210m** on the **Interpreted Lithology** track.
- 3.) Define the bottom interval by **dragging** the mouse pointer to **1213m** on the **Interpreted Lithology** track.
- 4.) Release the mouse button and the interval will be drawn accordingly.

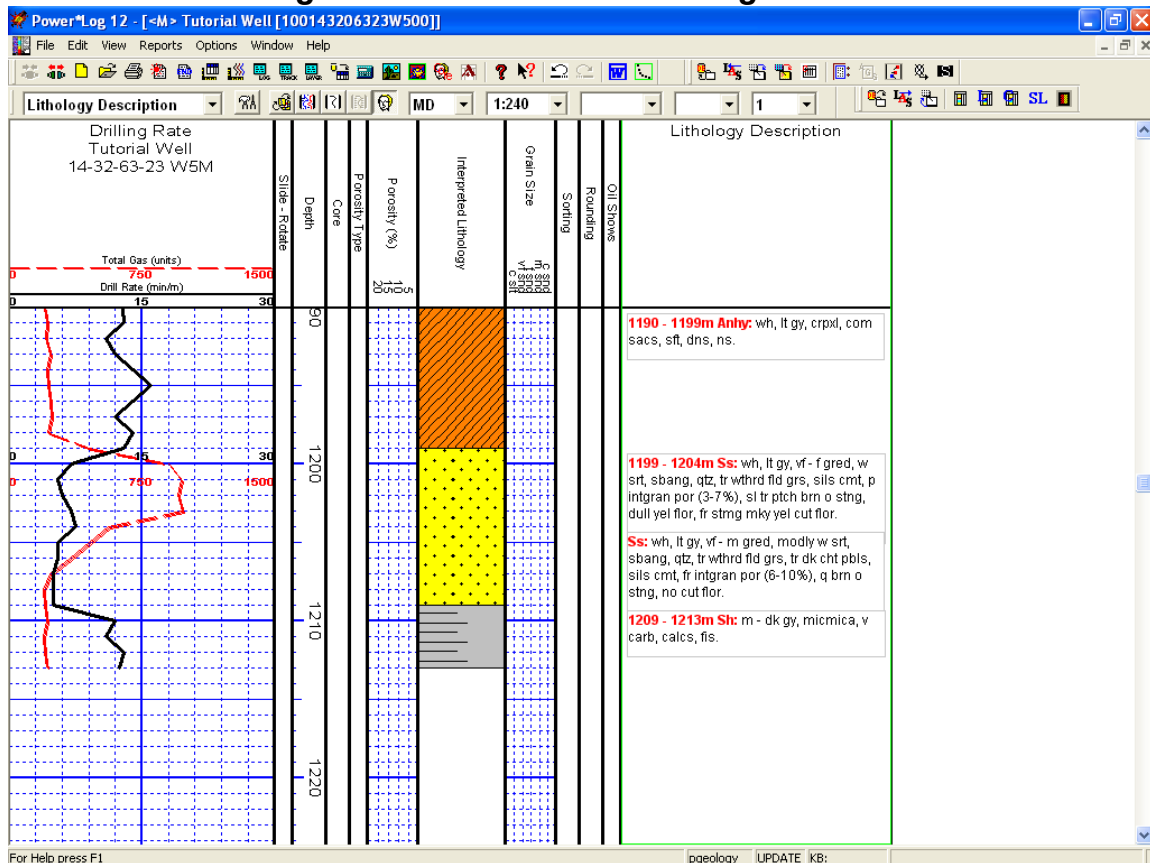
Note: You may wish to resize a particular bed or lithologic interval, but remember that beds cannot completely overlap one another. Also, keep in mind that only the top or the bottom of a particular bed can be resized at any one time. Accordingly, if you wish to resize both, you will have to do it twice.

- **Resizing an interval...**

N.B. If you have the ☒ Snap to Lithology checked and your mouse pointer accuracy is 1 you must uncheck the check box to resize the following bed or decrease the mouse pointer accuracy.

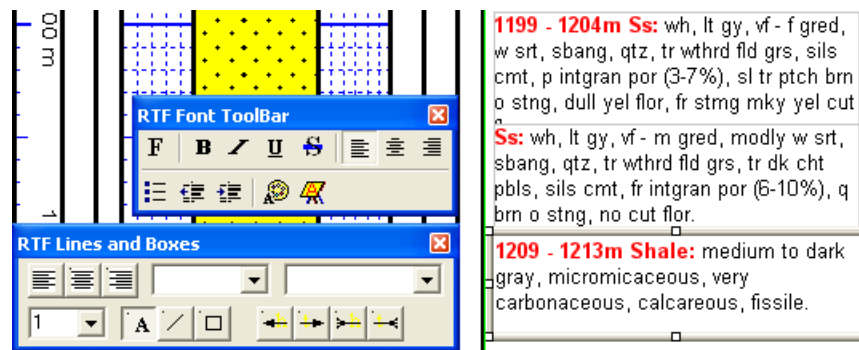
- 1.) **Press and hold** the **Ctrl** key on the keyboard **down**, while hovering over the bed boundary between the Shale and Sandstone bedding contact at **1210m**. You will view a mouse pointer turn into resize arrow and if the shale is viewed in the builder **click and drag** the **left** mouse button from **anywhere within the Shale bed** down one meter to **1209m** on the **Interpreted Lithology** track.
- 2.) Release the mouse button at **1209m**, followed by the release of the **Ctrl** key on the keyboard, and you will be prompted with the following system message, "***Do you really want to resize the interval from 1210.00 - 1213.00 to 1209.00 - 1213.00?***"
- 3.) **Click** on the  **button.**
- 4.) **Press** the **Esc** key on the keyboard to exit from the **Rock Type Builder** window and return to the log.

****Your log should now look like the log shown below.****




Editing Sample Descriptions


- 1.) Make the **Lithology Description** layer active (in the **Layer Selection List** field), by **clicking once** anywhere within the **Lithology Description** track to highlight the **Lithology Description** track in **green**.

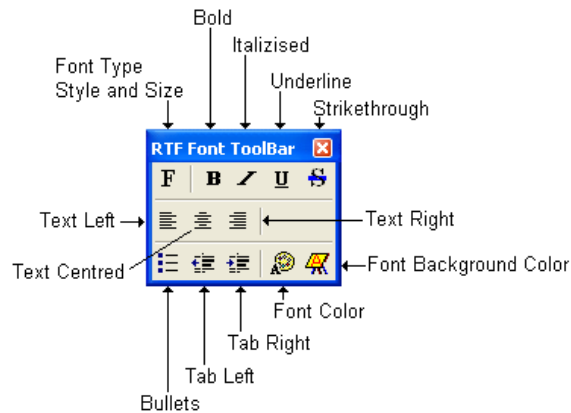


Moving a Sample Description:

- 1.) Click anywhere within the **Shale** description that is viewed on your log at 1209 m to activate the RTF Font and RTF Line and Boxes toolbars and highlight the text.
- 2.) Move the mouse pointer to the outline and you will see the pointer turn into a  crosshair. Click and drag your mouse to move the description down 2 meters to 1211m.
- 3.) Click outside the annotation to save your annotations.

Editing Sample Descriptions

- 1.) Now we will edit the Shale description at 1192m. **Click in the Sh description at 1192.** You will see the description outlined on the log.
- 2.) **Move the mouse pointer to the outline** and you will see the pointer turn into a  **crosshair. Click and drag your mouse** to move the description down 2 meters to **1194m.**
- 3.) **Move your mouse pointer** in the text field and **click between the Sh and the (:) colon** and **Type in lam.**
- 4.) **Click outside the annotation** to save your annotations.



Overview of RTF Font Toolbar buttons.

F At the flashing cursor or with some text highlighted this button will activate a Font Dialogue window to change Font Type, style, size etc.

B At the flashing cursor or with some text highlighted this button will activate a Bold Font style.

I At the flashing cursor or with some text highlighted this button will activate an Italic Font style.

U At the flashing cursor or with some text highlighted this button will activate an Underline Font style.

~~S~~ At the flashing cursor or with some text highlighted this button will activate an Strikethrough Font style.

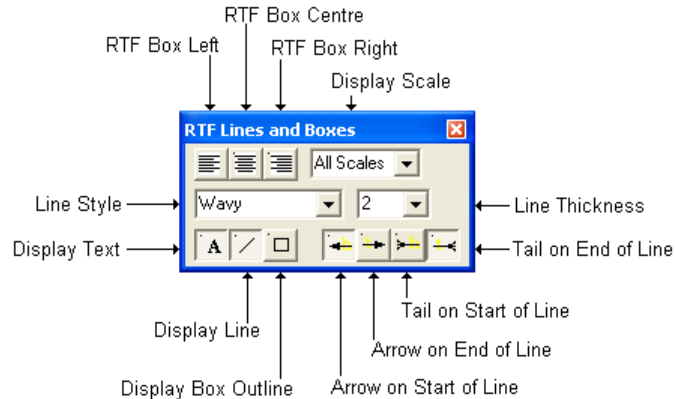
☐ ☐ ☐ At the flashing cursor or with some text highlighted these buttons will orient the text line or paragraph left, centered or right within the box outline.

☐ At the flashing cursor or with some text highlighted this button will place a bullet at the start of the text line or paragraph.

☐ ☐ At the flashing cursor or with some text highlighted these buttons will indent or tab the text line or paragraph either left or right.

☐ At the flashing cursor or with some text highlighted this button will activate a new Font color.

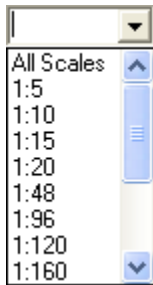
☐ At the flashing cursor or with some text highlighted this button will activate a Font background color.



Overview of RTF Lines and Boxes Toolbar buttons.

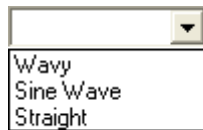


Left Right Centered Text boxes: With the text box or annotations outline activated these buttons will orient the text box left, centered or right within the track borders. The user can also click and drag on the box outline to any orientation on the track which will override these buttons.



Display scale drop box: This allows the user to change the display scale for each annotation to adapt to the printed or viewing scale of the log. The All Scales selection will display the annotation at all viewing and printing scales from 1:5 to 1:5000. If you select a different display scale then the annotation will be viewed at that viewing and printing scale and smaller. Anything larger than the display scale and the annotation will not be viewed or printed. This should alleviate the annotations overlapping each other when printed out on different scales. For example if the user were to choose 1:120 the annotation would show up on viewing / printing scales from 1:120 to 1:5 and not show up on scales from 1:121 to 1:5000.

boxes allow line thickness only have



Line Style Selector and Line Thickness drop boxes: These drop the user to select a different line style for their drawn line as well as the for the line that is associated with each individual annotation. You can one line per annotation. The line can only be redrawn and not moved.



This button will show / hide the text for a particular annotation. The text will not hide itself until the annotation is clicked outside of or deselected.



This button will show / hide the line for a particular annotation.



This button will show / hide an outline around the annotation. The grey box you see around all annotations will not be printed. Only when this button is activated will the box be printed.



Will show / hide an arrow pointer at the end of a line draw.



Will show / hide an arrow pointer at the start of a line draw.



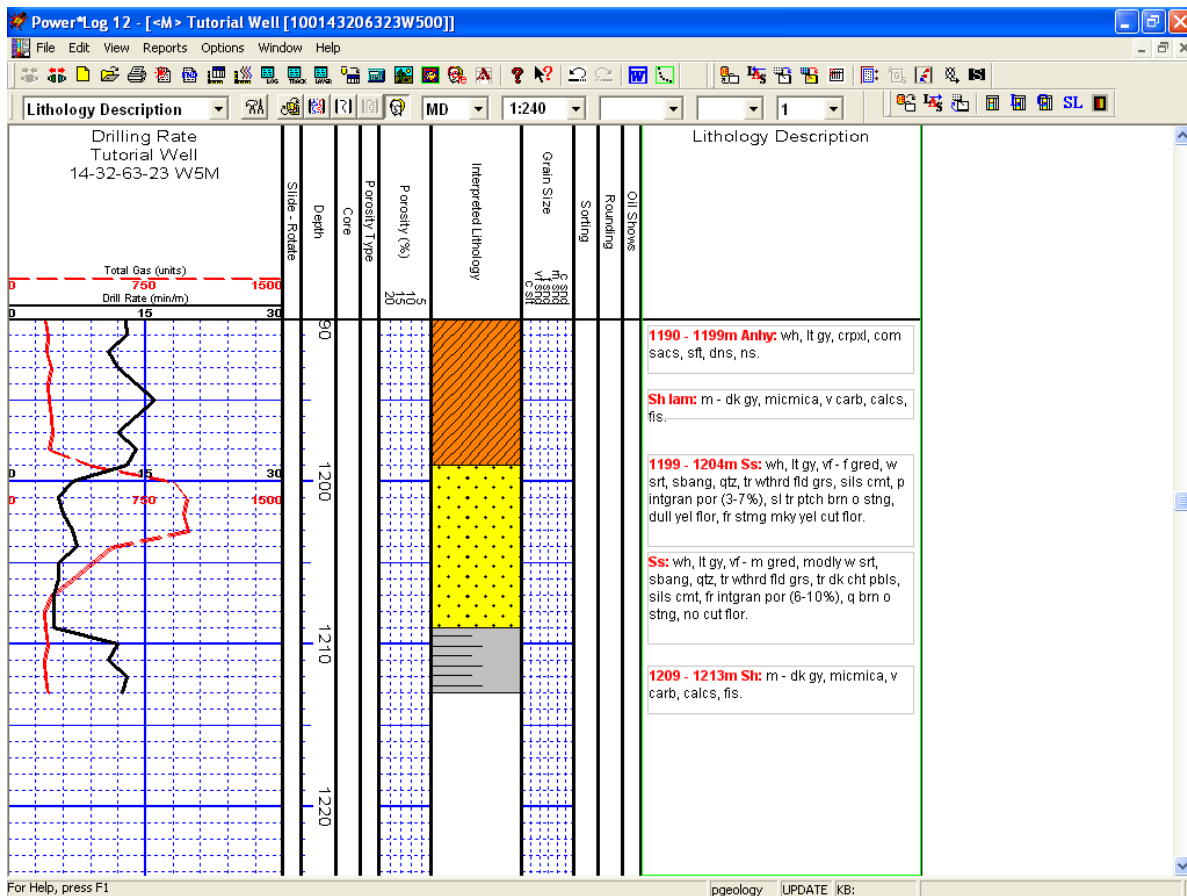
Will show / hide an tail at the end of a line draw.



Will show / hide an tail at the start of a line draw.

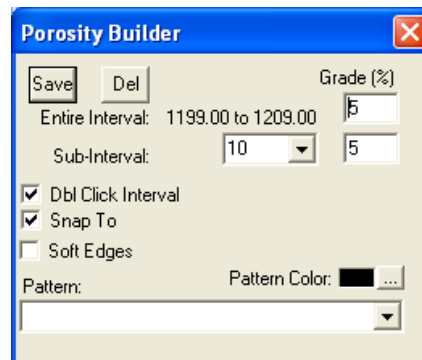
5.) **Click outside the annotation** to save your annotations.

****Your log should now look like the log below.****



Drawing Porosity (%)

- 1.) Double click on the **Porosity (%)** track to activate the **Porosity Builder** window.



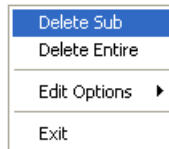
- 2.) Double Click the mouse pointer (with the ☒ **Dbl Click Interval** check box activated) between **1199.00** and **1209.00m @ [5%]** **1202.00 [5%]** and the entire interval will be drawn accordingly in purple to represent an entire interval.
- 3.) Click and drag the mouse pointer from **1209.00 [8%]** to **1204.00** **1209.00**, release the mouse button, and the desired **Porosity Grade** will be drawn accordingly in green to represent a subinterval.

Note: The mouse pointer does NOT have to be dragged to the same percentage (%) point at the bottom of the interval, as you selected at the top of the interval: the mouse pointer needs only to be dragged to the desired depth.

4.) Click on the ☒ **Soft Edges** check box to give your porosity grade a hand drafted effect.

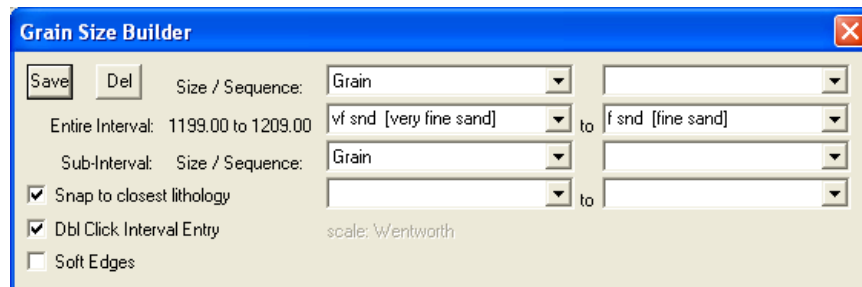
- **Deleting Porosity (%) Entire or Subinterval...**

If you wish to delete a **Porosity (%)** subinterval or entire interval, while the **Porosity Builder** window is open, **right click** within the interval slated for deletion to activate a pop-up menu, and then left or **right click** on the appropriate selection.



Drawing Grain Size

1.) **Double click** on the **Grain Size** track between to activate the **Grain Size Builder** window.



2.) Using the **left** mouse button, **click and drag** the mouse pointer from **1199.00 [vf snd]** to **1209.00 [f snd]**

1199.00 [vf snd]
1209.00 [f snd] on the **Grain Size** track.

Note: **Measured Depths** and **Grain Sizes**, like **199.00 [vf snd]**, can be viewed within the mouse pointer display box, situated just to the right of the mouse pointer.

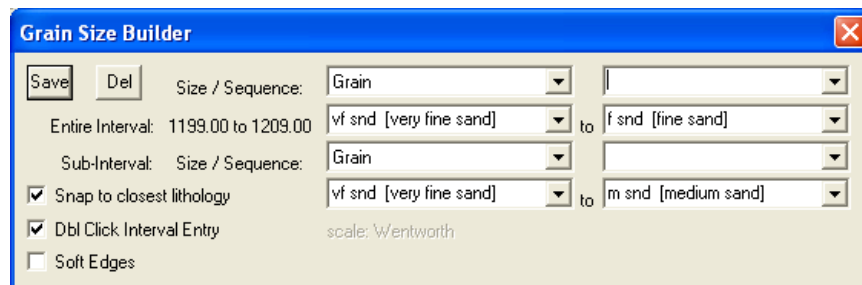
3.) Release the mouse button and the entire **Grain Size** interval will be drawn accordingly in purple to represent an entire interval.

- **Drawing a Grain Size Sub-Interval...**

1.) Using the **left** mouse button, **click and drag** the mouse pointer from **1209.00 [vf snd]** to

1204.00 [vf snd]
1204.00 [m snd] **1209.00 [m snd]**

2.) Release the mouse button and the **Grain Size** Sub-Interval will be drawn accordingly in green to represent a subinterval.

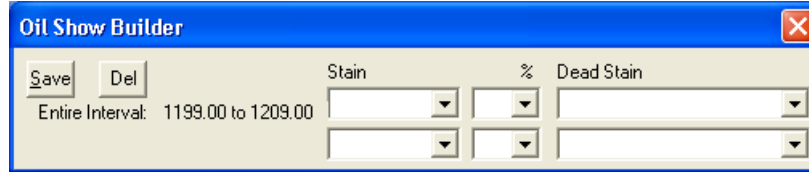


3.) Click on the ☒ **Soft Edges** check box to give your grain size a hand drafted effect.

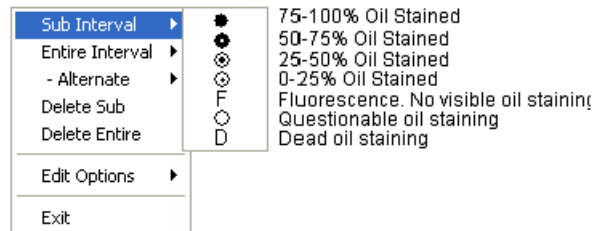
- 4.) To exit from the **Grain Size Builder** window and return to the log, **press** the **Esc** key on the keyboard once.

Drawing Oil Shows

- 1.) **Double click** on the **Oil Show** track between to activate the **Oil Show Builder** window.



- 2.) **Right click** anywhere within the **Oil Show** interval to activate the pop-up menu.



Note: The symbols utilized in the pop-up menu, represent a specific percentage (%) or amount of oil staining, as illustrated in the above diagram.

- 3.) **Select 0-25%** oil staining from the **Sub Interval** pop-up menu.

- 4.) **Click and drag** your mouse pointer from **1199m** to **1204m** and this sub-interval will be populated with the **0-25%** oil staining symbol (●).

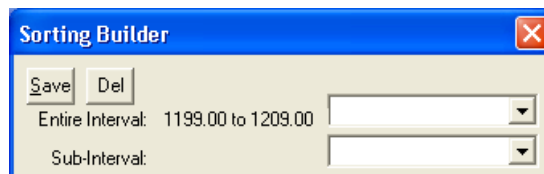
- 5.) **Right click** anywhere on the **Oil Show** track to activate the pop-up menu.

- 6.) **Click** on the **Sub Interval** selection and then **select** questionable oil staining from the list.

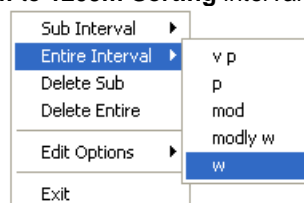
- 7.) **Click and drag** your mouse pointer from **1204** to **1209m** and another **5m** sub-interval will be populated with the **questionable** oil staining symbol.

Drawing Sorting

- 1.) **Double click** on the **Sorting** track to activate the **Sorting Builder** window.



- 2.) **Right click** anywhere within the **1199m** to **1209m** **Sorting** interval to activate the pop-up menu.

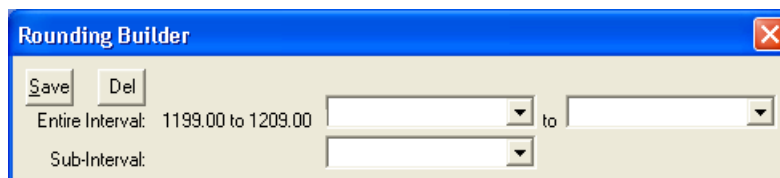


Note: Each of the abbreviations utilized in the pop-up menu represent a specific degree of **Sorting**.

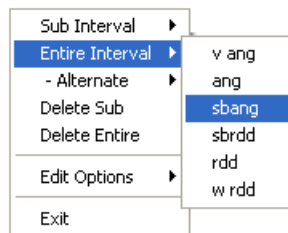
- 3.) **Select w** for the **Entire Interval** from the pop-up menu and the entire bed will be populated with the “W” symbol.
- **Drawing a Sorting sub-interval...**
 - 1.) **Right click** anywhere within the **Sorting Track** to activate the pop-up menu.
 - 2.) **Select modly w** from the **Sub Interval** pop-out menu.
 - 3.) **Click and drag** your mouse from **1204 to 1209m** and one **5m** sub-interval will be populated with the “mW” symbol.

Drawing Rounding

- 1.) **Double click** on the **Rounding track** to activate the **Rounding Builder** window.



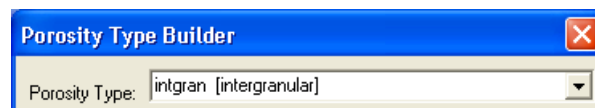
- 2.) **Right click** anywhere within the **1199m to 1209m Rounding** interval to activate the pop-up menu



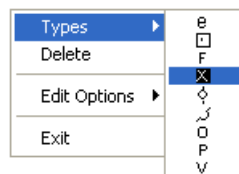
- 3.) **Select sbang** for the **Entire Interval** from the pop-up menu and the entire bed will be populated with the “a” symbol.

Drawing Porosity Type

- 1.) **Double click** on the **Porosity Type Track** to activate the **Porosity Type Builder** window



- 2.) **Right click** anywhere within the **Porosity Type** track activate the pop-up menu and then **select** types to activate the pop-out menu.

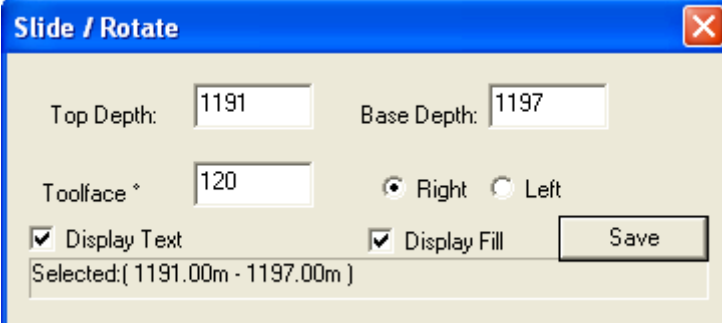


- 3.) **Select x** from the pop-up menu and **click at 1200m, 1202m 1205m and 1208m** and “x’s will appear at those depths.

Drawing on the Slide / Rotate Track

We can also import the slides and toolface orientation but for this example we will do this manually. In the Power*Curve tutorial we will import the slides from a *.txt file.

- 1.) **Double click** on the **Slide - Rotate Track** to activate the **Slide – Rotate Builder** window



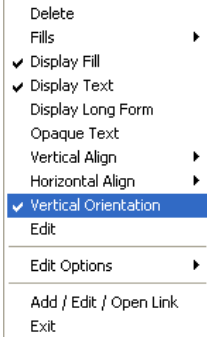
The **Slide / Rotate** window contains the following fields and controls:

- Top Depth:** 1191
- Base Depth:** 1197
- Toolface °:** 120
- Orientation:** ☒ Right ☐ Left
- Display Text:** ☒
- Display Fill:** ☒
- Save** button
- Selected:** (1191.00m - 1197.00m)

- 2.) **Click and drag** your mouse within the track from 1191 to 1197m and then let go. The slide will automatically be drawn for you with an S.
- 3.) To enter the toolface orientation **click on the slide** that you just dragged in and then **type 120** in the **toolface field** and then **click on the Right radio button**.


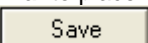
- 4.) **Click on the**  **button.**

- 5.) To change the font orientation from the default Horizontal on the slide **right click on the Slide you just modified** with the toolface to activate the pop out menu and **select the Vertical Orientation**.



The context menu includes the following options:

- Delete
- Fills
- ☒ Display Fill
- ☒ Display Text
- Display Long Form
- Opaque Text
- Vertical Align
- Horizontal Align
- ☒ **Vertical Orientation**
- Edit
- Edit Options
- Add / Edit / Open Link
- Exit

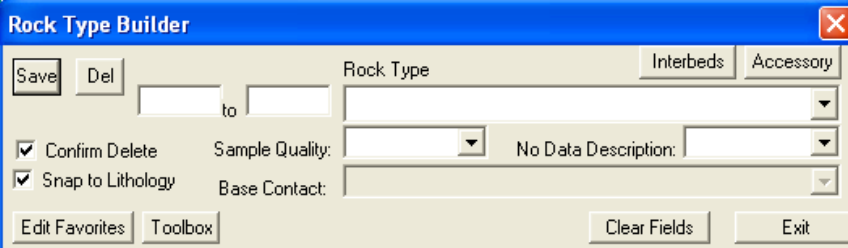
- 6.) To **RESIZE** an interval you would **hold the CTRL key** and mouse over an end point of a slide to turn the mouse pointer into a resize arrow  **click and drag your mouse** to a new depth interval drawn. **OR Click** on the **interval** to place its attributes into the builder and then **type** in a new start or end depth and then **click on the**  **button.**

- 7.) To **DELETE** right click on the drawn interval and **select delete** from the pop-out menu.

Drawing Accessories

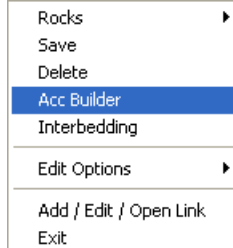
Using **the log on page 39** as a guideline, add some **Accessories** to the log at your discretion. Listed below are the steps for adding **Accessories**:

- 1.) **Double click** anywhere within the **Interpreted Lithology** track to activate the **Rock Type Builder** window.



The **Rock Type Builder** window contains the following fields and controls:

- Save** button
- Del** button
- Rock Type** dropdown menu
- Interbeds** button
- Accessory** button
- ☒ Confirm Delete
- Sample Quality:** dropdown menu
- No Data Description:** dropdown menu
- ☒ Snap to Lithology
- Base Contact:** dropdown menu
- Edit Favorites** button
- Toolbox** button
- Clear Fields** button
- Exit** button

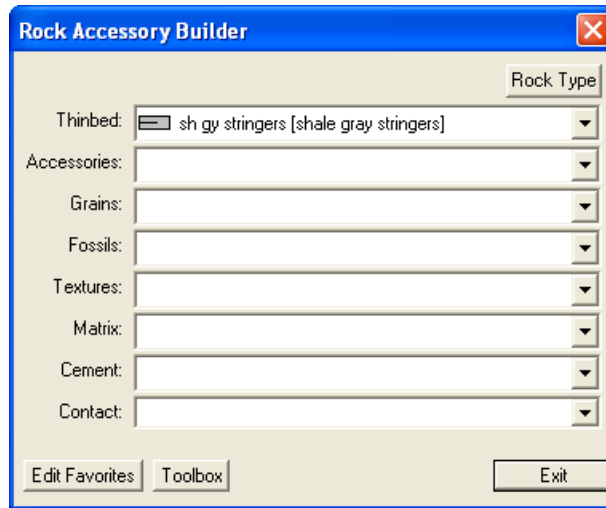


The context menu includes the following options:

- Rocks
- Save
- Delete
- Acc Builder**
- Interbedding
- Edit Options
- Add / Edit / Open Link
- Exit

- 2.) **Right click** anywhere within the **Interpreted Lithology** track to activate the pop-up menu.

- 3.) **Select Acc Builder** from the pop-up menu to activate the **Rock Accessory Builder** window or **click** on the **Accessory** button in the Rock Type builder.



- 4.) Now the user can move the Toolbox Favorite List by clicking and dragging the menu bar to a convenient location.

...Adding a Thinbed...

- 5.) **Click** on the symbol for **Shale Gray Stringers** from the Tool Box Favorites List and the **Thinbed** field in the **Rock Accessory Builder** window will be filled in with **sh gy stringer [shale gray stringers]**.
- 6.) **Click** anywhere within existing **Interpreted Lithology** to insert the desired **Accessories**.

Note: To delete an **Accessory** symbol, activate the **Rock Accessory Builder** window, **right click** on the **Accessory** symbol you wish to delete, and then **select Delete** from the pop-up menu.

- **Adding another Thinbed...**

- 1.) **Click** on the symbol for **Chert Dark Pebbles** from the Tool Box Favorites List and the **Thinbed** field in the **Rock Accessory Builder** window will be filled in with **cht dk pebbles [chert dark pebbles]**.
- 2.) **Click** along the bottom of the **Sandstone** interval to insert the desired **Accessory**.

Note: When placing **Accessories** on the log, you may wish to increase the mouse accuracy from the default of 1 to 0.1. This selection box is located to the left of the **LAS** button on the **Toolbar**.

- **Adding an Accessory...**

- 1.) **Click** on the symbol for **Salt Casts** from the Tool Box Favorites List and the **Component** field in the **Rock Accessory Builder** window will be filled in with **sac [salt casts]**.
- 2.) **Click** anywhere within the **Anhy(prim)** interval to insert the desired **Accessory**.

Adding another Accessory.....

- 1.) **Click** on the symbol for **Silty** from the Tool Box Favorites List and the **Component** field in the **Rock Accessory Builder** window will be filled in with **slty [silty]**.
- 2.) **Click** within the **Anhy (prim)** interval to insert the desired **Accessory/Accessories**.

- **Add the following an Accessory and Grains...**

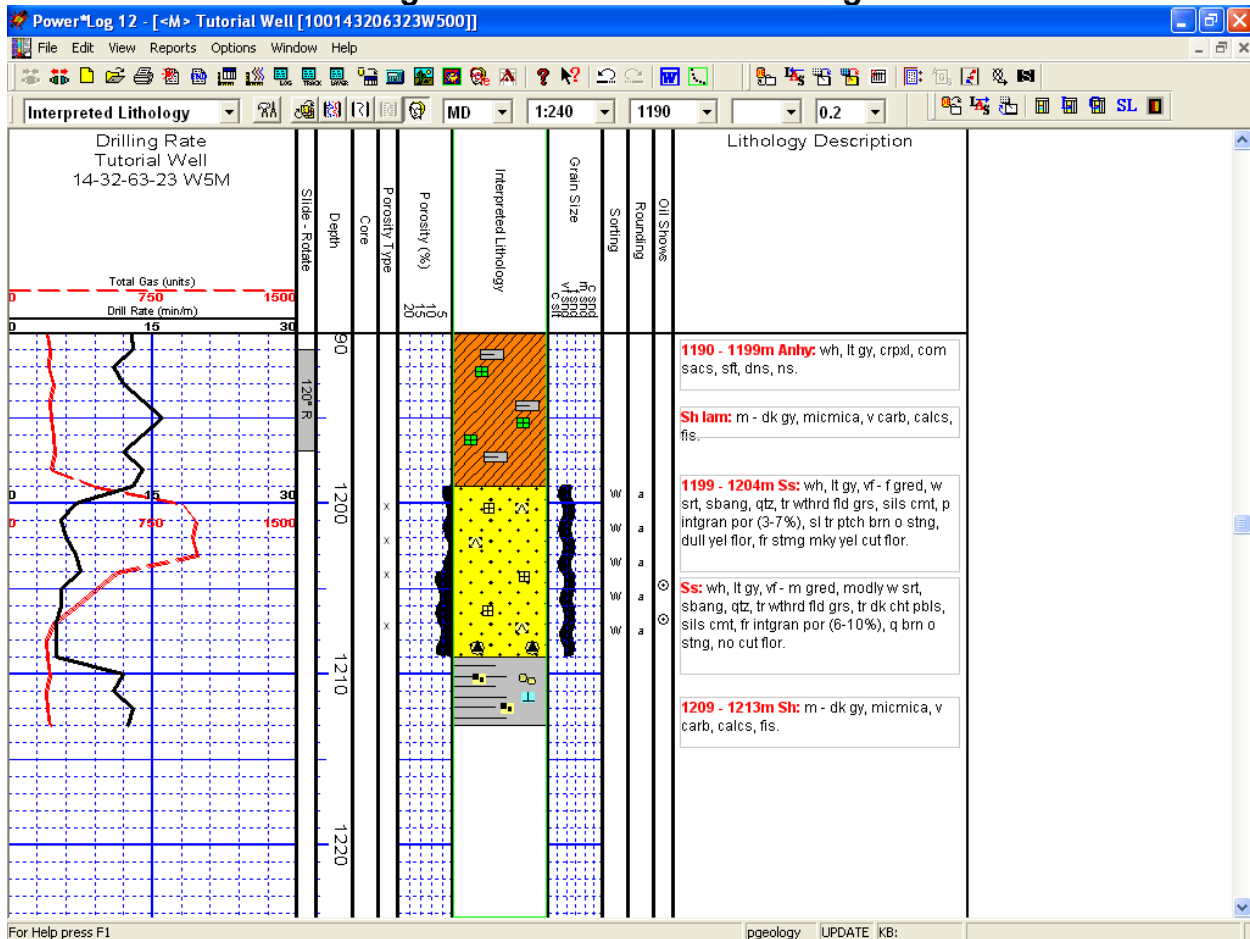
Arenaceous

Feldspar Grains

- **Adding Cement...**

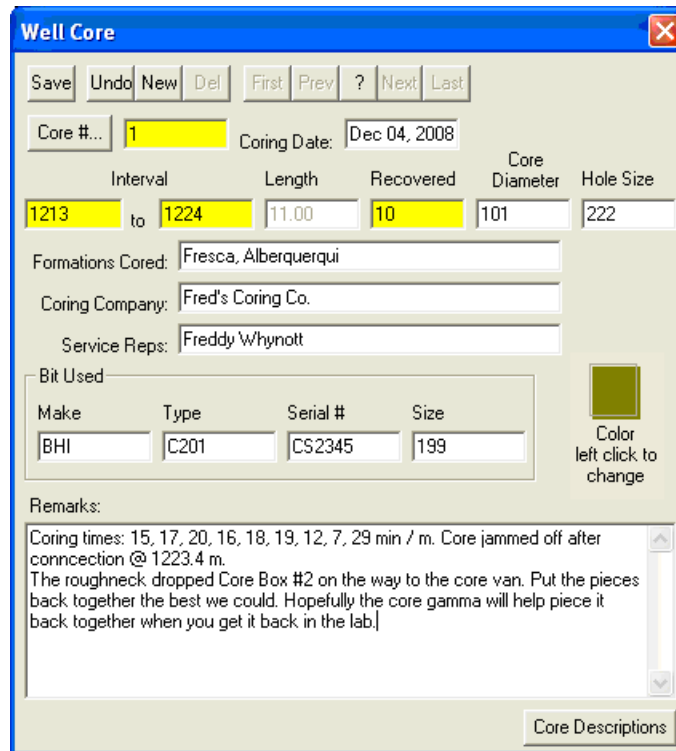
- 1.) Click on the symbol for **Siliceous** from the Tool Box Favorites List and the **Cement** field in the **Rock Accessory Builder** window will be filled in with **sils [siliceous]**.
- 2.) Click anywhere within the existing **Interpreted Lithology** intervals, that you wish to insert the desired **Accessory/Accessories**.
- 3.) Press the **Esc** key on the keyboard to exit from the **Rock Accessory Builder** window.

****Your log should now look like the log below.****



Adding a Cored Interval to the log

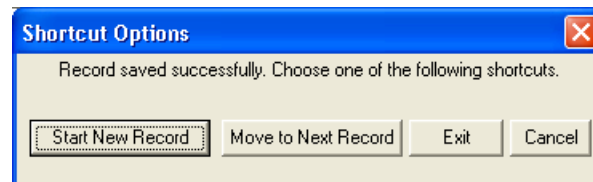
- 1.) Double click on the **Core** track to activate the **Well Core** report window.



The 'Well Core' window is a form for entering core data. It includes a menu bar with 'Save', 'Undo', 'New', 'Del', 'First', 'Prev', '?', 'Next', and 'Last'. The 'Core #' field contains '1'. The 'Coring Date' is 'Dec 04, 2008'. The 'Interval' is '1213 to 1224', 'Length' is '11.00', 'Recovered' is '10', 'Core Diameter' is '101', and 'Hole Size' is '222'. The 'Formations Cored' is 'Fresca, Alberquerqui', 'Coring Company' is 'Fred's Coring Co.', and 'Service Reps' is 'Freddy Whynott'. The 'Bit Used' section has a table with columns 'Make', 'Type', 'Serial #', and 'Size', containing 'BHI', 'C201', 'CS2345', and '199'. A 'Color' selection box is next to it with the text 'Color left click to change'. The 'Remarks' field contains a text description of the coring process. A 'Core Descriptions' button is at the bottom right.

Make	Type	Serial #	Size
BHI	C201	CS2345	199

- 2.) Type **1** into the **Core #** field. **Tab key**.
- 3.) Type today's date into the **Coring Date** field, using the **Date Format (MMM DD, YYYY)**, selected in the **System Options** window at the beginning of this tutorial. **Tab key**.
- 4.) Type **1213** into the **Interval (From)** field, **Tab key**, Type **1224** into the **Interval (To)** field, **Tab key** and Type **10** into the **Recovered** field.
- 5.) The rest of the fields can be filled in. Only the yellow fields are mandatory. Remember to Tab between fields.
- 6.) Click on the **Save** button. This will activate the Shortcut Options window.



The 'Shortcut Options' window displays the message 'Record saved successfully. Choose one of the following shortcuts.' and contains four buttons: 'Start New Record', 'Move to Next Record', 'Exit', and 'Cancel'.

- 7.) Click on the **Cancel** button.


Adding Core Descriptions




- 1.) Click on the **Core Descriptions** button, in the Well Core window to activate the **Core Description** window.

- 2.) Type **1213** into the **Interval (From)** field, **tab** and Type **1218.4** into the **Interval (To)** field, **tab** and then Type **Sh / mnr – abnt Ss strgs** into the **Rock Type** field. **Tab** to get to the short description field.
- 3.) Type the following Core Description into the Short Description field, exactly as is:





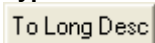

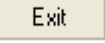
Sh lt gy, occlly mot dk gy, micmica, v carb, slty, plty & fis. Occ tr Sid nods & unident fos deb. Ss strgs pred @ the top of zn, v thn <2 mm thk, s&p, vf gred, py srt, sbrdd, arg & tt / ns.

Note: The **Short or Long Descriptions** can be added to the **Lithology Description** layer (in the **Lithology Description** track and only the **Long Description** will still be printed out in the **Core Description Report** in the **Well End Report** window.

- 4.) Select the **Automatic Transfer**, **Transfer Depth Range** and **Transfer Short Form** check boxes (), as shown in the preceding sample description window.
- 5.) Click on the **Save** button.
- 6.) Depending on your Screen scale (>1:120) you may be prompted with a System Verification message Click on the **Yes** button

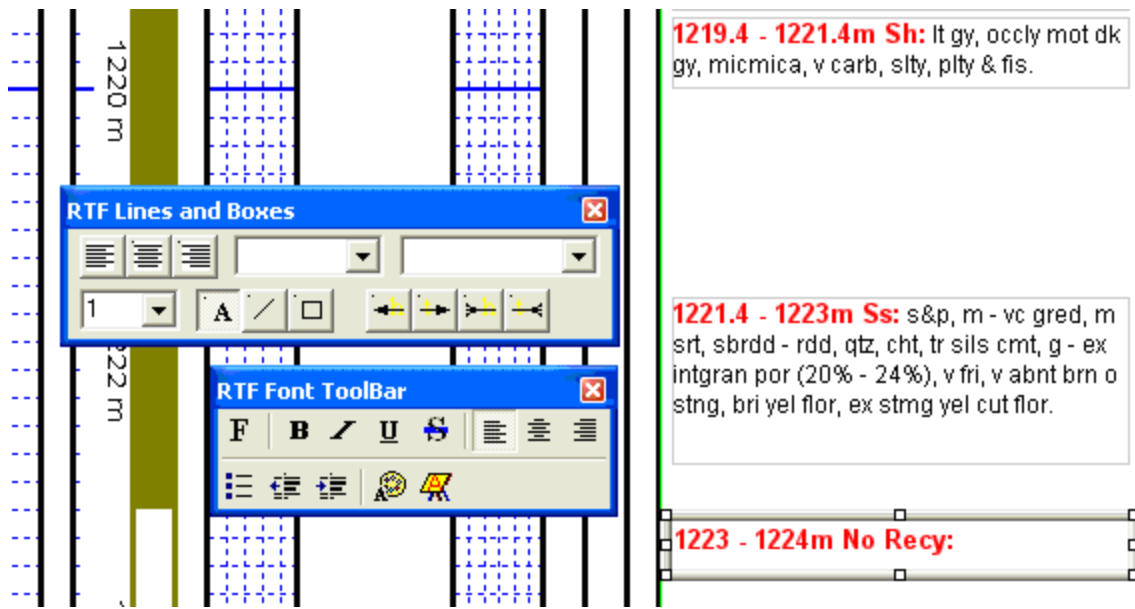
- 7.) Click on the  button from the ensuing **Shortcut Options** window. You will see your sample description on the log at 1213m with the options selected in step 4.
- **Adding another Core Description to a new interval...**
- 1.) Type **1219.4** into the **Interval (To)** field, **tab** and then **Type Ss** into the **Rock Type** field. **Tab** to get to the short description field.
 - 2.) Type the following **Core Description** into the **Short Description** field, exactly as is:
*s&p, m gred, w srt, sbrdd, qtz, cht, sils cmt, fr – g intgran por (16% - 18%), abnt
brn o stng, bri yel flor, ex stmg yel cut flor.*
 - 3.) Click on the  button and then select  from the ensuing **Shortcut Options** window.


Note: If you made any typing errors, you can make any necessary corrections now and then **Save** the record once again to overwrite the old record. You must first delete the description from the Lithology Description Layer.

- **Adding yet another Core Description to a new interval...**
- 1.) Type **1221.4** into the **Interval (To)** field, **tab** and then **Type Sh** into the **Rock Type** field. **Tab** to get to the short description field.
 - 2.) Type the following **Core Description** into the **Short Description** field, exactly as is:
It gy, occlly mot dk gy, micmica, v carb, slty, plty & fis.
 - 3.) Click on the  button and then select  from the ensuing **Shortcut Options** window.
- **Adding yet another Core Description to a new interval...**
- 1.) Type **1223** into the **Interval (To)** field, **tab** and then **Type Ss** into the **Rock Type** field. **Tab** to get to the short description field.
 - 2.) Type the following **Core Description** into the **Short Description** field, exactly as it appears below:
s&p, m - vc gred, m srt, sbrdd - rdd, qtz, cht, tr sils cmt, g - ex intgran por (20% - 24%), v fri, v abnt brn o stng, bri yel flor, ex stmg yel cut flor.
 - 3.) Click on the  button and then select  from the ensuing **Shortcut Options** window.
- **Adding the last Core Description to a new interval...**
- 1.) Type **1224** into the **Interval (To)** field, **tab** and then **Type No Recy** into the **Rock Type** field. Click on the  button. This will expand the abbreviated Rock type into the Long name Rock type field.
 - 2.) Click on the  button and then select  from the ensuing **Shortcut Options** window.

Editing Core Descriptions

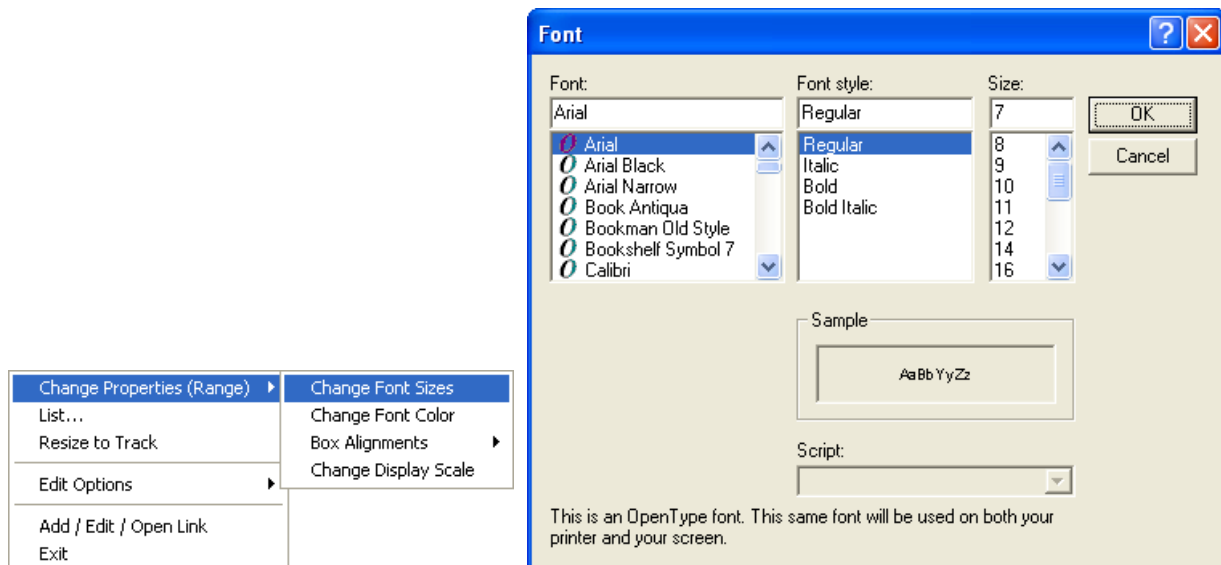
- 1.) Make the **Lithology Description** layer active (in the **Layer Selection List** field), by **clicking once** anywhere within the **Lithology Description** track to highlight the **Lithology Description** track in green.




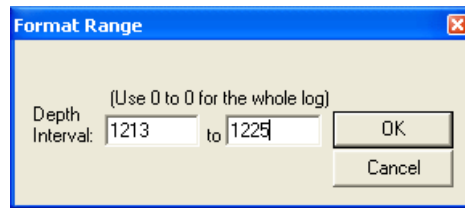
- 1.) Click on the **Core Description** you wish to move.
- 2.) Move your mouse pointer onto the bordered area on the lithology description track and so that the mouse pointer turns into  cross hairs and **click** and drag to move this description so that it can be read easily. Release the mouse button, and the **Core Description** will be redrawn at its new location.
- 3.) Click anywhere outside of the area to take the focus off that annotation.


Changing the Font Sizes over an Inertval

- 1.) Right Click anywhere on the **lithology description layer**. This will activate the pop out menu.
- 2.) Select **Change Properties (Range)** and then **Change Font Size** selection. This will activate the Font Window.

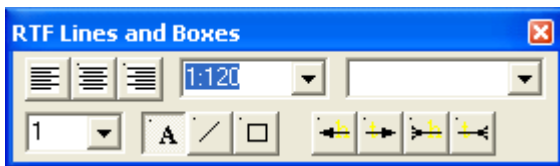


- 3.) Select **Arial**, **Regular** and **type 7** into the Font, Font Style and Size dialogue boxes and then **Click** on the  button. This will activate the Format Range Window.



- 4.) **Type 1213** in the Depth Interval from field and **type 1225** in the Depth Interval to field and then **Click** on the  **button**. This will change the Font size from the default to 7 point Arial Regular font for the cored interval.

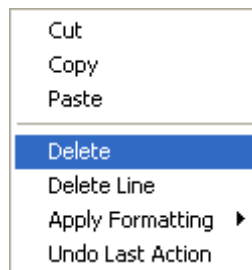
Changing the Display Scale options



- 1.) **Click** on **1221.4-1223m Ss Core Description**. If done correctly the **Core Description's** will show a highlight around the selected annotations borders.
- 2.) To change the **Display Scale** of the **Core Description** now being displayed in the RFT Lines and boxes window, simply **select All Scales** from the **display scale drop box** to replace the 120. (When this is done the core description will display at all log viewing and printing scales.)


Deleting Core Descriptions

- 1.) **Click** on the **Core Description** you wish to delete to highlight it.
- 2.) **Right Click** anywhere inside the annotation to activate the pop up menu shown below.




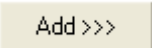
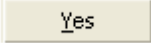

- 3.) **Click** on the **Delete** selection.
- 4.) **Click anywhere outside** the annotation to close down the RFT Builders.

Adding a Core Rate curve layer to the log

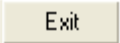
- 1.) Under the **Options** menu, **click** on **Log Configuration Builder** or **click** on the  **Log Configuration Builder button** on the **Toolbar** to activate the **Log Configuration Builder** window.
- 2.) On the **left side of the Log configuration builder** scroll down and highlight or **click** on the **Curves** track.

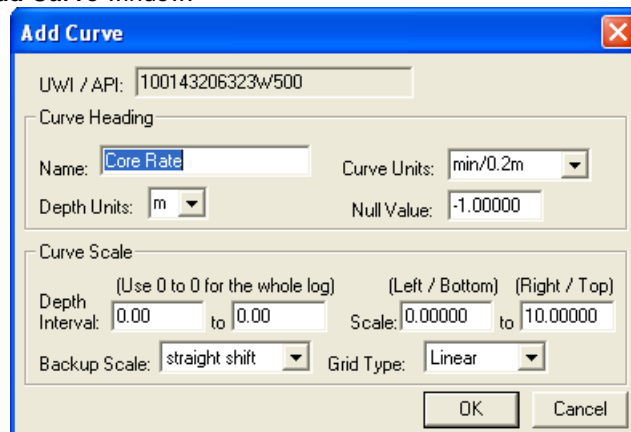
This track has all of the curves available to our users except for mud gas curves which are in the Mudlogs. You can change names of any of the curve layers to represent any curve you wish but in our case all we have to do is follow step 2.

- 3.) **Click** on the **Core Rate** layer in the layers portion of the window on the lower left side of the builder to highlight it. Also, notice the Layers Radio button  on the left side gets activated.


- 4.) On the **right** side (**Active Log**) of the **Log Configuration Builder** window, **click** on the **Drilling Rate** track to highlight it. This is the track we want to add the Core Rate layer to.
- 5.) **Click** on the  button and you will be prompted with the following system message, “**Do you want to ADD the selected (layer) from the available log to the active log?**” **Click** on the  button.
- 6.) This will activate a **Get Name** window with “**Core Rate**” as the name in the **New Layer Name** field. **Click** on the  button and the **Core Rate** layer will then be added to the **Drilling Rate** track.

Note: The **Core Rate** curve has not yet been associated with the **Core Rate** layer. This will be done when the **Add Curve** window has been correctly filled in.

- 1.) **Click** on the  button to return to the log and the log will be initialized with the new layer, which in turn will generate an **Add Curve** window.



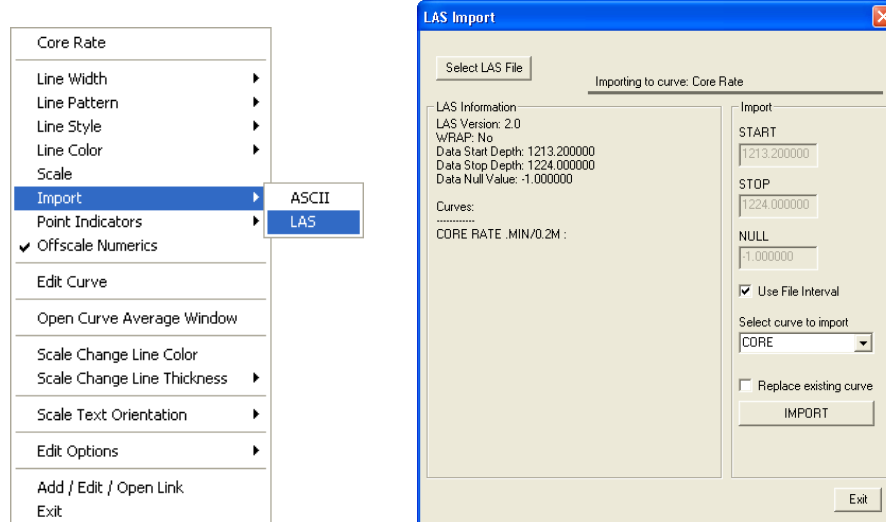
- **The Add Curve window...**

- 1.) Make sure the unit in the **Curve Units** field is correct (in this case it will be **min/0.2m**). If not, then please **select min/0.2m** from the **Curve Units** drop box field.
- 2.) Make sure **m** is in the **Depth Units** drop box field.
- 3.) Make sure the **Null Value** field is **-1**.
- 4.) Make sure the **Depth Interval** is **0** and **0** indicating the present curve scale is applicable to any depth on the log.
- 5.) Make sure the **Curve Scale** field values (**Left / Bottom** and **Right / Top**) to **0** and **10**
- 6.) Make sure the **Backup Scale** drop box field is **Straight Shift**.
- 7.) Make sure the **Grid type** drop box field is **Linear**.
- 8.) **Click** on the  button to add the curve layer to the Drill Rate Track.

Importing an LAS Core Rate Curve

- 1.) **Click** on the **Drill Rate** track to make it active. You will notice a green trace around the outside of the track if done correctly.
- 2.) Use the drop down arrow in the **Layer Selection List** field (located at the far left side of the **Selection bar**), to display a list of the layers in the **Drilling Rate** track.

- 3.) **Select** the **Core Rate** layer to make it the active layer and the **Layer Selection List** will close automatically after you have made your selection.
- 4.) **Right click** on the **Core Rate layer** to activate a popup menu shown below for the Core Rate Curve layer.
- 5.) **Select Import** from the pop-up menu to activate a pop out menu and **select LAS**. This will activate the LAS Import Window shown below.



- 6.) **Click** on the **Select LAS File** button. This will activate the Open LAS File window and locate the “**Metric Core Rate Curve.las**” in the Powersuite_V12 / System folder.
- 7.) After locating the Drive and Directory where the “Metric Core Rate Curve.las” file is the user must **select** the file by **double clicking** on the file name or **clicking on it once** and **clicking on the** **OK** button. This will bring the file header into the LAS Import window.
- 8.) **Click** on the **Select Curve to Import drop box** and **select the Core curve**.
- 9.) **Click** on the **IMPORT** button. The curve will import and the window will disappear leaving the core rate curve on the layer.

• **Adding the Core Rate Curve Manually**

- 1.) **Double Click** on the **Core Rate** layer to bring up the **Curve Editor** window for the **Core Rate** curve.
- 2.) In the **Curve Editor** window, change the **Auto Depth Increment** field value to **0.2**.
- 3.) Enter the values below into the **Depth** and **Value** fields, respectively.

Note: After the first value has been entered into the **Depth (m)** field, the **Curve Editor** window automatically performs each subsequent increment, according to the value placed in the **Auto Depth Increment** field. Consequently, the only values you need to enter manually, after the first entry, are the **Value (min/m)** field values.

1213.2	7.0	1215.8	7.0	1218.4	6.5	1221.0	5.0
1213.4	7.0	1216.0	6.5	1218.6	2.0	1221.2	5.0
1213.6	6.0	1216.2	6.5	1218.8	2.4	1221.4	5.0
1213.8	6.0	1216.4	6.5	1219.0	2.4	1221.6	3.0
1214.0	5.0	1216.6	6.5	1219.2	2.4	1221.8	3.0
1214.2	5.0	1216.8	7.0	1219.4	2.2	1222.0	2.5
1214.4	5.5	1217.0	7.0	1219.6	5.0	1222.2	2.5
1214.6	5.5	1217.2	7.0	1219.8	6.0	1222.4	2.2
1214.8	5.5	1217.4	6.7	1220.0	6.0	1222.6	2.2
1215.0	6.0	1217.6	6.7	1220.2	6.5	1222.8	2.1
1215.2	6.0	1217.8	6.5	1220.4	6.5	1223.0	2.1
1215.4	7.0	1218.0	6.5	1220.6	6.0	1223.2	2.1
1215.6	7.0	1218.2	6.5	1220.8	6.0	1223.4	8.5

1223.6 10.0

1223.8 10.0


1224.0 12.0

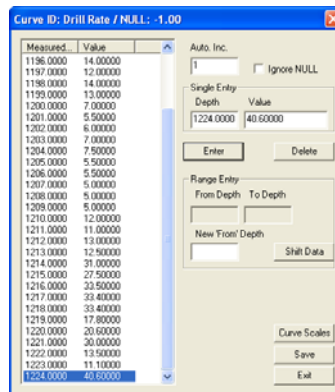
****Remember to save your work before you exit from the Curve Editor window.****

Adding Coring Times to the existing Drill Rate curve

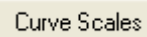


- 1.) Select the **Drill Rate** curve layer from the **Layer Selection List** field to make **Drill Rate** the active layer.
- 2.) Double click on the **Drilling Rate** track to bring up the **Curve Editor** window for the **Drill Rate** curve layer.
- 3.) Please enter the following values into the **Curve Editor** window.

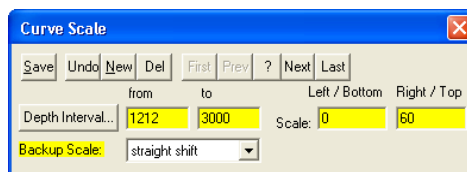
1214	31	1220	20.6
1215	27.5	1221	30
1216	33.5	1222	13.5
1217	33.4	1223	11.1
1218	33.4	1224	40.6
1219	17.8		


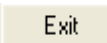
- 1.) Click on the  button to save your Drill Rate (Core Rate in min/m).



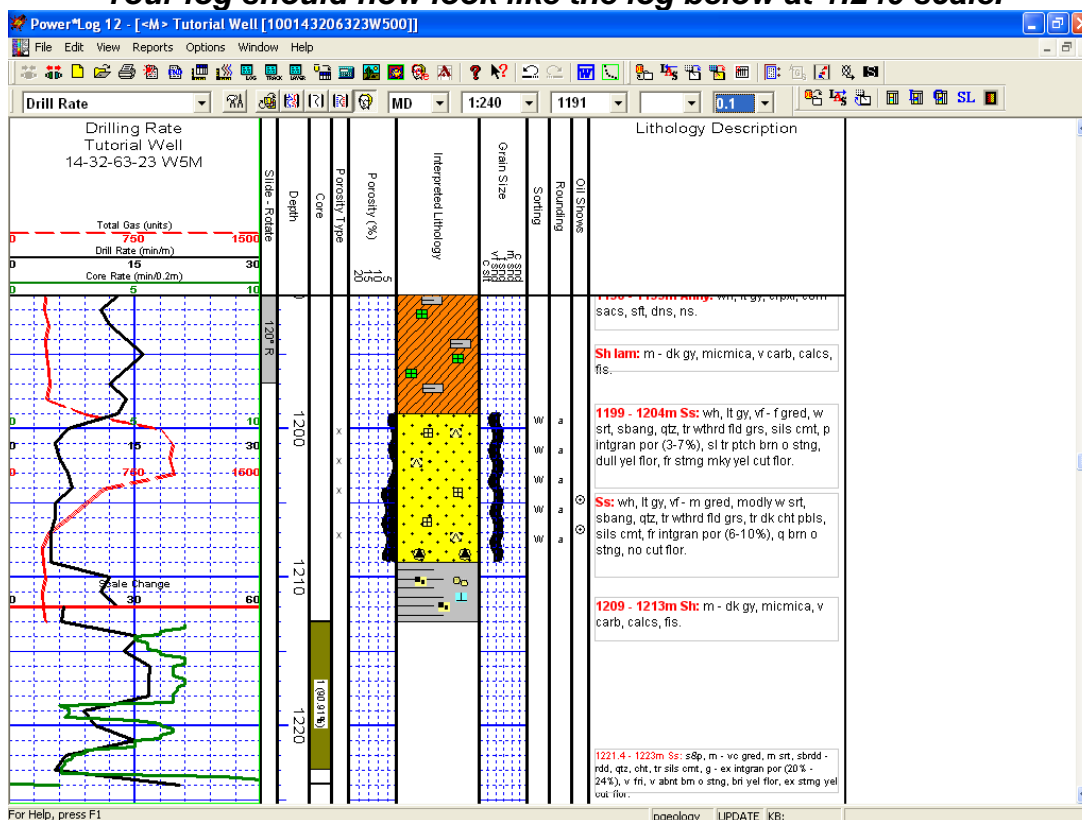
Changing Curve Scales in the Curve Editor window

- 1.) Click on the  button in the Curve Editor window. This will activate a Curve Scale window. **We will be changing scales in our case at 1212m.**
- 2.) Type in a different From Depth Interval changing the 0 to 1212 and then click on the  Button. This will activate a System message stating Record Saved Successfully.
- 3.) Click on  button. This will clear the window.
- 4.) Type in 1212 in the **from depth** interval field, tab, Type 3000 in the **to depth** interval field, tab, Type in 0 in the **left / bottom scale** field, Type in 60 in the **right / top scale** field, select **strait shift** from the **Backup Scale** drop box.

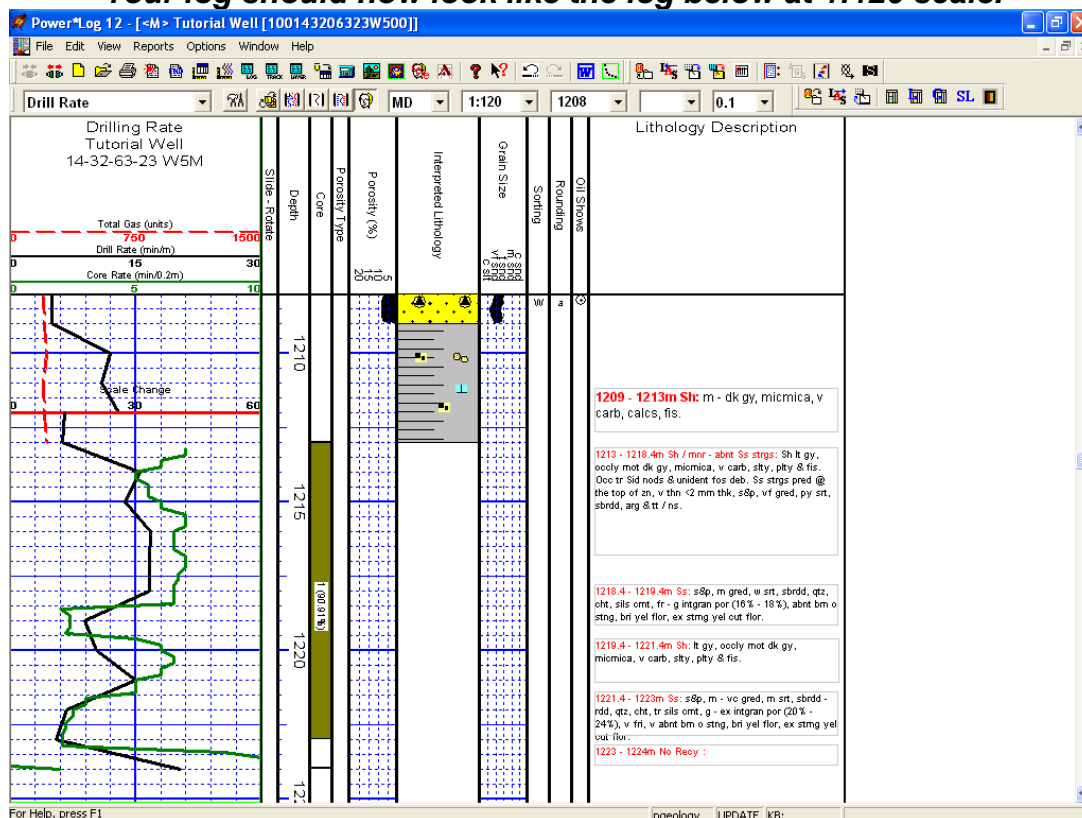


- 5.) Click on the  button and then select **Exit** from the ensuing Record Saved Successfully message box.
- 6.) Press the **Esc** key on the keyboard or Click on the  button in the Curve Editor window to exit from the **Curve Editor** window. This will return you to the main log and you will now be able to view your drill rate additions and the change of scale.

****Your log should now look like the log below at 1:240 scale.****



****Your log should now look like the log below at 1:120 scale.****



Adding a Formation Top

- 1.) Click on **Formation**, under **Reports**, to activate the **Well Formation** window.

Well Formation

Save Undo New Del First Prev ? Next Last K.B. 460.54 Ground 456.34 Casing Flange 455.2

Short Long

Group: s Santorini

Formation... ab **Alberquerqui**

Member:

Boundary Type: conf [conformable]

Fault Type:

Seq#: Long Name Display Depth:

Subsea: -757.81 Alignment: right

Era mesozoic Series lower

Period k [cretaceous] Stage Santonian

Age: 84 million years Thickness MD: 23 Calculate Thickness TVD:

Tops MD TVD

Prognosis: 1216

Sample: 1218.4 1218.35

Log:

Display ☐ Prog. ☒ Smpl. ☐ Log

Evaluation: Annotations Samples To Long Desc

The Alberquerqui consists of Sandstone with Minor Shale beds. The Sandstones are predominately salt and pepper, medium to very coarse grained, medium sorted, subrounded to rounded, quartz, chert, trace siliceous cement, good to excellent intergranular porosity (20% to 24%), very friable, very abundant brown oil staining, bright yellow fluorescence, excellent streaming yellow cut fluorescence.

Conclusion: To Long Desc

The Sandstone exhibit good shows and excellent porosity development. This would be a zone of much economic interest and should be further evaluated on downhole wireline logs.

*Note: Hold CTRL to drag display position

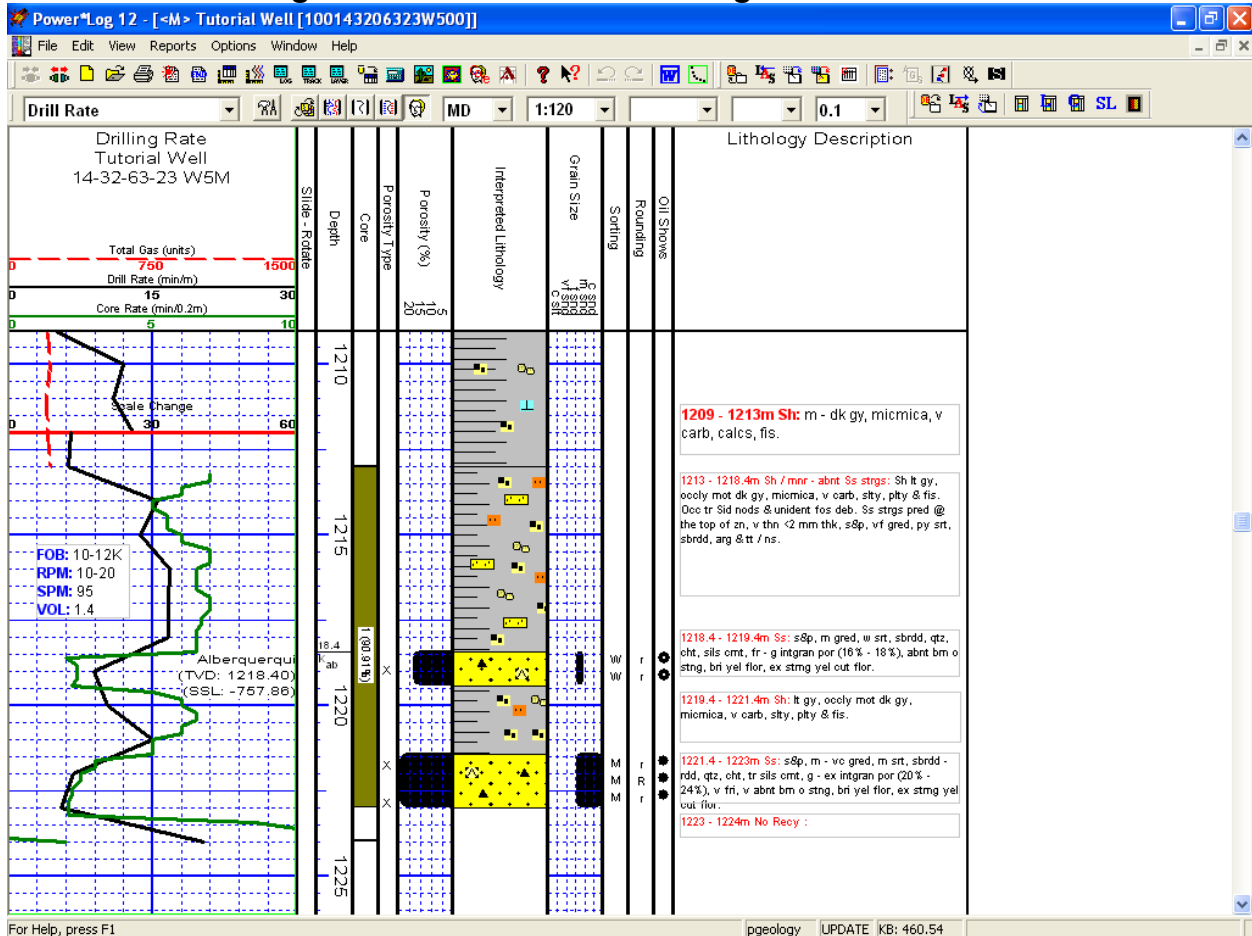
- 2.) Type **ab** into the **Formation Short name** field, **tab** and Type **Albequerqui** into the **Formation Long Name** field, select **Mesozoic** from the **Era Drop down box**, select **Lower** from the **Series Drop down box**, select **K [Cretaceous]** from the **Period Drop down box**, and select **Santonian** from the **Stage Drop down box**.
- 3.) Type in **1216** in the **Prognosis TVD Top** field, **tab**, type **1218.4** in the **Sample Top (MD)** field, **tab** and Type **1218.35** in the **Sample Top (TVD)** field.

Display ☐ Prog. ☒ Smpl. ☐ Log

- 4.) Click on **Smpl.** radio button so the log will reflect the sample top.
- 5.) Click on the **Save** button and select **Exit** from the ensuing **Shortcut Options** window.

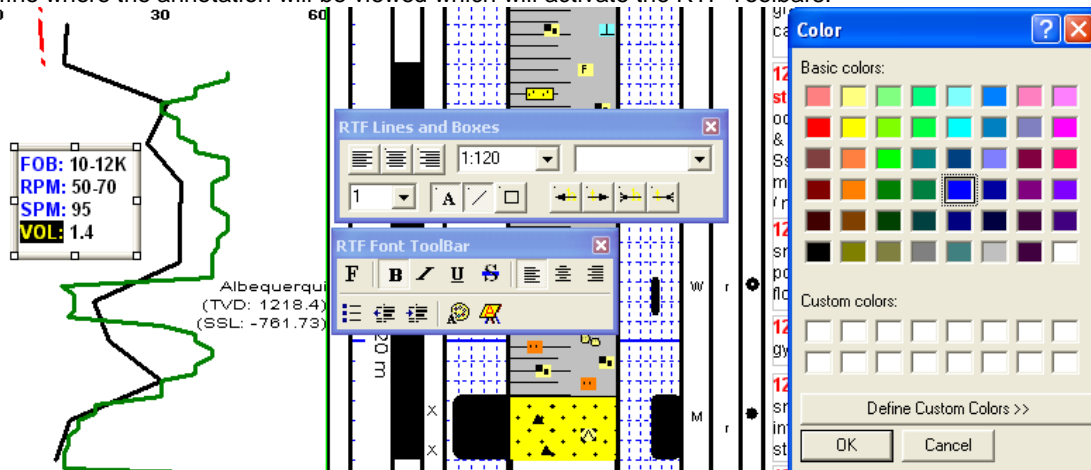
Draw the Interpreted Lithology (Please refer to the section on Drawing Interpreted Lithology earlier in this tutorial), for the Core Descriptions, that you have already created. Your Log should look similar to the log illustrated in the log below. To draw Lithology with the accuracy that has been described in the core descriptions you will want to change the accuracy of your mouse pointer or the screen scale accuracy to 0.2m. To do this click on View menu selection, select screen scale accuracy and select 0.2 from the pop-out menu.



****Your log should now look like the log below at 1:120 scale.****






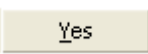
Adding Annotations

- 1.) Click on the **Drilling Rate** track to make it active (highlighted in green).
- 2.) Select **Eng - Mud Parameters**, as your active layer, from the **Layer Selection List** field.
- 3.) Click and drag an area within the **Drilling Rate** track with the left mouse button depressed on the layer to define where the annotation will be viewed which will activate the RTF Toolbars.




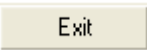
- 4.) Type the following into the text field in the annotation layer:
FOB: 10-12K
RPM: 50-70
SPM: 95
VOL: 1.4
- 5.) To change the Font Color **Highlight the Text** you want to change by dragging the Mouse over the text to highlight the letters.
- 6.) Click on the  button in the RFT Font toolbar. This will activate the color palette.
- 7.) Click on the **new color** and then click on the  button.
- 8.) Click anywhere outside the text box to save your annotation.

Adding a Curve Fill layer to an existing log

- 1.) Click on **Log Configuration Builder**, under **Options**, or use the **Log Configuration Builder**  button on the **Toolbar** to activate the **Log Configuration Builder** window.
- 2.) On the left side of the window, click on the **Curve fill** track containing the Curve fill layer.
- 3.) Click on the **Curve Fill Layer**, that you wish to add to your log, within the **Layers** section on the left side of the **Log Configuration Builder** window. You should notice the  **Layers** radio button become activated
- 4.) On the right side of the window, highlight the **Drill Rate** track so that you add the selected Curve Fill layer to this track.
- 5.) Click on the  button to add the selected layer to the track on your log and the following system message will be activated, "**Do you want to ADD the selected <LAYER> from the available log to the active log?**"
- 6.) Click on the  button to activate the **Get Name** window.





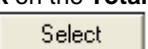
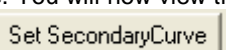
- 7.) You now have the option of either renaming the layer or simply leaving it with its original name. **Type** in **ROP/TG Curve Fill**.

Note: Two layers cannot share the same name. Accordingly, no layer will be added to your track if they share the same name as a layer that already exists on the active(your) track.

- 8.) Click on the  button to add the layer to your log and place its name in the active **Layers** list on the right side of the **Log Configuration Builder** window.
- 9.) Click on the  button to get out of the Log Configuration Builder Window. This should activate the Curve fill option window. If so skip to step 3 in the setup directions.

Setting up the (2) Two Curve Fill options

Once the layer has been added to your log the user can now utilize the curve fill layer.

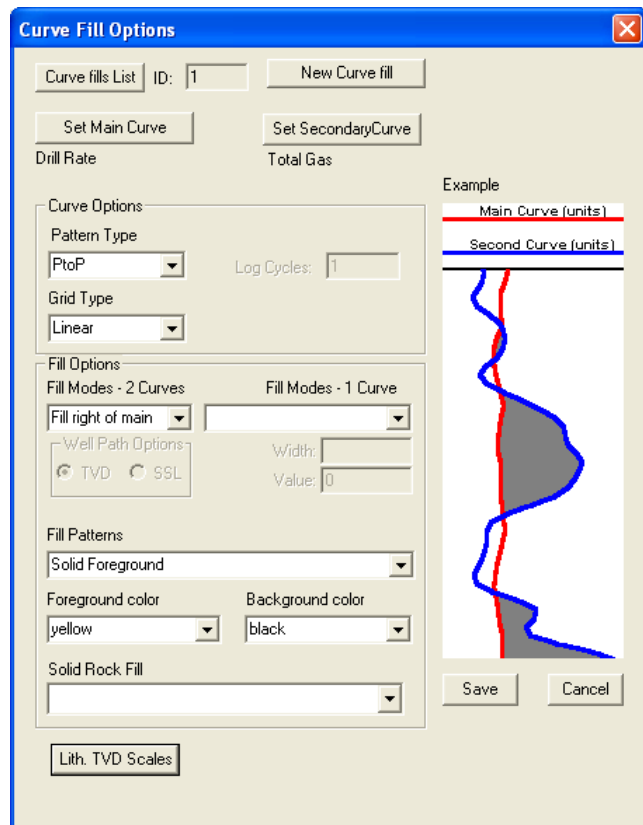
- To set the Curve Fill Options the user must first make the Curve Fill Layer active. To do so the user must **Click** on the **Drill Rate Track** containing the Curve Fill layer and then selecting the **ROP/TG Curve Fill** layer from the **Layer Selection List** field at the far **left** of the **Selection Bar**.
- Double click** anywhere within the **Curve Fill** or layer to activate the **Curve Fill Options** window. An example is shown on the next page.
- Click on the  button. This will activate a list of curves associated with this well.
- Click on the **Drill Rate** and then click on the  button or **double click** on the **Drill Rate Curve**. You will now view the curve name below the  button.
- Click on the  button. This will activate a list of curves associated with this well.
- Click on the **Total Gas Curve** and then click on the  button or **double click** on the **Total Gas Curve**. You will now view the curve name below the  button.

Curve Options Portion of the Window. This information is pertaining to the Main Curve and its Curve attributes.

- Click on the **Pattern Type** down arrow and **select** the correct **curve pattern** for the main curve. The Drill Rate Curve is defaulted to PtoP (Point to Point).
- Click on the **Grid Type** down arrow and **select** the correct **curve grid type** for the main curve. The Drill Rate Curve is defaulted to Linear.

Fill Options Portion of the Window (2-Two Curves)

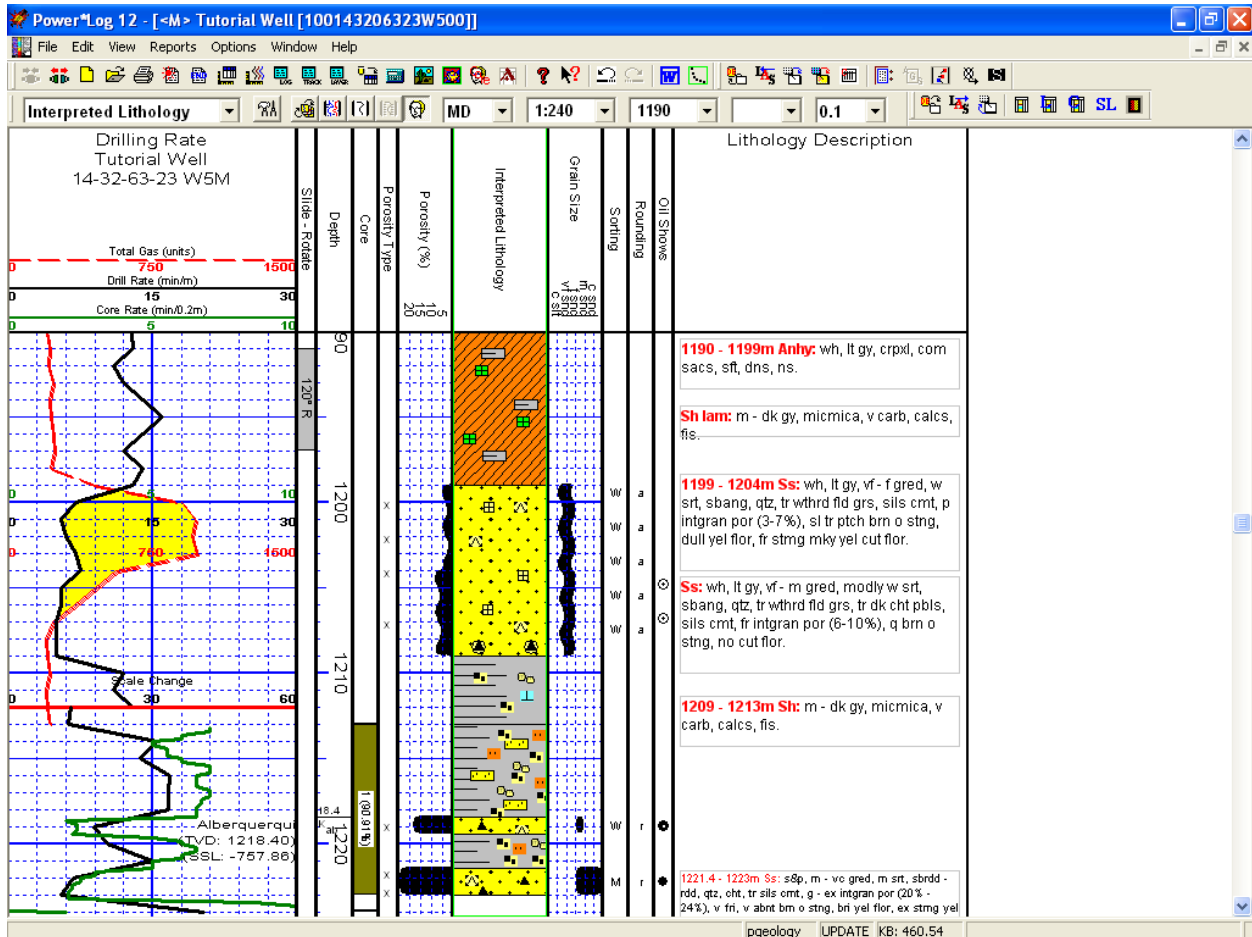
- Click on the **Fill Modes – 2 Curve** down arrow and **select** the **Fill Right of Main**.
- Click on the **Fill Patterns** down arrow and **select** **solid foreground**.




11.) Click on the **Foreground Color** down arrow and **select yellow**.

12.) Click on the **Save** button. The Curve Fill Options window will close and the changes you have made will be shown on the layer.

****Your log should now look like the log below at 1:240 scale.****




How to Print the Log

- 1.) Under the **File** menu, click on **Print Log** or click on the **Print**  button on the **Toolbar** to activate the **Print Log** window.

Note: The Title bar and all depths associated with the Print Log window are defaulted to the Depth View that Power*Log is set to at the time of the activation of the Print Log window.

- 2.) Select the **letter portrait** (because your log is 8" wide) from the **Page Orientation** drop box field and the **Title Page**, **Legend**, and **Formation Tops** will automatically conform to the selected orientation.

Note: The selection of letter, legal or tabloid (landscape or portrait) settings from within this **Print Log** window will **NOT** override the paper orientation settings selected in the printer's **Properties** window. Therefore, you must also modify the paper orientation settings in your Printer setup **Properties** window to select the corresponding paper size and orientation.

- 3.) **Activate** the **Dynamic Legend** check box () , if you wish to have the legend reflect only the symbols printed on the log or core portions of the printed intervals defined in the log and core portions of the print log window.

In the Log portion of the Print Log window

- 1.) Select **1:240** from the scale drop box for the log to be printed out at.

- 2.) Click to activate the **Header** and **Footer** check box (☒) to print the track headers on the log.
- 3.) Click on **Lithology Section** to highlight it in the printing options selection box.

Note: The log itself must be displayed in whatever depth view you wish to print before you activate the print log window. To change the log to the desired format refer to depth view under the view pull down menu.

Page Margin The page margin field is available, primarily, when you are printing to Adobe Acrobat writer. When a numerical value in inches is typed into this field it will initiate a top and left margin for the templates (Title Page, Legend and Formation Tops) as well as a left margin for the main log.

Page Overlap Activate the **Page Overlap** check box(☒) if you are printing on single sheets. This will force the printer to include an additional 1/4 inch of the log at the top and bottom of each page, so that you can cut-and-paste pages manually, if you so desire.

Print Methods...

Default Activating the **Default** radio button (☒) forces Power*Log / Curve / Core to use a **raster or bitmap graphic printing method**. This printing method is generally used with Laser printers but not exclusively so.

Meta File Activating the **Meta File** radio button (☐) forces Power*Log / Curve / Core to use the **meta file technology printing method**. This printing method was developed for the newer models of printers on the market today as well as using the Adobe Acrobat Distiller or pdf printing technology.

Color Options...

Auto Activating the Auto radio button (☒) forces Power*Log / Curve / Core to use the settings from the printer driver to printout the log.

Color Activating the Color radio button (☐) forces Power*Log / Curve / Core to override the printer driver settings and consequently Power*Log / Curve / Core assumes that you are using a color printer.

Mono Activating the Mono radio button (☐) forces Power*Log / Curve / Core to override the printer driver settings and consequently Power*Log / Curve / Core assumes that you are using a monochrome (black and white) printer.

Interval per page field indicates how many meters of log will fit on a page of selected paper size and orientation selected in the setup as well as what log scale you are printing at. This will help indicate to the user how many pages will be required by the print job.

- 1.) Click on the Core Section **1213-1224** Core 1 to highlight it.
- 2.) Select the Core log scale of 1:48 and the **Core Header** and **Footer** check boxes (☒)
- 3.) Click on the **Printer Setup...** button to activate the **Print Setup** window and confirm that the correct printer settings are in effect.

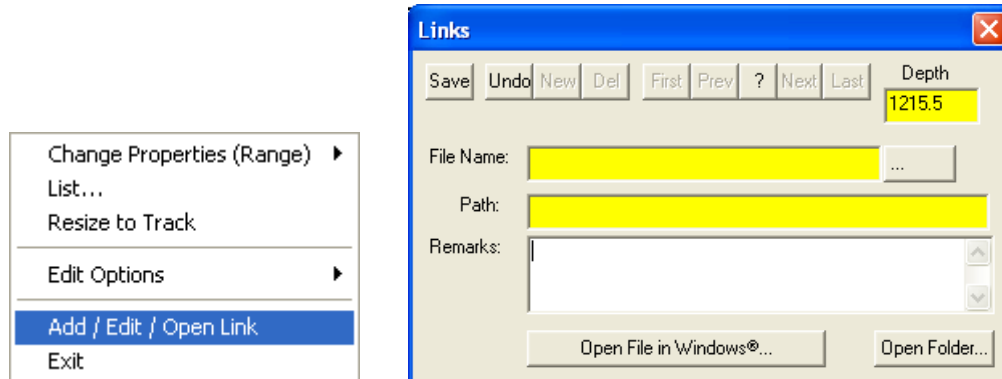
Note: If you are printing out logs in color, you must activate the **Diffusion** or **Error Diffusion** option normally found under **Graphics** in the **Properties** window for most printers.

- 4.) When you are ready to print your log, click on the  button.

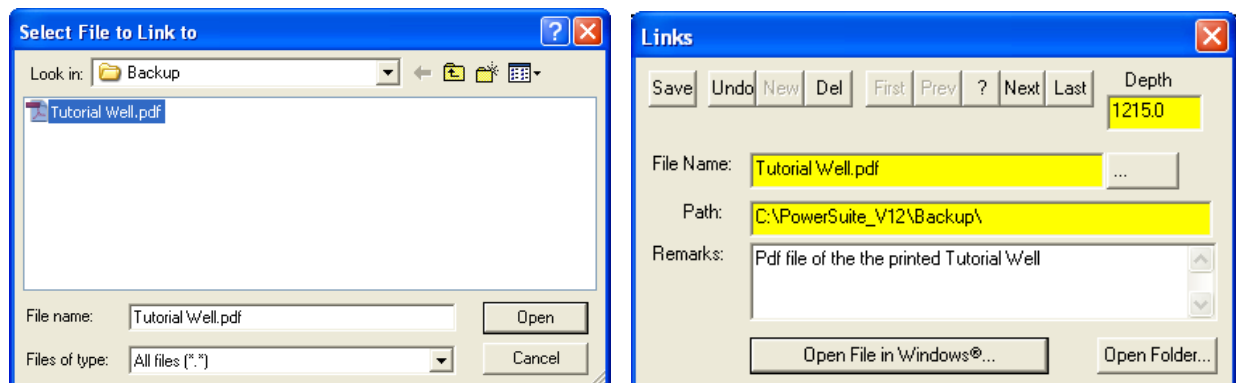
Note: If you do exit from the **Print Log** window, you will be asked if you wish to save the print settings. If you click on **Yes**, the program will remember every setting that you made to the **Print Log** window and then will default to those settings the next time you enter the **Print Log** window.

Adding a Link (Attachment) to your Log

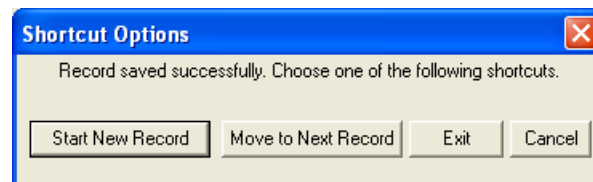
- 1.) In our case **Right Click** on the **Lithology Description** layer to activate the pop out menu.




- 2.) **Select Add / Edit / Open Link** from the pop out menu. This will activate a blank Links window with the depth you right clicked at.
- 3.) **Click** on the **...** button in the Links window and you can now pick any windows compatible file. In our case I am linking the printed well file from the next section of the tutorial printed to my backup folder and then **click** on the **Open** button. This will fill in the details of the File Name and location in this window.



- 4.) Now the user can **Type** in some **remarks** to tell the viewer what the file is (if the user would like to identify the file) and then **click** on the **Save** button. This will activate the Shortcut Options Window.



- 5.) **Click** on the **Exit** button. This will insert the paperclip symbol  where you originally right clicked and link the file to the log.

This concludes the Power*Log Tutorial. If you need help with specific functions or operations, please use the Table of Contents in the Power*Suite User Manual to find the desired topic or use the Search function built into the On-line Help.