

9-4-15

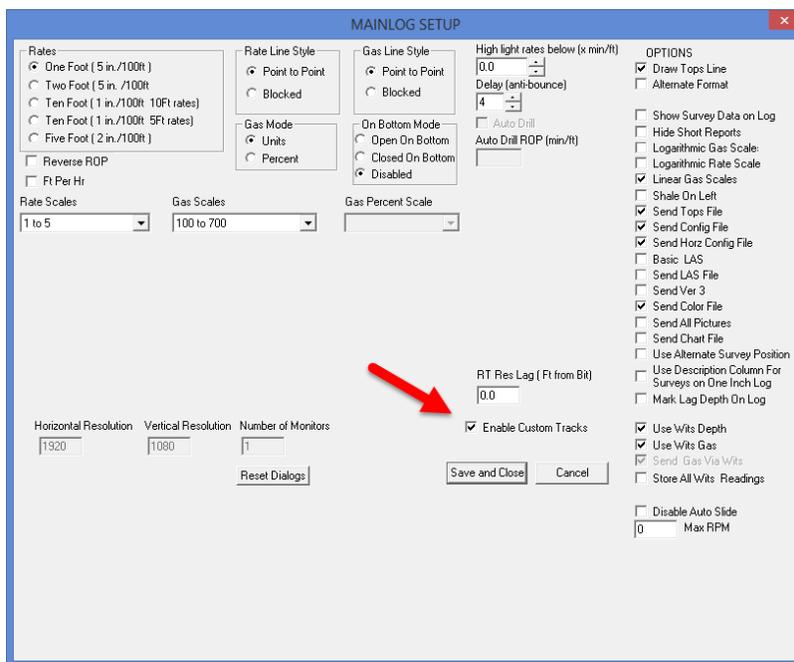
Dear Clients,

It has been a while since the last “Did you know?” Today we will focus on “Custom Tracks” which are available on both the Field and Office version.

Any data sent in via “WITS” can be plotted real time, including drilling parameters, real time gamma, gases, D-Exponent, etc. Also, any type of E-log curve, pictures, gas ratios, surveys, etc., can be displayed and are discussed below. Please feel free to contact us with any questions and if there are any ratios or other data you would like to have the ability to plot, let us know.

Enable Custom Tracks: (Custom Tracks - Available in Office Mode)

MainLog can plot many different data curves on the log by enabling “Custom Tracks” from the “Show CT” button on the menu bar or under the “Setup Lines and Scales” menu, by checking, “Enable Custom Tracks”.



When checked, **ten custom tracks are available** with the ability to display **six different data curves on each track**. You have the option to display just one track and can even size the track. Drilling parameters that are being WITS in, such as WOB, Torque, PP or SPM are plotted real time. Hydrocarbons gases, as well as, CO2 and H2S can also be displayed. There are also four “Custom” curves which you can import and name. (**Note: H2S can only imported as Custom**)

MainLog also can plot the **gas ratios; Wetness (Wh), Balance (Bh) and Character (Ch)**. The curves are plotted by using the appropriate equations for each of the ratios with the gas data in the file. Please remember these ratios are only as good as the gas data that has been acquired and how it was acquired. Parameters such as temperature, filament drift and gas flow amongst others, can all have an influence on gas readings and hence affect the ratios.

$$Wh = \left(\frac{C2 + C3 + C4 + C5}{C1 + C2 + C3 + C4 + C5} \right) \times 100$$

$$Bh = \frac{C1 + C2}{C3 + C4 + C5}$$

$$Ch = \frac{C4 + C5}{C3}$$

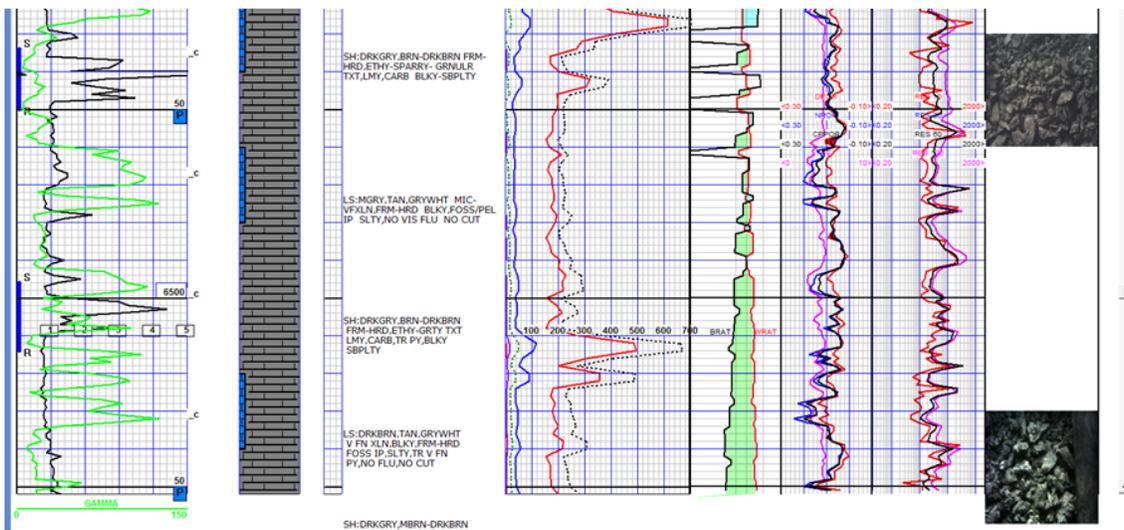
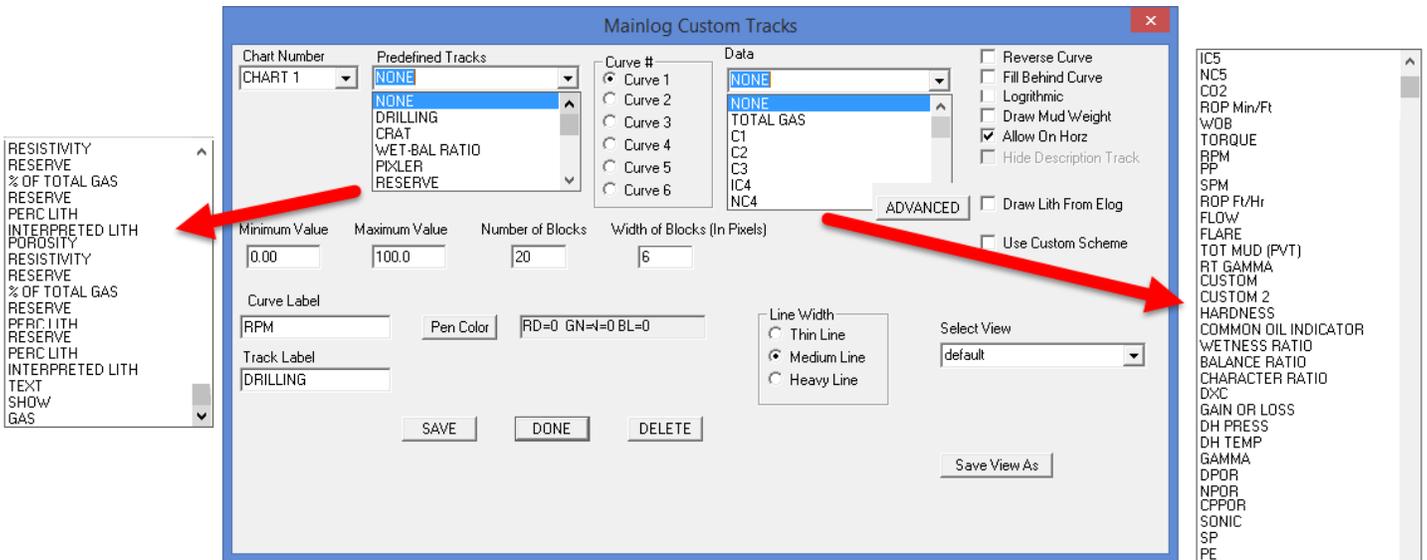
Also available is the “**Common Oil Indicator**” which uses the ratio of **C2+C3+C4+5/C1** and can be plotted on Custom Tracks.

***** Since the all the ratios are calculated from the gas readings, any of the curves can be plotted from the office version by just turning on Custom Tracks and selecting the ratios.**

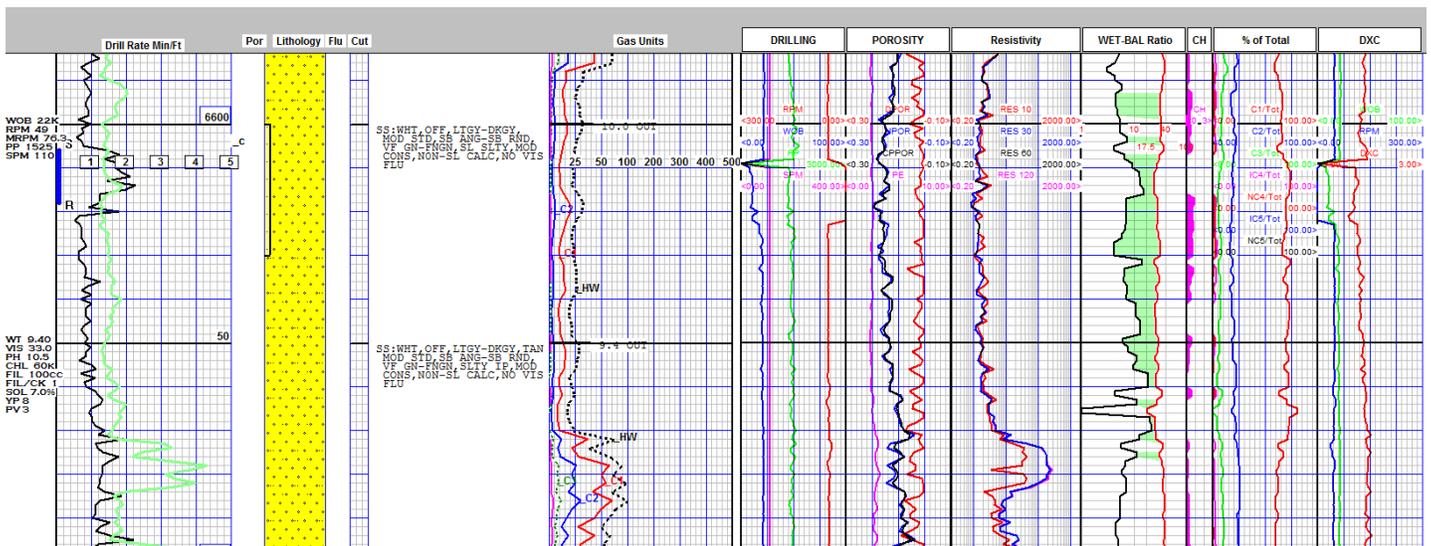
When Custom Tracks is enabled, MainLog will add a default custom grid to the right of the gas grid, and compress the width of the log to allow room for the additional grid. **Right clicking on the custom grid will bring up a dialog** that allows you to customize both the grid itself, by changing the number of blocks, or the block width, or adding a second grid. Scaling, labeling, pen color and line width can be customized. There is no limit as to the width of the tracks, however, there are limits to the width that Mainlog can print and if they are too wide they may not fit or appear correctly on paper that is only 8.5” wide.

Predefined Tracks include drilling parameters, wetness/balance ratio, interpreted lithology, resistivity and much more. These tracks are already sized and scaled for easy viewing.

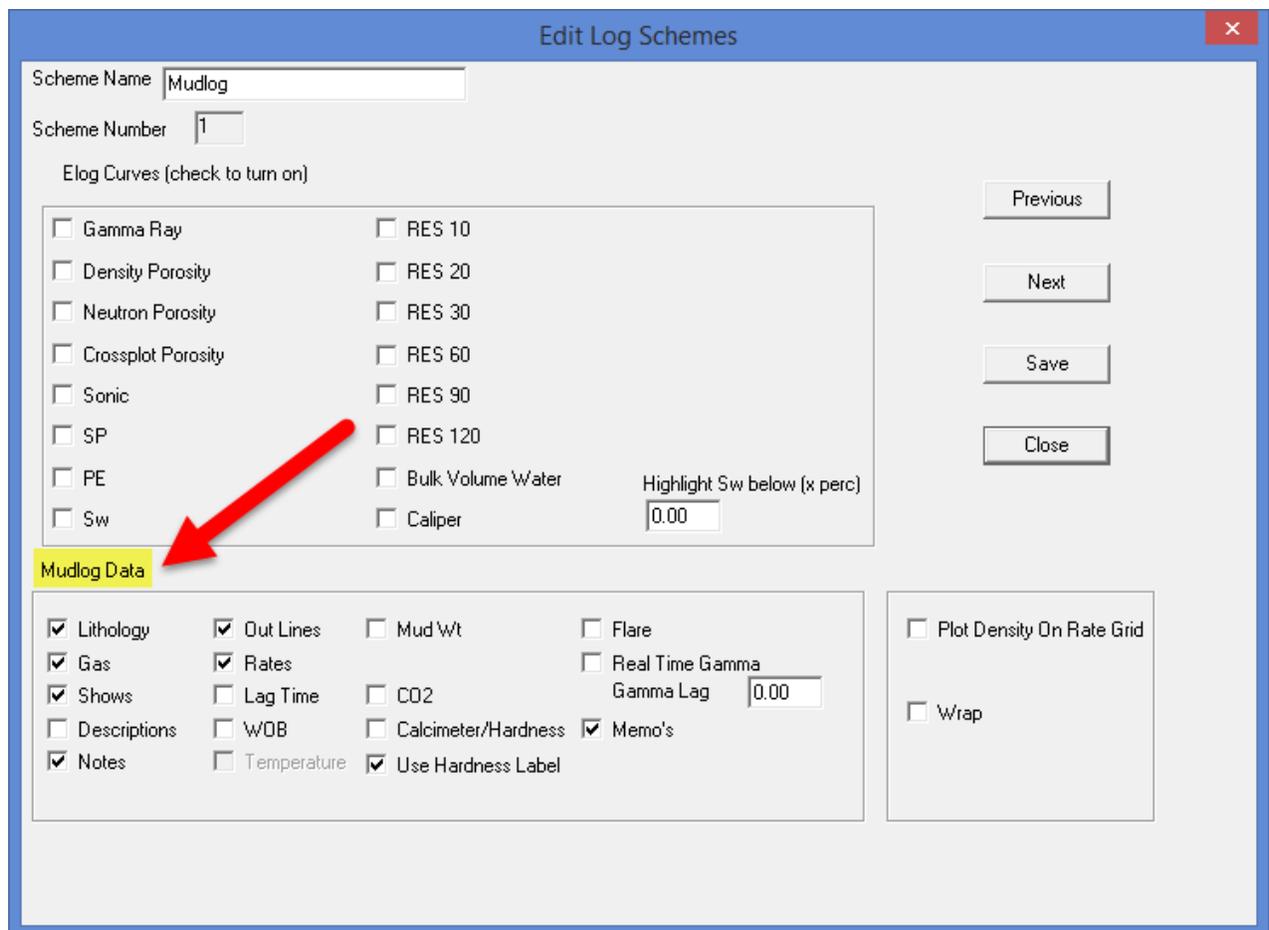
There are over 80 data curves that can be displayed and customized by color, reverse curve, color fill behind the curve, scaling and track width. There are four custom tracks that are available for importing data such as H2S. Pictures can also easily be displayed and sized on their own track.



Columns can easily be deleted by selecting the Chart number and clicking on the “Delete” button. They can also be moved by holding the “Control” key down and clicking on the right or left side track “Label” in the direction you want it moved. The “Save View As” button allows you to name and save a display of tracks that you created and go back to it at any time. Such as, “Ratio Tracks” or “E-log Tracks”. The display below shows that E-log curves can now be displayed on the same page.



The user also has the ability to turn off any of the **mudlog tracks** by going to “Schemes” and unchecking the columns not wanted under “Mudlog Data”.



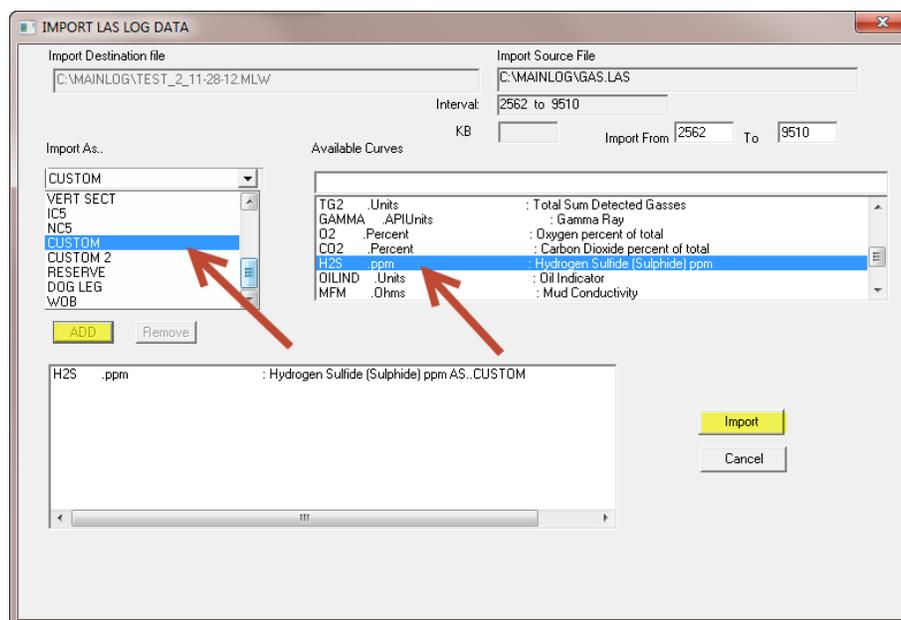
Again, one can select up to 6 different data sets on each grid, set the scaling, pen color and other options. Many of the data sets **will only be available if you have a WITS feed that provides the data, such as WOB, RPM, SPM etc.** The gases, ROP, flare can all be tracked if

available on the log. Much of the data can also be imported from an LAS file provided by Pason, Totco or whoever is doing the rig monitoring on the well.

Custom Data added to LAS File

There are two (2) “Custom Items” that can be displayed and labeled in Custom Tracks. (Custom & Custom 2) These can be manually entered or imported from an LAS file and can be edited. These two custom tracks can be labeled **and will be added to the LAS file under those labels.**

Data that is not read & plotted real time, such as H2S, can be imported via a LAS file. To display this data it must be imported as a “Custom or Custom 2”. From the **Import Menu** select **Import Mudlog Data**, browse and select the LAS file with the data and import it as “Custom or Custom 2”.

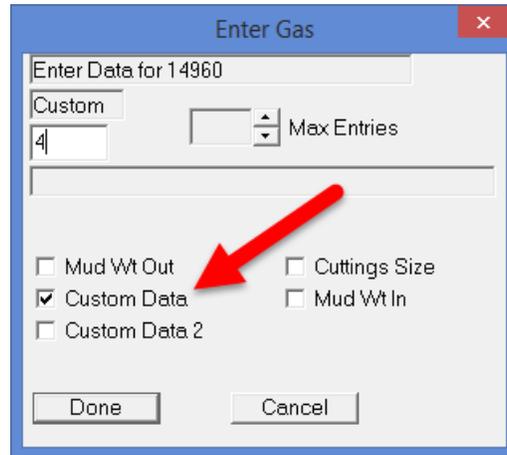


Select from the “curves” list box the curve you want to import, and then match it to the curve “type” from the list box on the left, in this case as Custom or Custom 2. Click on the **ADD** button and that curve and type will be displayed in the selected list box. Click **Import**. Before importing, be sure the KB displayed is correct, if not; correct it in the edit box.

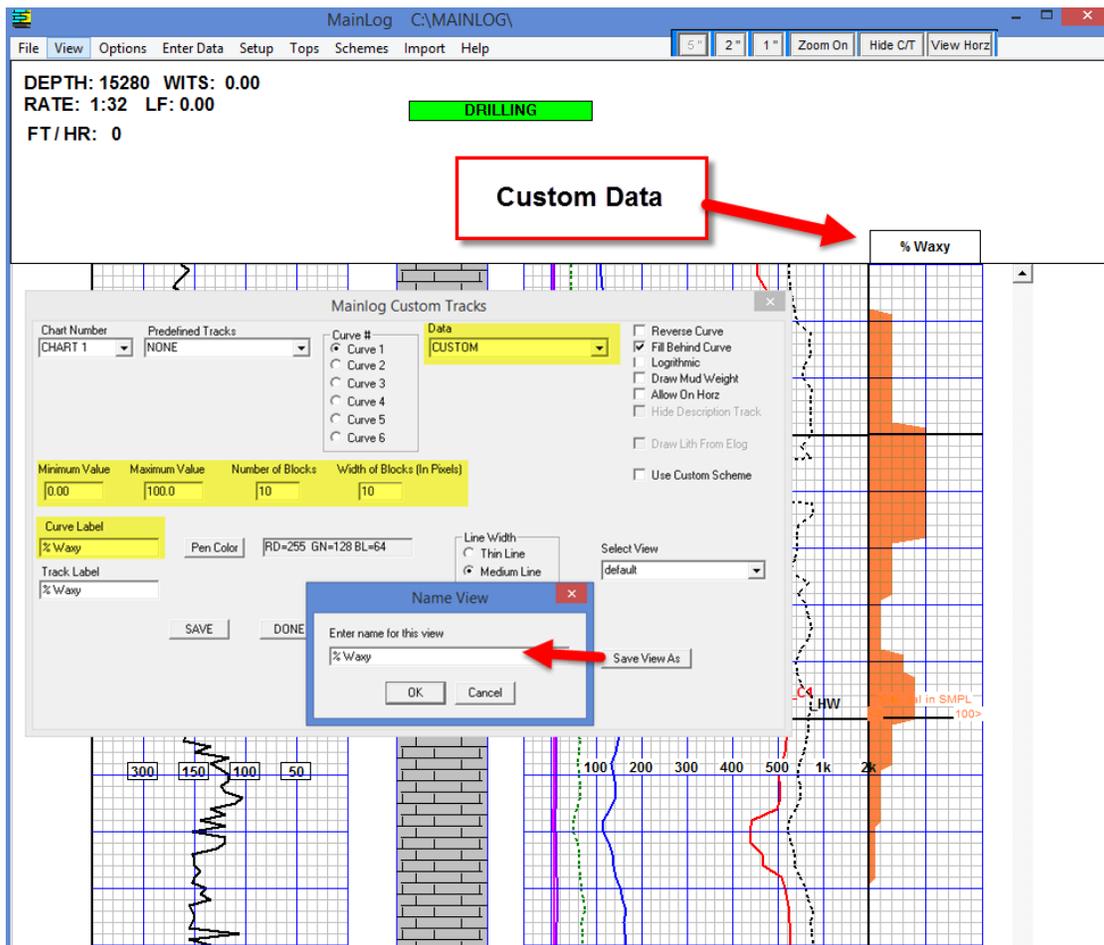
After importing, open **Custom Tracks** and have the curve **displayed and labeled**. By labeling it in custom tracks, MainLog will put the values under that label in the LAS file when created. ***It is important to note, to limit the number of characters in the “Curve Label” to no more than eight (8) characters, as some programs importing from the Las file may have issues reading***

the labels if they are too long.

“**Custom Data**”, such as H2S values or any other imported custom data, can be edited or entered in manually through the **gas edit dialog** by checking the appropriate box.



Being able to manually enter in custom data or values, enables you to customize a track, by size, scaling, pen color, labeling it, and thus have it automatically added to the LAS file. This is extremely useful if a client wants to assign values to something like a show, a new bit, trips, grain size, oil shows or just about anything and have it added to the LAS file.



D-Exponent Corrected

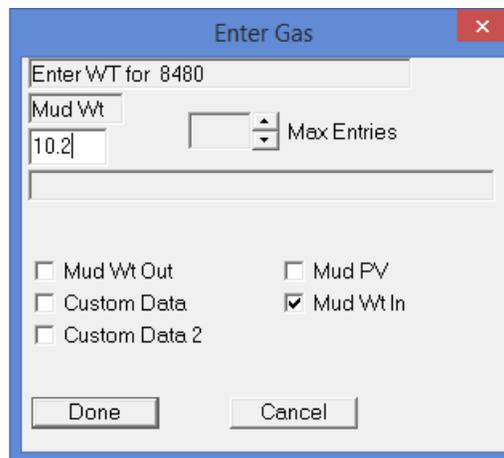
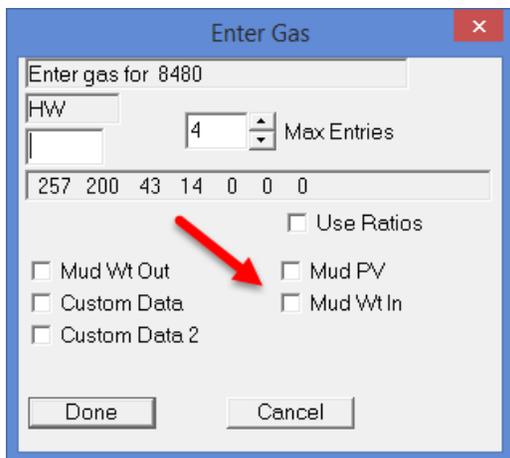
D-Exponent Corrected (DXC) can also be displayed on custom tracks. In order for this to work the “Lag Calculator” must be properly filled out. D-Exponent uses the following information in its calculation.

- Rate of Penetration
- Rotary drilling speed (RPM - including down hole motor)
- Weight on bit
- Bit Diameter
- Mud Weight

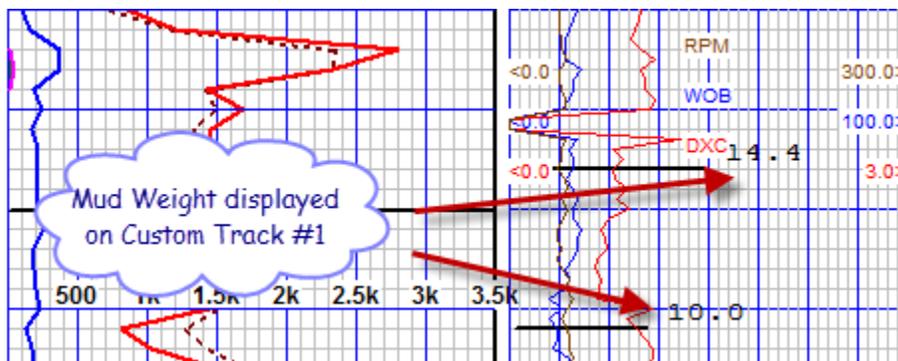
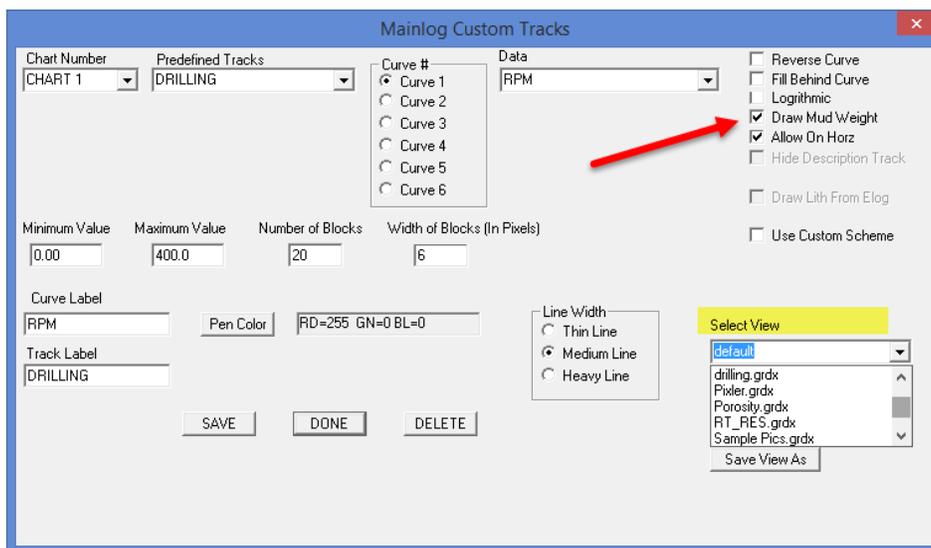
You must be getting a wits feed of RPM coming in and when using a down hole motor; “Motor Rev/Gal” must also be known and manually entered in the Lag Calculator.

Loggers must manually keep up with the **Mud Weight** and enter it in on the log. To enter in mud weight (In or Out), double click in the gas column at the depth desired, (just as if you were going to edit or enter in gas readings). Here you have the option to select “**Mud Wt Out or Mud Wt In**” and once checked you will have the ability to manually enter in mud weight.

(Use arrow key to scroll down depth)



Enter in the mud weight at the particular depth and MainLog will use that in the calculation until a different mud weight is entered in at a different depth. This can be displayed on custom track #1 by checking the box “Draw Mud Weight” from the Custom Tracks menu.



Custom Tracks on the Horizontal Display

Custom tracks can also be displayed on the horizontal log by going to “**Horizontal Options**” and checking “**Draw Custom Tracks**”. Only four (4) custom tracks can be added to the horizontal log, however, pictures and descriptions can be displayed in their own tracks in addition to the 4 custom tracks. These can be selected in the **Horizontal Options** dialog where the width of the description tack can also be sized by entering in the “**Number of Text Blocks**” in the dialog.

The screenshot shows the 'Mainlog Horizontal Setup' dialog box. The 'Options' section on the right contains the following checked items: Draw Rates, Draw Gas, Draw Memos, Draw Shows, Draw Header, Draw Text in Own Track (highlighted in yellow), Draw Lith Pics, Fill Behind Gas, Blocked ROP, Draw Lithology on Well Track, Logarithmic Gas, Logarithmic ROP, Logarithmic Gamma, Fill Behind Target Gamma, Draw Custom Tracks, Use Vertical Gas Scales, and Draw Lith In Order Entered. The 'Number of Text Blocks' input field is set to 10, indicated by a red arrow. Other fields include Anchor Gamma File, Target Gamma File, Target Horizontal, Draw From (depth), Regional Dip, Highlight Target Gamma Below, Number of Gases, Rate Scale, Gas Scale, Gamma Scale, Scaling (radio buttons for 1 in. per 100 ft, 2 in per 100 Ft, and 5 in per 100ft), Save as Image File, and Select View.

In the Custom Tracks dialog, the ability to allow the track on the horizontal log can be selected. **(Allow on Horz)**

Mainlog Custom Tracks

Chart Number
CHART 1

Predefined Tracks
WET-BAL RATIO

Curve #

- Curve 1
- Curve 2
- Curve 3
- Curve 4
- Curve 5
- Curve 6

Data
WETNESS RATIO

- Reverse Curve
- Fill Behind Curve
- Logarithmic
- Draw Mud Weight
- Allow On Horiz
- Hide Description Track

Minimum Value
1.00

Maximum Value
100.0

Number of Blocks
20

Width of Blocks (In Pixels)
6

Curve Label
WRAT

Pen Color
RD=255 GN=0 BL=0

Line Width
 Thin Line
 Medium Line
 Heavy Line

Select View
default

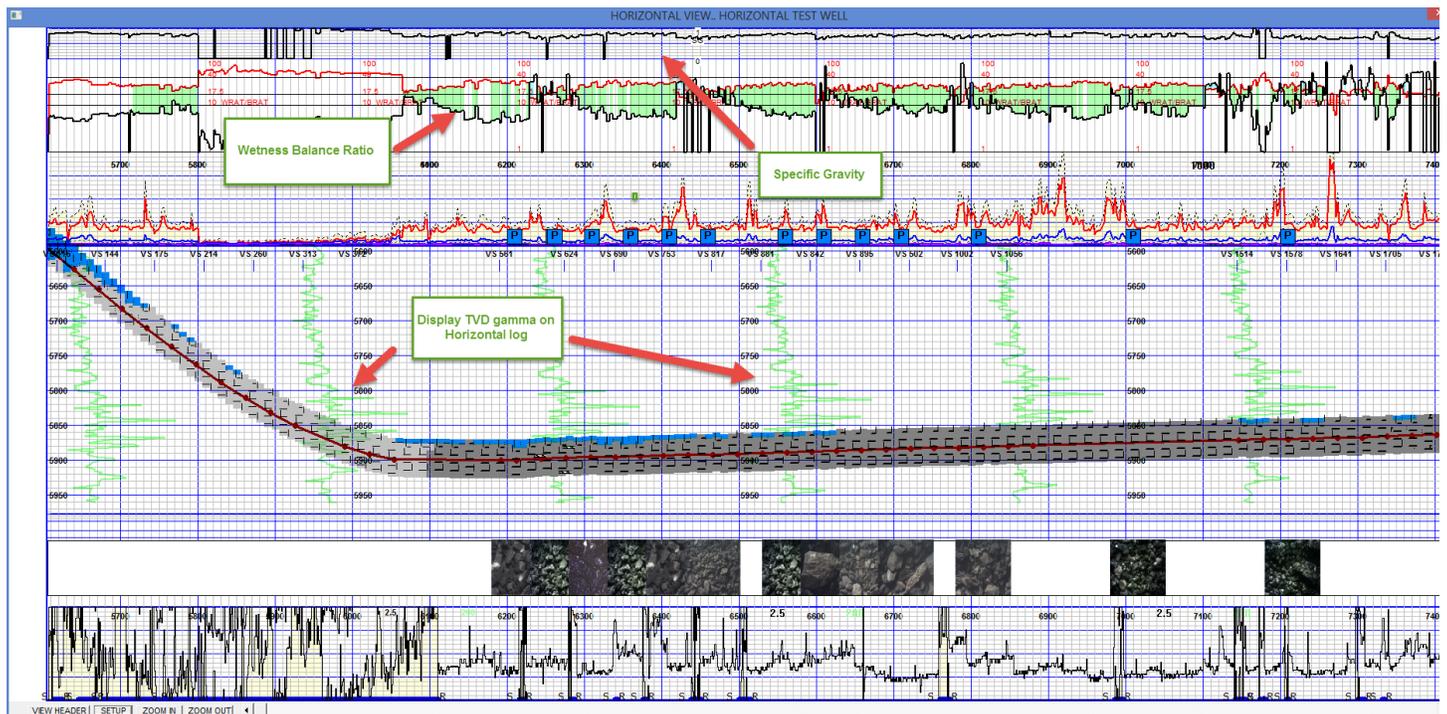
Track Label
WET-BAL Ratio

SAVE

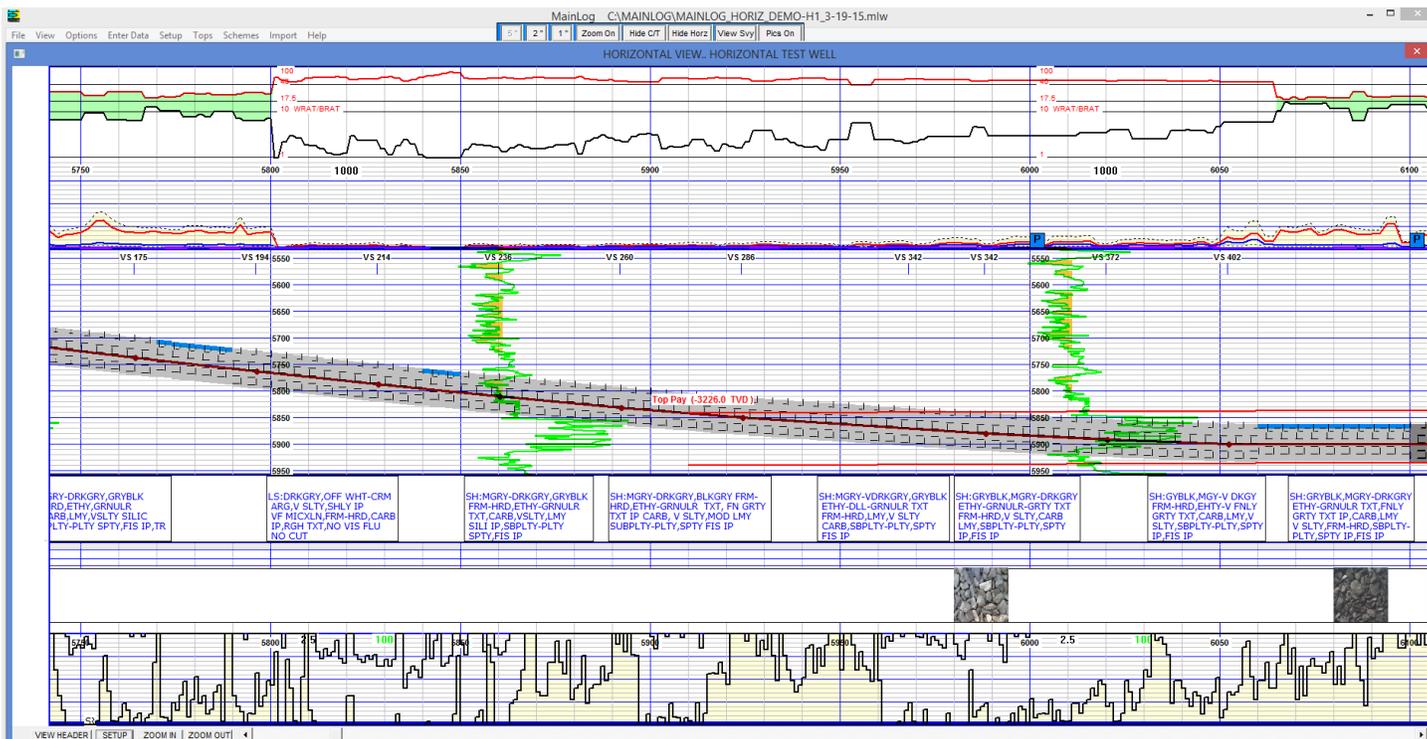
DONE

DELETE

Save View As

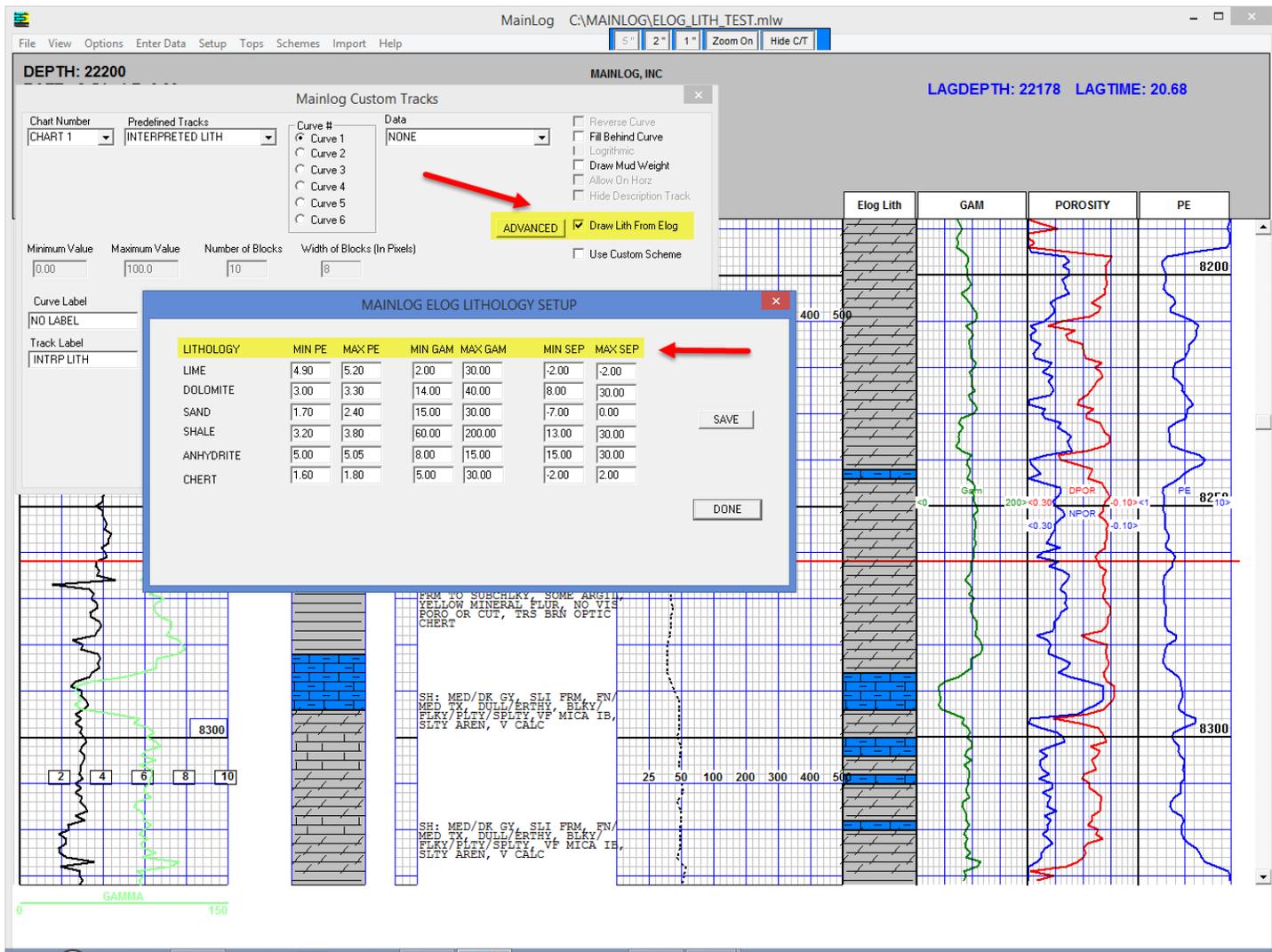


Pictures and Descriptions in their own track.



Lithology Based on E-Logs

Another feature in Custom Tracks is a lithology track that can be generated by the importing of the gamma, PE and Neutron-Density curves. Once imported an option in the MainLog Custom Tracks is available to check, **“Draw Lith From Elog”**. By checking the box and clicking on the **“Advanced”** button, a **“MainLog Elog Lithology Setup”** dialog opens where the “minimum and maximum” values of the Gamma, PE and Neutron\ Density curves can be set to generate the lithology.



Best Regards,
MainLog, Inc.

John Chirico

432-934-1772

john@mainlog.com

www.mainlog.com

