

9-4-15

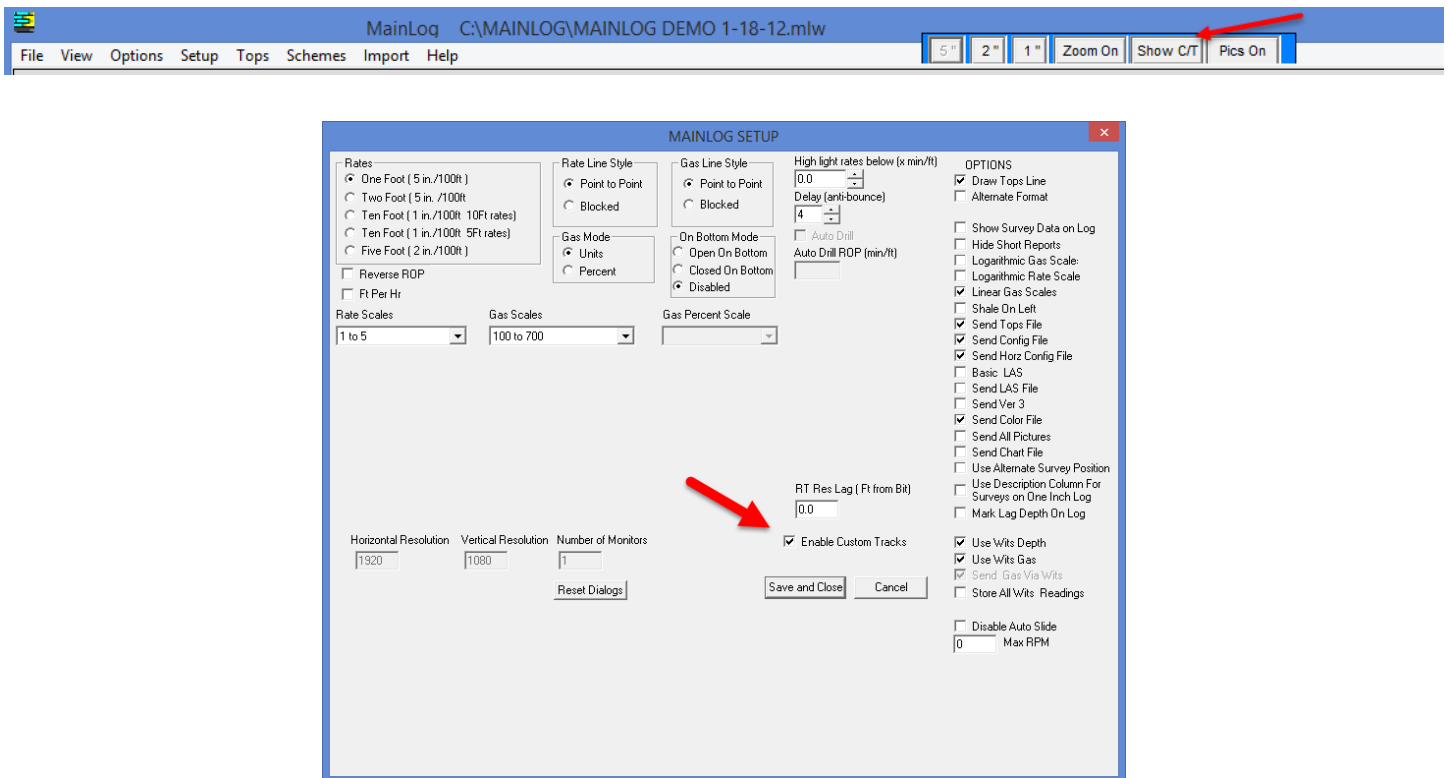
Dear Clients,

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.

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

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

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

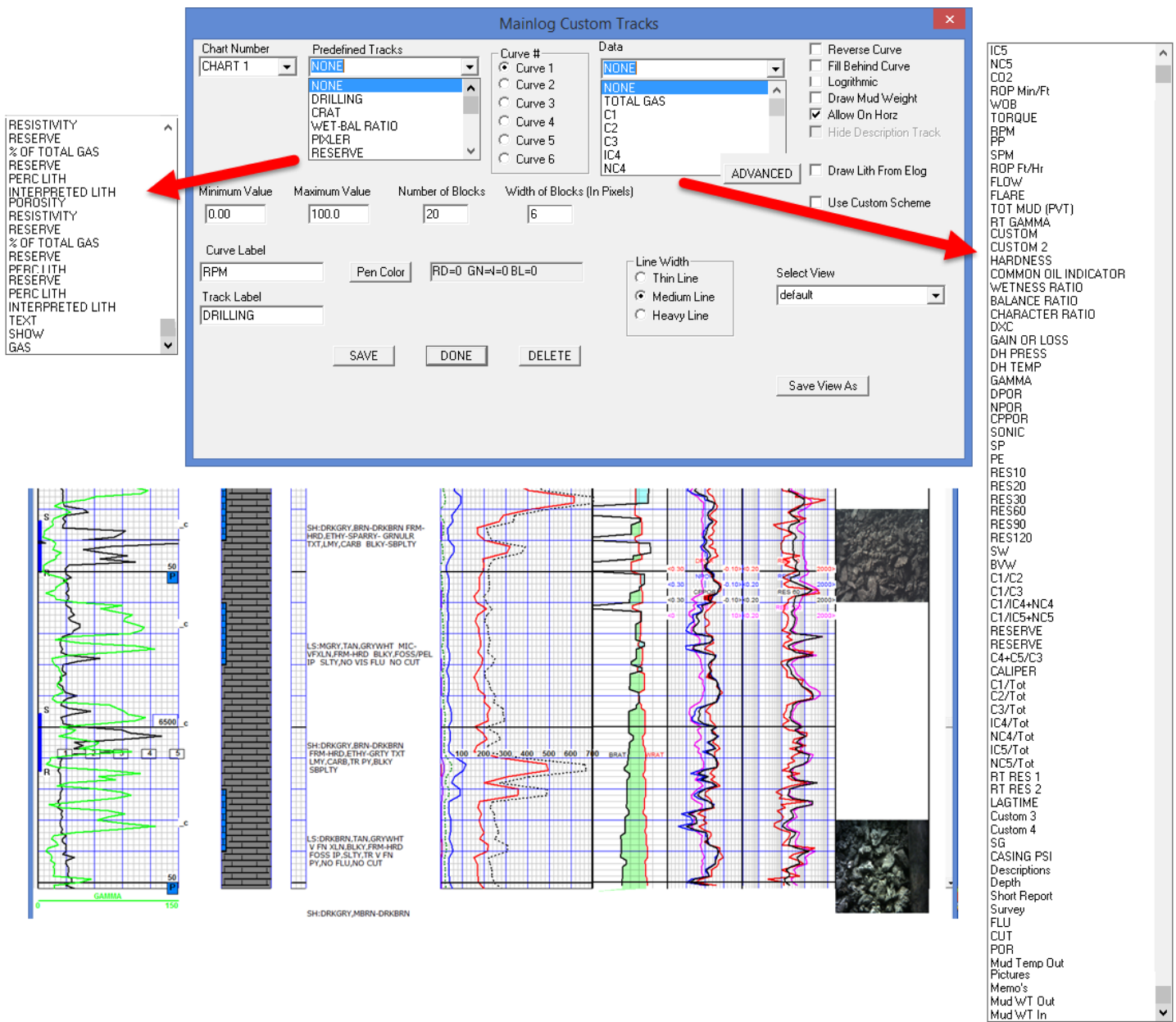
Also available is the **“Common Oil Indicator”** which uses the ratio of **C₂+C₃+C₄+C₅/C₁** and can be plotted on Custom Tracks.

***** 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.**

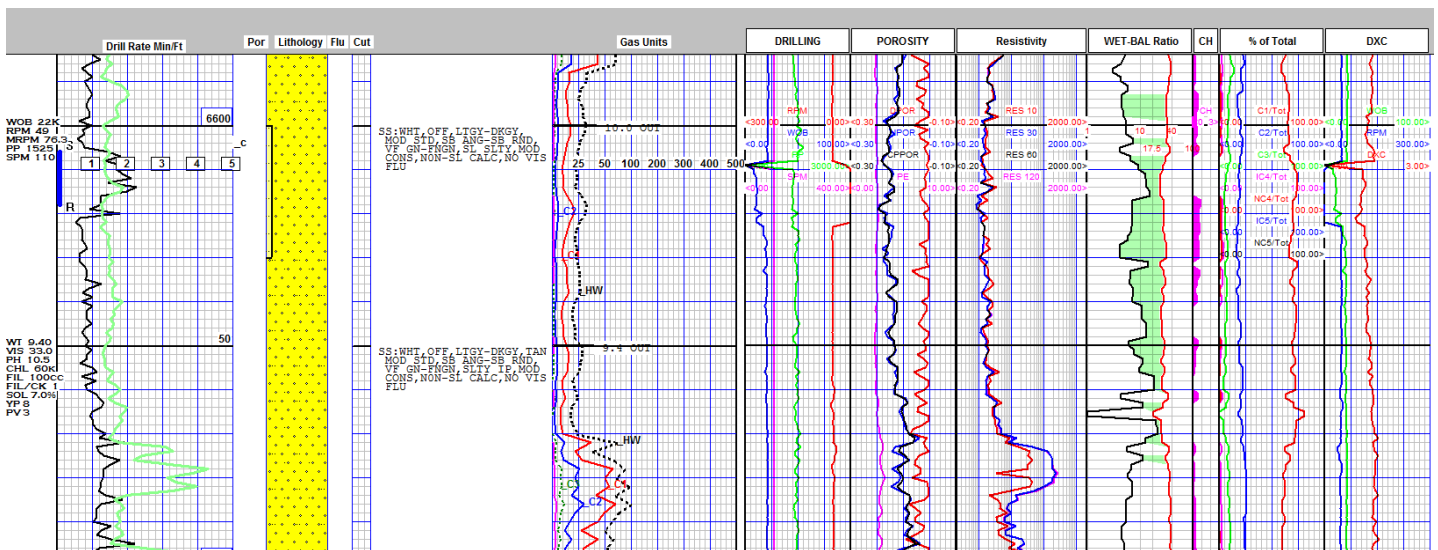
When Custom Tracks is enabled, MainLog will add a default custom grid to the right of the gas grid, and compress the width of the log to allow room for the additional grid. **Right clicking on the custom grid will bring up a dialog** that allows you to customize both the grid itself, by changing the 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”.

Edit Log Schemes

Scheme Name

Scheme Number

Elog Curves (check to turn on)

☐ Gamma Ray
☐ Density Porosity
☐ Neutron Porosity
☐ Crossplot Porosity
☐ Sonic
☐ SP
☐ PE
☐ Sw

☐ RES 10
☐ RES 20
☐ RES 30
☐ RES 60
☐ RES 90
☐ RES 120
☐ Bulk Volume Water
☐ Caliper

Highlight Sw below (x perc)

Mudlog Data

☒ Lithology
☒ Gas
☒ Shows
☐ Descriptions
☒ Notes

☒ Out Lines
☐ Lag Time
☐ WOB
☐ Temperature

☐ Mud Wt
☐ CO2
☐ Calcineter/Hardness
☒ Use Hardness Label

☐ Flare
☐ Real Time Gamma
☒ Memo's

☐ Plot Density On Rate Grid
☐ Wrap

Previous

Next

Save

Close

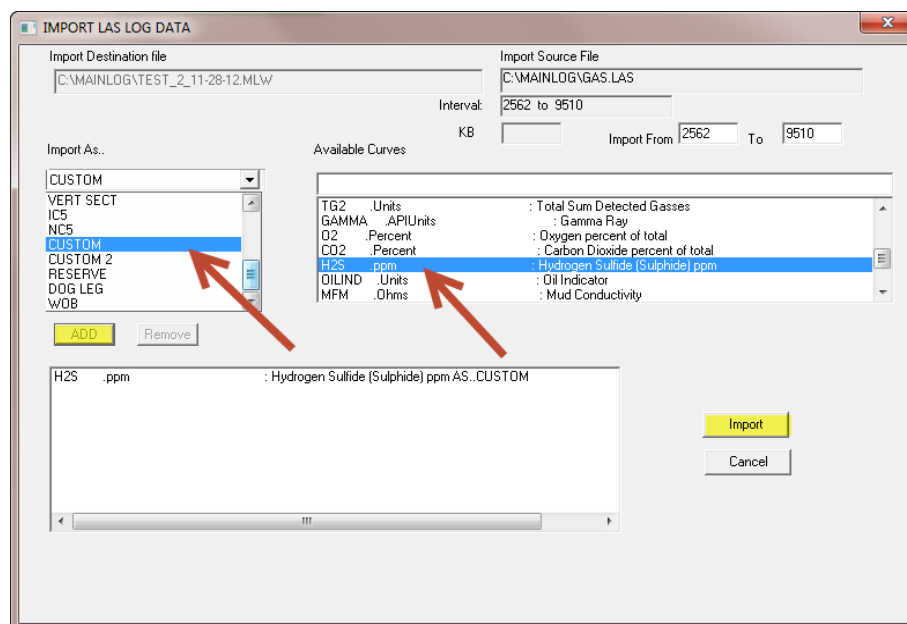
Again, one can select up to 6 different data sets on each grid, set the scaling, pen color and other options. Many of the data sets **will only be available if you have a WITS feed that provides the data, such as WOB, RPM, SPM etc.** The gases, ROP, flare can all be tracked if

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”.

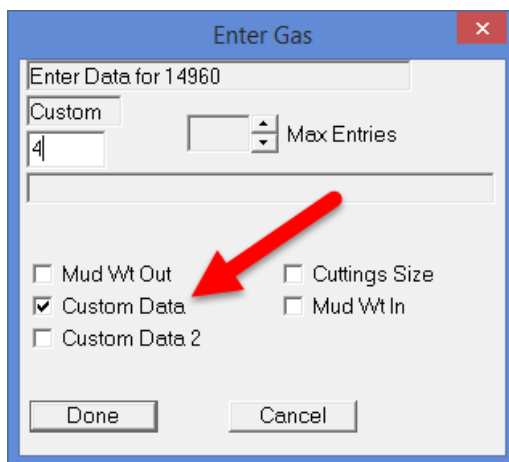


Select from the “curves” list box the curve you want to import, and then match it to the curve “type” from the list box on the left, in this case as Custom or Custom 2. Click on the **ADD** button and that curve and type will be displayed in the selected list box. Click **Import**. Before importing, 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***

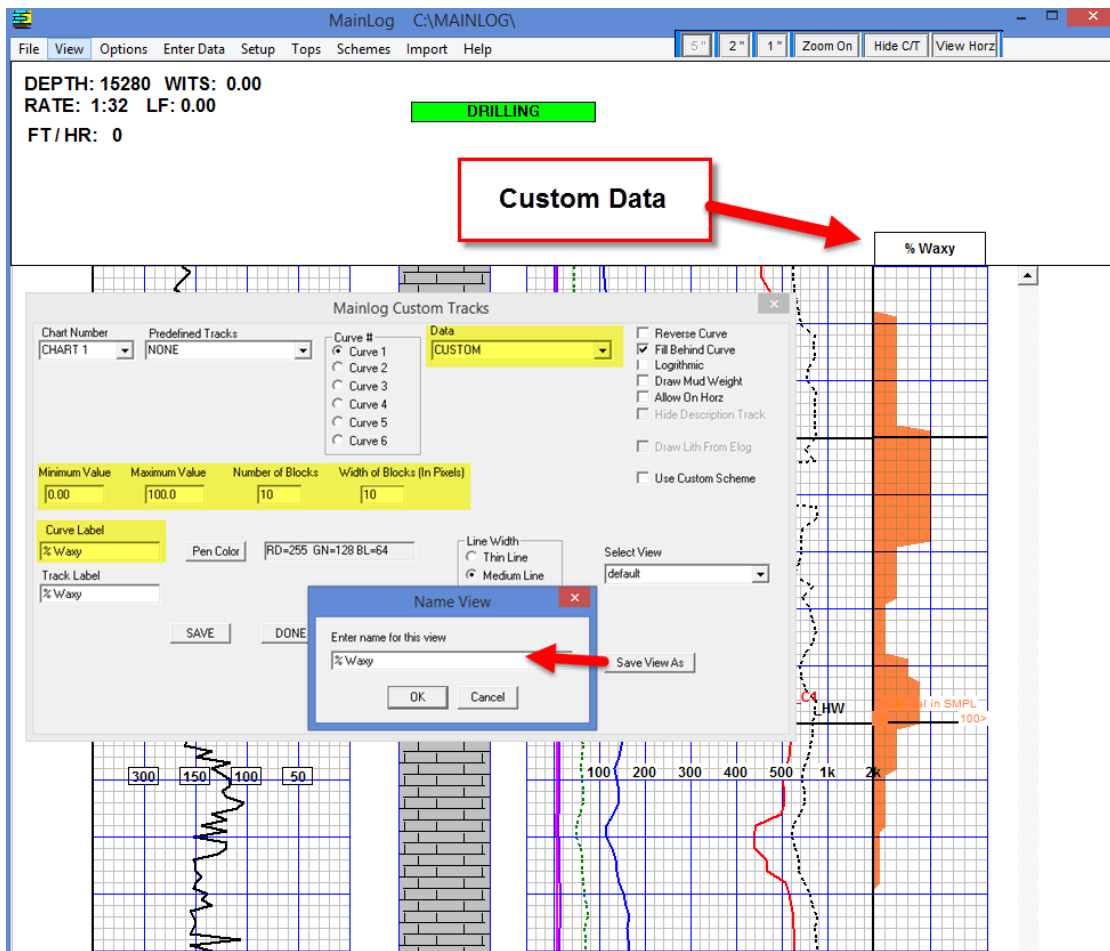
the labels if they are too long.

“**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.



The image shows a software dialog box titled "Enter Gas". At the top, there is a text input field containing "Enter Data for 14960". Below this is a dropdown menu currently set to "Custom", followed by a small input field containing the number "4" and a label "Max Entries". A horizontal line separates these fields from a group of five checkboxes. The checkboxes are arranged in two columns: "Mud Wt Out", "Custom Data" (which is checked), and "Custom Data 2" on the left; "Cuttings Size" and "Mud Wt In" on the right. A prominent red arrow points directly to the "Custom Data" checkbox. At the bottom of the dialog are two buttons: "Done" and "Cancel".

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 Gas

Enter gas for 8480

HW 4 Max Entries

257 200 43 14 0 0 0

☐ Use Ratios

☐ Mud Wt Out ☐ Mud PV

☐ Custom Data ☐ Mud Wt In

☐ Custom Data 2

Done Cancel

Enter Gas

Enter WT for 8480

Mud Wt 10.2 Max Entries

☐ Mud Wt Out ☐ Mud PV

☐ Custom Data ☒ Mud Wt In

☐ Custom Data 2

Done Cancel

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.

Mainlog Custom Tracks

Chart Number: CHART 1

Predefined Tracks: DRILLING

Curve #: Curve 1

Data: RPM

☒ Draw Mud Weight

☐ Reverse Curve

☐ Fill Behind Curve

☐ Logarithmic

☐ Allow On Horiz

☐ Hide Description Track

☐ Draw Lith From Elog

☐ Use Custom Scheme

Minimum Value: 0.00

Maximum Value: 400.0

Number of Blocks: 20

Width of Blocks (In Pixels): 6

Curve Label: RPM

Pen Color: RD=255 GN=0 BL=0

Track Label: DRILLING

SAVE DONE DELETE

Select View: default

drilling.grdx

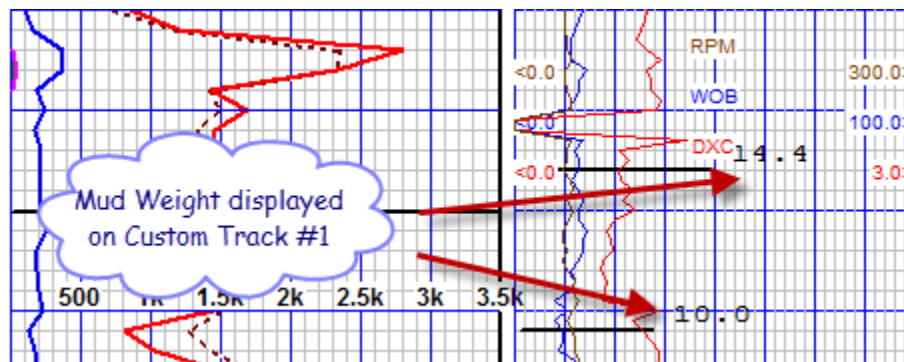
Pwdr.grdx

Porosity.grdx

RT_RES.grdx

Sample Pics.grdx

Save View As



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 a list of checkboxes. The checkbox 'Draw Text in Own Track' is checked and highlighted in yellow. A red arrow points to the 'Number of Text Blocks' input field, which contains the value 10. Other options include 'Draw Rates', 'Draw Gas', 'Draw Gamma', 'Draw WRT Gamma', 'Draw Descriptions', 'Draw Memos', 'Draw Shows', 'Draw Header', 'Draw Lith Pics', 'Fill Behind Gas', 'Blocked ROP', 'Draw Gamma On Well Track', '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' field is located between the 'Save View As' button and the 'Options' section.

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

Track Label
WET-BAL Ratio

Pen Color
RD=255 GN=0 BL=0

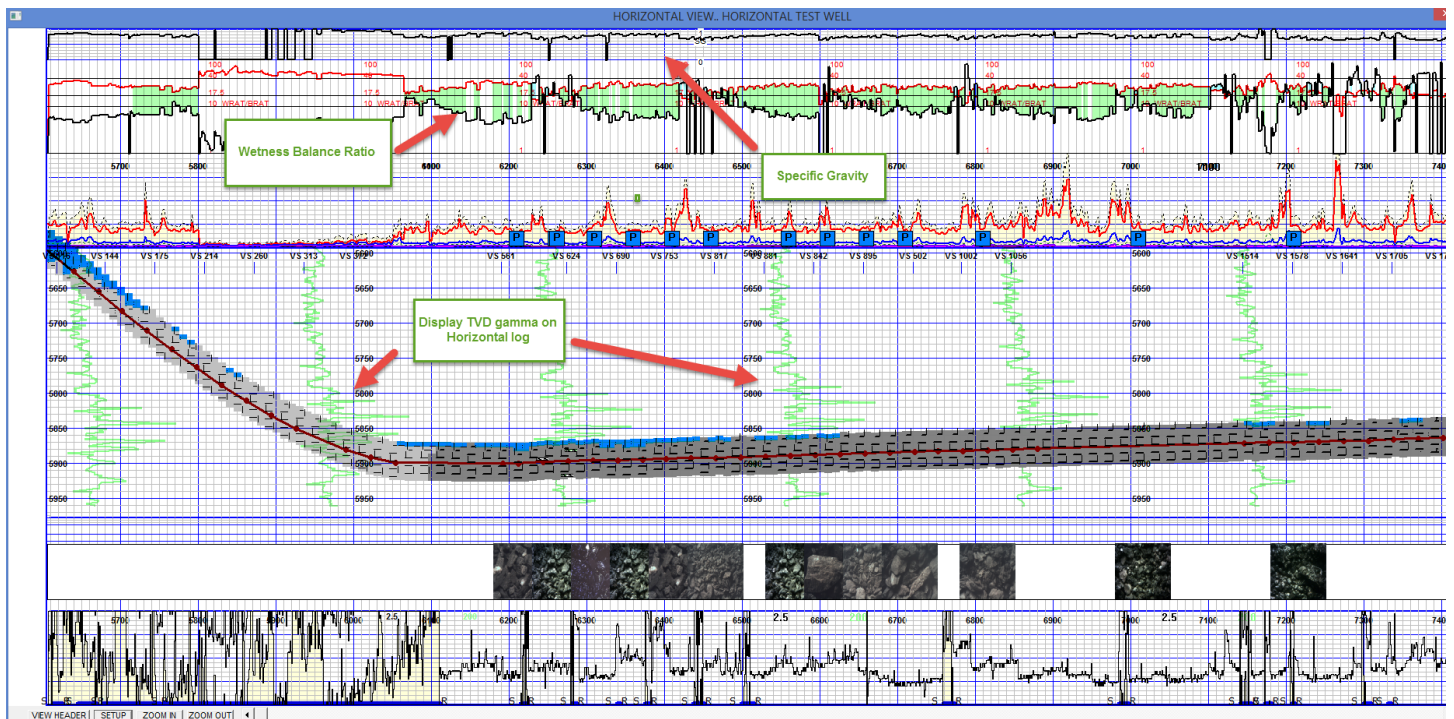
SAVE **DONE** **DELETE**

Line Width

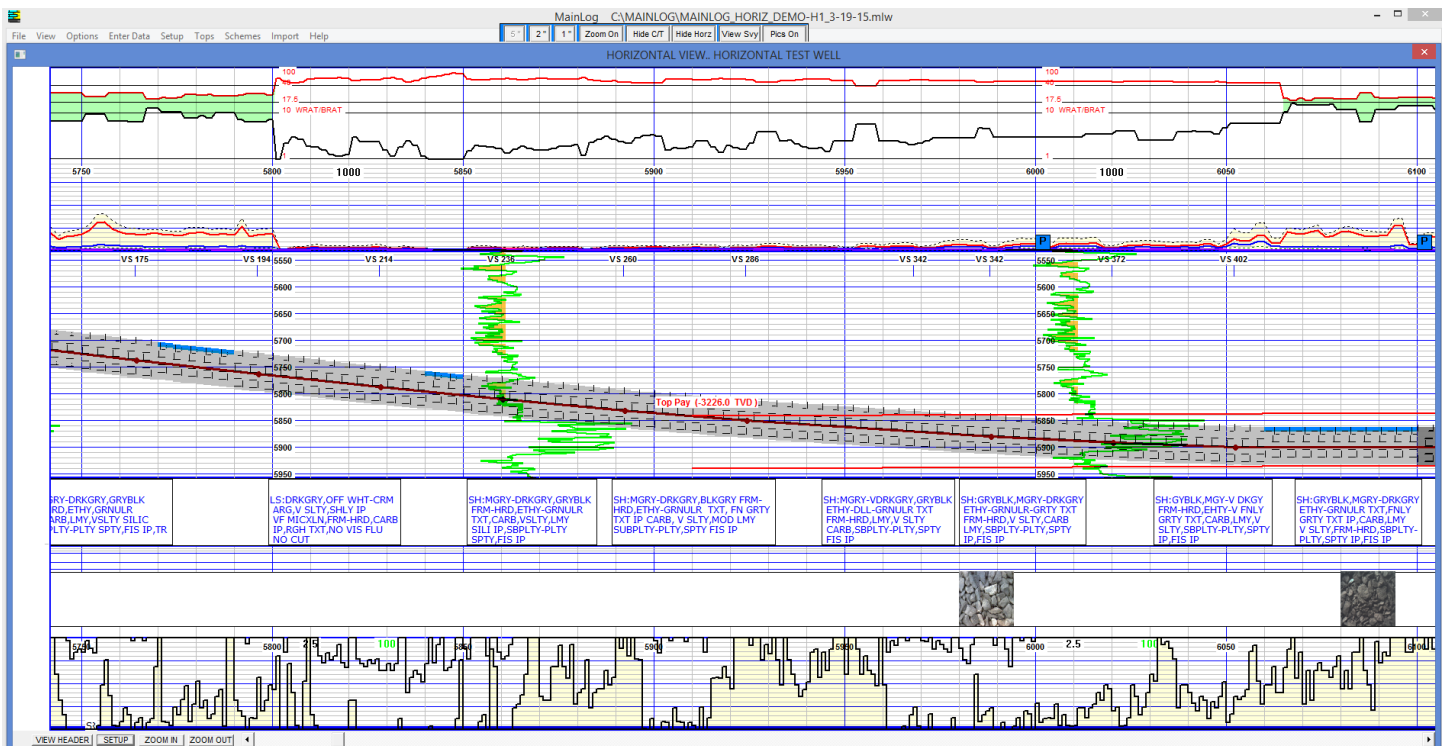
- ☐ Thin Line
- ☒ Medium Line
- ☐ Heavy Line

Select View
default

Save View As

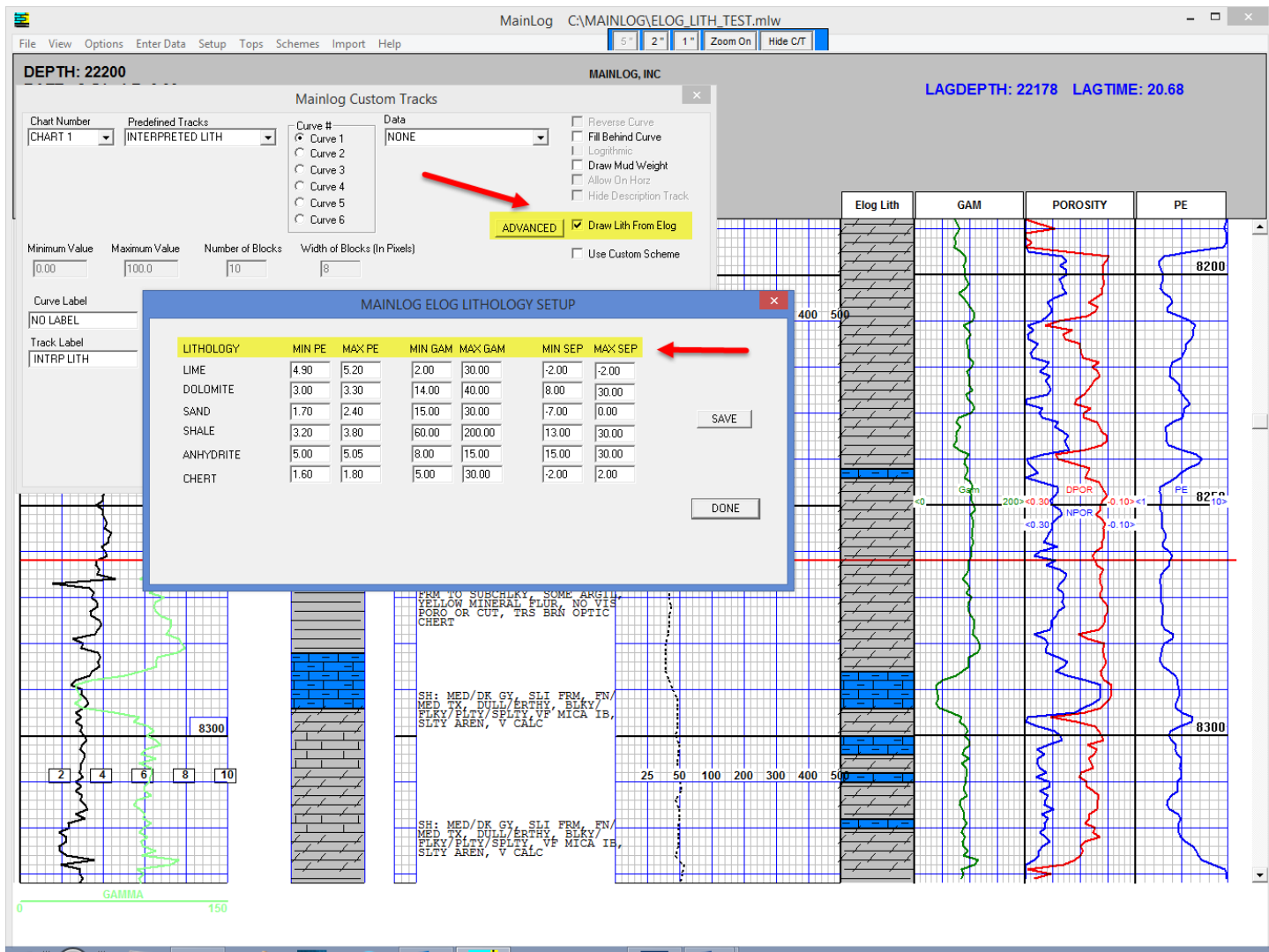


Pictures and Descriptions in their own track.



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,
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