



Current TerraStation II version: v7.117

Trade Shows

Hoots mon! The SPWLA show in Edinburgh, Scotland proved to be very successful for TERRASCIENCES, as did the San Antonio AAPG show in April. A number of new leads were generated and turned into sales, and existing clients came by to discuss issues and ideas. It does seem that the level of interest in borehole imaging has really taken off in the last two or three years. Demand for our products is increasing and we continue to strive to meet client expectations.

The last show of 2008 for TERRASCIENCES will be:

- PETEX 2008 – 25-27 November, 2008 - London, England

Mark your calendars and come visit your favorite vendor.

Looking ahead to 2009, we will be exhibiting at the annual AAPG convention. This will be in our home town of Denver, Colorado. We will also be at the SPWLA show in The Woodlands, just north of Houston, TX.

Looking to 2010, there is already a mad scramble within TERRASCIENCES to decide who will be the lucky booth person at the SPWLA convention as it will be in Perth, Western Australia. Didgeridoos, bush tucker bags and other quintessential Aussie items will no doubt be brought back to the US by whoever is chosen.

Free version of Plot Editor/Dispatcher

There is now a free software download available on the TERRASCIENCES web site that provides the TerraStation Plot File Editor and Dispatcher. This requires no licensing and is free to anyone who wants it. It is obviously of no use unless you have a TERRASCIENCES plot file (.plt) that you want to view/edit/plot.

To obtain the download simply visit our web site - www.terrasciences.com - and pull down the **Products** menu. The **TS Plot Viewer** option is on this menu (see screen capture below).



The purpose of the download is to allow existing clients to free up a TerraStation license that may otherwise be tied up with editing or plotting large plots. It is also useful for our consulting users that might want to send a plot file to one of their clients. Should that client for some inexplicable reason not have a TerraStation, then this would at least allow them to view the file while they rectify their lapse in judgement.

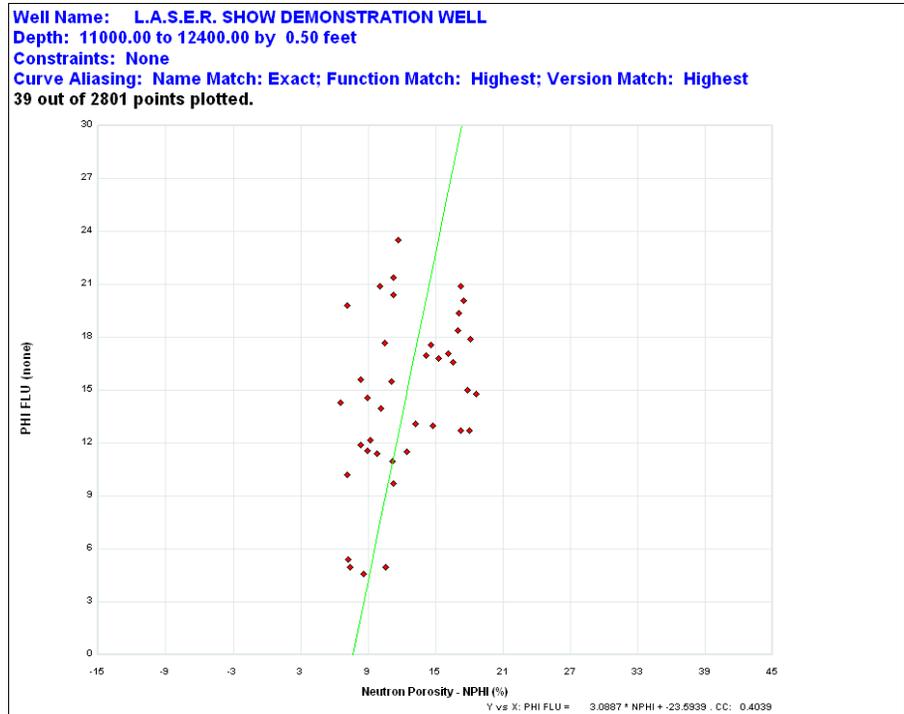
New crossplot capabilities

There are a few new features pertaining to the fitting of statistical lines on crossplots that users should be aware of. The crossplot capability is part of the basic petrophysics option and thus is available to everyone.

First let us display a crossplot – for example:

Here we have a NPHI versus core porosity crossplot.

By going to the **Statistical lines** tab and checking the **Linear X on Y** box, we obtain a regression line through the data on the plot.



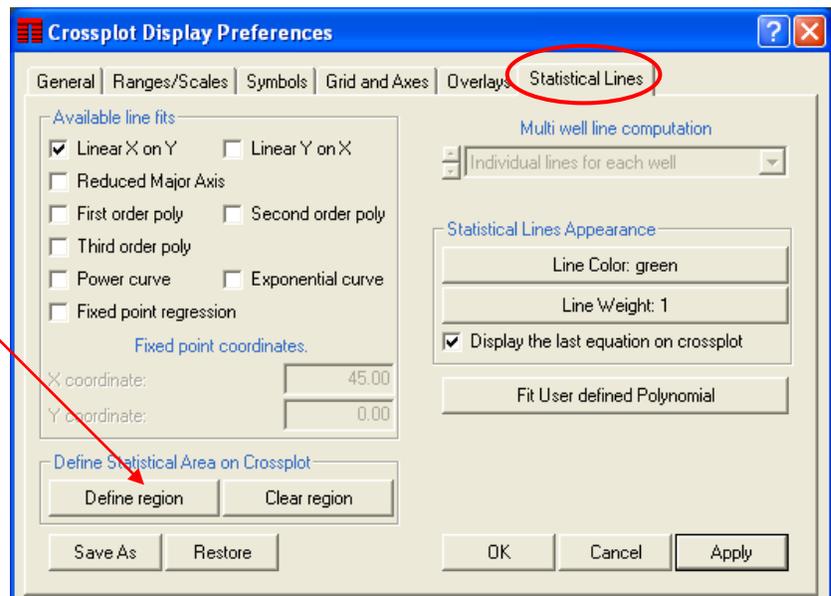
Defining a 'region' for line fitting.

But what if we want to fit the line through only a part of the data? This can now be done. On the bottom left hand side of the **Statistical Lines** tab, there is a small group of buttons called **Define Statistical Area on Crossplot**:

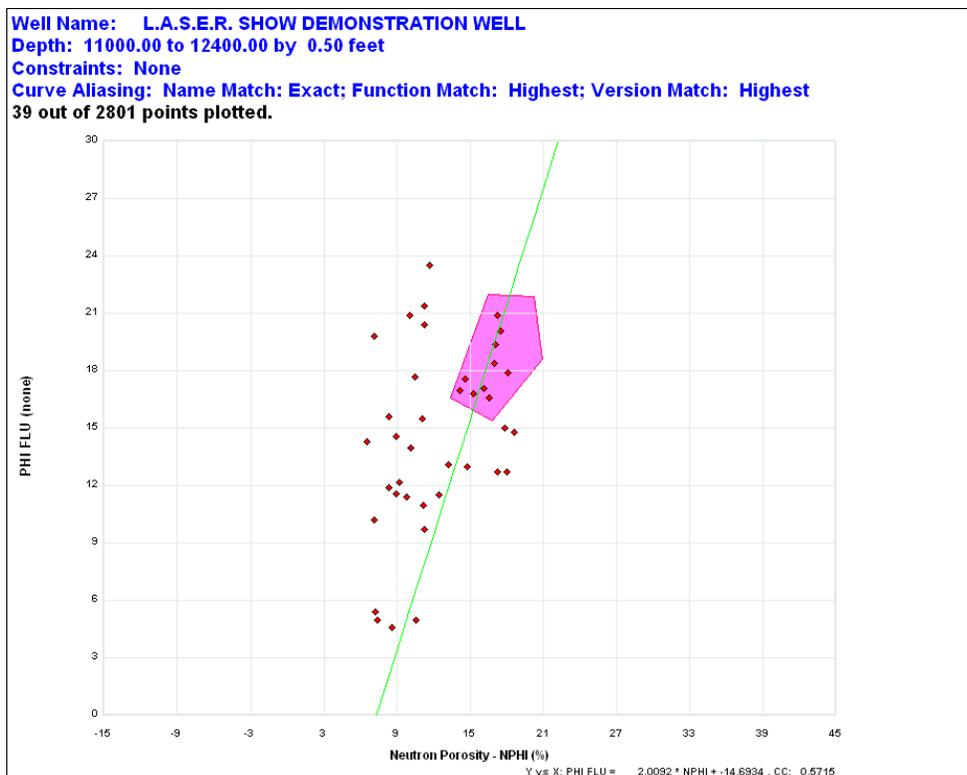
Press the **Define Region** button.

Now move the cursor into the crossplot area and define a polygon area around the data you want to have used for the line fitting.

Do this by a series of left click then move actions. Close the polygon with a right click. The polygon is limited to ten sides.



On closing the polygon, the cross plot is redrawn with the region displayed as a filled area, and the line fitted through just the data in the polygon. For example....



Note that this capability works with multiple well plots as well as single well plots.

Interactive Fixed point regression

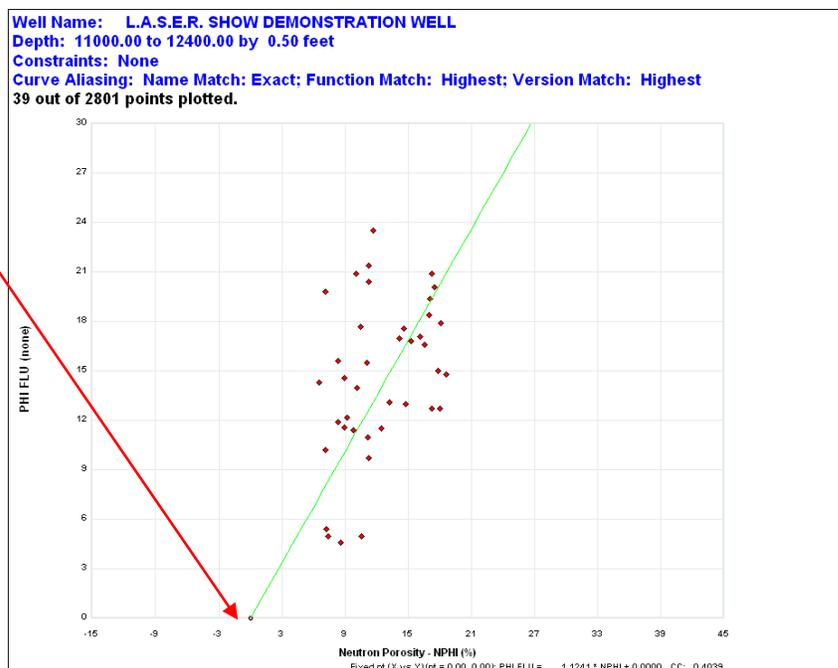
Some of our users make use of a statistical line fit known as the fixed point regression. Although you have always been able to specify the location of the fixed point, you had to do it by typing in the X and Y value for the fixed point. This allows accuracy of point location. However, for a more interactive approach, we have added the ability to interactively grab and move the fixed point and have the line move with it.

To do this, go to the **Statistical Lines** tab of the crossplot display preferences control and switch on the **Fixed point regression** box. Press **Apply**. To the right is an example of a crossplot with such a line invoked.

Look closely at the bottom of the line and you will see a small circle. This indicates the location of the fixed point.

You can move it by simply left-clicking and holding the mouse button down as you move the mouse. The fixed point location moves with the cursor and the line is recomputed as you move.

Once you let go the crossplot is redrawn, and the line equation given along the bottom of the plot is updated.



Curve normalizing with histograms

Several months ago we added the capability to normalize a curve using a histogram of the curve to be normalized and a reference histogram based on a collection of other wells. This was added for a specific client who has found it very useful. We thought we should bring it to the attention of the rest of the user community.

The option exists within the basic petrophysics option, so everyone has access to it.

Start TerraStation II and select the **Petrophysics** application. From the **Edit** menu of this window, select the **Normalize (Histogram)** option. The following control window appears:

Let us assume we have a well in which the **GR** curve appears to be reading too high relative to the majority of wells.

First we select a group of wells in which the GR curve is acceptable. Press the **Select reference well(s)** button and create or retrieve a well collection.

Now press the **Select working well** button and choose the well that has the 'bad' GR curve.

Press the **Input Curve** button and select the curve to be normalized – in this case the GR curve.

Press the **Output Curve** button and select either a curve to overwrite, or more likely select **Create New Curve**. Create a curve called **GR_NORM**.

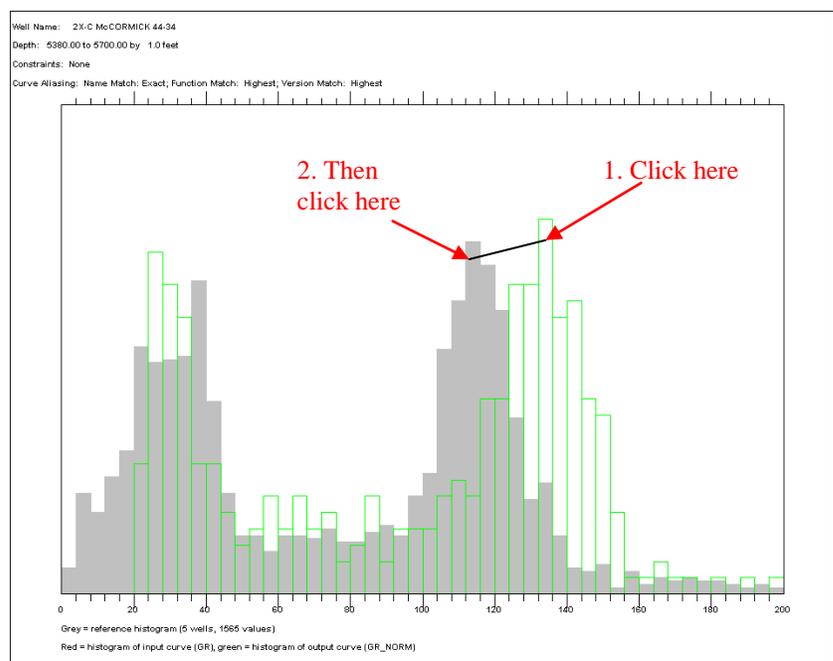
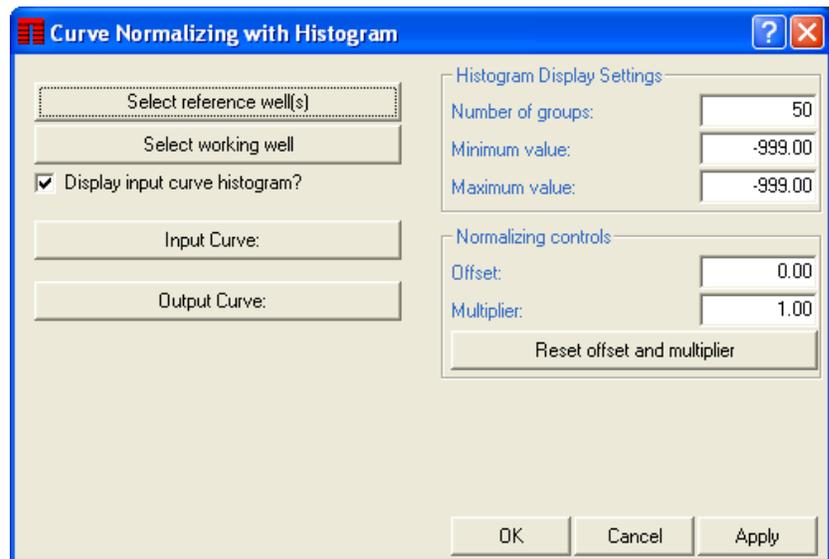
Now press the **Apply** button.

You will see a display looking something like this:

The gray colored histogram is the data distribution from the set of reference wells. The green outline is the distribution from the working well. It is actually the data distribution of the output GR_NORM curve. At this stage the input and output curve distributions are the same, as we have not applied any transform to the input curve.

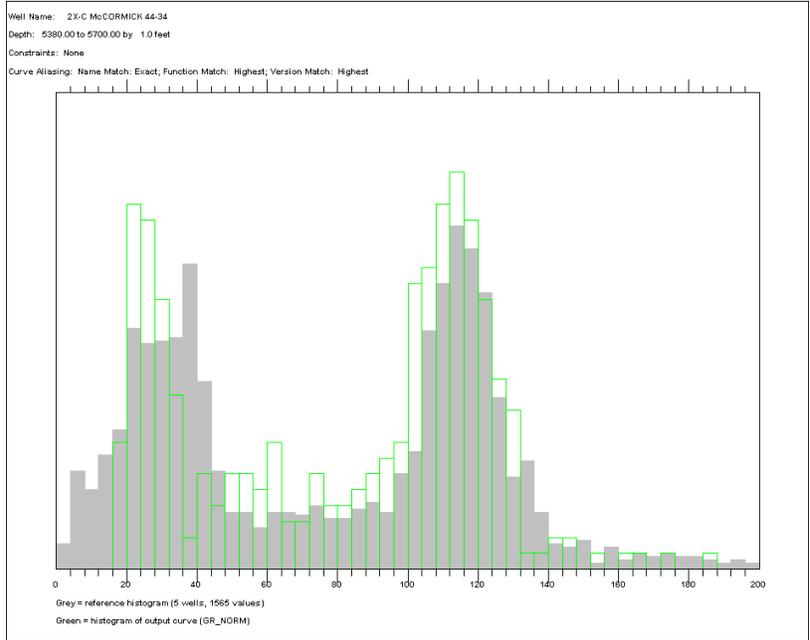
In this example, notice that the data peak in the working well (green outline) lies some distance to the right of the data peak in the reference well histogram.

Now, simply move the cursor to the top of the peak on the green outline histogram and click the left button once. Now move



the cursor to the peak on the gray histogram and left click again (notice the rubber band line attached to the cursor while doing this). On the second click you are presented with a small menu – **Set as offset amount, Set as multiplier**. In this case we select **Set as multiplier**.

The result is that the green histogram is moved to align with the gray one. Like so...



If you see a red histogram outline, this is the histogram of the original GR prior to normalizing it for the working well. You can switch this red histogram off by checking off the **Display input curve histogram?** box. Some people like to see it, others don't.

TCL Corner – A routine for computing hole volume and cement volume

We are indebted to Mike Walker of Walker Petrophysics in the Perth, WA area of the world for the following simple but useful TCL routine:

```
* A simple TCL routine to create a hole volume to be stored in Constant 32
* and a cement volume based on the casing diameter Const 30 in Constant 33
* units are m3 and the assumed input is inches !
*
* Start by setting the names of the two level and two cumulative channels
*
  CREATE CURVE LEVHV
  CREATE CURVE LEVCV
  CLEAR CURVE LEVHV
  CLEAR CURVE LEVCV
*
  CREATE CURVE HOLVOL
  CREATE CURVE CEMVOL
  CLEAR CURVE HOLVOL
  CLEAR CURVE CEMVOL
*
* Loop through the depth range for the well
*
BEGIN
*
  VLEVHV = C3*3.14159265*(VCALI*0.0254/2)*(VCALI*0.0254/2)
  VLEVCV = C3*3.14159265*((VCALI-C30)*0.0254/2)*((VCALI-C30)*0.0254/2)
*
ENDBEGIN
*
  CALL SUMLOG LEVHV HOLVOL C32
  CALL SUMLOG LEVCV CEMVOL C33
*
* End of processing
*
STOP
```

Note: As pointed out in the comment at the top of the routine, the input caliper is in inches, as is the casing diameter. The output values are computed in cubic meters.

US OFFICE

TERRASCIENCES Inc
7800 S. Elati Street, # 300
Littleton
CO 80120
USA

Tel: (303) 794 5511
Fax: (303) 794 7755

Support Email:
support@terrasciences.com

Support Email:
support@terrasciences.com

UK OFFICE

TERRASCIENCES Ltd.
Palace Chambers
41 London Road
Stroud, Glos.
GL5 2AJ
United Kingdom

Tel: (01453) 767683

Sales Email:
sales@terrasciences.co.uk

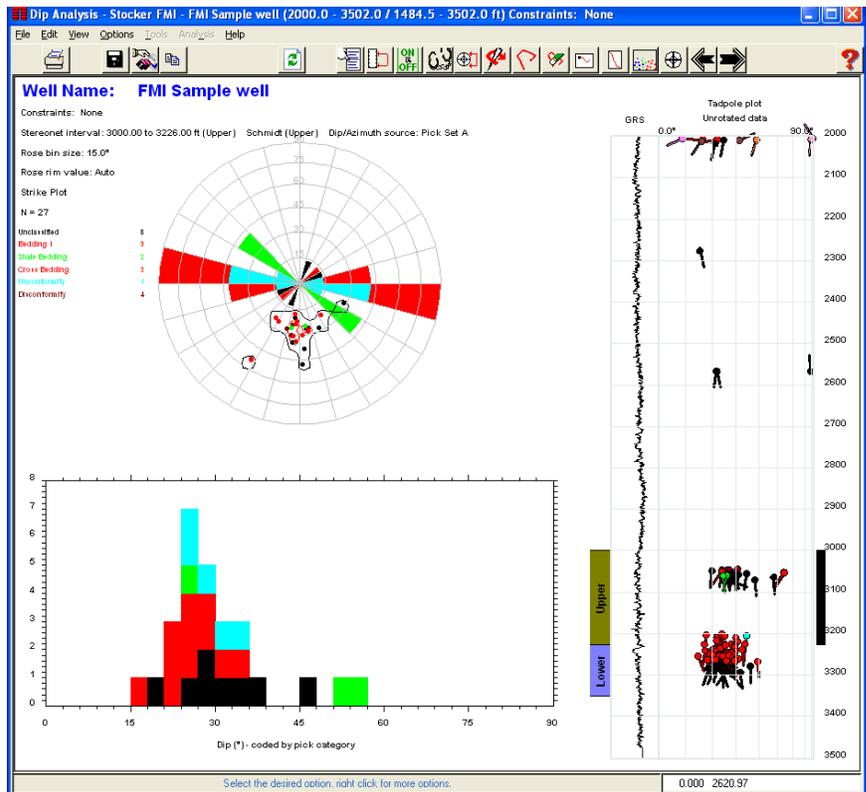
Support Email:
support@terrasciences.co.uk

www.terrasciences.com

Dip Analysis Enhancements

One of the most heavily utilized functions we have added in recent years, the Dip Analysis module, continues to undergo enhancement in response to user requests. In recent weeks we have added

Dip histogram – now can be displayed broken down by category (or subtype). Right click on the display and select **Dip Data Control**. Set the **Grouping** toggle to either **Category** or **Subtype**. An example output is shown below:



Stratigraphy track – there is a new tab called **Stratigraphy Track** on the Dip Analysis Display Preferences window. This allows you to display the stratigraphy intervals down the left-hand side of the curve/SCAT track. You can then click in any of the displayed intervals and the depth interval for the stereonet changes to that depth interval. Note that you can only display the intervals from one stratigraphic 'rank' at a time.

Dip Diagram – we have added a special display of dip information that displays dips in a 'rose diagram like way', but with dips displaying starting at zero on the horizontal to 90 degrees on the vertical. This gives a good visual cue as to the steepness of dips. Check the **Dip Diagram** box on the **Rose/Strike plot** tab to display this diagram.

