

# TerraNotes

Current TerraStation II version: v7.514

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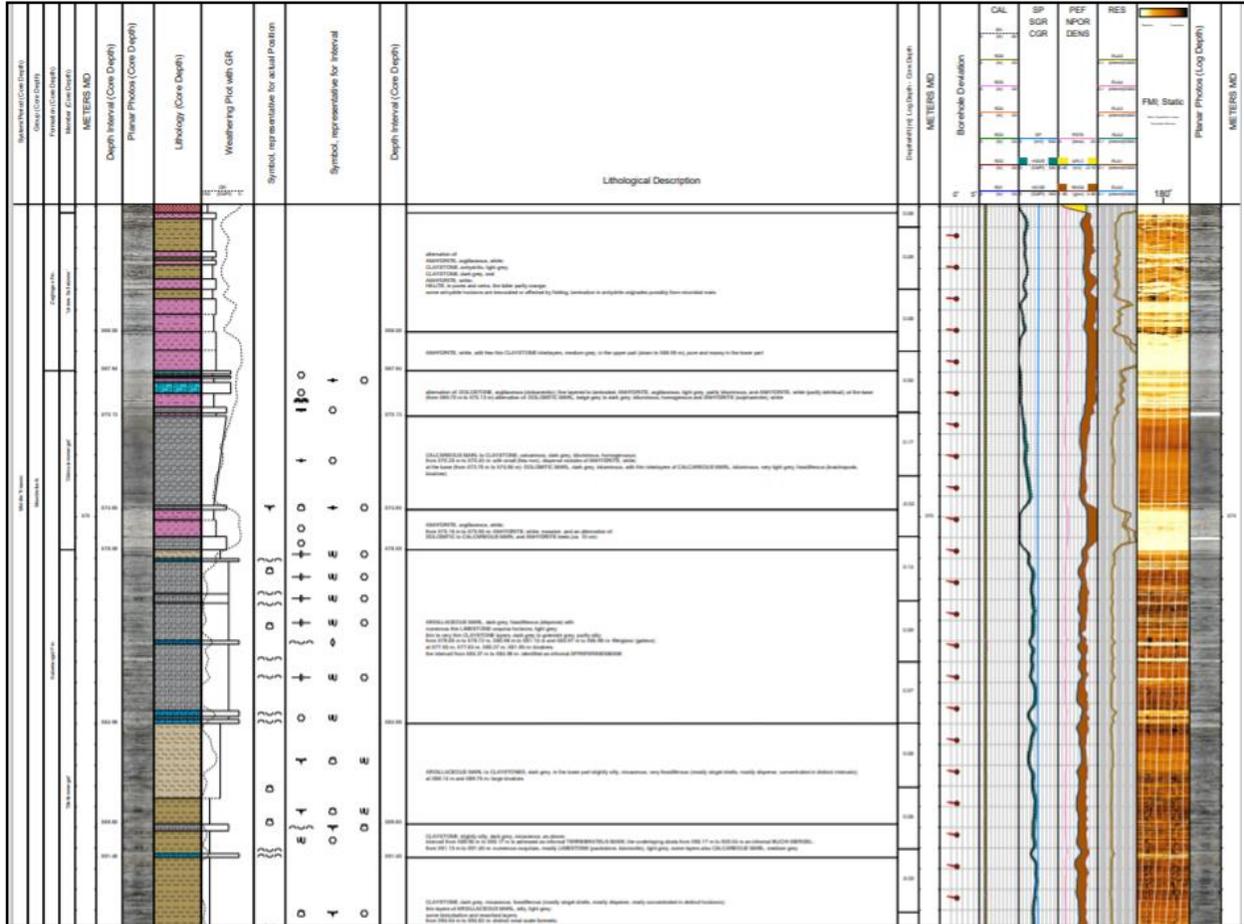
Greetings and we hope this newsletter finds you healthy and safe during these unprecedented times. TERRASCIENCES has adjusted well to the new work conditions currently in place in our offices. While our staff are generally working from home a lot more, our offices are manned most of the time, and support calls and other enquiries are still being handled as efficiently as possible. It is still advisable to communicate by email with us as much as possible, as we have more monitoring of that by more of our personnel.

Best regards

The TERRASCIENCES team.

## Example of IMAGELog in use in Switzerland.

This section showcases the use made by one of our clients of the IMAGELog system to generate detailed summation displays of wells. We thought it might be of interest to some of our users to see how others use the software.



This display was put together using the IMAGELog and Borehole Image display modules of TerraStation II by NAGRA - (Nationale Genossenschaft für die Lagerung radioaktiver Abfälle) - of Wettingen, Switzerland. Several of the recent enhancements to IMAGELog, in particular the lithology/facies track capabilities, have been driven by NAGRA and their associated contractors.

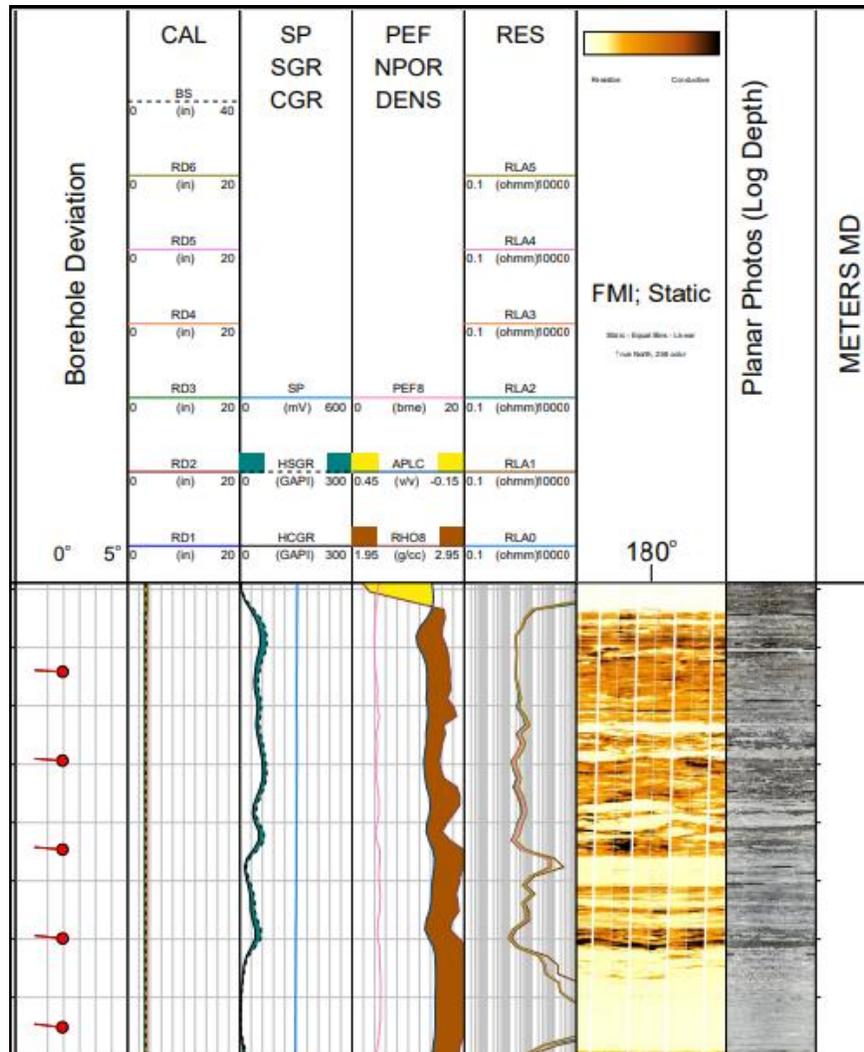
NAGRA is evaluating different areas of the country for its potential for storing radioactive waste. TerraStation is a central part of the creation of a database and displaying of the data in geological contexts amongst NAGRA and its contracting organisations.

This particular template makes use of several different track types, including a Stratigraphy track, core photographs, lithology, comments, symbols, curves and borehole image tracks.

Here is a closer look at certain parts of the display...

System/Period (Core Depth)		Group (Core Depth)		Formation (Core Depth)		Member (Core Depth)		METERS MID		Depth Interval (Core Depth)		Planar Photos (Core Depth)		Lithology (Core Depth)		Weathering Plot with GR		Symbol, representative for actual Position		Symbol, representative for Interval		Depth Interval (Core Depth)		Lithological Description		Depth/Int'l [m]; Log Depth - Core Depth											
Middle Tertiary		Murchiebank		Zaghyon Fm.		'Unese Subzone'																				0.06		0.09		0.08		0.00		0.17		-0.02	
								X66.06		X66.06				<p>alternation of:            ANHYDRITE, argillaceous, white;            CLAYSTONE, anhydritic, light grey;            CLAYSTONE, dark grey, and            ANHYDRITE, white;            HALITE, in pores and veins, the latter partly orange;            some anhydrite horizons are brecciated or affected by folding, lamination in anhydrite originates possibly from microbial mats</p>								X66.06		<p>alternation of:            ANHYDRITE, argillaceous, white;            CLAYSTONE, anhydritic, light grey;            CLAYSTONE, dark grey, and            ANHYDRITE, white;            HALITE, in pores and veins, the latter partly orange;            some anhydrite horizons are brecciated or affected by folding, lamination in anhydrite originates possibly from microbial mats</p>				0.06		0.09		0.08					
								X67.94		X67.94				<p>ANHYDRITE, white, with few thin CLAYSTONE interlayers, medium grey, in the upper part (down to X66.95 m), pure and massy in the lower part</p>								X67.94		<p>ANHYDRITE, white, with few thin CLAYSTONE interlayers, medium grey, in the upper part (down to X66.95 m), pure and massy in the lower part</p>				0.00									
								X70.13		X70.13				<p>alternation of: DOLOSTONE, argillaceous (doloarenitic), fine layered to laminated; ANHYDRITE, argillaceous, light grey, partly bituminous, and ANHYDRITE, white (partly detrital); at the base (from X69.70 m to X70.13 m) alternation of: DOLOMITIC MARL, beige grey to dark grey, bituminous, homogenous and ANHYDRITE (sulpharenite), white</p>								X70.13		<p>alternation of: DOLOSTONE, argillaceous (doloarenitic), fine layered to laminated; ANHYDRITE, argillaceous, light grey, partly bituminous, and ANHYDRITE, white (partly detrital); at the base (from X69.70 m to X70.13 m) alternation of: DOLOMITIC MARL, beige grey to dark grey, bituminous, homogenous and ANHYDRITE (sulpharenite), white</p>				0.00									
								X74.65		X74.65				<p>CALCAREOUS MARL to CLAYSTONE, calcareous, dark grey, bituminous, homogenous; from X70.25 m to X70.40 m: with small (few mm), disperse nodules of ANHYDRITE, white; at the base (from X73.75 m to X74.65 m): DOLOMITIC MARL, dark grey, bituminous, with thin interlayers of CALCAREOUS MARL, bituminous, very light grey, fossiliferous (brachiopods, bivalves)</p>								X74.65		<p>CALCAREOUS MARL to CLAYSTONE, calcareous, dark grey, bituminous, homogenous; from X70.25 m to X70.40 m: with small (few mm), disperse nodules of ANHYDRITE, white; at the base (from X73.75 m to X74.65 m): DOLOMITIC MARL, dark grey, bituminous, with thin interlayers of CALCAREOUS MARL, bituminous, very light grey, fossiliferous (brachiopods, bivalves)</p>				0.17									
								X76.59		X76.59				<p>ANHYDRITE, argillaceous, white; from X75.16 m to X75.95 m: ANHYDRITE, white, massive, and an alternation of: DOLOMITIC to CALCAREOUS MARL and ANHYDRITE beds (ca. 10 cm)</p>								X76.59		<p>ANHYDRITE, argillaceous, white; from X75.16 m to X75.95 m: ANHYDRITE, white, massive, and an alternation of: DOLOMITIC to CALCAREOUS MARL and ANHYDRITE beds (ca. 10 cm)</p>				-0.02									

A further display showing a section on the right hand side of the plot showing the borehole imagery and core photograph data...

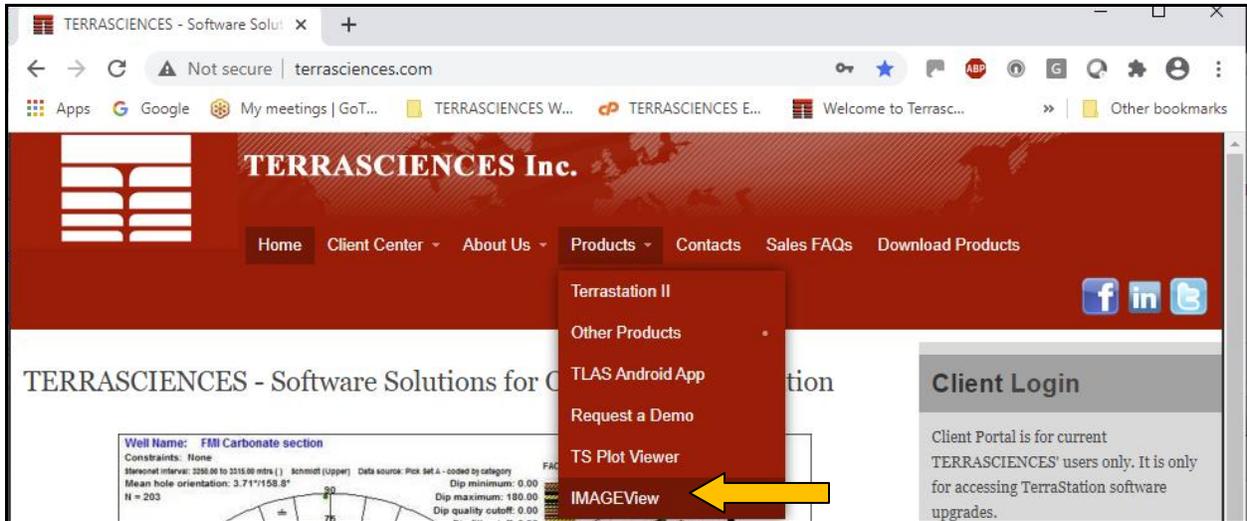


We extend our thanks to Michael Gysi of NAGRA for permission to show the display. The full display can be seen on our web site by clicking on the following ... [NAGRA IMAGELog Example](#)

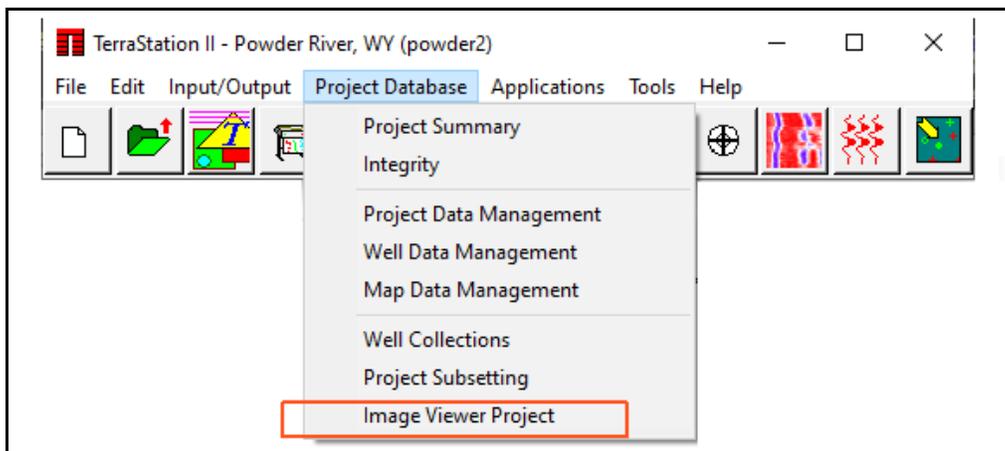
## Free Single Well Data Viewer - ImageView

TERRASCIENCES has developed a free software application for the viewing of well data that is in TerraStation format. This allows you to provide non TerraStation users with a way to view well data using any IMAGELog templates you care to provide them. ImageView allows the user to change the vertical scale interactively, and in the case of borehole image tracks to use the **3D Visualizer** and the **Magnifier** capabilities.

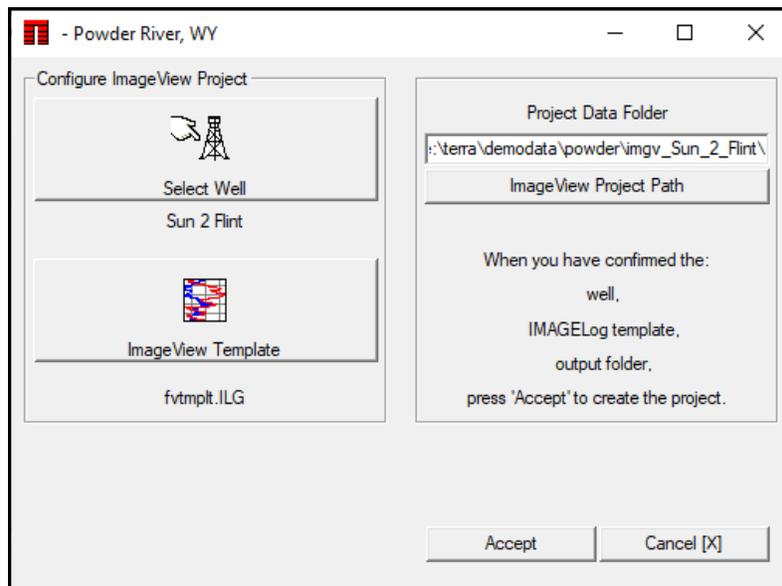
The software can be downloaded and installed from the TERRASCIENCES web site. Simply go to [www.terrasciences.com](http://www.terrasciences.com) and then click on the **Products->ImageView** menu option.



The TerraStation user has the new capability to create a single well project for use with this viewer, by going to the **Project Database->Image Viewer Project** option.



Use the options in here to select the well and a default template file to be packaged together for forwarding to someone with ImageView.



You can also supply other templates for the ImageView user to use.

Note that no manipulation of actual data can be performed with the ImageView product. It is solely for the purpose of looking at the well data, but with more flexibility than sending a PDF or other graphic plot.

## **Additional Imaging Tools Supported**

We have added mnemonic support to the DLIS and LIS loader for the following devices:

Weatherford UltraWave™

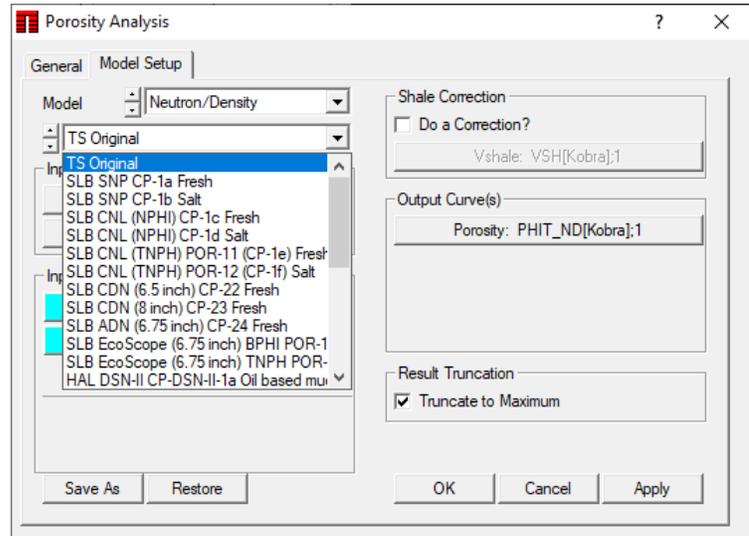
Baker-Hughes GeoXplorer™

Petromar Technologies (Nabors) FracView™

## Crossplot Porosity Models

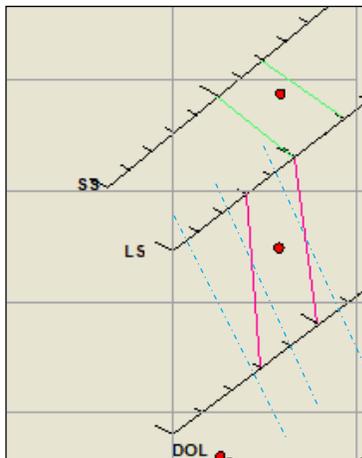
In the Petrophysics module, under the Porosity models, we have enhanced the crossplot porosity models to allow different charts. In addition we have added a generic chart based sonic/density crossplot porosity option.

In the case of the crossplot porosities there is now an extra pulldown menu when setting up the model. For example, to the right is the Neutron/Density setup. Notice the list of available charts, starting with the “TS Original” entry. The TS Original method is the one that has always been in TerraStation. The remainder are approximations of the specific chart selected.



We can add additional charts, so if you have one you want then provide us with the chart in question.

Please note that the porosity computed is assumed to be for a matrix made up of the two closest lithology lines to the point. See explanation below.



That is, if the point falls between the LS and SS lines then the porosity is computed using those two lines. It uses the green lines of equal porosity in the diagram to the left. We do not compute porosity using the SS and DOL lines (blue dashed lines) in this case.

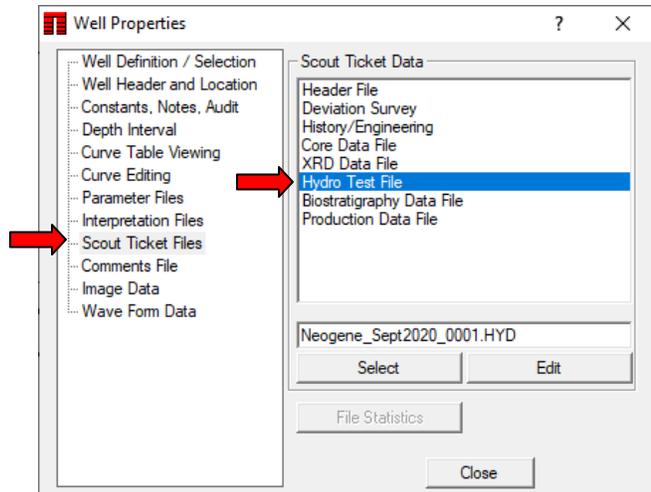
If the point falls between the LS and the DOL lines, then likewise, we do not compute porosity using the SS and DOL (blue dashed) lines. It uses the magenta colored lines of equal porosity.

## Support for Hydrogeological Test Data

A client recently asked for us to provide display capability within IMAGELog for data gathered from water flow tests. We have facilitated this in the since version 7.505 of the software.

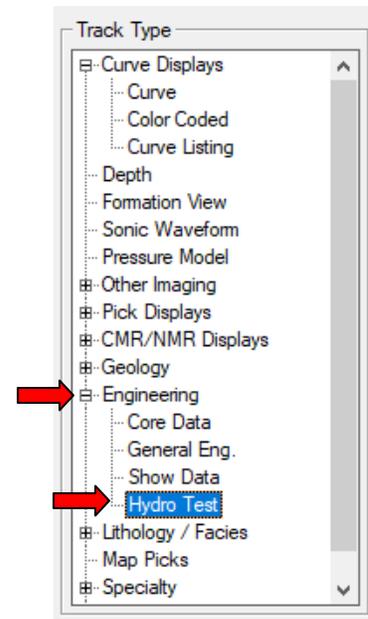
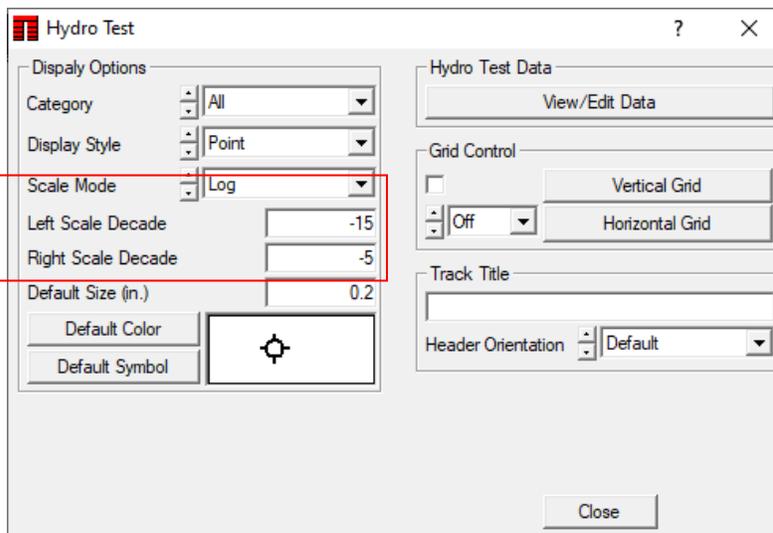
The data is stored in a new auxiliary well data file called the Hydro test file. It has a .HYD file extension. It is categorized as a “Scout Ticket” file in the well Properties control panel.

Data can be loaded to it from ASCII files, or you can manually enter it.



A new track type has been added to IMAGELog – under the **Engineering** track grouping. It is called “Hydro Test”.

The track configuration panel for this track looks like this...



Note: When using the **Scale Mode** set to **Log**, then you enter the decadal values in the **Left Scale** and **Right Scale** boxes. That is, instead of entering 0.1 you would enter -1 for example. 1000 would be entered as 3. If you use the **Linear** scale mode setting, then you simply enter the values desired. This was done this was because the track data was intended to show values with an extremely wide potential range of values.

An individual entry contains the following information:

A test sample identifier.

The top and bottom depth of the test interval (in MD)

The value of the thing being measured. This could be the mean or median value for example.

A minimum and maximum of the thing measured during the test.

An optional category number (1 to 5) to allow tests to be grouped.

A code for the desired symbol to be displayed at the 'value' location.

A color for the display of the test in the track.

A size value for the symbol. (in inches).

An optional description for the test that can be displayed via the **Comment** track in IMAGELog if desired.

The **Display Style** settings and how they make the data appear are shown below...

Point	Whisker	Depth Range	Both	Box Form
-10 Decade	-1 -10 Decade	-1 -10 Decade	-1 -10 Decade	-1 -10 Decade
				

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