TerraStation II – Sonic Waveform Analysis

Technical Specifications

Sonic Waveform Analysis

Data Import and Management

- Waveform data loading from LIS and DLIS.
- Supports all sonic tools.
- Handles monopole and dipole sonic tools.
- Allows up to 20 waveform data sets per well.
- Data editor to allow waveform data to be examined. Provides for numerous arithmetic operations on data – both the entire receiver set and individual receivers.
- Provides for the merging of waveform data sets.

Data Transforms

- Display raw amplitudes, instantaneous amplitude, instantaneous phase, and instantaneous frequency.
- Display frequency spectrum of data.
- Compute and display frequency dispersion of data.
- Compute and display semblance of data.
- Provides a data normalizing capability.
- Application of gain curve supported.
- Allows use of full or fast Fourier transforms.
- Application of smoothing filters, band pass filter and stop band filter option. Interactively define corner points for band pass and stop band filters

Data Display

- Display receivers in VDL (Variable Density Log) or as ‘wiggle traces’.
- User definable color maps.
- User selects which receivers are to be displayed.
- Scale receivers as linear or logarithmic.
- Control gain and sample window size.

Interpretation capabilities

- Allow creation of curves of maximum amplitude, maximum coherence.
- Trace response on successive waveform and save travel time or amplitude as a curve.
- Import an existing sonic curve and display on waveform.
- Use saved traces as ‘constraint window’ for computation of arrival times.

Data Analysis

- Compute travel times using semblance slowness, or first motion slowness using the T-R1, Moveout or six inch vertical resolution method.
- Apply a median or averaging filter to computed travel times.
- One-click option to ‘guide’ computed arrival times on semblance plots.
- Frequency dispersion correction provided.
- User definable arrival windows for compressional, shear and Stoneley waves
- Computation of anisotropy from dipole tools.

Additional Capabilities

- Compute various rock properties from compressional and shear sonic and a supplied density. These are Poisson's Ratio, Vp/Vs, Young's Modulus, and bulk and shear moduli.
- Compute upscaled outputs using Backus averaging.
- Display in cross section (*).

* May need to license additional module.