OVERVIEW

SPECTRUM® 360 visual analytics service delivers more than just a revolutionary real-time video feed; this service is also capable of providing some of the most in-depth analysis of wellbore data that has ever been made available. Several levels of data analysis are available, pending the level of detail desired for the operation. Visuals of key inspection points can be reviewed and replayed, and basic quantitative measurements can be made in real time.

REAL-TIME VISUALIZATION

- Four real-time, array camera video images, providing 360-degree inspection of the wellbore
- Ability to provide live streaming of video from wellsite to remote devices or viewing facility
- Analysis and interpretation of data points that may be directly derived from the recorded images

ADVANCED VISUAL ANALYTICS

- Quantitative measurements of downhole geometries in three dimensions, based on video captured by the camera
- 2D mosaic images provide intuitive visualizations of the downhole environment
- Overlay correlations of visuals with log data
- Compare “before” and “after” images side by side

3D MOSAIC IMAGING

- High-resolution, depth-matched 3D, 360-degree images based on video captured by the camera
- Processed at computer center, and suitable for quantitative evaluation or comparison with engineering drawings
Advanced visual analytics provide additional layers of visual processing and diagnostics. Individual frames from SPECTRUM® 360 images can be stitched together into a composite mosaic image of the entire interval, or of specific zones of interest, for a more intuitive visualization of the downhole environment.

This composite image may be correlated alongside standard logging reports or other data channels recorded from the well, either from a selected run, or including images from both before and after any intervention services performed during the operation.

Example data may include, but not be limited to, pre- and post-cleaning conditions of screens; the position of sliding sleeves before and after an operation; or overlays of data, such as inclination or gamma ray, to validate the position of the visuals in the case of multilateral wells.

High-resolution 3D processing provides the ability to create advanced digital mosaics to illustrate wellbore sections more clearly than ever before, thus transforming the images recorded by the camera into models that can be viewed from any angle. These 3D mosaics are data-matched for accurate dimensioning and quantitative evaluation.

**TARGET APPLICATIONS FOR VISUAL ANALYTICS**

- **PERFORATION**
  - Quantifying perforation geometry
  - Optimizing frac/stimulation

- **CORROSION**
  - 360° corrosion evaluation
  - Optimizing integrity management

- **FISHING**
  - Real-time decision making
  - Fast, effective fish retrieval

- **RESTRICTION**
  - Quantified evaluation
  - De-risking interventions

- **VALVE**
  - 360° corrosion evaluation
  - Optimizing integrity management

- **SAND**
  - Evaluating sand control
  - Optimizing clean-up

- **WATER**
  - Pinpointing water entry
  - Effective isolation at source

- **LEAK**
  - Locate and diagnose leaks
  - Detailed root cause analysis

*Some visual analytics applications may be optimized by pairing a down-view camera with the SPECTRUM® 360 service.*

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com