THE DOWNHOLE VISUAL ANALYTICS COMPANY

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PIPE INTEGRITY PLATFORM

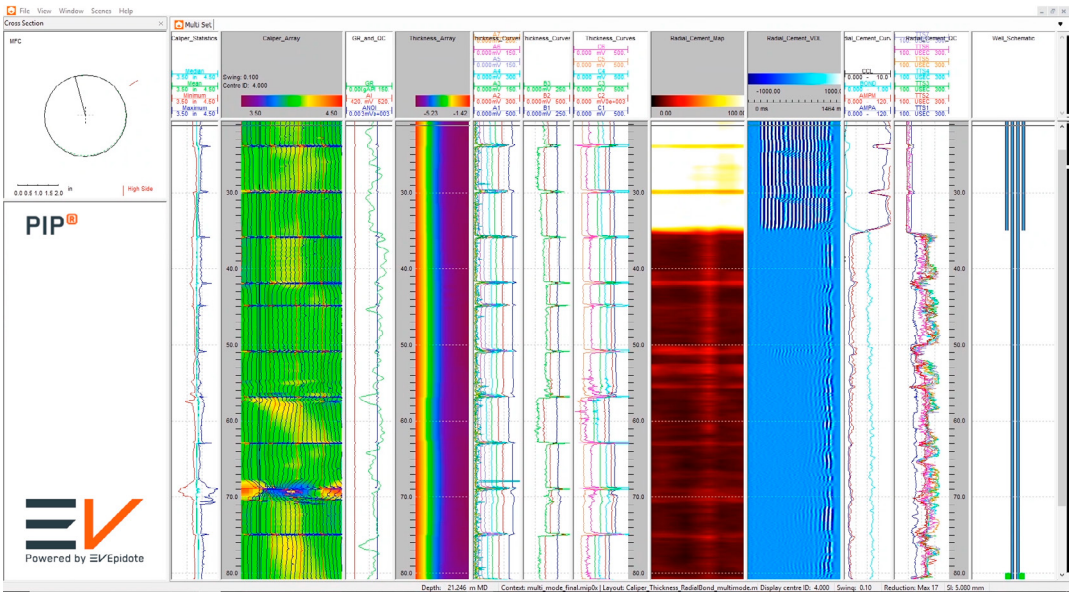
Pipe Integrity Platform (PIP) is an advanced well integrity analysis software platform developed for the latest array of pipe integrity products

PIP

Pipe Integrity Platform (PIP) provides a holistic view of well integrity through the combined analysis & visualisation of the three primary well barriers - cement, casing and tubing. PIP includes all the technical capabilities of MIPS, with the additional integration of cement bond logs, noise logs and other station data, into a single, common analysis platform.

The PIP development includes a range of new features for efficient and comprehensive analysis of multiple array log datasets. Features include a new viewer for integrated analysis and display of multiple sensor data – up to 15 log tracks can be viewed simultaneously including display curve, waveform, various array data sets and a well schematic utility.

Additionally, an enhanced DLIS importer is provided for fast and efficient data handling and merging, while familiar MIPS utilities, such as 3D viewing, plotting, annotations and a license free viewer, have all been adapted and ported into PIP as standard.



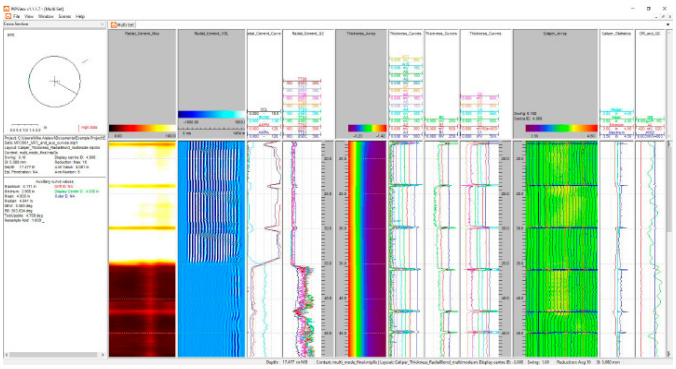
Up to 15 log tracks can be depth correlated and viewed simultaneously. In this example, you can see the integration of multi-finger caliper, multi-barrier pipe thickness and cement bond logs shown in relation to the well's schematic.

OVERVIEW

evcam.com

PROCESSING MODULES

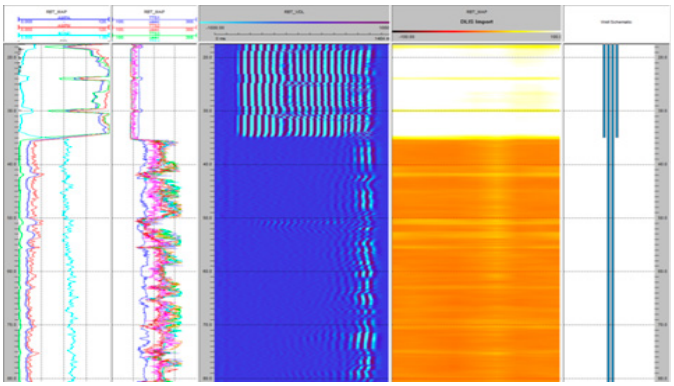
Examples provided demonstrate how cement bond log, multi-finger caliper & pipe thickness data acquired over the same interval can be viewed and reported simultaneously. Further support is offered for spectral acoustic, ultrasound, temperature, pressure, flow-meter and multiple other log types.



An overview of the condition of three of the primary well barriers – cement, casing and tubing – is provided in this single view.

BESPOKE PLUGINS

Bespoke plugins can be custom built for our customers with unique cased hole logging sensors that require processing and analysis, paired with experienced in-house personnel to provide technical support, training and independent consultation services. Contact us for specific requests.

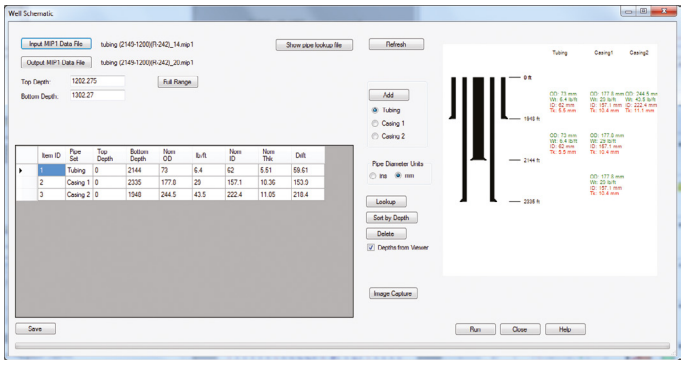


PIP supports the input, viewing, processing and output of multifinger caliper, thickness, noise, array and conventional cement bond logs, camera and other images, various stationary measurements and any customer specific sensor.

STATISTICAL ANALYSIS

An extensive statistical analysis of penetration and restriction data provides the basis for quantitative interpretation.

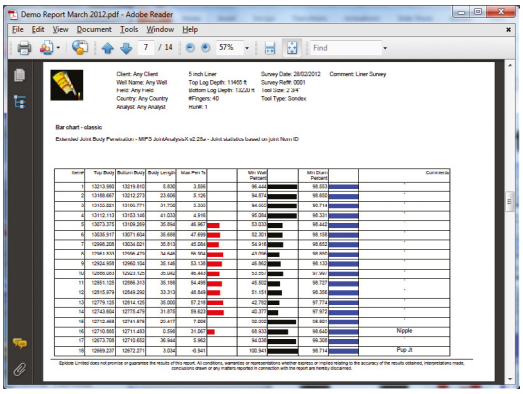
With more than 30 statistical results available, the analyst has full flexibility in the reporting of pipe integrity.



Tubular details are entered in a well schematic style interface, producing a graphical well sketch and auto-populated tubular dimensions.

REPORTING

The integrated reporting module in PIP allows the analyst to produce structured, custom built reports in Word, PDF or TIFF format. Features of the statistical reporting include histograms, bar charts, joint analysis tables and pipe grading. Log sections, 2D cross sections and 3D views are all easily captured and added to the written report. Pre-prepared introductory and concluding text sections complete the written report. PIP reports are supported with API style log plots, LAS output and presentation of data in PIPView.

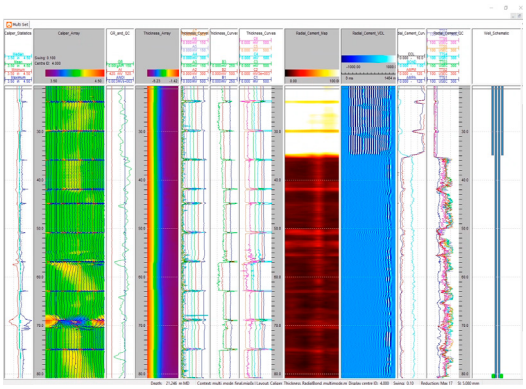


Example Joint statistics table from a PIP report.

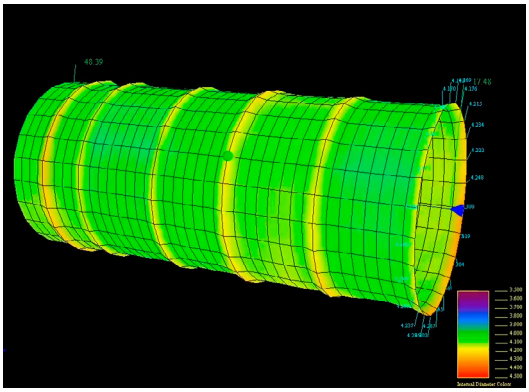
Global analysis allows the user to find the largest wall penetrations, cluster neighbouring penetrations, and show the relative size of the clusters in a summary graph. Overlays can be used to compare passes and for time lapse analysis.

LICENSE-FREE VIEWER

PIPView is provided as a license free version of the 2D and 3D viewers for distribution to the client, allowing interaction with images exactly as the analyst viewed them. Visualising data in this way aids communication and understanding of the results. The analyst can pre-define scenes in PIP and the client can open these again in PIPView.



PIPView shares the same viewer as PIP, allowing the analyst to communicate important data features to the client.



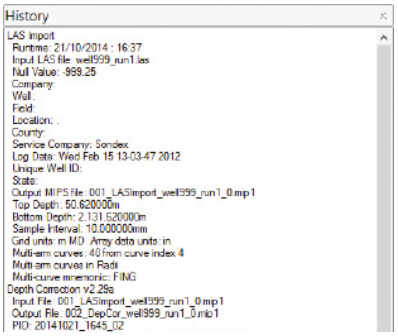
PIPView has the same 3D viewer as PIP. The analyst can define a 3D display which will be directly opened by the client.

AUDIT AND QC

Processing History within PIP captures details of all parameters and processes allowing QC, audit or reconstruction of the analysis.

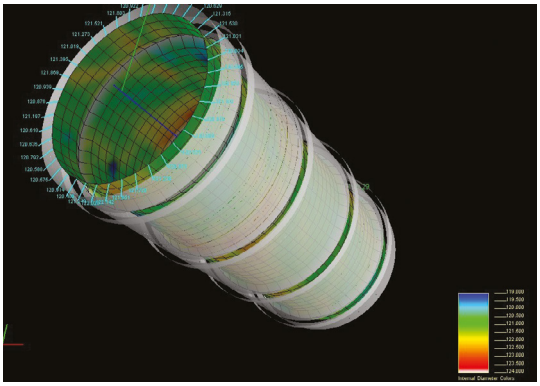
History details can be embedded in LAS files or displayed in the PIP Viewer.

Right: PIP captures the processing history in the header of the data files.
This can be displayed alongside the viewers and output to the header of a LAS data file.



SOFTWARE UPDATES AND SUPPORT

- PIP is regularly updated with improvements and new features
- PIP can analyse data from an array or average thickness sensor with or without accompanying multi-finger caliper data. Measured ID and OD, and thickness data imported and combined for analysis and visualisation
- PIP contains a comprehensive help web, documentation and workflows complemented by training and email based support



Combined Caliper and Thickness data displayed in the 3D Viewer

SUMMARY OF FEATURES

A Windows based package for the import, processing, analysis and display of multi-finger caliper (MFC) and pipe thickness data

Data import	• Fully supports standard data formats including LAS and DLIS
Supported Technologies	• Shift, stretch & squeeze depth correction • Array curve editing • Robust least squares centralization • Data derived re-calibration - 3 methods • Spice / merge of runs and additional logs • Multi-arm statistics • Azimuth driven orientation to upside • Calculate and optionally remove best fit cross section ellipse
	• Channel and depth re-sampling • Curve editing / filtering • Curve maths utilities
	• MTT Phase to Thickness conversion • Artefact editor • Data derived re-calibration • Calculation of OD
	• Automatic pipe end detection & interactive edit • Pipe-by-pipe statistical analysis • Pipe grading • Global penetration and pit cluster analysis
Reporting	• Built-in flexible reporting of text, graphs, tables, bookmarked displays & cross sections, imported images • Colour coded grading in tables • Output in Word, PDF or TIFF format • Archiving system to re-use tables, layouts and reporting templates curve lists & grade tables • Export of body/collar flag curve • Pit depth Rank Analysis
2D and 3D Display	• Intelligent reduction of data for display • Configurable display of curves with various line types, colour, weighting and shading • Tabbed multi-window displays • Dynamic cross section displays • Display of additional imported curves (e.g. GR, CCL) • Processing history display • Synchronization with MIPS3D • Co-rendering of thickness / time-lapse logs • Overlay of automatic or user defined text annotation layers • Well schematic display • Storage and retrieval of Viewer scenes
Data export	• Customisable LAS 2.0 ASCII and DLIS output of data • MIPS projects for delivery with license free MIPSView • Automatic build of MIPSView batch scripts

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