

# Interpret®

## Well Test Analysis

### Efficient and Effective Pressure Transient Analysis

Paradigm® Interpret® has an established reputation for providing accurate and reliable well test interpretations, reinforced by over 25 years of use as an effective petroleum engineering tool. It is an industry standard for the performance of pressure transient analysis from a wide variety of data sources, combined with a user interface that is both easy to use and intuitive. Interpret has evolved from a simple calculation tool for reservoir engineers into an integral part of the design and analysis of pressure transients from traditional production tests, drillstem tests (DST), wireline formation tests (WFT) and testing-while-drilling on exploration, appraisal or production wells.

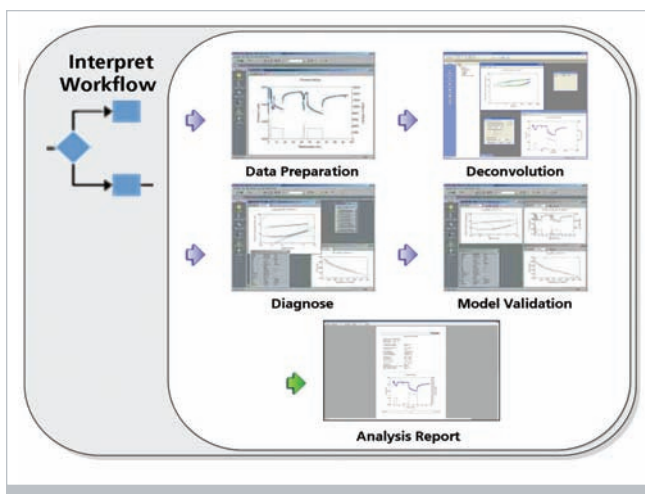
Interpret offers robust interpretation methods backed by extensive use in business and academic environments, and combines powerful modeling capabilities with an intuitive user interface. Running under Microsoft® Windows®, it has the native feel of a Windows application and is fully interoperable with all Microsoft Office applications.

Powerful and intuitive diagnostics enable reservoir engineers to build even the most complex models. The analysis is validated and optimized using a combination of analysis plots. This results in the highest interpretation quality and user confidence.

From conventional Horner analysis to advanced type curve analysis techniques using pressure derivatives, Interpret follows a rigorous methodology, and is easy to learn and use. Its interactive, graphical interface enables users to quickly:



- Select, display and edit pressure and pressure derivative data interactively, for any flow period in the test
- Validate test data using comprehensive gauge comparison and rate validation plots
- Perform deconvolution to generate a more detailed pressure history response for determining reservoir behavior
- Diagnose test behavior by identifying flow regime characteristics
- Automatically generate a model that is tailored to the complexity of the data, then fine-tune the match using fast and robust non-linear regression
- Monitor current analysis results on the screen at any time during analysis
- Validate the analysis by simulating the response of the entire test
- Generate an analysis report and incorporate it into Microsoft Office documents
- Carry out sensitivity analysis on selected model combinations using the Design Case Wizard



▲ The Interpret workflow is ideal for analyzing a variety of different tests, ranging from traditional production and drillstem tests to wireline formation tests

### Improved Efficiency

Interpret delivers significant advantages to the analysis of Wireline Formation Tests (WFTs). Its ability to automatically calculate formation test pressure events ensures a productive and highly efficient workflow for pressure transient interpretation from an increasingly wider variety of sources.

This allows engineers to:

- Easily import data delivered from service companies in DLIS or LAS format with no effective limits on the amount of data (i.e. gauges with up to 4 million data points)
- Display and validate data quickly using an intuitive interface
- Generate and validate multiple models for each test
- Collate and compare the test results with other Quality Control (QC) items to perform additional interpretation, such as gradient analysis

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These product enhancements ensure that Interpret continues to be a robust and versatile tool for petroleum and reservoir engineers. Petrophysicists looking to maximize the available wireline formation and pressure transient test information can also benefit from Interpret.

## Advanced Interpretation Using Deconvolution

For situations where insufficient data impedes accurate analysis, Interpret offers the ability to perform deconvolution on pressure data. This improves the likelihood of diagnosing the correct reservoir behavior by providing additional data to interpret. It also offers flexible controls, including the specification of a regularization factor ( $\lambda$ ) and the ability to automatically adjust the rate history to improve the generated response.

## The Paradigm Advantage

- Interpret brings proven interpretation methods, a comprehensive model catalog, and an intuitive user interface to the petroleum engineer's desktop.
- Pressure and rate data are quickly and easily read, validated and edited as necessary.
- Powerful and intuitive diagnostics allow users to easily select a number of different model behaviors.
- Analysis is validated and optimized using all analysis plots in combination, resulting in the highest analysis quality and confidence.

## Interoperability

- Log ASCII Standard (LAS)

## System specifications

- Microsoft Windows 7, 8.1, Vista, XP (32 and 64-bit)

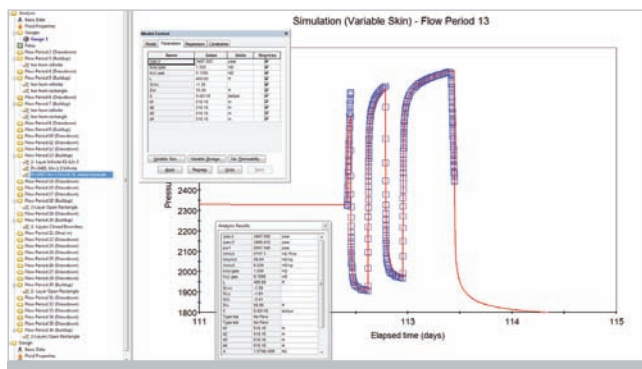
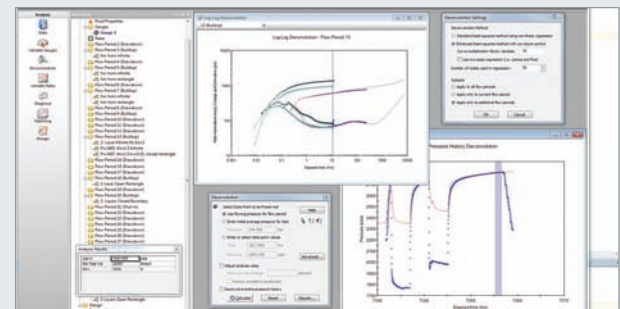
## Deconvolution: A Practical Approach

The use of deconvolution in well test interpretation has long been established, and Interpret was one of the first commercial well test packages to offer this as a diagnostic tool.

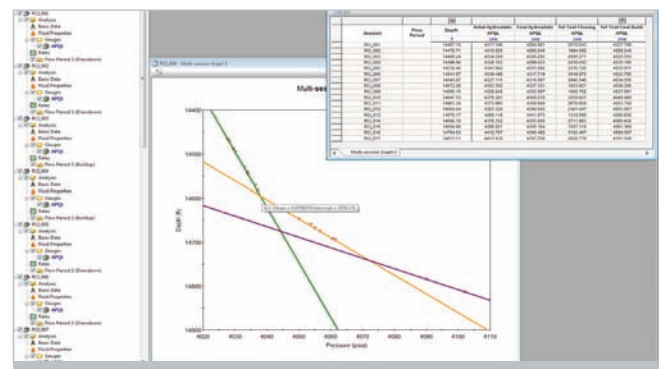
As the amount and quality of test data lessens, it has become increasingly necessary to use deconvolution to assist in the diagnosis, particularly for determining late time behavior such as the existence of boundaries.

Interpret provides two different methods for performing deconvolution, both of which are based on a least-square, non-linear regression approach. These solutions provide a realistic pressure response, and the extended method ensures additional regularization control for generating a smoother response. Both methods offer additional controls for accurately selecting the data to be deconvolved and options for adjusting the rates, if necessary.

The result is a generated response that can be vital for determining the best model to use for the test.



- ▲ Interpret offers an intuitive interface to quickly diagnose and generate models tailored to data complexity



- ▲ The multi-session view summarizes QC data in a grid and allows for simple gradient analysis



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