

PRODUCTION

WellVista[®] Downhole-Data Visualization Software

View and analyze downhole data from multiple sources to make fast, effective decisions



Critical production data:

Integrated, organized, and at your fingertips

Reservoir and well conditions change continually, but the one thing that doesn't change is your need to maintain consistent, optimized production. For that, you must have access to a broad array of accurate, real-time data to help you make informed decisions—especially in extreme temperature and pressure environments, highly deviated wellbores, and unconventional applications such as shale and multistage completions.

To unleash the full potential of your assets, you need a systematic approach that combines proven equipment with innovative field-management solutions. With global expertise and an unparalleled depth of cohesive products and services, Weatherford helps you make imperative field decisions faster, easier, and more effectively. WellVista® software collects and consolidates real-time downhole and surface data and presents the information in a unified visual format for analysis. It delivers seamless integration across data-collection, visualization, data-analysis, and reporting programs.



Unify a wide variety of data sources and process vastly disparate data in real time

Unlike other standalone downhole-monitoring software on the market, WellVista software delivers real-time functionality to process different data types and unify multiple input sources—including the Weatherford production software suite and other popular commercial software.

By compiling information from multiple applications and multiple points of measurement, WellVista software enables you to:

- Correlate downhole temperature, pressure, and flow readings to provide advanced characterization of the well environment
- Access per-second data capture for every sensor
- Interpret downhole changes at the producing wellsite in real time
- Share pertinent information across collaboration centers or management locations
- Visualize production forecasts alongside data collected from permanent downhole gauges (PDHG)
- Customize charts using data from different file formats, including 2D line charts, 2D-surface waterfall plots, and 3D surfaces
- Export screenshots to PowerPoint, Word, or Excel*
- Create movies of data plots over time

Powerful, flexible visualization capabilities

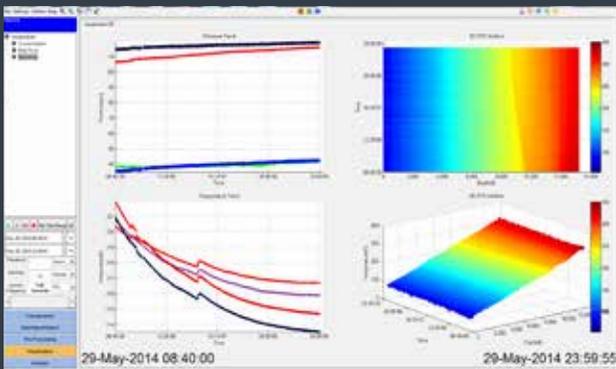
WellVista software presents data in a powerful, easily customizable graphic display. The visualization workflow enables you to create charts based on your specific requirements. You can visualize data on multiple tabs, with as many as four charts on each tab. And you can choose from many plotting options, including 2D trends, dynamic 2D charts, 2D and 3D surface charts, 3D deviation plots, and snapshots.

While viewing dynamic charts, you have the flexibility to make changes on individual graphs. Customize the visualizations by changing line colors, line sizes, plot scales, and other graphic elements. Maximize graphs and tabs to view them in more detail or on different monitors. You can send screenshots of WellVista visualizations to Word, PowerPoint, Excel, or a printer; and you can create data-plot movies.

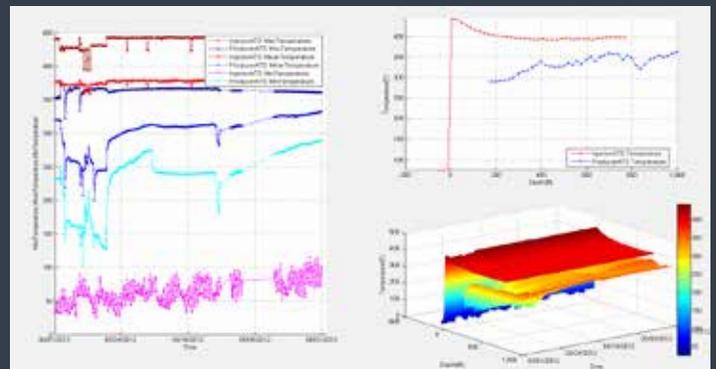
Advanced analysis functionalities

As part of the Weatherford production software suite, WellVista software can integrate advanced analyses from other packages. Using our WellFlo® software, you can perform a complete dynamic nodal analysis using pressure-drop, reservoir-inflow, and well-outflow calculation. You can export WellVista data subsets to Weatherford PanSystem® well-testing analysis software for well testing, pressure-transient analyses, and buildup analyses.

The analysis workflow enables you to create detailed well models for naturally flowing, artificially lifted, conventional, and fractured wells by incorporating applicable calculations and nodal analysis.



For a variety of conventional and unconventional applications, WellVista software visualizations and graphs enable a clearer understanding of downhole conditions.



Weatherford Array Temperature Sensing (ATS) data, flow-rate data, and a dynamic temperature model predict contributions from individual stages, which enables a better understanding of the reservoir to improve fracturing effectiveness.

Proven for a wide range of applications

In addition to data analysis for naturally flowing and artificially lifted wells, WellVista software is exceptionally capable in unconventional applications, such as steam-assisted gravity drainage (SAGD), shale, and other fractured wells. It is trusted and proven in a variety of applications, including the following:

Production and Injection

- Proactive production management with continuous production assessment
- Enhanced decision-making for reservoir and production engineering
- Production allocation
- Well-productivity and trend analyses
- Inflow profiling
- Real-time pressure-transient analyses
- Real-time dynamic nodal analyses

Thermal

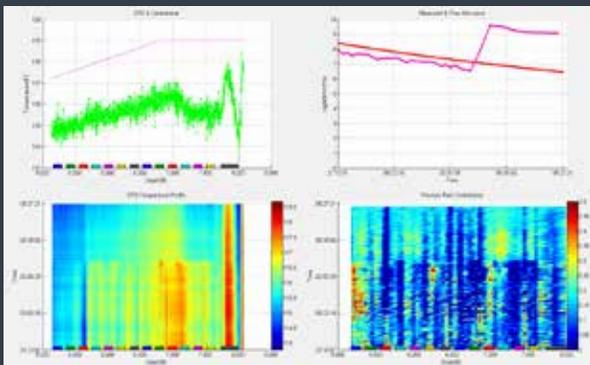
- Dynamic visualization of steam-chamber development
- Subcool analyses

Fracture

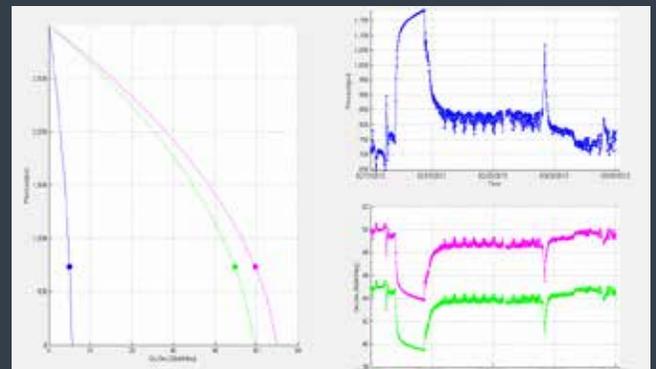
- Real-time fracture-stimulation analysis and process adjustment
- Accurate prediction and avoidance of fracture screenouts
- Production allocation
- Inflow profiling

Reservoir management

- High-resolution surveillance and reservoir monitoring
- Functionalities to help validate fracture-stimulation and reservoir models



Detailed temperature visualizations in a fractured-shale gas well provide direct insight about how changing the choke size affects temperature and production along different stages of the horizontal.



Dynamic inflow performance relationship (IPR) visualizations provide detailed imagery of critical production information.

Powerful tools to monitor thermal applications

Weatherford nThermal™ temperature-monitoring solutions are the culmination of decades of experience in all production environments. For many years, high-density LxATS™ fiber-optic, Bragg-grating sensors have enabled operators to monitor thermal-recovery applications with exceptional reliability in challenging ultrahigh-temperature environments. Our unique monolithic CaneATS™ glass sensors, also based on Bragg-grating technology, deliver temperature profiles across the sandface with outstanding performance and reliability in challenging intelligent wells. Finally, Raman-based DTS sensing provides more general thermal-profile monitoring, across the entire well, in a variety of environments. Using combinations of array temperature sensors (ATS) and distributed temperature sensors (DTS), these nThermal solutions give you production

or injection profiles across the reservoir section, which helps you identify flow anomalies such as tubing or casing leaks, thief zones, and flow obstructions.

Weatherford thermal-monitoring solutions deliver real-time temperature-profile visualizations for single or multiple wells. This creates new possibilities in advanced imaging, reservoir modeling, and process management. For example, in SAGD applications, WellVista software plots the injector and producer wells as a pair, which provides simultaneous graphics to give engineers better insight into how varying steam-injection rates dynamically affect the producing well. In addition, using side-by-side visualizations of the temperature data from both wells, you can locate steam breakthroughs more accurately.

Strong SAGD performance visualizations. Outstanding production control.

Cold Lake Oil Sands, Canada

The ability to identify and control local subcools is the most important factor to enhance production in SAGD wells. WellVista software provided valuable graphic insights for targeting steam delivery to help the operator manage dynamic cooling along the horizontal.

WellVista software improved control of:

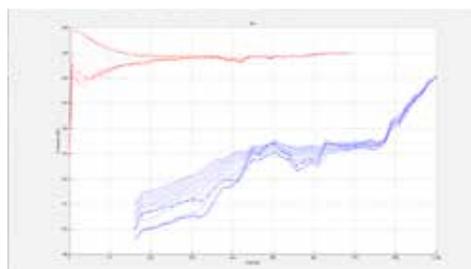
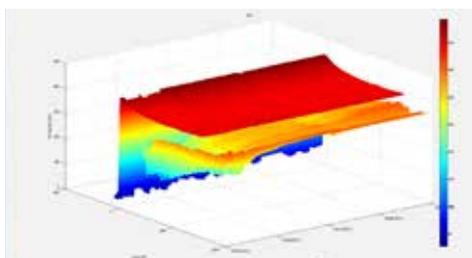
- Surface pressures
- Pump variables
- Steam-injection rates
- Zonal subcools
- Subsurface pressure profiles
- Subsurface temperature profiles

WellVista visualizations enabled the operator to:

- Identify zonal subcools
- Maximize heat transfer to the reservoir
- Target steam injection to improve well production

The assimilated data revealed that lifting rate had a direct impact on temperature changes (ΔT) along the horizontal.

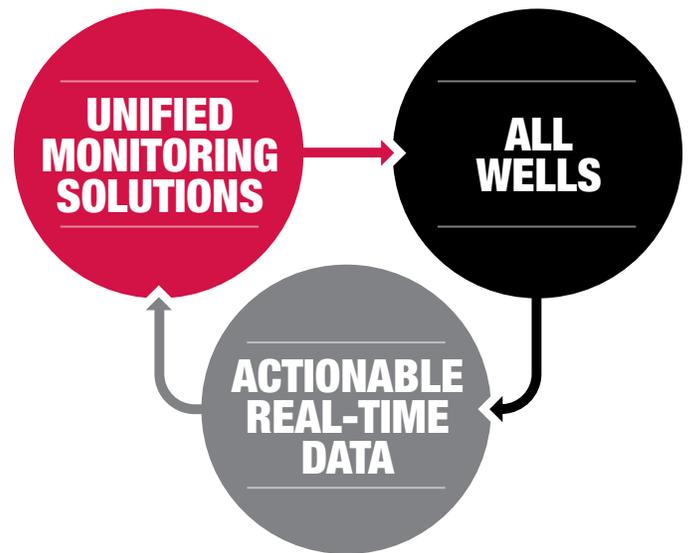
Using WellVista real-time visualizations, the operator identified local subcools at the 650-m section ranging from 27 to 18°F (15 to 10°C) ΔT , as well as a subcool of 72°F (40°C) ΔT at 1,200 m.



Part of OmniWell® reservoir-monitoring solutions

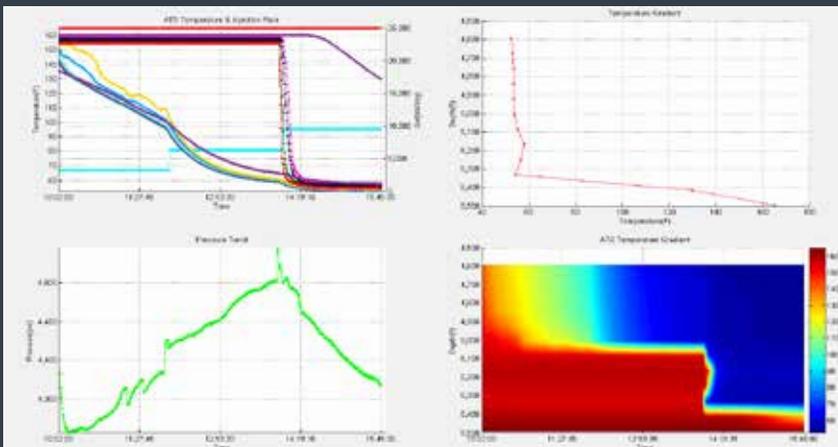
WellVista software works exceptionally well in conjunction with OmniWell reservoir-monitoring tools. This integrated family of pressure, thermal, flow, acoustic, and seismic products gives you an accurate view into your well by providing data acquisition, information management, and analysis for any type of well. The industry leader for production and reservoir monitoring, Weatherford has installed more than 15,000 OmniWell sensors around the world. OmniWell solutions:

- Provide permanent, real-time monitoring solutions for the lifetime of a well
- Deliver real-time downhole data for all well conditions, including extreme environments
- Offer easy installation with a single-cable approach to downhole data
- Relay integrated flow, pressure, temperature, and seismic reservoir monitoring
- Provide flexible, fit-for-purpose solutions for any operation
- Help identify production problems before they happen to save on costly workovers



OmniWell solutions deliver real-time downhole data, giving you actionable data to enable more efficient decisions to optimize your wells.

Hardware integration made easy



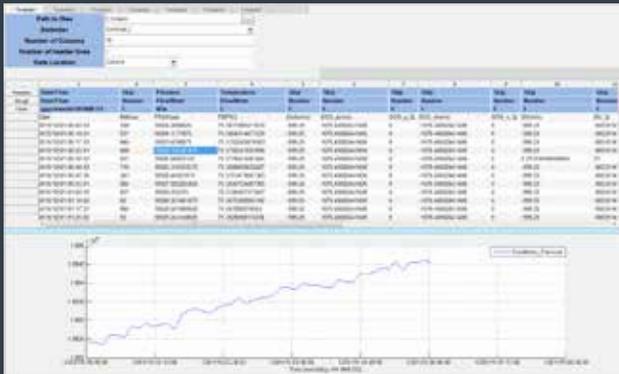
Real-time water-injection monitoring with ATS, P/T readings, and flow data provides you with a detailed representation of downhole conditions.

In addition to integrating data from different programs and software packages, WellVista software interfaces all of your hardware (from downhole sensors to surface equipment) provided by Weatherford or other vendors. It processes downhole data from both electronic and optical devices, including P/T sensors, ATS, DTS, and single-phase or multiphase flowmeters. Interfacing with Weatherford OmniWell production- and reservoir-monitoring instrumentation and sensing solutions, WellVista software compiles and displays the data in easy-to-understand displays. At the surface, the software incorporates data from pumps flowmeter, P/T gauges, and well tests.

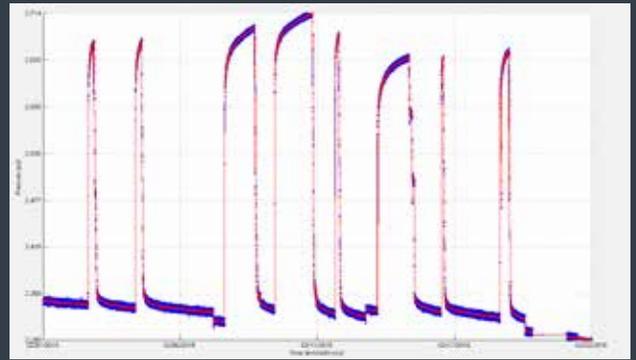
The Weatherford production software suite. Comprehensive tools to optimize your operations.

Our production software solution empowers enterprise oil and gas organizations with essential, real-time operational data, robust life-of-well data, and even life-of-field information management to make better decisions. It provides enterprise software and industry solutions that improve operational efficiency, increase market responsiveness, and ease regulatory compliance.

WellVista software, our newest production software offering, has a similar interface and familiar workflow to other products in our software suite, such as WellFlo nodal-analysis software and PanSystem software for well testing. WellVista can include data from SCADA services, such as CygNet® and LOWIS® software solutions, for visualization and analysis. WellVista software even works with other popular third-party nodal-analysis software packages.



WellVista software can export compiled data to text, CSV, and Excel files for use with other software.

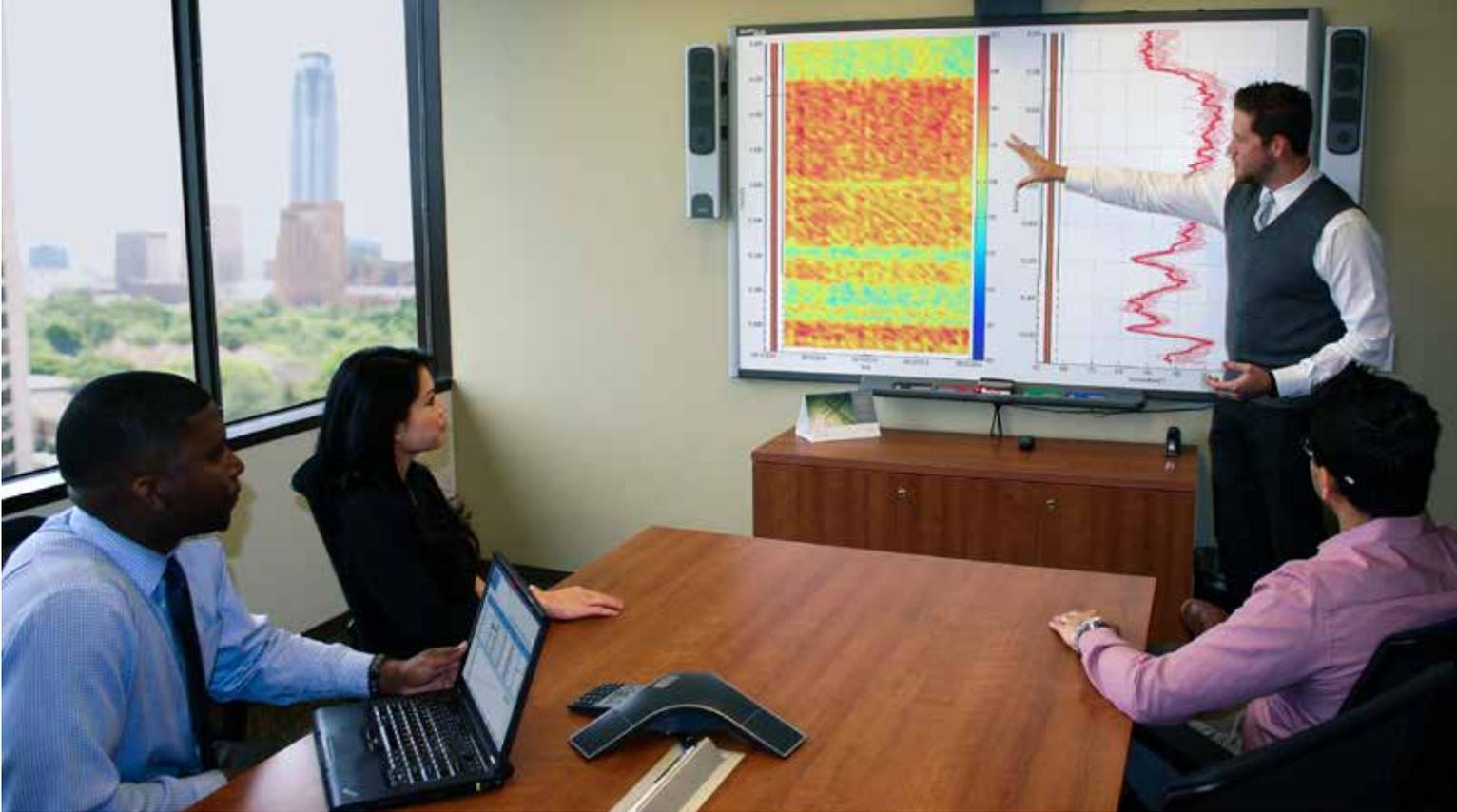


WellVista software has powerful preprocessing capabilities to reduce and smooth raw data without losing information.

Data import and export in a few simple clicks

WellVista software makes it easy to import data. Using the Real-Time/Historical import menu, you can read data from Modbus® protocol, OPC protocol, SQL databases, and the Weatherford CygNet software SCADA system. The standalone import menu enables easy data compilation from LAS, XML created from Weatherford nForm™ downhole-sensing data acquisition systems, delimited text, CSV, and Excel files.

WellVista software includes a preprocessing workflow that conditions the data compiled from the data-import workflow to provide useful trends for analysis. Raw data can often have outliers or noise that can make it difficult to analyze. The preprocessing workflow enables you to easily delete outliers, smooth trends, resample data, shift data, and perform other essential mathematical operations. The result is clean data that retains all fundamental information.



Your trusted source for training and support

When your team needs assistance to monitor and analyze wells, our experts are available to give you the necessary know-how and support. With Weatherford at your service, you can receive regular reports that alert you about changes

to well and reservoir performance. Our consulting team can also provide face-to-face training for key individuals to bolster WellVista software proficiencies or launch an internal well-analysis team.

Customized for your unique production goals and operating conditions

As part of the OmniWell production and reservoir-monitoring solution, WellVista data-visualization software gives you powerful options to analyze and adjust your wells. Because every well is unique, we provide you with a customizable

solution that matches the needs of your well, your reservoir, or your entire asset base. A proven, powerful tool for operators around the globe, WellVista software is continually evolving to better meet your needs.

Get more life from your wells.™

The advanced visualization and analysis capabilities of WellVista software represent only a fraction of our production solutions. With global expertise and an unparalleled depth of cohesive products and services—including an unmatched level of experience, breadth, and depth in all forms of artificial lift—we can optimize production in any well, under all conditions. Weatherford customer-service centers are conveniently located in every major oil-producing area of the world to address your needs efficiently wherever you operate.





Discover how data visualization and analysis with Weatherford WellVista software can help you unleash the full potential of your assets and make imperative field decisions faster, easier, and more effectively. Speak to your Weatherford representative or **visit weatherford.com**



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