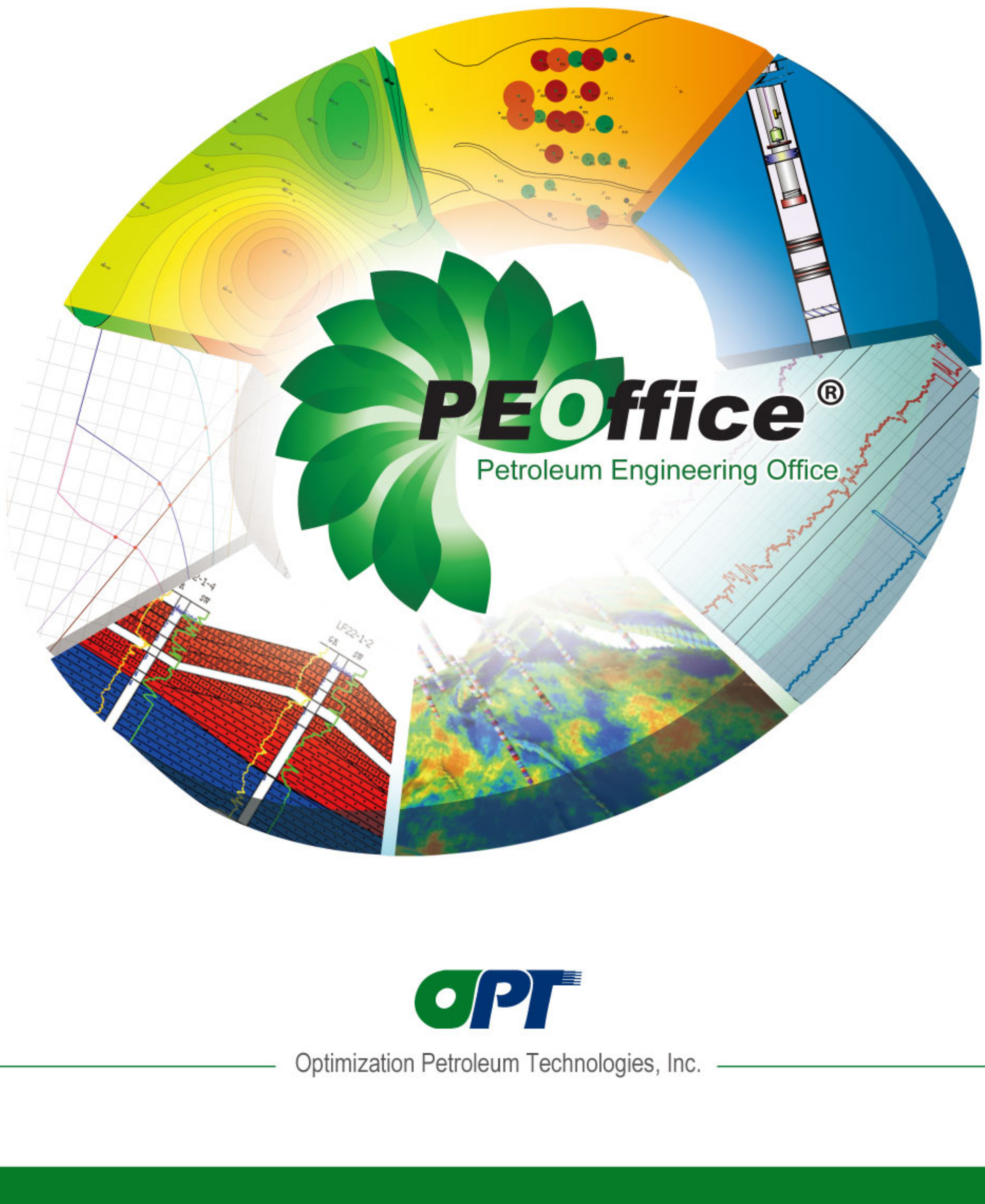
Simplifying Reservoir Management and Oil & Gas Production



Optimization Petroleum Technologies, Inc.

About PEOffice

PEOffice is a PC/network-based software platform. It integrates oil and gas reservoir data management and manipulation, reservoir description and characterization, production performance analysis and graphics, production forecast and depletion strategy formulation. The software covers all the major components of petroleum engineering such as oil and gas data management, production performance analysis, reservoir and wellbore visualization and analysis, rock and fluid properties characterization, water injection analysis, surface fluid gathering and transportation efficiency analysis, economical evaluation and finally, results and findings management. PEOffice acts as a systematic, comprehensive and analytical tool for the evaluation of the oil and gas production system through the integration of reservoir engineering, production engineering, facility engineering and analysis results and findings management.

PEOffice can access a company's reservoir, production and operation data stored in any one of the database systems including Oracle, Sybase, Access and Excel spreadsheets without modifying the company's original database.

The main feature of PEOffice is its advanced interface design, its powerful graphic illustration capabilities and its user friendly operations. Once PEOffice accesses a company's database, the information is streamlined either as static data with respect to the reservoir, wellbore and surface piping network, or as dynamic data with respect to instant production performance and fluid flow in surface pipeline network; the data can then be visualized and tabulated for further analysis. This feature would allow geologists, reservoir engineers and production engineers to analyze fluid flow behavior in reservoir, wellbore string and surface piping network simultaneously and in real time.

With its user friendly functions and features, PEOffice allows geoscientists, engineers, technologists and even field operators to know any well's current reserve and production data in graphical or tabulated format with no difficulties. Analyzed results, findings and recommended action plans can also be easily accessed by managers, thereby improving the operation's efficiency and effectiveness, and ultimately the economics of a company's operating assets.

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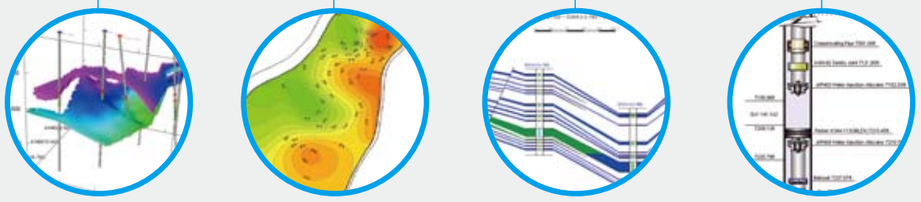

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3-D Model for Geological Analysis and Data Management

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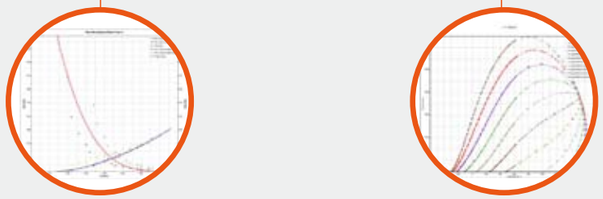

RockProperty
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Fluid Properties Analysis

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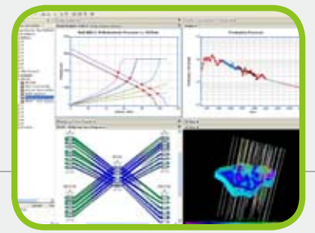
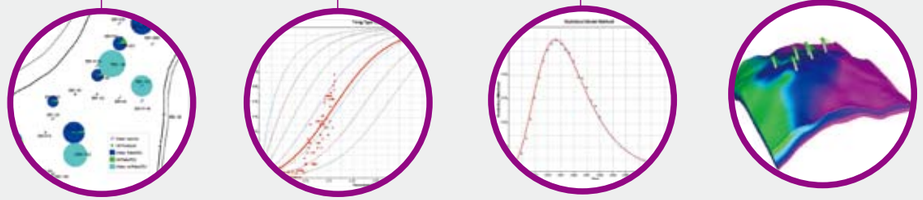


PEManager
PEOffice Module Results Manager

Reservoir Production Analysis



ProdAna
Production Statistics and Analysis

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Production Forecast for Oil Reservoir

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Production Forecast for Gas Reservoir

SimON
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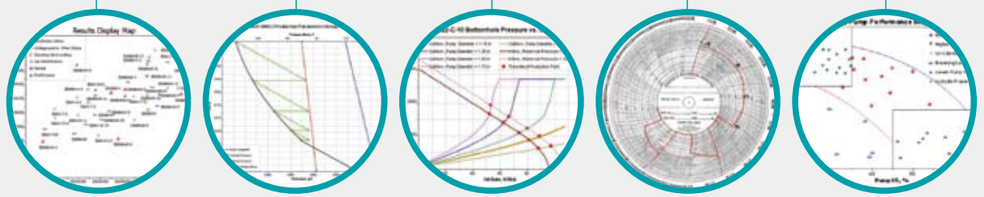

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ProdDesign for Gas
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ESP Well Diagnosis

FieldAssist
Reservoir Production Performance Evaluation

Water Injection Analysis

WIDesign
Water Injection Analysis and Optimization

Gathering and Transportation System Analysis

PipeNet
Pipeline Network Analysis and Optimization

1 Reservoir and Wellbore Visualization

PEOffice provides reservoir and wellbore visualization, which will facilitate petroleum engineers to analyze oil and gas production in an accurate, visual and efficient manner.

ReModel WellMap WellString WellInfo

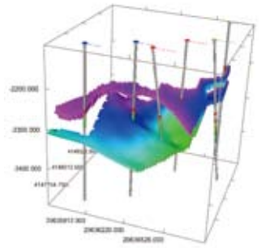
ReModel—3-D Model for Geological Analysis and Data Management

ReModel is powerful 3-D geological analysis model and data management software. It is used to display the reservoir in 3-D by importing geological data from pre-built geological models and/or reservoir simulation results. ReModel offers petroleum engineers to analyze oil and gas production in a visual environment. By the aid of ReModel, petroleum engineers allow the application of a geological model in production analysis extends to the utmost level.

Main Functions

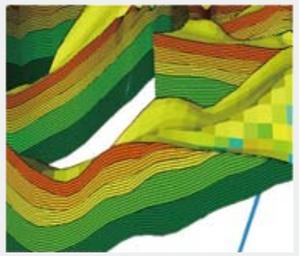
Importing Data from Various Sources

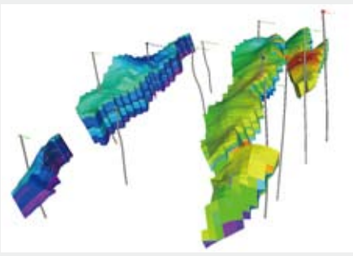
- Support ASCII code input from popular geological models and reservoir simulators.
- Support corner-point, block-center and NetCDF data format.

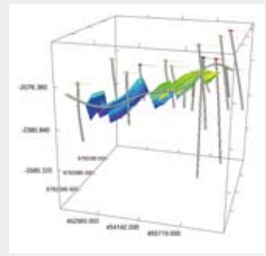


High-precision 3-D Grid Display

- High-precision display of geological information - spatial distribution of sand body, formation attributes, faces belt, and flow unit, etc.
- Capabilities in display format and orientation - rotate, zoom, shift 3-D model with dot view, wireframe view or combined view, etc.
- Display by layer, by block fault, by attribute and/or by level.
- Animated display of reservoir cross-section along I, J, K - direction or in the order of time series.







Flexible Model Editing

- Versatile and easy to use editing capabilities - single well or multi-well reservoir cross-sections, etc. which allow engineers quickly visualize and better understand inter-well geological relationship and reservoir attributes distribution.
- Any zone of interest can be sliced in the 3-D reservoir geological model and its associated reserves can also be determined. Results can be exported to a reservoir simulator for further analysis.

Advanced 2-D Map Display

- 2-D map display by different layers or by various attributes.
- Output could be in various types of image formats (BMP, EMF, JPG and Gif, etc.).

Statistical Analysis and Reserve Estimation Capabilities

- Generate various types of statistics reports that can be used by engineers to better understand subsurface properties distribution.
- Reserves estimation for the entire pool or regions of the pool.

Filtering

- Filtering can make it easy to show attribute variation at different intervals and spatial distribution of a sand body.

Single Well Information Display

- Information display on single well or multi-well cross-section.
- Instant display of well related information - well location, well trajectory, well logs and well subzone, etc.

Scale Modification

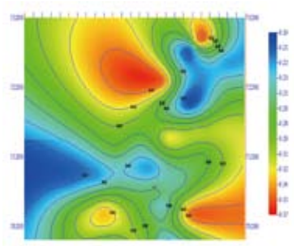
- Scale used by the geological model can be easily modified and resulting model can be exported to reservoir simulators.

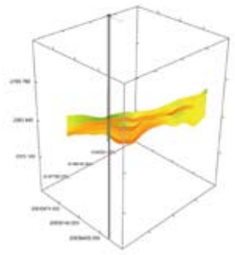
Contour Mapping

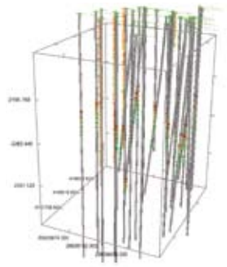
- Multiple contour mapping functions, including 3-D model surface tracking and mapping, 2-D and 3-D reservoir model based contour, well scatter based 2-D contour and joint attributes contour with color and iso-line representing different attribute.

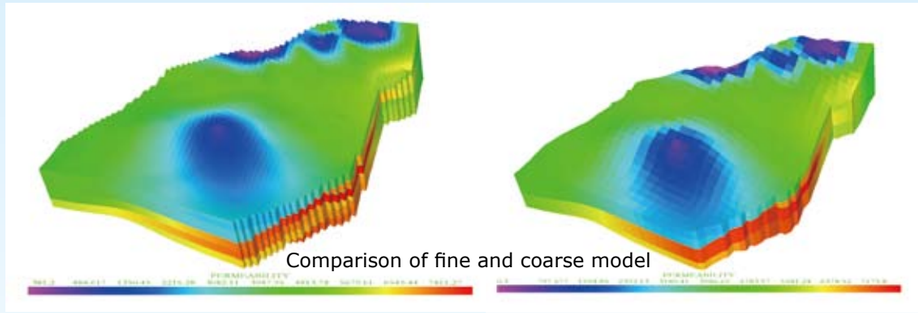
2-D Reservoir Cross-Section

- A simple 2-D cross-section can be easily generated from a 3-D cross-section. The 2-D cross-section can include single well and multi wells.

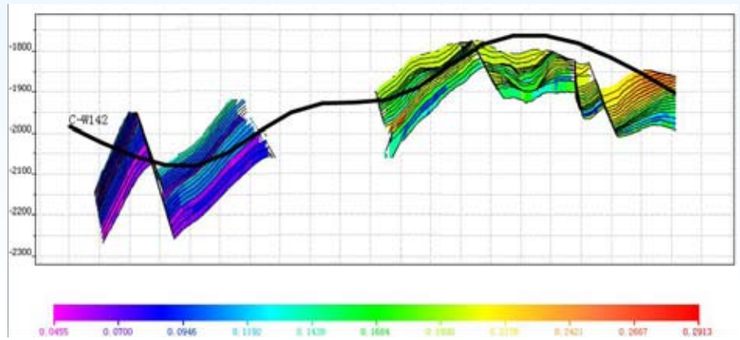








Comparison of fine and coarse model



Main Features

- 3-D model display by multi-modes.
  Display 3D model by dot, wireframe, solid or any combinations of three modes.
- Convenient 3-D model operations.
  - Provide flexible, quick and convenient operations such as rotation, zoom or shift as well as cross-section.
  - Reservoir cross-section could be done for single well or multi-well; and image can also be saved.
- Easy and quick data access and transformation. It supports seamless database connection, data uploading and downloading, management of model and well dataset.
- Show geological characteristics, which can combine with reservoir, well static data and dynamic production data to further understand current production behavior and identify potential production issues.
- Combine industry standards with field application in graph and mark display.
- Intelligent memory during all operation process.

WellMap — Well Location Map Editor

WellMap is the core module for locating well on a map in the PEOffice software system. It allows users to quickly creating a well location map as well as editing the map. Images can be saved in any popular image file format. WellMap also offers a simple way to query dynamic and static data, and demonstrate their distribution on a well location map.

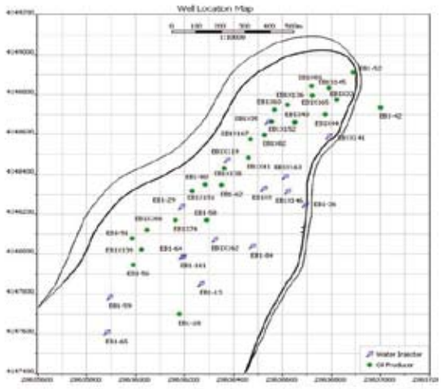
Main Functions

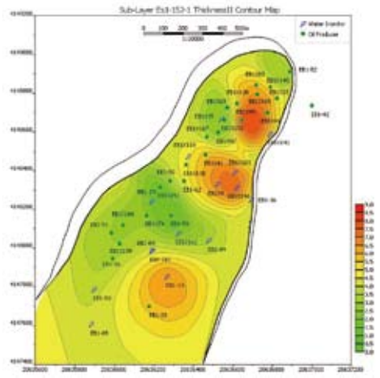
Well Location Map

- Fast creation of bitmap and digital well location map; display of vertical well, deviated well and multi-target well.
- Well type symbols available.
- Flexible template settings. Easy to set association of display name with alias and symbol.
- Comprehensive well information display, including well location, well trajectory and multi-targets.
- Flexible batch processing of well type.
- Capability of digitalizing well location bitmap.

Contour Map

- Provide multiple grid interpolation methods like Krigging.
- Steady and convergent fault interpolation calculation.
- Auto-create or manually edit contour map.
- Display contour map in grid map view.
- Support superposition of well location map and contour map.
- Flexible iso-line attributes settings.
- Support output iso-line, fault and boundary as data file.



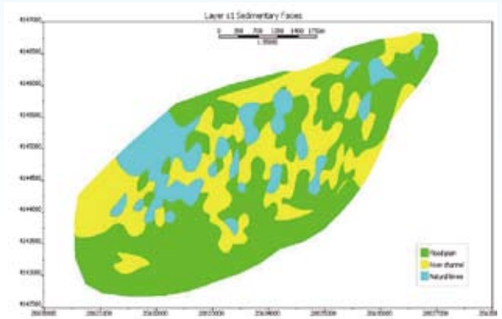


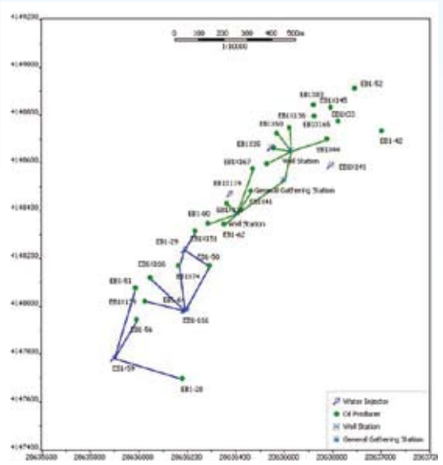
Sedimentary Facies Map

- Auto-create sedimentary facies map using well location and well logging interpretation data.
- Allow users to flexibly configure facies display name, type alias and display mode.
- Support stack display of well location and sedimentary facies.
- Support manual edit.

Surface Pipeline Network Map

- Easy to create surface pipeline network map based on well location map.



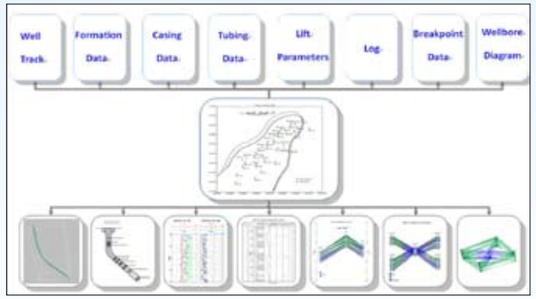


Main Features

- Capability of creating complex well location map.
- Rich display of graphic information.
- Flexible and useful template settings.
- Provide multiple interpolation algorithms to enhance contour mapping effects.
- Provide digitization of paper map.
- Effective conversion between data file and map.
- DirectX technology ensures the speed and stability in graphics processing.

WellInfo — Well Static Data Visualization

WellInfo provides integrated well static data management including well trajectory and formation properties. It enables users to view static data of interest by data table or to create well graphs including 3D well trajectory, wellbore diagram, composite stratigraphic column and well group fence diagram. It is easy to query data and graph through well location map based operation in WellInfo. This makes it simple to comprehensively analyze static data in oil and gas production analysis and design.



Main Functions

Single Well Information

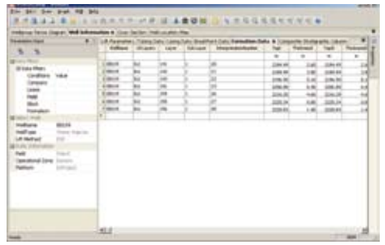
▸ Easy and high efficient static data management, edit and query of oil/gas well based on well location map

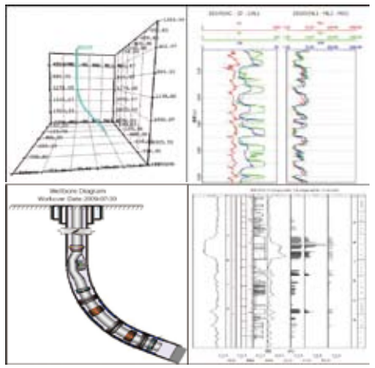
- Wellbore trajectory data
- Tubing data
- Combined casing/tubing data
- Formation data
- Production casing data
- Lift equipment data
- Well logging curves
- Fault and breakpoint data

▸ Fast Query

- 3-D well trajectory diagram.

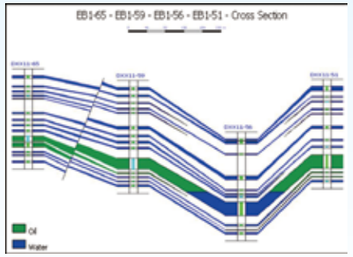
  Display wellbore component information at appropriate places according to their real downhole positions, thus assisting field engineers to analyze downhole situations comprehensively
- Well logging curve
- Downhole string diagram
- Single well composite stratigraphic column

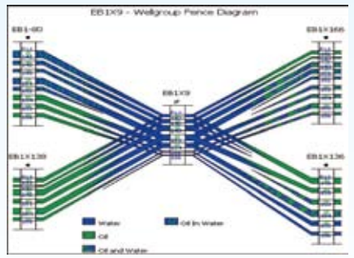




Cross Section Diagram

- Fence diagram can be created through well location map and well names.
- Allow to add fault and oil-water contact. Automatically display fault and breakpoint.
- Allow to adjust inter-well distance and pinch out position.
- Provide display of directional well track projection.
- Allow to select formation filll pattern and display of well logging curve.
- Multiple graphs can be mapped for comparison.





Well Group Fence Diagram

- Fence digram by well location map, well name and well group.
- Optimal layout display.
- Faults and well logging curve editing.
- Multiple graphs can be mapped for comparison analysis.

3-D Fence Diagram

- Auto-create 3-D fence diagram. View graphs by rotation which could be used for analysis of inter-well connection.

Main Features

- Query data and auto-create map based on well location map.
- Create and display wellbore diagram.
- Display component information on 3-D well trajectory diagram.
- Manually add fault and oil-water contact and adjust pinch out in fence diagram.
- Display track projection of directional well in fence diagram.
- Convenient and fast database operations.

WellString — Wellbore Design and Loading Stress Analysis

WellString is a wellbore design and tubing/casing loading stress analysis module within PEOffice. It allows engineers to create a wellbore schematic diagram in seconds, which can be edited anytime and saved easily. It also provides casing string and rod stress verification and deformation analysis.

Main Functions

Wellbore Diagram

Three ways to create a wellbore diagram

- Automatic creation by database data
- Automatic creation by custom settings
- Manual creation by icons dragging from toolbar

Convenient Schematic Wellbore Diagram Display and its Management

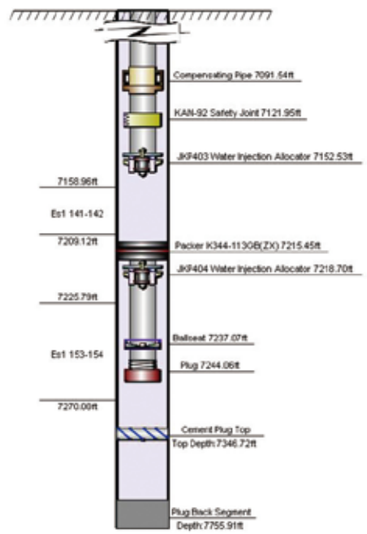
- Built-in template settings for vertical, deviated, horizontal and multi-lateral well
- Display tubing, casing and rod by segments
- Black and white, color and 3-D effects
- Support text, table and graph display

Component Editing Function

- Offer a variety of built-in standard component icons
- Easy to edit wellbore components

Loading Stress Analysis

- Safety strength calculation for casing, tubing and rod
- Quick check of downhole tool performance
- Loading and deformation calculation under various operation conditions



Axial Force and Deformation

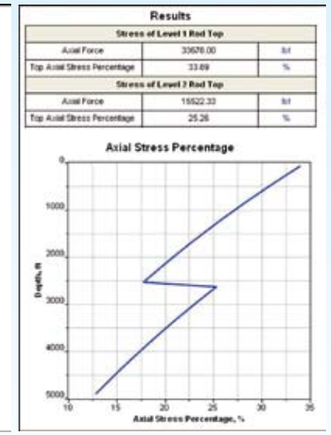
Type	Axial Force	Deformation
	lbf	ft
Deadweight	55901.11	3.9782099
Temperature Effect	29939.78	2.1136233
Ballooning Effect	-114.79	-6.8241470E-006
Piston Effect	3433.85	-0.2443700
Spiral Effect		-0.0000598

Stress and Safety Factor

Min Limit Tensile Stress	551.60	psi
Axial Stress	340.05	psi
Safety Factor	1.62	

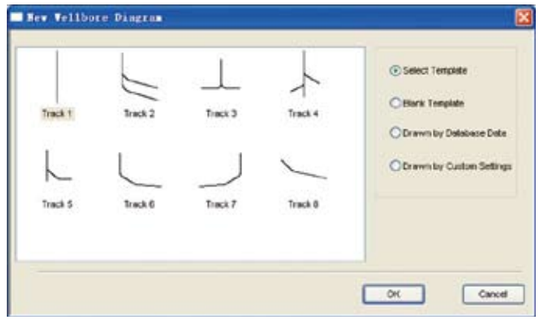
Tubing Checking Result

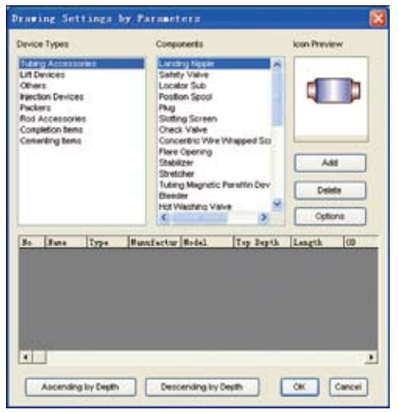
Verification	Safe



Main Features

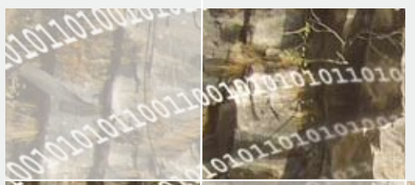
- Diagram can be created from data in database.
- Database for well trajectory and component templates.
- Easy editing for wellbore diagram.
- Easy to use through well location map based operations.
- Powerful graphic capabilities.





2 Rock Fluid Characterization

Reservoir rock and fluid characterization is important and essential for modeling fluid flow behavior in formation, wellbore string and surface piping network. The RockProperty and FluidCal modules are designed for modeling rock properties and fluid properties and its phase behavior, which can then be used for further analysis or modeling.



RockProperty FluidCal

RockProperty — Rock Properties Analysis

During the early stage of development for an oil and gas asset, rock characterization is very critical in the understanding of the reservoir, formulating any future development plan and the estimating reserve in place. Usually rock properties are derived from core analysis, logging interpretation and well test analysis. RockProperty is a user friendly software tool to be used to compute all rock's physical properties and parameters. RockProperty allows development engineers to quickly obtain all physical properties and parameters of any zone of interest, which include rock compressibility, rock mechanics parameters, heterogeneity and rock surface characteristics such as relative permeability and capillary pressure, etc. RockProperty is an extremely user-friendly tool with numerous built-in calculation techniques with which engineers can make comprehensive rock evaluation more easily, quickly and accurately.

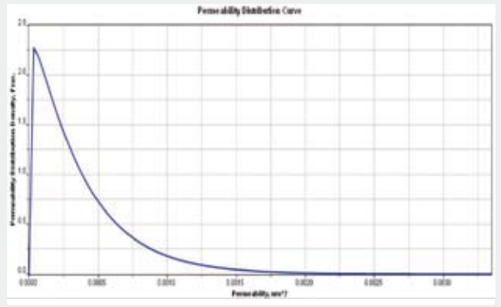
Main Functions

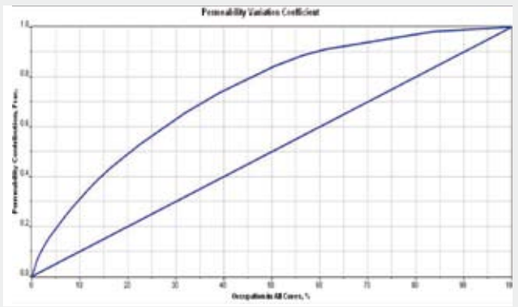
Rock Compressibility Estimation

Provide empirical correlations to estimate rock compressibility as well as oil, water and formation total compressibility.

Reservoir Heterogeneity Analysis

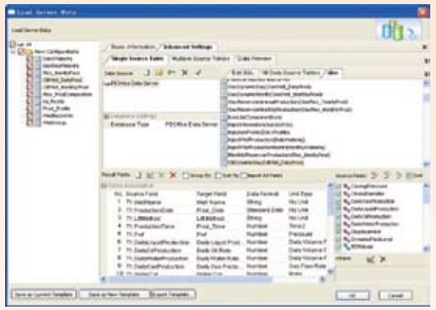
Use statistical and Lorenz Factor Method to analyze heterogeneity of any single layer or a group of layers.





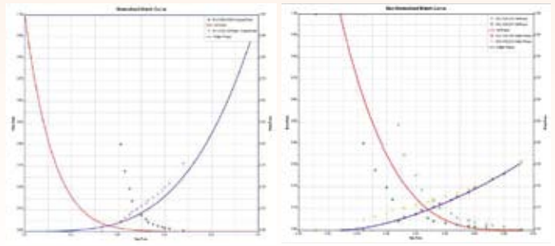
Evaluation of Parameters of Rock Mechanics

Employ test data to compute parameters of rock mechanics, including Poisson's Ratio, elasticity modulus, tensile strength, shear strength, compressive strength, lateral and longitudinal strains.



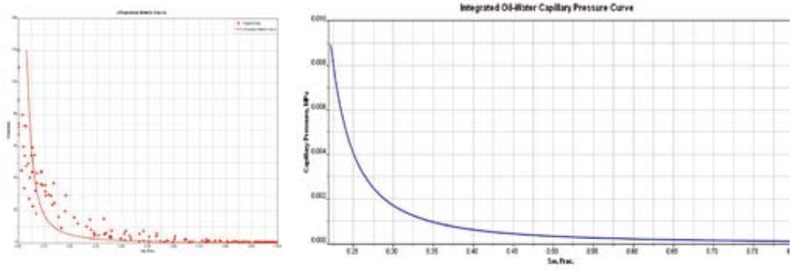
Relative Permeability Curve

- **Based on Experimental method**
  A representative relative permeability curve can be derived through manual or automatic matching of normalized data.
- **Based on Empirical Correlations**
  Empirical correlations such as Corey, Pirson, Jones and Cheng, can be used to generate relative permeability curves.



Capillary Pressure Curve

Automatic or manual regression on correlations between water saturation - capillary pressure and water saturation - average capillary pressure using J-function.



Main Features

- Simplify data input procedures by accessing database directly.
- Provide complete post-processing. Results can be in graph and/or table format as well as it can be exported to Word and Excel.
- User-friendly interface provides a fast investigation of reservoir characteristics.
- Data and results can be exchanged with other application software or be directly used for further reservoir engineering evaluation or exported to a reservoir simulator.

FluidCal — Fluid Properties Analysis

During any reservoir development stage, both production forecast and well productivity evaluation rely heavily on obtaining accurate phase behavior and properties of reservoir fluids. In a traditional lab test, it is very difficult to acquire fluid phase behavior and properties at a cost effective manner at each node of the fluid flow. FluidCal takes the advantage of traditional lab tests and it can thus provide engineers an easy, quick, accurate and reliable tool for analyzing phase behavior and properties of reservoir fluids.

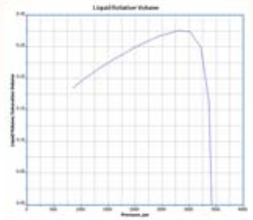
FluidCal can be used as a stand alone module to model reservoir fluid phase behavior and properties and its results can then be exported to a black oil or a compositional model or other modules.

Main Functions

Compositional Model

Results such as detailed phase behavior and PVT parameters from FluidCal can be input into a compositional model which is based on the equation of state. FluidCal can be used for all types of reservoir fluids as well as the following functions in a compositional model:

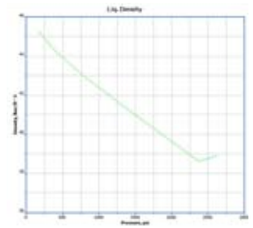
- Split and regroup fluid components.
- Flash calculation under given pressure and temperature.
- Critical point calculation.
- Bubble point and dew point calculation under given temperature.
- Phase diagram modeling.
- Lab test simulation, including CCE, CVD, different liberation expansion, separator test, multi-separator and swell-test.
- Regression matching: Tune components model based on lab test data.
- Import and export model data file.

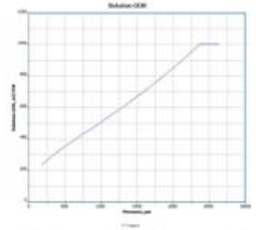


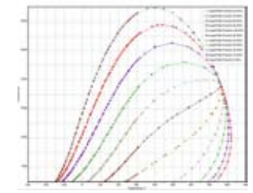
Black Oil Model

Results such as detailed phase behavior and PVT parameters from FluidCal can be input into a Black Oil Model. FluidCal can be used for all types of reservoir fluids as well as the following functions in a black oil model:

- Basic fluid properties estimation including gas-oil ratio, density, viscosity, volume factor, Z factor, etc.
- Provide multiple correlations capability.
- Match and optimize to obtain the best PVT correlation.







Main Features

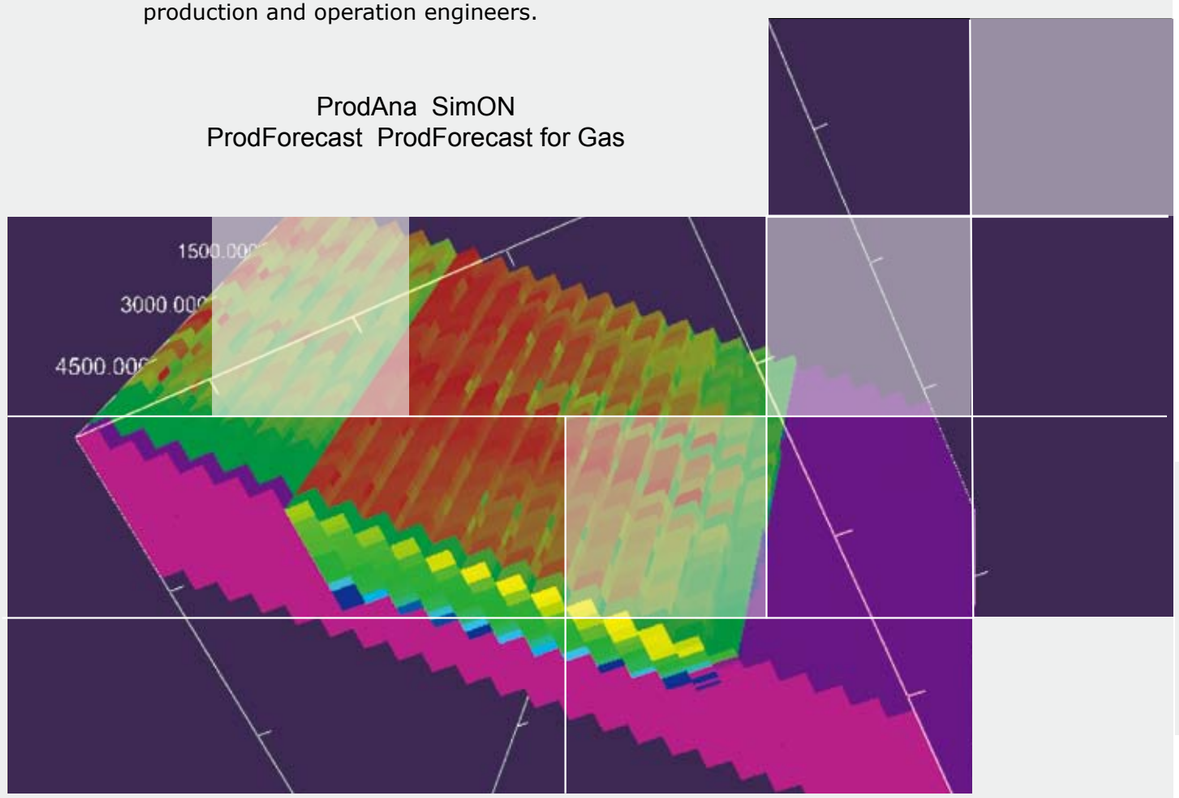
- Easy to use with very few input data being required for calculations.
- Accurate and reliable estimation on phase behavior and properties of fluids.
- Versatile applicability. It can be applied to many fluid types under various.conditions such as bottom hole, wellbore and surface.
- Calculations can be performed in two-phase or multi-phase behavior.
- Advanced phase equilibrium algorithm is applied to effectively reduce CPU time.
- Powerful matching function. The matching between lab and field test data is employed to find the best calculation method.
- Versatile output presentation. Results can be presented either in graph or table format or both. Moreover, output results can be exported to Word and Excel.

3

Reservoir Production Analysis

Reservoir Production Analysis tool can be easily employed by production or operation engineers. It would help them to inquire, monitor, count, compare and analyze all production data. The tool can also be used to generate a production forecast based on material balance method, decline curve analysis and water-drive type-curve method. With a reservoir production model built, users can conduct production history matching as well as generate future production predictions. Based on an internal database, with its easy operating mode and well-developed algorithm, Reservoir Production Analysis is a very powerful analytical tool for production and operation engineers.

ProdAna SimON
ProdForecast ProdForecast for Gas



ProdAna — Production Statistics and Analysis

Production and operation engineers are facing an overwhelming amount of field data and information on a daily basis. Managing all the incoming data and information effectively, analyzing the production and facility system performance, and finally summarizing and presenting the analyzed results and findings, is always a challenge that faces production and operation engineers.

ProdAna is a perfect tool for production and operation engineers to manage data effectively. The tool can help production and operation engineers to prepare, organize, compare, tabulated and graph data in an easily understandable format, thereby releasing engineers from data management and allowing them to focus more on important tasks such as analyzing data and formulating remedial action plans.

ProdAna is excellent software for daily oil and gas production management and analysis. It provides powerful functions for statistical analysis and performance analysis for oil and gas production. ProdAna integrates statistical analysis and production analysis, which can help engineers to quickly capture the current production performance and behaviors.

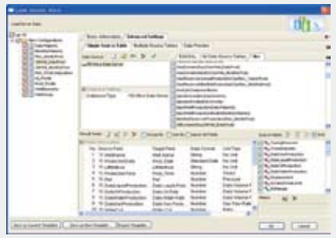
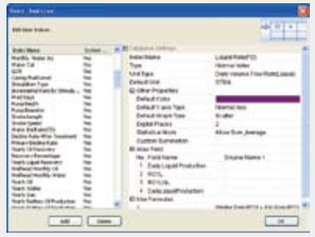
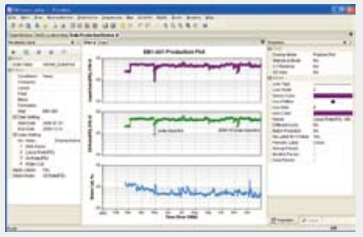
Main Functions

Rapid Production Data Processing

- Quick field data access and preparation of data for analysis
- Statistical analysis and theoretical production evaluation

User Defined Production Data Query

- User can define query filters and report format.
- Report can be generated on daily, weekly and monthly basis.
- Production and injection data can be tabulated and plotted in user defined format.
- Production and injection plots can be generated on an individual well or a group of wells, on a pool or on a field basis.
- Production plots can be annotated.
- Comparison analysis for production or injection with a pre-selected sample can be easily done and a correlation can then be generated.

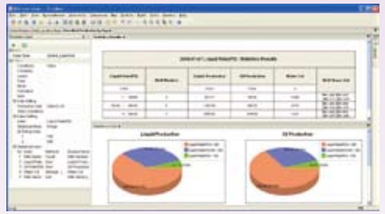




Production Statistical Analysis

- Production statistical analysis including oil and water production and pressure (casing liquid fluid level and bottom hole).
- Integrated statistical analysis of different production indices.
- Production index statistical analysis can be based on a pre-set time period.

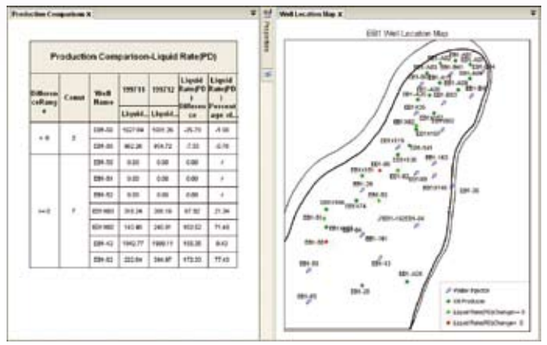
EsA 2006-01-01 Liquid Rate(PD) Statistics Results

Liquid Rate(PD)	Oil Rate(PD)	Well Number	Liquid Production	Oil Production	WaterCut	Well Name List
STB/d	STB/d		STB/d	STB/d	%	
< 30.00	< 25.00	1	0.00	0.00	0.00	EB1-A04
30.00 - 40.00	>= 30.00	1	39.25	38.24	2.56	EB1-A10
>= 40.00	>= 30.00	15	3984.47	3265.91	18.03	EB1-A02 ,EB1-A03...



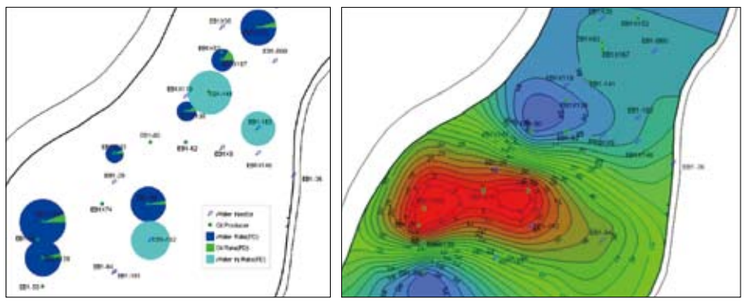
Production Data Comparison Capability

- Comparison can be performed against a pre-set standard or among groups on production data including liquid rate, oil rate, water cut, pressure (casing liquid level and static liquid level), cumulative production and water injection rate.
- Comparison can be performed based on pre-set conditions including time.
- Dynamic comparison can be performed as the pre-set standard varies.



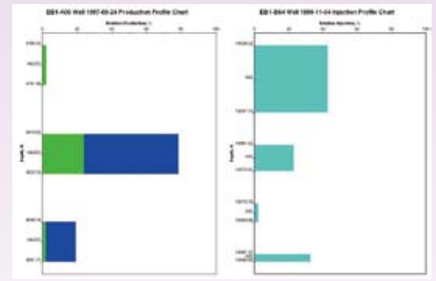
Rapid Map Creation Capability

- Rapid creation of various types of production map such as column map, bubble map, half-bubble map and contour map.



Production and Injection Profile

- Production-injection profile analysis for single well, multiple wells or a group of wells.



Advanced Statistical Analysis Capability

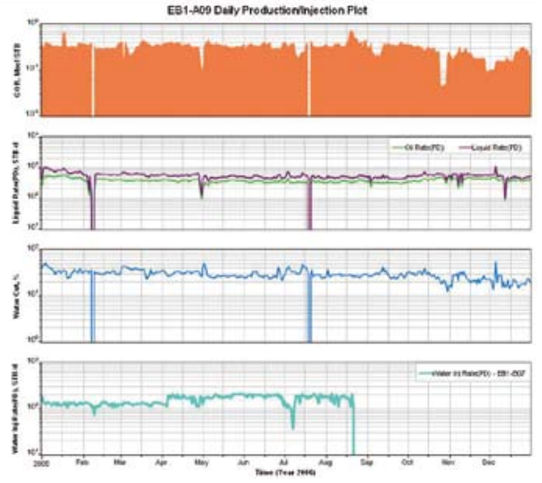
- User can define custom statistical parameters, settings, tables and plots.

User Defined Functions

- For repetitive procedures, a subroutine can be established.

Main Features

- Geological integrated 2-D/3-D reservoir model, which provides a visual production analysis
- Rapid database access and user-defined filtering functions
- User-friendly data query and statistical functions
- Record all user's operations to avoid repetitiveness
- Graphic and illustration capabilities
  - Integrate petroleum industry standards with field application
  - Flexible plot format - single X-Y, single X-multiple Y and multiple X-Y
  - Curve dragging capability
  - Graph fill effects and attributes
- Unit conversion between metric and field



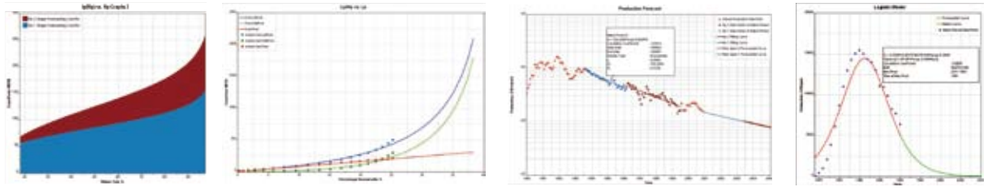
ProdForecast — Production Forecast for Oil Reservoir

An important routine task during field development phase is to analyze production performance and forecast production index. ProdForecast offers production engineers a useful tool to forecast production by integrating a variety of empirical, statistical, theoretical and modeling methods. The software allows the production engineer quickly and efficiently performing history matching, performance analysis and production forecast - oil rate, water cut, recovery, etc. for a single well or the entire pool. This basically enables users to instantly acquire real production behavior, determine optimal oil field development schemes and propose optimal production adjustments. As an excellent assistant, ProdForecast fully satisfies the needs to perform quick reservoir engineering analysis for production engineers.

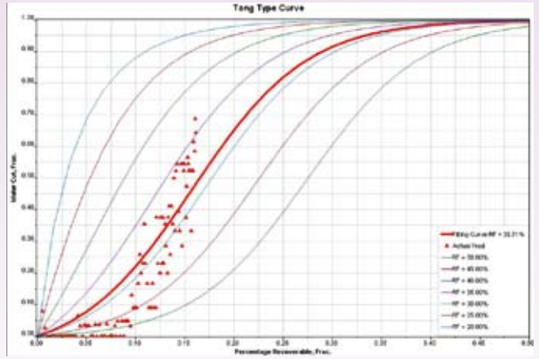
Main Functions

Reserve, Recovery and Production Rate Analyses for Pool or Well Groups

- **OOIP**
  - Volumetric analysis
  - Waterflood type curve analysis
- **Recovery**
  - Empirical analysis, such as Guthrie & Greenberger, API, Koxaknh, etc
  - Waterflood type curve analysis, including dual-period type curve post-treatment analysis
  - Waterflood type curve analysis with constant production rate
  - Decline curve analysis for multi-periods as well as forecast with parameters setting option for each analysis period
  - Various statistical model analyses (Weibull, Logistic, Gaussian, etc.)
  - Stream Tube analysis with production forecast under waterflood conditions
  - Tong Type Curve
  - Joint solution analysis with displacement efficiency and relative permeability. Water cut analysis with varying recovery

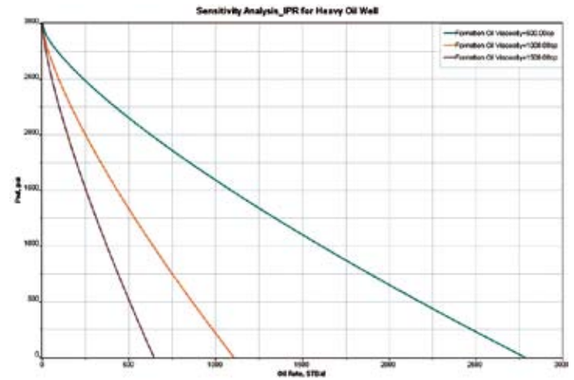


- **Oil rate (PD) and water cut analysis**
  - Waterflood type curve analysis
  - Decline curve analysis
  - Statistical model analysis
  - Joint solution analysis
  - Stream tube analysis
  - Waterflood type curve analysis with constant production rate



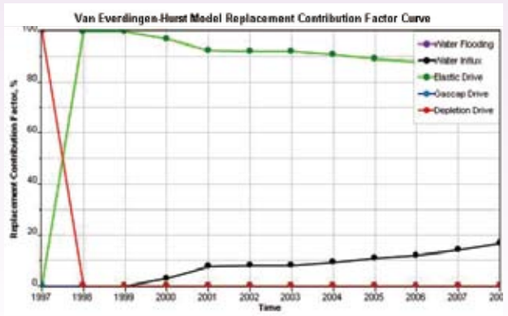
Reserve, Recovery and Production Rate Analyses for Single Well

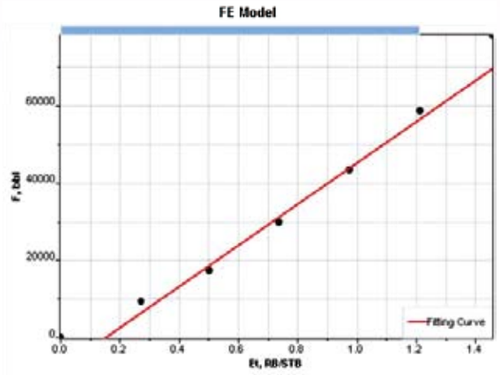
- **Oil rate (PD)**
  - Decline curve analysis
  - Waterflood type curve analysis with constant production rate
- **Recovery**
  - Decline curve analysis
  - Waterflood type curve analysis
- **IPR**
  - Traditional IPR Analysis (under single-phase, two-phase and three-phase flow)
  - Analytical formulas model
  - Fractured well model (Infinite and finite conductivity)
  - Heavy oil well model (With / without kickoff pressure)
  - Horizontal well model (Various completion types)



Material Balance Analysis

- OOIP calculation without water influx, including FE, Campbell and Havlena & Odeh models
- Pseudo steady-state flow: Pot and Schilthus aquifer (radial, linear and hemispherical flow)
- Unsteady state flow: bottom aquifer (Chatas), radial aquifer (Van Everdingen & Hurst) and linear aquifer (Nabor-Barham)
- Three types of unsteady state aquifer boundaries: finite closed, infinite and finite open
- Drive mechanism identification with Dake, PE and Campbell type curves
- Simultaneous calculation of OOIP, water influx and replacement contribution factor





Main Features

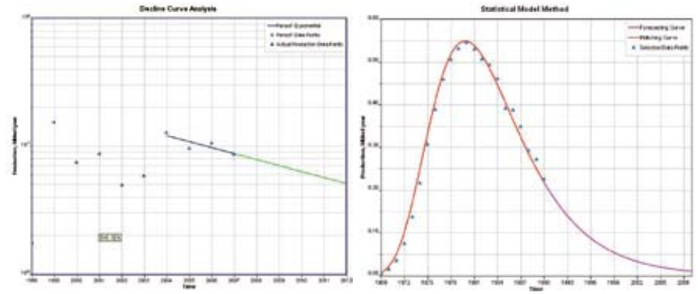
- Advanced reservoir engineering models coupling with strict algorithm to ensure accurate production forecast.
- Users are allowed to perform various analysis and comparison for the same production index using different methods.
- Sensitivity analysis capability.
- Metric and field unit conversion capability.
- Recommended Input data value range.

ProdForecast for Gas — Production Forecast for Gas Reservoir

ProdForecast for Gas is an advanced and versatile software used to forecast gas reservoir production. It provides many powerful functions to enable users accurately evaluating reserves, production indices such as recovery, well spacing, formation pressure, and volume of water influx, etc. as well as forecasting future production for various types of gas reservoirs.

Main Functions

- OGIP Evaluation: volumetric analysis, material balance analysis.
- Recovery Calculation: Decline curve analysis, statistical model analysis, material balance analysis, transient pressure analysis.
- Gas Rate Forecast: Decline curve analysis, statistical model analysis.
- Well Spacing Calculation: single well under known reserve volume, economic limit model, yearly gas recovery model, etc.
- Drive Mechanism Identification: P/Z vs. Gp analysis, water encroachment volumetric coefficient analysis.
- Initial Gas-water Contact Analysis.
- Formation Pressure Estimation: pressure gradient method, pressure average method.
- Water influx Calculation: steady state flow model, unsteady state flow model.



Main Features

- Advanced and versatile software package for gas reservoirs with a streamline work flow design
- Multiple engineering calculation methods
- Quick database access
- User friendly functions and features, metric-field unit conversion capability

SimON — Reservoir Numerical Simulator

Reservoir simulation is an advanced but reliable technology to analyze a petroleum reservoir. After a good history match, a correctly calibrated reservoir model can easily generate future production forecast under various scenarios. However, how to quickly and accurately build a reservoir simulation model and perform comprehensive analysis with reliable results is always a challenge facing engineers. SimON provides an excellent tool for engineers to resolve those challenges.

SimON optimizes pre-processing data preparation. Also SimON streamlines work flow steps but gives diverse but reliable results under various scenarios.

SimON is easy to use but remains powerful. It can allow data sharing between reservoir simulation and production analysis. It is designed to couple the needs of professional simulation engineers with those of non-professionals. The program has been tested and field validated from fields in North America, Central and South America, the Middle East, Africa and China. The results have shown that SimON is robust and fast with precise simulation results.

Main Functions

SimON is a fully implicit, three-dimensional and three-phase black oil reservoir simulator. It can be used to simulate gas-water, oil-water, and oil-gas-water flow

- Whole reservoir (multiple wells) or single well simulation
- Coordinate System: Cartesian and radial coordinate
- Grid Type: Corner point and block center
- Region Type: Rock, fluid, aquifer and equilibrium
- Capillary pressure and relative permeability hysteresis effects simulation
- Aquifer Type: Analytical and numerical aquifer
- Well Type: Vertical, horizontal and deviated well
- Powerful post-processing: Curve plots, 2D and 3D grid view

Main Features

Fully Implicit Solver

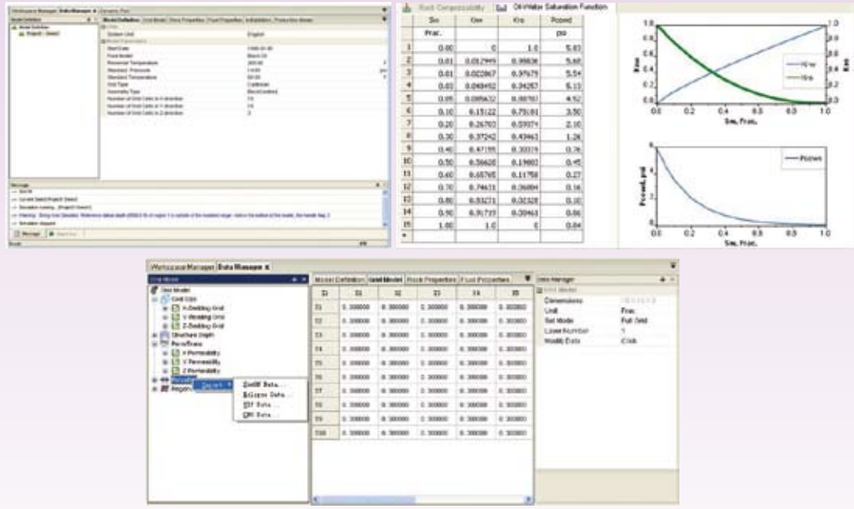
SimON uses fully-implicit method to ensure the stability of simulation with extended time steps. The fully-implicit method is the most complicated and stable solver compared to others, for example, IMPES and half-implicit.

Concise Project and Data Management

Manage and display project information, case description, running status and error messages.

Clear and Concise Interface

- Data input wizard: automatically verify and process data; prompt error message.
- Applies graphical and tabular forms to input data; provide empirical correlations and default values.



Convenient and Rapid Grid Block Data Preparation

- Easy and quick pre-processing to create and visualize grid system
- Capability of loading grid data from other simulators such as Eclipse, CMG and VIP; and converting data to SimON data format

Efficient Data Management

Capable of processing massive grid block data with advanced database technology. Efficient data access making it easy to share results by the powerful PEOffice database

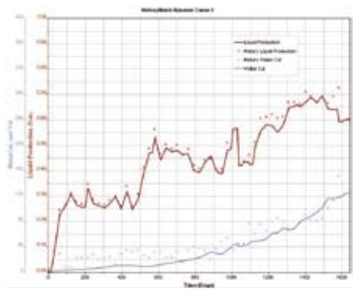
Effective Well Control and History Match

- Apply fully-implicit method to solve bottomhole pressure and other parameters at well grid. Provide complete well controls and constraints on well related parameters, such as bottomhole pressure, production rate and water cut, etc.
- Simultaneously display simulation and history data during each run, thus effectively reducing time cost compared to traditional history match

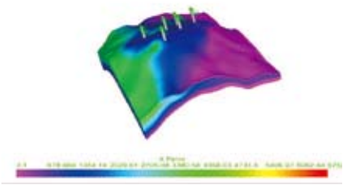
Batch Run Function

Powerful Post-Process

- Versatile curve and table presentation; excellent 3D visualized effects



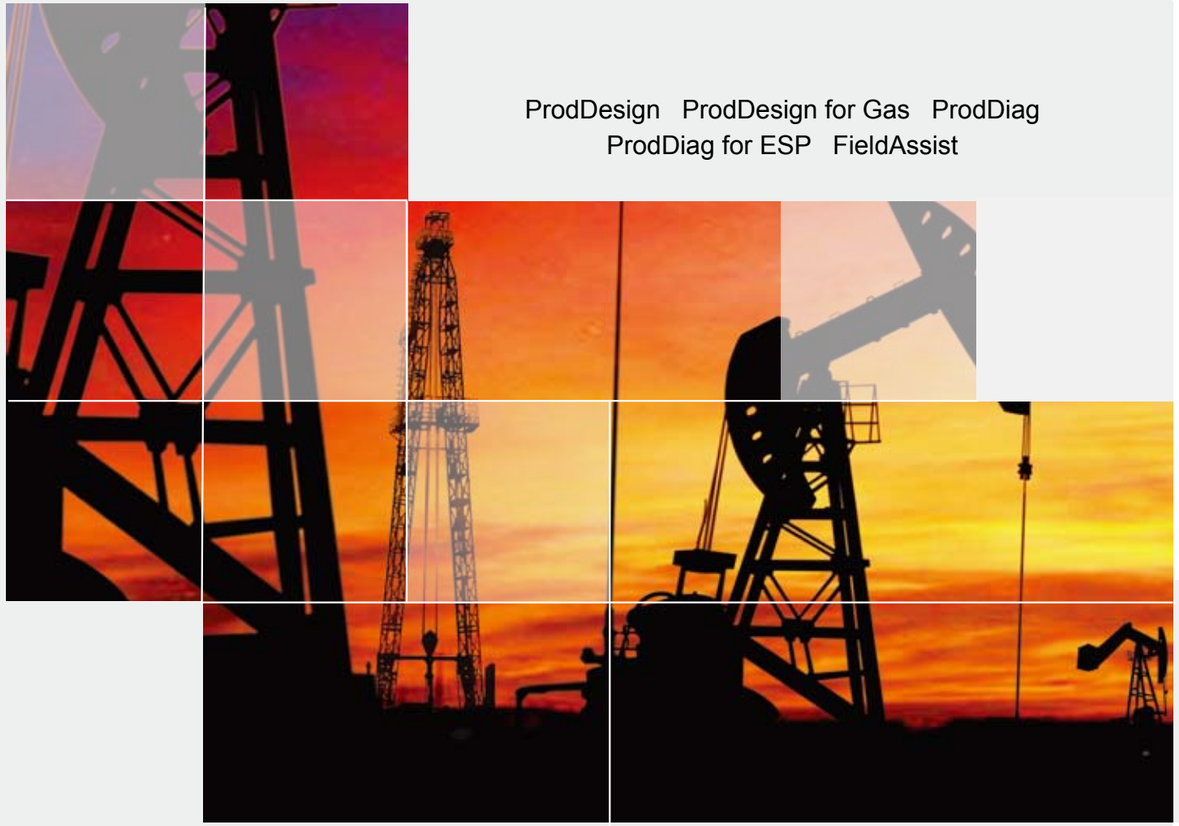
Curve view



3D reservoir model

4 Well Production Analysis

The well production analysis platform consists of three distinct modules, namely FieldAssist, ProdDiag and ProdDesign. The modules will enable users to instantly and accurately capture fluid production behavior and simultaneously identify any potential problems that the user could encounter. Moreover, the user can quickly perform a systematic analysis of the system, thereby allowing for an immediate remedial action plan.



ProdDesign ProdDesign for Gas ProdDiag
ProdDiag for ESP FieldAssist

ProdDesign — Oil Well Production Optimization

During the development phase of an oil field, the production engineer or the operation engineer has to frequently review a well's productivity, optimize its productivity and brainstorm methods and means to reduce operating costs, for instance, by reducing energy consumption. Based on its advanced analytical capability, ProdDesign can provide users an effective and efficient means to perform well productivity analysis and nodal analysis, resulting in an optimal production design.

Because of the direct access to a company's production database capability, ProdDesign has dramatically changed the conventional well production design work by making it extremely simple and efficient. This also makes both the production optimization and cost reduction tasks simpler and more efficient.

Applicable areas

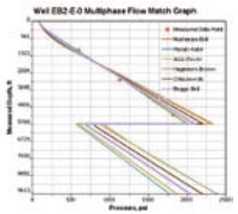
- Lift Types: flowing, gas lift, electric submersible pump, rod pump and screw pump
- Well Type: vertical, inclined and horizontal well

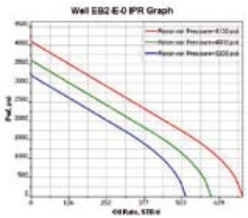
Main Functions

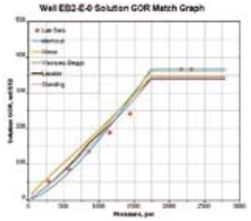
Fluid Properties Characterization, IPR Generation and Multiphase Flow Behavior in Wellbore

ProdDesign assists users, using all available lab and field data, to select the best and most appropriate fluid properties evaluation method, and to tune all the model parameters. ProdDesign provides up to a total of 19 Fluid Properties PVT Analysis Models, 14 IPR Analysis Models and over 10 Multiphase Flow Analysis Models.

- Fluid Properties PVT matching and calculation (including black oil and compositional models)
- IPR matching and calculation
- Wellbore pressure and temperature profile matching and calculation

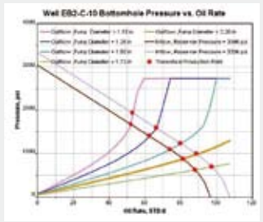


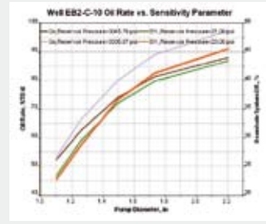




Nodal analysis

- Ability to calculate inflow and outflow performance under different production conditions and automatically locate the coordinates of the optimal production point.
- Ability to calculate inflow and outflow performance relationship under various production conditions and automatically generate the theoretical production cross-point.
- Ability to perform parameter sensitivity analysis.



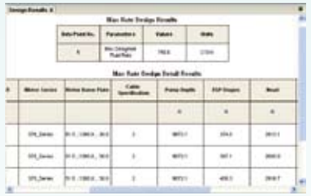
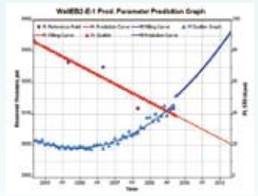


Production Optimization

- Under a Steady Production Rate
  Ability to optimize pumping equipment and production parameters under a given steady production rate and condition.
- Under the Maximum Production Rate
  Ability to optimize production parameters to the maximum production rate, but still work through certain production constraints.

Production Forecast

The module can be used to perform production history match and generate production forecast using various methods.

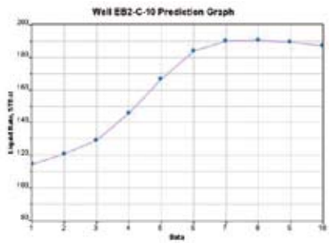




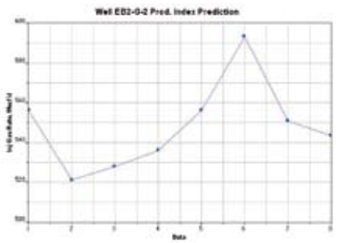
Optimal Production Forecast

- Ability to evaluate well productivity under various conditions.
- Ability to optimize lifting equipment by comparison of productivity under various conditions and means of fluid lifting.

Productivity Index Forecast

Ability to generate Productivity Index by varying production parameters over time (such as wellhead tubing pressure, temperature, power consumption, gas consumption in gas lift, etc.).





Main Features

- Nodal analysis under rod pumping with accurate and stable calculations.
- Unique forecast functionalities including inflow capability, maximum production potential and production index.
- Rich fluid PVT, inflow and outflow models with easy matching operations.
- Direct access to user's database resulting in enhanced program capabilities.
- Metric and Field unit conversion ability.
- Applicable to various types of oil well under various lifting mechanisms.
- Map generation ability. Able to view all well input data, analyzed results and findings on map.
- Optimal IPR data, fluid properties and multiphase flow regime can be easily stored for further analysis or exported to other modules.
- Versatile reporting. Output can be tabulated and/or be depicted in graphic format, or exported to Microsoft Word and Excel.
- Streamlined work flow and user-friendly interface.

ProdDesign for Gas—Gas Well Production Optimization

Gas well production analysis and optimization play an essential role in the development of gas field.

ProdDesign for Gas is an exclusive software used to analyze and optimize gas well production. The program provides the analysis of the fluid flow in the wellbore and the optimum design of the production parameters.

Main Functions

Gas PVT Calculations

- Dry gas and condensate gas PVT calculation.
- PVT model auto-tuning with test data.

IPR Forecast

- IPR calculations under various production conditions.
- Applicable to vertical, inclined and horizontal well.

Well Pressure and Temperature Profile Analysis

- Dry and condensate gas well profiles.
- Auto-identifying the existence of hydrate and its position in the wellbore.
- High-precision joint solution of both pressure and temperature.

Nodal Analysis

inflow and outflow performance calculation under various production conditions; Automatically identifying the theoretical production point.

Downhole Choke Design

Selection of the downhole choke diameter and its depth.

Liquid Loading Analysis

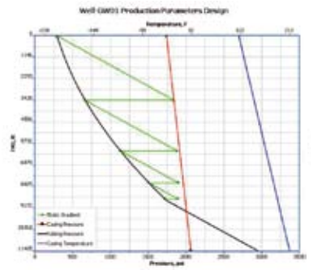
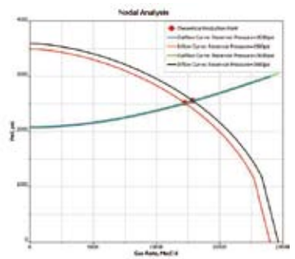
Critical Erosion Rate Calculation

Gas De-liquification Design

Calculating the gas de-liquification parameters for resuming the production from the dead wells or slowing down the liquid loading.

Main Features

- Applicable to different gas types (dry, condensate) and well types (vertical, inclined and horizontal)
- Exclusive design of the user-friendly interface for gas wells
- Flexible unit settings and high-precision calculation
- Versatile results presentation including data output in the forms of graphs and tables, as well as text reports. Also, results can be exported to Word and Excel

ProdDiag — Beam Pump Well Diagnosis

Beam pumping is one of the most widely used artificial lift techniques in oil well production. Pump performance is directly affect the oil well production. Using dynacard to identify the pumping condition is a commonly utilized technique in industry. However, the surface dynacard is hard to reflect the real pump working conditions. In particular, for deep wells, the measured dynacard shape can be distorted after the stress wave propagating thousands of meters, which creates huge difficulties for diagnosis. In addition, it is very hard for one field engineer to timely & accurately identify whether or not each well produce normally, if he needs to deal with dozens or even hundreds of wells everyday.

ProdDiag is software used to intelligently diagnose the production performance of each beam pump well from its dynacard with Neural Network (NN) technology. The program is able to quickly and accurately calculate the downhole dynacard of the working pump from the surface dynacard. It also provides the calculations of oil rate, load and pump efficiency, etc..

With real time and batch diagnosis features, ProdDiag helps the on-site production engineers instantly acquire and analyze the production status of the well, and to act rapidly to take effective measures if necessary. This will certainly increase the daily production rate and reduce the operation cost by reducing the production downtime.

Main Functions

Dynacard Diagnosis

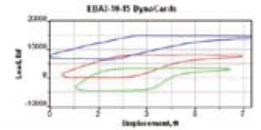
- Calculates the downhole dynacard at different depth from the surface dynacard
- Uses NN technology to automatically diagnose the production status of each beam pump well
- Be capable of automatically diagnosing more than 20 kinds of problems
- Be able to do batch well diagnosis

Surface Dynacard Diagnosis

- Diagnose the pump working conditions from the dynacard
- Automatically calculate the working pump parameters, such as pumping stroke, pumping efficiency, and the complete system efficiency, etc.

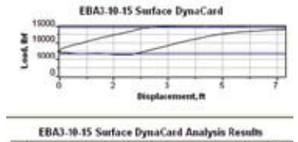
Pump Efficiency Composition Analysis

- Analyze the impact of stroke loss, filled gas, pump leaking and volume change on the pumping efficiency



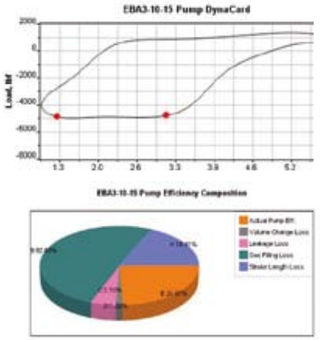
EBA3-10-15 NN Diagnostic Results

No.	Performance Type	Output	No.	Performance Type	Output
1	Normal	0.8120	12	Standing Valve Leaking	3.000E
2	Flowing with Pump	0.0463	13	Tubing Leaking	3.000E
3	Insufficient Inflow	0.7535	14	Traveling Valve Leaking	3.000E
4	Gas Interference	0.2873	15	Standing Valve Leaking	3.000E
5	Gas Locking	0.0010	16	Pump Decoupling	3.000E
6	Paraffin Interference	0.0012	17	Pump-Standing Valve	3.000E
7	Sand Interference	0.0012	18	Sucking Abnormal	3.000E
8	Heavy Oil Interference	0.0014	19	Parted Rod	3.000E
9	Vibration Interference	0.0010	20	Rod Dropout	3.000E
10	Pump Leaking	0.0010	21	Other	3.000E
11	Traveling Valve Leaking	0.0000			



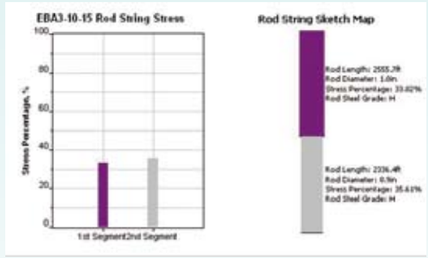
EBA3-10-15 Surface DynaCard Analysis Results

No.	Parameters	Units	Values	No.	Parameters	Units	Values
1	Input Stroke Length	ft	8.9	2	Calculated Stroke Length	ft	8.6
3	Input Theoretical Rate	STB/d	115.7	4	Calculated Theoretical Rate	STB/d	114.5
5	Input Surface Pump Efficiency	%	28.27	6	Calculated Surface Pump Efficiency	%	28.54
7	Theoretical Max Load	lbf	1484.30	8	Theoretical Min Load	lbf	5793.3
9	Hydraulic Power	hp	3.7	10	Polished Rod Power	hp	3.0
11	Downhole System Efficiency	%	23.0				



Rod Stress Analysis

- Calculate the rod stress and the percentage of the critical stress

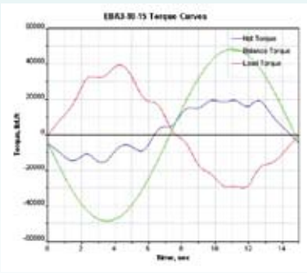


EBA3-10-15 Rod String Stress Analysis Results

	Rod Length	Rod Diameter	Stress Percentage	Rod Steel Grade
	ft	in	%	
1st Segment	2666.7	1.0	43.70	H
2nd Segment	2336.4	0.9	46.18	H

Torque Curve Calculation

- Calculate the torque curve from the dynacard
- Identify if over-torque occurs in the gearbox from the torque plots



Main Features

Advanced and Reliable Methods

- Calculate the downhole dynacard using wave equation and simulates the running beam pump unit using a precise dynamic model.

Intelligent and Effective Identification Technology

- Uses advanced neural network recognition technology to improve diagnosis accuracy.
- Provide numerous different types of dynacard samples and allows creating custom samples.

Complete Information Collection

- Comprehensive dyancard analysis will collect all the information included.
- Analysis of torque curve, pump efficiency composition and rod stress enable the users to completely understand the running conditions of the pumping unit.

Flexible Dynacard Data Format

- Multiple data formats for creating / storing dynacard from/to file or database.
- Easy to digitize dynacard.

Highly Efficient and Convenient Data Processing

- Batch well processing mode dramatically enhances the working efficiency.
- Seamless access to the database ensures quick diagnosis and analysis.
- User-friendly interface; convenient and versatile data input and output.

Diagnose Log

- Diagnosis log assists users to fast track down the problems unable to discover during the diagnosis.

Well Location Map Based Operation

- Displaying the diagnosis results on the well location map to provides users with a cleaner view of each well's production status within a block.

ProdDiag for ESP — ESP Well Diagnosis

Production with Electrical Submersible Pump (ESP) is one of the major artificial lift techniques. The high operating cost of using ESP addresses the demand of quickly identifying, if any, the ESP operating problems. ProdDiag for ESP is able to effectively analyze the ESP performance and diagnose any existing problems. It is a powerful tool for the on-site engineers to analyze and manage ESP wells production.

Electronic current card is often used to identify if or not the ESP works normally. ProdDiag for ESP uses the neural network technology to intelligently recognize current card, analyze and diagnose the pump performance. Using this software will help to reduce the production downtime as a result.

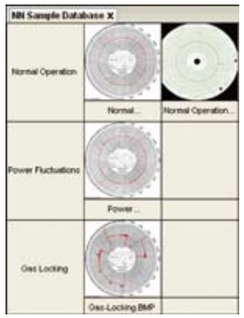
Main Functions

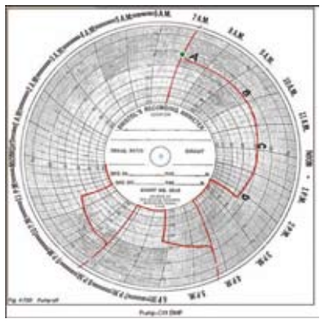
Convenient and Flexible Management of The Performance Samples Curves

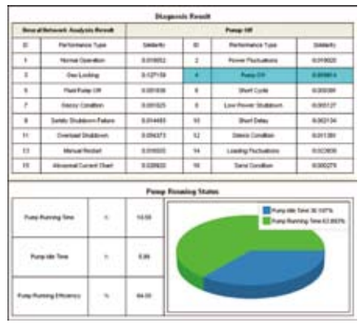
- Builds-in 16 types of ESP performance sample curves
- Allows to create user-defined sample curves
- Supports picture and digital format

Performance Diagnosis

- Diagnoses the electronic current data
- Recognizes electronic current card and transform it to the digital format
- Applies neural network technology to diagnose the ESP performance
- Supports weekly and daily electronic current card analysis







Main Features

- Uses neural network technology to ensures accurate and reliable recognition
- Offers numerous current curve samples
- Easy and flexible operations
- Applicable to digital current data format

FieldAssist — Reservoir Production Performance Evaluation

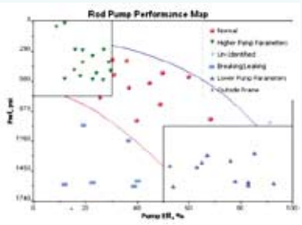
FieldAssist is used to evaluate the oil well production performance by using the performance map that displays the production well conditions and the compatibility between the reservoir formation inflow and well production outflow. FieldAssist is able to quickly create the performance map from the production database.

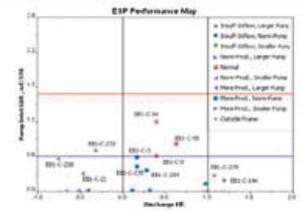
FieldAssist is also very useful to assis engineers to quickly learn the well working conditions, to diagnose the production problems and to find the potential wells. It will be, therefore, significantly improving the reservoir production management and the field development efficiency.

Main Functions

Performance Map Template

- Performance map template for rod pump well
  Provide three types of templates: Inlet Pressure vs. Pump Efficiency, Flowing Bottom-hole Pressure vs. Pump Efficiency, and the Ratio of Flowing Bottom-hole Pressure over Bubble Point Pressure vs. Pump Efficiency
- Control lines calculated by the statistical and theoretical methods
- Performance map template for ESP well
  Provide two types of templates: Pump Inlet Gas-liquid Ratio (GLR) vs. Pump Discharge Efficiency and Pump Inlet Pressure vs. Pump Discharge Efficiency
- Template management
  Flexible template settings
  Allow to save, import and export templates





Performance Map Creation

- Easy to input production data from the database or Excel file
- Precise calculation of the parameters, such as flowing bottom-hole pressure, pump inlet pressure, pump inlet GLR, etc.. Oil emulsion calculation is available for the heavy oil wells.
- Provide three and two types of templates for rod pump and ESP well, respectively

Results Management

- Automatically complete statistics of evaluation results and quickly creates the summary report
- Display evaluation results on the well location map

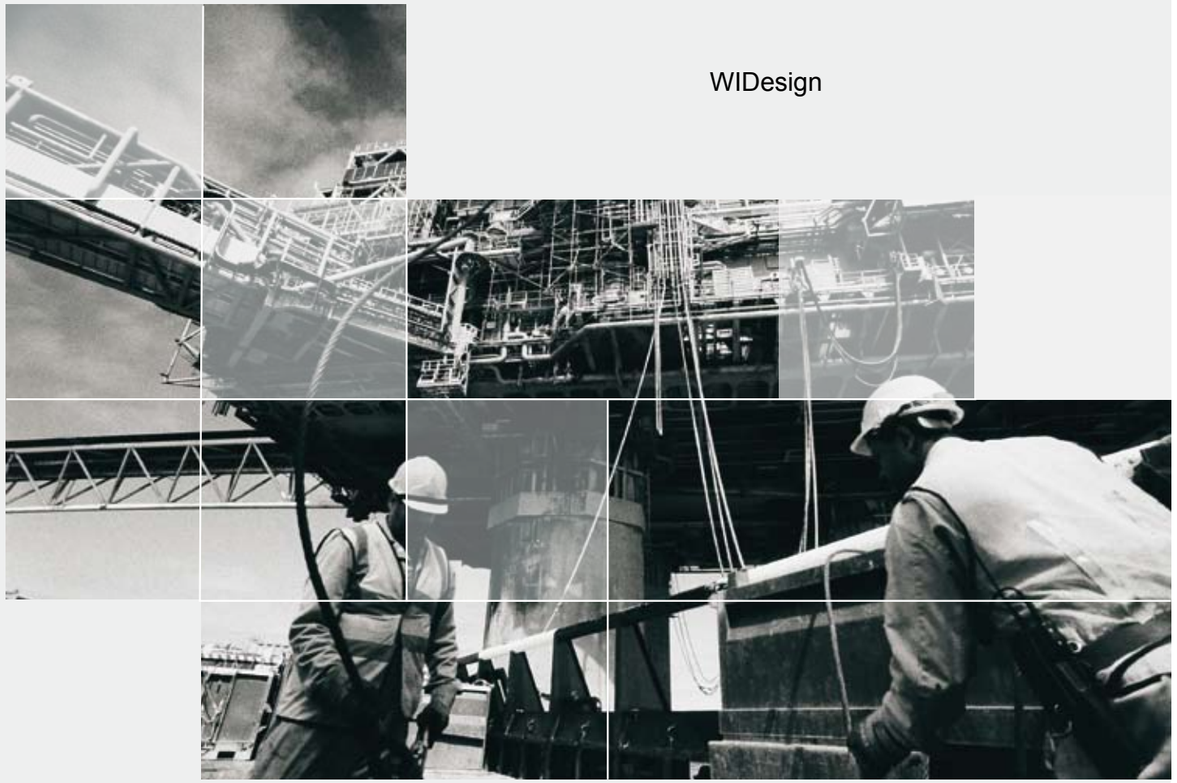
Main Features

- Easy to acquire the production data from the field database
- Simplified work flow and fast template creation
- Flexible custom settings of performance maps
- Provide template and data sharing
- Allow users to open multiple performance maps simultaneously for comparison analysis
- Simple to create the performance map evaluation report
- Well location map based operation enables users to clearly understand the relationship between the production performance and the reservoir physical properties

5

Water Injection Analysis

An industry commercial software of water flooding design and analysis, WIDesign offers a systematical solutions to the problems by creating analytical models of injection water allocation, well injectivity calculations and fluid flow dynamics in the wellbore and surface pipeline network.

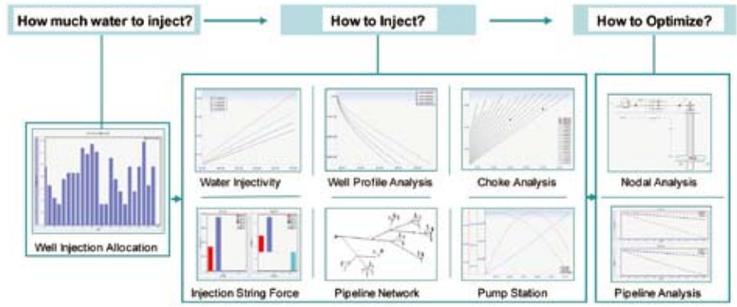


WIDesign

WIDesign — Water Injection Analysis and Optimization

WIDesign offers field engineers an excellent tool to solve the most important three problems in water injection: How much water to inject? How to inject? How to optimize injection pipeline system?

WIDesign is used to determine water injection rate by allocation calculation, to analyze the performance of the injection pump, pipeline network and the wellbore, and to perform sensitivity analysis for parameters optimization. It will also optimize the water injection pipeline network and enhance the water injection efficiency by integrating analysis results.



Main Functions

Injection Allocation

- Easily operating based on well location map
- Automatically import production data and exports analysis results
- Flexible customer settings of initial and boundary conditions

Water Injectivity Analysis

- Calculate water injectivity variations under hydraulic fracturing
- Calculate injectivity index and pseudo injectivity index using well test data
- Analyze injectivity curves from different injection datasets to learn water injectivity variations

Wellbore Temperature and Pressure Profile Analysis

- Include impact of well trajectory, wellbore structure and layer separation on wellbore temperature and pressure profile calculation

Injection String Stress Analysis
- Calculate wellbore string load and deformation under given injection conditions.
- Include the impacts of the gravity, piston, ballooning, spiral and temperature effect on injection string stress analysis.

Choke Analysis
- Calculate injection allocation and pressure loss to select the optimum choke type and diameter.
- Analyze the injection performance of each layer for layering injection.

Surface Pipeline Network Analysis
- Create surface pipeline map by manual editing or by importing from the database.
- Include terrain fluctuation, pipe structure and temperature variations in mapping.
- Analyze pressure distribution from the injection pump and the water distribution platform to the wellhead and the associated flux distribution.

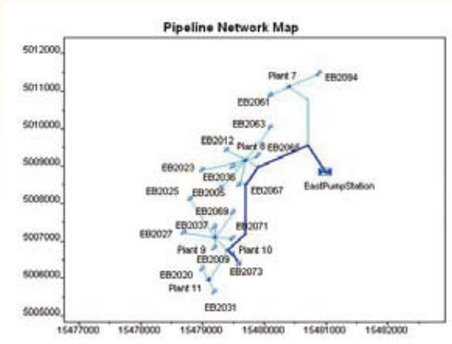
Pipeline Analysis
- Display which pipeline segment impacts network efficiency most within the system.
- Optimize structure and temperature parameters for a specific pipeline segment and segment group.

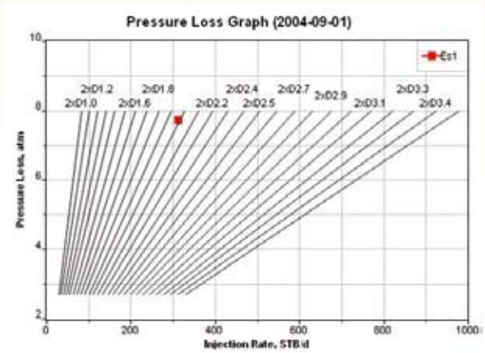
Pump Station Analysis
- Evaluate if pump station is capable of delivering the required injection water.
- Visualize the construction of the pump station and performs optimum design.

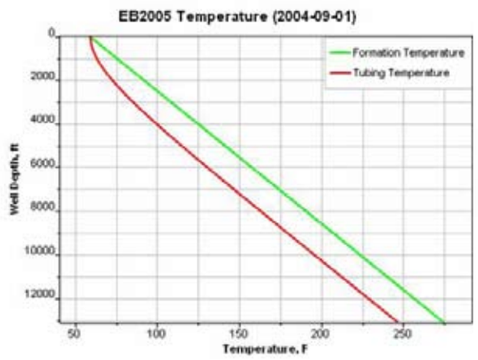
Nodal Analysis
- Analyze efficiency of each components in water injection system to figure out what is the major factor impacting the injection efficiency.
- Perform sensitivity analysis from different aspects, such as the condition changes of the surface, the wellbore, the choke and the formation.

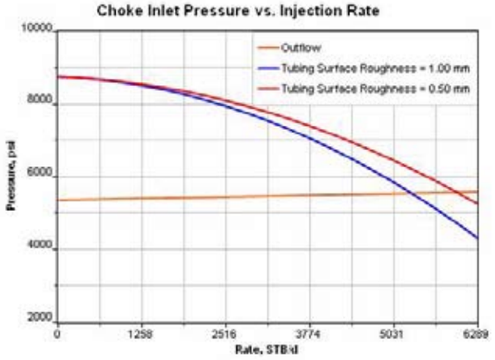
Main Features

- Having a systematical model be consisting of the injection pump station, the surface pipeline network, the wellbore and the reservoir formations to have a comprehensive investigation of the sensitivities of to the various parameters
- High work efficiency and free data input error by direct access to client's database
- Portfolio functions as a industry commercial software, easy-to-use and high-precision calculation
- Versatile results presentation including data output. in the forms of graphs and tables, as well as text reports. Also, results can be exported to Word and Excel









6

Gathering and Transportation System Analysis

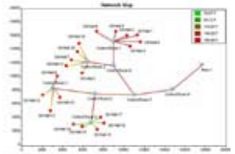
PipeNet module of PEOffice provides users the best solutions for gathering and transportation system analysis. Its functions include the visualization of the terrain fluctuation and the well location as well as the pipeline network, the modeling of the equipment and heat preservation, the analysis of pressure and temperature profile and the forecast of hydrates. These functions will better assist users to achieve the optimum design of the whole system.

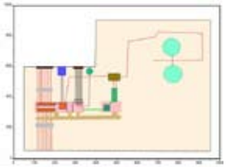
PipeNet

PipeNet — Pipeline Network Analysis and Optimization

PipeNet is a system used to rigorously model fluid flow in surface pipeline network and quickly perform optimum design by incorporating the factors of terrain, environment, network layout, pressure and temperature variation and the fluid treatment, etc. PipeNet is an easy and efficient tool that will completely satisfy the needs of field engineers to analyze and optimize the gathering and transportation system.

Main Functions

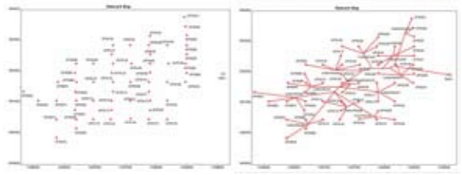




Pipeline Network Model Building

- Provide two ways to create pipeline network model: by database data or by visualized design
- Allow default settings of network components
- Support modeling of bending angle and choke
- Include pipeline structure, equipments and heat preservation
- Offer views of component schematics

Fluid Flow Modeling in Single Pipeline or in Pipeline Network



- Support loop system
- Model fluid flow dynamics in pipeline network
- Include different types of heat preservations
- Report the locations of slug flow occurring
- Precise fluid PVT analysis
- Create pipeline network analysis report

Equipment Modeling

- Be capable of modeling equipments, such as gathering pump, separator, compressor, heat exchanger, cooler and valve, etc.
- Support parallel pump system
- Visualized operation

Network Optimization

- Optimize well grouping, station layout and the cost of pipeline construction cost
- Do statistics of the system efficiency of the fluid flow in network and compares the power loss of each component to find out the target to be optimized
- Optimize the network parameters and the equipment selection while minimizing the energy consumption

Node Analysis

- Create a nodal system from the sub-surface (reservoir) to the gathering station
- Take into account the factors in the analysis on the whole system, such as terrain, environment temperature, pipeline structure, fluid PVT, etc.

Main Features

- Surface gathering and transportation system construction to comprehensively analyze impacts of structure or fluid PVT parameters
- High work efficiency and free data input error by direct access to client's database
- Portfolio functions as a industry commercial software, easy-to-use and high-precision calculation
- Versatile results presentation including data output. in the forms of graphs and tables, as well as text reports. Also, results can be exported to Word and Excel

7 Results Management

PEManager (Results management solution), provides users with a platform to manage the results data of reservoir production analysis and optimization design from other PEOffice modules. Users are allowed to browse and manage all kinds of graphs and tables according to their privileges. In addition, the system helps users to fast integrate the analysis from geological engineering to reservoir engineering, as well as from the wellbore to the surface pipeline network.

PEManager

PEManager — PEOffice Module Results Manager

PEManager is a manager of the results of reservoir management and production design and optimization from PEOffice modules. The software allows users to browse, change and edit, the graphs or tables of the results according to their privileges.

PEManager provides a collective environment to systematically manage different kinds of results. More importantly, PEManager is able to quickly and conveniently unify the results from multiple disciplines to form a systematic solution. By reviewing, querying and comparison, PEManager ensure the project's progress and realize the interactive analysis of the results. This will also enable the users to quickly complete the plans and reports.

Main Functions

Results Uploading
Upload the results from PEOffice Modules to the server for query, change and output

Results Management
Provides a simple way to browse different classifications of results, including:
- By module
- By reservoir
- By administration
- By uploading date
- By uploader
- By user-defined

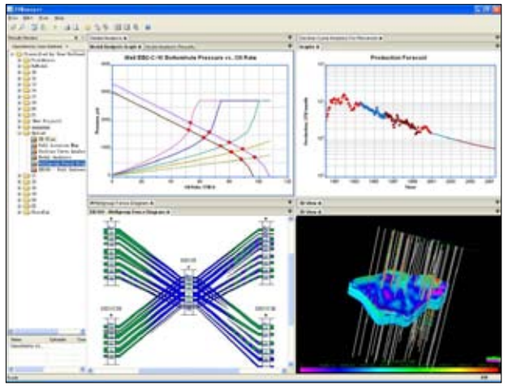
Advanced Search
Flexible search criteria according to one condition or multiple conditions

Project Management
Authorizes users to manage the project and the associated results within their privileges

Privilege Control
Set read and write privilege of project or child project for specific user or user group

User-defined Project
Allows users to create custom project to quickly search results

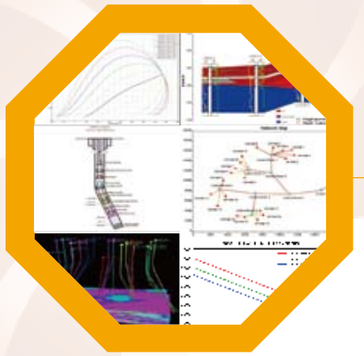
Display and Operation
- Display results consistently with their initial effects
- Allow to change results properties
- Support copy or paste of graphs or tables



Main Features

- Powerful and flexible database access offers easy results query and management
- Search settings are fully compatible with field application
- Complete user privileges control
- Being able to create user-defined projects makes it possible to form a suit of PEOffice solutions by unifying all projects' results
- Consistent results displaying with initial effects

Integrated Solution for Oil & Gas Production



Oil & Gas Production Description

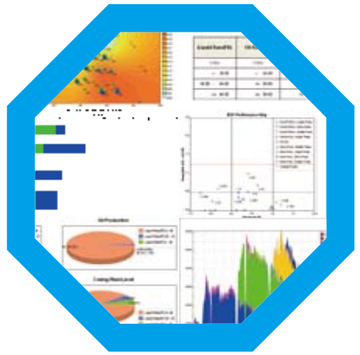
Establish an integrated oil and gas production system model by coupling with fine-scaled geological model through matching analysis of history and test data. The production system model includes three parts, i.e., reservoir numerical simulation, well inflow/outflow and surface gathering flow. The seamless connection with field production database further keeps optimizing and refining the system model.

Data Analysis, Integration and Management

Client Database **Client Data File**

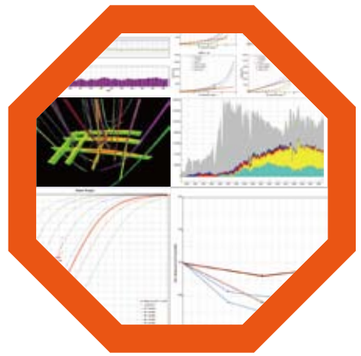
Production Characterization

In connection with production database, based on the production fine numerical model, perform fast and accurate statistical analysis of oil and gas production behaviors, such as production compositions, recovery percentage, water cut and well lift performance, etc..



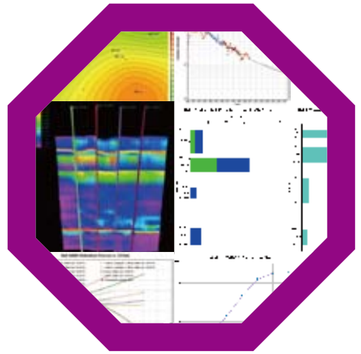
Production History Characterization and Production Forecast

In connection with production database, on the basis of production fine numerical model, perform an integrated analysis of index variations of production rate, water cut, pressure and evaluation of post-treatment effects, by combing production data with geological structure, reservoir property characteristics and well pattern arrangement.



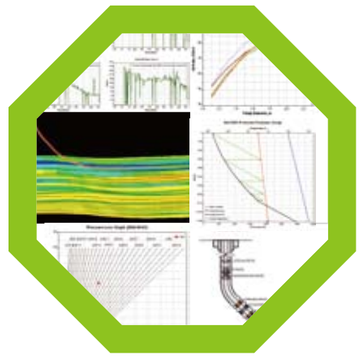
Potential Production Enhancement Analysis

On the basis of production fine numerical model, through multiple procedures such as statistics, empirical correlations and numerical simulation; evaluate production potential of reservoir, well and surface gathering system and further forecast index variations including production rate, water cut and pressure.



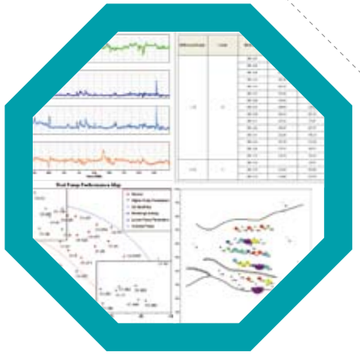
Production Optimization

On the basis of production fine numerical model and potential evaluations under constraining conditions of oil and gas production system; optimize pattern arrangement, layer regrouping, producer and injector design, and well production parameter adjustments, with the aim of maximizing oil and gas production potential.



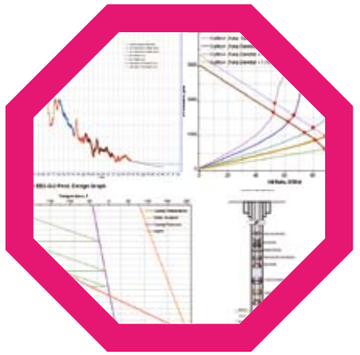
Production Surveillance

Monitor oil and gas well production behavior by the aid of comprehensive analysis, including production index comparison, performance evaluation and production curve and bubble map view.



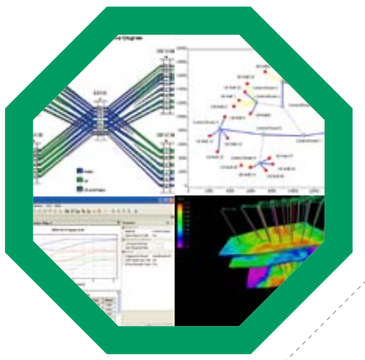
Production Optimization and Forecast

On the basis of production fine numerical model, accurately identify production behavior, forecast production index and optimize production parameters by combing present and historical data.



Production Issue Analysis

On the basis of production fine numerical model, quickly analyze and diagnose oil and gas production problems in a systematic manner from overall aspects including formation, wellbore and surface system.



Optimization Petroleum Technologies, Inc.

OPT provides industry-leading petroleum engineering solutions and services for reservoir and production engineering. OPT is comprised of a driven team of 90 employees focused on software development, marketing, sales and customer consulting services. Our staff of highly qualified petroleum engineers, geologists and other professionals enable OPT to meet and exceed customer expectations and deliver superior results.

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