COURSE OVERVIEW DE0312
Petroleum Exploration & Production

Course Title
Petroleum Exploration & Production

Course Date/Venue
September 14-18, 2026/Online Virtual Training

Course Reference
DE0312

Course Duration/Credits
Five days/2.75 CEUs/27.5 PDHs

Course Description

This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.

This course is designed to provide participants with a detailed and up-to-date overview of Petroleum Exploration and Production. It covers the types of hydrocarbons, petroleum value chain fundamentals and basics of petroleum geology; the elements of a petroleum system, exploration methods and seismic survey basics; the types of reservoirs, fluid types and properties and initial reservoir conditions; the drilling operations, drilling rig components and drilling fluids (mud systems); the drilling process, well control and health, safety and environment (HSE) in drilling; and the reservoir rock properties, reservoir fluids properties and reservoir drive mechanisms

During this interactive course, participants will learn the reserves estimation, reservoir performance analysis, reservoir simulation and well completion; the artificial lift methods, separation processes, flow assurance and production optimization; the enhanced oil recovery (EOR) and field development planning; the integrated asset management and production operations management; the smart fields concept, real-time monitoring, automation and AI applications and digital transformation initiatives; and the environmental impact, carbon management, energy efficiency and sustainability goals.

Course Objectives/Outcomes & Benefits for the Participants

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an in-depth knowledge on petroleum exploration and production
- Discuss the types of hydrocarbons, petroleum value chain fundamentals and basics of petroleum geology
- Identify the elements of a petroleum system and apply exploration methods and seismic survey basics
- Recognize the types of reservoirs, fluid types and properties and initial reservoir conditions
- Carryout drilling operations and identify drilling rig components and drilling fluids (mud systems)
- Apply drilling process, well control and health, safety and environment (HSE) in drilling
- Recognize reservoir rock properties, reservoir fluids properties and reservoir drive mechanisms
- Apply reserves estimation, reservoir performance analysis, reservoir simulation and well completion
- Carryout artificial lift methods, separation processes, flow assurance and production optimization
- Discuss enhanced oil recovery (EOR) and apply field development planning, integrated asset management and production operations management
- Explain smart fields concept, real-time monitoring, automation and AI applications and digital transformation initiatives
- Interpret environmental impact, carbon management, energy efficiency and sustainability goals

Who Should Attend

This course provides all significant aspects and considerations of petroleum exploration and production for project managers and supervisors in energy sectors, government and regulatory professionals in energy, business development and commercial professionals in oil and gas, engineers transitioning into petroleum roles, field and operations personnel, non-technical professionals seeking industry understanding and other technical staff.

Course Fee

US$ 4,000 per Delegate + **VAT**.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Haward's certificates are accredited by the following international accreditation organizations: -

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

- The International Accreditors for Continuing Education and Training (IACET - USA)

  Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

  Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

  Haward Technology Middle East will award **2.75 CEUs** (Continuing Education Units) or **27.5 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:

Dr. Chris Kapetan, PhD, MSc, is a **Senior Drilling & Petroleum Engineer** with over **30 years** of international experience within the **onshore** and **offshore oil** & **gas** industry. His wide experience covers **Horizontal & Multilateral Wells**, **Well Completion & Stimulation**, **Artificial Lift System Selection & Design**, **Drilling Practices**, **Drilling Fluids Technology**, Drilling **Operations**, **Directional** Drilling**, Formation Damage** Evaluation & Preventive, **Formation Damage** Remediation, **Drilling & Formation Damage**, Simulation Program for The **International Petroleum Business**, **Well** Testing & Analysis, **Well** Design, **Well** Testing & Oil Well Performance, **Well** Test Design Analysis, **Well Test** Operations, **Well Testing & Perforation**, Root Cause Analysis (**RCA**), RCA Method for Process Plant, **RCA** Techniques, Control Well-Flow Lines Parameters, Decision Analytic Modelling Methods for **Economic Evaluation**, **Probabilistic Risk Analysis** (**Monte Carlo Simulator**) **Risk Analysis** Foundations, Sulphur, Sour Natural Gas, **Natural Gas Sweeting**, **Petroleum Production**, Field Layout, **Production** Techniques & Control, **Surface Production** Operations, **Project Risk Analysis**, **Feasibility Analysis** Techniques, **Capital Operational Costs**, **Flowmetering & Custody Transfer** and **Oil Refinery**. Further, he is also well-versed in Enhanced Oil Recovery (**EOR**), Electrical Submersible Pumps (**ESP**), **Oil Industries Orientation**, **Geophysics**, **Cased Hole** Formation Evaluation, **Cased Hole** Applications, **Cased Hole** Logs, **Production Wells** Operations, **Production Facilities** Management, **Perforating** Methods & Design, **Perforating** Operations, **Fishing** Operations, **Well & Reservoir** Testing, **Reservoir** Stimulation, **Hydraulic Fracturing**, **Carbonate** Acidizing, **Sandstone** Acidizing, **Drilling Fluids** Technology, Drilling Operations, **Directional** Drilling, **Artificial Lift**, **Gas Lift Design**, **Gas Lift** Operations, Petroleum Business, **Petroleum Economics**, **Field Development** Planning, **Gas Lift Valve** Changing & Installation, **Well Completion** Design & Operation, **Well** Surveillance, **Well** Testing, **Well** Stimulation & Control and **Workover** Planning, Completions & Workover, **Rig Sizing**, **Hole Cleaning & Logging**, **Well Completion**, **Servicing & Work-Over** Operations, Practical **Reservoir Engineering**, **X-mas Tree & Wellhead** Operations, Maintenance & Testing, Advanced **Petrophysics/Interpretation** of **Well Composite**, **Construction Integrity** & **Completion**, **Coiled Tubing** Technology, **Corrosion Control**, **Slickline**, **Wireline & Coil Tubing**, **Pipeline Pigging**, **Corrosion** Monitoring, **Cathodic Protection** as well as Root Cause Analysis (**RCA**), Root Cause Failure Analysis (**RCFA**), **Gas Conditioning & Process Technology**, **Production Safety** and **Delusion of Asphalt**. Currently, he is the **Operations Consultant** & the **Technical Advisor** at **GEOTECH** and an independent **Drilling Operations Consultant** of various engineering services providers to the international clients as he offers his expertise in many areas of the **drilling & petroleum discipline** and is well **recognized & respected** for his process and procedural expertise as well as ongoing participation, interest and experience in continuing to promote technology to producers around the world.

Throughout his long career life, Dr. Chris has worked for many international companies and has spent several years **managing** technically **complex wellbore interventions** in both **drilling** & **servicing**. He is a **well-regarded** for his **process** and **procedural expertise**. Further, he was the **Operations Manager** at **ETP Crude Oil Pipeline Services** where he was fully responsible for optimum operations of crude oil pipeline, **workover** and **directional drilling**, **drilling rigs** and equipment, drilling of various geothermal deep wells and **exploration wells**. Dr. Chris was the **Drilling** & **Workover Manager** & **Superintendent** for **Kavala Oil** wherein he was responsible for supervision of **drilling** operations and **offshore exploration**, quality control of performance of **rigs**, **coiled tubing**, **crude oil** transportation via pipeline and abandonment of **well** as per the API requirements. He had occupied various key positions as the **Drilling Operations Consultant**, **Site Manager**, **Branch Manager**, **Senior Drilling** & **Workover Manager** & **Engineer**, **Drilling** & **Workover Engineer**, **Process Engineer**, **Operations Consultant** and **Technical Advisor** in several petroleum companies responsible mainly on an **offshore** sour oil field (under water flood and gas lift) and a gas field. Further, Dr. Chris has been a **Professor** of the **Oil Technology College**.

Dr. Chris has **PhD** in **Reservoir Engineering** and a **Master's** degree in **Drilling & Production Engineering** from the **Petrol-Gaze Din Ploiesti University**. Further, he is a **Certified Surfaced BOP Stack Supervisor** of **IWCF**, a **Certified Instructor/Trainer**, a **Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management** (**ILM**) and has conducted numerous short courses, seminars and workshops and has published several technical books on **Production Logging**, **Safety Drilling Rigs** and **Oil Reservoir**.

Virtual Training (If Applicable)

If this course is delivered online as a Virtual Training, the following limitations will be applicable:-

Certificates	Only soft copy certificates will be issued to participants through Haward's Portal. This includes Wallet Card Certificates if applicable
Training Materials	Only soft copy Training Materials (PDF format) will be issued to participant through the Virtual Training Platform
Training Methodology	30% of the program will be theory and 70% will be practical sessions, exercises, case studies, simulators or videos
Training Program	The training will be for 6 hours per day starting at 0800 and ending at 1400
H-STK Smart Training Kit	Not Applicable
Hands-on Practical Workshops	Not Applicable
Site Visit	Not Applicable
Simulators	Only software simulators will be used in the virtual courses. Hardware simulators are not applicable and will not be used in Virtual Training

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures
20% Practical Workshops & Work Presentations
30% Hands-on Practical Exercises & Case Studies
20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Learning Design & Customization

This course can be customized to the exact requirements of clients. Haward Technology is so proud of our huge capabilities in tailoring our courses to the training needs of our valued clients.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1: ***Monday, 14th of September 2026***

0800 – 0815	*Registration & Coffee*
0815 – 0830	*Welcome & Introduction*
0830 – 0845	***PRE-TEST***
0845 – 0930	***Overview of the Petroleum Industry*** *Upstream, Midstream, and Downstream Sectors • Role of Company in Global Energy Markets • Types of Hydrocarbons (Oil, Gas, Condensates) • Petroleum Value Chain Fundamentals*
0930 – 0945	*Break*
0945 – 1030	***Basics of Petroleum Geology*** *Rock Types: Sedimentary, Igneous, Metamorphic • Porosity and Permeability Concepts • Formation of Hydrocarbon Reservoirs • Geological Time Scale and Basin Evolution*
1030 – 1130	***Elements of a Petroleum System*** *Source Rock Characteristics • Reservoir Rock Properties • Cap Rock and Trapping Mechanisms • Migration Pathways*
1130 – 1215	***Exploration Methods Overview*** *Geological Surveys • Geophysical Techniques • Geochemical Methods • Risk and Uncertainty in Exploration*
1215 – 1230	*Break*
1230 – 1315	***Seismic Survey Basics*** *Principles of Seismic Waves • 2D versus 3D Seismic Surveys • Data Acquisition Methods • Interpretation Basics*
1315 – 1350	***Basics of Reservoir Concepts*** *Definition of Reservoirs • Types of Reservoirs (Conventional/Unconventional) • Fluid Types and Properties • Initial Reservoir Conditions*
1350 – 1400	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1400	*End of Day One*

Day 2: ***Tuesday, 15th of September 2026***

0800 – 0845	***Drilling Operations*** *Purpose of Drilling • Types of Wells (Exploration, Appraisal, Production) • Onshore versus Offshore Drilling • Drilling Lifecycle*
0845 – 0930	***Drilling Rig Components*** *Derrick and Hoisting System • Rotary System • Circulation System • Blowout Preventer (BOP)*
0930 – 0945	*Break*
0945 – 1100	***Drilling Fluids (Mud Systems)*** *Functions of Drilling Mud • Types of Drilling Fluids • Mud Properties (Density, Viscosity) • Mud Treatment and Maintenance*
1100 – 1215	***Drilling Process Steps*** *Spudding the Well • Drilling Ahead • Casing and Cementing • Well Completion Basics*

1215 – 1230	*Break*
1230 – 1315	***Well Control Basics*** *Formation Pressure Concepts • Kick Detection • Well Control Methods • Safety Procedures*
1315 – 1350	***Health, Safety & Environment (HSE) in Drilling*** *Common Hazards • Safety Systems and Procedures • Environmental Considerations • HSE Standards Overview*
1350 – 1400	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1400	*End of Day Two*

Day 3: Wednesday, 16th of September 2026

0800 – 0845	***Reservoir Rock Properties*** *Porosity Types and Measurement • Permeability Concepts • Wettability • Capillary Pressure*
0845 – 0930	***Reservoir Fluids Properties*** *Oil, Gas, and Water Properties • Pressure-Volume-Temperature (PVT) Basics • Fluid Phase Behavior • Gas-Oil Ratio*
0930 – 0945	*Break*
0945 – 1100	***Reservoir Drive Mechanisms*** *Solution Gas Drive • Water Drive • Gas Cap Drive • Combination Drive*
1100 – 1215	***Reserves Estimation Basics*** *Types of Reserves (Proved, Probable, Possible) • Volumetric Method • Recovery Factor • Uncertainty in Estimation*
1215 – 1230	*Break*
1230 – 1315	***Reservoir Performance Analysis*** *Pressure Behavior • Production Trends • Decline Curve Basics • Material Balance Concept*
1315 – 1350	***Reservoir Simulation*** *Purpose of Simulation • Basic Modeling Concepts • Input Data Requirements • Applications in Field Development*
1350 – 1400	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1400	*End of Day Three*

Day 4: Thursday, 17th of September 2026

0800 – 0845	***Well Completion Basics*** *Completion Types (Open Hole, Cased Hole) • Tubing and Packers • Perforation Methods • Sand Control Basics*
0845 – 0930	***Artificial Lift Methods*** *Need for Artificial Lift • Rod Pumps • Electric Submersible Pumps (ESP) • Gas Lift Systems*
0930 – 0945	*Break*
0945 – 1100	***Surface Production Facilities*** *Separation Processes • Oil, Gas, and Water Separation • Storage Systems • Export Systems*
1100 – 1215	***Flow Assurance Basics*** *Multiphase Flow • Hydrate Formation • Wax and Scale Issues • Mitigation Techniques*

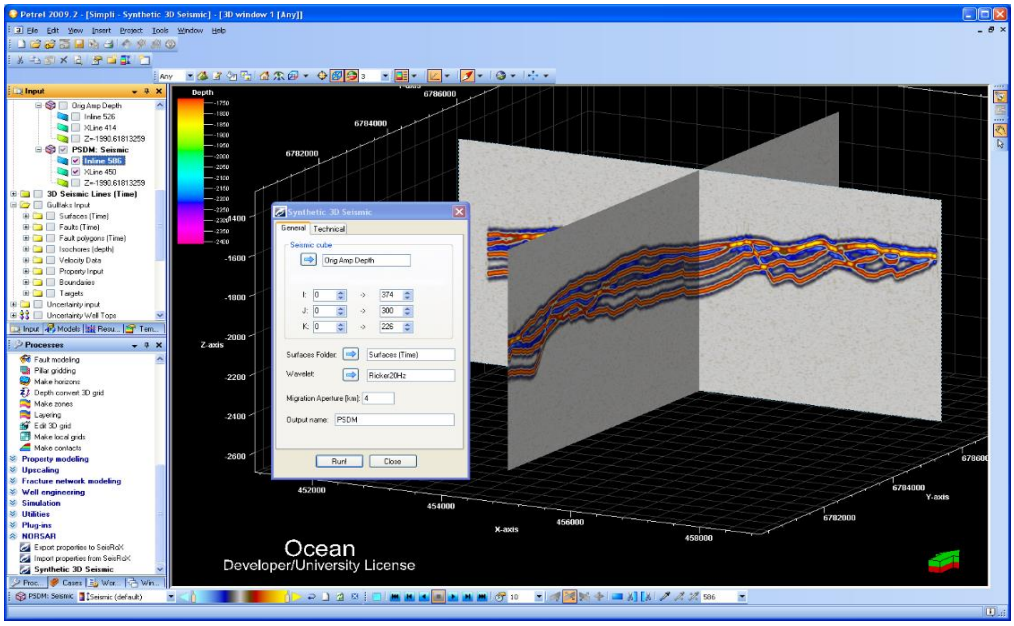
1215 – 1230	*Break*
1230 – 1315	***Production Optimization*** *Well Performance Analysis • Nodal Analysis Basics • Production Monitoring • Troubleshooting Production Issues*
1315 – 1350	***Enhanced Oil Recovery (EOR)*** *Primary versus Secondary versus Tertiary Recovery • Water Flooding • Gas Injection • Chemical EOR Basics*
1350 – 1400	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1400	*End of Day Four*

Day 5: Friday, 18th of September 2026

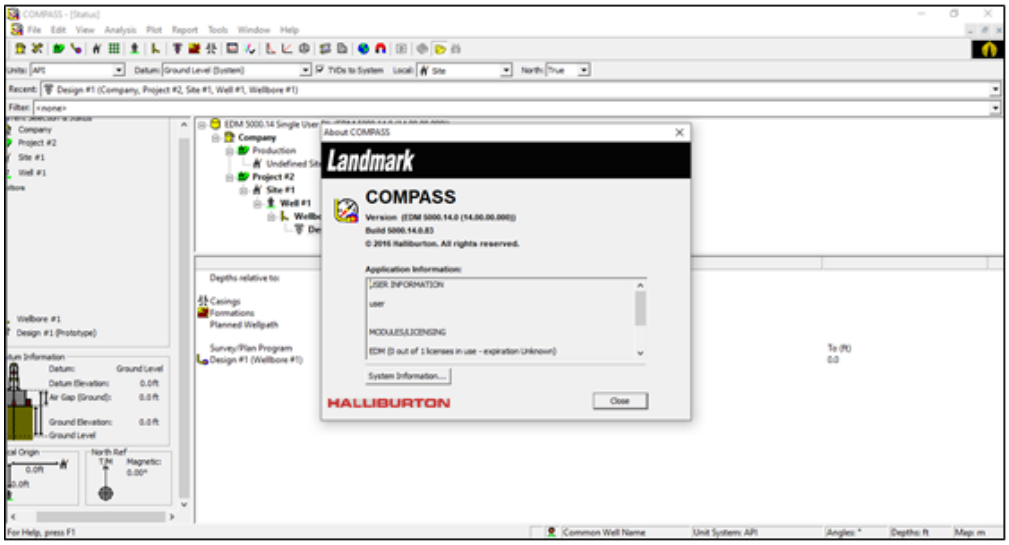
0800 – 0845	***Field Development Planning*** *Field Lifecycle Stages • Development Strategies • Well Placement Planning • Economic Considerations*
0845 – 0930	***Integrated Asset Management*** *Collaboration Across Disciplines • Data Integration • Decision-Making Processes • Role of Digital Technologies*
0930 – 0945	*Break*
0945 – 1100	***Production Operations Management*** *Daily Field Operations • Production Reporting • Maintenance Practices • Performance KPIs*
1100 – 1215	***Digital Oilfield & Innovation*** *Smart Fields Concept • Real-Time Monitoring • Automation and AI Applications • Digital Transformation Initiatives*
1215 – 1230	*Break*
1230 – 1330	***Sustainability in Oil & Gas*** *Environmental Impact • Carbon Management • Energy Efficiency • Sustainability Goals*
1330 – 1345	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about t Topics that were Covered During the Course*
1345 – 1400	***POST-TEST***
1400	*End of Course*

Simulator (Hands-on Practical Sessions)

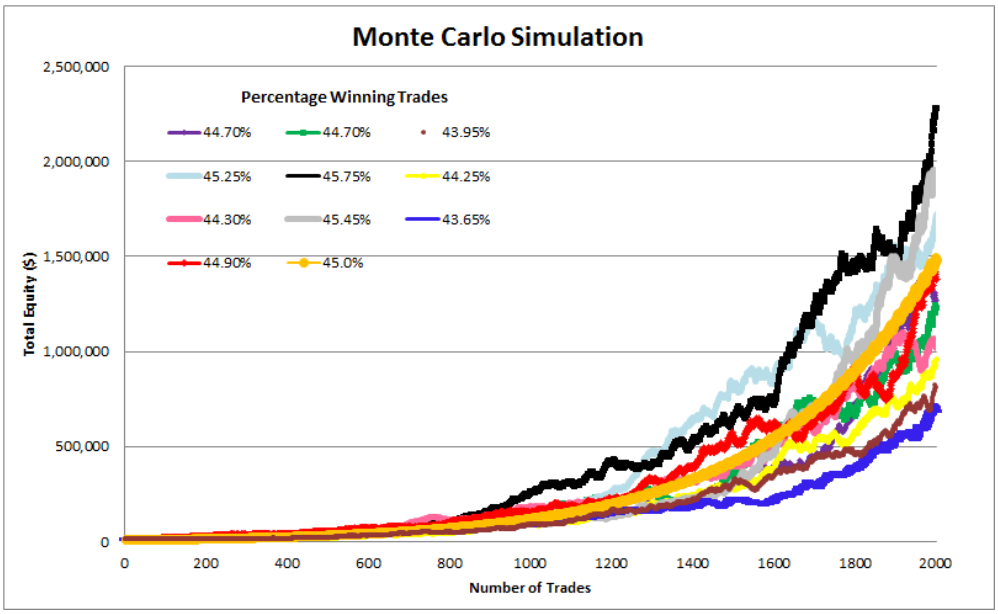
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the "Petrel Software", "COMPASS", "Monte Carlo", "Interactive Petrophysics (IP)", "ECRIN", "PIPESIM", "PETEX IPM Suite", "Eclipse Software", "Three-Phase Black-Oil Reservoir Simulator", "PVTsim Software, software's and "*CEMPRO + Integrated Cementing*".



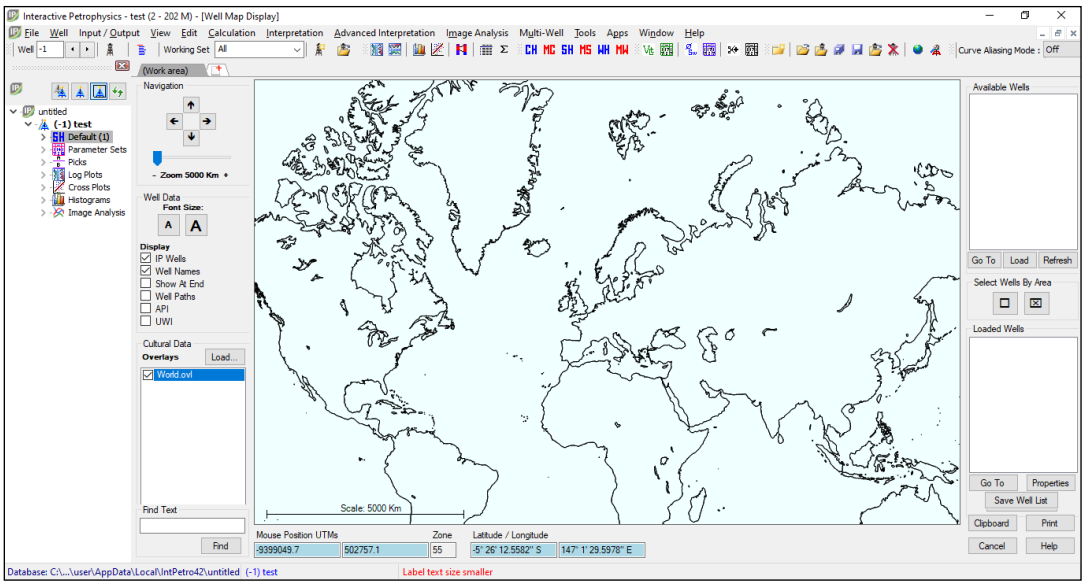
Petrel Software



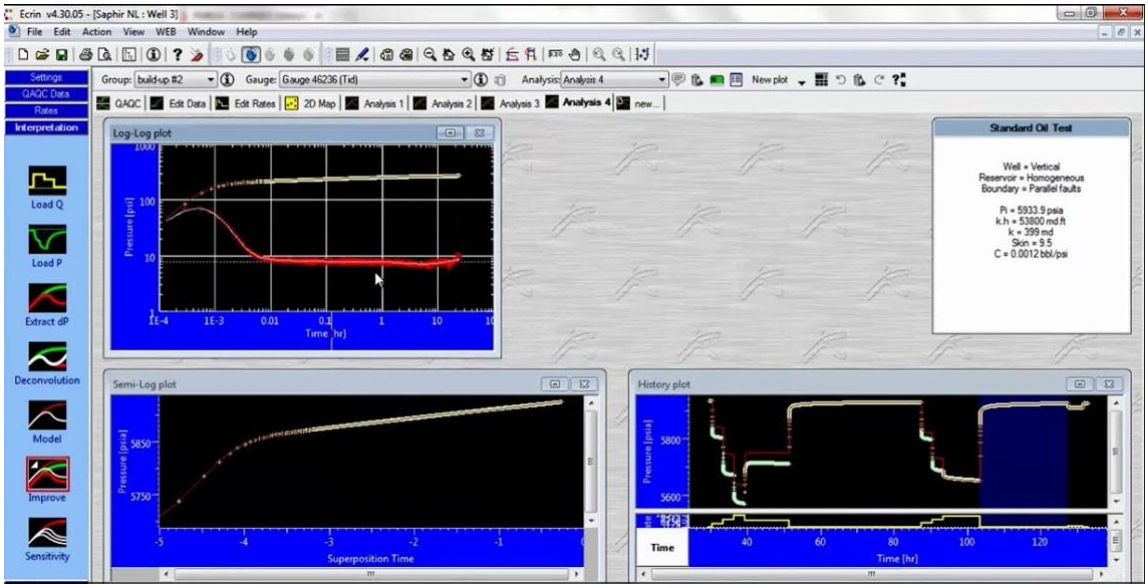
COMPASS



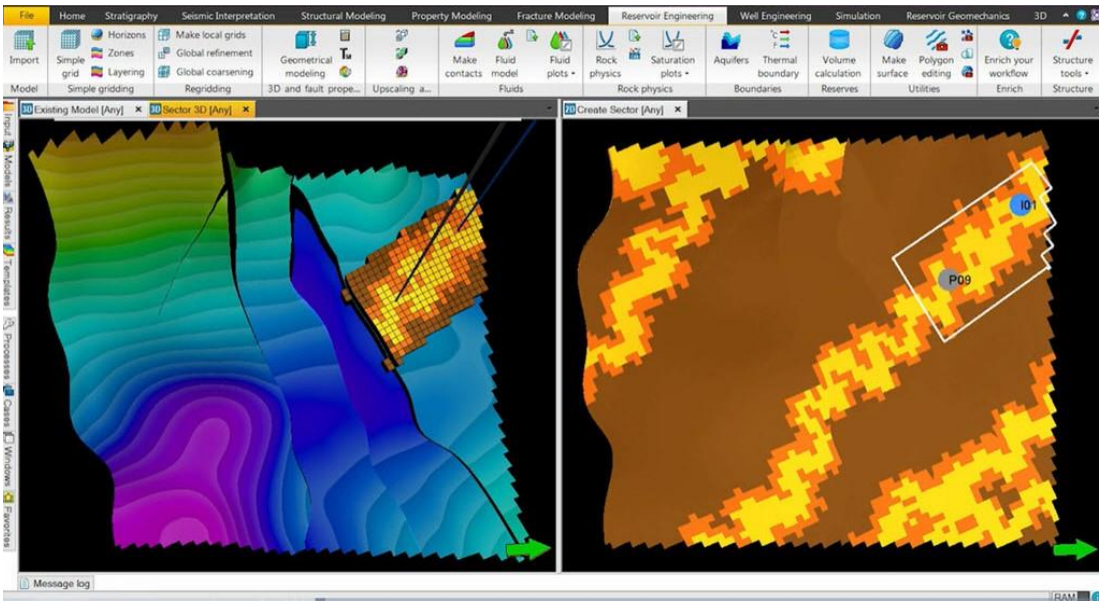
Monte Carlo Simulation



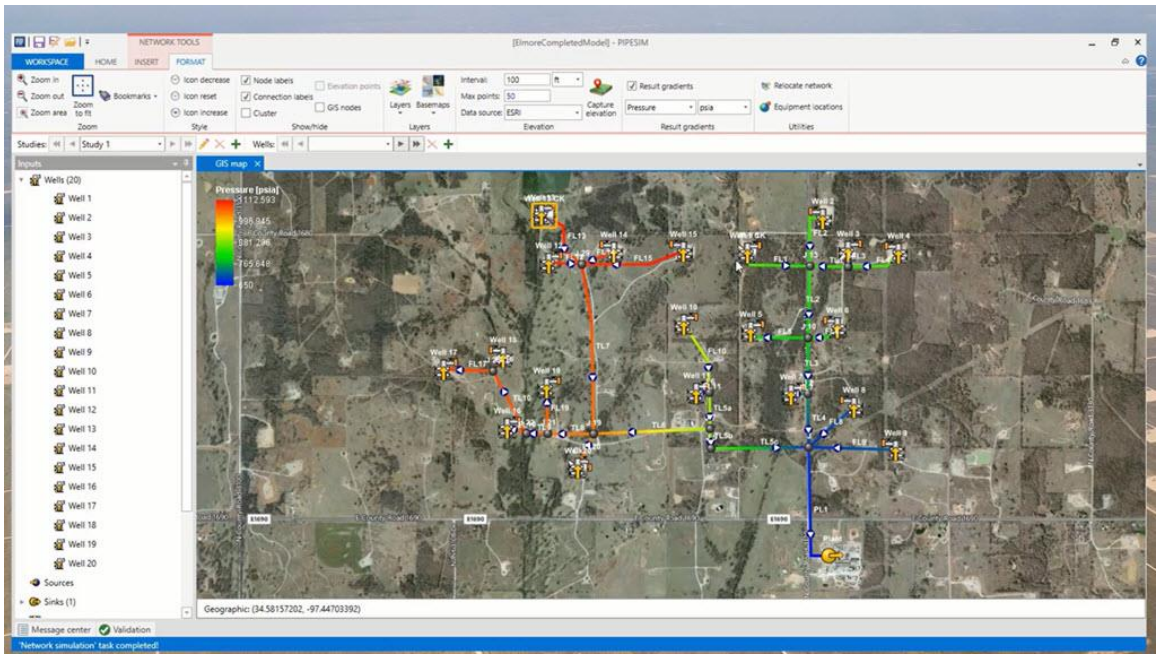
Interactive Petrophysics (IP) Software



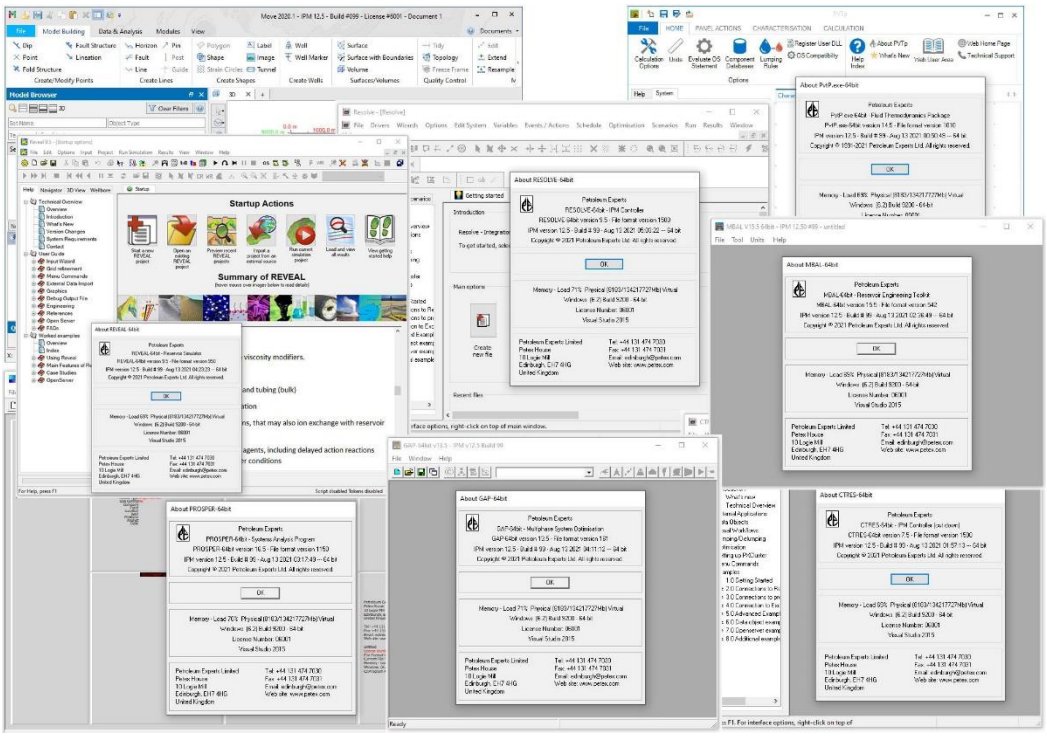
ECRIN Software



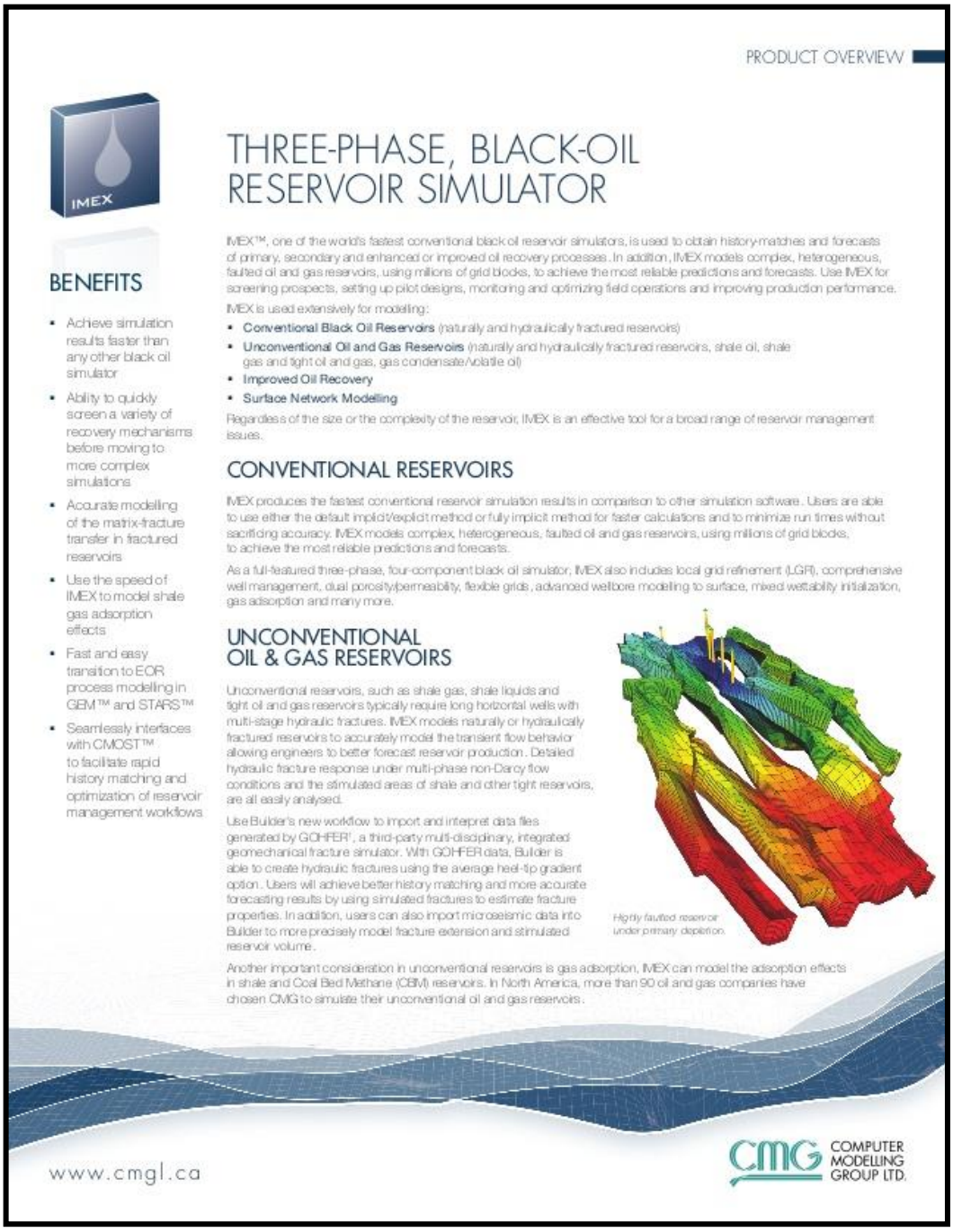
Eclipse Software



PIPESIM



PETEX IPM Suite



PRODUCT OVERVIEW

IMEX

THREE-PHASE, BLACK-OIL RESERVOIR SIMULATOR

IMEX™, one of the world's fastest conventional black oil reservoir simulators, is used to obtain history-matches and forecasts of primary, secondary and enhanced or improved oil recovery processes. In addition, IMEX models complex, heterogeneous, faulted oil and gas reservoirs, using millions of grid blocks, to achieve the most reliable predictions and forecasts. Use IMEX for screening prospects, setting up pilot designs, monitoring and optimizing field operations and improving production performance.

IMEX is used extensively for modelling:

- **Conventional Black Oil Reservoirs** (naturally and hydraulically fractured reservoirs)
- **Unconventional Oil and Gas Reservoirs** (naturally and hydraulically fractured reservoirs, shale oil, shale gas and tight oil and gas, gas condensate/volatile oil)
- **Improved Oil Recovery**
- **Surface Network Modelling**

Regardless of the size or the complexity of the reservoir, IMEX is an effective tool for a broad range of reservoir management issues.

BENEFITS

- Achieve simulation results faster than any other black oil simulator
- Ability to quickly screen a variety of recovery mechanisms before moving to more complex simulations
- Accurate modelling of the matrix-fracture transfer in fractured reservoirs
- Use the speed of IMEX to model shale gas adsorption effects
- Fast and easy transition to EOR process modelling in GEM™ and STARS™
- Seamlessly interfaces with CMOST™ to facilitate rapid history matching and optimization of reservoir management workflows

CONVENTIONAL RESERVOIRS

IMEX produces the fastest conventional reservoir simulation results in comparison to other simulation software. Users are able to use either the default implicit/explicit method or fully implicit method for faster calculations and to minimize run times without sacrificing accuracy. IMEX models complex, heterogeneous, faulted oil and gas reservoirs, using millions of grid blocks, to achieve the most reliable predictions and forecasts.

As a full-featured three-phase, four-component black oil simulator, IMEX also includes local grid refinement (LGR), comprehensive well management, dual porosity/permeability, flexible grids, advanced wellbore modelling to surface, mixed wettability initialization, gas adsorption and many more.

UNCONVENTIONAL OIL & GAS RESERVOIRS

Unconventional reservoirs, such as shale gas, shale liquids and tight oil and gas reservoirs typically require long horizontal wells with multi-stage hydraulic fractures. IMEX models naturally or hydraulically fractured reservoirs to accurately model the transient flow behavior allowing engineers to better forecast reservoir production. Detailed hydraulic fracture response under multi-phase non-Darcy flow conditions and the stimulated areas of shale and other tight reservoirs, are all easily analysed.

Use Builder's new workflow to import and interpret data files generated by GOHFER®, a third-party multi-disciplinary, integrated geomechanical fracture simulator. With GOHFER data, Builder is able to create hydraulic fractures using the average heel-tip gradient option. Users will achieve better history matching and more accurate forecasting results by using simulated fractures to estimate fracture properties. In addition, users can also import microseismic data into Builder to more precisely model fracture extension and stimulated reservoir volume.

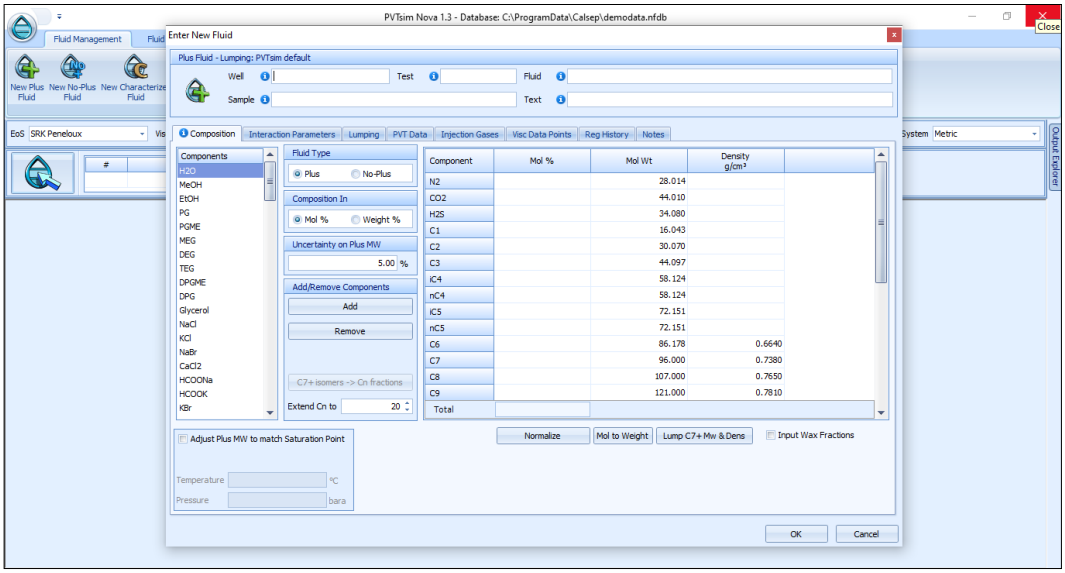
Highly faulted reservoir under primary depletion.

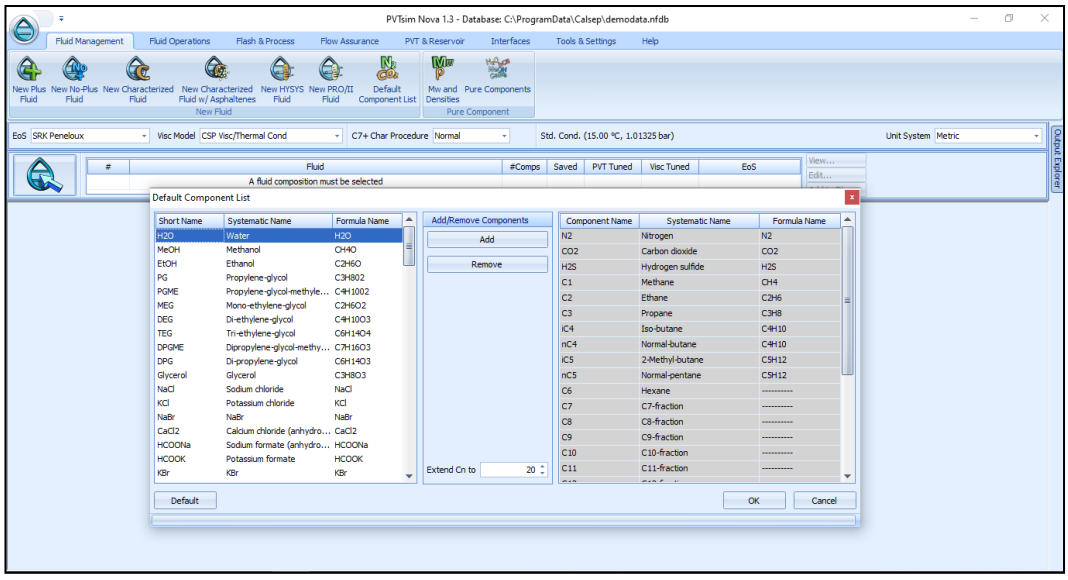
Another important consideration in unconventional reservoirs is gas adsorption, IMEX can model the adsorption effects in shale and Coal Bed Methane (CBM) reservoirs. In North America, more than 90 oil and gas companies have chosen CMG to simulate their unconventional oil and gas reservoirs.

www.cmgl.ca

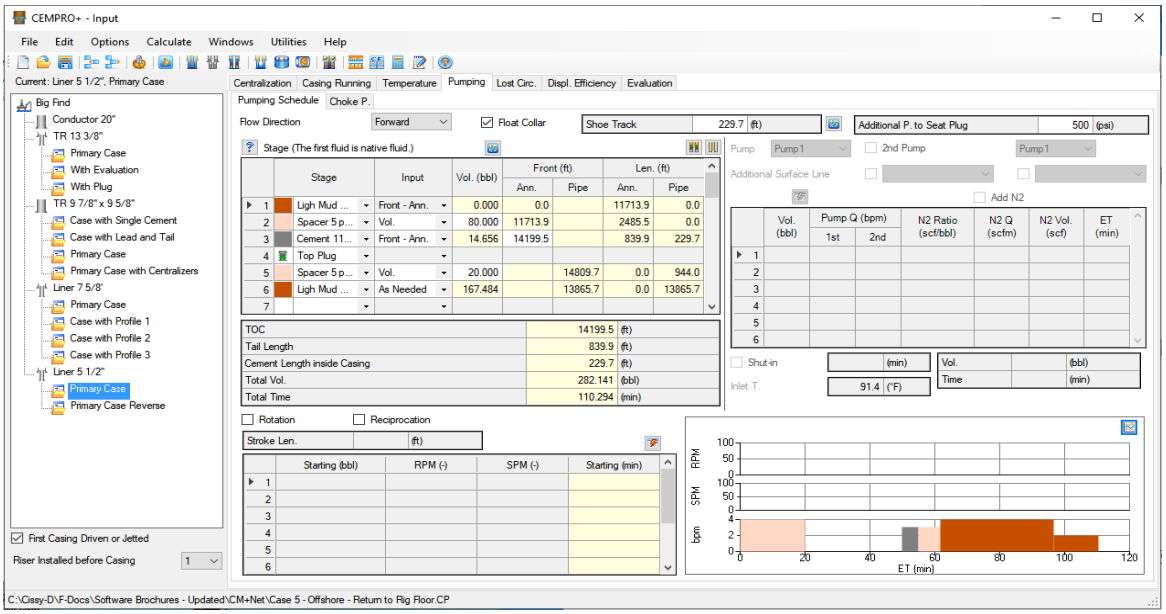
CMG COMPUTER MODELLING GROUP LTD.

Three-Phase Black-Oil Reservoir Simulator





PVTsim Software



CEMPRO+ Integrated Cementing Software

Course Coordinator

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