



COURSE OVERVIEW DE1060 **Well Stimulation: Practical and Applied**

Course Title

Well Stimulation: Practical and Applied

Course Date/Venue

September 07-11, 2026/Online Virtual Training

Course Reference

DE1060

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 Well Stimulation: Practical and Applied. It covers the types of stimulation, candidate well selection criteria and reservoir and rock properties; the well completion basics, formation damage mechanisms and fluid flow fundamentals; the principles of matrix acidizing including carbonate acidizing, sandstone acidizing and acid additives and systems; the acid placement techniques, hydraulic fracturing and rock mechanics and stress analysis; and the fracturing fluids, proppants and transport and fracture design concepts.



During this interactive course, participants will learn the advanced fracturing techniques, acid fracturing, stimulation in unconventional reservoirs and diagnostic techniques; the real-time monitoring and control, post-stimulation evaluation and economic evaluation; the environmental and safety considerations covering chemical handling and disposal, water management, induced seismicity concerns and regulatory compliance; the treatment failures, improving placement efficiency and re-design strategies; and the integrated workflow from candidate selection to execution including multidisciplinary collaboration, data integration and best practices.





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 well stimulation
- Identify the types of stimulation, candidate well selection criteria and reservoir and rock properties
- Discuss well completion basics, formation damage mechanisms and fluid flow fundamentals
- Explain the principles of matrix acidizing including carbonate acidizing, sandstone acidizing and acid additives and systems
- Carryout acid placement techniques, hydraulic fracturing and rock mechanics and stress analysis
- Recognize fracturing fluids, proppants and transport and fracture design concepts
- Employ advanced fracturing techniques, acid fracturing, stimulation in unconventional reservoirs and diagnostic techniques
- Apply real-time monitoring and control, post-stimulation evaluation and economic evaluation
- Discuss environmental and safety considerations covering chemical handling and disposal, water management, induced seismicity concerns and regulatory compliance
- Identify treatment failures, improve placement efficiency and apply re-design strategies
- Apply integrated workflow from candidate selection to execution including multidisciplinary collaboration, data integration and best practices

Who Should Attend

This course provides an overview of all significant aspects and considerations of well stimulation for petroleum and reservoir engineers, production and well intervention engineers, drilling and completion engineers, field engineers and wellsite supervisors, stimulation and fracturing specialists, operations and production personnel, service company engineers and technicians, HSE professionals involved in well operations, technical managers and supervisors in upstream operations.

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 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 Sweetening, 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

Course Fee

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

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, 07th of September 2026

0800 – 0815	Registration & Coffee
0815 – 0830	Welcome & Introduction
0830 – 0845	PRE-TEST
0845 – 0930	Introduction to Well Stimulation & Reservoir Fundamentals Objectives of Well Stimulation • Types of Stimulation (Acidizing versus Hydraulic Fracturing) • Candidate Well Selection Criteria • Overview of Field Applications
0930 – 0945	Break
0945 – 1030	Reservoir & Rock Properties Porosity and Permeability Fundamentals • Wettability and Fluid Saturation • Lithology Types and Their Impact on Stimulation • Formation Damage Mechanisms
1030 – 1130	Well Completion Basics Types Of Completions (Open Hole, Cased Hole) • Perforation Techniques and Efficiency • Completion Impact on Stimulation Design • Zonal Isolation Methods
1130 – 1215	Formation Damage Mechanisms Drilling-Induced Damage • Fines Migration and Clay Swelling • Scale and Organic Deposition • Damage Diagnosis Techniques
1215 – 1230	Break



1230 – 1315	Fluid Flow Fundamentals Darcy's Law and Flow Regimes • Skin Factor Concept • Pressure Transient Behavior • Impact of Stimulation on Flow Efficiency
1315 – 1350	Practical Session: Candidate Selection Reviewing Well Data and Logs • Identifying Damaged Zones • Screening Wells for Stimulation • Basic Productivity Calculations
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, 08th of September 2026

0800 – 0845	Principles Of Matrix Acidizing Mechanisms Of Acid-Rock Interaction • Types of Acids (HCl, HF, Organic Acids) • Acid Selection Criteria • Reaction Kinetics
0845 – 0930	Carbonate Acidizing Limestone versus Dolomite Reactions • Wormhole Formation • Acid Diversion Techniques • Optimization of Injection Rates
0930 – 0945	Break
0945 – 1100	Sandstone Acidizing Mud Acid Systems (HCl-HF Blends) • Clay Stabilization • Preflush and Overflush Design • Compatibility Issues
1100 – 1215	Acid Additives & Systems Corrosion Inhibitors • Iron Control Agents • Surfactants and Mutual Solvents • Emulsified and Gelled Acids
1215 – 1230	Break
1230 – 1315	Acid Placement Techniques Bullheading versus Coiled Tubing • Zonal Isolation Methods • Diversion Techniques (Mechanical and Chemical) • Monitoring Placement Efficiency
1315 – 1350	Practical Session: Acid Job Design Designing Acid Volumes and Concentrations • Selecting Additives • Pump Schedule Creation • Safety Considerations
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, 09th of September 2026

0800 – 0845	Basics of Hydraulic Fracturing Objectives and Applications • Fracture Geometry Concepts • Stress Regime and Fracture Orientation • Types of Fracturing Treatments
0845 – 0930	Rock Mechanics And Stress Analysis In-Situ Stresses (Vertical, Horizontal) • Young's Modulus and Poisson's Ratio • Fracture Initiation Pressure • Stress Contrast and Containment
0930 – 0945	Break
0945 – 1100	Fracturing Fluids Water-Based Fluids (Slickwater, Gels) • Oil-Based Fluids • Fluid Rheology and Viscosity • Additives (Friction Reducers, Breakers)



1100 – 1215	Proppants & Transport Types (Sand, Resin-Coated, Ceramic) • Proppant Properties and Selection • Transport Mechanisms • Settling and Placement Challenges
1215 – 1230	Break
1230 – 1315	Fracture Design Concepts Height, Length, And Width Calculations • Net Pressure and Leak-off • Conductivity Optimization • Treatment Design Parameters
1315 – 1350	Practical Session: Basic Fracture Design Input Data Preparation • Estimating Fracture Dimensions • Selecting Fluid and Proppant • Designing Pumping Schedule
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, 10th of September 2026

0800 – 0845	Advanced Fracturing Techniques Multi-Stage Fracturing • Horizontal Well Stimulation • Plug-and-Perf versus Sliding Sleeve Systems • Refracturing Strategies
0845 – 0930	Acid Fracturing Differences From Matrix Acidizing • Etching Patterns in Carbonates • Acid Fluid Systems • Design Considerations
0930 – 0945	Break
0945 – 1100	Stimulation in Unconventional Reservoirs Shale Gas and Tight Oil Challenges • High-Volume Fracturing • Cluster Spacing Optimization • Production Forecasting
1100 – 1215	Diagnostic Techniques Pressure Analysis (DFIT, Mini-Frac) • Step-Rate Tests • Microseismic Monitoring • Production Logging
1215 – 1230	Break
1230 – 1315	Real-Time Monitoring & Control Surface Pressure and Rate Monitoring • Fracture Propagation Tracking • Adjusting Treatment Parameters • Troubleshooting During Operations
1315 – 1350	Practical Session: Diagnostics & Evaluation Interpreting Pressure Plots • Identifying Fracture Behavior • Evaluating Treatment Success • Case-Based Analysis
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, 11th of September 2026

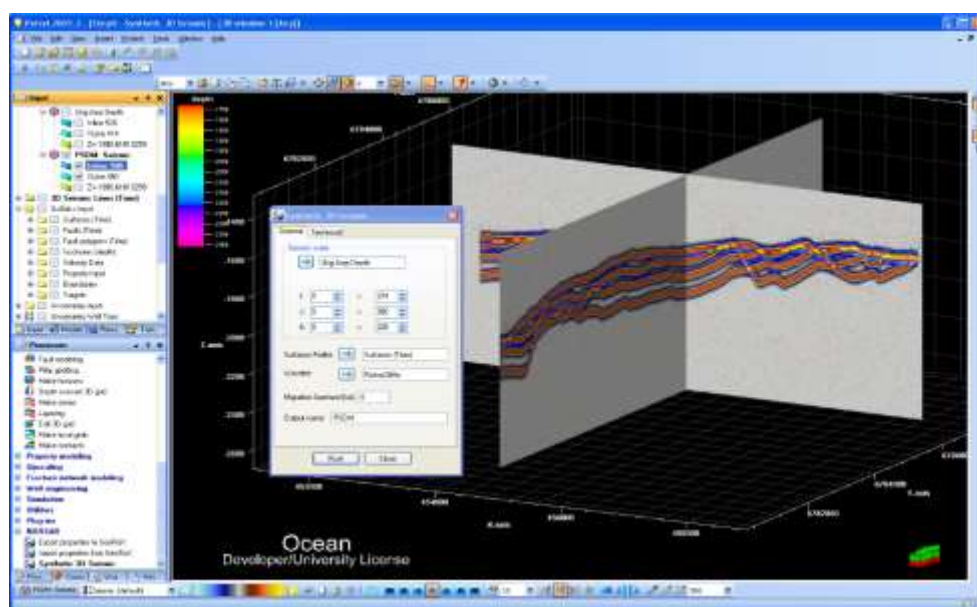
0800 – 0845	Post-Stimulation Evaluation Well Testing and Pressure Analysis • Production Performance Comparison • Skin Factor Reduction Assessment • Decline Curve Analysis
0845 – 0930	Economic Evaluation Cost Components of Stimulation • Return On Investment (ROI) • Break-Even Analysis • Risk Assessment
0930 – 0945	Break



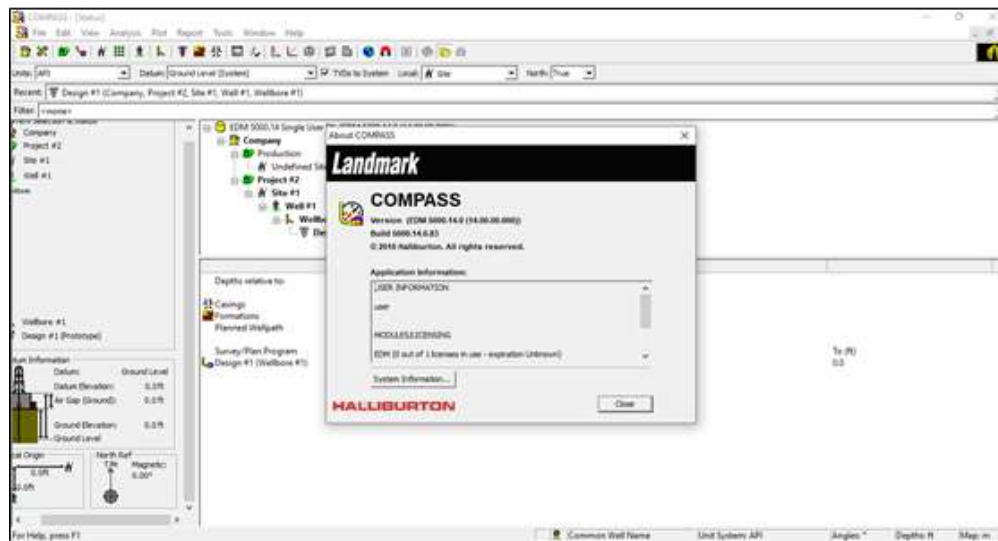
0945 – 1100	Environmental & Safety Considerations <i>Chemical Handling and Disposal • Water Management • Induced Seismicity Concerns • Regulatory Compliance</i>
1100 – 1215	Troubleshooting And Optimization <i>Identifying Treatment Failures • Improving Placement Efficiency • Re-Design Strategies • Lessons Learned from Field Cases</i>
1215 – 1230	Break
1230 – 1330	Integrated Workflow <i>From Candidate Selection to Execution • Multidisciplinary Collaboration • Data Integration (Geology, Reservoir, Production) • Best Practices</i>
1330 – 1345	Course Conclusion <i>Using this Course Overview, the Instructor(s) will Brief Participants about Topics that were Covered During the Course</i>
1345 – 1400	POST-TEST
1400	End of Course

Simulator (Hands-on Practical Sessions)

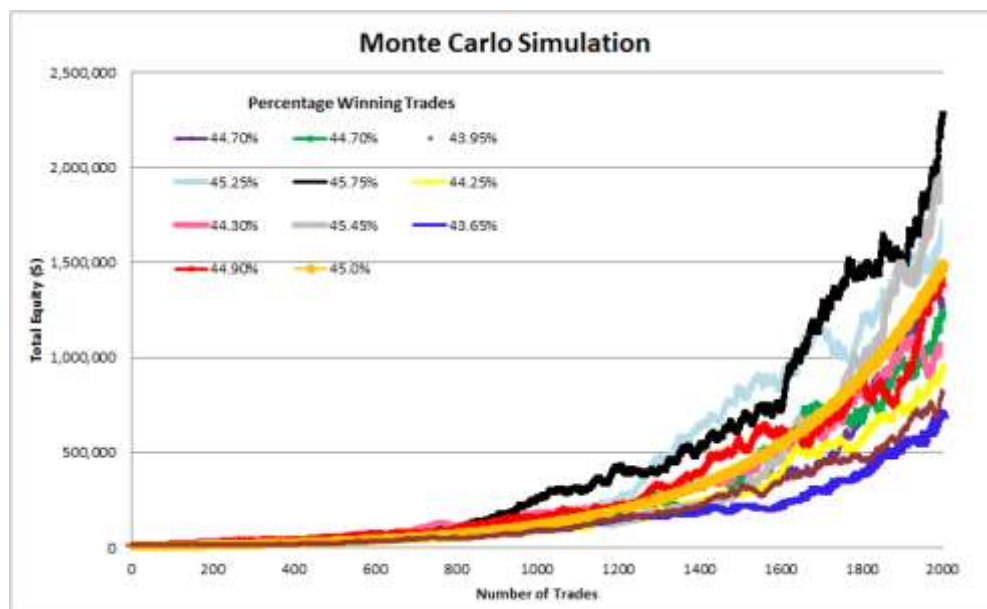
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the “PyScripter with Python”, “Petrel Software”, “COMPASS”, “Monte Carlo”, “Interactive Petrophysics (IP)”, “ECRIN”, “PIPESIM”,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



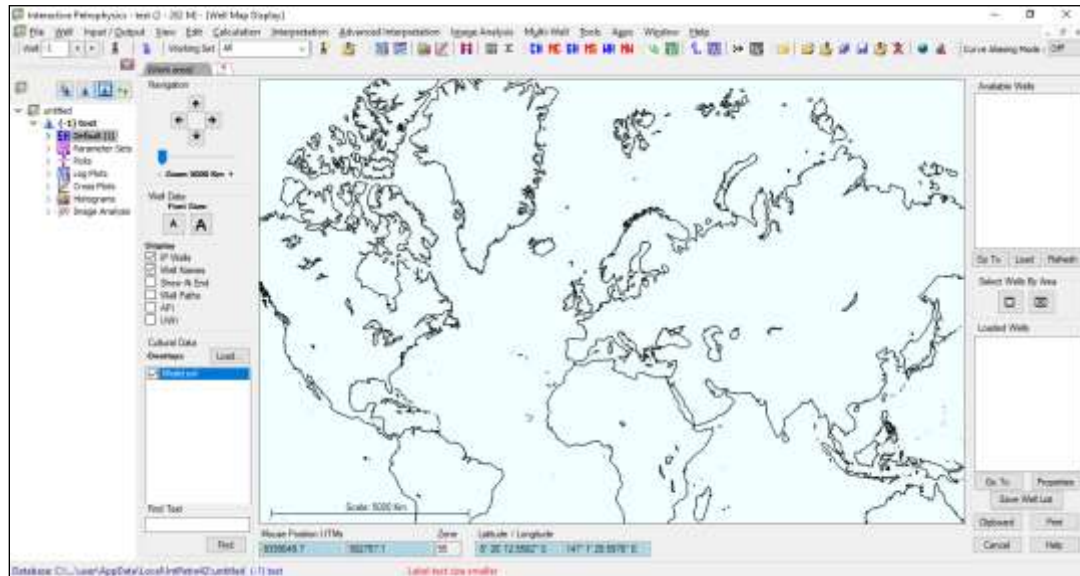
Petrel Software



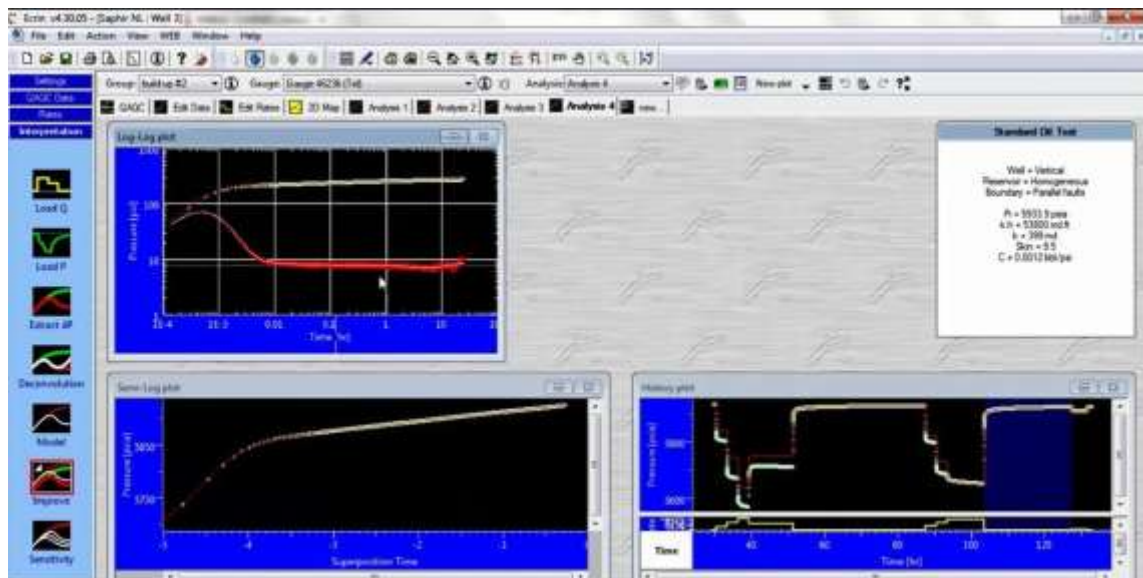
COMPASS



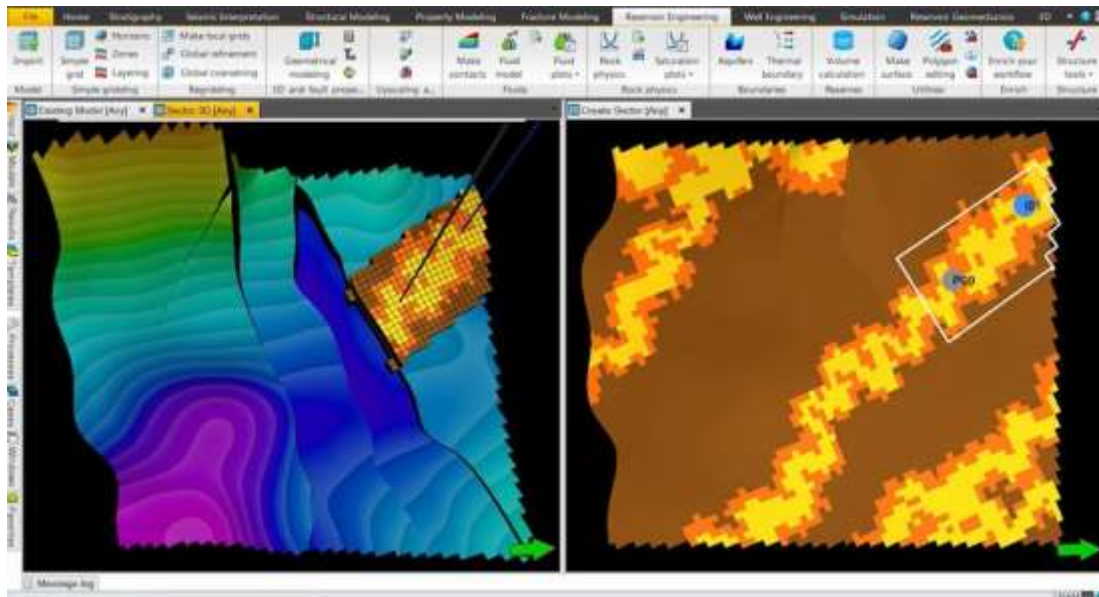
Monte Carlo Simulation



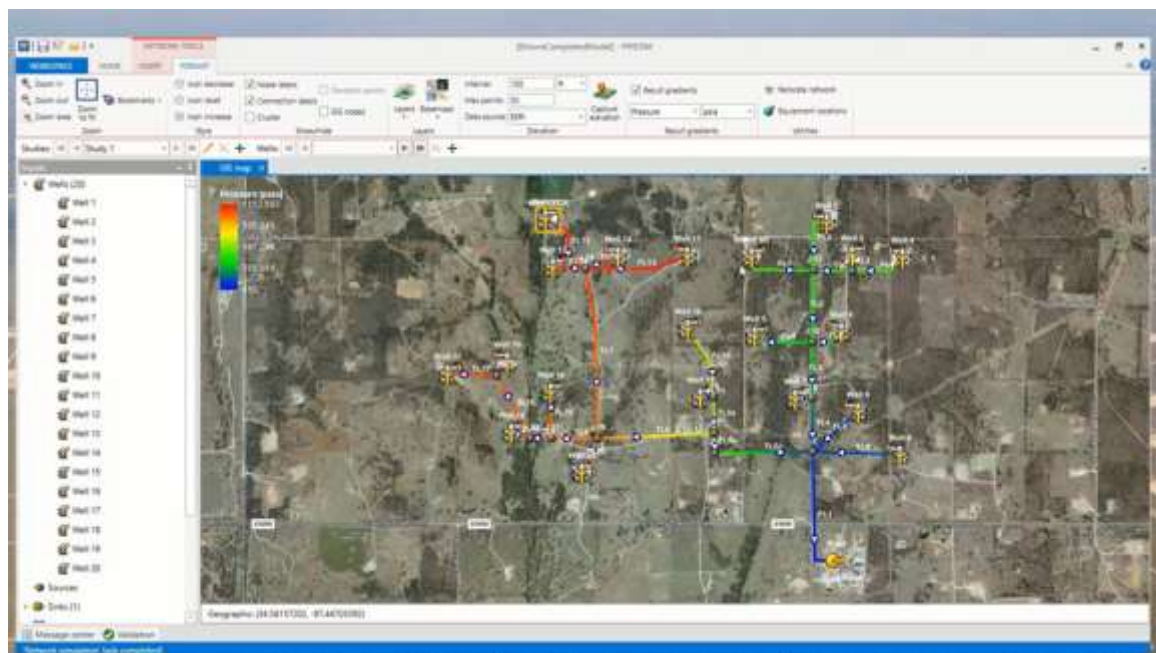
Interactive Petrophysics (IP) Software



ECRIN Software



Eclipse Software



PIPESIM



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.

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.

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.

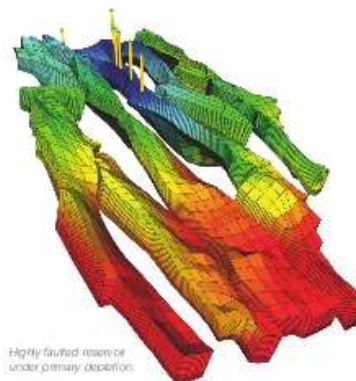
As a full-featured three-phase, four-component black oil simulator, IMEX also includes local grid refinement (LGR), comprehensive well management, dual porosity/permeability, flexible grids, advanced wellbore modelling to surface, mixed wettability initialization, gas adsorption and many more.

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 simulated areas of shale and other tight reservoirs, are all easily analysed.

Use Builder's new workflow to import and interpret data files generated by GCHFER™, a third-party multi-disciplinary, integrated geomechanical fracture simulator. With GCHFER 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 simulated reservoir volume.

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.

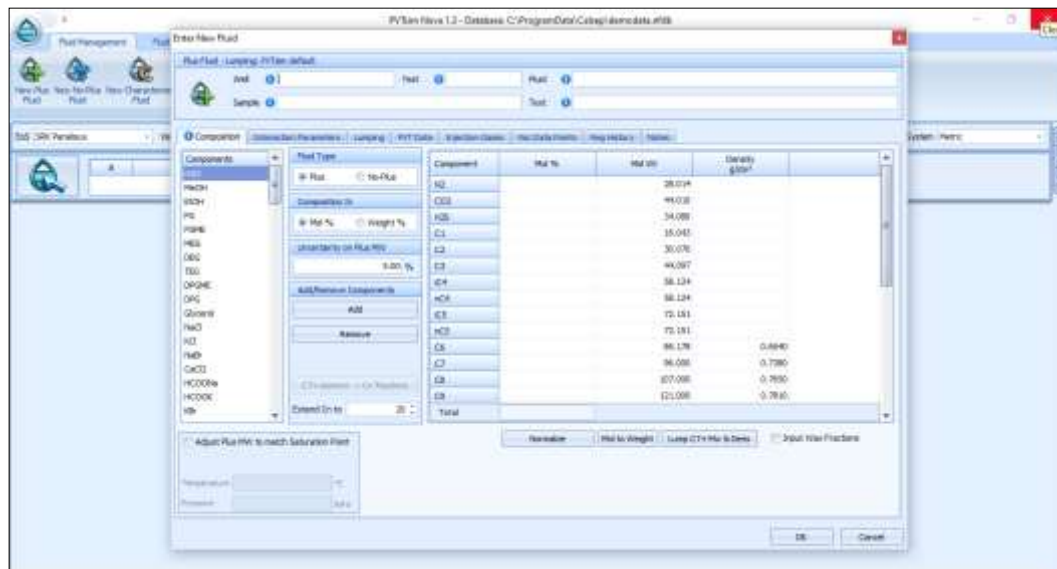


Highly faulted reservoir under primary depletion

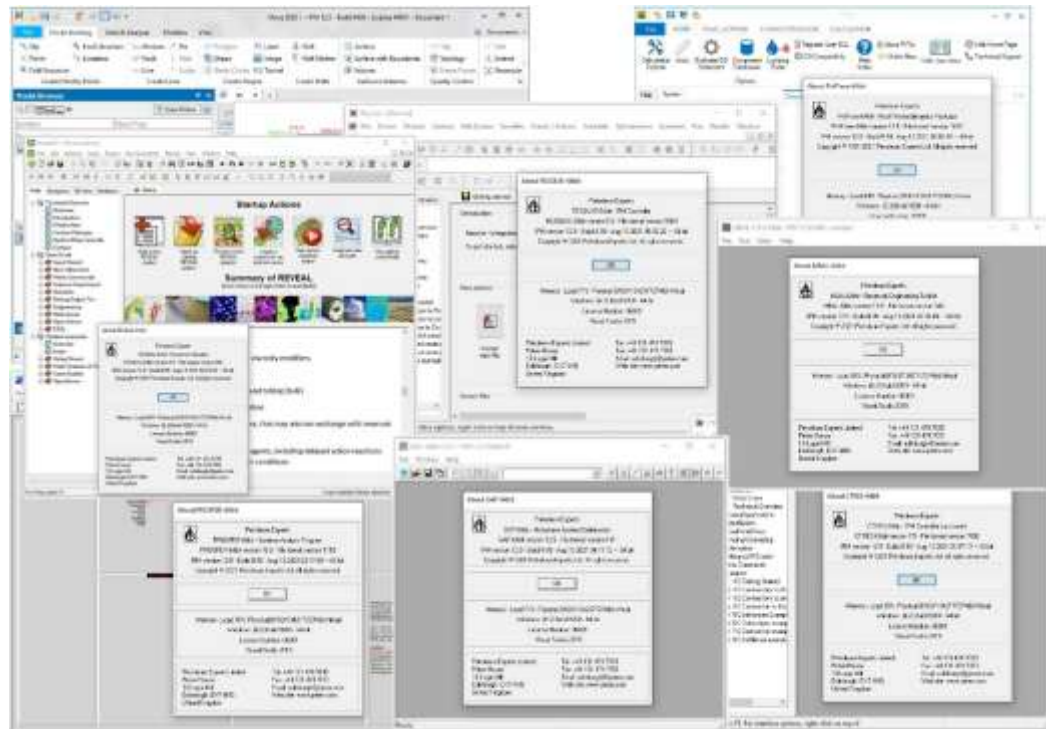
www.cmg-l.ca

CMG COMPUTER MODELLING GROUP LTD.

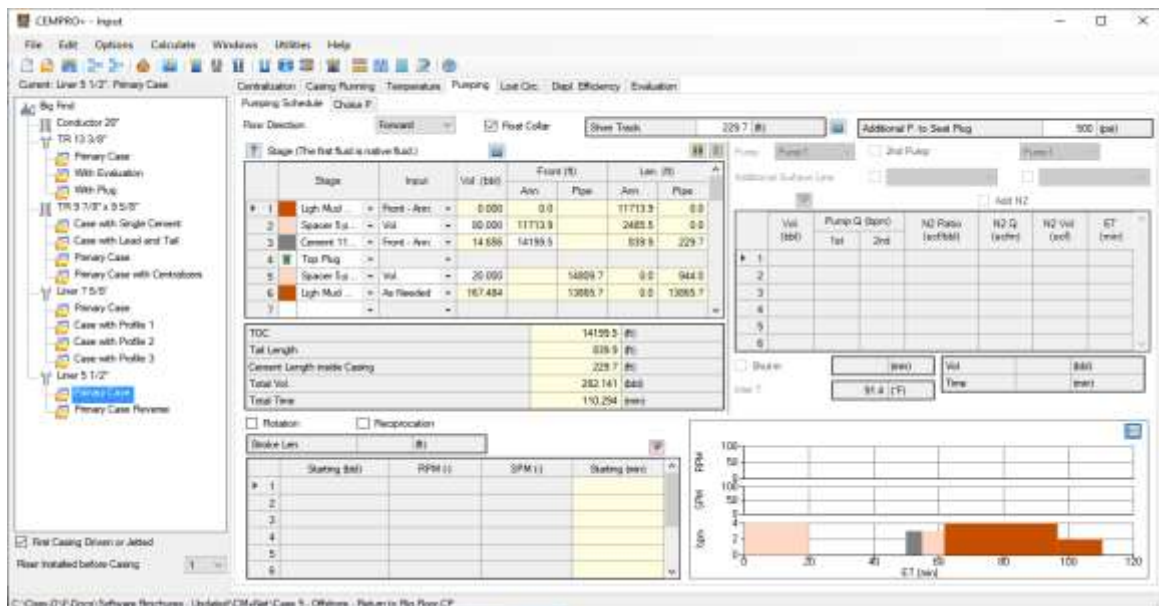
Three-Phase Black-Oil Reservoir Simulator



PVTsim Software



PETEX IPM Suite



CEMPRO+ Integrated Cementing Software

Course Coordinator

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org