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OLGA Dynamic Multiphase Flow Simulator

Gain deeper insight into flow behavior to maximize production and minimize risk

APPLICATIONS

Transient multiphase flow modeling in offshore and onshore systems

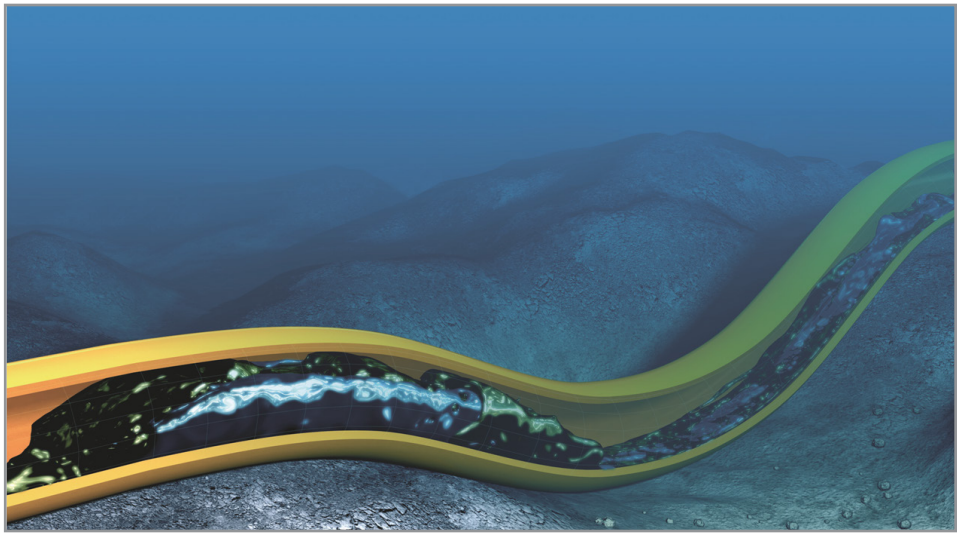
BENEFITS

- Maximize production potential by modeling time-dependent behaviors for the total system, from pore to process
- Reduce capital expenditure through the right sizing of facilities
- Minimize downtime by ensuring multiphase production is possible under any set of production conditions

FEATURES

- Dynamic multiphase flow simulation for complex flow assurance challenges
- Transient multiphase technology proven through continuous field-validated research
- Risk management and optimization interface for parametric and sensitivity studies
- Interactive workspace, customized components, and libraries
- Open framework for efficient integration

The OLGA* dynamic multiphase flow simulator models transient flow behavior, providing valuable insights through the entire production system—from reservoir pore to process facility—to help maximize production potential. Operational changes, such as shutdowns and startups, are inherently transient. By predicting time-varying changes in operations—as well as flow rates, fluid compositions, temperature, and solids deposition—the OLGA simulator provides an added dimension to steady-state analyses. Dynamic simulation is essential in deep water developments, but is also used extensively offshore and onshore to investigate transient behavior in pipelines and wellbores.



Liquid surge in a subsea pipeline.

Simulate flow in any system

From wellbore dynamics for any well completion to pipeline systems with all types of process equipment, the OLGA simulator provides an accurate prediction of key operational conditions involving transient flow.

Key flow-simulation applications include the following:

- Liquids handling
- Sizing separators and slug catchers
- Managing solids (e.g., hydrates and wax)
- Simulating key operational procedures, including startup, shutdown, and pigging
- Modeling for contingency planning (kill mud density and kill flow rates for blowout control)
- Assessing environmental risk in complex deep water drilling environments

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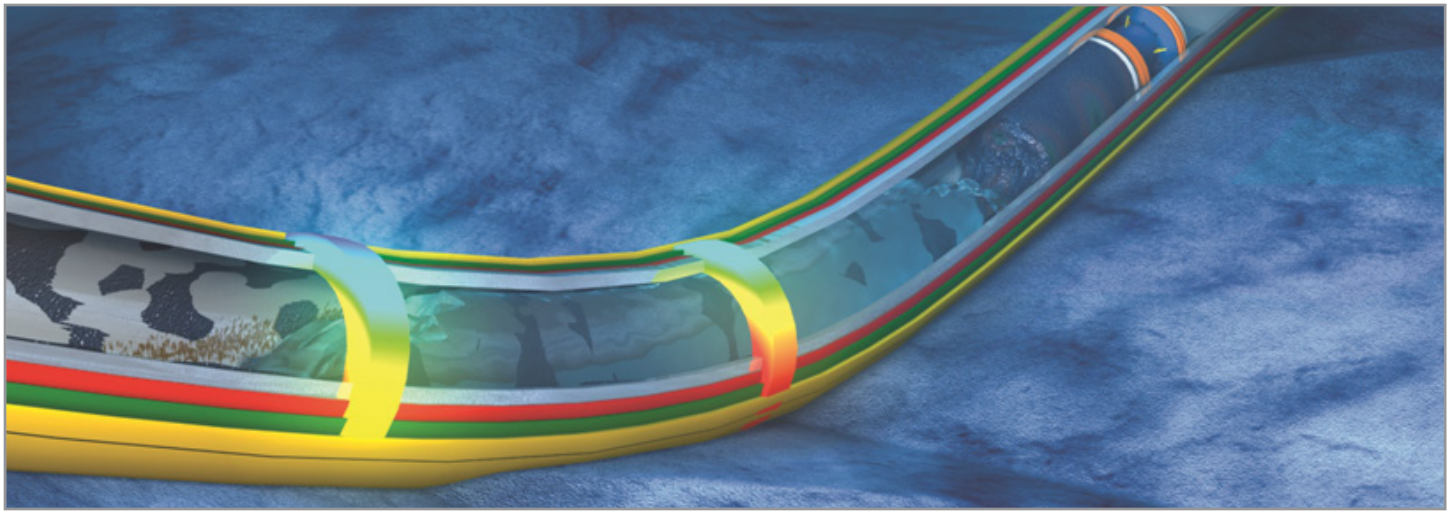

The OLGA simulator enables you to simulate key operational procedures, including pigging.

Versatility to address dynamic phenomena

The flow model is the basis for any successful flow simulation and must contain the physics describing flow in a given cross section of the pipeline, under any production circumstances. Through years of innovation, testing, and verification, the OLGA simulator has incorporated the best science, which has made it the de facto market standard for modeling flow dynamics.

Using a modular approach, the OLGA simulator enables you to identify, prevent, and solve flow assurance problems throughout the field life.

Flow assurance, from concept to operations

The OLGA simulator is used in all phases of field development. With full network capability, converging and diverging transport and process networks, and closed loops, the OLGA simulator provides insight into the dynamic flow behavior in wells, pipelines, and process equipment. This flexibility enables engineers to simulate a range of production systems for any field configuration and determine optimal design, operational procedures, and risk-mitigation strategies.

The OLGA simulator has unique and proven abilities to successfully model even the most challenging developments, including deepwater oil and gas condensates, heavy oils, and complex EOR projects. In addition, the OLGA simulator reduces downtime by ensuring multiphase production is possible under any set of production conditions.

Applying the simulator in system design and operations saves huge capital expenditure through the right sizing of facilities. As oil and gas are discovered in ever more remote areas in the world, cutting down investments and operational costs is key to realizing new projects.

Work with your virtual well

With challenging wells becoming more and more commonplace, advanced simulation tools are required to plan and operate them with an acceptable level of risk. Safety margins decrease with increased complexity, which means accurate models that include transient effects are critical for minimizing and avoiding problems.

With the OLGA simulator, well engineers can build a virtual well to analyze potential scenarios, diagnose well flow problems, and predict results of well operations.

Well engineers have seen improvements to their engineering designs, ensuring long-term production optimization not just for conventional wells, but also for wells with advanced completions and complex geometries (e.g., long horizontal, multilayer, multilateral, large-bore, and undulating trajectories).

Continuous research and development

Customer-supported innovation and research has been at the core of the OLGA simulator's development for more than 30 years.

The participation of major oil and engineering companies in the OLGA Verification and Improvement Project (OVIP) and Horizon projects is a key factor in its ongoing development. The OVIP program is currently in its eighth 3-year cycle and has compiled the world's largest database of lab and field data. This is used to validate and adapt the multiphase flow models to continuously enhance the OLGA simulator.

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