DIGITAL SOLUTIONS

SYNERGI™ PIPELINE SIMULATOR

Transient flow simulation for both liquid and gas pipelines
Synergi Pipeline Simulator provides the pipeline industry with better solutions to maximize asset performance and safeguard life, property and the environment.

Synergi Pipeline Simulator (Previously Stoner Pipeline Simulator) is the worldwide leader in transient flow simulation for both liquid and gas pipelines. It provides a complete range of simulation solutions, from the design and planning desktop, through operator training and qualification to on-line systems, including leak detection and predictive simulation.

**Superior pipeline design and performance analysis**
Internationally recognized as an industry leader in pipeline analysis, Synergi Pipeline Simulator is used by engineering, planning and operations divisions to facilitate pipeline design and improve performance. The software can be used to eliminate operational problems for networks transporting natural gas, dense phase gas or liquids.

This comprehensive tool analyses hydraulic challenges:
- Simple throughput assessment
- Surge analysis
- Survival time analysis
- Complex behaviour of highly viscous, non-Newtonian crude
- Detailed multiple-layer thermal studies
- Slack line flow phenomena

A Synergi Pipeline Simulator configuration can be used with all Synergi Pipeline Simulator modules allowing the same model to be re-used for multiple applications, i.e. a surge analysis model can be connected to SCADA to provide on-line Leak Detection.

**Unparalleled model detail**
Synergi Pipeline Simulator handles any combination of scenarios, including control system analysis, equipment performance analysis and pressure flow capacity analysis with user-defined levels of complexity.

The software can simulate all of your existing equipment, including pipes, pumps, centrifugal and reciprocating compressors and station yard piping, regulators, valves, headers and heat exchangers, exactly as configured in the field. Synergi Pipeline Simulator can model your entire control system, sensors, PID controllers, relays and actuators.

**Unequaled accuracy**
Synergi Pipeline Simulator has been used for expert witness forensic studies on many different types of pipeline systems, and results have been presented, defended, and proven in court as correct and accurate.
Business Benefits of Synergi Pipeline Simulator

- Synergi Pipeline Simulator is a commercial off-the-shelf product with a guaranteed and proven upgrade path—no expensive and time-consuming software upgrades.
- Licensing can be provided as stand-alone or server licensing, supporting multiple users in a large organization.
- Integrates easily with third-party systems using industry standard interface protocols.
- Models can be used by all modules, allowing a surge analysis model to be re-used as a trainer or even a leak detection model, reducing costs for training and software.

Synergi Pipeline Simulator modules

**Leakfinder**

Leakfinder provides real-time leak detection, sizing and location. Unique state estimation technology gives you optimal performance, even with poor or missing input data. SCADA or telemetry issues will have minimal impact on leak detection performance.

**Trainer**

Ensure that your controllers are fully trained to recognize and respond to abnormal pipeline behaviours or emergency situations. Trainer provides a highly realistic simulation environment, much like a flight simulator for pilots. The OQ tool allows you to manage the operator qualification process, demonstrate compliance with legislation and provide an auditable record of operator training.

**Statefinder**

Statefinder provides a powerful on-line decision support tool. Using proprietary state-estimation technology, Statefinder can provide real-time information such as:
- Composition, quality, ownership, batch, pig tracking
- Inventory analysis
- Virtual instrumentation
- Pressure monitoring and alarming

**Predictor**

Predictor provides contingency planning, survival time analysis, nominations validation and much more. With Synergi Pipeline Simulator you can have confidence in the results.

**State-of-the-art user interface**

Synergi Pipeline Simulator is provided with Viewport, a powerful and flexible engineering user interface, and optionally with Operatio nal Interface to provide a web-enabled control room HMI that can be configured to replicate the look and feel of your SCADA.
About DNV GL

DNV GL is a global quality assurance and risk management company. Driven by our purpose of safeguarding life, property and the environment, we enable our customers to advance the safety and sustainability of their business. Operating in more than 100 countries, our professionals are dedicated to helping customers in the maritime, oil & gas, power and renewables and other industries to make the world safer, smarter and greener.

Digital Solutions

DNV GL is a world-leading provider of digital solutions for managing risk and improving safety and asset performance for ships, pipelines, processing plants, offshore structures, electric grids, smart cities and more. Our open industry platform Veracity, cyber security and software solutions support business-critical activities across many industries, including maritime, energy and healthcare.