Know what is happening inside your gas gathering system?
Multiphase flow in natural gas pipelines is a phenomenon in which multiple fluid phases flow simultaneously. Multiphase flow is common in wet gas gathering systems, such as shale plays and other unconventional gas formations, in which changes in temperature and pressure can cause various components of the gas to drop out.

Built with gas gathering systems in mind, the Multiphase Module of Synergi Gas is a separately licensed module that performs steady-state hydraulic simulations for multiphasic systems. This includes calculations for natural gas, hydrocarbon liquids and water simultaneously. On a pipe-by-pipe basis, Multiphase Module calculates which of the nine multi-phase flow regimes your system is actively flowing and the composition of the three phases. Multiphase Module uses DNV GL’s GasVLe for flash calculations and Kongsberg’s LedaFlow® to compute pressure losses in pipes as a function of phase flow rates.

Multiphase Module can also estimate the time required for the pipeline to reach steady-state. Two types of "time-to-steady-state" calculations are available. "Time-to-steady-state" for the entire pipeline network assumes there are no liquids initially in the pipeline. Liquids then accumulate sequentially beginning from the inflow end of the pipe. "Time-to-steady-state" for a pipeline section focuses on a user-selected section of pipe. The selected section initially contains no liquids and the remaining part of the pipeline is in steady-state.
The Multiphase module gives you the ability to:

- Perform steady-state simulations of natural gas, hydrocarbon liquids and water simultaneously
- Compute final flow regimes for liquid holdup
- Determine pipe frictional losses due to both gas and liquids
- Calculate the effects of liquid and gas removal and injection
- Determine phase changes via flash calculations

Multiphase Module helps you understand what’s happening inside the pipes so you can design, plan, and operate more effectively and efficiently. Simulation results can quickly and easily be understood and shared.

Using Synergi Gas with the Multiphase Module you can:

- Select one or more nodes or pipes in the model map and view the associated result values on the pipe or node
- Set up annotation and color schemes on the map
- Review the comprehensive solution messaging
- Create customized results reports for display and printing
- Create horizontal distance charts of multi-phase results for plotting and printing

FACTS ABOUT DNV GL

Driven by our purpose of safeguarding life, property and the environment, DNV GL enables organizations to advance the safety and sustainability of their business. Operating in more than 100 countries, our 16,000 professionals are dedicated to helping our customers in the maritime, oil & gas, energy and other industries to make the world safer, smarter and greener.

Software

DNV GL is the world-leading provider of software for managing risk and improving asset performance in the energy, process and maritime industries. Our solutions support a variety of business critical activities including design and engineering, risk assessment, asset integrity and optimization, QHSE, and ship management. Our worldwide presence facilitates a strong customer focus and efficient sharing of industry best practice and standards.