Wood Group
Flow assurance and process optimisation
Addressing life-cycle requirements

Our specialist flow assurance and process optimisation consultants have extensive experience in all project stages for offshore and onshore assets:

- Feasibility and conceptual studies
- Front-end engineering and detailed design
- Commissioning and start-up support
- Operations management and troubleshooting
- Life extension and decommissioning support

We are experienced

As an industry-recognised leader, Wood Group offers leading-edge technology, strong analytical capability and field-proven software systems. Our Virtuoso® packages are used to monitor 10% of the world’s gas consumption.

We offer solutions in the following areas:

- Transient multiphase flow
- Computational fluid dynamics
- Production chemistry / fluid phase thermodynamics
- Integrated production modelling / field development planning
- Process dynamics – topsides, subsea and plants
- Online monitoring systems / engineering simulators
- Operator training systems – fit-for-purpose fidelity
- Asset management and optimisation systems
- Operations support and troubleshooting
- Enhanced oil recovery (including steam-assisted, chemical/polymer flooding, CO₂ or water alternating gas)
- Carbon capture and storage, unconventional, shale and methane hydrate resources

Design

Our technical consulting services include the resolution of multiphase flow dynamics, slugging assessment and migration strategy, assessment of erosion issues, designs for thermal management and mitigation of operations issues.

We use state-of-the-art simulation tools like OLGA, LEDAFLOW, FLOWMASTER2, PIPESIM, PIPENET, MAXIMUS, HYSYS, UNISIM, DNV/Stoner SPS, Star CCM+, CFX and ScaleChem alongside our own custom software, including Virtuoso®, VP Link®, GUTS™, Maestro™ and the ProDyn/ProRPM/ProLearn/ProPlan/ProSched suite to provide cost-effective solutions to our clients.

Key benefits:

- Facilitates improved design and advanced optimisation
- Provides opportunities for reduction of conservatism and associated costs
- Promotes improved and safer operations

Operations

Our dedicated team of consultants offer a broad knowledge and skillset devoted to providing the requisite understanding of the fluids and production chemistry issues to assist clients increase production, improve operability, and address operational issues that may come about. Whether integrated into a multi-disciplinary team managed by the operating company or called-off, we can help investigate issues to handle a range of operational support services, including:

- Mitigating production chemistry issues
- Establishing operating procedures
- Production performance tracking and reporting of flow assurance KPI’s
- Metering and production allocation
- Real-time support and operations troubleshooting
- Operations risk management and mitigation
Our dedicated team of consultants offer a broad knowledge and skillset devoted to providing the requisite understanding of fluids and production chemistry issues to help you increase production and improve operability.

Delivery of field-proven systems for operations management

In the last 20 years, Wood Group has deployed over 100 software-based systems globally providing real-time, on-line operations management and optimisation functionalities. Our Virtuoso® suite of applications actively monitor, forecast, recommend and even control our clients’ oil and gas gathering, production, export and processing operations. Our VP Link® system is used extensively in downstream operations and petrochemical plants as well as other industries.

Key functionalities:
- Virtual well production metering (interfential metering)
- Production and pipeline performance monitoring, advisory, and optimisation
- Operations forecasting and “look ahead”
- Operations closed-loop control (“auto-pilot”)
- Engineering simulators and operator training systems
- Control system checkouts and testing

These systems facilitate opportunities for:
- Improved/optimised operations
- Reduced down-time
- Safer operations
- Maximising an asset’s value and return
- Flexibility to handle operational challenges
- Maintaining a trained operations and engineering crew

We are innovative

Wood Group remain at the forefront of innovative technologies including subsea research, establishing new industry standards, writing industry guidelines, funding joint industry projects, using data analytics and machine learning to improve our models and providing ground-breaking technology for clients.

A few of the flow assurance JIPs that Wood Group have been involved with are as follows:
- SLARP (Slug Load and Response)
- Imperial College Transient Multiphase Flow
- University of Michigan Wax / Asphaltenes
- Deepstar