PRODUCTION
TECHNOLOGIES.
FULL SERVICE.

PERFORM

CHEMISTRY TO ACHIEVE FULL FIELD POTENTIAL

Schlumberger

MAXIMIZE PRODUCTION
FROM RESERVOIR TO REFINERY

UNLOCK POTENTIAL, **OPTIMIZE PRODUCTION**

Schlumberger provides integrated production technology services that deliver tangible benefits and assurance to customers' worldwide oil and gas operations.

Firmly established at the forefront of technology, Schlumberger integrates pioneering chemical and process solutions, equipment, and software with unrivaled technical expertise.

Working with the world's largest oilfield services provider, customers benefit from a truly unique combination of outstanding technological capability, blended with a distinct understanding of how to successfully address their production challenges in an increasingly competitive marketplace.

Our global footprint and exceptional service delivery ensures that customers reliably and efficiently maximize production—regardless of system complexities or geography.

Schlumberger uses specialist research laboratories and field support operations to analyze issues across production operations and to engineer integrated solutions that help increase revenue and reduce operational costs through protecting asset integrity, maximizing production, and enhancing product quality.

PERFORM
ACHIEVE FULL FIELD POTENTIAL

The wide range of trusted Schlumberger flow performance technologies, equipment, and services are proven to improve and assure production and asset operations as well as extend field life.

Our suite of flow performance chemical technologies, together with complementary services such as ChemWatcher* integrated chemical management software in the Avocet* production operations software platform, ensure enhanced operating efficiency and cost effectiveness for Schlumberger customers in an exceptionally competitive global industry.


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HORIBA

DEFOAMERS

Schlumberger offers a wide range of effective defoamers for all oilfield applications. Silicones are the most commonly applied in crude oil and water injection systems, and nonsilicone products are available for amine gas treatment units, glycol units, and water-injection systems.

Schlumberger supplies mechanical augers that are designed to remove up to 80% of the free gas from the wellstream prior to the separator, preventing the formation of foam and potentially eliminating the need for a defoamer.


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DEMULSIFIERS

Demulsifier formulations help ensure that the residual water and salt content in the crude, and oil-in-water content of the separated water, meet required specifications.

When developing a cost-effective demulsifier, Schlumberger investigates application-wide factors, including location, nature of the oil, environment, and limitations of the equipment and facilities. Each item is thoroughly evaluated so that the facility can operate with minimum disruption and lowest cost.

WATER CLARIFIERS

Schlumberger deploys three basic types of water clarifiers—nonionic, cationic, and anionic—ensuring that water meets discharge requirements while still maximizing recovery from produced fluids.

When recommending a water clarifier solution that will lower costs and minimize facility disruption, Schlumberger considers important factors, including location, environment, and the parameters of the equipment and facilities.

Our comprehensive water clarification range covers all product types and can be tested onsite in any variation of separation equipment to deliver the best solution.


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FOAMERS

Our wide range of tested and proven foamer technology has been developed for varying brine chemistries and temperatures as well as the presence of condensate. Liquid foamers can be formulated as single or combined products with scale and corrosion inhibitors.

Solid stick foamers have been developed for a wide range of application conditions and condensate levels, including for temperatures up to 338 degF [170 degC].

Treatment options

- Topside
- Batch
  - Liquid batch
  - Sticks
  - Squeeze
- Continuous
  - Drip
  - Capillary string

FLOW IMPROVERS

Heating vessels, heated pipelines, addition of diluents, power lifting, and booster pumps are some of the technologies used to assist with flow and processing challenges caused by the effects of viscosity.

Schlumberger has also developed a range of chemicals that reduce the viscosity of the oil for lifting, processing, and transport, helping to reduce operational costs and improve production performance.

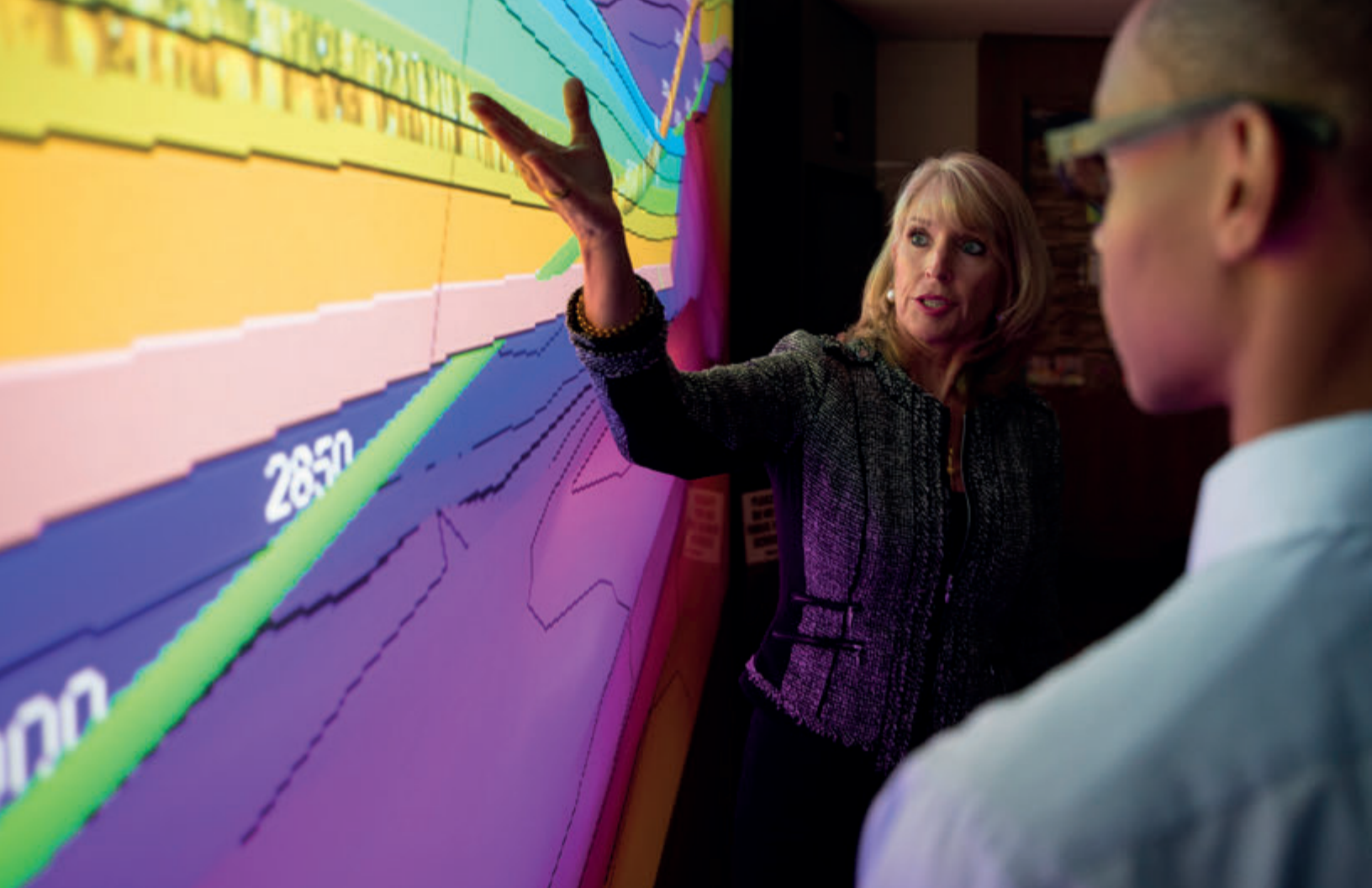
Additionally, Schlumberger specialists add value through assessing production systems, identifying bottlenecks, and developing customized solutions.

TRACER DYES

As an established part of the Schlumberger production chemicals portfolio, tracers have been applied in the oil and gas industry for decades for a number of purposes, including detecting leaks, minimizing water injection and water production rates by optimizing flow patterns, and enhancing inhibitor squeeze programs.

Compounds used include

- radioactive species
- stable isotopes
- chemicals such as fluorescent dyes, inorganic ions, and aromatic acids.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ChemWatcher SOFTWARE

Schlumberger ChemWatcher integrated chemical management software enables informed, real-time decisions about operational efficiency, safety, and performance.

ChemWatcher software leverages our global specialist knowledge and technical expertise, continually adding value from field start-up through cessation of production. It integrates with market-proven tools such as PIPESIM* steady-state multiphase flow simulator, OLGA* dynamic multiphase flow simulator, and dbrHydrate* fluid analysis software to manage the workflow related to chemical applications, injections, and production processes.

ChemWatcher software depicts asset status and trends using a variety of visualization methods, ranging from simple traffic lights to detailed interactive reports. These facilitate real-time decisions regarding production chemical applications that help drive operational efficiency, safety, and performance.

In addition to real-time production performance monitoring and analysis, ChemWatcher software is enabled for SCADA and telemetry. It also works as a central repository hub, providing information exchange and analytics for all data relating to

- flow assurance and integrity management
- production and product performance
- inventory management and commercial performance
- laboratory data and trend analysis.

Case Study

DEMULSIFIERS REDUCE BACKPRESSURE BY 80%, ENSURE CRUDE QUALITY IN EGYPT

CHALLENGE

A heavy-oil field in Egypt suffered backpressure at the wellheads due to the highly viscous emulsion being produced. The operator also struggled to attain the shipping specifications. One demulsifier was required to reduce wellhead backpressure, and another was needed to enable continuous fine-tuning of the shipping specifications.

SOLUTION

Schlumberger selected, tested, and prequalified two demulsifiers. EPT-2699 was injected at the wellheads and into downhole casing where ESP efficiency was threatened by heavy emulsion. EB-8956 was also injected at the inlet line of the central production facility.

RESULTS

Backpressure dropped from 400–500 psi to just 80–150 psi. Water content was maintained below 0.5% and salt content below 25 lbm per 1,000 bbl, which meant that the crude met agreed shipping specifications.

North Sea, UK

WATER QUALITY INCREASED WHILE DOSAGE HALVED

CHALLENGE

A major operator experienced issues with the produced water quality going overboard from two adjoining platforms while injecting demulsifier. They also required greater onboard emulsion resolution and separation.

SOLUTION

EB-8035 is an emulsion breaker formulated to break water-in-oil emulsions and deliver clean produced water. Supplied for field trial, it does this while leaving minimal residual emulsion in process separation systems.

RESULTS

Demulsifier volumes were reduced by around 50%. Water-in-oil results were also significantly improved, averaging 5–15 ppm overboard while maintaining zero emulsion at the export pumps. Postshutdown separator upsets were also handled without water quality reductions. Ongoing data shows oil in water remains at acceptable levels today with no residual emulsion buildup in the separators or carryover to the export pumps.

GLOBAL PRESENCE,
OUTSTANDING CAPABILITY

Achieve full field potential.

Find out more at slb.com/pt

Global workforce

Scale and footprint

Mergers and acquisitions track record

Executional capability

UNLOCK POTENTIAL

OPTIMIZE PRODUCTION

PREVENT — PERFORM — CURE

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