H
torically, enhanced oil recovery (EOR) techniques have been adopted as a near final attempt to recover additional hydrocarbons. This traditional approach, which positions EOR as a “tertiary” recovery method, does not necessarily fit well into many reservoirs and field settings.

For example, EOR methods may be required from the start of development, as is becoming more common. Alternatively, EOR may be required to augment or improve conventional recovery schemes such as low-salinity water injection or polymer injection to improve waterflood sweep. Operators want a quick method to:

• define and address the EOR requirements for any field or reservoir at any point in its life, from exploration to exploitation.

• rapidly assess options and make decisions through short development cycles.

The Approach

Schlumberger is delivering a holistic, learnings-optimisation approach based on the engineered EOR landscape comprising concept, screening, modeling, design, field test, pilot, system operations, digital data integration, monitoring, and surveillance. This approach expands that landscape by coordinating components in a holistic framework, which can be deployed and applied in a structured and modular format, dependent on the operator’s strategic objectives. For example, one operator may be interested in rapidly assessing the efficiency of a specific EOR agent with respect to residual oil saturation or reservoir sweep, while another operator may be more focused on rapidly assessing how a specific EOR method might impact existing facilities. Although these two examples appear vastly different in scope and need, they are similar in seeking:

• A holistic approach to address the need within the context of the production continuum.

• A fast-track process that rapidly integrates and manages all variables and quickly generates outcomes to underpin decision-making.

Schlumberger now provides an EOR ecosystem of all the necessary and required integration capabilities from conception to logistics and operations, under a unique fast-track methodology that allows rapid efficiency gains and arrival at decision-points in short timeframes. (Figure 1)

One of the main advantages of this approach is that learnings from one phase of the EOR workflow are used to optimise subsequent phases, which in turn reduces uncertainties, minimises risks and shortens the EOR project timescale.

The Value Drivers

Traditional linear EOR approach has suffered from many problems: ill-defined pilot objectives; excessive lead times for key technologies or go-no-go decisions; absence of integration across the full production value chain; cumbersome internal systems, processes and organisations; and lack of continuity. (Figure 1)

With Schlumberger, integrated expertise is available to organise, streamline and deploy resources – human, material, and technology – to address immediate operator challenges and accelerate value accrual from EOR. Key capabilities include the following:

• Fast-Track Approach: All activities are assimilated under one responsibility and one execution plan.

• Holistic Framework: All project components are objectively synchronised with a common view towards the key project goals defined.

• Continuity and Focus: The holistic framework establishes continuity, creating clear and continuous focus as resources (material and human) are retained in the project to reinject accrued knowledge and experience back into later project phases.

• Monitoring, Surveillance and Surface Facilities: With access to the most advanced oilfield data acquisition and modeling technologies, Schlumberger can deploy technologies to address any specific field or reservoir need, from reservoir characterisation and EOR candidate screening to fit-for-purpose surface facility design, engineering, construction, and deployment.

• Candidate Screening and Process Selection: Leveraging the global leadership of Dow Chemicals through our EOR Alliance combined with the strength of Schlumberger Reservoir Laboratories brings best-in-class chemistry—analysis, formulation, selection and EOR candidate engineering and validation.

• Standardisation and Modularity: The EOR landscape is designed as modular components, which can be deployed to suit specific operator goals. Many EOR components can be delivered in parallel to generate tremendous efficiency gains in time, effort, resources and capital.

The fast-track EOR implementation offering from Schlumberger is set to provide operators with a holistic approach, which strategically drives towards quick decision-making and early value accrual. Whether the EOR question or need is singular-focused or a multi-modular one across the EOR landscape, Schlumberger offers complete EOR end-to-end capabilities and solutions.

To learn more, visit Schlumberger stand 4330 on Thursday at 14:30 for a special EOR presentation.