Case History

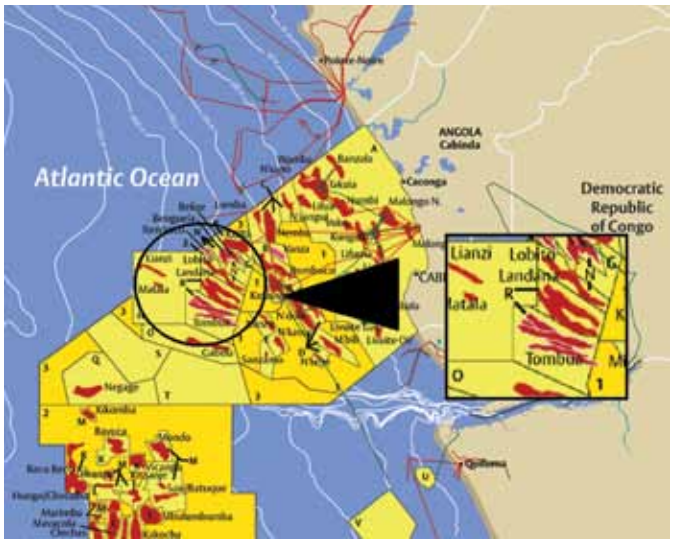
Wireline Actuated Downhole Valve for Smart Well Completion

Situation

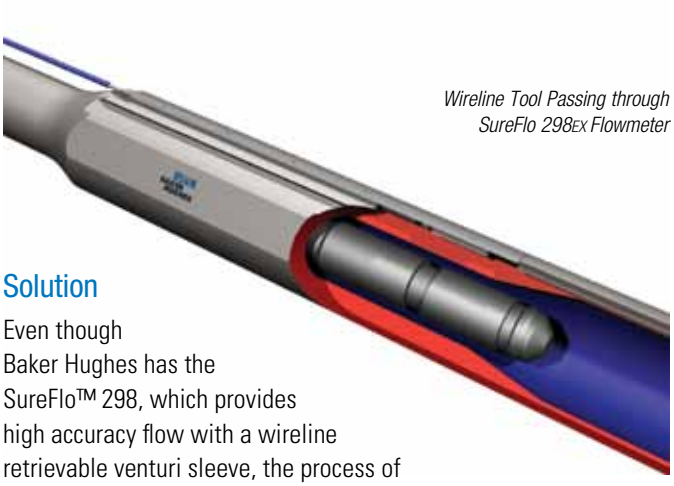
In order to maintain a more cost-effective method of deploying a smart well for injector wells, an operator utilizes a downhole valve which is actuated on a wireline assembly. The ability to monitor the amount of injected fluid into each zone is another important criterion in deploying a smart injector well.

Objective

Chevron and the Cabinda Gulf Oil Company were developing the Tombua Landana field in the Eastern part of Block 14, offshore Cabinda, Angola with water depths between 270 to 370 meters. The operators deployed two injector wells with wireline actuated downhole valve technology. Baker Hughes supplied the downhole flowmeter and gauges to provide zonal injection allocation and zone pressure monitoring. Most downhole flowmeters in the industry are venturi-based technology, which restricts wireline access through the flowmeter.



The Tombua Landana Field as part of Chevron's I-Field™ development.



Wireline Tool Passing through SureFlo 298EX Flowmeter

Solution

Even though Baker Hughes has the SureFlo™ 298, which provides high accuracy flow with a wireline retrievable venturi sleeve, the process of retrieving a flowmeter from a subsea well is cost prohibitive. In order to minimize rig time from multiple wireline runs, Baker Hughes proposed an industry first, electronic fullbore access flowmeter, the SureFlo 298EX. This tool has a fullbore providing up to 98% accuracy in its measurement. This technology utilizes the high resolution, high accuracy SureSENS™ gauges, thus enabling small differential pressure to be detected reliably.

Results and Benefits

With rig cost reaching $600,000 per day in the Angola region plus the cost of each wireline run, it soon became apparent that using a standard wireline venturi was not feasible for this application. By running a SureFlo 298EX, it is possible to reduce two additional wireline runs and the rig time associated with them. The client saves a considerable amount of money without any loss in accuracy of measurement compared to conventional venturi.

BAKER HUGHES