Cuu Long Joint Operating company, a major operator in Vietnam, needed to determine the current formation pressure regime in a depleted clastic reservoir. The pressure data would be important information for updating the dynamic model and managing the offshore reservoir.

The major challenge to obtaining the necessary data was the formation’s low mobility. The operator had tried traditional formation testers, but they had failed to deliver the required information.

Other challenges included acquiring the pressure data with minimal time on wall, avoiding packer seal loss, and performing the pressure testing in high overbalance conditions with lost circulation material (LCM) in the well.

Baker Hughes, a GE company (BHGE), deployed its **Formation Test eXplorer™ (FTeX™)** automated formation pressure testing service with a standard FTeX packer to achieve the customer’s objectives. This would be the first application of the FTeX service in the Asia Pacific region.

BHGE performed a total of 29 pressure tests under a high overbalance of up to 3500 psia (24,133 kPa) in several zones, with a 100% packer seal efficiency. The mobility varied between 0.03 and 96.3 mD/cP.

Useable pressure data was acquired in less than 15 minutes, even at a very low mobility of 0.03 mD/cP, with 0.5 psi/minute pressure stability. The electro-mechanical pump of the FTeX service was able to achieve a drawdown rate as low as 0.004 cc/sec, which was the key to successful testing in the very low mobility environment.

BHGE successfully determined the fluid gradient using the acquired pressure data. The FTeX automated pressure testing service with downhole intelligence and real-time control, enabled the operator to quantify the formation pressure regime for the first time in the depleted and challenging low mobility reservoir. In addition, the testing time frame was optimal for acquiring accurate pressure data.

**Challenges**
- Obtain accurate pressure data from a formation with variable permeability and high overbalance pressure
- Validate the pressure profile
- Mitigate tool storage effects in the low mobility environment
- Determine correct mobility

**Results**
- Saved rig time by acquiring accurate pressure data from 29 tests in less than one-third of the time taken by traditional formation testers
- Obtained pressure data in varied mobility environment
- Recorded stable pressure measurement at 0.03 mD/cP within 15 minutes, at 0.5 psi/minute pressure stability
- Achieved drawdown rates as low as 0.004 cc/sec
On an average, the pressure testing per station was completed in less than a third of the time historically taken by traditional formation testers.

The customer obtained the pressure data needed and was able to validate the reservoir pressure profile. This information was critically important for updating the dynamic model, predicting performance, and overall assessment of the resource. The FTeX service proved to be the preferable pressure testing service option in a difficult environment for the operator.