

# Gas Lift Technology Sees First Implementation at Marjan Oil Field

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Since the discovery of oil and gas as main energy sources, several methods have been used for their production. Consequently, the selection of the extraction method is dependent on the geology and location of the oil wells. Some of the common oil extraction methods include free flow fluid with high pressure wells, artificial lifting via submersible pumps for heavy oil, and gas lift technology.

Gas lift technology sees its first implementation at Saudi Aramco’s offshore facility through the Marjan Increment Program since the company’s establishment. It is the selected method to increase the production rate of the program. The technology is one form of artificial lift used primarily with wells that have high gas-oil ratio (GOR). The process of gas lift simply involves the injection of compressed gas down through small valves attached to the well casing at the mouth bore of the well (see diagram). The introduced gas will create bubbles inside the flowing oil and, therefore, the liquid fluids will flow to the surface at a faster rate.

In 2019, a multidisciplinary team from different organizations within Saudi Aramco’s upstream business line conducted knowledge-sharing visits at oil companies in the UAE, Oman, and Bahrain. The objective of these visits was to gather relative knowledge and learning experiences on gas lift technology. The conclusion was that gas lift technology is the optimum and most effective extraction method that can be used for the Marjan Increment Program with low operation and maintenance costs. Gas lift technology uses produced/treated gas from the well to increase the flowrate of produced oil.

The performance of gas lift has been monitored thoroughly by the companies which implemented this technology, and all lessons learned were collected and capitalized during the early stages of the project. Nevertheless, some other challenges with the technology were identified during the evaluation phase of the project which included, but were not limited to, well integrity, conditions of the offshore platforms that will accommodate the equipment, and the rough environment at offshore that might interrupt the progress of the project.

Badr M. Burshaid, manager of Marjan Increment Projects Department, said: “Deployment of this technology has been the key to improving the reliability of process measurement and extending the life of plant assets with minimal failure rates. This also opens more doors in promoting wider implementation of new technology in upcoming projects.”

