Renaissance® Inverse Gas Lift System

Eliminates Workover and Increases Production by 3,500 BOEPD

Objectives

- Alleviate liquid-loading problems to increase production in a failing cyclic-production well.
- Introduce gas lift while avoiding annular integrity issues in a well that has not been configured for gas injection.
- Avoid a full well workover to reduce the customer's operational costs.
- Maintain full operational and well control using the customer's existing systems.
- Perform all work in a safe and efficient manner.

Our Approach

- Weatherford well completions experts modeled and designed a gas-lift solution to increase production for the failing well. Their plan called for deploying a 5.5 × 4.562-in. Renaissance® inverse gas lift system (IGLS) into the existing production tubing. The Renaissance system enables IGLS installation in wells that have not been configured for conventional gas lift, and it can be used when annular integrity problems would normally preclude gas injection.
- The Weatherford team ran the gas-lift equipment with third-party supplied coiled tubing. They deployed on coiled tubing to set a combined dual flow hanger and dual flow safety valve into the existing 4.562-in. tubing retrievable surface controlled subsurface safety valve profile.
- The team then spaced out the intermediate IGLS gas injection tubing with anchor latch and polished bore receptacle modules, which they installed just below the wellhead. Next, they deployed the sealbore stinger with an OEM wellhead concentric hanger to connect the IGLS tubing to the platform gas-injection system, culminating in full well integrity tests.
- The Weatherford team installed the inverse gas lift system with no quality, health, safety, or environmental problems.

Value to Customer

- By installing the Renaissance IGLS into a failing intermittent-production well with just 9% uptime, the operator was able to return the well to continuous production and realize a production increase of approximately 3,500 BOEPD during the first 3 months. Following IGLS installation, the well no longer presents difficulties in unloading liquids after shutdowns.
- The Renaissance IGLS enabled the installation of gas lift into a well that previously had no gas-lift capability.
- By running the IGLS on coiled tubing and using the existing tree and completion, the Weatherford team was able to avoid a full well workover and maintain full operational and well control using the customer's existing systems.

Major components of the IGLS include the sealbore stinger (right), suspension hanger (middle), and dual flow safety valve (left).

LOCATION
North Sea

WELL TYPE
Offshore gas producer

TUBING SIZE AND TYPE
5 1/2-in., 20-lb/ft VAM TOP® (production tubing)
2 3/8-in. VAM® FJL (intermediate IGLS gas injection tubing)
2 3/8- × 0.156-in. coiled tubing (lower IGLS gas injection tubing)

DEPTH
17,955 ft (5,473 m)

PRODUCTS/SERVICES
- In-house well modeling
- Inverse gas lift system, three-stage completion:
  - Sealbore stinger
  - Polished bore receptacle
  - Anchor latch
  - Dual flow hanger
  - Dual flow safety valve
  - Gas-lift equipment

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