High Angle Remove & Replace GLV in Single Run
Removal and Replacement of GLV: Case Story

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Background

• A customer in Prudhoe Bay, Alaska required the ability to replace gas lift valves in their completion for improved oil production.

• Conventional methods had reached their limits:
  - Slickline was unable to overcome the higher deviations
  - Coiled tubing was either not available or extremely costly for this remote area.

• Based on previous, positive experiences with Welltec’s innovative, cost effective solutions, the customer contacted our local representative for assistance in solving this dilemma.
Removal and Replacement of GLV: Case Story

Operation

• Welltec provided the solution in the way of a newly modified Kick-Over Tool (KOT):
  • Run in tandem for single trip solution
  • The Well Tractor® conveyed the toolstring to the correct depth
  • Well Stroker® (with top KOT) provided the pulling force for removal.
  • Well Stroker® (with bottom KOT) successfully installed the new GLV into the mandrel.
3-1/2” GLM/SPM  Modified Dual KOTs

Ratchet Mechanism

Patent Pending
Features and Benefits

• **The modified arm mechanism**
  • Prevents bending/breaking of GLV latch when setting/retrieving by holding the KOT arm in the proper position for alignment with the GLM/SPM valve pocket.

  ![Before Image](image1)

  **BEFORE**

  ![After Image](image2)

  **AFTER**

  • Allows setting the GLV in any degree pocket position.
- **Dual KOT capability**

  - Ability to retrieve and set GLV in one run will A. Save client time by removing a run and B. Ability to place mandrels in long laterals, closer to the reservoir, allowing them to optimize their gas lift plan, hence maximizing the well production.
218 Well Tractor® - Theory of Operation

- Top connector
- Electric motor
- Hydraulics section
- Electronic section
- Wheel sections
- Compensator
- Bottom connector
Well Stroker inactive.

Well Stroker activated.
Anchor section engages in casing.

Well Stroker activated.
Stroker cylinder pushes or pulls up.
Modified KOTs – Run History

3-1/2” Version
- Two successful System Integration Tests (SITs)
  - Single Run – Retrieve a 1” GLV
  - Single Run - Set a 1” GLV
  - Tandem Run – Retrieve/Set 1” GLV in one run
- Three successful runs in a well
  - Single Run – Retrieve a 1” GLV
  - Single Run - Set a 1” GLV
  - Tandem Run – Retrieve/Set 1” GLV in one run

5-1/2” Version
- A successful SIT
  - Single Run – Retrieve a 1” GLV
  - Single Run - Set a 1” GLV
  - Tandem Run – Retrieve/Set 1” GLV in one run

4-1/2” Version
- SIT pending
Questions, Discussion?
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