

Expro Excellence

Expro Delivers Successful Unconventional Gas Flowback in HPHT, High H₂S Environment

Well Flow Management | Well Testing



Objectives and background

- Multi-stage Frac operations were performed on 3 x wells, followed by long-term well testing to assess the formation potential for further development
- This marked a strategic shale gas fracturing campaign in the Middle East, presenting several challenges:
 - Unexpectedly high H₂S levels (over 10%) were encountered during the initial well flowback to the open pit
 - High post-fracturing wellhead pressure (7,500 psi), 15K rated frac plugs, and an H₂S wellbore environment

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- A closed loop flowback and well testing system and chemical injection setup were integrated to remove H₂S
- Sour liquids were collected in surge tanks and transferred to treatment tanks, where H₂S scavenger was injected
- Treated flowback liquids were stored in a storage farm
- Sweet liquids were transferred, filtered, and re-injected into the C annulus of Well 3 for disposal, ensuring no risk of casing damage
- A 90ft high vertical flare stack replaced the horizontal flare, supported by a gas dispersion simulation study with various scenarios
- A second choke manifold was added behind the main choke manifold to mitigate choke washout risks
- A SONAR™ Meter was clamped on the pipe to closely monitor Coiled Tubing return, maintaining a balance of "1 bbl in and 1 bbl out."
- A knock-out vessel replaced the 3-phase separator
- An emergency flowback line was added to enable circulation and safe Coiled Tubing retrieval in case the main flowback line was obstructed or eroded by return chunks or proppant

Value to the client

- Delivered a safe and efficient unconventional gas well flowback operation in the Middle East
- Deployed a fully closed-loop solution to handle challenging HPHT conditions with H₂S levels exceeding 10%
- Completed 43 fracturing stages across three wells without any premature screen-out
- Operated for 370 days without any non-productive time (NPT) or health, safety, and environmental (HSE) incidents

Bespoke solution



Landmark campaign

