DEEP WATER

CASE STUDY

Efficient Integration Reduces Days Per Well in a Challenging Offshore Environment

MULTISKILLED TEAM DRIVES PERFORMANCE TO DELIVER INTEGRATED P&A CAMPAIGN

GULF OF MEXICO

CHALLENGES

- Execute safe and efficient P&A operations on seven offshore wells
- Complete operations in a challenging offshore environment on small platforms
- Understand and adapt work program and engineering solutions to new customer's expectations
- Optimize resources
- Reduce days per well

SOLUTION

- Integrated P&A equipment package
- Provided multiskilled nine-man crew
- Wellhead services for nipple-up and nipple-down operations
- Cement pumped with pressurized bulk tanks vs. traditional sack cement
- Utilized flange splitters vs. casing jacks to prove that tubing was cut and free

RESULTS

- Completed project with no recorded NPT or HSE incidents
- Successfully plugged all wells with cement (3,800 sacks), achieving successful barrier integrity
- Multiskilled team achieved significant efficiency improvements
- Saved an average of two days per well

OVERVIEW

An independent operator in the Gulf of Mexico with a significant number of platform wells for abandonment selected Halliburton as a service provider to complete a plug and abandonment (P&A) campaign on seven wells. The wells were located at a close proximity to each other on small offshore wellhead platforms. Halliburton proposed an integrated P&A package and a multiskilled crew as the best solution to achieve this goal.

EXCELLENT HALLIBURTON OPERATING PERFORMANCE SAVES TWO DAYS PER WELL

Leveraging the Halliburton Project Management (HPM) "4P" framework (People, Processes, Platforms, and Partners) was the key to improve operational efficiencies and to reduce days per well. The HPM team began its work with a coordinated effort focused on understanding and planning a work program for this new customer.

During execution, the HPM team provided all the services (including cementing, pumping, slickline, and e-line services) in order to optimize the project delivery timeline. This proactive collaboration with the customer enabled Halliburton to deliver each well two days ahead of plan.

EXECUTING OPERATIONS IN A CHALLENGING OFFSHORE ENVIRONMENT

One of the main challenges Halliburton faced was the safe and efficient mobilization of the well intervention equipment via a support liftboat. Since these wells were located on very small offshore wellhead platforms, the risks associated with conducting well P&A operations while utilizing a liftboat were much higher compared to working with larger platforms. These risks and challenges included:

- Moving equipment and personnel from the liftboat onto a smaller platform
- Rigging up P&A equipment on heliports vs. on larger open-deck platforms
- Navigating through liftboat traffic with rig equipment
- Cutting and pulling tubing and casing, and laying down pipe to a support vessel
- Spotting P&A equipment on the deck of the liftboat
- Making numerous repairs to grating due to hurricane damage and age of the structure
- Installing handrails on heliports for safety barriers while working at heights

Given the sensitive nature of the worksite and the potential for incidents on a liftboat and a smaller platform, Halliburton treated possible health, safety, and environmental (HSE) exposure with the expected due diligence – thus driving the implementation of scope-specific HSE policies through job safety analyses and a Stop Work Authority directive, among other initiatives.

A key challenge from the customer was to optimize resources and provide suitable solutions in order to accelerate project efficiency.

FACING CHALLENGES WITH A MULTISKILLED CREW AND INTEGRATED P&A PACKAGE

Alignment was key between all project stakeholders, and common project delivery durations meant that all parties involved were accountable for performance and were mutually incentivized to collaborate to achieve project goals. Similarly, HSE alignment at the worksite drove a "one-team" safety culture offshore.

During execution, in collaboration with the customer and subcontractors, the Halliburton project team optimized the work methods and adjusted the sequence of rig-up events and in-well services to the liftboat space and interface operations in order to address challenges associated with:

- The limited space on the liftboat and on the wellhead platform
- Simultaneous operations involving the liftboat
- Multiple liftboat moves

Assignment of a multiskilled nine-man crew was crucial to reduce personnel-on-board (POB) costs and to provide one-point accountability. The crew included:

- Wellsite Lead – To manage crew and deck operations
- Pumper/Deck Lead – To support cement and pumping operations, including e-line and slickline operations
- E-Line/Slickline Crew – To assist with rig-up and rig-down operations, and with pumping and cementing operations
- Riggers – To support the rigging up of e-line/slickline operations and of cement pumping equipment
- Nipple-Up/Nipple-Down Crew – To assist in all operations

To increase cement preparation efficiency, the Halliburton project team successfully utilized pressurized bulk tanks (Ptanks) vs. traditional sack cement. Furthermore, to optimize casing and tubing retrieval, the team used flange splitters vs. casing jacks to prove that tubing was cut and free.

EFFECTIVE INTEGRATION SAVES TWO DAYS PER WELL

The Halliburton team safely and efficiently completed the project well ahead of schedule, under budget, and with zero HSE incidents and non-productive time (NPT).

The proactive collaboration and alignment of all parties contributed to the efficiencies gained in this project, enabling the operation to be delivered an average of two days ahead of schedule per well. This outcome was achieved despite demobilizations for five hurricanes.

The Halliburton team's ability to work closely with the client to determine scope-specific solutions and to implement technologies for increasing efficiencies were contributing factors to the project's success.

Overall, the Halliburton crew cut and pulled an average of 2,400 feet (731.5 meters) of casing and tubing on each well, and pumped 24 cement jobs with successful tests on all, which is equivalent to 3,800 sacks of cement being pumped downhole. This positive project delivery has allowed Halliburton to gain further experience in the Gulf of Mexico market and to become a leader in the P&A sector.

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