

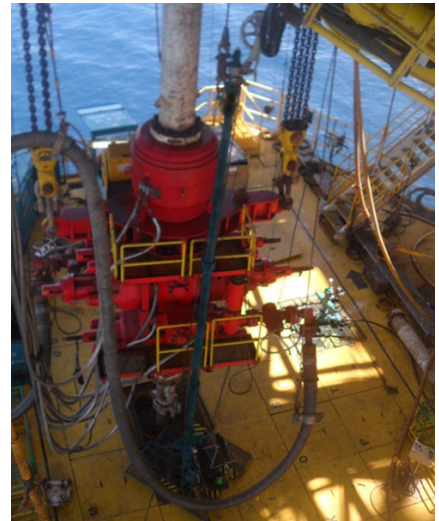
Firma™ Abandonment Solution Delivers 64 Wells 44% Ahead of AFE in Pilot Project for Major Operator

Objectives

- Decommission 64 wells in offshore Southeast Asia as part of a lump-sum turnkey pilot project.
- Streamline operations by facilitating work among various companies through an engineering, procurement, and service delivery management (EPSm) contracting model developed for the customer.
- Deliver asset-retirement operations without incidents and with capital efficiency and regulatory compliance to maximize shareholder value.
- Integrate engineering, planning, management, and analysis services to enhance efficiency, mitigate financial risks, and reduce the total cost of ownership.

Our Approach

- Weatherford collaborated with the customer on the development of a pilot EPSm contract as part of a Firma abandonment solution. The contract integrated the scopes of three discrete contracts, integrated an existing tubular running services contract, and interfaced to four existing specialist contracts.
- An integrated front-end well engineering and project management team provided the customer a single point of contact, assumed accountability, and managed the project. The team performed an extensive analysis of offset data and preliminary exercises to abandon the well on paper as part of a well delivery plan for the customer. With the customer and internal stakeholders, the team also conducted hazard identification studies (HAZIDs) and human performance workshops. All this planning helped to minimize project startup risk.
- Following the planning phase, the team mobilized a core crew of 20 personnel across two worksites for simultaneous operations (SIMOPs) at the core of project delivery. Three slickline crews worked on the wellhead platform for Phase I Operations, and two crews worked on the drilling cantilever for Phase II and III operations. A Weatherford wellsite operations representative managed both worksites. To supplement these crews, a dedicated group worked onshore in the customer's office, and global subject matters experts monitored and adjusted project performance.
- The crews executed concurrent operations through slickline pressure control equipment, the drilling riser, and the blowout preventer. This arrangement allowed for simultaneous preparation and isolation of wellbores to significantly reduce the rig time required per facility.
- The crews ran 3,470,000 ft (1,060,000 m) of slickline to convey 368 bottomhole assemblies (BHAs) for the permanent abandonment of 602 primary and intermediate reservoirs. Phasing and batching of slickline operations enabled 100% productive time in these offline operations. The crew used two slickline units and pressure control equipment sets, which moved between wellbores 156 times.



The Firma solution maximized efficiency and reduced the time online by running concurrent Phase I and Phase II operations.

LOCATION

Southeast Asia

WELL TYPE

Offshore, oil and gas, monobore

CASING SIZE AND TYPE

- 2.875-in. cemented tubing
- 7-in. intermediate casing
- 9.625- and 13.375-in. conductor

PRODUCTS/SERVICES

- Project management
- Front-end well engineering
- Wellsite management
- Slickline services
- Tubular running services
- Cement evaluation logging
- Casing recovery services
- Contingency fishing services
- Wellbore cleanup services
- Isolation plugs
- Test packers
- Conductor recovery services
- Welding and burning services



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Our Approach (continued)

- To plan for the overburden and surface abandonment, the crews recovered 93,345 ft (28,452 m) of tubulars from the wellbores. They ran 227,926 ft (69,472 m) of workstring to convey 273 BHAs in preparation for surface wellbore isolation. The use of SIMOPs enhanced efficiencies, with offline and online support from burning to welding services, which helped to prepare tubulars for recovery or optimize the speed of recovery.
- The operations ended after 38 days with 8 hr 37 min as the average time for abandoning a well and 6 hr as the fastest time in one well.

Value to Customer

- The Firma solution enabled safely decommissioning 64 wells with a productive time of 99.44% under the sector's first factory EPSm contract, which integrated various existing agreements to reduce the interfaces, complexities, and costs associated with executing high-volume abandonment operations.
- The EPSm contracting structure enabled collaboration and integration with other service partners, which culminated in establishing and qualifying 192 wellbore barriers. Fully compliant to government regulations, these barriers help with the safe isolation of hydrocarbons from the environment.
- The project leadership team managed and delivered all 64 wells without safety or environmental incidents over 3,564 operating hours and 8,316 manhours. In certain operations, concurrent work reduced onboard personnel by 84%, with an average of 20 crew members on board per day over approximately 5 weeks.
- Integrated abandonment services across all phases reduced the total cost of ownership by 44% against the customer's authorization for expenditure (AFE). By executing the operations below the provisions taken for decommissioning the assets, the customer can increase the volume of wells to abandon, thus restoring wellsites to pre-exploration states and returning areas to the natural environment.

