



WELL-SAFE
SOLUTIONS

แท่นผลิต จัสมีน ซี
มูบาดาลา ปิโตรเลียม
Mubadala
Petroleum

JASMINE C
WELLHEAD PROCESSING
PLATFORM
Mubadala
Petroleum

CASE STUDY

Well plug and abandonment strategy for Thai oilfields

Well-Safe Solutions were called upon by Mubadala Petroleum Thailand to draw up a field decommissioning philosophy for the Nong Yao, Jasmine & Ban Yen and Manora oilfields in the Gulf of Thailand.

The client wished to accurately estimate the total cost of decommissioning operations before making a decision on the future of the fields, which were collectively producing 21,200 barrels per day of oil net.

This scope necessitated a combined front end engineering and design (FEED) and SELECT package, utilising Well-Safe's in-house Well Decommissioning Delivery Process (WDDP).

The well categorisation process enabled Well-Safe Solutions to establish the facts and information required to define the field decommissioning philosophy. The result was a bespoke package suited to the exact requirements and characteristics of each well.

Data screening for the 196 wells was undertaken by Well-Safe's specialist engineering team, who first reviewed well schematics and end of well reports (EOWRs). Casing, cement and fluid data was collated along with well integrity and pressure monitoring, noting at this stage any potentially challenging wells for attention later on in the project.

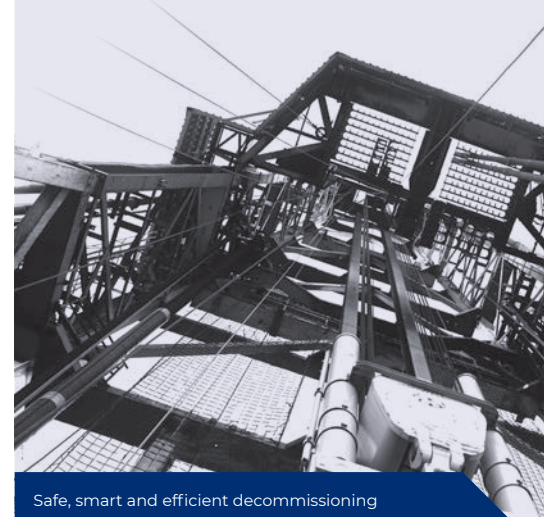
The wells were then grouped by a range of criteria, including completion and casing design. This iterative process would develop as the scope continued, with 10% of the wells used as sample wells thanks to their differing casing designs.

Working remotely between Thailand and the United Kingdom, Well-Safe Solutions' engineering team were in close client contact - agreeing a gated review process informing each stage of the project.

This project was safely delivered between December 2020 and May 2022, partially overlapping the Covid-19 pandemic.

Key facts:

- Combined FEED and SELECT scope
- Three fields - Nong Yao, Jasmine & Ban Yen and Manora
- 9 NUIs (Normally Unmanned Installations)
- 196 wells with 212+ well schematics drawn
- Scope included field and well data mining and creation of Subsurface Basis of Design (SSBoD) philosophy



Safe, smart and efficient decommissioning



CASE STUDY

Well plug and abandonment strategy for Thai oilfields

The sample well enabled an initial evaluation of the portfolio to be carried out, generating greater knowledge of the predominant well architecture in the area.

In addition, a subsurface basis of design (SSBoD) was created for each of the three fields, with over 200 well schematics and time estimates drafted. Batching of wells to make decommissioning operations as efficient as possible - rather than carrying out operations in geographical order - would enable the most effective deployment of resources and shortened the time which would be required to complete the scope.

The front end engineering and design (FEED) stage then progressed to assessing the benefits and drawbacks of each plug and abandonment unit type in relation to the scope, by comparing the capabilities of rigless pulling units, jack-up MODUs, jack-up lift barges and tender assist drilling rigs.

With primary, secondary and tertiary barrier requirements of the scope established, a jack up mobile offshore drilling unit (JU MODU) emerged as the lowest-risk costed option. This conclusion was reached due to the JU's technical capabilities and operational flexibility, including its low interfacing requirements with NUIs and its integrated facilities and utilities.

This project provided the client with a fully-costed and risk assessed decommissioning plan, backed by the robust engineering capability seen in the Well Decommissioning Delivery Process. With the well decommissioning requirements now signposted, Well-Safe Solutions provided its client with a robust starting point for future field decisions.



Individual subsurface basis of design (SSBoD) documents were completed for each of the three fields.

Safe abandonment windows were identified in all cases, taking into account the low pressure regime of the sands.



Well-Safe Solutions ensures all opportunities and risks are considered in the engineering phase, thus making the chosen design robust, well-planned and justifiable to stakeholders.

Our Well Decommissioning Delivery Process (WDDP) helps you navigate the decommissioning journey effectively - without the extended commitments and high costs associated with engineering resources over long periods.



Well-Safe Solutions Ltd
C4 Building, Gateway Crescent,
Gateway Business Park,
Aberdeen, AB12 3GA

T: +44 (0) 1224 548 400
E: info@wellsafesolutions.com

WELLSAFESOLUTIONS.COM