



# First in Indonesia, Zonal Isolation with High Expansion HEX (Straddle)

Date: April 2021

Region: Asia Pacific, Indonesia



## Key Capabilities

- High Expansion Straddle
- Slim Running OD
- A Multi-Run system capable of isolating extended distances
- Ability to pass through restrictions and set in larger tubing ID
- ISO 14310 VO Qualified
- Significantly reduced PW reduces the amount of CO<sub>2</sub> generated under its disposal

## Challenge

Water production is a common problem encountered all over the world for the last few decades, although predominantly an issue in older wells, it has been known to affect newly developed wells too. In Indonesia, the oil and gas company Pertamina Hulu Mahakam were faced with this challenge, where one of their high producing gas wells was producing a high water cut. In this case, the issue was identified after a successful perforation job had been conducted and then confirmed through a pressure and temperature (P&T) survey. The P&T survey verified that the water encroachment was impacting the targeted gas zone and thereby affecting their gas production.

Pertamina Hulu Mahakam were concerned that the excess water from this well could degrade the production from other wells due to higher backpressure in the flowlines. Furthermore, the additional costs incurred for separating, treating, and disposing of the produced water (PW), including the CO<sub>2</sub> produced under this procedure, was a burden they wished to avoid. Therefore, they were forced to shut the well despite the high gas production. They reached out to Interwell to provide a mechanical solution to the problem.

A further complication was the fact that there were multiple restrictions present throughout the wellbore. Any mechanical solution would need to pass through these restrictions and then expand in the larger ID, while being able to hold a VO isolation barrier with an expected differential pressure of 2,000psi.

## Solution

An Interwell VO rated APS Straddle system was incorporated with Interwell's High Expansion (HEX) Technology. Prior to installation and to ensure Pertamina Hulu Mahakam's requirements were satisfied, the system was tested to a maximum differential pressure of 2,000psi, and a temperature of 115 °C. All testing was conducted in accordance with ISO 14310:2008/VO and took place in Interwell's R&D facilities in Norway.

The Interwell 267-450 Anchored Production Straddle (HEX) multi-run system was successfully installed and isolated 11ft water production zone. Interwell's HEX -APS assembly passed through eight (8) restriction spots in the wellbore, where IDs ranged between 3"-3.3" and reached the target depth without any issues.

## Value Created

Through the successful implementation of Interwell's APS technology, Pertamina Hulu Mahakam has been able to isolate the problematic water zone, bringing the high producing gas well back online by the end of May 2021. By mid-June they were able to increase its production rate by 275% from their initial target rate without significant water production, compromising the wellbore integrity or Interwell's zonal isolation technology. The significant reduction in PW also contributed to reducing the operation's total carbon footprint.

