

68% Water Cut Reduction: 6 AICV® Wells Within a Mature Heavy Oil Field

A major oilfield in the Middle East which has been on production for several years has significant water control issues. The reservoir is a sandstone, mature waterflood play. Newly drilled wells typically started their production life with 60-80% water cut (WC) and quickly this number increased to 80-90% WC within the first 6-8 months of coming on line.

The operator had issues managing the high water production and due to this, significant oil remained by-passed and the oil production per well was greatly suppressed and total oil recovery reduced.

Overview

- **Location:** Middle East
- **Operator:** Major Middle East E&P
- **Deployment:** Land, mature brown-field
- **Reservoir:** Sandstone, waterflooded field
- **Oil viscosity:** 250 - 450 cP
- **Number of wells:** 6 wells
- **Completion:** Horizontal oil production wells with 4-1/2" AICV® premium mesh screen with swell packers.

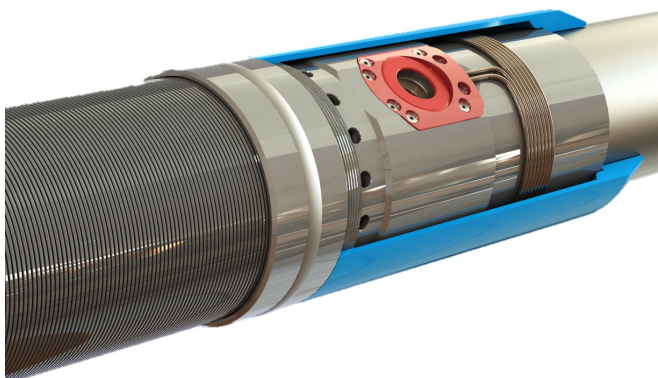


Challenges / Objectives

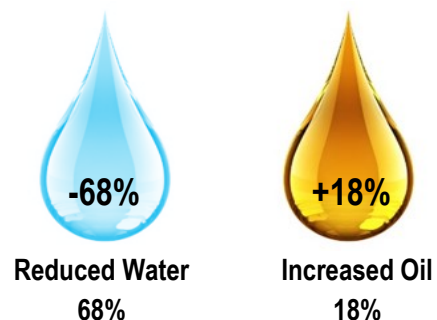
- High water cut within sandstone water flood field.
- Stand-alone screens and swell packers alone were not capable of restricting high water production effectively.
- Operator had to choke the wells back at surface due to high water cut, which impacted the oil production and oil recovery leaving reserves stranded in the reservoir.
- Water treatment facilities faced challenges due to large volumes of water being produced by this field, thus requiring investment to manage the produced water.

Results

- Reduced water cut on average by 68%.
- Increased oil production by 18-20%.
- **\$2.4M USD net OPEX Savings** within first year through reduction of water handling costs vs. normal wells.
- Water handling facilities at surface were spared by reducing large volumes of produced water.



Reduced OPEX Costs
\$2,400,000



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The operator applied AICV® lower completions to manage the water from these wells and the AICV® deployment campaign was a great success. By reducing the high water cut zones, the reservoir pressure was enhanced and the wells produced dramatically less water in high water cut zones.

- The AICVs remain open for oil zones which allows oil production from oil saturated and/or tighter sections of the reservoir.
- Chart below highlights data from 6 wells which installed AICV®.
- Reduction of water cut by ~68% provided benefits for production facilities by greatly reducing water handling requirements.
- OPEX savings within the first year was over \$2,400,000 USD.

