

RestrictionVA

COMPLEX RESTRICTION IN MULTI-LATERAL WELL

EV's Optis® R125 camera is the industry benchmark in downhole video technology providing vivid, full colour, video at up to 25 frames per second in real-time.

WELLBORE RESTRICTIONS

The well in question features a smart completion, involving an inner completion window aligned to a milled out casing window, enabling access to the upper lateral for acid stimulation to enhance production.

The operator encountered an unknown restriction preventing access to the upper lateral. With well production critically on hold, the operator needed real-time understanding of the issue downhole.

MISALIGNED CASING WINDOW

EV's Optis® R125 camera was deployed on Electric-Line to provide real-time visual confirmation of the restriction. The well was highly deviated, 85° at the depth of interest and the bottom hole temperature was close to the upper limits of the camera system.

The well was bull headed with Nitrogen to displace opaque wellbore fluids, create a clear viewing environment, and to cool down the well. The camera was run downhole to the target depth, where the detailed real-time footage revealed the smart completion window to be mis-aligned with the outer milled out casing window (**Fig.1**).



Figure 1: Confirmation of completion window misalignment

⚠ THE CHALLENGE

A leading operator in the Middle East experienced an unknown restriction, preventing them from completing an acid stimulation in their oil producing multi-lateral well.

💡 THE SOLUTION

EV's Optis® R125 camera was deployed on Electric-Line to provide real-time visual confirmation of the restriction. The Optis® real-time camera fleet is the industry benchmark in downhole video technology providing vivid, full colour, video at up to 25 frames per second in real-time.

✅ THE RESULTS

The camera was run downhole to the target depth, where the detailed real-time footage revealed the smart completion window to be mis-aligned with the outer milled out casing window (**Fig.1**). The detailed sideview footage identified the casing overlap in more detail, revealing the extent of the restricted access (**Fig.2**). To complete the RestrictionVA process, an EV analyst provided detailed and accurate measurements of the smart casing window respective to the outer casing window, providing concise confirmation of the restricted access and extent of misalignment (**Fig.3**). With this information, the operator was able to redesign the completion orientation mechanism and deployment methodology on future nearby wells as a preventative measure.

UNDERSTANDING THE SEVERITY

The detailed sideview footage identified the casing overlap in more detail, revealing the extent of the restricted access (**Fig.2**).

Using EV's Integrated Dimensioning software, an EV analyst provided detailed and accurate measurements of the smart casing window respective to the outer casing window, providing concise confirmation of the restricted access and extent of misalignment (**Fig.3**).

LESSONS LEARNED

With the quantified information provided by RestrictionVA, and a clear visual understanding of the restriction provided, the operator was able to redesign the completion orientation mechanism and deployment methodology on future nearby wells as a preventative measure.

RestrictionVA delivers rapid and comprehensive evaluation of downhole restrictions, identifying their root cause and determining their severity. Through quantified visual assessment, RestrictionVA provides the definitive, proactive service for de-risking well interventions.



Figure 2: Sideview image of casing overlap



Figure 3: Measurements confirming extent of casing overlap