THE DOWNHOLE VISUAL ANALYTICS COMPANY

RestrictionVA

WELLBORE ACCESS RESTORED WITH VISUAL ANALYTICS

EV's Optis Infinity M125 provides a complete 360° image of the well enabling a new quantum of data to identify the root cause of restricted wellbore access

WELLBORE RESTRICTIONS

The operator experienced a restriction within their oil producing well during a production optimization intervention. The well has a history of corrosion, with a replacement wellhead recently installed as a result, and any further integrity issues would force the operator to plug and abandon the well.

Following multiple unsuccessful drift runs, and no clear indication of the cause of the hold up, the operator needed a clear understanding of the restriction to determine the future of the well.

OVER-TORQUED CONNECTION

EV's Optis Infinity M125 system was deployed on slickline with both downview and 360 degree sideview footage acquired to diagnose the restriction and evaluate the integrity of the well.

The camera was run downhole to 44m where the detailed 360 degree footage revealed the cause of the restriction to be an over-torqued tubing connection.

Downview footage revealed a clear change in diameter at the connection and, by assessing all remaining tubing connections, confirmed this to be an isolated incident ***(Fig.1)***.

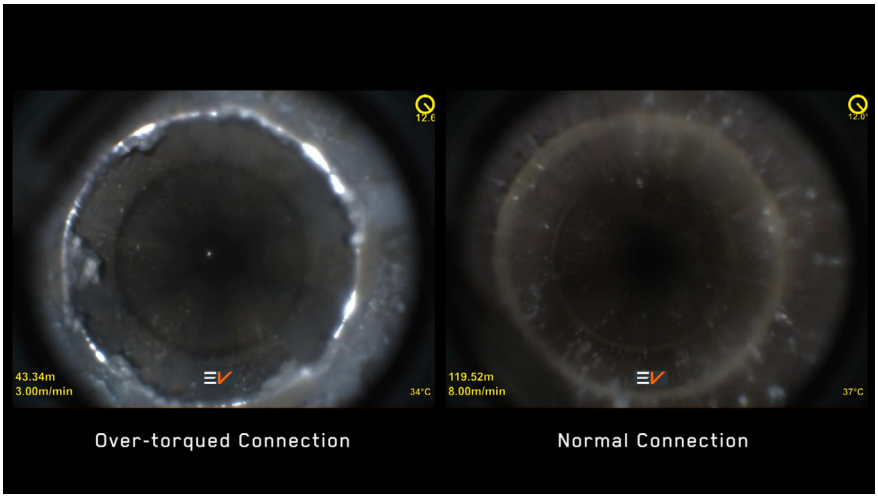

Figure 1: Downview footage of over-torqued connection vs normal connection

THE CHALLENGE

A leading operator in Russia experienced a restriction within their oil producing well during a production optimization intervention. Following unsuccessful drift runs, and no clear indication of the cause of the hold up, the operator needed a clear understanding of the restriction to determine the future of the well.

THE SOLUTION

EV's Optis® Infinity M125 system was deployed on slickline with both downview and 360 degree sideview footage acquired to diagnose the restriction and evaluate the integrity of the well.

THE RESULTS

The camera was run downhole to 44m where the detailed 360 degree footage revealed the cause of the restriction to be an over-torqued tubing connection. Downview footage revealed a clear change in diameter at the connection and, by assessing all remaining tubing connections, confirmed this to be an isolated incident ***(Fig.1)***, Thirteen individual measurements were made around the ID of the restricted connection ***(Fig.2)***. EV's proprietary Visual Analytics process were applied to create a fully interactive 3D model of the wellhead ***(Fig.3)***, enabling direct comparison with engineering drawings and confirming the wellhead was intact and corrosion-free. With this information, the operator decided against abandoning the well, and proceeded with a workover to restore access for future well optimization activities and secure the long-term operation of the well.

UNDERSTANDING THE SEVERITY

Thirteen individual measurements were made by an EV analyst around the ID of the restricted connection ***(Fig.2)***. Although the restrictions are relatively small their apparent square edged nature may have been problematic for the passage of some BHAs.

With the restriction diagnosed, the operator also wanted to confirm the condition and integrity of a new wellhead that was recently installed.

EV's proprietary Visual Analytics process were applied to create a fully interactive 3D model of the wellhead ***(Fig.3)***, enabling direct comparison with engineering drawings and confirming the wellhead was intact and corrosion-free.

WELL ACCESS RESTORED

Based on the quantitative information provided by RestrictionVA, it was concluded that the restriction was caused during well construction and was not a symptom of an underlying well integrity issue.

With this information, the operator decided against abandoning the well, and proceeded with a workover to restore access for future well optimization activities and secure the long-term operation of the well.

RestrictionVA delivers rapid and comprehensive evaluation of downhole restrictions, identifying their root cause and determining their severity. Through quantified visual assessment and advanced 3D modelling techniques, RestrictionVA provides the definitive, proactive service for de-risking well interventions.

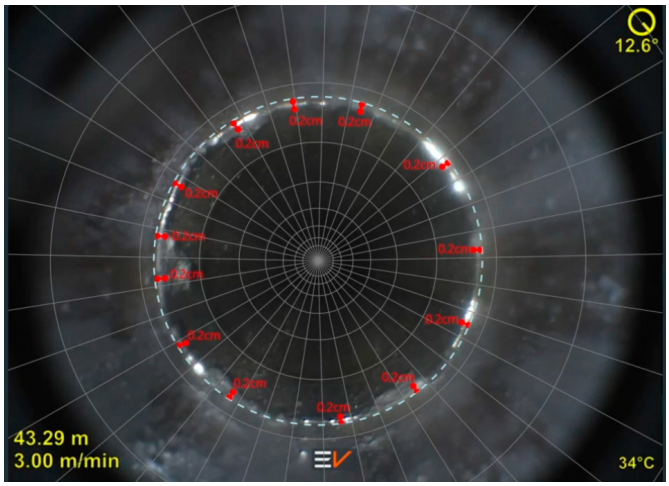

Figure 2: Mesurements revealing extent of restriction around ID

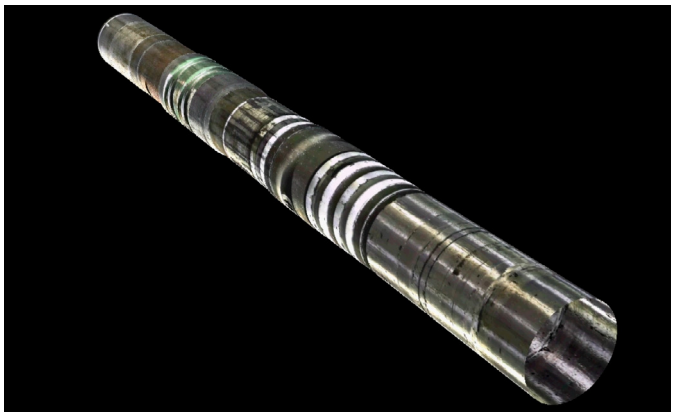

Figure 3: Interactive 3D model of wellhead

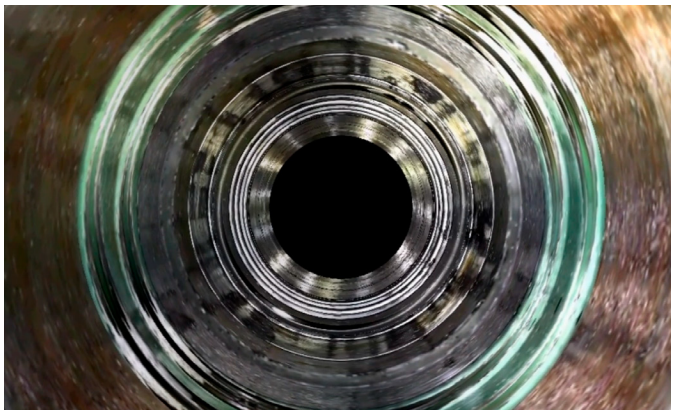

Figure 4: Wellhead fly-through view