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First Application of Coiled Hose in Indonesia and First Deployment of Coiled Hose with Roller Boogies in the World to Access Highly Deviated Well

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Abstract

The paper is aimed to present the engineering design and execution of first application of coiled hose in Indonesia to perform nitrogen unload including its first deployment with roller boogies in the world to tackle the challenge of highly deviated well.

The new well of XX-107 was completed with 2 (two) gravel pack zones and tubingless section. In order to produce the well from the gravel pack zones, completion fluid, which filled in the XX-107 well, should be displaced to ensure underbalance condition once the SSDs of those gravel pack zones were opened. After comparing several available methods, coiled hose was chosen to perform nitrogen unload due to its compact and lightweight nature in comparison to conventional coiled tubing. Coiled hose enabled seamless deployment right after the well was completed by the workover unit. Furthermore, the maximum deviation of 84 deg in XX-107 well provided additional challenge to access the well since coiled hose was gravity feed. Several simulations were performed and they resulted in the utilization of roller boogies to minimize friction during RIH and increase the reach of coiled hose in this well.

As a result, this operation achieved its main objective of displacing the completion fluid out of the well and created underbalance condition in front of the gravel pack zones. Although the efficiency was only 67.5%, it managed to create 1071 psi of underbalance value and consequently the well flowed at 8 MMscfd. Its lightweight nature was like electricline unit and it consumed less space on the upper deck of the platform. Moreover, the deployment and setup process was performed offline which optimized the operating time event further.

The cumulative operating time was only 13 hours including demobilization process while in terms of logistic coiled hose only required 1 trip whereas coiled tubing unit required at least 3 trips. Lastly, this operation requires only 10 personnel for 24-hr operation in comparison to 15 coiled tubing personnel which meant, in this Covid-19 pandemic, provided less risky solution.
