Cairn, Pakistan Petroleum and ONGC Discuss Well Intervention Activity and Innovation in the Asia Pacific

With special thanks to:

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https://interventionasiapac.offsetevents.com/
Introduction

As operators and well intervention experts from across the Asia Pacific prepare to make their way to OWI APAC in Kuala Lumpur on June 26-27, we caught up with some of this year’s speakers to discuss:

- The importance of well intervention to Asia Pacific operators
- The type of projects taking place across the region
- The operators’ view of well P&A activity
- New cutting-edge well intervention technology
- The role operators should play in technology development and innovation

This interview will give you a solid understanding of how to position your company to make the most out of well intervention business opportunities and grasp the types of product lines and services currently demanded by the region.

Discussing the impact of well intervention for Asia Pacific oil & gas operators in the current climate, Ankesh Nagar, Senior Petroleum Engineer for Mature Fields at Cairn Oil and Gas explained that well intervention services are critical to maintain base levels of production, especially for an operator like Cairn who operates mature fields in India. He added that production targets are usually categorised in base and growth: on the one hand, interventions such as stimulations, wellbore cleanouts, ESP stimulation and jet pump change outs help restore production impacted by water injection & polymer breakthrough for example. On the other, data gathering & surveys such as injection profiling and corrosion logging help understand how various dynamics of secondary & tertiary recovery are impacting current production.

Outlining current projects, Nagar said that Cairn is undertaking a plethora of projects ranging from producer & injector well stimulations to the debottlenecking of complex surface network systems. Under well stimulations, regular acid/mud-acid or chelate based stimulations take place using coil tubing or pumping setups as well as conducts for specialised water shut-off treatments such as RPM or chemical zonal shut-offs. Thru tubing campaigns of straddle packers for various selective treatments, inflatable retrievable bridge plugs for zonal isolations and sand consolation treatments in some fields experiencing sand production are regularly executed. Cairn is also moving towards ‘sand scouring’ on top of the conventional fracking of injector wells and some producers to improve performance. Though various lift systems are deployed in the fields, both offshore and onshore, the major form of lift remains jet pumping. Here, Cairn faces a peculiar problem of deposition in the annulus through which the jet pump power fluid is pumped. A process named ‘annulus de-choking’ is used which requires high rate pumping set-up to clear the annulus of debris.

Nadeem Durrani, Deputy Chief Engineer for Pakistan Petroleum Limited (PPL) outlined that well intervention plays a crucial role in determining well construction health and condition, as well as taking reservoir measurements. He added that frequent maintenance of downhole safety systems and checking the condition of wellbore jewellery and production tubing integrity was integral to PPL’s routine campaigns. Durrani detailed that currently PPL is performing workover operations with two rigs, while a further 10 rigs are busy drilling new wells. Dr. Rakesh Kumar Vij, Advisor for ONGC noted that well intervention is an important activity for E&P operators in order to sustain and maintain production levels through the judicious use of various cost effective tools which can help revive wells with poor integrity. ONGC is currently undertaking redevelopment projects in an offshore brownfield environment including water shut-offs, profile modification and wireline intervention.
Furthermore, the plugging and abandonment of wells as well as the decommissioning of platforms and pipelines is a topic that can no longer be ignored in the Asia Pacific with estimates showing that offshore operators in the region could face a total decommissioning bill of over $100 billion with nearly 2,600 platforms and 35,000 wells needing to be abandoned in the near future. Some operators including PPL and Cairn will not need to actively undertake major campaigns in the near future. Durrani in fact notes that PPL has no planned P&A for the next decade. Likewise, it appears Cairn has no major P&A activity on schedule yet. Having said that, Nagar did suggest that one field recently required abandonment of a few wells due to the expiry of a land lease, which was safely & successfully conducted. Some additional wells in more mature fields will also have to be plugged and abandoned in the coming years and it remains important for these companies to ensure that their teams are prepared and that sufficient thought is put into cost estimation and planning ahead of future campaigns.

ONGC on the other hand is facing tougher choices. Vij in fact explained that as their fields are multi layered, normal activities like zone transferring are very common, and wells whose integrity is compromised and require complicated fishing projects become candidates for P&A, which implies a more regular flow of abandonment activity. Another speaker also described having strategized a 5-year plans for P&A execution with long term resource/manpower/modus operandi scheduling. This came after the realization that pushing back P&A much further would negatively affect the commercial and technical viability of projects.

When quizzed about which technologies could improve the efficiency and reduce the cost of well intervention projects, answers varied. While some thought that operators need to develop a commercial model that can deploy new technology under a risk and reward scheme, others implied that a mind shift is crucial to be able to try new things so that service providers are motivated to invest more in technology development. From his perspective, Durrani outlined that electric logging and intervention tools can be very costly and that a reduction in price would likely lead to an increase in activity. He added that when it came to reservoir measurement, it is important for operators to invest capital in proven projects that can enhance efficiency.

ONGC’s Vij on the other hand listed water shut-off for gas wells, artificial lift in high angled & horizontal wells, management of smart wells through wireline operations and hydro-fracturing for tight sand as a number of areas in which innovative technologies should be developed to improve efficiency and reduce cost. Vij also emphasized that as operators face unique problems in each field, it is important for them to share their challenges early on with service providers to avoid general solutions having to be re-worked into costly tailor-made products at a later stage. For his part, Nagar described how technologies that allow for simple implementation, are cost effective and result in minimum well downtime usually fall into an ideal category for implementation. Environmentally safe stimulation chemicals allowing for safe disposal, through tubing solutions to improve well conformance in varying tubular sizes & rated differential pressures, chemical zonal isolation instead of workover based zone changes as well as effective artificial lift system treatments & deployment for improved well performance are critical towards improved efficiency and cost reduction for well intervention projects.

Conclusion

Well intervention is already a crucial part of these companies’ operations but a further increase in activity could be brought about through more interaction between operators, as well as early engagement with service providers.

On their participation at OWI APAC on June 26-27 in Kuala Lumpur, all interviewees agreed that the networking and sharing of ideas was a major draw, with many highlighting the importance of strategic, commercial and contractual discussions alongside the technical program. Durrani also specified that he hoped exposure to international well intervention techniques from world-wide industry experts could offer new innovative solutions to some of his technical challenges. As for Nagar, he hopes to briefly layout how Cairn Oil & Gas’ well interventions are playing a critical role towards maintaining production levels in mature fields and use the conference as a platform to interact with various companies to allow his organisation to discover relevant technologies that can help answer some of the current issues in their fields.

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