

### **EXECUTIVE SUMMARY**

Using data from a previous operation, Deep Well Services data acquisition system (DAS), SnubWell<sup>®</sup>, was able to extract learnings that were passed on to another customer to help optimize their drill-outs.

### **CHALLENGE**

Deep Well Services utilized the same unit and crew for two different multi-well drill-outs. Between both jobs, DWS was able to determine a crucial difference in both of those outcomes; less efficient drill times.

### **SOLUTION**

To help the new customer improve efficiencies, Deep Well Services Operations' team examined historical data as it is referenced in the graph, to their current customers' data utilizing their DAS, SnubWell<sup>®</sup>. Specifically, they focused on circulation patterns versus torque values at critical points throughout the wellbore. The findings were that the circulation frequencies on the previously examined historical data were significantly less which contributed to a more efficient drill-out and less time on the well. DWS' new customer mandated circulating between drilling for every five plugs. To ensure similarity in well design, their Operations' team compared the historical wells to the new customer's wells data. In this case, the fundamental well parameters examined were TVD, MD, LL, formation, geographic location, and SICP.

After comparing the wells and data sets, it was quickly identified that the reduced circulation intervals on the previous wells did not result in significant torque increases nor did it create a risk of becoming stuck. Using this fact-based data, DWS was able to recommend decreasing the amount of circulating between plugs to their new customer. These parameters will be shown below in the Results section.

### **RESULT**

For the purpose of this case study, the wells completed prior to the drill-out in question will be referred to as Historical Well 1, Historical Well 2, and Historical Well 3. The wells for the new customer will be labeled as Current Well 1, Current Well 2, and Current Well 3.

Well Name	TVD (ft)	MD (ft)	SICP (psi)	Circulation (hrs)
Historical Well 1	8,783	18,746	<2,000	0
Historical Well 2	9,412	15,626	<2,000	0
Historical Well 3	10,840	17,342	<2,000	0
Current Well 1	7,486	20,034	<2,000	17.8
Current Well 2	7,505	18,603	<2,000	14.3
Current Well 3	7,534	18,995	<2,000	11.4

After presenting the findings to their new customer, DWS was able to verify that reducing the amount of circulating would result in reduction of time spent drilling. Throughout the wells, the mandate to circulate started reducing from every five plugs, eventually reducing to every 10 plugs. It is estimated that the customer saved roughly \$20,625 throughout the operation merely by circulating less and utilizing data to back up the decision-making process.