



## CASE STUDY



# FlexConnect



## Promoting Continuous Improvement by Increasing Adherence to Slip to Slip Connection Processes

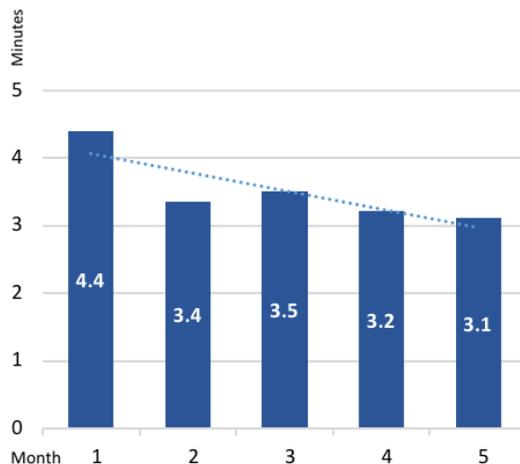
### OBJECTIVE

The start up costs associated with bringing a rig out can be painful with significant amounts of invisible lost time. One operator was proactive in addressing these issues and requested H&P to provide a solution for setting them up for maximum success. The goal was to establish early-on consistency and time savings across crews.

H&P recommended FlexConnect™ as a way to provide each driller with real-time slip to slip performance data and encourage uniformity through the observation of standardized processes.

Access to this data on the driller's Human Machine Interface (HMI) shortens the learning curve, encourages consistency, promotes continuous improvement, and increases adherence to slip to slip connection processes.

Over the course of five months after implementation, the operator began to see uniformity between the drillers from all crews and continuous improvement in slip to slip times.



### RESULTS

FlexConnect enabled the rig's performance to be consistently tracked over time, leading to clear and ongoing results.

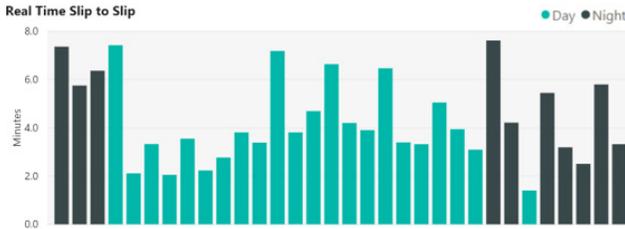
- The rig crew achieved reduced slip to slip connection time by 30% over the course of five months
- The real-time display of rig crew performance established consistency in slip to slip time
- Ongoing reporting promoted a performance-minded culture through competition between crews
- The standardized process removed the risk of slip to slip anomalies as new drillers were introduced
- The interactive monitoring process encouraged proactive training
- Immediate results allowed for focus on other time saving opportunities

*The rig crew's average slip to slip connection time was monitored using FlexConnect. The crew is now performing slip to slip connections significantly faster than when they started*



In addition to a decrease in overall connection times, connections became more consistent as time progressed.

Before FlexConnect



Initial individual slip to slip times were erratic after the rig initially mobilized. Inconsistency was evident among crews, and also among individual drillers prior to implementing FlexConnect.

After FlexConnect



Shortly after FlexConnect utilization, drillers became more consistent. Their slip to slip times were lowered, and inconsistency between crews was significantly reduced.

The drillers use FlexConnect to track their individual and average slip to slip connection performance to compare to the other tours. The operator can monitor the detailed connection report to track progress and identify key performance indicator (KPI) trends.

DAY	Average	3min 14.4 sec
StartTime	End Time	Time
10/11/2018 10:12:49 AM	10/11/2018 10:16:04 AM	3min 15sec
10/11/2018 8:52:41 AM	10/11/2018 8:55:41 AM	3min 0sec

NIGHT	Average	3min 31.27 sec
StartTime	End Time	Time
10/11/2018 5:29:07 AM	10/11/2018 5:32:03 AM	2min 56sec
10/11/2018 4:50:03 AM	10/11/2018 4:53:03 AM	3min 0sec

The driller's HMI screen view provides real-time slip to slip feedback for both day and night drillers to encourage efficient and effective performance.



Day_Night	Average of Connection Time (min)	Count of Connection Time (min)	Earliest Connection Start
Day	2.49	29	9/23/2018 12:22:26 PM
Night	2.30	27	9/23/2018 6:03:32 PM
<b>Total</b>	<b>2.39</b>	<b>56</b>	<b>9/23/2018 12:22:26 PM</b>

Overall Slip to Slip

# 2.39

The operator report provides an at-a-glance tour performance comparison and overall slip to slip detail.



\* PAST PERFORMANCE IS NOT A GUARANTEE OF FUTURE RESULTS. ANY STATEMENTS REGARDING PAST PERFORMANCE ARE NOT GUARANTEES OF FUTURE PERFORMANCE AND ACTUAL RESULTS MAY DIFFER MATERIALLY.

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