iWELLSITE AUTOMATION INC

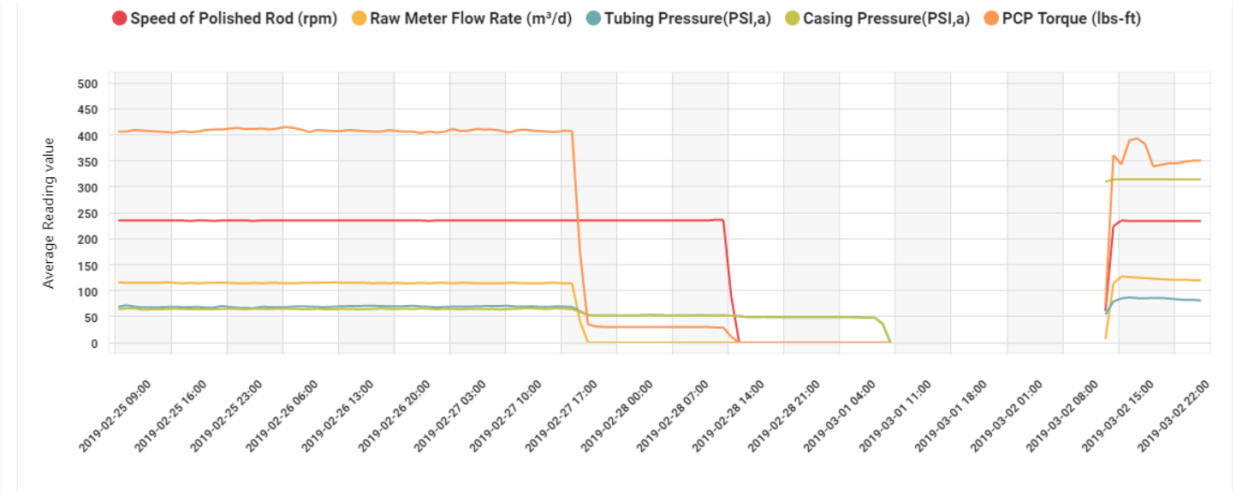
Case Study

## Rapid Response to Parted Rods

The goals for operating a producing oil well are fairly simple: Maximize fluid production, reduce costs, and minimize downtime. While simple the reality of achieving these goals can be both difficult and stressful. Todays operations teams typically have over 50 and sometimes hundreds of wells to look after in a given field. Without a monitoring system, a lot of windshield time is required simply to determine wells are operating normally. Many companies are turning to monitoring and control systems to help achieve operational goals. The iWell Operating System offers the latest technology and most complete platform for monitoring and control of Progressive Cavity Pumps. The following example demonstrates how a monitoring system can provide advanced notice of a well issue and allow the operations team to react in a timely fashion.

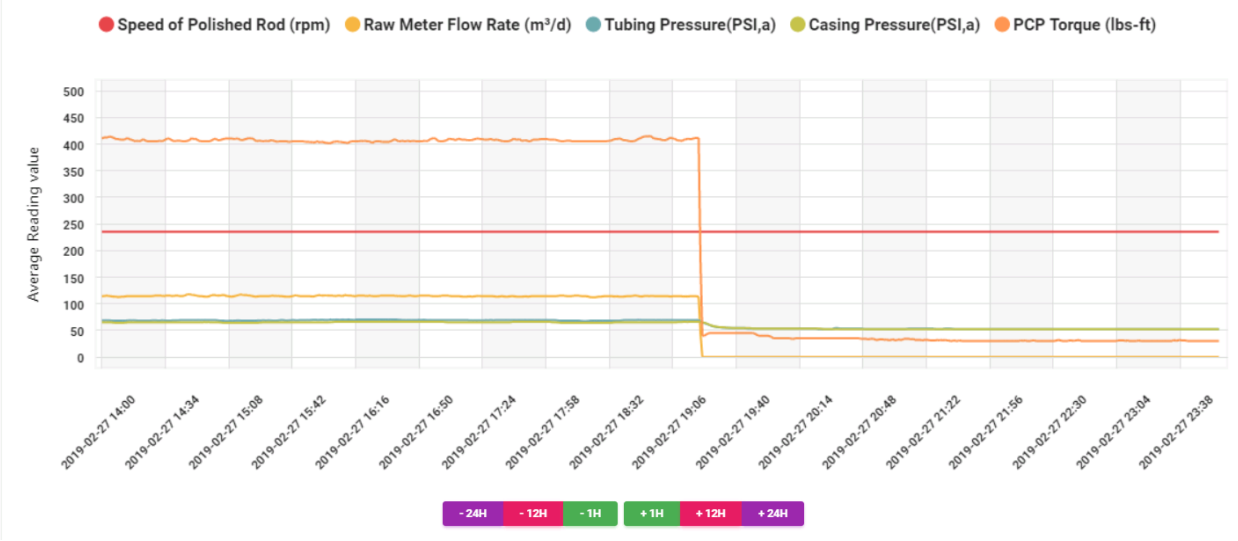
On February 27th at 7:20 pm the well below suffered a catastrophic failure, parted rods. The graph below retrieved from the iWell Operating System, shows normal production conditions prior to that time and a sudden decrease in both torque and flow. Prior to the event, normal operating conditions were as follows:

| | |
|---|---|
| Polished Rod Speed | 235 rpm |
| PCP Torque | 400 lbs-ft |
| Raw Flow Meter Rate | 115 $m^3/d$ |
| Casing and Tubing Pressure | ~70 psi |

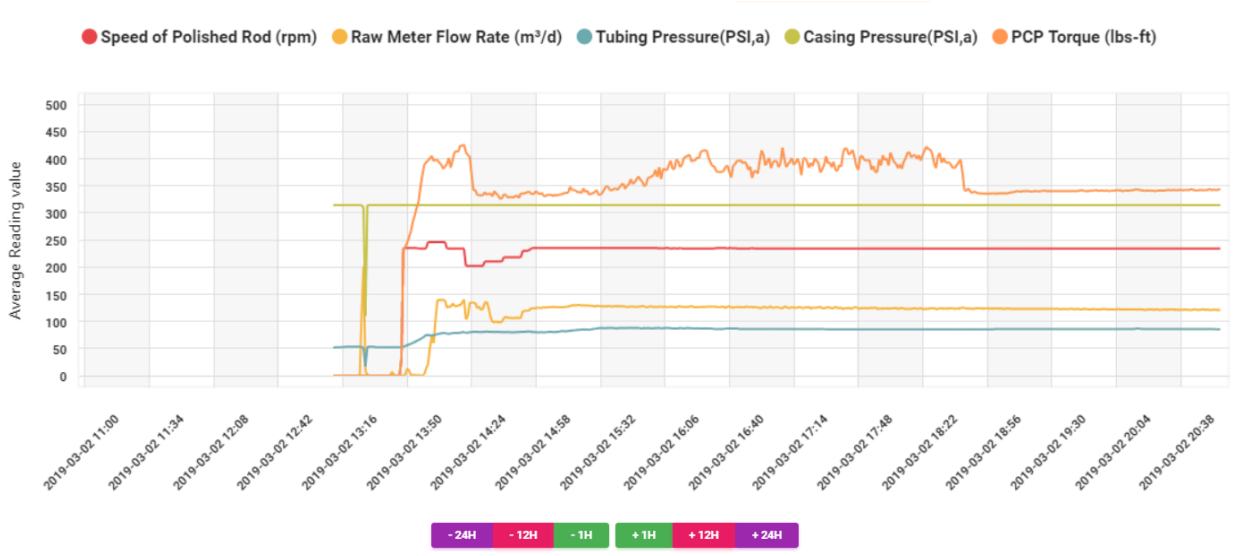



As seen in the graph above there was a sudden decrease in PCP Torque from 400 lbs-ft to approximately 30 lbs-ft and production, measured as Raw Flow Meter Rated dropped to 0. The iWell Operating System immediately sent out alarms to the assigned personnel for low flow and low torque. This gave the operations team the heads up and they were able to quickly determine that rods had parted based on the graphical evidence. The operations team notified a service company to arrange pulling of pump and replacement of the existing rod string. The motor on the well was subsequently shut down until repairs were affected.

The zoom in of the event below clearly shows the instantaneous drop of both torque and pressure indicative of parted rods. By using the graphing capabilities of the iWellOps system, there was no doubt in cause of the alarms received and the operations team were able to make rapid decisions and promptly take corrective actions to minimize downtime and hence production loss.




After the service rig pulled off the well and the well was restarted there was an indication that the casing pressure transducer had been damaged or incorrectly connected. On further investigation at the wellsite, it was determined that the pressure transducer was damaged by the rig crew during the workover. Having this knowledge right away allowed the operations team to alert the service company to the issue and resolve by having them cover the costs associated with replacement of the transducer.




The iWellOps monitoring and automation system provided the operations team with real-time knowledge of the anomaly at this well allowing them to make intelligent decisions and schedule the work necessary prior to going to the field. The result was no unnecessary downtime, a minimum of production loss and less stress for the operators.

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