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Mud Pump Controls

A rig was having a long-standing problem with the #3 mud pump. If the rig crew did not bring the pressure up slowly on all three pumps at once, the #3 pump would drop off and not pump at all.

Description of Issue

The crew emphasized that the installation had been like this for eight years. The operating procedures of the rig had even been written to work around the situation.

The crew believed that the problem was related to extra bends in the pipe-work used to install the #3 pump. As intuitive as this explanation seemed at a glance, the extra pressure caused by the relatively few piping bends should not have been high enough to even register on the gauges.

Solution

There was no record of the date of the last adjustment to the power limits of the SCR motor controllers. The onboard WEST surveyor showed the chief electrician how to check the limits with a voltmeter and adjust them if needed. Sure enough, the #3 pump was set at 75% capacity. After the limits were reset with the potentiometers on the controllers, the driller ran the pumps up as if all three were healthy units. All the pumps started normally. Just to be certain, different combinations of pumps were then tried with the same result.

This situation had cost the contractor at least a couple of minutes for every connection the rig had made in eight years of drilling! To put a precise dollar figure on it is difficult, but it is a healthy sum.

For more information or technical questions, please contact WEST Engineering, west@westengineer.com, or call 281-375-5515, or visit our website at westengineer.com.