UNCONVENTIONALS

CASE STUDY

DuraHard® 7 Coating Provides Enhanced Protection Against Erosion and Wear From Frac Sand

OPERATOR EXTENDS RUN TIME WITH SPECIALLY COATED PUMP

EDDY COUNTY, NEW MEXICO

CHALLENGE

- Extend run life of pumps used in sand fracking operation
- Minimize equipment wear and tear due to abrasive sand particles

SOLUTION

- Install ESP unit with DuraHard® 7 enhanced abrasion and corrosion-resistant coating

RESULT

- Reduced erosion/wear in the pump
- Extended run time, from as short as 61/177 days to as long as 475 days
- Minimized well interventions, downtime, and lost production

OVERVIEW

An operator using sand for hydraulic fracturing in New Mexico, U.S. had experienced two short runs—a 61-day run and a 177-day run. Their primary objective was to decrease the downtime associated with well interventions by finding a way to lengthen the life cycle of the electrical submersible pump (ESP) system.

DuraHard® 7 high-phosphorous nickel coating provides non-molecular surface hardness to impeller and diffuser surface pump stages.

CHALLENGE

Previous ESP units were affected by advanced wear from the abrasive frac sand and loss of head lift in the pump thus decreasing effectiveness and longevity. The traditional approach was to install desanders below the pump, which works to an extent, but the desanders were limited to the cavity capacity. While desanders may be a cheaper, quick option, they were not deemed the best solution for this application.

SOLUTION

Summit ESP® recommended DuraHard® 7 enhanced abrasion and corrosion-resistant coating be applied on the impeller and diffuser pump stages of the ESP system to extend run times. DuraHard coatings protect against friction, abrasive, and corrosive conditions, providing longer pump run life. This enhanced level of protection uses a high-phosphorous, nickel coating that provides additional, non-molecular surface hardness to stage materials.

RESULT

The ESP system with DuraHard coating was installed in the second quarter of 2020 and is still running today, with a recorded run time of approximately 475 days and counting—more than double the past performance of legacy, uncoated pumps. This successful project maximized asset value with the need for fewer well intervention operations.

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