

PurpleSeal™ Frac Plug Case Study

109 PS-X composite frac plugs drilled out in a single 132-hour trip

Challenge

In West Virginia’s Marcellus Basin, a major operator drilled the longest lateral well in the region using 5-1/2” 20# production casing and measuring 29,154 ft (MD) with a lateral length of 21,483 ft. The greatest challenge that operators face when dealing with long lateral sections is the plug drill out. Since pipe is used to carry the bit downhole, the adversarial friction factor becomes more influential as more pipe engages with the casing. This frictional force negatively affects the ability to apply an appropriate amount of force to the plug. Even with a snubbing unit providing more “pushing” force to the pipe, such as in this case, the same issues arise. Therefore, the plug selection for this situation was critical for obtaining a clean and effortless drillout.

Recommendation

To overcome this challenge, Repeat Precision proposed using the PurpleSeal™ PS-X all composite plug with powdered metal buttons that contains less than 1% metal and drills out in an average time of 6.5 minutes with an average wash time of 27 minutes. The PSX has proprietary high-strength composite materials that ensures uniform performance and durability. Interlocking castellations on the slips and end caps and a contoured interface between the slips and cones eliminates component rotation to ensure even, concentric slip expansion.

Results

The drillout consisted of using a Deep Well snubbing unit to apply the force required to get the pipe to reach the end of the long lateral section, a new WOS 7 bpm downhole motor, and a Varel 4.5” SlipXtreme™ hybrid roller cone bit. The entire drill-out was completed in a single trip lasting approximately 5-12 days. No short trips or motor stalls were reported, and the plug debris size was manageable from the first plug to the last. After the job was completed, the bit only showed normal wear on the inserts. This project proved to be a tremendous success, as multiple runs are normally expected with a standard plug and bit combination.

PurpleSeal PS-X

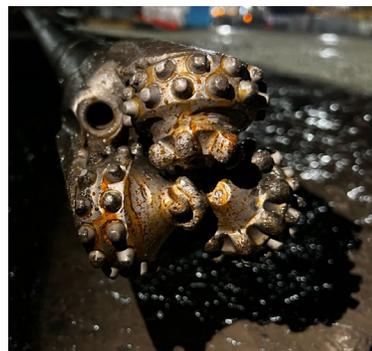
The PurpleSeal PS-X all-composite plug with powder metal buttons. Less than 1% metal content for consistently fast drill-out times .



Benefits

- Excellent drill outs – based on the run data, the consensus among operators is that the PurpleSeal composite frac plugs drill out faster and cleaner than others currently on the market.
- Successful plug deployment – high run-in speeds, less pump-down water volume, and extremely low instances of pre-sets.
- Great customer service – will dispatch personnel to location in under four hours, free-of-charge.
- Affordable pricing – low cost-to-value ratio
- No hidden fees – do not charge mileage, service, or environmental fees (waste disposal).

Number of plugs	109 PurpleSeal PS-X all composite plugs with powdered metal buttons
Total drill-out time	Less than 88 hours
PurpleSeal plug drill-out time	6.5 minutes average
PurpleSeal plug wash time	27 minute average
Lateral length	21,483 ft
Casing	5-1/2-in., 20 lb/ft
Drill Bit	Varel SlipXtreme™



SlipXtreme™ bit after drilling out 109 PurpleSeal frac plugs.



Matt Merron
Product Manager
972.623.7848

Alex Miller
Operations & Sales Engineer
512.659.1551