

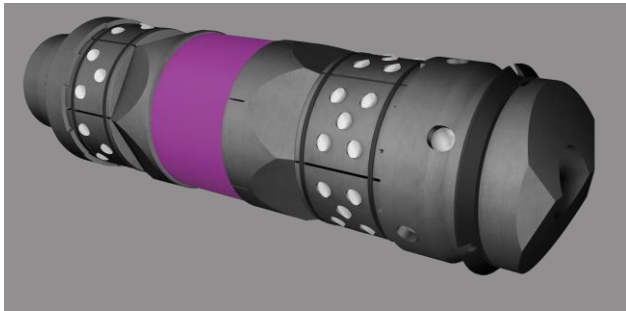


A PurpleSeal™ Frac Plug Case Study

104 composite frac plugs drilled out in a single 88-hour trip

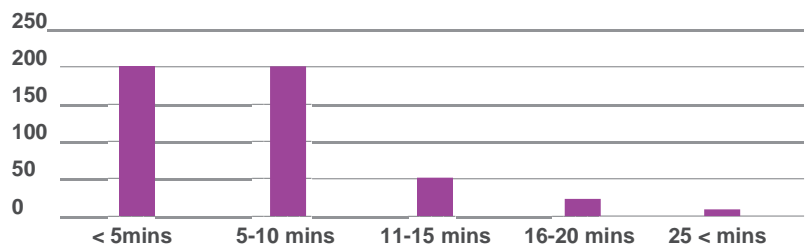
An operator in the Permian Basin recently drilled out more than 100 composite frac plugs in a single trip taking less than 88 hours. No motor stalls were reported and plug debris size was acceptable from the first plug to the last. After the job, the bit showed normal wear on the inserts.

PurpleSeal PS-X all-composite plugs with powdered metal buttons have less than 1% metal content and deliver consistently fast drill-out times.



Number of plugs	98 PurpleSeal PS-X plugs; 6 trial plugs at the heel
Total drill-out time	Less than 88 hours
PurpleSeal plug drill-out time	6.5 minutes average
PurpleSeal plug wash time	27 minutes average
Maximum swivel torque	3,300 lb-ft
Lateral length	10,270 ft
Casing	5-1/2-in., 20 lb/ft
Workstring	Threaded pipe with a 3-1/8-in. downhole motor
Drill bit	Taurex 4-5/8-in. JZ Bore Haug™ tri-cone bit

PurpleSeal PS-X frac plugs delivered similar drill-out performance in four additional wells on the same pad. The chart below summarizes drill-out times for all five wells and 473 PurpleSeal plugs. The same drilling BHA and procedures were used for all the wells.



Taurex Bore Haug tri-cone bit after drilling out 104 composite frac plugs. Normal insert wear, rollers intact.



Drill-out debris from PurpleSeal plug No. 50.



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