



Case Study: South Texas, United States

## ***King™ Frac Plug – Reliability Needed in Adverse Well Conditions (Size 438 King Frac Plug)***

### ***Challenge:***

An operator running 5.5" Frac Plugs out in the Eagleford Shale was having issues with multiple plug providers frac plugs slipping during long fracture treatments. The operator was looking for a frac plug that could reliably seal and stay in place after long treatments, be able to handle long flowback due to potential screen outs, work properly if left downhole for up to 12 hours before frac, and be tagged in place on every stage during mill out.

### ***Solution:***

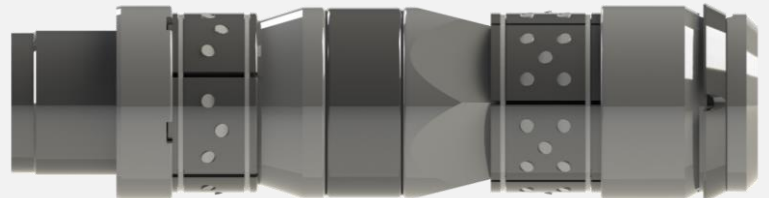
The customer opted to install 45 King™ Frac Plugs using Royals Easy Connect WLAK and E4-#20 Setting Tool. Advanced design features of the plug allowed for speeds in excess of 500 ft/min while using minimum amounts of pump down fluid. The well was completed without incident, and all King™ plugs were milled out in a single run, with no motor stalls or short trips needed and mill times of under 5-minute average each. All plug debris from the plugs were small from start to finish.

### ***Well Specification***

- 5.5" - 23 lb/ft Casing
- ~5,000 - 10,000 ft Lateral Length
- ~10,500 ft TVD
- ~11,000 psi Max Frac Pressure
- 270°F

### ***Results:***

- Pump down speeds in excess of 500 ft/min
- Zero King™ Frac Plugs slipped or gave way during frac
  - Allowed the operator to subject the King™ Frac Plug to downhole temperatures for up to 12 hours prior to frac, while still reliably sealing and staying in place during fracs of over 4 hours per stage
- Able to flow back at 14 bbls/min for 1.5 hrs after screen out without the plug/plugs moving
- All plugs were tagged at the proper depth during mill out with under 5-minute average mill times



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