An operator in the Eagle Ford Shale wanted to drill out plugs more efficiently, eliminating short trips. Halliburton’s Drill Out Solutions Package made it happen.

**OVERVIEW**

Operators know that in the field, time is money. Recently an operator in South Texas’ Eagle Ford Shale wanted to put their wells in production faster by reducing, or eliminating altogether, the number of short trips required to drill out all plugs. Concerned about excessive buildup of debris and sand that might get trapped and lead to coil stuck in the well, they asked Halliburton to conduct the drill out.

Employing Halliburton’s Plug Drill Out Engineered Solution, the team used advanced predictive modeling to determine the most effective solution that would maximize efficiency and effectiveness, and deliver the safest and most cost-effective solution.

A 2 3/8” coiled tubing unit with tapered string was used for higher pump rates and more weight/force downhole to get past friction forces and reach PBTD. Chemicals were mixed to increase viscosity so that more particles would be returned to the surface while lessening the chance of getting stuck on plug parts. Less weight on the plugs each time, with a less aggressive bit, helped ensure that smaller parts were generated that could rise to surface easily without getting caught in the heel or around the bottomhole assembly. Continuous monitoring of real-time variable data for indications of debris buildup helped the team successfully complete the wells in one trip.

### CHALLENGES

- Overcome friction, particularly in horizontal wells where debris has a tendency to settle on the bottom of the pipe
- Minimize weight check delays while maintaining cleaning efficiency to help ensure reduced risk of over pull/sticking coil

### SOLUTIONS

- Use of 2 3/8” coiled tubing unit with tapered string to enable higher pump rates and more weight/force available downhole to overcome friction forces
- The chemicals were mixed to provide more viscosity so more particles return to surface.
- Rather than making short trips all the way back to heel, CT was pulled only 200-500 feet to check weight and determine if there was any additional over pull.

### RESULTS

- No short trips were required and no sticking incidents occurred due to bridged particles lodged between the coil and the casing.
- Time savings of 12 hours per well.
- Operator advised Halliburton had provided most efficient drill outs they had ever conducted. Two additional drill outs were awarded and similar results achieved. Operator plans to award 12 additional wells to Halliburton team soon for cleanouts.

Solving challenges.™
A CASE STUDY: Halliburton’s plug drill out saves operator time and money

**19** Average number of plugs

**18 minutes** Average time per plug

**Short trips needed: 0**

**Fully Automated and Scalable Solutions**

- **Complete Solutions Package**
  - Complete Solutions Package
  - Invoice
  - Point of Contact

**Enhanced QuikRig® Coiled Tubing System for:**
- Faster rig-up
- Improved efficiency
- Enhanced safety

**Increase your horsepower, decrease your footprint.**

The AMP™ 1600 Pumping Trailer is designed specifically for coiled tubing applications. Halliburton’s next generation pumping trailer is a high-horsepower pumping unit that combines liquid additive storage, dosing, mixing, and pumping onto a single chassis. No additional 3rd party mixing plants are required on location.

- Two independent and ambidextrous pumping systems with their own hydraulic systems
- HT-400™ triplex pump fitted with 4.0 in fluid ends delivers approximately 8bbl/min at 3500 psi for each side
- Eliminates need for additional tote, pumping trailers, and mixing plants
- Two separate mixing systems offer 100% redundancy
- 3 UN31A approved stainless steel transport totes enable gels or friction reducers to be carried on trailer

**Halliburton’s Plug Drill Out Engineered Solution**

Highly experienced personnel with engineering capabilities customize the drill out solution package that best fits your needs. Our fluid system is lab tested for lubricity and viscosity to ensure that it has the necessary suspension and friction reduction (hydraulic and pipe on pipe) characteristics required for your job.

You get a drill out with engineered solutions for pre-job modeling utilizing IWI™ software. Real-time decision-making is available to improve safety, reliability, and cost-effectiveness. In addition, our post job analysis enables you to compare models to actual data, implement lessons learned, and make every drill out as efficient and effective as it can be.

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