

# WOS 17-1/2" 816 PulverizR PDC Drills Challenging Section Efficiently with Excellent Dull

July 2024

A WV Marcellus Operator drills their 17.5" section on fluid through abrasive sands. This section traditionally wears PDC bits and can require two runs to complete the section. The WOS Drill Bits team created an application-specific design, built-in house to withstand the rigors of the section. On the bits first run, it completed the entire interval in one run while achieving among the top ROP performances on the pad. In addition, the bit dull exhibited minimal damage, with only 2 chipped cutters. This result was repeated 2 more times on the pad, even when a directional wellpath was required. The competitor drill bits had multiple runs with each having over 12 chipped cutters for each run. The operator was very pleased with the WOS drill bit team's first design attempt for this section, and they plan to utilize the WOS 17-1/2" 816 PDC on its next drilling campaign.



## Application Overview

|                        |                        |
|------------------------|------------------------|
| Application:           | Marcellus Intermediate |
| Location:              | Lewis Co, WV           |
| Operation:             | 17.5" Fluid Section    |
| Date:                  | July 2024              |
| Well Count:            | 3                      |
| Formation Type:        | Sandstone              |
| Fluid:                 | 9.8ppg WBM             |
| BHA:                   | 9.5" Motor (1.5° Bend) |
| Avg WOS Bit Dull:      | 1-1-CT-S-X-I-WT-TD     |
| Avg Chipped Cutters:   | 2 cutters              |
| Competitor bit Avg CT: | 12 cutters             |

## Application Challenges

- Abrasive formation
- Traditionally tears up drill bits
- Minimal design technology available
- Historical Drill bit life

## WOS Results

- All 3 wells drilled to section with no issues and minimal bit wear
- **PulverizeR PDC bit top pad performance:**
  - **Faster ROP**
  - **Reduced Torque**
  - **Easy sliding and Directional Control**
  - **85% better bit dull**

## Drill Bit Design Specifications

- OD: 17.5 in
- Makeup Length: 1.77 ft (21.24 in)
- Blade Count: 8
- Cutter Size: 16 mm (0.629 in)
- Cutter Count Total: 133
- Gauge Pad Length
- Nozzle Count: 11
- TFA Range: 0.54-2.73 in<sup>2</sup>
- Connection: 6-5/8" REG Pin

