

## Drilling Software | Sophisticated Yet Simple



# PlugPRO<sup>®</sup>

## Cement Plug Placement Model

### Overview

Setting a cement plug on the target zone is to either create a solid seal to stop fluid movement or provide a kick-off point for sidetrack drilling operations. The process involves pumping cement slurry down the work string into the targeted zone, removing the work string from the cement column, and allowing the cement slurry to harden in the wellbore. The volume of spacers pumped ahead and behind cement and the volume of displacement is critical to the quality of the cement plug. The traditional method is to pump all the fluids until each fluid level is equal to that inside the string. The limitation to this method is that the fluid could be contaminated once the string is pulled out of the hole due to variable fluid densities as well as wellbore and work string sizes.

Pegasus Vertex has developed PlugPRO, a software that models the displacement hydraulics of fluids and simulates fluids contamination during pipe being pulled out of a hole. PlugPRO aids in optimizing the pumping schedule to minimize contamination within the cement slurry and spacer once the work string is pulled out of a hole, ultimately, enhancing wellbore integrity.

### Benefits

#### Optimized Pumping Operations

- Reduced waste by minimizing contamination.
- Provides precise calculations of fluid displacement and contamination, allowing for more efficient and effective pumping schedules.

#### Cost Savings

- A higher quality cement plug is less likely to require remedial work, saving time and money.
- Providing detailed models and simulations allows operators to anticipate issues before they occur, further preventing costly setbacks.

#### Improved Wellbore Integrity

- With better control over the displacement hydraulics, the quality of the cement plug is enhanced, which can lead to fewer leaks and more reliable sealing of the target zone.





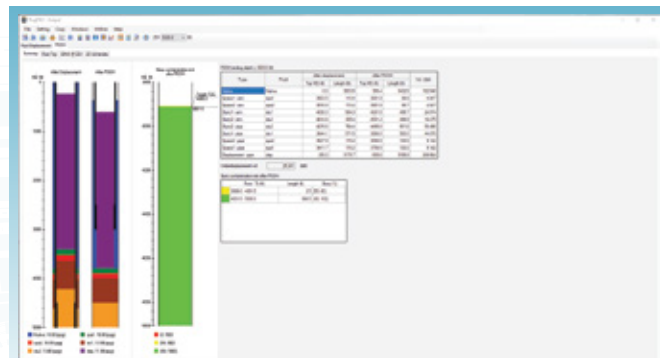
# PlugPRO®-Cement Plug Placement Model

## Features

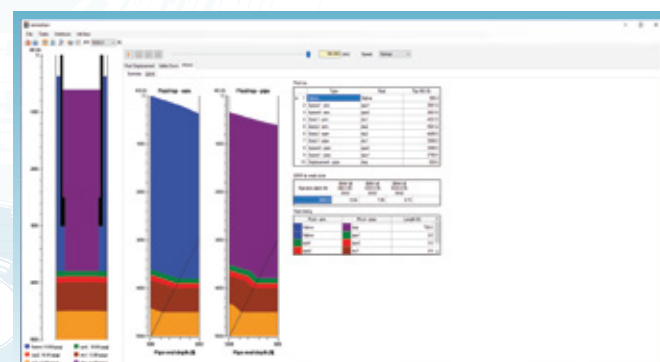
- Optimize fluid volume to balance slurry and spacer levels
- Under-displacement volume calculation
- Customized pumping schedule
- Fluid contamination after pulling the pipe out of the hole (POOH)
- ECDs and pressure
- Circulating temperature
- Displacement and POOH animation
- Hook load during displacement
- Microsoft Word® report

## System Requirements

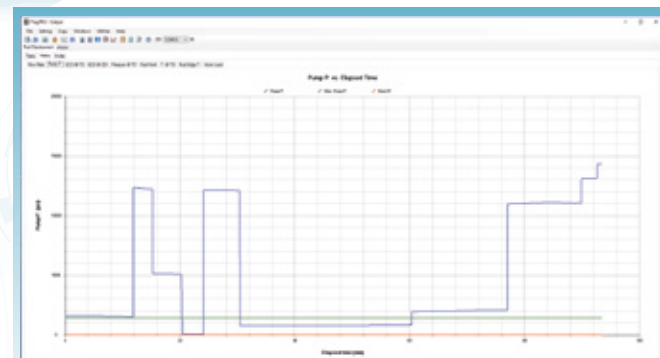
- Microsoft Windows® 10 or above
- Microsoft Office® 2016 or above
- Dual-core Intel or AMD processor, 1.4 GHz or higher. Quad-core CPU recommended. Not compatible with ARM processor
- 4 GB RAM (8 GB Recommended)
- 200 MB of free disk space for installation
- 1,280 x 768 display resolution



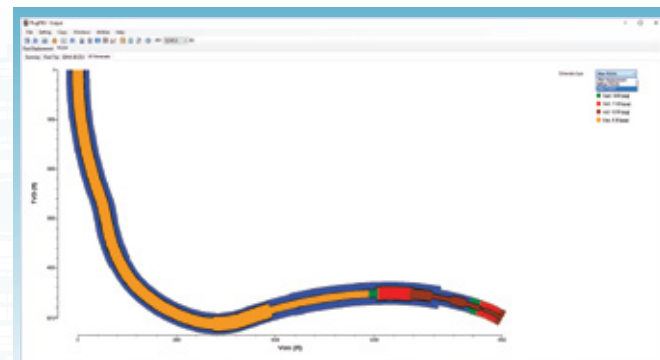
POOH Summary



POOH Animation



Pump Pressure vs. Elapsed Time



2D Schematic