

CEMPRO⁺

Cementing Job Model

Overview

Cementing is the process of displacing drilling fluids with cement slurry. Among the many challenges cementing companies face are mud channeling, poor casing standoff, loss of circulation, unmanaged high temperature, etc. Since 2000, Pegasus Vertex, Inc. (PVI) has been involved in the research and development of cementing software. Our award-winning and integrated cementing software CEMPRO⁺ has evolved from a simple hydraulics program to a comprehensive package covering casing centralization, circulating temperature, displacement efficiency, surge and swab, torque and drag, HTHP, foamed cement, and job evaluation.

CEMPRO⁺ offers the industry a better understanding of fluid displacement and helps our engineers make informed decisions regarding placement to minimize risk throughout a well's life. It provides a platform for both service companies and operators to ensure a successful cementing job by putting all parties on the same page. The successes of CEMPRO⁺ stem from the combination of PVI's technical strengths in engineering modeling and collaboration with industry leaders engaged in cementing operation. Our goal is to work collaboratively with our customers to design and deliver the best, sophisticated yet simple cement job software in the market.

To cater to the needs of our users, PVI has developed two different versions of CEMPRO⁺:

- CEMPRO⁺ with Centralizer Calculation
- CEMPRO⁺ without Centralizer Calculation





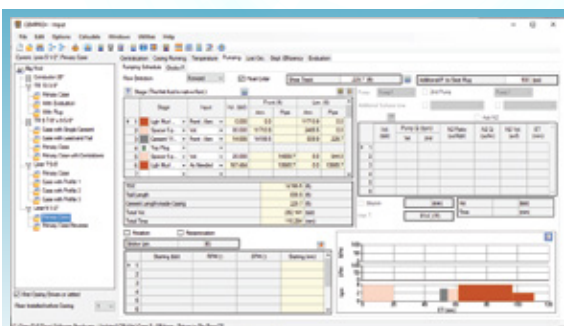
Engineering Features

- Job designs for all the casings in a well
- 20 casings, with 10 cases for each casing
- 16 fluids and 40 stages for each design case
- Land well, offshore and deep water
- Inner string
- Tieback
- Multi-stage cementing job
- Forward or reverse circulation
- Gas flow potential
- Casing centralization*
- T & D for casing running and cementing
- Lost circulation
- Automatic pump rate calculation
- Temperature prediction
- Pre-job circulation
- HTHP rheology and density
- Displacement efficiency
- Foamed cementing
- Job evaluation
- Circulation sub
- Thickening time
- Coiled tubing
- Post-cementing circulation
- Managed pressure cementing

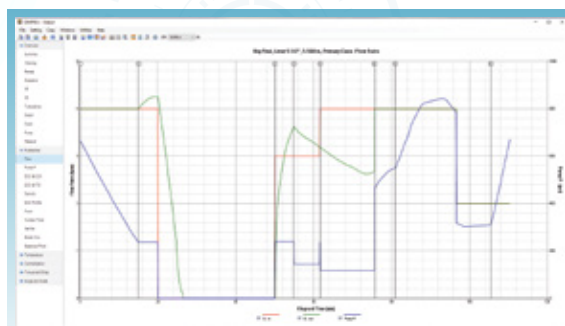
* Only available in CEMPRO+ with centralizer calculation version

Usability Features

- Casing wizard
- Fluid wizard
- Pipe diameter input in fraction format
- Survey data import
- 3D well visualization
- Zone of interest estimation
- Fluid compressibility
- Caliper log input
- Fann viscometer readings
- Choke pressure input
- Cement material balance
- Wellbore, casing and fluid schematics
- Annular contact time for all fluids
- Turbulence table
- Fluid displacement animation
- Microsoft Word® Input
- CEMLab data import
- Customized graph output
- Top and bottom plugs
- Balanced fluid positions
- Open hole excess sensitivity analysis
- Oil field, SI and customized units
- Job evaluation animation
- 3D visualizer of displacement



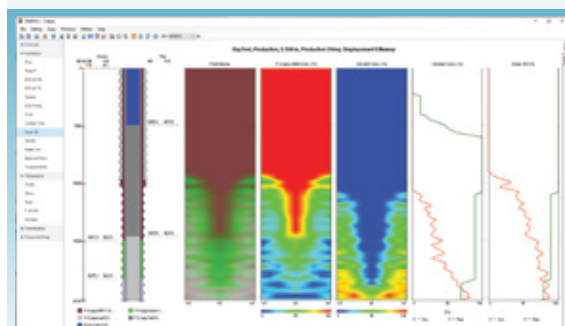
Input Window



Flow Rate vs. Elapsed Time



Temperature Profile



Displacement Efficiency