Nine

CASE STUDY

CEMENTING SOLUTIONS

New slurry combines low density with high compressive strength — minus HGS, batch mixing or bond logs

WITH CPT TRIDENT, NINE REDUCES COSTS AND ENVIRONMENTAL FOOTPRINT IN DELAWARE BASIN

Challenge: In accordance with New Mexico state requirements to circulate cement to surface, achieve a lower density slurry capable of quickly attaining compressive strength without the costs associated with HGS or foam slurries.

Solution: Develop an alternative, 10-10.8 lb/gal slurry with the compressive strength necessary to achieve zonal isolation.

Results:

- Reduces the need for HGS and batch mixing
- Reaches up to 300 psi and 10-10.8 lb/gal in 24 hours
- Cuts operational costs by tens of thousands of dollars
- Reduces the need for bond logs by offering a higher probability of cement being circulated to surface
- Reduces environmental footprint

ADDRESSING CEMENT-TO-SURFACE REQUIREMENTS

Weaker, less stable formations require lower-density cement slurries. For operators, conventional solutions to this challenge have either involved Hollow Glass Spheres (HGS) or foam to achieve the lower density and higher compressive strength required for zonal isolation. Unfortunately, these methods are expensive, requiring additional heavy equipment to batch-mix on-site which increases the overall carbon footprint.

Nine Energy Service confronted this problem head-on with cementing operations in New Mexico's Delaware Basin, where weak formations are prevalent.

The state has a requirement for operators to circulate cement to surface on certain sections of the well. This requires a lower density slurry to maintain cement returns and achieve designed cement tops without having to use HGS in the slurry design. With CPT Trident, Nine developed a value-focused, 10 to 10.8 pound per gallon (lb/gal) alternative.

Two years in development, CPT Trident is the result of relentless research and testing. Its proprietary blend of cementitious materials allows for a lower density while still providing respectable compressive strength — no HGS, foam or batch-mixing required.

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MINIMIZING COSTS AND ENVIRONMENTAL FOOTPRINT

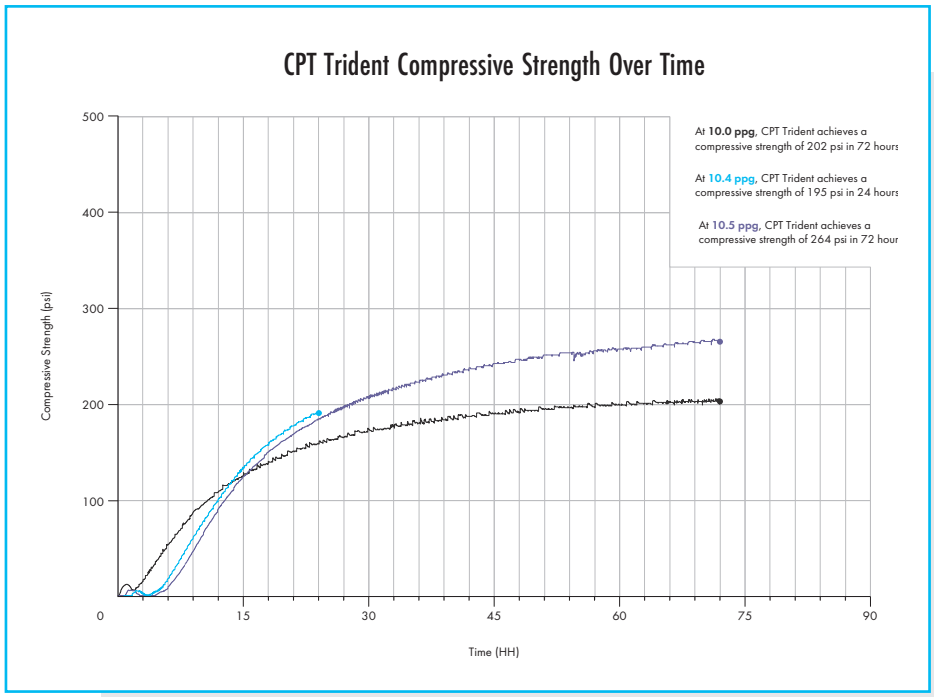
While not intended as an outright replacement for all HGS-slurry applications, CPT Trident is ideal for situations in which a high-performance slurry isn't required — but lower density and moderate compressive strength are. It's designed specifically for areas with low fracture gradients or weak formations, such as the Delaware, Anadarko and Permian Basins. Results from initial tests and the first 70 jobs show that a 10-10.8 lb/gal slurry can reach upwards of 300 psi in 24 hrs.

...a comparison between a traditional HGS slurry and the medium-density alternative showed an average of 60% savings in materials with CPT Trident.

By eliminating HGS from the slurry, Nine was able to dramatically decrease associated material costs. By not having to batch-mix slurries, heavy-equipment costs — including thousands of dollars in bulk truck and blender service fees, mileage, fuel and labor — were reduced.

In fact, a comparison between a traditional HGS slurry and the medium-density alternative showed an average of 60% savings in materials with CPT Trident. Eliminating the need for extra equipment and minimizing time on-site also reduces carbon emissions.

Circulating cement to surface means there's no need to document bond of the cement to the casing and formation. Bond logs represent an expense of up to $15,000, not including downtime on a worksite that can cost operators an estimated $3,000 an hour, even before the remedial cementing job that follows.



A MORE PERFECT MIX

CPT Trident is currently the only medium-density (10-10.8 lb/gal) slurry on the market offering this kind of compressive strength without HGS. And at Nine, we continually push the limits with new additives and technology to improve performance and lower costs for operators.