

PRODUCT BULLETIN

ENERSEAL™



Canadian Energy
SERVICES

EnerSeal™

MIXED-METAL HYDROXIDE

EnerSeal™ is a patented environmentally friendly bentonite based drilling fluid. It's highly effective at controlling lost circulation without the use of LCM or cement plugs.

It has been used effectively to drill surface holes with high losses, large hole sizes and caverns, shallow coal bed methane wells, and HDD pipeline and river crossings.

Mixed-Metal Hydroxide (MMH) compounds help to create a unique surface charge on simple bentonite clay that cause instant setting gels and extremely high low end rheology for superior hole cleaning and lower seepage to porous formations.

5 PATENTS

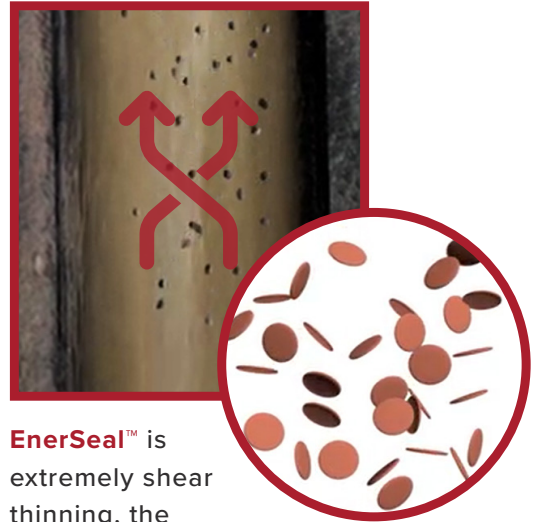
Our patents allow us to do things other MMH/MMO systems can't.

MMH Gel structure can be protected against coal zones and black powder contaminants from breaking.

Higher tolerance to natural clay build up in the system, helping prevent excessive thickening and dilution.

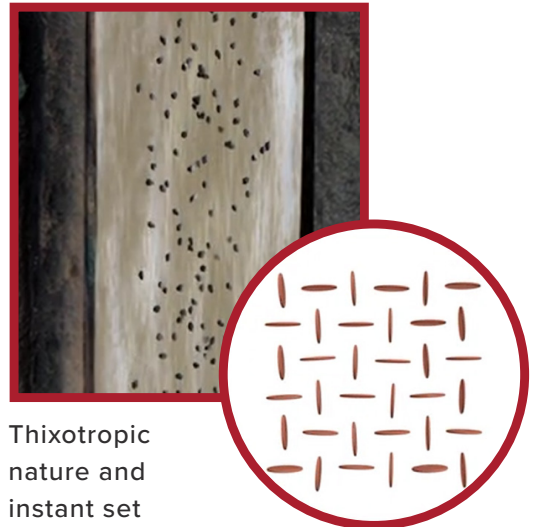
Elevated low end rheology, up to 50% thicker over competitive Mixed Metal Oxide (MMO) systems.

FREE FLOWING IN MOTION



EnerSeal™ is extremely shear thinning, the fluid can be pumped with ease without pressure increases.

SUPER THICK WHEN STATIC

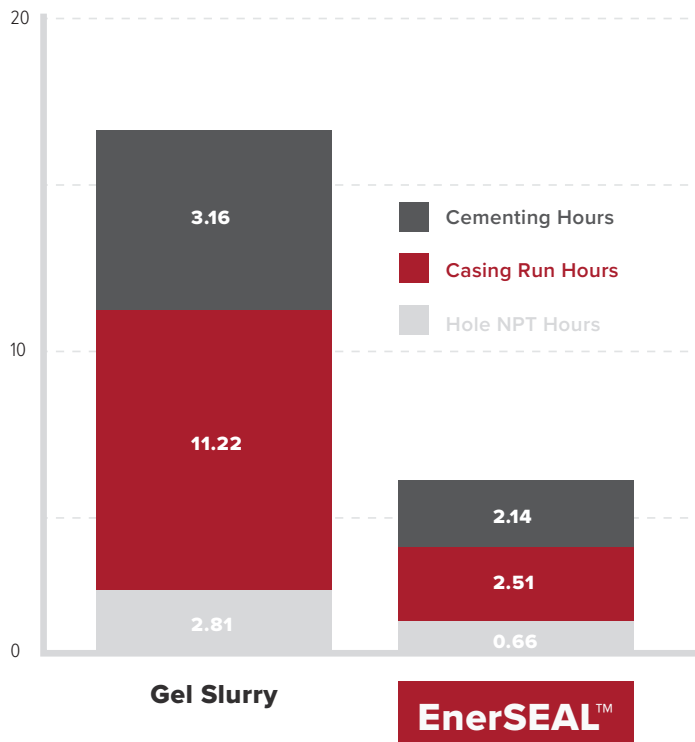


Thixotropic nature and instant set gels provides superior cuttings suspension meaning less cuttings slip, better hole cleaning and less downhole seepage.

CASE STUDY

N.E. BC - MONTNEY

AVERAGE NON-DRILLING TIME /PER WELL



CHALLENGE

On a 15 well Montney pad in NE BC, the operator experienced losses and poor hole cleaning when drilling surface holes with a conventional gel slurry. This led to increased non-productive time in trying to manage losses, lengthy casing run times increased costs due to lost circulation material and lost mud volume.

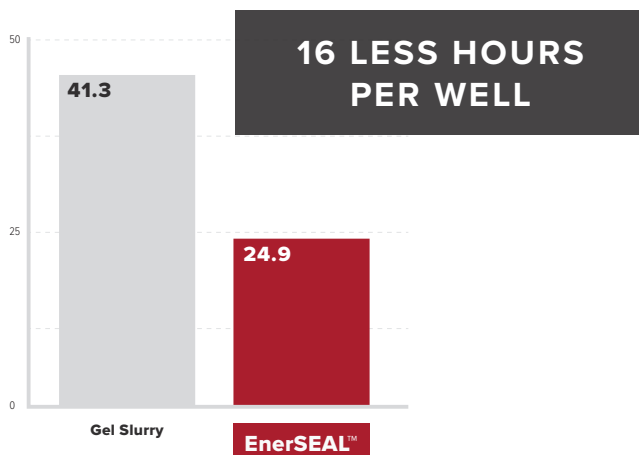
SOLUTION

Canadian Energy Services recommended using **EnerSeal™**, our patented mixed metal hydroxide system as a means to combat losses without interrupting operations.

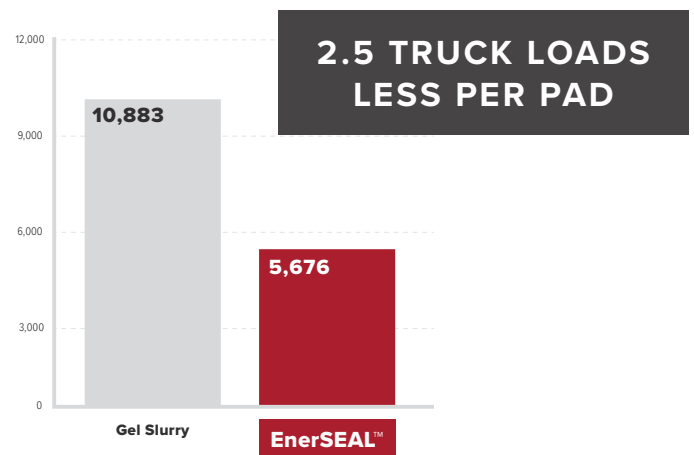
RESULTS

Upon switching to **EnerSeal™** for 7 of the 15 wells on the pad less losses were seen, less product was mixed, and Non-drilling time was drastically decreased by 70%. Total Spud to TD was reduced by over 16 hours for each surface hole.

AVERAGE SPUD TO CASING /PER WELL

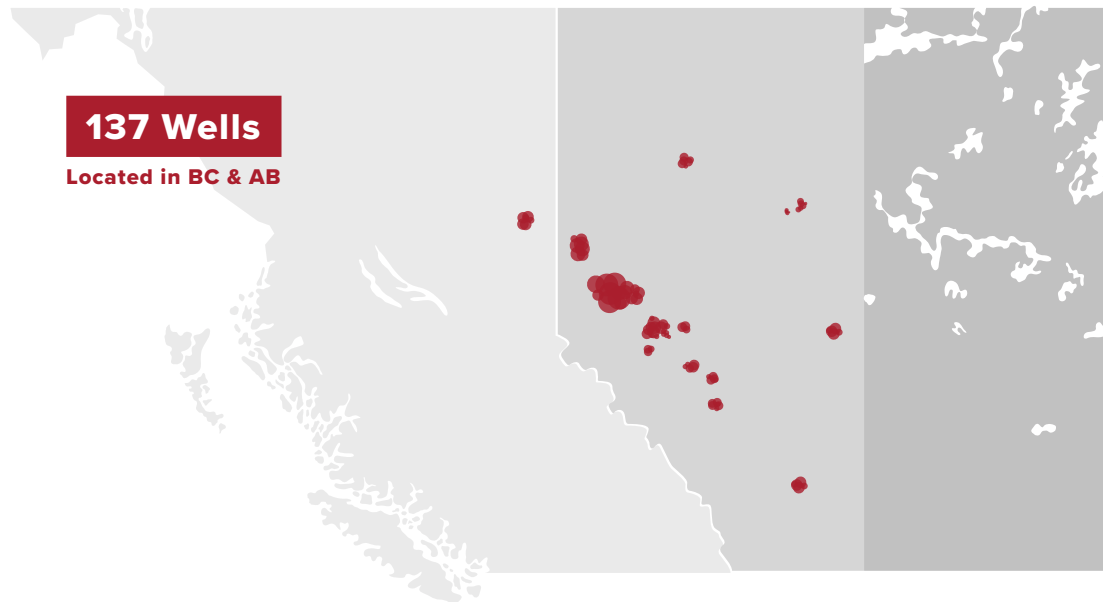


AVERAGE PRODUCT KG /PER WELL (SURFACE HOLE)

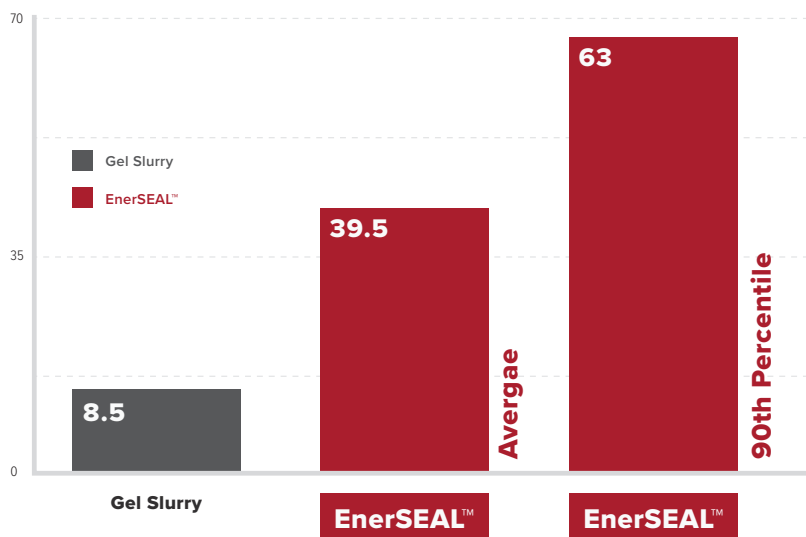


BIG DATA ANALYTICS

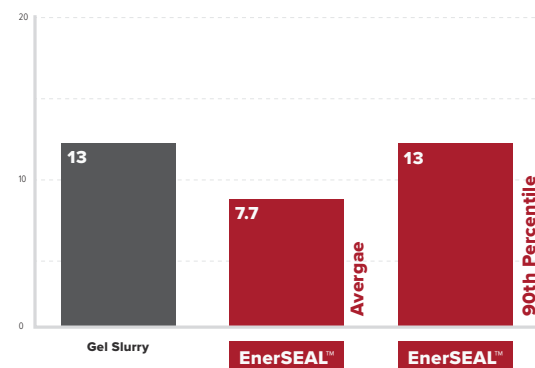
Through our Big Data and Analytics Platform we can pull every property of the fluid when used in the field. Below is a comparison of 18,000 conventional Gel Slurry Surface holes in Alberta and BC. These properties are compared to the 137 wells that used EnerSeal™.



AVERAGE 6 RPM READINGS /PER WELL (SURFACE HOLE)



AVERAGE PLASTIC VISCOSITY /PER WELL (SURFACE HOLE)



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