

Case Study

Custom Thixotropic Cement Blend Seals Corroded Casing

LOCATION: North Central Oklahoma

CHALLENGE

An operator in North Central Oklahoma encountered a critical issue with an aging well exhibiting severe corrosion in its production casing at approximately 6,500 feet. The well was actively taking fluid, making it challenging to even maintain a full hole. Prior attempts to mitigate the leaks using conventional cement squeeze methods proved unsuccessful, casting doubt on the viability of a successful repair.

SPINNAKER SOLUTION

In collaboration with the operator, the Spinnaker Team engineered a custom solution. Together, we developed an aggressive 14.4 ppg thixotropic cement blend, specifically designed for rapid gelling and effective sealing of fluid losses. Despite initial reservations due to the high fluid intake rate and the unknown presence of cement behind the casing, the Spinnaker team remained confident in their specialized approach.

EXECUTION

On-site, a retrievable packer was deployed inside 2 7/8" tubing, positioned above the corroded section. Following the pumping of a spacer, 20 barrels of custom thixotropic cement were injected. As displacement commenced and the cement began to exit the casing perforations, pressure swiftly increased, ultimately reaching the desired squeeze pressure. Once pumping stopped, the pressure held steady, providing an immediate indication of a successful squeeze. The packer was then released, and the tubing was reverse circulated.

RESULTS

Two days post-operation, the residual cement within the casing was drilled out. A subsequent pressure test confirmed the full integrity of the pipe. The entire operation was completed in a single attempt, surpassing the operator's expectations. This successful intervention highlighted the efficacy of custom-engineered cement blends, emphasizing the critical role of collaborative planning, advanced fluid engineering, and meticulous execution in minimizing non-productive time and operational expenditures.

