

Preventing Annular Water Flow in Primary Cement Jobs Utilizing Swellable Packers  
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Abstract

Cement has been the main form of annular zone isolation for oil well construction since the beginning of the industry. It is a science in its own right comprised of technical experts continually improving materials and processes. Often the failure of cement to achieve zonal isolation can be traced to the lack of best practices. When the cement does not provide required annular isolation, the result can be one of the following:

- Excessive water production
- Lost production from cross flow
- Gas migration revealed as sustained casing pressure / sustained casing flow
- Contamination of shallow water zones

Excessive water production diminishes the value of an asset and results in extra capex/opex for remedial operations. It can also result in delayed oil production. By concentrating on the zonal isolation process during the completion phase, many zonal isolation issues can be mitigated. A detailed evaluation of the cement program can highlight areas of improvement in both materials and operations. This is especially critical for areas where there are multiple stacked productive zones (oil on water) and varying reservoir pressures. An approach to improve annular integrity and the overall cementing process is the use of swellable packers. This practice has become more commonly accepted over the past few years.

This paper will discuss the best practices adopted to mitigate water production up to the time of implementing swellable packers followed by the additional improvement achieved by including swellable packers with the best practices.

[Complete paper](#)