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FIELD STUDY ON THE USE OF CEMENT PULSATION TO CONTROL GAS MIGRATION

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ABSTRACT
Gas flow into cement is a serious problem that results in surface vent leaks and poor zonal isolation in many wells throughout Western Canada. This paper discusses the field testing and application of a new technique called cement pulsation to control this problem. Cement pulsation involves applying short, frequent 700 kPa pulses to the annulus following cement placement. These pulses reduce the gel strength of the slurry, which allows full hydrostatic pressure to be transmitted downhole across the gas zone, thus preventing gas from entering the annulus. This paper also discusses background theory, examines research on the depth to which pulses travel in the annulus, and presents a field study in which pulsation was used to control gas migration in Eastern Alberta, Western Canada.