

# SHIELD BOND® Eliminates Gas Migration and Surface Vent Gas Challenges in Canada

## North America

### CHALLENGE:

- ▶ Cement production monobores in areas plagued with post-cementing gas migration situations
- ▶ Ferrier and Montney Formations surface casing vent flow/post-cementing annular gas migration
- ▶ Cement production monobores with post-cementing gas migration

### SOLUTION:

- ▶ SHIELD BOND to known best gas migration prevention practices
- ▶ SHIELD BOND spacer pumped ahead of cement to eliminate or fluid loss from the cement during the transition time

### RESULT:

- ▶ 100% success in 7 wells with challenging-to-cement monobores
- ▶ SHIELD BOND use continues in these areas



### OVERVIEW

Surface casing vent flow (SCVF) or post-cementing annular gas migration is a challenge for operators and cement service companies. SCVF occurs when fluid or gas is leaking or builds-up pressure at the surface casing vent assembly. In Canada, tests for surface casing vent flows, also known as vent gas, indicate well integrity problems. Two regions that experience this challenge are the Ferrier in central Alberta and the Montney in British Columbia. It is common to see annular pressure after cementing the production monobores in at least half of these wells. This 50% success rate is only achieved in wells when all conventional best practices are applied.

Ideally, cement jobs conclude when the plug lands. At this point, the cement goes static and, shortly after that, starts to develop gel strength. This is commonly referred to as the transition time. The 'transition time' is the transition between when the cement is fully liquid-like while it is pumped and the solid that it sets up to support the pipe and provide zonal isolation. If volume losses occur during this transition time, those volume losses equate to an annular pressure reduction. Cement jobs are designed so the effective hydrostatic pressure as the plug lands is greater than the pore pressure to keep formation fluids in the formation. Suppose the volume losses during the transition time are significant enough to equate to a pressure loss greater than the initial over-balance. In that case, gas enters the annulus and potentially migrating to the surface, where it is observed as Surface Vent Gas. Numerous conventional anti-gas migration solutions attempt to minimize this pressure reduction via various methodologies.

### SOLUTION

In areas where annular gas migration is problematic and difficult to control through conventional means, pumping a SHIELD BOND spacer ahead of the cement will provide an additional barrier to this gas invasion problem. The barrier or membrane deposited on the inside face of the wellbore via SHIELD BOND's unique Wellbore Shielding® technology will help eliminate or drastically reduce any fluid loss from the cement during the transition time. By eliminating or at least drastically reducing the primary source of volume losses, the pressure reduction will also be drastically reduced. If the pressure is not lost, the initial overbalanced pressure is maintained, and post cementing gas flow will not occur.

### RESULT

To date, seven of these challenging-to-cement monobores in the Ferrier and Montney Formations utilized the SHIELD BOND spacer system, pumped ahead of an anti-gas migration cement design. In all of these wells, the vent gas problems were eliminated.