

# SHIELD BOND® Spacer System Helps Eliminate Post-Cementing Water Flow

## Colombia – Llanos Orientales Basin

### CHALLENGE:

- ▶ Control water flow during and after the surface casing cement job
- ▶ Improve the cement bonding to the formation

### SOLUTION:

- ▶ Pump SHIELD BOND spacer ahead of the cement to control fluid flow
- ▶ Implement best practices for the design and execution of the primary cementing job

### RESULT:

- ▶ Prevented water flow
- ▶ Successfully completed the job without the need to pump remedial jobs
- ▶ Achieved good cement integrity



### CHALLENGE

While drilling the surface stage during the rainy season, water flow occurs in wells near the rivers in the Llano Orientales Basin. In some cases, this water flow also appears post-cementing, following surface casing cement jobs. This post-cementing water flow has proven nearly impossible to prevent or control during remediation. When post-cementing water flow occurs, top jobs become necessary. However, these top jobs are rarely successful, resulting in wasted time and additional costs. With uncontrollable water flow, additional operating expenses are required to periodically bleed off the water pressure. There is also a high likelihood of pipe corrosion which can shorten the life of the well. Thus, it is critical that the water flow can be controlled with the primary cement job.

While drilling the 17½-in section in a well located in the Llanos Orientales Basin, this seasonal water flow occurred at rate of 1,680 bbl/d (70 bbl/hr). This particular well's water flow was encountered at a depth of 200 ft.

### SOLUTION

To minimize the water flow, a densified 15-lb/gal mud pill was required. Once the flow was controlled, drilling resumed with a mud weight of 11.2 lb/gal to the programmed casing depth of 2,100 ft.

In order to control the water flow during and post-cementing, the following practices were implemented:

- 1) Ensure the well is under control, before the cementing job.
- 2) Design the cement slurries with as short as possible transition time.
- 3) Implement an optimized SHIELD BOND spacer that helps the cement bond to the formation. The SHIELD BOND spacer system has been designed to form an impermeable barrier on the inside face of the formation preventing loss of fluid. If loss from the cement can be eliminated or drastically reduced, annular pressure will be maintained, and flow can be prevented.
- 4) Perform a top job immediately after finishing the primary cementing job.

### RESULT

Once the cementing job was completed, the annulus was monitored and no water flow was observed. The floating equipment was drilled and an integrity test was performed as per the drilling program. The pressure remained stable which indicated good cement integrity in the area of the shoe.