VAREL V2 AUTO-FILL VALVE

The Industries Leader in Float Equipment Technology

APPLICATION
Casing Deployment: 11-3/4”
Total Depth: 7,429 ft
Open Hole Size: 12-1/4”

TECHNOLOGY
V2 Float Equipment W/ Auto-Fill
Tested as per API 10F
D24 R20 T400 P10 AF12

LOCATION
Indonesia

CUSTOMER CHALLENGE

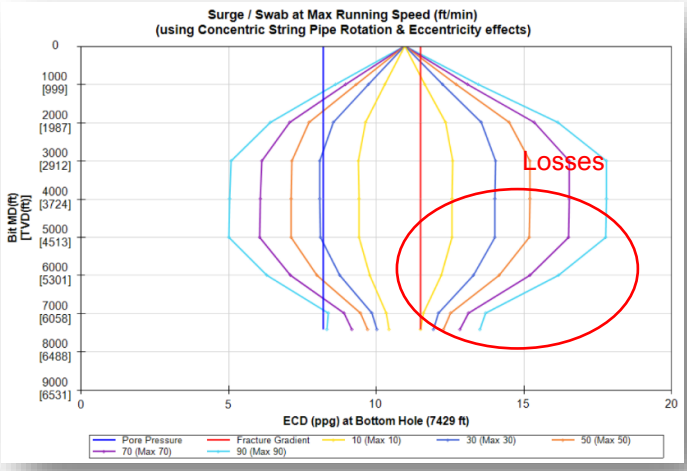
The objective was to run an 11-3/4” liner through a 12-1/4” restriction and into 14-3/4” open hole without inducing excessive surge pressure. Liner running speed was limited to well below 10 ft/min to prevent formation breakdown. The customer needed a solution to increase running speed and reduce the risk of fluid losses.

Premium Float Valve with Auto-Fill

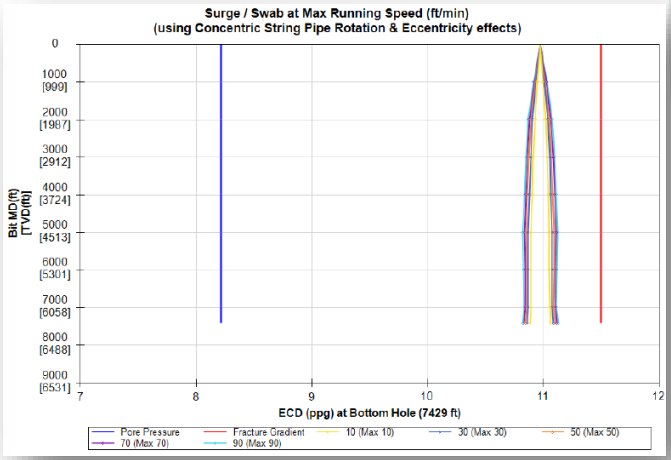
VAREL SOLUTION

Premium auto-fill float equipment enabled faster liner running speed while minimizing ECD, preventing formation breakdown and fluid losses. The system performed reliably throughout the run, allowing circulation at multiple stages without premature conversion. At total depth, the auto-fill feature converted seamlessly, ensuring smooth transition for cementing operations.

Without Autofill



With Autofill



CUSTOMER VALUE

A total of 2,200 ft of 11-3/4” liner was successfully deployed to 7,429 ft MD at 61° inclination while running in auto-fill mode. The auto-fill feature was deactivated via a pre-determined flow rate, converting the valve back to a conventional check valve and enabling a smooth and efficient cementing operation.

- Eliminated the need for top-filling, saving operational time
- Reduced surge pressure on the formation
- Prevented mud loss during the liner run
- Increased casing running speed and operational efficiency
- 10,000 psi float valves after auto-fill deactivation

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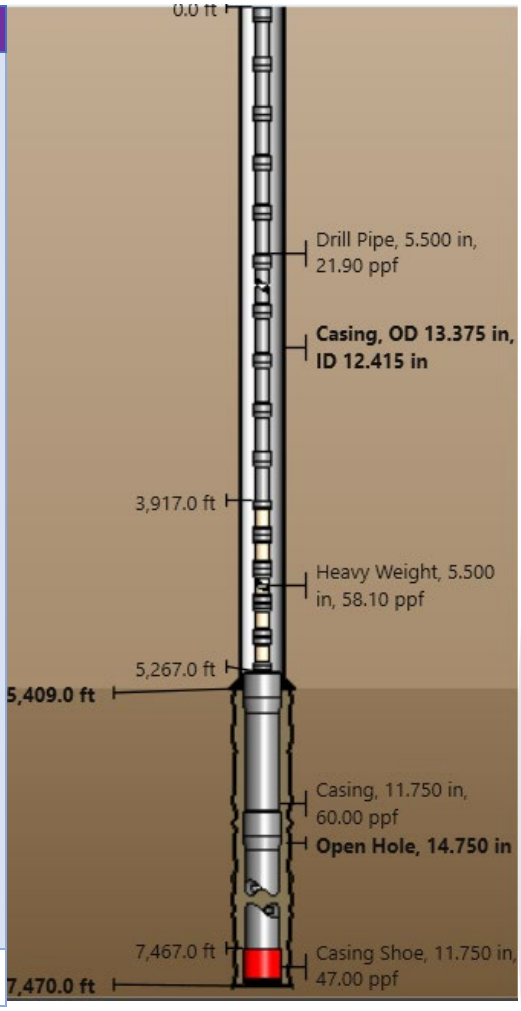
ACTUAL RIG DATA

RIH Event Sequence	Parameter	Remarks
RIH 11-3/4” Liner Joint	1 joint per 2-3 min	Autofill mode maintained
Circulation #1	150gpm	
RIH 5.5” HWDP Stands #14	1 stand per 10-12 min	
Circulation #2	150gpm	
RIH 5.5” DP Stands #10	1 stand per 10-12 min	
Circulation #3	93gpm	
RIH 5.5” DP Stands #15	1 stand per 10-12 min	
Circulation #4	105gpm	
RIH 5.5” DP Stands #20	1 stand per 10-12 min	
Circulation #5	99gpm	
RIH 5.5” DP Stands #25	1 stand per 10-12 min	
Circulation #6	152gpm	
RIH 5.5” DP Stands #30	1 stand per 10-12 min	
Circulation #7	152gpm	
RIH 5.5” DP Stands #35	1 stand per 10-12 min	
Circulation #8	280gpm	
RIH 5.5” DP Stands #37	1 stand per 10-12 min	
Circulation #9	310gpm	
RIH 5.5” DP Stands #38	1 stand per 10-12 min	
Circulation #10	350gpm	Autofill mode converted to conventional code



The table shows that circulation can be established at multiple points during the liner run as long as the flow rate remains below the conversion rate. Once ready to convert the auto-fill valve to a conventional check valve, the flow rate is increased to the pre-determined value, triggering reliable activation. The 11-3/4” liner was run successfully without any issues, saving rig time during the liner run and reducing costs by preventing mud losses.

CONCLUSION

The successful deployment of the 11-3/4” liner using Varel V2 auto-fill technology demonstrated the system’s ability to enhance operational efficiency while maintaining well integrity. By enabling faster liner running speeds, controlling equivalent circulating density, and eliminating mud losses, the operation achieved both time and cost savings. The reliable deactivation of the auto-fill feature ensured a smooth transition to cementing operations, highlighting the effectiveness of the technology in challenging wellbore conditions.

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