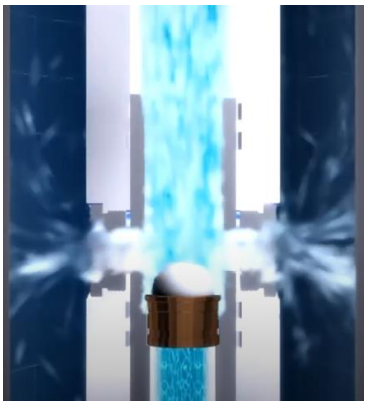
PERFORMANCE BULLETIN

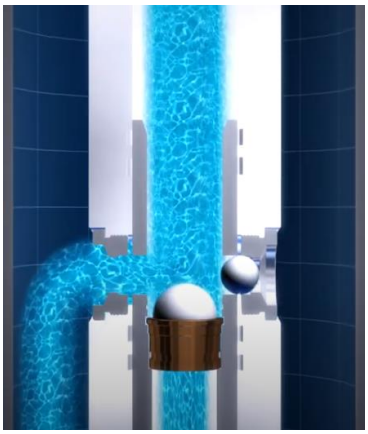
DSI PBL®BYPASS SYSTEM helped in successfully fishing and recovering a stuck logging tool string for a major oil & gas service company and IOC in a deep well in Mexico.

Overview

Two 4.3/4" OD PBL Multiple Activation Bypass Tools were utilised for this project. During the logging operation, the logging tool string got stuck at a depth of 5,881m. The operator decided to RIH an overshot fishing assembly with a 4-3/4" PBL bypass tool. The BHA comprised of the following:

4.68" X 3.35" **OVERSHOT FISHING ASSEMBLY**
4.50" PUMP OUT SUB
4.75" PBL BALL CATCHER SUB
4.75" PBL CIRCULATE SUB
FLOAT SUB W/ PORTED FLAPPER TYPE VALVE
Crossover NC38 Pin x XT-39 Box
39 x 4" x 29.92ppf HWDP (33 joints)
87 x 4" x 14.00ppf Premium DP (87 joints)
Crossover XT-39 Pin x XT-57 Box
5-7/8" x 26.40 (0.415wt) DP (408 joints)
5-7/8" x 34.21 (0.415wt) DP (95 joints)





Two different applications during the same run. Improved fluid circulation and dry drill pipe while tripping out from hole, both of which assisted with successful recovery of the entire fish to surface.

The operation

First activation of PBL to circulate conditioning fluid due to high gas levels:

The fishing assembly was run in hole with a 5-7/8" drill pipe to a depth of 5,638m. At this point, and while performing a washdown in hole operation, the operator encountered a lower-than-expected pump pressure while comparing with the parameters in the same location on two operations which could indicate the presence of gas in the annulus. The PBL was activated by dropping the 1-1/2" activation ball and pumped it down at 80 GPM and 1,000 psi. The ball landed on the seat after 39.75 barrels. The PBL's activation was confirmed with the reduction of the pump pressure from 1,000 psi to 500 psi and observing an increase in flow out percentage. Circulated out high levels of gas from annulus observing 1,500 units of background gas. The max gas observed was 1,170 units after flowing through the mud gas separator on the rig floor with 1.66 gr/cc mud cut from 1.67 gr/cc. After circulating the gas out of the hole, the PBL tool was deactivated by dropping the two 1-3/8" steel deactivation balls and pumping the balls down at 200 GPM and 900 psi. The activation ball sheared through the seat at 2,800 psi.

Fishing operation:

The crew continued washing in hole and engaged the top of the fish at 5,881m. Worked pipe to free the stuck fish up to 60K on upward pull and slacking off applying 8K down, the fish came free after 7 pulling operations.

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Second activation of PBL to use the auto-lock feature:

Pumped out of hole with probably the recovered fish engaged from 5,881m to 5,854m. At this point, the objective was to pull out of the hole with the string dry. The PBL 1-1/2" activation ball was dropped and pumped down at 120 GPM and 700 psi. The pump pressure dropped from 700 psi to 620 psi confirming successful activation. After successful activation at 5,854m, the 1-1/8" locking ball was dropped and pumped it with 140 BBLS of 14.5 ppg pad mud, followed by 320 BBLS of 13.9 PPG OBM at 100 GPM and 1,000 psi. Pressure increased to 1,500 psi observed, confirming successful locking ball operation.

Successful fish recovering operation:

The fishing BHA was pulled out of hole dry, and once checked the overshot confirmed that the fish was completely recovered. We laid down all wireline tools recovered (the entire logging tool string recovered from the well) and the PBL was successfully deactivated 2 stands below the rotary table with the deactivation steel balls installed in the PBL with a pressure of 3,200 psi to deactivate the PBL. All BHA, including the PBL, was laid down.

Challenges and solutions

To fish and recover a stuck logging tool string at difficult well conditions such as:

- High pressure due to high gas levels: The PBL tool was activated to improve the circulation and promote rapid well conditioning, eliminating the gas at reduced pump pressure (from 1,000 psi to 500 psi) with an increased in flow out percentage.
- Severe overpull conditions while working pipe and pulling to free stuck fish: The PBL tool is manufactured with best-in-class quality materials that offer high strength resistance while working the drill pipe up to 60 K overpull.
- POOH the fish – Fish successfully recovered at surface at a faster pull rate with a dry drill pipe using the PBL tool auto-lock feature which also avoided the undesirable HSE exposure of the rig crew to the splashed mud if the drill pipe was wet.

Results

A successful fishing operation, eliminating the gas dispersed in the mud system and achieving the complete fish recovery to the surface pulling a dry string, without the need for dedicated trips for fluid displacement due to the high-pressure conditions encountered while tripping in the hole.

The PBL tool is a reliable tool that assists operators in a variety of different situations. In this case, to efficiently circulate the fluid by increasing the flow rate with a reduced standpipe pressure, and trip out of hole with a dry drill pipe by using the auto-lock feature.