



# PERFORMANCE BULLETIN

## DSI PBL Bypass System with High Flow (HF) configuration allows gyro probe to take surveys in an offshore exploration well in Mexico.

### Application

A major international Oil & Gas service company requested a DSI PBL bypass tool for a special application in an offshore exploration well in Mexico. For a 26” drill bit size, a special BHA was designed in order to control any possible total mud loss and at the same time have the ability to take gyro surveys and ensure accurate directional drilling paths avoiding any collision with the surface casing of an adjacent well.

The string configuration for gyro survey inside the BHA was designed to include: Stinger (1-3/8”) + **Centralizer (1-3/4” x 2-1/2”)** + Weight bar (1-3/4”) + Shock absorber (1-3/4”) + Centralizer (1-3/4” x 2-1/2”) + Thermal shield (2-1/16”) + **Gyro Control Sub (2-1/16”)** + Centralizer (1-3/4” x 2-1/2”) + Rope socket (1-3/4”), hence the maximum OD of the string was 2-1/2”.

### Operation

The first challenge for this application was to place a UBHO sub with a 2.625” I.D. above the standard 9-1/2” PBL bypass tool, allowing the 2-1/2” PBL activation ball passing through the UBHO sub which has a 2” ID, therefore using this configuration was not possible.

A 9-1/2” **High Flow PBL bypass tool** with a special drift of 2.65” minimum ID was selected for this application allowing the 2-1/2” gyro bar to pass through the PBL bypass tool. The pass through / drift test was performed at DSI facilities to ensure the gyro could freely pass through the HF PBL bypass tool. The operator’s plan was to take several gyro surveys at the lowest possible point inside the BHA. In case of total mud loss it would be possible to displace the LCM pill through the PBL bypass tool saving a round trip to replace the BHA and reducing cost due to mud loss.

### Results

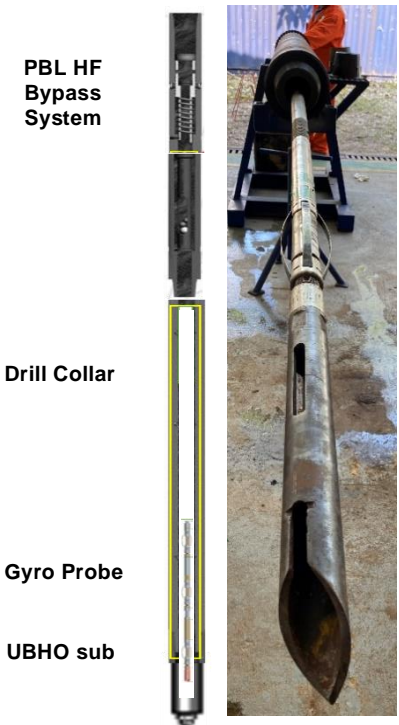
This was a successful operation. The operator drilled from 306m to 1,076m, and took 10 gyro surveys from 318m to 579m using a gyro probe, every survey was confirmed three times. No restriction or drag was observed while passing the gyro probe through the High Flow PBL bypass tool and this was confirmed by the gyro operators.

As no mud loss was observed, the PBL bypass tool was not activated, however, the ability to activate the PBL bypass tool was preserved in case of operational need.

In case of the need to activate the HF PBL bypass tool it would not be possible to take additional surveys so, to overcome this issue, DSI proposed an improved solution for the upcoming jobs, which is the use of the **PBL SLIDING SLEEVE BIG BORE SYSTEM (SSBB)**.



Gyro surveys help to reduce uncertainty and well collision risk when magnetic interference affects MWD readings.



With a specially configured BHA, it was possible to take surveys at the lowest point inside the BHA, and PBL remained operative if needed for eliminating mud loss.



## Going forward

For next similar jobs, DSI has proposed an alternative tool to bring an improved solution, the **PBL SLIDING SLEEVE BIG BORE (SSBB) BYPASS SYSTEM**. This is an efficient circulating sub that can be used in conjunction with retrievable MWD/GYRO probes with additional new features. Using this tool, the UBHO sub would be positioned below the PBL SSBB bypass tool.

- Unlimited number of cycles
- Large ID provides operator with the ability to deploy or retrieve probe style MWD or gyro sensors, drilling tools, or core barrels while still maintaining the ability to activate the SSBB tool
- After SSBB tool activation the dart can be retrieved by slick line or wireline (the same procedure required to retrieve gyro probes) allowing to continue taking surveys without the need to trip out of hole.

## Technical Specifications

<b>Tool O.D. (")</b>	6 ½	6 ¾	8	8 ¼	9 ½
<b>Drift I.D. (")<sup>1</sup></b>	2.24	2.24	2.63	2.63	2.63
<b>Port TFA (in<sup>2</sup>)<sup>2</sup></b>	2.45	2.45	3.53	3.53	3.53
<b>Connections<sup>3</sup></b>	4 ½ IF	4 ½ IF	6 ⅝ REG	6 ⅝ REG	7 ⅝ REG
<b>PBL Cycles</b>	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited

**“The PBL SLIDING SLEEVE BIG BORE (SSBB) Bypass SYSTEM is the ideal solution when a circulating tool needs to be used in conjunction with MWD and GYRO probes retrieval operations”.**



DSI PBL SSBB Bypass System