During conventional dummy runs, a temporary hanger with a painted pipe above it is run into the BOP, typically on jointed tubing. Once the temporary hanger lands within the BOP, the rams are closed on the painted pipe with sufficient pressure to leave marks that indicate their position relative to the landed hanger. The rams are then retracted, and the dummy string is retrieved uphole. Based upon the markings on the painted pipe, proper positioning of the SSTT within the BOP is determined and the spacing of the fluted hanger from the SSTT is accordingly adjusted at the surface to achieve the desired positioning when the SSTT is deployed in the BOP.

Although simplistic, there is at least one severe drawback to conventional dummy run operations. Making up the jointed tubing used in the dummy assembly is very time consuming. Given this, and the fact that some wells are drilled at ocean depths of up to 10,000 feet or deeper, it can take days to complete a single dummy run. At the present time, it is estimated that some floating rigs have a daily cost of upwards of 400,000 USD. Therefore, conventional dummy run operations are very expensive.

In view of the foregoing, there is a need in the art for cost-effective approaches to properly positioning of the subsea test equipment within the BOP.

SUMMARY OF INVENTION

According to a first aspect of the present invention, there is provided an assembly to determine placement of a subsea test tree ("SSTT") within a blow out preventer ("BOP"), the assembly comprising: a tubing string; a SSTT positioned along the string; a first hanger positioned along the string; a sensing joint positioned along the string, the sensing joint comprising at least one sensor to sense a position of at least one BOP ram; and a second hanger positioned along the string.

According to a second aspect of the present invention, there is provided a method to determine placement of a subsea test tree ("SSTT") within a blow out preventer ("BOP"), the method comprising: positioning a SSTT along a tubular string; positioning a first hanger along the string; positioning a sensing joint along the string; positioning a second hanger along the string; and determining a desired placement of the SSTT within the BOP.

According to a third aspect of the present invention, there is provided a method to determine placement of a subsea test tree ("SSTT") within a blow out preventer ("BOP"), the method comprising: deploying an assembly within a BOP on a first run-in trip, the

assembly comprising the SSTT and a sensor; detecting a location of at least one BOP ram using the sensor; and determining a desired placement of the SSTT within the BOP based upon the detected location of the at least one BOP ram.

According to the fourth aspect of the present invention, there is provided a method to determine placement of a subsea test tree ("SSTT") within a blow out preventer ("BOP"), the method comprising determining the placement of the SSTT within the BOP without the use of a dummy run.

According to a fifth aspect of the present invention, there is provided an assembly to determine placement of a subsea test tree ("SSTT") within a blow out preventer ("BOP"), the assembly comprising: a tubular string; a SSTT positioned along the string; a hanger positioned along the string; and at least one sensor positioned along the string, the at least one sensor disposed to log a position of at least one BOP ram and a hang off location for the hanger.

According to a sixth aspect of the present invention, there is provided a method to determine placement of a subsea test tree ("SSTT") within a blow out preventer ("BOP"), the method comprising: positioning a SSTT along a tubular string; positioning a hanger along the string; positioning a logging tool along the string; and determining a desired placement of the SSTT within the BOP.

According to a seventh aspect of the present invention, there is provided method to determine placement of a subsea test tree ("SSTT") within a blow out preventer ("BOP"), the method comprising: deploying an assembly comprising the SSTT and a logging tool; logging a position of at least one BOP ram using the logging tool; and determining a desired placement of the SSTT within the BOP based upon the logged location of the at least one BOP ram.

According to an eight aspect of the present invention, there is provided an assembly to determine placement of a subsea test tree ("SSTT") within a blow out preventer ("BOP"), the assembly comprising: a tubular string; a SSTT positioned along the string, the SSTT comprising a sensing joint to sense a position of at least one BOP ram; and a hanger positioned along the string.

According to a ninth aspect of the present invention, there is provided a method to determine placement of a subsea test tree ("SSTT") within a blow out preventer ("BOP"), the method comprising: supporting a SSTT along a tubing string, the SSTT comprising a

sensing joint; positioning a hanger along the string; and determining a desired placement of the SSTT within the BOP.

According to a tenth aspect of the present invention, there is provided a method to determine placement of a subsea test tree ("SSTT") within a blow out preventer ("BOP"), the method comprising: deploying an assembly comprising the SSTT and at least one sensor; detecting a location of at least one BOP ram using the sensor; and determining a desired placement of the SSTT within the BOP based upon the detected location of the at least one BOP ram.

According to an eleventh aspect of the present invention, there is provided an assembly to determine placement of a subsea test tree ("SSTT") within a blow out preventer ("BOP"), the assembly comprising: a flexible line; a tubular joint supported by the flexible line; and a dummy hanger supported beneath the tubular joint.

According to a twelfth aspect of the present invention, there is provided a method to determine placement of a subsea test tree ("SSTT") within a blow out preventer ("BOP"), the method comprising: deploying a flexible line from a surface location; supporting a tubular joint on the line; supporting a dummy hanger below the tubular joint; and determining a desired placement of the SSTT within the BOP.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGS. 1A and 1B illustrate a dummy run elimination assembly according to an exemplary embodiment of the present invention;

FIGS. 2A and 2B illustrate exploded views of hanger adjustment mechanisms according to exemplary embodiments of the present invention; and

FIGS. 3-5 illustrate various alternative assemblies according to exemplary embodiments of the present invention.

DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

Illustrative embodiments and related methodologies of the present invention are described below as they might be employed in an apparatus and method for eliminating dummy runs and/or for reducing the time required to conduct dummy runs. In the interest of clarity, not all features of an actual implementation or methodology are described in this specification. Also, the "exemplary" embodiments described herein refer to examples of the present invention. It will of course be appreciated that in the development of any such