DRILLING RISER ADAPTER WITH EMERGENCY FUNCTIONALITY

Field of the Invention:

[0001] This invention relates in general to offshore well riser adapters and, in particular, to a riser adapter for connecting to subsea equipment with subsea functionality.

Background of the Invention:

[0002] In offshore drilling operations, the operator will perform drilling operations through a drilling riser. The drilling riser extends between the subsea wellhead assembly at the seafloor and the drilling vessel. The drilling riser is made up of a number of individual joints or sections. These sections are secured to each other and run from a riser deploying floor of the drilling vessel. The drilling riser also normally has a number of auxiliary conduits that extend around the main central pipe. Some of the auxiliary conduits supply hydraulic fluid pressure to the subsea blowout preventer (BOP) and lower marine riser package (LMRP). Further, some of the auxiliary conduits provide well choking, killing, and drilling mud adjustments. The LMRP attaches to the BOP and the LMRP that allows quick disconnection from the BOP in the event of an emergency. The BOP may also remain attached to the LMRP. Typically, the BOP has two redundant subsea control modules having electrical and hydraulic components for controlling the BOP and LMRP. Further, the auxiliary conduits may also provide well choking, killing, and drilling mud adjustments. Each subsea control module is fairly large and complex as they control many different functions, such as the various rams and closure elements, connectors and the like of the BOP. If a problem is detected, one of the subsea control modules may be retrieved, usually on a lift line, while the other maintains operation of the BOP.

[0003] The lower end of the drilling riser typically has an adapter that couples to the LMRP for connecting the riser to the LMRP. Various adapters have been employed. The adapter connections typically include bolted flanges, locking segments radially moveable by screws, or cam rings. The BOP couples by a hydraulic connector to a subsea wellhead assembly at the sea floor. The LMRP also includes an emergency disconnect to quickly release from the BOP. The various hydraulically driven components of the LMRP are supplied with hydraulic fluid and controlled by lines leading to the surface vessel.

[0004] The BOP and adapter serve to provide choke-and-kill functionality in the event that control of the well is lost. Environmental impact from an uncontrolled well is lessened when the components function correctly. However, in some emergency situations, escaping oil from an uncontrolled well may require capacity for directing the escaping oil to a containment vessel or other location. Further, functions such as dispersant injection, mud circulation, mud booster, top killing, and dual gradient drilling can be accommodated.

SUMMARY OF THE INVENTION

[0005] These and other problems are generally solved or circumvented, and technical advantages are generally achieved, by preferred embodiments of the present invention that provide a drilling riser adapter with subsea functionality, and a method for using the same.

[0006] An embodiment of the present invention provides a system for connecting a lower marine riser package (LMRP) and BOP to a marine riser. The LMRP and BOP will be placed subsea at a wellhead so that the riser will extend from the wellhead to a drilling rig located at a sea surface. The system comprises a drilling riser joint. In one embodiment, the drilling riser joint is a drilling riser adapter that has a mating flange on upper and lower ends to mate with riser and LMRP, respectively.

[0007] The drilling riser adapter may have a cylindrical body with a bore with the riser adapter having means for mounting to the LMRP, such as a mating flange. The drilling riser adapter may also engage a lower end of the marine riser with a mating flange. Further, a plurality of ports are disposed circumferentially on the body of the riser adapter, with the ports adapted for receiving connections to facilitate ingress or egress of fluid to and from the wellbore through the sidewalls of the drilling riser adapter.

[0008] During an emergency, umbilicals or flexible hoses can be connected to the ports via an ROV. For example, the ports can be configured to connect to either hard lines or flexible hoses to perform mud circulation, chemical injection, escaping fluid collection, or a top-kill operation. These operations can also connect to the riser adapter mating flange on the upper end of the riser adapter via inlets formed on the mating flange. Fluids can then be pumped down the respective lines depending on the operation. Further, at least one of the plurality of ports can be selectively activated or deactivated in response to well conditions such as escaping oil due to oil spill. As

previously explained, ports may also facilitate functions such as mud circulation, chemical injection, or top-kill operations.

[0009] BRIEF DESCRIPTION OF THE DRAWINGS

[0010] So that the manner in which the features, advantages and objects of the invention, as well as others which will become apparent, are attained, and can be understood in more detail, more particular description of the invention briefly summarized above may be had by reference to the embodiments thereof which are illustrated in the appended drawings that form a part of this specification. It is to be noted, however, that the drawings illustrate only a preferred embodiment of the invention and are therefore not to be considered limiting of the invention's scope as the invention may admit to other equally effective embodiments.

[0011] Figure 1 is a schematic representation of a drilling riser string lowered from a floating vessel and connected to a wellhead via an adapter used in a subsea assembly, in accordance with an embodiment of the invention.

[0012] Figure 2 illustrates a perspective view of the drilling riser adapter of Figure 1 in accordance with an embodiment of the present invention.

[0013] Figure 3 is a schematic view of a drilling riser adapter with a seal area in accordance with an embodiment of the present invention.

[0014] Figure 3A is a schematic sectional view of a dog profile within seal area of riser adapter shown in Figure 3.

[0015] Figure 4 is a top view of the drilling riser adapter of Figure 2 in accordance with an embodiment of the present invention.

[0016] Figure 4A is a side view of the drilling riser adapter shown in Figure 4.

[0017] Figure 4B is a side view of the drilling riser adapter shown in Figure 4.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] The present invention will now be described more fully hereinafter with reference to the accompanying drawings which illustrate embodiments of the invention. This invention may, however, be embodied in many different forms and should not be construed as limited to the illustrated embodiments set forth herein. Rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art. Like numbers refer to like elements throughout, and the prime notation, if used, indicates similar elements in alternative embodiments. The use of "first", "second", "upper", "below", and similar descriptive language is only meant to more easily identify parts in figures and not as limitations.

[0019] In the following discussion, numerous specific details are set forth to provide a thorough understanding of the present invention. However, it will be obvious to those skilled in the art that the present invention may be practiced without such specific details. Additionally, for the most part, details concerning drilling operations, rig operations, general riser make up and break out, and the like have been omitted inasmuch as such details are not considered necessary to obtain a complete understanding of the present invention, and are considered to be within the skills of persons skilled in the relevant art.

[0020] Referring to Figure 1, riser string 10 has been lowered from a floating vessel 12. A blowout preventer (BOP) 14 is attached to a lower end of riser string 10 via a riser adapter 16 that is a component of a Lower Marine Riser Package (LMRP) 17. Riser adapter 16 will be discussed further below. The BOP 14 is connected to a wellhead 18 and is adapted to close a wellbore extending from a subsea formation through the wellhead 18 to a central bore of the BOP 14. BOP 14 has multiple closure devices, that can include an annular closure member (not

shown), at least one set of pipe rams, and a set of shear rams to close the central bore and isolate the wellbore. The riser adapter 16 may further connect to the LMRP 17.

[0021] Normally subsea equipment, such as the LMRP 17, a subsea tree, or BOP 14, will have receptacles for a number of subsea control modules, and many of the control modules will differ from each other because of the different functions that they are intended to perform. The BOP 14 may be connected to the LMRP 17 in certain cases and may be provided with a mechanism to allow quick disconnection of the LMRP 17 from the BOP in the event of an emergency.

[0022] Continuing to refer to Figure 1, riser string 10 can comprise a series of riser joints that are connected end to end from floating platform 12 to riser adapter 16. Riser string 10 is typically supported in tension from floating platform 12 by riser tensioners 19. Riser string 10 allows drill pipe (not shown) to be deployed from floating platform 12 down through riser string, wellhead 18, and into the wellbore. Auxiliary tubes located around the central pipe of riser string 10 may be used for a variety of purposes. In an embodiment of the invention, auxiliary tubes such as a choke and kill lines 20 and 21, booster line 22, and hydraulic line 24 are typically rigid conducts that can descend from floating vessel 12 alongside riser 10 and connect to riser adapter 16. The choke and kill lines 20 and 21 can be used for recirculating drilling mud and pressure from formation below BOP 14 in the event that the BOP is closed to prevent flow through riser 10. The hydraulic line can be used to operate functions within adapter 16 and BOP 14. The booster line 22 can be used to adjust drilling mud properties to meet drilling requirements.

[0023] Referring to Figure 2, riser adapter 16 is shown. Riser adapter 16 comprises a central, generally cylindrical body 30 with a bore 32. In this embodiment, riser adapter 16 has an upper mating flange 34 for mating to a flange on riser string 10. Bolt passages 36 formed on upper mating flange 34 allow bolts to secure riser adapter 16 to riser string 10. In this embodiment, riser adapter 16 has a lower mating flange 38 for mating to a flange on LMRP 17. Bolt passages

40 formed on lower mating flange 38 allow bolts to secure riser adapter 16 to LMRP 17. Alternatively, upper mating flange 34 can be a dog-type, cam-type, or quick-disconnect type of flange that allows riser string 10 to disconnect and connect to riser adapter 16.

[0024] Continuing to refer to Figure 2, a choke/kill inlet 42 can be formed on upper mating flange 34 of riser adapter 16. The terms choke/kill inlet 42 and choke/kill outlet 44 do not imply that choke and kill lines 20, 21 are interchangeable but that choke and kill inlets and outlets have a similar geometry and relationship with upper mating flange 34. Choke/kill inlet 42 connects to choke line 20 to allow fluid communication with choke/kill outlet 44. Choke/kill inlet 42 extends downward below upper mating flange 34 of adapter 16. Choke/kill inlet 42 comprises a passage through the flange 34, the passage, in this embodiment, having an axis parallel to the main bore 32 in adapter 16. In an embodiment of the invention, choke/kill outlet 44 extends radially outward and downward below the upper mating flange 34. Choke/kill outlet 44 extends only a short distance from outer surface of body 30 of riser adapter 16, and has its lower end located above flange 38. A choke hose 46 is typically connected to choke/kill outlet 44 and connected to BOP 14 below, before the riser adapter 16, LMRP 17, and BOP 14 are lowered from the floating vessel 12 (Figure 1). Choke hose 46 allows choke operations at BOP 14 in case the well becomes uncontrolled. A kill hose may be installed to a kill outlet in a similar way that choke hose 46 is installed to choke outlet 44. Generally, a valve may be located on BOP 14 to control flow of fluid from choke/kill outlet 44. Alternatively, such a valve may be located on the choke/kill outlet 44 on the riser adapter 16.

[0025] Continuing to refer to Figure 2, a hydraulic inlet 50 can be formed on upper mating flange 34 of riser adapter 16. Hydraulic inlet 50 connects to hydraulic line 24 to allow fluid communication with hydraulic outlet 52 (Figure 4A). Hydraulic inlet 50 extends downward below upper mating flange 34 of adapter 16. Hydraulic inlet 50 comprises a passage through the

flange 34, the passage, in this embodiment, having an axis parallel to the main bore 32 in adapter 16. In an embodiment of the invention, a hydraulic outlet 52 (FIGS. 5-5B) extends radially outward and downward below the upper mating flange 34 similar to the choke/kill outlet 44. In this embodiment, hydraulic outlet 52 extends downward about the same distance as choke/kill outlet 44 although the downward extension of hydraulic outlet 52 may vary when compared to the choke/kill outlet 44. A hydraulic hose 54 can be connected to hydraulic outlet 52 and connected to BOP 14 below, allowing hydraulic fluid to operate functions on BOP 14 and riser adapter 16. Like the choke and kill hoses 20 and 21, the hydraulic hose 54 is typically connected to hydraulic outlet 52 and connected to BOP 14 below, before the riser adapter 16, LMRP 17, and BOP 14 are lowered from the floating vessel 12 (Figure 1).

[0026] A booster inlet 60 can be formed on upper mating flange 34 of riser adapter 16. Booster inlet 60 extends downward through flange 34 of adapter 16 and connects to booster line 22 to allow fluid communication with booster reentry port 62. Booster reentry port 62 is in communication with bore 32 of riser adapter. Booster reentry port 62 extends downward about the same distance as choke/kill outlet 44 although the downward extension of reentry port 62 may vary when compared to the choke/kill outlet 44. Booster reentry port 62, which is in fluid communication with bore 32, allows for injecting an additional flow of mud from booster line 22 to bottom of riser string 10 to facilitate the return of the cuttings from drilling operations and also allows for adjustment of drilling mud properties, such as density, to meet drilling requirements. As shown in Figures 4-4B, a remotely actuated valve 53 can be located in-line between the booster inlet 60 and booster reentry port 62.

[0027] Although booster reentry port 62 is shown reentering bore 32 at an axial mid-length of riser adapter 16, the booster reentry port could be formed at other points in the riser adapter.

[0028] Continuing to refer to Figure 2, riser adapter 16 can have additional features that can provide more functional capabilities. These features can include ports disposed circumferentially around body 30 of riser adapter 16 that can function as inlets or outlets. The ports can also be modular to provide flexibility from job to job. In an embodiment of the invention, first port 70 extends radially outward and upward from riser adapter 16 and can have a first valve 72 that can be operated remotely from a BOP control panel 76 or directly by an ROV. Second port 80 can have a second valve 82 that can also be operated remotely from BOP control panel 76. Second port 80 can be identical to first port 70. Additional ports, 90 and 94 can be disposed on riser adapter 16 and can have valves 92 and 96 that are also remotely operated from BOP panel 76 or directly by an ROV. Although four ports are shown in Figure 2, it is understood that more or less ports could be used. Ports 70, 80, 90, 94 can traverse sidewall of adapter 16 and be in communication with bore 32 of riser adapter to provide access to bore of riser string 10 and BOP 14, and, therefore, to the wellbore. In other embodiments, a port may have a connector, rather than a valve, that is normally closed, but which is opened when an external connector is connected thereto. For example, the port may have a connector with a female hydraulic fitting that is designed to receive a male hydraulic fitting. When the male hydraulic fitting is removed, the port is closed. When the male hydraulic fitting is inserted into the female hydraulic fitting, the port is open.

[0029] Ports 70, 80, 90, 94 will typically be dormant, with valves 72, 82, 92, 96 in a closed position. In this embodiment, flexible hoses will typically not be connected to ports 70, 80, 90, 94. However, upon a need to perform an operation, umbilicals from the floating vessel such as hoses 100, 102, could be connected, for example, to first port 70 and second port 80. Valves 72 and 82 could be actuated to open. Hoses 100 and 102 can be flown and connected to ports 70 and 80 on riser adapter 16 by an ROV 47 that has facilities for carrying, installing, and flying

umbilicals to riser adapter 16 and can be controlled remotely from a floating vessel 12 (shown in Figure 1). Additional umbilicals, such as hose 104, could be flown to one of additional ports 90 and 94 for connection, if desired. Alternatively, hoses 100, 102, and 104 can be connected to ports 70, 80, 90, or 94 prior to any event occurring that would require their use.

[0030] Although hoses 100 and 102 are shown connected to ports 70 and 80, any combination of ports 70, 80, 90, and 94 could be used. Depending on the function, the opposite ends of hoses 100 and 102 may be routed to sources or terminations either at the surface vessel or the seabed. For example, in the event that the well becomes uncontrolled, it is possible that oil could escape, posing an environmental risk. In this type of emergency situation, ROV 47 could be deployed with a hose, such as hose 100, and flown to the riser adapter 16 for connection of the hose with one of the ports, such as first port 70. An opposite end of hose 100 could be connected to a containment vessel (not shown) such as an oil tanker or other facility. Because port 70 is in communication with the wellbore via bore 32 of adapter 16 and the bore of the riser string 10, the escaping oil flowing up BOP 14 into adapter 16 can be routed to the relative safety of containment vessel via hose 100 for additional processing, such as burning. Valve 72 can be actuated to open via BOP panel 76 to activate port 70 and thus allow flow of oil to the containment vessel. If additional oil removal capacity is needed, ROV 47 can install additional hoses, such hose 102 and 104 on additional ports 80, 90, and 94. Like hose 100, the additional hoses can also be routed to the containment vessel. To facilitate flow of oil through the ports, a plug can be inserted into the upper end bore 32 of riser adapter 16 above ports 70, 80, 90, and 94 to force oil into the ports and thus hoses. Suction pumps may also be employed to increase flow to containment vessel. It is understood that additional ports could be added to riser adapter 16 to provide additional oil removal capacity or other functionality. Hoses may also be connected to ports prior to any event occurring that would require their use.

[0031] In an additional embodiment shown in Figure 3, a riser adapter 150 having a bore 151 is shown that is similar to that described in Figure 3. Riser adapter 150 has a plurality of ports, such as a first port 152 disposed on body 154 of riser adapter, which may allow flow in or out of the riser adapter as indicated by double flow arrows. In an embodiment of the invention, first port 152 extends radially outward and upward from riser adapter 150 and can have a first valve 156 that can be operated remotely from a BOP control panel 158. Second port 160 can have a second valve 162 that can also be operated remotely from BOP control panel 158. Second port 160 can be identical to first port 152. Additional ports, 164 and 166 can be disposed on riser adapter 150 and can have valves 168, 170 that are also remotely operated from BOP panel 158. Ports 152, 160, 164, and 166 traverse a sidewall 171 of the riser adapter 150 and are in communication with the bore 151 of the riser adapter. Ports 152, 160, 164, and 166 can also be oriented at different angles around the outside of the adapter 150. Although four ports are shown in Figure 3, it is understood that more or less ports could be used and that they can be configured to receive different hoses as previously described. Riser adapter 150 also comprises a seal area 172 within bore of riser adapter. Seal area 172 can have a dog profile 175, as shown in Figure 3A, for securing tools such as a plug or dual gradient pump cap. The dog profile 175 may be formed in the bore 151 of the riser adapter 150. This is desired when drilling mud is not desired through the entire length of the riser string 10. Sea water could fill a majority of the riser 10 and heavy mud could be pumped in below the water line via a hose to reduce tension requirements on the floating vessel 12. The mud then is pumped through ports 152, 160, 164, 166 into the bore of adapter 150.

[0032] The embodiment shown in Figures 3 and 3A may be combined with the embodiment shown in Figure 2 by essentially connecting the adapter 150 to a standard riser adapter having a flanged lower end, as shown in Figure 3. The standard riser adapter provides the choke/kill and

hydraulic functionality and outlets similar to choke/kill outlet 44 and hydraulic outlet 42 (Figures 1 and 2). The outlets on the standard riser adapter would allow communication with choke/kill and hydraulic rigid conducts similar to that shown in Figure 2. Further, hose connections could be routed from the outlets on the standard riser adapter down to BOP 14.

[0033] The invention described above provides several advantages due to its multi-functionality. Drilling operators can use this improved riser adapter with multiple ports to top kill wells, and perform dual gradient drilling, dispersant injection, mud recirculation, and mud boosting functions. Replacing auxiliary lines of a riser for booster, choke/kill, and hydraulic function with flexible hoses that can be directed to connection on the flange of the riser adapter also eliminates the necessity of hard lined auxiliary lines on the drilling riser. This replacement of auxiliary lines can be carried out during emergencies or on a permanent basis, however, the option to continue using the hard lined auxiliary lines is still available if desired or required by a project. Further, the riser adapter can be retrofitted into existing risers by designing it so that any riser flange types and sizes. This modified riser adapter is a single device that can be used for ordinary drilling operations while its emergency functions remain latent until or if needed. These emergency functions thus remain non-intrusive while inactive and potentially increase safety and potentially reduce the potential risk of environmental impact when activated.

[0034] During operation, the riser could be disconnected from the LMRP. The riser adapter may be plugged and may remain on the LMRP. If an emergency situation occurs such that the well becomes uncontrolled, hoses may then be connected to ports on the riser adapter, as previously described, to divert oil to containment vessels.

[0035] It is understood that the present invention may take many forms and embodiments. Accordingly, several variations may be made in the foregoing without departing from the spirit or scope of the invention. Having thus described the present invention by reference to certain of

its preferred embodiments, it is noted that the embodiments disclosed are illustrative rather than limiting in nature and that a wide range of variations, modifications, changes, and substitutions are contemplated in the foregoing disclosure and, in some instances, some features of the present invention may be employed without a corresponding use of the other features. Many such variations and modifications may be considered obvious and desirable by those skilled in the art based upon a review of the foregoing description of preferred embodiments. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the scope of the invention.

What is claimed is:

1. An apparatus for enabling access to a central bore of a marine riser string descending from a vessel, the apparatus comprising:

a riser joint having a cylindrical body with a central bore, the central bore being aligned with the wellbore, the riser joint having a lower connector for connecting to a lower adjacent riser joint or a blowout preventer (BOP) and having an upper connector for connecting to an upper adjacent riser joint;

a plurality of ports disposed externally on a sidewall of the cylindrical body of the riser joint, each port having a passage that extends through the sidewall to the central bore, the plurality of ports being adapted for coupling with an external fluid transmission device to facilitate communication of fluid between the central bore and an external location through the external fluid transmission device.

2. The apparatus of claim 1, wherein at least one of the plurality of ports has a flanged connector.

3. The apparatus of claim 1, wherein at least one of the plurality of ports comprises a valve.

4. The apparatus of claim 1, wherein the riser joint is adapted to receive choke-and-kill lines from an adjacent riser joint and rout them to the BOP.

5. The apparatus of claim 1, wherein a face of the lower flange communicates with a flow passage of the BOP.

6. The apparatus of claim1, :

wherein said at least one of the ports has an inlet formed in the upper flange, the inlet being in fluid communication with the passage and adapted for connecting to a line descending from the vessel;

wherein said one of the ports is adapted to connect to a flexible tubular serving the BOP.

7. The apparatus of claim 2, wherein a passage of at least one of the plurality of ports extends downward through the sidewall from the port to the bore.

8. The apparatus of claim 1, further comprising at least one bore entry port extending through the sidewall of the adapter.

9. The apparatus of claim 7, further comprising,

a seal area within the riser adapter that has a dog profile to allow a closure member to be lowered through the dog profile, and into engagement with the seal area, the dog profile preventing upward movement of the closure member.

10. A system for controlling a well, the system comprising:

a marine riser adapted for descending from a vessel down to a Lower Marine Riser Package (LMRP) mounted to a subsea well;

a riser adapter having a cylindrical body with a bore, the riser adapter having a lower flange for mounting to the LMRP and having an upper flange for engaging a lower end of the marine riser, wherein a face of the lower flange communicates with a flow passage of the LMRP;

a plurality of ports disposed circumferentially on a sidewall the body of the riser adapter, the ports adapted for receiving connections to facilitate ingress or egress of fluid; and

each of the ports includes a passage extending outward and offset from the bore.

11. The apparatus of claim 10, wherein at least one of the plurality of ports has a flanged connector.

12. The apparatus of claim10,

wherein said at least one of the ports has an inlet formed in the upper flange, the inlet being in fluid communication with the passage and adapted for connecting to a line descending from the vessel;

wherein said one of the ports is adapted to connect to a flexible tubular serving a Blowout Preventer (BOP) installed at the subsea well.

13. The apparatus of claim 10, wherein the riser adapter is adapted to receive choke-and-kill lines from an adjacent riser joint and rout them to the BOP.

14. The apparatus of claim 12, wherein the line descending from the vessel is a hydraulic line that is in fluid communication with the said one of the ports to allow flow of fluid to BOP components.

15. The apparatus of claim 11, wherein at least one of the ports:

extends downward from the upper flange and is in communication with the bore of the riser adapter to allow fluid to be pumped down a booster line to the bore of the riser adapter.

16. The apparatus of claim 10, further comprising at least one bore entry port extending through the sidewall of the adapter.

17. The apparatus of claim 15, further comprising,

a seal area within the riser adapter that has a dog profile to allow a closure member to be lowered through the dog profile, and into engagement with the seal area, the dog profile preventing upward movement of the closure member.

18. An apparatus for connecting a marine riser descending from a vessel, to a LMRP mounted to a subsea well, the apparatus comprising:

a riser adapter having a cylindrical body with a bore, the riser adapter having a lower flange for mounting to the LMRP and having an upper flange for engaging a lower end of the marine riser;

a plurality of ports disposed circumferentially on a sidewall of the body of the riser adapter, the ports adapted for receiving connections to facilitate ingress or egress of fluid;

each of the ports includes a passage extending downward through upper flange of the riser adapter and offset from the bore to a face of one of the flanges; and

a seal area within the riser adapter that has a dog profile to allow a closure member to be lowered through the dog profile, and into engagement with the seal area, the dog profile preventing upward movement of the closure member.

19. A method of communicating with the central bore of a marine drilling rising string coupled to a blowout preventer ("BOP"), comprising:

providing:

a riser joint having a cylindrical body with a bore extending longitudinally therethrough, the riser joint being adapted to be assembled as part of a marine drilling riser string at a location proximal to the BOP;

a plurality of ports disposed circumferentially on an external sidewall of the central body of the riser joint and extending through the sidewall into the bore, the ports adapted for receiving connections to facilitate ingress or egress of fluid; and

connecting an umbilical to at least one of the ports;

routing the umbilical to a desired location; and

pumping flowing fluid from the desired location into the bore of the riser joint through one or more of the plurality of ports.

20. A method of communicating with the central bore of a marine drilling rising string coupled to a blowout preventer ("BOP"),, comprising:

providing:

a riser joint having a cylindrical body with a bore extending longitudinally therethrough, the riser joint being adapted to be assembled as part of a marine drilling riser string at a location proximal to the BOP;

a plurality of ports disposed circumferentially on an external sidewall of the central body of the riser joint and extending through the sidewall into the bore, the ports adapted for receiving connections to facilitate ingress or egress of fluid; and

connecting an umbilical to at least one of the ports;

routing the umbilical to a desired location; and

flowing fluid from the bore of the riser joint to the desired location through one or more of the plurality of ports.