METHODS FOR CONNECTING TO FLOATING STRUCTURES

BACKGROUND

Field of the Disclosure

[0001] Embodiments disclosed herein generally relate to methods for connecting to floating structures. More specifically, embodiments disclosed herein relate to methods for connecting one or more members, such as a riser, to a floating structure, such as a semisubmersible.

Related Art

[0002] In oilfield operations, floating structures, such as semi-submersibles ("semis") and barges, are commonly used for various operations, including, but not limited to, hydrocarbon exploration, hydrocarbon drilling and production, safety platforms, and heavy lift cranes. Operations may include a number of risers, tension members, or other equipment capable of connecting to a floating structure.

SUMMARY

[0003] In general, in one aspect, the present disclosure relates to a method of connecting a member to a floating structure, the method includes disposing the floating structure to have a first orientation in a body of water, attaching the member to an upper portion of the floating structure, ~~changing an orientation of the floating structure~~, and positioning the floating structure to have a second orientation that is not level with the horizon, wherein positioning comprises aligning a connection device disposed on a lower portion of the floating structure with the member ~~with a connection device disposed on a lower portion of the floating structure~~.

[0004] In general, in another aspect, the present disclosure relates to a method of connecting a member to a semisubmersible, the method includes disposing the semisubmersible to have a first orientation in a body of water, attaching the member to an upper hull of the semisubmersible, positioning the semisubmersible to have a second orientation that is not level with the horizon, the positioning comprising aligning the member with a connection device disposed on a lower hull of the semisubmersible, and engaging a collar disposed on the member with an adaptor of the connection device.

[0005] Other aspects of the disclosure will be apparent from the following description and the appended claims.

CLAIMS

~~What is claimed is:~~

1. A method of connecting a member to floating structure, the method comprising:

   disposing the floating structure to have a first orientation in a body of water;

   attaching the member to an upper portion of the floating structure; and

   ~~changing an orientation of the floating structure; and~~

   positioning the floating structure to have a second orientation that is not level with the horizon, wherein positioning comprises aligning a connection device disposed on a lower portion of the floating structure with the member ~~with a connection device disposed on a lower portion of the floating structure~~.

2. The method of claim 1, wherein attaching the member to the floating structure comprises suspending the member from ~~an~~ the upper portion of the floating structure.

3. The method of claim 1, wherein attaching the member to the floating structure comprises suspending the member from an attachment device disposed on an upper hull of the floating structure.

4. The method of any one of claims 1 to 3, further comprising engaging the member with the connection device by lowering the member into the connection device.

5. The method of claim 4, wherein engaging the member with the connection device comprises engaging a collar disposed on the member with an adaptor of the connection device.

6. The method of claim 4, wherein engaging the member with the connection device comprises engaging the member with an adaptor and attaching the adaptor to the connection device.

7. The method of claim 4, wherein engaging the member with the connection device comprises sliding an adaptor of the connection device along a tapered portion of a collar disposed on the member.

8. The method of claim 6, wherein the tapered portion of the collar corresponds with a tapered portion of the adaptor.

9. The method of any one of claims 1 to 8, wherein ~~changing the orientation of~~ positioning the floating structure to have the second orientation comprises manipulating one or more ballast chambers of the floating structure to adjust an attitude of the floating structure.

10. The method of claim 9, wherein adjusting the attitude of the floating structure comprises manipulating one or more mooring lines to adjust at least one of six degrees of freedom of the floating structure.

11. The method of claim 10, wherein manipulating one or more ballast chambers comprises at least one of filling and draining a portion of one or more ballast chambers to adjust buoyancy and a center of gravity of the floating structure.

12. The method of any one of claims 1 to 11, wherein the floating structure comprises at least one selected from the group consisting of a floating production unit, a semisubmersible, a barge, a spar platform, and an offshore vessel.

13. The method of any one of claims 1 to 12, wherein the member comprises at least one selected from the group consisting of a tension member, a riser, a mooring line, and an umbilical.

14. A method of connecting a member to a semisubmersible, the method comprising:

disposing the semisubmersible having a first orientation in a body of water;

attaching the member to an upper hull of the semisubmersible;

positioning the semisubmersible to have a second orientation that is not level with the horizon, the positioning comprising aligning the member with a connection device disposed on a lower hull of the semisubmersible; and

engaging a collar disposed on the member with an adaptor of the connection device.

15. The method of claim 14, wherein aligning the member with the connection device comprises manipulating a portion of a ballast chamber to adjust an attitude of the semisubmersible.

16. The method of claim 14, wherein aligning the member with the connection device comprises at least one of filling and draining one or more ballast chambers to adjust a buoyancy and a center of gravity of the semisubmersible.