MOORING SYSTEMS AND PROCESSES FOR USING SAME

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to U.S. Provisional Patent Application No. 63/312,556, filed on February 22, 2022, which is incorporated by reference herein.

FIELD

[0002] Embodiments described generally relate to mooring systems and processes for using same. More particularly, such embodiments relate to mooring systems for mooring a vessel floating on a surface of a body of water and processes for using same.

BACKGROUND

[0003] In the offshore oil and gas industry, mooring systems have been used for many years to moor a vessel on a surface of a body of water. In relatively shallow waters, for example less than 50 meters of water, traditional chain mooring systems have been ineffective and yoke mooring systems, while effective, include complex mechanical systems located beneath the surface of the water. Locating these mechanical systems below the surface of the water is difficult and expensive from a design, manufacturing, operating, and maintenance perspective.

[0004] Recent developments have made yoke mooring systems more feasible, but only when the yoke is disposed above the surface of a body of water. These above water yoke mooring systems can be costly given that there is significant expense required to locate the yoke above the surface of the body of the water.

[0005] There is a need, therefore, for improved mooring systems and processes for using same.

SUMMARY

[0006] Mooring systems and processes for using same are provided. In some embodiments, the system can include a base structure, a mooring leg, a column, and a turntable. The mooring leg can include a first end configured to be attached to a seabed and a second end configured to be attached to the base structure. The column can include a first end attached to the base structure. The turntable can include a rotating part rotatively connected to a fixed part. A second end of the column can be configured to be connected to the fixed part of the turntable via a dual axis joint. The rotating part of the turntable can be configured to be connected to the vessel such that the vessel is rotatable with respect to the column when the second end of the column is connected to the fixed part of the turntable. The base structure can be configured to be elevated above of the seabed when the second end of the column is connected to the fixed part of the turntable. The base structure is configured to sit on the seabed when the second end of the column is disconnected from the fixed part of the turntable.