

Abstract

SUBSEA TOROIDAL WATER SEPARATOR

A compact, low footprint water separation system for use in subsea well operations. A subsea production tree has a vertical passage and at least one laterally extending branch. A subsea gravity separation device having a hollow toroidal body detachably is mounted around and connected to the production tree. An inlet on a first side portion of the separation device is connected to the at least one laterally extending branch of the production tree and admits production fluid. The production fluid flows through the separation device where it passes through a separation unit. After passing through a separation unit, less dense fluid is discharged through an upper outlet and more dense fluid is discharged through a lower outlet. The upper and lower outlets are positioned opposite the first side portion of the separation device.

Figure 1.