

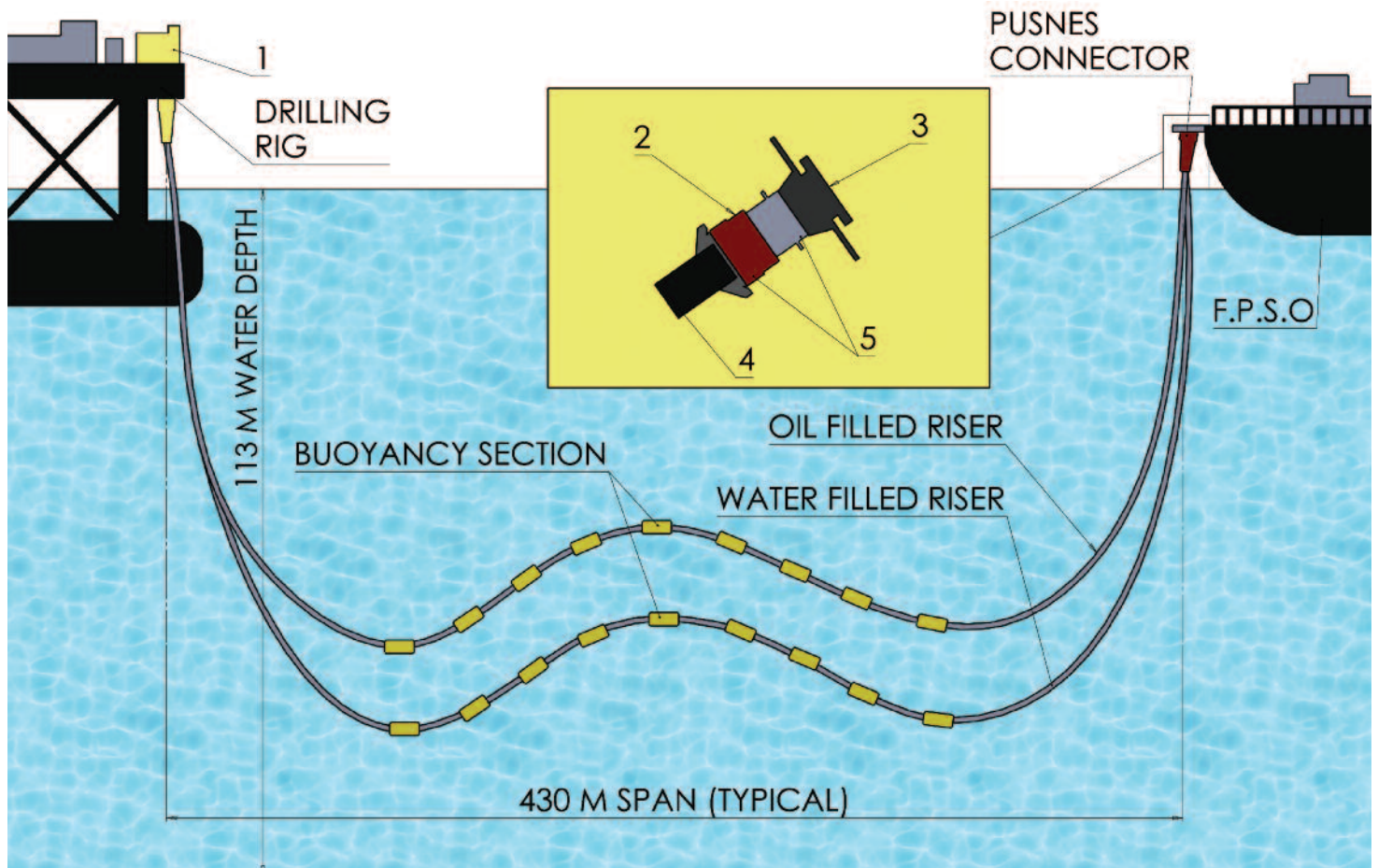
Extended Well Test\Early Production System (Drilling Rig)



The layout for an extended well test is shown using a typical drilling rig either a semi-sub or jack up connected via Manuli hoses to a DP tanker.

In order to provide safe and pollution free disconnection a QC\DC unit is mounted on the drilling rig and the production hose connected through it.

The transfer hoses are formed into a W-shape (using buoyancy units) to allow the catenary to absorb wave motions and different fluid densities. This system was used for several North Sea EWT.



KEY:

- 1. QC/DC unit for pollution avoidance
- 2. Crossover Spool
- 3. Pusnes Connector
- 4. Manuli Hose
- 5. 20/12" Spool

Extended Well Test\Early Production System (MOPU)



The layout for an extended well test is shown using a MOPU which is connected via Manuli hoses to an offload system such as a calm buoy, although it could be a DP tanker picking up a seabed hose with Pusnes connector.

In this case the vessel separation is higher and the hose is laid on the seafloor before returning through a lazy wave made up of buoyancy units to a CALM buoy at the surface. Flowline stability is achieved using regularly placed concrete mattresses. This system was used on Valhall waste water, Cendor Field and Wassana Field developments.

