

Package No: 0482-MI20-94PO-1400

Package Name: **PRODUCED WATER TREATMENT PACKAGE**

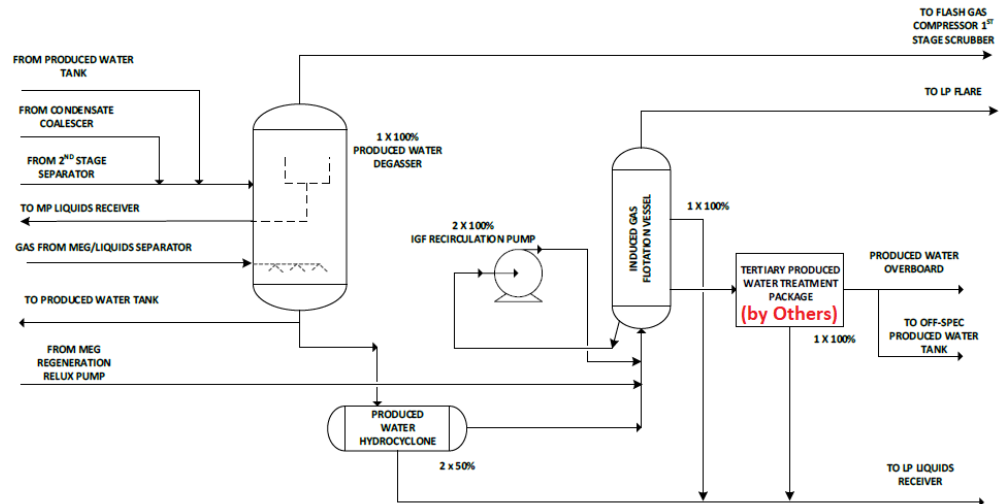
Scope of Work

Produced Water Treatment Equipment shall be designed to handle 20,000 bpd throughput of max. oily water content of 2000 mg/L and Hg content of 20 ppbw of incoming oily water stream.

The purpose of the Produced Water Treatment System is to remove dispersed hydrocarbons from the produced water stream with outlet water specification meeting the TPH (total petroleum hydrocarbon) content not greater than 30 mg/L and meet the mercury content specification which is max. 10 ppbw. Turn down requirements shall be considered with respect to the achievable ratio with the equipment provided.

The Produced Water Treatment Equipment shall consist of the following:

- **1 x 100% Produced Water Degasser**
- **2 x 50% Produced Water Hydrocyclone**
- **1 x 100% Induced Gas Flotation (IGF) Vessel**
- **2 x 100% IGF Recirculation Pump Skid**



The combined water streams from the 2nd Stage Separator and the Condensate Coalescer enter the Produced Water Degasser which is operated at 9.5 barg and ~47°C. It acts as a degassing vessel and also performs preliminary condensate-water separation through gravity settling followed by the skimming the condensate layer at the top. A mercury-free flash gas stream from the MEG/Liquids Separator is sent to the Produced Water Degasser acting as stripping gas to remove mercury to meet design specification (max 10 ppbw). The gas from the Produced Water Degasser is sent to the Flash Gas Compressor 1st Stage Scrubber and then compressed for gas treatment. It is an important ALARP design to recover flash gas from the produced water and remove mercury at a pressure level which can be recycled back to the gas treatment systems.

The produced water is subsequently treated in Produced Water Hydrocyclone. The Hydrocyclones shall working on the principal of enhanced gravity separation, perform the primary (bulk) separation of the condensate and water reducing the TPH of oily water from 2,000 mg/liter down to 100 mg/liter or less. Produced Water Degasser level control regulates the produced water outflow from the Produced Water Hydrocyclones. The Produced Water Hydrocyclones performance is maintained near its optimum point by changing out its liners with a number of blank liners consistent with the actual produced water throughput processed over the field life.

The IGF Vessel performs the secondary condensate-water separation and works on the principle of gas flotation where the tiny gas bubbles are introduced at the bottom of the IGF Vessel and allowed to rise up through the column of the produced water. As they rise, they attach themselves to the condensate droplets and collect them together. The condensate phase collects at the surface and is skimmed off while the polished produced water exits from the bottom. The IGF Vessel has an eductor and a low-shear centrifugal pump as accessories. The eductor draws gas from the vapor space of the IGF Vessel and introduces it into the produced water slip stream that is being drawn from the bottom of the IGF Vessel and comingled with the IGF Vessel inlet stream using the low-shear IGF Recirculation Pumps. The IGF Vessel lowers the TPH of the produced water from about 100 mg/liter down to less than 30 mg/liter.

Hydrocarbon liquids separated from the Produced Water Degasser are sent to the MP Liquids Receiver. Hydrocarbon liquids from the Produced Water Hydrocyclone, the IGF Vessel are sent to the LP Liquids Receiver.

To address the dissolved hydrocarbons, the water from the IGF Vessel is further treated in the Tertiary Produced Water Treatment Package (by others) to meet the ALARP requirement before it is routed overboard. An off-Spec Produced Water Tank (by others) is provided in the hull to accept any off-spec water under upset conditions.

The scope of work shall be but not limited to design, engineering, fabrication, inspection and testing, start-up and performance testing and performance guarantee for the Produced Water Treatment Equipment suitable for continuous operation on an FPSO to be located offshore Australia.

- Contract Award Q2 2020; Delivery Q3 2021

## Project Registration

ConocoPhillips is committed to ensuring Australian Industry full, fair and reasonable opportunity to participate in the Barossa Offshore Project. Expressions of Interest are invited from contractors and suppliers with the relevant capability and capacity to undertake the scope of work.

This is a request for specific expressions of interest. Contractors and suppliers will be considered for prequalification and tender if suitably qualified against this package.

**Note** that an important part of the project registration process is to register an Expression of Interest at the correct Scope level.

Scope level definition:

**Full scope:** Able to produce / supply the entire package.

**Partial scope:** Able to produce / supply one or more of the sub-packages.

All registrations are to be completed via ICN Gateway [BarossaOffshore.icn.org.au](http://BarossaOffshore.icn.org.au). Please contact the ICNNT if registration assistance is required. Contact details: (08) 8922 9422 or [admin@icnnt.org.au](mailto:admin@icnnt.org.au).

Project Website: [ConocoPhillips Australia](http://ConocoPhillips Australia)