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Amarinth, a company specialising in the design, application and manufacture of centrifugal pumps and associated equipment to the Oil & Gas, petrochemical, chemical, industrial and power markets, has delivered US\$1.2 million of API 610 overhung high pressure, high flow, low-shear duplex pumps to Fjords Processing for produced water treatment duties aboard the FPSO Catcher which is currently being assembled in Singapore and destined for the Premier Oil operated Catcher field in the UK North Sea.

Discovered in 2010, the Catcher field is located 180 kilometers east of Aberdeen in the North Sea and is expected to produce 96 million bbls of oil with a peak production rate of around 50 000 bpd. The field will be operated by Premier Oil using the Floating Production Storage and Offloading (FPSO) Catcher, with production starting in 2017. The hull for FPSO Catcher is being built by Japan's IHI and upon delivery the topsides and the hull will then be assembled in Singapore.

The produced water treatment plants being supplied to FPSO Catcher by Fjords Processing specified pumps with an 80 m head but a high flow rate of 920 m³ per hour, which meant impeller sizes of over 0.5 m. Such large pumps are usually configured as expensive between bearing pumps but Amarinth used its experience and expertise to select a much more cost-effective overhung design that could meet the duties.

Typically, such large overhung pumps would be operating at the hydraulic limits for this type of pump but Amarinth's robust high-quality design ensured that the pumps were exceptionally well-balanced with tight concentricity tolerances thereby keeping vibration within the API 610 project specifications and noise levels below 85 dB(A). Most of the pumps were also supplied with dual seals and Plan 53B seal support systems.

In addition to the demands of the high pressure and flow, the pumps were required to exhibit low-shear properties in order that the produced water treatment plants could separate and capture oil from the water before returning the cleaned water to the sea. For produced water treatment plants to work efficiently it is crucial that the mixing of oil and water being pumped must be minimised, preventing restructuring and emulsification during the transfer of the fluid through the separation system. Amarinth has undertaken extensive research and development into low-shear pump design and so was also able to apply this experience to this project.

Oliver Brigginshaw, Managing Director of Amarinth, commented: "We are delighted to have supplied Fjord Processing with these pumps which meet the required duties but at a considerable cost saving over what would have been traditionally proposed. Our active research and development programme continues to extend the duty envelope for centrifugal pumps enabling us to meet the ever increasing demands of the oil and gas industry as it produces oil and gas from more challenging fields."

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