



# Advanced separator internals retrofit

facilitates tieback of Brynhild field to  
Haewene Brim FPSO.

The Haewene Brim FPSO is operated by Bluewater on behalf of Shell and produces the Pierce field in the UK sector of the North Sea. The facility has recently undergone a major retrofit at our facilities in Scotland to accommodate the tieback of the Brynhild field, operated by Lundin.

We provided the vessel upgrade modifications for both the first stage and test separators using a vessel design validated by the use of physical modelling at our test facility in Orkney. The solution was comprised of a heavy-duty inlet device, fouling-resistant slotted baffling, and anti-sloshing plate packs. Internal oil and water outlet manifolds were also required to reflect the changes in the process design to enhance the flow dynamics within the separators. Further modifications were also required to provide calm flow conditions around level instrumentation.

The upgrades were designed at our offices in the UK, fabricated at approved sheet metal fabricators, and then supplied directly to site where the FPSO was being retrofitted. Our team also supervised the installation of the new internals. All of this was completed on a rapid project turnaround schedule.

## Project details

### Operating system

Design production rate: 65,000 BOPD, 15,000 BWPD,  
133 MMSCFD gas

Operating conditions: 100°C, 19 barg

Specifications: Maximum 0.5% volume water in oil,  
Maximum 800 ppm volume oil in water, Maximum 0.1  
USG/MMscf

### Scope of work

- Process review
- Physical modeling tests of existing and new designs in our facility
- Mechanical design and interfacing with existing vessel brackets and internals
- Fabrication and installation of new internals

### Key facts

- End user: Shell/Bluewater
- Location: Haewene Brim, UK
- Client: Bluewater