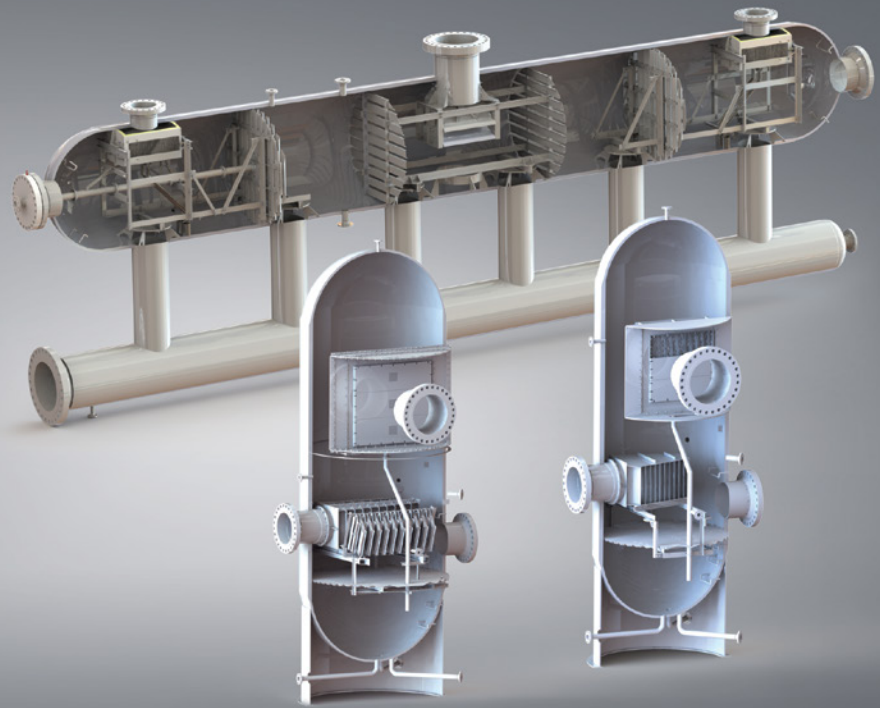


Wellstream Processing Dimlington Terminal



Slug catcher and scrubber optimization

Dimlington, situated on the Yorkshire coast, is one of the main gas terminals in the UK.

Our client, Perenco, had a dual objective to improve performance & to extend the life of this critical part of the UK's National Transmission System.

Our developer-level knowledge of fluids separation technologies was employed to understand the active and extreme case challenges whilst forecasting bottlenecks. We utilised our in-house experience & expertise to perform a detailed system-wide process review, with performance of the slug catchers & scrubbers being accurately predicted using our proprietary performance modelling tools.

Based on a deep understanding of the challenges and existing constraints, we optimized the internals arrangement to enhance ability to maintain the required level of gas/liquid separation for optimal onward processing, whilst suppressing the liquid slugs expected during pigging operations. The internal arrangement of the vessels was further verified using our in-house CFD capability across the most arduous conditions.

We delivered comprehensive, optimized & verified upgrades for both slug catchers, plus 1st and 2nd stage scrubbers on both the A & B compression trains.

On start-up the performance was monitored through pigging operations. The new arrangement was verified to safely and effectively contain the most challenging slugs of liquid within the slug catcher system.

Key facts

The pipeline & terminal operating pressure was reduced, and production increased to deliver the desired benefits of the project.

The terminal is now a critical part of many UK SNS offshore field development plans.

Project details

Original system

- Operating pressure = 32barg
- Large slug catcher arrangement, within minimal separation enhancing internals
- Scrubbers in export compression system experiencing performance issues
- Forecast bottleneck in production from offshore due to high operating pressure

Objective

- Understand current performance limitations
- Reduce operating pressure of onshore system
- Extend life of the Dimlington terminal and associated offshore fields

Optimized system

- Operating pressure = 6.5 barg
- Our proprietary internal arrangement in slug catchers & scrubbers
- Achieving export specification

Scope of work

- Desktop process optimisation review and CFD performance verification
- Detailed process & mechanical design by our engineers
- Our installation team conducted the construction of the complex internals upgrade:
 - 11,459 kg of internals,
 - 1,048 individual items
 - 2,996 fixings