

PROJECT REFERENCE

LAGGAN TORMORE DEVELOPMENT PROJECT

HT/Armaflex[®], ArmaSound[®]

- **Summary**

Laggan and Tormore are two gas and condensate fields situated about 125km north-west of the Shetland Islands in the UK. They are located 16km apart in the North Sea. The fields are owned by Total E&P UK (80%) and Dong E&P (UK) (20%). Total is the operator.

Armacell industrial insulation solutions were applied to the hot, hot traced, winterstation and acoustic lines.

- **Place**

North Sea, United Kingdom

- **Market segment**

Oil & Gas onshore & offshore

- **EPC**

Total

- **Construction**

2010 - 2014

- **Owners / Operators**

Total E&P UK Ltd., Dong E&P (UK) Ltd.

- **Contrator**

Petrofac Facilities Management, Ltd.

- **Installation date of insulation**

2013 - 2014



- **Application**

LNG Pipelines

- **Line temperatures**

-40 °C to +120 °C

- **Insulation systems used**

4 500 m² of HT/Armaflex (sheet layers) & 2 700 m² ArmaSound Industrial Systems Class A were installed on 3 200 + 2 000 km of processing pipes respectively. ArmaSound Industrial Systems, Arma-Chek R.



PROJECT REFERENCE

LAGGAN - TORMORE

Laggan and Tormore are two gas and condensate fields situated at 600m water depth about 125km north-west of the Shetland Islands in the UK. They are located 16km apart in the North Sea, close to the North Atlantic Sea.

The Laggan-Tormore project is considered the „future of the UK oil and gas industry“. It involves the development of the two fields with subsea facilities and construction of a gas processing plant and export pipeline. The project is estimated to require an investment of £2.5bn (\$3.8bn). It will employ about 800 workers during construction and 70 during operations.

The overall development concept consists of a long distance tie-back of subsea wells connected to a new gas processing terminal at Sullom Voe on Shetland. The produced hydrocarbons will be transported to Shetland via 2 x 143 km 18" import flowlines at a peak gas rate of 500 MMscfd. Once onshore, the multiphase fluid stream will enter a slug catcher and is collected in flowlines. Further processing facilities will separate the gas and liquid streams and condition the gas to the specification required for onward export.

The separated liquid condensate stream is processed and exported to the BP operated Sullom Voe oil terminal storage facilities, prior to export via tanker. After the gas is conditioned, it is compressed and exported via a new pipeline (the SIRGE System, with 234 km 30" pipeline) to a tie-in point from where it will be commingled into the existing UK Frigg (FUKA) pipeline system in the North Sea, for onward transport to the Total operated St. Fergus Gas Terminal in Aberdeenshire. There, the gas is further conditioned and NGLs will be recovered and exported via existing liquid transportation systems.

With operating temperatures varying between -8,8 °C and up to +115 °C, Armacell Thermal and Acoustic insulation solutions were applied to different sections of the Export Compressor Mainlines and HP Compressor Mainlines of the Shetland Gas Plant.

Complying with the Company engineering standards and other applicable International Codes and Standards, a total of 2700 m2 of ArmaSound Industrial Systems Type A with Arma-Chek R covering was used for noise reduction. This system not only complies with ISO 15665 Class A2, but outperforms it with insertion losses of up to 38,9dB (at 8000 Hz). To minimise thermal losses and reduce the risk of corrosion under insulation, 4500 m2 of HT/Armaflex were installed.



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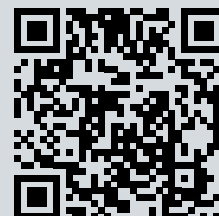
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Subject to changes