

CORMORANT ALPHA

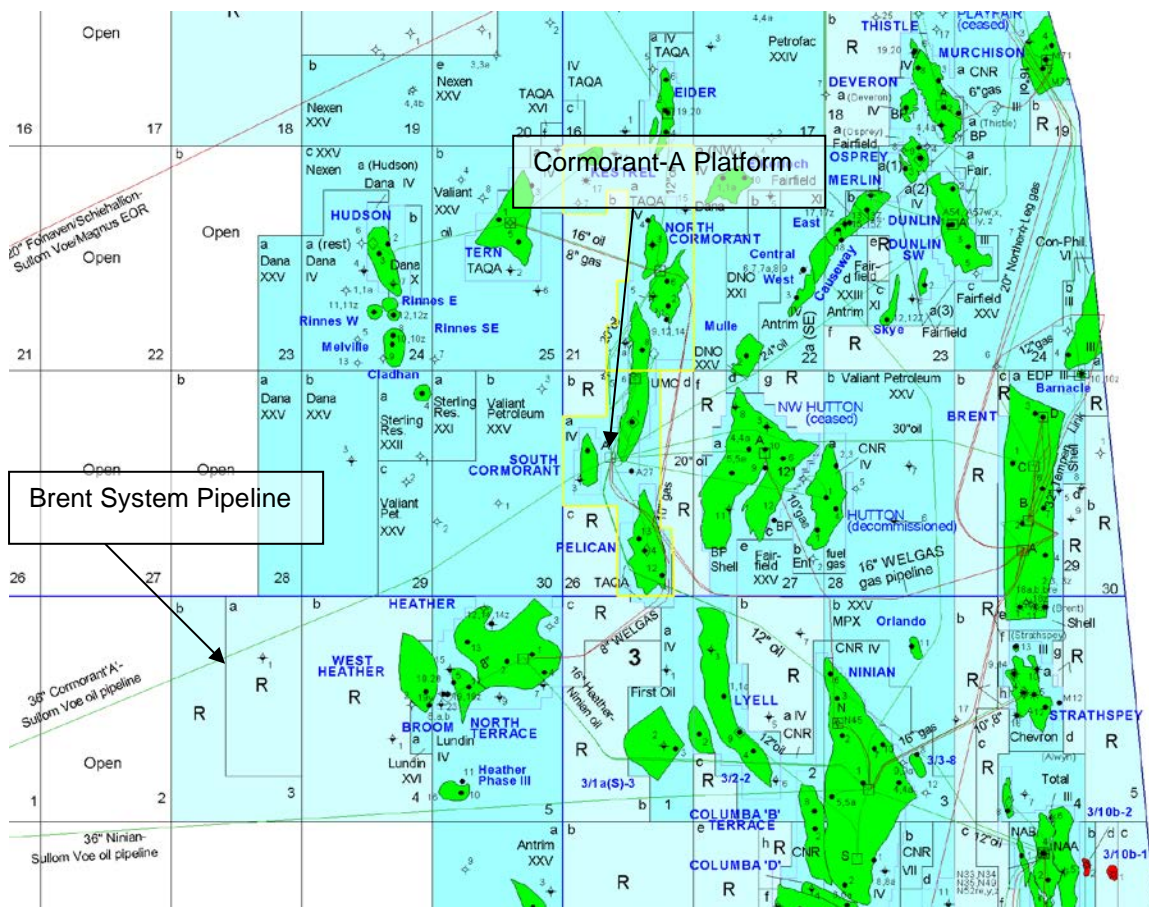
The Cormorant Alpha platform is operated by TAQA Bratani Limited and is owned in part by the Cormorant South field owner (TAQA Bratani Limited 100%) and the Brent System owners (please see the Brent System ICOP document for further information). The Cormorant Alpha platform is a fixed Gravity Based Structure in the East Shetland Basin, Northern North Sea at a water depth of 150 metres and began production in January 1979.

About TAQA

TAQA's UK business (TAQA Bratani Limited) is a wholly owned subsidiary of the Abu Dhabi National Energy Company PJSC (TAQA).

Established in 2005, TAQA is a diversified utilities and energy group headquartered in Abu Dhabi, the capital of the United Arab Emirates, and is listed on the Abu Dhabi Securities Exchange (ADX: TAQA). TAQA has significant investments in power and water generation, transmission and distribution assets, as well as upstream and midstream oil and gas operations. The company's assets are in the United Arab Emirates as well as Canada, Ghana, India, Iraq, Morocco, Oman, the Netherlands, Saudi Arabia, the United Kingdom and the United States.

For more information, please visit: www.taqa.com



Source: Wood MacKenzie

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Platform Statistics

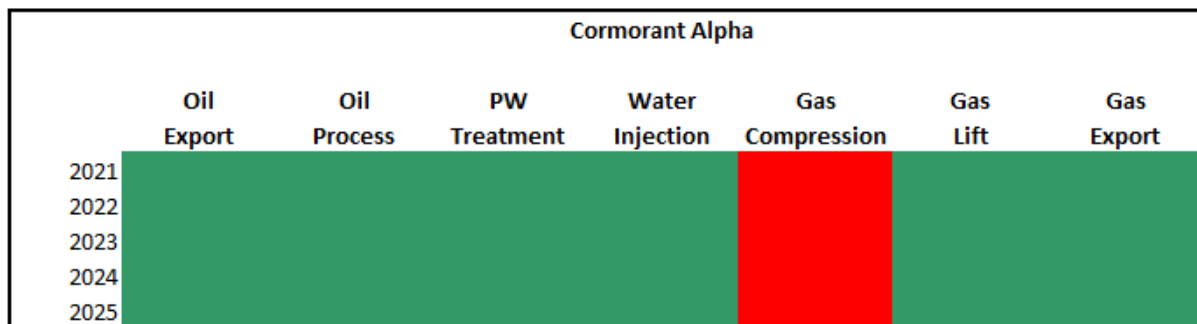
Operator	TAQA Bratani Limited	Water depth	150m
Participants	Cormorant South field owner (TAQA 100%) and Brent System owners (various)	Location	NNE, East Shetland Basin
Platform Type	Fixed, GBS	Block	211/21

Capacity and Ullage Projection

The Cormorant Alpha platform process system is nominally designed for the following quantities; however, peak flow rates may exceed these values.

Available Capacities:

< 5%	
5% - 25%	
>25%	



Please note this does not reflect the economic CoP date.

Entry Specification

This will be evaluated on a case by case basis.

Primary Processing Facilities

Crude from the Cormorant South field and the Pelican field is processed through a single oil separation train which incorporates parallel, dedicated separators for the Cormorant South and Pelican production, and a common test separator which commingles and feeds the Brent System Separator.

The Brent System Separator V-11309 operates at flare backpressure 0.1barg, with the excess gas being flared to the warm flare header. The combined oil from the Brent System Separator is routed to the Sullom Voe export line via the Direct Export Pumps P-14205/06 and Oil Export Metering Package A-14207.

Chemical injection facilities are provided to inject chemicals into various points in the Oil Process System to assist the separation process, protect the system pipework and prevent foaming.

Separated water is transferred to the Block I/II Separator V-11303 via Produced Water Pumps P-11301/02 and is treated via the Block I/II Produced Water System.

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Process gas is produced during stabilisation of the crude oil produced by the Cormorant South and Pelican wells. The gas undergoes three stages of compression in Gas Lift/Export Compressor K-21016, with produced liquids recycled within the process. Fuel gas is removed after the 1st stage of compression, the remaining gas being further compressed in 2nd stage prior to gas treatment. The treated gas is finally compressed in 3rd stage and can be used to supply lift gas to the Cormorant South and Pelican wells. Gas surplus to the requirements of the Cormorant and Pelican lift gas systems is exported to St Fergus via the Western and Northern Leg pipelines prior to transmitting South to a tie into the FLAGS pipeline at the Tampen Area Tee.

Water Injection

Seawater from the Service Water Distribution System is used for WI purposes. The water is supplied from the service water return header that operates at 2.6barg and at temperatures ranging between 5 and 25°C. After being mechanically and chemically treated the water is injected at high pressure into the reservoir through the WI wells.

Injection water pressure is achieved by using two gas turbine driven HP Water Injection Pumps. The HP pumps boost the water pressure to 220barg, the pressure required for reservoir injection. The Pelican WI booster pump then boosts water pressure further to 300barg for injection exclusively to the Pelican reservoir. To ensure the quality of the water being injected, continuous chemical monitoring is carried out.

H₂S Removal

H₂S Scavenger is injected into the primary separator produced gas offtake to meet export and gas lift specification.

H₂S Production

The platform is set up to allow H₂S production.

Gas Export

Gas released in the oil process train production separators is compressed in three stages of compression to supply lift gas to the Pelican wells and provide fuel gas to run the Platform plant. Fuel gas is removed after the first stage of compression. Gas conditioning process is implemented following the second stage compressor.

The gas treatment system removes water from the gas stream using a conventional Triethylene Glycol (TEG) process, enabling the gas to meet the export specifications. The conditioned gas is then compressed to approximately 138barg by the third stage of compression. Gas lift for the Pelican wells is routed to the gas lift header under pressure control or the topsides gas lift header under temperature control with the remaining gas is either exported or flared.

The gas from Gas Lift/Export Compressor K-21016 not used for gas lift is exported via the 16in Western Leg pipeline to Brent Alpha, and from there to the St Fergus terminal via the FLAGS pipeline.

Fiscal metering of the export gas from Gas Lift/Export Compressor K-21016 is carried out by Import/Export Gas Metering Skid A-21014. This skid contains the metering equipment for both the export and the import gas streams. The metering runs for these systems are separate, although the gas chromatograph facilities are common.

Prior to entering the metering runs, the export gas is analysed by Gas Chromatograph to provide compositions up to C₆, and a combined value for higher hydrocarbons that can be normalised against expected cuts. The gas is also analysed for water and hydrogen sulphide content.

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Exit Specification

Brent System Specification:

- TVP (True Vapour Pressure) not exceeding 115 psia at 100°F unless otherwise agreed.
- BS&W (base sediment & water content) not exceeding 2% by volume under normal operating conditions. Exceptions may apply depending on circumstances.

Pipeline

Export of oil is via the Brent System pipeline to the Sullom Voe Terminal.

New Business

For a more tailored discussion to suit your business needs, please contact us by using the email address below:

commercial.uk@taqaglobal.com

Abbreviations

TVP	True Vapour Pressure	Mg/l	Milligrams per litre
psia	Pounds per Square Inch Absolute	PPI	Producer Price Index
BS&W	Base Sediment & Water	Bbl(s)	Barrel(s)
Non-Sour	Low in Hydrogen Sulphide (H ₂ S)	b/d or Bbl/d	Barrel(s) per day
CO ₂	Carbon Dioxide		

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