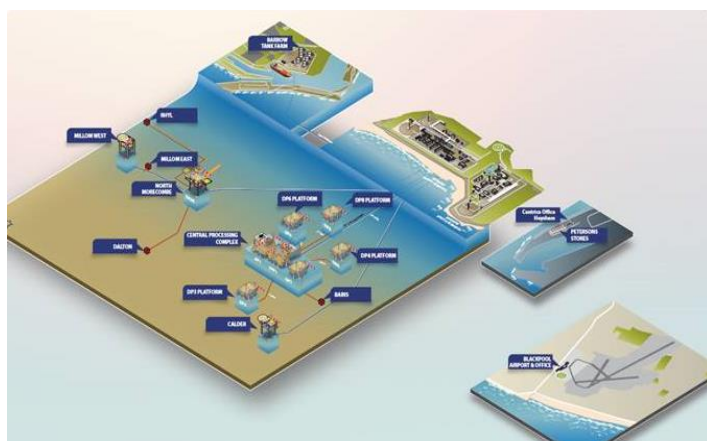


SPIRIT ENERGY

INFRASTRUCTURE CODE OF PRACTICE



ASSET: MORECAMBE HUB

The Morecambe Hub comprises three fields in the East Irish Sea (UKCS) - North Morecambe, South Morecambe and Rhyll. Despite producing for over 30 years, it remains a cornerstone operated asset in the Spirit Energy portfolio.

Gas from all the fields is processed at Barrow Gas Terminals, located near Barrow-in-Furness in Cumbria, before

entry into the National Transmission System. Spirit's offshore facilities and onshore terminal also provide gathering and processing services for third parties.

KEY FACTS:

LICENCE	P.153, P.251, P.1483
BLOCK	110/2a, 110/3a, 110/8a, 113/27b
SECTOR	East Irish Sea (UKCS)
OWNERS / OPERATOR	Spirit Energy Production UK Limited (Op), 100%
APPROX DISTANCE TO LAND	25km
WATER DEPTH	17-35m
HYDROCARBONS PRODUCED	Condensate, gas
EXPORT METHOD	Pipeline
MANNED / UNMANNED	<p>Manned</p> <ul style="list-style-type: none"> • CPC, South Morecambe <p>Unmanned</p> <ul style="list-style-type: none"> • DP3, DP4, South Morecambe decommissioning ongoing • DP6, DP8, South Morecambe • DPPA, North Morecambe
FIRST PRODUCTION	1985
ACCOMMODATION ON BOARD	Yes - Central Processing Complex (CPC) comprises three bridge linked platforms, including Accommodation Platform 1 (AP1) with max POB 174

INFRASTRUCTURE INFORMATION:

ENTRY SPECIFICATION	<p>Design conditions for CPC:</p> <p>Max 6 mol% CO₂</p> <p>5-10 ppmv H₂S</p>
EXIT SPECIFICATION	N/A – processing carried out onshore to meet NTS entry specification.
OUTLINE DETAILS OF PRIMARY SEPARATION PROCESSING FACILITIES	<p>Offshore – Manned: Slug catcher and 2 phase production separator.</p> <p>Offshore – Unmanned: None</p> <p>Onshore – Nitrogen removal, CO₂ removal, dewatering, condensate separation</p>

SPIRIT ENERGY

INFRASTRUCTURE CODE OF PRACTICE

OUTLINE DETAILS OF GAS TREATMENT FACILITIES

Gas is being treated through Barrow Terminal where H₂S, N₂ and CO₂ is removed

HIGH LEVEL CAPACITY INFORMATION

PLATFORM FIRM PROCESSING CAPACITY AVAILABLE: SOUTH MORECAMBE, CPC	ULLAGE AS % OF SYSTEM CAPACITY					COMMENT
	2020	2021	2022	2023	2024	
OIL EXPORT CAPACITY	●	●	●	●	●	Condensate reinjection pumps capacity 20m ³ /h. Two pumps available giving 40m ³ /h max reinjection capacity. Pumps now operate in batch discharging ~10m ³ of condensate into the pipeline every 3 days.
GAS COMPRESSION CAPACITY	●	●	●	●	●	Compressor throughput currently ~180 MMScfd. Design capacity is 1800 MMScfd. Ullage assumed linear as compressor operating on control line, as forward flow decreases recycle will increase so overall throughput assumed to remain linear.
GAS EXPORT CAPACITY	●	●	●	●	●	Original design capacity of export line was 1800 MMScfd @ 90.3 bara, giving gas velocity of 8.3 m/s. Pipeline now derated to 48 bara which results in a decrease in line capacity to 860 MMScfd for same 8.3 m/s design velocity. Linear production decline from 130 to 80 MMScfd assumed over next 4 years.
GAS LIFT CAPACITY	N/A	N/A	N/A	N/A	N/A	No gas lift.
PRODUCED WATER HANDLING CAPACITY	●	●	●	●	●	
DEHYDRATION CAPACITY	N/A	N/A	N/A	N/A	N/A	Dehydration system decommissioned.
H₂S REMOVAL CAPACITY	N/A	N/A	N/A	N/A	N/A	No H ₂ S removal.
WATER INJECTION CAPACITY	N/A	N/A	N/A	N/A	N/A	No water injection.

SPIRIT ENERGY

INFRASTRUCTURE CODE OF PRACTICE

PLATFORM FIRM PROCESSING CAPACITY AVAILABLE: NORTH MORECAMBE, DPPA	ULLAGE AS % OF SYSTEM CAPACITY					COMMENT
	2020	2021	2022	2023	2024	
OIL EXPORT CAPACITY	N/A	N/A	N/A	N/A	N/A	No separation – wet gas export.
GAS COMPRESSION CAPACITY	N/A	N/A	N/A	N/A	N/A	No compression.
GAS EXPORT CAPACITY	●	●	●	●	●	Design capacity of export is 588 MMScfd. No change to pipeline MAOP. Assumed production maintained at 90 MMScfd export from DPPA, comprising NM, Rhyl and BRIS.
GAS LIFT CAPACITY	N/A	N/A	N/A	N/A	N/A	No gas lift.
PRODUCED WATER HANDLING CAPACITY	N/A	N/A	N/A	N/A	N/A	No separation – wet gas export.
DEHYDRATION CAPACITY	N/A	N/A	N/A	N/A	N/A	No dehydration.
H₂S REMOVAL CAPACITY	N/A	N/A	N/A	N/A	N/A	No H ₂ S removal.
WATER INJECTION CAPACITY	N/A	N/A	N/A	N/A	N/A	No water injection.
OUTLINE DETAILS OF GAS TREATMENT FACILITIES						Gas is being treated through Barrow Terminal where H ₂ S, N ₂ and CO ₂ is removed

ULLAGE AS % OF SYSTEM CAPACITY			
RED	<	5%	●
AMBER	5%	25%	●
GREEN	>	25%	●

CONTACT INFORMATION

Donna Skinner, Commercial Manager
donna.skinner@spirit-energy.com