

GOLDEN EAGLE AREA DEVELOPMENT INSTALLATION

DESCRIPTION OF INFRASTRUCTURE

The Golden Eagle Area Development (GEAD) comprises the Golden Eagle, Peregrine and Solitaire fields and commenced production in the fourth quarter of 2014. GEAD is a standalone processing facility consisting of a Production, Utilities and Quarters (PUQ) Platform, bridge-linked to a Wellhead (W) Platform, collectively described as the Platform Complex. Both platforms are supported by steel piled jacket substructures. The bridge between the platforms is approximately 70 m in length.



The PUQ Platform has facilities for the processing of hydrocarbon fluids, utility systems and living quarters. It receives multiphase hydrocarbon fluids for processing from the W Platform and from the subsea wellheads located at the Southern and Northern Manifolds. The fluids are processed and treated to achieve export specification with the oil being routed to the Flotta Pipeline System via a 14” subsea pipeline to facilities located at the Claymore field. Gas export is via a 6” subsea line to the SAGE system operated by Apache via the existing Ettrick Pipe Line End Manifold (PLEM). Additional process facilities supply gas lift to all production wells and water injection to all injection wells.

ENTRY SPECIFICATION

The entry specification for any third party tie back to the Golden Eagle Area Development Platform for offshore processing would be assessed on an individual basis.

PREINSTALLED THIRD PARTY ENTRY OPPORTUNITIES

Spare risers have been installed for third party use as follows:

W Platform

- 1 x 10"
- 2 x 8"
- 2 x 4"
- 3 x J-tubes

PUQ Platform

- 2 x 8"

Any third party incoming flow to GEAD facilities will be individually measured periodically at the Test Separator or by multiphase flow meters on each incomer.

EXIT SPECIFICATION

Crude oil and natural gas liquids extracted from processing well stream fluids on the Golden Eagle Area Development facilities are exported to the existing Flotta pipeline via the Claymore platform. The export stream meets contractual Flotta entry specifications.

Gas is processed on the Golden Eagle Area Development facilities to meet contractual SAGE entry specifications and is exported through SAGE Gas Export Pipeline System via the Ettrick pipeline end manifold (PLEM), approximately 18 km from the GEAD facility to St Fergus where natural gas and natural gas liquids are separated. The natural gas is sent to the National Transmission System (NTS) and the natural gas liquids are either sent on to FPS or to the SEGAL natural gas liquids pipeline for further processing into specification products.

PRIMARY SEPARATION PROCESSING FACILITIES

The Golden Eagle Area Development process systems are designed to process well stream fluids from the Golden Eagle Area Development reservoirs and export the separated oil and gas to shore. These primary separation facilities include two stages of three phase separation, water injection and produced water disposal/re-injection.

GAS TREATMENT FACILITIES

The Golden Eagle Area Development gas treatment includes three stages of compression, dehydration and hydrocarbon dew-pointing. Gas sweetening is achieved

via the injection of H₂S scavenger chemical upstream of gas dehydration with the formed compound entering the water phase preferentially.

INDICATIVE SYSTEM CAPACITIES

Entry Specification	Sweet Crude Oil
Exit Specification	Crude Oil exported via Flotta to meet Flotta entry specification. Gas exported via SAGE to meet SAGE entry specification.
Oil Export (*)	76,000 bopd
Gas Compression	42 MMscfd
Gas Export	42 MMscfd
Gas Lift	35 MMscfd
Produced Water Handling (*)	90,000 bwpd
Liquid Handling (*)	114,000 bpd
H ₂ S Removal	Flash separation & scavenger injection
Water Injection	142,000 bwpd

ULLAGE	2019	2020	2021	2022	2023
Oil Export	G	G	G	G	G
Gas Compression	R	R	R	R	R
Gas Export (*)	G	G	G	G	G
Produced Water Handling (*)	G	G	A	A	A
Liquid Handling (*)	A	A	A	A	A
Gas Dehydration	R	R	R	R	R
Water Injection	A	A	A	A	A
Treated Sea Water	G	G	G	G	G

R	<5% Ullage
A	5% to < 25%
G	> 25%

(*) due to the interaction between oil export, produced water handling, and liquid handling through time, these constraints must be considered collectively rather than on an individual basis.

ADDITIONAL INFORMATION

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