

EnQuest Producer – Alma and Galia

Fields

The Alma field was originally developed as the Argyll field by Hamilton Brothers Oil Company (HBOC). It was the first oil field placed on production in the UK sector and was in production from July 1975 until November 1992, during which time it produced 73MMstb. It was redeveloped as the Ardmore field by Tuscan from October 2003 until June 2005 and produced a further 5MMstb. The estimated Stock Tank Oil Initially in Place (STOIIP) is 265MMstb. The field was abandoned at a water cut of 70%. The Galia field was originally called the Duncan field and was produced from February 1982 until October 1992 and produced a total of 18.7MMstb from a STOIIP of 47.7MMstb. The Alma and Galia fields have been being re-developed as a single joint development and are tied back to the FPSO EnQuest Producer via one central hub for all wells. The Alma concept is to produce the field from the historical 70% water cut at the previous cessation of production to 95% water cut (on average). The redevelopment comprises six Electric Submersible Pump (ESP) lifted development wells drilled by a semi-submersible and produced via Floating Production, Storage and Offload (FPSO) facility.

Infrastructure Information

Installation Overview

The EnQuest Producer is a Floating, Production, Storage and Offloading Facility, originally called the Uisge Gorm. The vessel is registered in Curacao, the Dutch Antilles.

The FPSO has an open deck process area which includes oil separation, low-pressure gas compression, produced water and seawater injection, utility systems, boiler modules and steam turbine enclosures.

The EnQuest Producer has:

- Accommodation for 97 personnel.
- Oil/water/gas separation, capacity to process crude oil up to a maximum of 57,000 Bopd, storage for 625,000bbls, offload metering and pumping equipment
- Produced and Seawater injection equipment
- Emergency facilities
- Full life support facilities
- Helicopter landing and refuelling facilities.

The EnQuest Producer FPSO is designed to accept production fluids from the Alma and

Process Overview

Galia fields via subsea tie-backs.

Oil from the Alma production manifold is via 2 x 10" production pipelines to the EnQuest Producer FPSO topsides processing and onto the FPSO cargo tanks. 6 off 8" pipelines from the Alma wells feed into the Alma manifold. The Galia field feeds into the Alma manifold by one 8" pipeline. The cargo is offloaded in batches onto an Offloading Tanker for transport to onshore oil field terminals. To support reservoir pressure as well as environmental responsibility – produced water is re-injected to one Alma water injection wells, via 8" flexible risers. There is also the facility to inject seawater to supplement any shortfall in produced water to support reservoir pressure (the seawater injection systems are yet to be commissioned).

Entry Specification:

Sweet Crude Oil

Exit Specification:

Dehydrated crude (<0.5% BS&W)

Outline details of Primary separation processing facilities:

There are two first stage separators that receive fluids from the two 10" flowlines. Oil flows from the separators into the second stage separator via an interstage heater. Oil from the second stage separator is routed to an electrostatic dehydrator. The crude is then cooled and pumped into the crude cargo tanks. Produced water from the first stage separators is processed through hydrocyclones, and degassed. Produced water for injection is routed through the produced water filters via the booster pumps. The produced water is then pumped by High Pressure (HP) water injection (WI) pumps into the Alma WI wells via an 8" flexible riser. If the WI pumps are not available, the produced water is either discharged overboard or pumped to a slops tank. HP gas from the first stage separators is cooled before flowing into the HP gas KO drum. The gas is then superheated and used in the boilers as fuel gas. Surplus gas is routed to the flare. A compressor compresses LP gas from the second stage separator to provide additional HP gas for boiler fuel.

Outline details of gas treatment facilities:

Gas is cooled, stripped and then superheated before introduction to the boiler as fuel. Excess gas is flared. Use of the gas as fuel for the boiler is yet to be commissioned.

High Level Capacity Information

The basic capacity information is portrayed by colour coded 'traffic lights' that reflect thresholds of availability over the next 5 years

>25% capacity available	
5-25% capacity available	
<5% capacity available	

Processing Facility	Total Capacity	2017	2018	2019	2020	2021	Comments
Crude oil capacity	57,000 bbls/day						
Gas compression capacity	1.7MMscfd						
Produced water handling capacity	94,000 bbls/day						
Produced Water injection capacity	90 kBPD @ 175 barg						
Sea Water injection capacity	70 kBPD @ 175 barg						

Contact Information

For further enquiries, please contact Christian Reyboz, Commercial Manager, on Tel +44 1224 975430 or email Christian.reyboz@enquest.com.

Disclaimer

All the above information is provided by EnQuest PLC (for itself, and other EnQuest group companies);

- In good faith and without any liability
- Without warranty, implied or express to its accuracy or relevance of use to any other party
- That in any agreement or arrangement with EnQuest PLC its use shall be "Subject to Contract"
- EnQuest PLC reserves the right to update and change the data at any time

Updated

Last Updated January 2017