



# BERYL BRAVO TECHNICAL SPECIFICATIONS

## Typical Receiving Pressures

- Beryl Bravo - 10 barg minimum

## Typical Liquids Inlet Specifications

- TAN less than 0.5 mg KOH/g
- Wax 7.5 wt %
- Oil (Typical) 35°API - 40°API
- Cloud Point 20°C - 25°C max

## Typical Gas Inlet Specifications

- Up to saturated if import stream is part of a full well stream
- H<sub>2</sub>S normally less than 3 ppm mol (or up to NACE MR-01-75 limits if gas can be diluted by blending)

## Produced Water Inlet

- Compositional and quantity information of any produced water should be provided if they are part of the import stream.
- Generally produced water should not have emulsion forming tendencies nor have a composition that may cause incompatibility with existing streams.
- All chemicals, (batch or continuous) added to any import streams must be minimized and approved by the Beryl field operator prior to use.
- Beryl Bravo is not designed to handle H<sub>2</sub>S beyond NACE MR-01-75 thresholds.

## Typical Gas Export Specification

Gas entering the SAGE System shall be within the following:

- Water Content less than 63 ppm by volume (Notes 1 & 2)
- Carbon Dioxide less than 22.0 mol%
- Oxygen Content less than 7 ppm by volume
- Sulphur Content H<sub>2</sub>S - less than or equal to 500 ppm by volume
- SAGE pipeline MAOP 173.4 Bar abs
- Sediment/metals Mercaptans Negligible (Note 4)
- Mercury Negligible (Note 4)
- Duodecanes or heavier Negligible (Note 4)
- Temperature 50 degrees C max
- Contaminants: Free from radioactivity, odours (Note 3), other noxious contaminants such as corrosion/scale inhibitors, flow enhancers, alcohol/glycols, hydrate inhibitors, emulsion breaking or stabilising elements or other substances without prior approval from the SAGE Operator

Notes:

(1): Offshore high-water content alarm set at water content = 42 ppmv

(2): Offshore trip set at water content = 63 ppmv

(3): As determined by nationally recognised standards



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(4): For the purposes of this entry specification negligible is defined as less than a concentration of the relevant species that: would cause difficulties with transportation, processing, safety, facilities integrity, or meeting sales gas, NGL or other product specifications through the SAGE System; or would cause difficulties in facilities downstream from the SAGE System (e.g. National Grid gas distribution, NGL handling systems) with SAGE product transportation, processing, safety, facilities integrity or meeting derivative product specifications; or would impair the value or marketability of any ultimate products derived from feed gases entering the SAGE System.

All the above gas export conditions will be subject to the capability of the SAGE terminal at St Fergus to receive and process the gas.

### Typical Oil Export Specification

- Oil Export by tanker only (via Beryl Alpha storage cells)
- Oil TVP 14.5 psia maximum at 85° F
- Less than 2% BS&W
- Typically, 65°F bulk wax formation temperature maximum
- Typical TAN Number less than 0.5 mg KOH/g

### Beryl Bravo Infrastructure

The Beryl Bravo platform is a fixed steel jacket installation located in Block 9/13a in the UK sector of the North Sea 335km north-east of Aberdeen. It is located some 8 km north of the Beryl Alpha platform at a water depth of 119 metres.

The eight-legged platform is positioned over a drilling template on the seabed. The platform has 21 well slots and both jacket and template are secured to the seabed by piling. The Beryl Bravo platform commenced production in 1984.

Beryl Bravo has risers for flowlines serving subsea wells in addition to risers to export oil and gas production to the Beryl Alpha platform.

The equity ownership of the Beryl infrastructure is: • Apache Beryl I Limited (Operator) – 60.56% • Chrysaor – 39.44%