

# BRAE AREA BRAE BRAVO UPPER JACKET

Decommissioning Programme



April 2022 – Revision 02

9010-TAQ-99-PM-TB-00001-000



## DOCUMENT CONTROL

### Approvals

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### Distribution List

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North Sea Transition Authority

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## ABBREVIATIONS

Abbreviation	Explanation
BEIS	Department of Business, Energy, and Industrial Strategy
BTA	Buoyancy Tank Assembly
CNR	Canadian Natural Resources
EIA	Environmental Impact Assessment
ES	Environmental Statement
FPAL	First Point Assessment Limited
HLV	Heavy Lift Vessel
HSE	Health and Safety Executive
JNCC	Joint Nature Conservation Committee
JV	Joint Venture
LAT	Lowest Astronomical Tide
LLC	Limited Liability Corporation
MARPOL	International Convention for the Prevention of Pollution from Ships
NORM	Naturally Occurring Radioactive Material
NSTA	North Sea Transition Authority
OGA	Oil and Gas Authority
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSPAR	Oslo Paris Convention
PL	Pipeline (as in pipeline number)
SAGE	Scottish Area Gas Evacuation (Export pipeline)
SEPA	Scottish Environmental Protection Agency
SFF	Scottish Fishermen's Federation
SLV	Single Lift Vessel
UK	United Kingdom
UKCS	United Kingdom Continental Shelf

# 1 Executive Summary

## 1.1 Decommissioning Programme

As required by the Petroleum Act 1998, amended by the Energy Act 2008, this document contains a single decommissioning programme for the Brae Bravo main platform Upper Jacket. The Brae Bravo Footings will be covered in a separate decommissioning programme.

## 1.2 Requirement for Decommissioning Programmes

In accordance with the Petroleum Act 1998, as amended, TAQA Bratani Limited (TAQA), as operator of the Brae Bravo platform, and on behalf of Spirit Energy Resources Limited, Neo Energy Petroleum Limited, TAQA Bratani LNS Limited, BP Exploration Operating Company Limited, ENI UKCS Limited, GB Gas Holdings Limited, Neptune E&P UKCS Limited, Repsol Sinopec Resources UK Limited and Repsol Sinopec LNS Limited are applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for decommissioning the Brae Bravo platform Upper Jacket as detailed in Section 2.1 of this document. (See also Section 8 – Section 29 Notice Holders' Letters of Support).

## 1.3 Introduction

The Brae Bravo platform lies in UKCS Block 16/7a, approximately 269 km northeast of Aberdeen in a water depth of 99m. The platform sub-structure is an eight legged 109m tall, fabricated steel structure with a total weight of 22,000 tonnes. The Upper Jacket covered by this decommissioning programme weighs 11,600 tonnes.

Marathon Oil originally installed and operated the Brae Bravo platform. The operatorship subsequently transferred to RockRose Energy and then to the current operator, TAQA. These different entities have performed various activities associated with Brae Bravo Decommissioning. For clarity, the current document refers to the "The Brae Operator" for past activities performed by Marathon Oil or RockRose Energy. Going forward, TAQA will decommission the infrastructure as operator, and on behalf of other companies that have previously been involved in Brae Bravo operations and have decommissioning responsibilities under Section 29 of the Petroleum Act. Therefore, this decommissioning programme refers to "TAQA" in relation to future activities by the Brae Bravo Operator.

The Brae Bravo installation consisted of the main platform, comprising modular topsides supported by a steel sub-structure, and a flare sub-structure supporting a flare tower. The flare sub-structure and tower were connected to the main platform by a steel bridge. The main platform topsides, and flare sub-structure, tower and bridge were removed in 2021 under separate decommissioning programmes [1].

Brae Bravo started production in 1988. The Brae Bravo operator extended the life of the Brae Field beyond initial projections. There are no viable hydrocarbon opportunities that could potentially prolong the life of the installation further. Therefore, the Brae Bravo operator made a CoP (Cessation of Production) application for Brae Bravo to the OGA in 2015. This was approved in 2016. Brae Bravo ceased hydrocarbon production and processing in July 2018.

Following public, stakeholder and regulatory consultation, this decommissioning programme is submitted without derogation and in full compliance with OPRED guidelines. The decommissioning programme explains the principles of the removal activities in accordance with relevant guidance [2] and is supported by an environmental statement [3].

### 1.3.1 Scope of Decommissioning Programme

The scope of this Decommissioning Programme (DP) is the removal of the Brae Bravo Upper Jacket from the topsides removal cut height at approximately 10 m above Lowest Astronomical Tide (LAT) to circa 61 m below LAT. The Upper Jacket is coloured red in [Figure 1.1](#). The lower part of the sub-structure, which is coloured black in [Figure 1.1](#), is referred to as “Footings” throughout this document. This section of the sub-structure is outside the scope of this decommissioning programme and will be addressed in a separate decommissioning programme in due course.

The pipeline riser sections that are attached to the Upper Jacket will be removed with the Upper Jacket. Any remaining pipelines will be covered in wider Brae Area decommissioning programmes. The Brae Bravo Topsides, Flare Bridge, Flare Tower, and Flare Jacket were removed under a DP [1] that was approved on the 15<sup>th</sup> of August 2018.

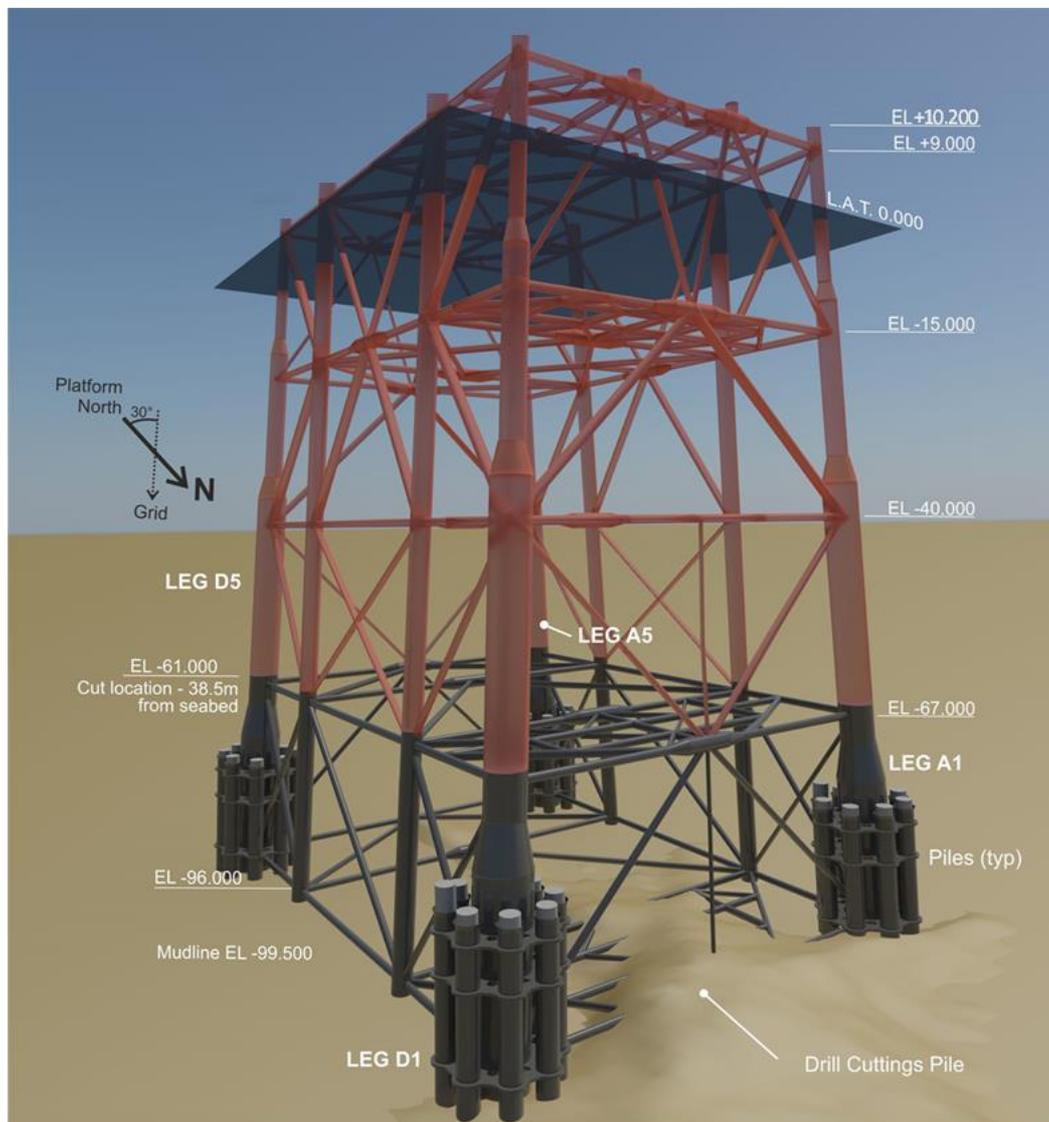


Figure 1.1: Facilities to be Decommissioned (Shown in Red)

## 1.4 Overview of Facilities Being Decommissioned

The Brae Bravo Upper Jacket covered by this Decommissioning Programme is shown as the structure coloured red in [Figure 1.1](#). The key Upper Jacket data are listed in [Table 1.1](#). The relevant Section 29 notice holders are listed in [Table 1.2](#).

Brae Bravo is one of the installations in the Brae Area. The other installations are Brae Alpha, East Brae, Central Brae, West Brae, and Sedgwick. These facilities and Brae Bravo are shown in [Figure 1.2](#) and [Figure 1.3](#).

### 1.4.1 Installations

**Table 1.1: Installations Being Decommissioned**

<b>Field(s)</b>	Brae Bravo (North Brae)	<b>Production Type (Oil/Gas/Condensate)</b>	Oil/Gas/Condensate
<b>Water Depth</b>	99 m	<b>UKCS Block</b>	16/7a
<b>Distance to Median</b>	4 km	<b>Distance from Nearest UK Coastline</b>	187km
<b>Surface Installations</b>			
<b>Number</b>	<b>Type</b>	<b>Topside Weight (tonnes)</b>	<b>Upper Jacket Weight<sup>1</sup> (tonnes)</b>
1	Steel Jacket	N/A	11,600

<sup>1</sup> Estimated Upper Jacket recoverable weight covered by this Decommissioning Programme.

**Table 1.2: Brae Bravo Section 29 Notice Holders**

<b>Company</b>	<b>Registration No.</b>	<b>Equity Interest</b>
TAQA Bratani Limited	5975475	69.5%
Spirit Energy Resources Limited	2855151	13.33%
Neo Energy Petroleum Limited	3288689	10.50%
TAQA Bratani LNS Limited	6230540	6.67%
BP Exploration Operating Company Limited	305943	0.0%
ENI UKCS Limited	1019748	0.0%
Fujairah Oil and Gas UK 12 Limited	981126	0.0%
Fujairah Oil and Gas UK LLC	FC009587	0.0%
GB Gas Holdings Limited	3186121	0.0%
Neptune E&P UKCS Limited	3386464	0.0%
Repsol Sinopec Resources UK Limited	825828	0.0%
Repsol Sinopec LNS Limited	2483161	0.0%

## 1.4.2 Pipeline Risers

The following pipeline riser sections will be removed as part of the Upper Jacket.

- PL360 Brae Alpha to Brae Bravo Gas Transfer
- PL361 Brae Bravo to Brae Alpha Condensate Export
- PL895 Brae Bravo to East Brae Gas Transfer
- PL1971 Miller Gas Transfer
- PL1488 Kingfisher Production
- PL1489 Kingfisher Production

The risers will be severed at the Upper Jacket cut depth approximately 61 m below LAT. The Pipeline Works Authorisations will be amended as necessary to reflect the pipelines' as left status.

The pipeline riser sections were isolated and flushed as part of the Brae Bravo topsides decommissioning scope.

Any remaining pipelines will be covered in wider Brae Area decommissioning programmes.

## 1.5 Summary of Proposed Decommissioning Programme

The selected decommissioning option for the Brae Bravo Upper Jacket is shown in [Table 1.3](#) below.

Table 1.3: Summary of Decommissioning Programme		
Selected Option	Reason for Selection	Proposed Decommissioning Solution
<b>Brae Bravo Upper Jacket</b>		
Remove the Brae Bravo platform Upper Jacket to a depth approximately 61 m below LAT.	Removal complies with OSPAR Decision 98/3 and Regulatory requirements.	The Brae Bravo Upper Jacket will be removed to a point around 61 m below lowest astronomical tide (approximately 38.5 m above seabed). Recovered material will be returned to shore for recycling or disposal.
<b>Pipeline Riser Sections</b>		
Remove the riser sections attached to the Upper Jacket to a point approximately 61 m below LAT.	Removal complies with OSPAR Decision 98/3 and Regulatory requirements.	The riser sections will be removed to a point around 61 m below lowest astronomical tide (approximately 38.5 m above seabed). Recovered material will be returned to shore for recycling or disposal.
<b>Interdependencies</b>		
The selected Upper Jacket decommissioning option of removal to a depth of 61 m does not prejudice decommissioning options for the Footings.		

## 1.6 Field Locations Including Field Layouts and Adjacent Facilities

The locations of the Brae Area fields within the UKCS are shown in Figure 1.2. More details of the Brae Area facilities layout are shown in Figure 1.3. The facilities adjacent to the Brae Bravo installation are shown in Figure 1.4 and listed in Table 1.4

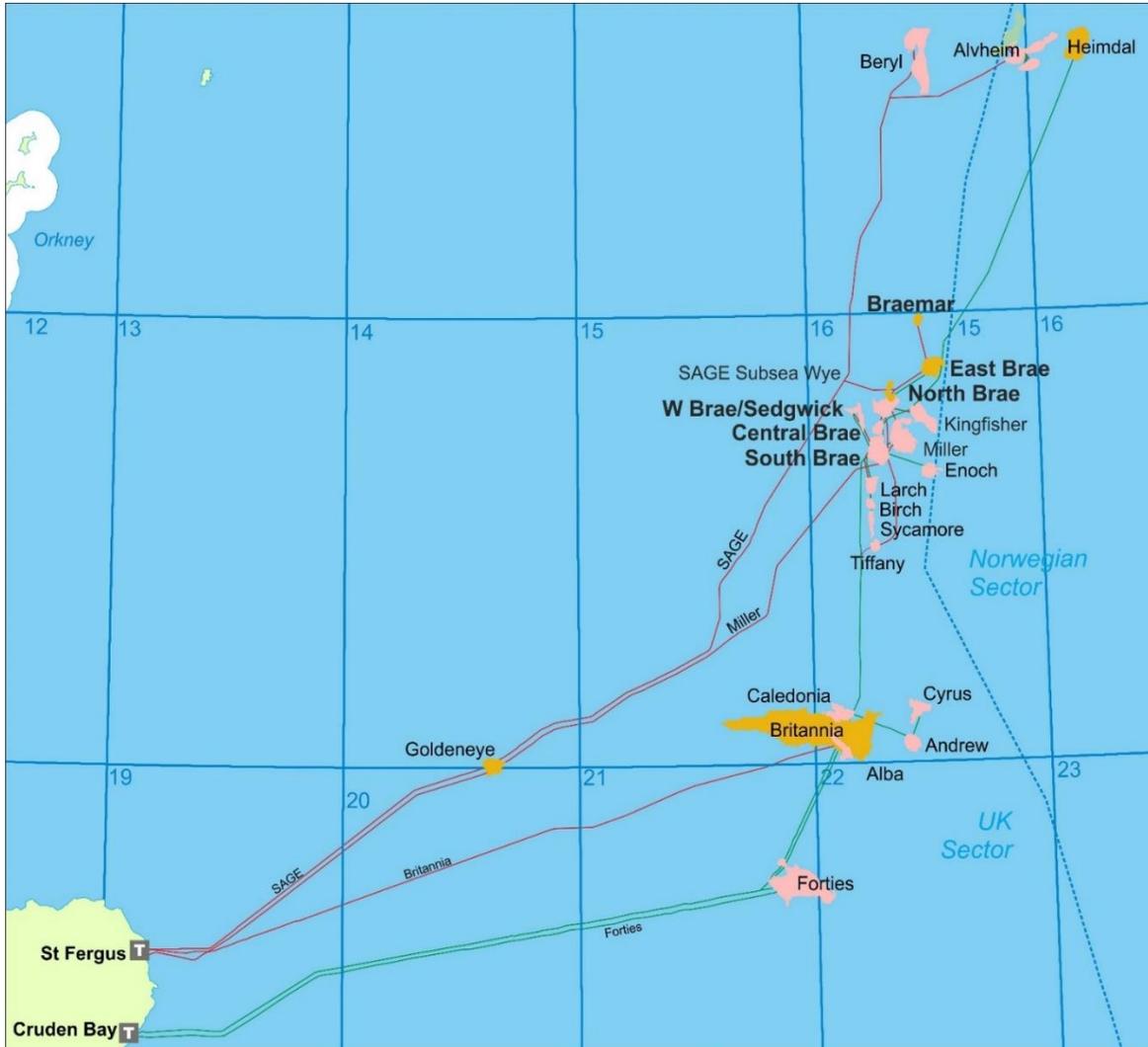


Figure 1.2: Brae Area Field Locations within UKCS

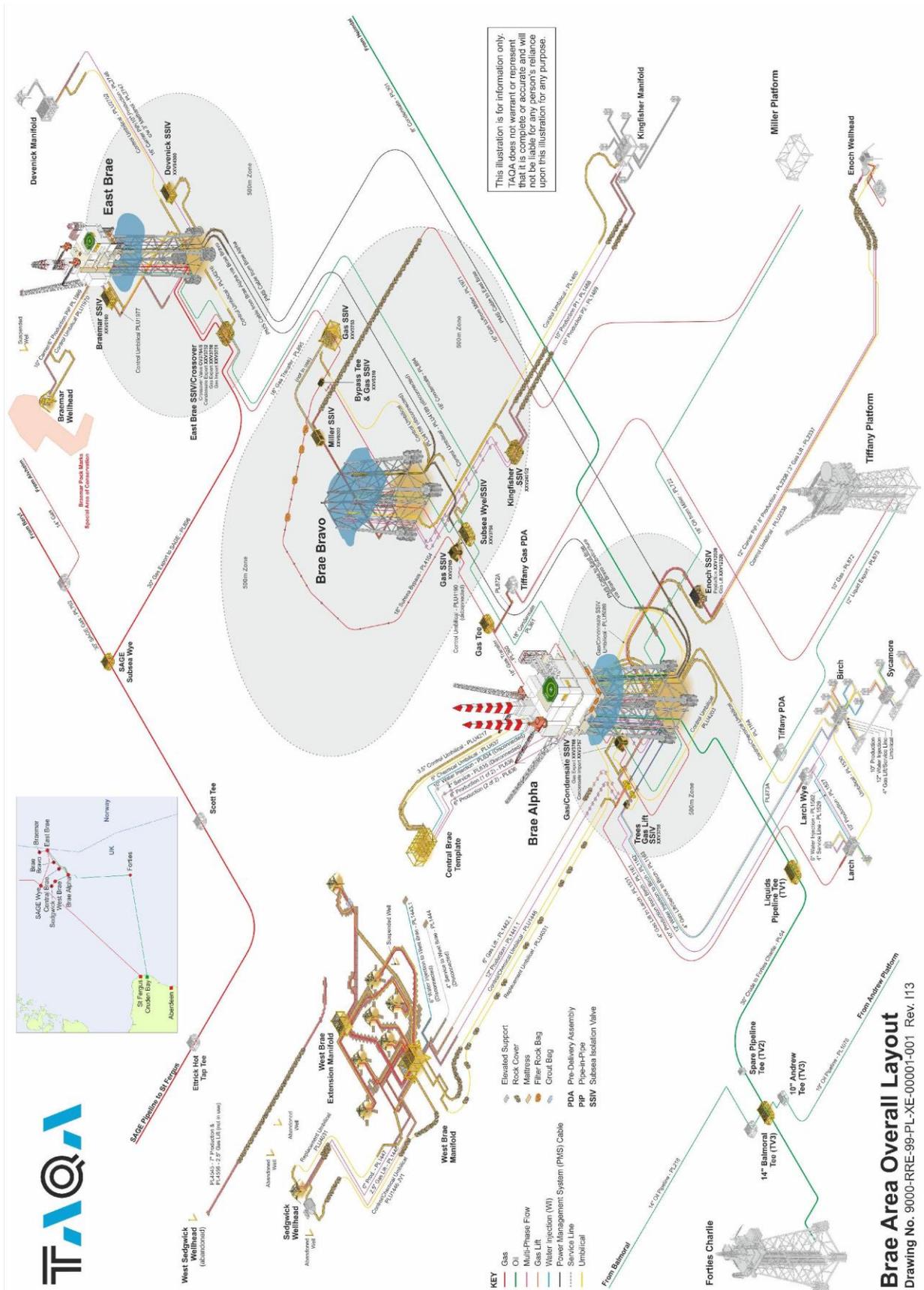


Figure 1.3: Brae Area Facilities Layout

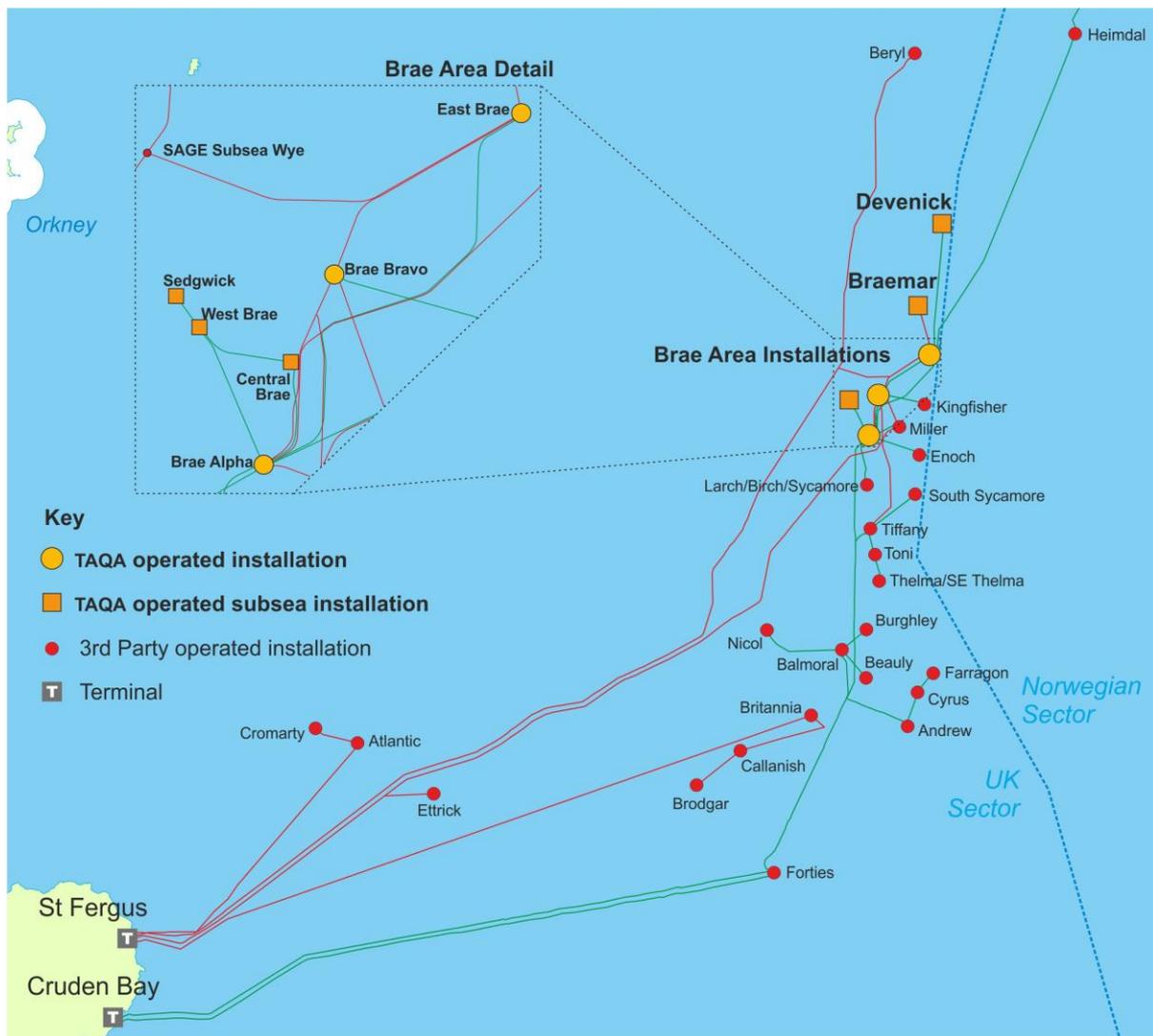


Figure 1.4: Brae Area Adjacent Facilities

**Table 1.4: Adjacent Facilities**

Owner	Name	Type	Distance / Direction from Brae Bravo	Information	Status
TAQA	Brae Alpha	Platform	12km South-south-west	Connected to Brae Bravo via power cable and pipelines	Operational
TAQA	East Brae	Platform	14km North-east	Connected to Brae Bravo via power cables and pipelines	Operational
TAQA	Devenick	Subsea template	44km North-north-east	Subsea Production Installation	Operational
TAQA	PL894	Pipeline	Within Brae Bravo 500m Zone	18" Condensate pipeline from East Brae to Brae Alpha	Operational
TAQA	PL895	Pipeline	Within Brae Bravo 500m Zone	18" Gas pipeline from East Brae to Brae Alpha	Operational
TAQA	PL896	Pipeline	14km North-east	30" Gas Pipeline from East Brae SSIV / Crossover Structure to SAGE Wye	Operational
TAQA	PL2746 Devenick production flowline	Pipeline	14km North-east	16"/10" PiP production pipeline.	Operational
TAQA	PL2747 Devenick Methanol line	Pipeline	14km North-east	3" Pipeline	Operational
TAQA	PLU2752 East Brae to Devenick umbilical	Control / chemical Umbilical	14km North-east	Devenick control / chemical umbilical	Operational
TAQA	PL4164	Pipeline	Within Brae Bravo 500m Zone	18" Gas pipeline from East Brae to Brae Alpha	Operational
TAQA	PL6120	Electric Power Cable	Within Brae Bravo 500m Zone	Power management system cable from Brae Alpha to East Brae	Operational

**Table 1.4: Adjacent Facilities**

Owner	Name	Type	Distance / Direction from Brae Bravo	Information	Status
BP Exploration (Alpha) Limited	Miller	Platform	8km South-east	Redundant production platform	Decommissioned
BP Exploration (Alpha) Limited	PL722 Miller to Brae Alpha	18" Oil Pipeline	8km South-east	Redundant pipeline	Suspended
BP Exploration Operating Company Limited	PL1971 Miller to Brae Bravo	Pipeline	Within Brae Bravo 500m Zone	16" Redundant gas pipeline	Suspended
Repsol Sinopec North Sea Limited	Enoch Wellhead	Subsea well	19km South-east	Subsea tie-back to Brae Alpha	Operational
Repsol Sinopec North Sea Limited	PL2336 Enoch to Brae Alpha Flowline	Pipeline	12km South-south-west	8" Flowline in 12" carrier pipe	Operational
Repsol Sinopec North Sea Limited	PL2337 Brae Alpha to Enoch Gas Lift Line	Pipeline	12km South-south-west	3" Flowline in 12" carrier pipe	Operational
Repsol Sinopec North Sea Limited	PLU2338 Brae Alpha to Enoch Control Umbilical	Umbilical	12km South-south-west	Electro/ Hydraulic Control Umbilical	Operational
CNR International (U.K.) Limited	Tiffany	Platform	35km South-south-west	Production Platform	Operational
CNR International (U.K.) Limited	PL872 Tiffany to PL360 Gas Export Line	Pipeline	2.5km South-south-west	10" Gas Pipeline	Operational
CNR International (U.K.) Limited	PL873 Tiffany to PL64 Oil Export Line	Pipeline	35km South-south-west	12" Oil Pipeline	Operational
Spirit Energy North Sea Oil Limited	Birch, Larch, Sycamore	Subsea Production Installation	20km South-south-west	Subsea manifolds and wellheads	Operational

**Table 1.4: Adjacent Facilities**

Owner	Name	Type	Distance / Direction from Brae Bravo	Information	Status
Spirit Energy North Sea Oil Limited	PL1161 Birch to Brae Alpha	Pipeline	12km South-south-west	10" Production Pipeline	Operational
Spirit Energy North Sea Oil Limited	PL1162 Brae Alpha to Birch	Pipeline	12km South-south-west	12" Water Injection Pipeline	Operational
Spirit Energy North Sea Oil Limited	PL1163 Brae Alpha to Birch	Pipeline	12km South-south-west	4" Gas Lift Pipeline	Operational
Spirit Energy North Sea Oil Limited	PL1528 Larch WYE to Larch	Pipeline	20km South-south-west	6" Water Injection Pipeline	Operational
Spirit Energy North Sea Oil Limited	PL1529 (Serving "Trees")	Pipeline	12km South-south-west	4" Service Pipeline	Operational
Spirit Energy North Sea Oil Limited	PL1531 Brae Alpha to Larch	Pipeline	12km South-south-west	4" Gas Lift Pipeline	Operational
SAGE North Sea Limited	PL762 SAGE	Pipeline	12km North-west	30" Gas Export Pipeline	Operational
Shell UK Limited	Kingfisher	Subsea Production Installation	8km East-south-east	Subsea manifold and wells	Decommissioned
Shell UK Limited	PL 1488 Kingfisher	Pipeline	Within Brae Bravo 500m Zone	10" Production Pipeline	Decommissioned
Shell UK Limited	PL 1489 Kingfisher	Pipeline	Within Brae Bravo 500m Zone	10" Production Pipeline	Decommissioned

**Impacts of Decommissioning Proposals**

TAQA has been, and will continue to be, in contact with operators and owners of adjacent facilities. The adjacent facilities have no known impacts on the Brae Bravo Upper Jacket decommissioning programme. Similarly, this decommissioning programme has no known impacts on the operation of adjacent facilities.

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## 1.7 Industrial Implications

TAQA developed the Brae Bravo Upper Jacket decommissioning contract and procurement strategy, on behalf of the Section 29 Notice Holders. TAQA has, and will continue to:

- Publish Brae Bravo Upper Jacket decommissioning project information, including the high level project schedule, on the TAQA decommissioning website:  
<https://eu.taqa.com/decommissioning-consultations-and-projects/>
- In the event of further contract awards for Brae Bravo Upper Jacket decommissioning, TAQA will publish project information and contact details on the NSTA (North Sea Transition Authority) Pathfinder website.
- Engage with the NSTA and the decommissioning supply chain on any future issues relating to the Brae Bravo Upper Jacket decommissioning programme and schedule.
- Use the FPAL database as the primary source for establishing tender lists for any future contracts and purchases with a value of £250,000 or more.

## 2 Description of Items to be Decommissioned

### 2.1 Installations: Surface Facilities – Upper Jacket

Key information regarding the Brae Bravo platform Upper Jacket is presented in [Table 2.1](#).

**Table 2.1: Surface Facilities Information**

Name	Type	Location		Upper Jacket			
				Weight (tonnes)	Number of Legs	Number of Piles	Weight of Piles (tonnes)
Brae Bravo Platform	Steel Jacket (Cut at 61 m below LAT, see <a href="#">Figure 1.1</a> )	WGS84 Decimal	58.792540°N 1.3470857°E	11,600 <sup>1</sup>	8	N/A	N/A
		WGS84 Decimal Minute	58° 47.552'N 1° 20.825'E				

<sup>1</sup> Recoverable Upper Jacket weight covered by this decommissioning programme, including weight of marine growth.

### 2.2 Pipeline Risers

There are no pipelines in the scope of this Decommissioning Programme. See [Section 1.4.2](#) regarding pipeline risers, which are considered part of the installation and will be removed with the Upper Jacket.

### 2.3 Wells

There are no wells in the scope of this Decommissioning Programme. The Brae Bravo wells are described in the Brae Bravo Topsides, etc. Decommissioning Programmes [\[1\]](#).

### 2.4 Drill Cuttings

There are no drill cuttings in the scope of this Decommissioning Programme. The Brae Bravo drill cuttings are described in the Brae Alpha, Brae Bravo, etc. Decommissioning Programmes [\[4\]](#), the drill cuttings will be included in the scope of the Footings Decommissioning Programme.

## 2.5 Inventory Estimates

The approximate amounts of materials that make-up the Brae Bravo Upper Jacket have been evaluated. The quantities of waste materials will be tracked through the dismantling, reuse, recycling, and disposal phases of the project.

A summary of the material inventories for Brae Bravo Upper Jacket is presented in [Table 2.2](#) and in [Figure 2.1](#).

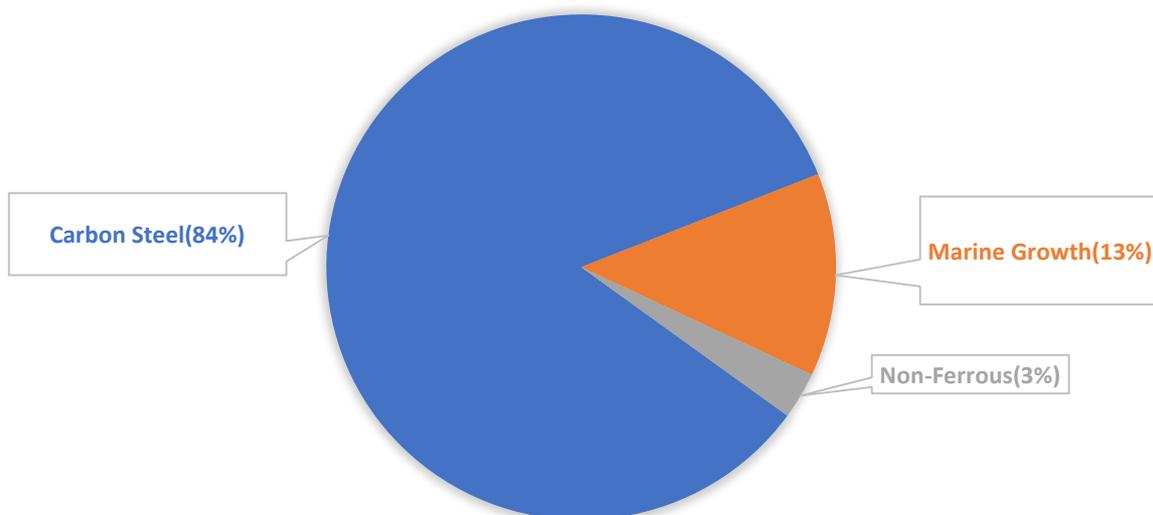
**Table 2.2: Brae Bravo Upper Jacket Material Inventory**

Material	Weight (tonnes)	% Of Total
Carbon Steel	9,710	≈ 84%
Marine Growth	1,547	≈ 13%
Non-Ferrous	324	≈ 3%
Other	8	≈ 0%
Stainless Steel	7	≈ 0%
Total	≈ 11,600	100%

Table 2.2 Notes:

- 1 The sacrificial anodes on the Upper Jacket make up the Non-Ferrous inventory.
- 2 The other material associated with the Upper Jacket mainly consists of paint in the splash zone.
- 3 There may be some stainless steel fastenings on the Upper Jacket.
- 4 Carbon Steel weight includes the weight of the riser sections attached to the Upper Jacket.

**Total Weight ≈ 11,600 Tonne**



**Figure 2.1: Material Inventory**

### 3 Removal and Disposal Methods

The reuse of an installation or its constituent parts is the preferred decommissioning option. The Brae Operator carried out a qualitative internal review of options for reusing the Brae Area platforms and jackets and concluded there are no technically viable reuse options.

The majority of the Brae Bravo Upper Jacket is steel, which will be recovered and recycled. The small proportion of materials remaining after recycling will be disposed of appropriately in accordance with TAQA policies and the relevant regulatory requirements.

#### 3.1 Upper Jacket Decommissioning Overview

The Brae Bravo Upper Jacket will be removed to a depth of approximately 61 m below LAT which is 38.5 m above the seabed. The portion of the structure shaded red in [Figure 1.1](#) constitutes the Upper Jacket.

This cut of 61 m below LAT was determined following detailed engineering considering technical constraints including structural design, cross bracing configuration and cutting technology. The configuration of the cross bracings and the access requirements for cuttings tools were the main drivers for the selected cut depth. The selection also considered safety and environmental constraints.

The Brae Operator conducted various studies on removal techniques for the Brae Bravo Upper Jacket and Footings in accordance with OSPAR 98/3. These are captured in the removal assessments completed for the Brae Bravo sub-structure, and in further detailed technical studies. These technical studies considered various options for removal of the Upper Jacket and Footings. These options included removing the Upper Jacket and Footings as a single structure, and removing the Upper Jacket and Footings separately. Removing the Upper Jacket and Footings as a single structure presents a number of technical constraints and challenges;

1. The Upper Jacket and Footings are so tall that if they were lifted as one piece it would not be possible to lift them clear of the water and onto a barge in an upright orientation.
2. Transporting the Upper Jacket and Footings in one piece on its side on a barge or other vessel is not possible as the structure cannot support its self-weight in this orientation and there is a risk of the structure collapsing during transportation or unloading.
3. Transporting the Upper Jacket and Footings in one piece hanging on a crane vessel's hooks is not practicable as the weight of the Brae Bravo Upper Jacket and Footings exceeds the crane capacity.

Therefore, the Brae Operator concluded that in all conceptual scenarios for removal of the Upper Jacket and Footings, the separation of the Upper Jacket from the Footings would be a pre-requisite for any Footings removal methodology.

The Footings that remain following Upper Jacket removal (shaded black in [Figure 1.1](#)) will be the subject of a separate decommissioning programme.

The removal of the Upper Jacket will be carried out such that it does not preclude the full removal of the Footings, since, following removal of the Upper Jacket the Footings have sufficient inherent

structural integrity to allow a variety of removal options utilising a range of decommissioning vessels and methodologies to be considered.

### 3.2 Upper Jacket Removal Methods

The removal methods considered by the Brae Operator for the Brae Bravo Upper Jacket are listed in [Table 3.1](#). The removal method selection considered semi-sub type lift vessels, as these offer greater capacity and flexibility than conventional monohull “ship shaped” crane vessels. The Upper Jacket will be removed by HLV in one piece.

**Table 3.1: Brae Bravo Upper Jacket (Large Steel Jacket) Decommissioning Methods**

1) HLV (Semi-submersible Heavy Lift Vessel) Cut and Lift	✓
2) Monohull crane vessel	
3) SLV (Single Lift Vessel)	✓
4) Piece Small – included as part of HLV Cut and Lift assessment	
5) Other; BTA (Buoyancy Tank Assembly)	✓

Scope	Method	Description
Remove Upper Jacket	SLV or HLV	Removal of the Brae Bravo Upper Jacket can be achieved by cutting the Upper Jacket at the - 61m level and retrieving the Upper Jacket as a single component by an HLV.
Remove Upper Jacket	BTA	The use of BTAs is impracticable, as significant additional work is required to fabricate and install the BTAs, with very little benefit.
Proposed removal method and disposal route		<p>The final decision on removal method was made following a commercial tendering process. The tender evaluation considered safety, environmental, socio-economic, and technical metrics as well as cost.</p> <p>The Upper Jacket will be removed in one piece by HLV.</p> <p>The Upper Jacket will be taken ashore and dismantled at a dedicated facility in Vats, Norway. The majority of the material recovered will be recycled.</p> <p>TAQA and the selected decommissioning contractor(s) will address trans-frontier waste shipments to ensure that the associated issues are appropriately managed.</p>

### 3.3 Waste Streams

The Upper Jacket will be dismantled at the AFOD (AF Offshore Decommissioning) facility in Vats Norway. The methods for managing the waste streams from the Brae Bravo Upper Jacket are listed in [Table 3.2](#). The ultimate disposition of the waste materials is described in [Table 3.3](#), and the proportions of materials that TAQA envisages reusing, recycling, and discarding are given in [Table 3.4](#).

Onshore cleaning and disposal will be carried out at appropriately licensed sites, in accordance with relevant legislation, including pertinent transboundary shipment controls. The potential discharges from the decommissioning process are discussed in Technical Appendix 4.1 of the Environmental Statement [3].

**Table 3.2: Brae Bravo Upper Jacket Waste Stream Management Methods**

Waste Stream	Removal and Disposal Method
Carbon Steel	Carbon steel will be recycled.
Non-Ferrous Metals	Non-ferrous metals, principally material from sacrificial anodes will be recycled.
Other Material	Other material, principally paint, will be removed and disposed of in accordance with relevant regulations and guidelines.
Marine Growth	Marine growth will be disposed of either offshore under marine licence, or onshore. Notwithstanding, marine growth will be disposed of in accordance with relevant regulations and guidelines.
Onshore Dismantling Sites	The removal contractor will use appropriately licenced dismantling and disposal sites. TAQA will ensure that the removal contractor and any selected sites have proven ability to manage waste streams throughout the deconstruction process. The process will follow the “reduce, reuse, recycle” paradigm. TAQA conducts assurance activities of the dismantling yard(s) and disposal site(s) to confirm compliance with applicable legislation.

**Table 3.3: Ultimate Waste Inventory Disposition**

	Total Inventory (tonnes)	Planned Material to Shore (tonnes)	Planned Material Left in Situ (tonnes)
<b>Brae Bravo Upper Jacket</b>	11,600 <sup>1</sup>	11,600 <sup>1</sup>	0

<sup>1</sup>Includes 1547 tonne of marine growth

**Table 3.4: Reuse, Recycling, and Disposal of Waste Material Returned to Shore (by Weight)**

	Reuse	Recycle	Disposal
<b>Brae Bravo Upper Jacket</b>	0	87 %	13 % <sup>1</sup>

<sup>1</sup> The bulk of the material that will be disposed of is marine growth. This may be removed and disposed of at sea or sent for composting or landfill onshore.

TAQA’s intent is to maximise the reuse and recycling of materials that are returned to shore, and thereby minimise the disposal of material in landfill. The material returned to shore will predominantly be structural steel, which is eminently recyclable and the proportion of the returned material that will be disposed of, rather than recycled, is low.

TAQA recognises that there will be large quantities of material returned to shore for recycling, and disposal. Regardless of ultimate destination, there will be sufficient notice provided to ensure that there is suitable capacity for processing landed material (taking cognisance of destination handling capacity and availability) and to allow all applicable regulatory bodies, stakeholders, and contractors to be engaged appropriately.

## 4 Environmental Impact Assessment

The Environmental Impact Assessment (EIA) process has considered the potential for significant environmental effects as a result of interactions between the proposed decommissioning activities and sensitive environmental receptors. The EIA has been developed by means of a multistage scoping process with the aim of delivering a focused and proportionate EIA and Environmental Statement (ES) [3]. The process was developed in consultation with key stakeholders including, BEIS (OPRED), JNCC, Marine Scotland and SEPA.

Following the scoping stage, the key issues identified for further detailed assessment were:

- Seabed disturbance effects
- Underwater noise effects
- Cumulative and transboundary effects

The environmental sensitivities in the Brae Area are summarised in [Table 4.1](#). The environmental assessment has not identified any significant residual environmental effects as a result of activities described within this Decommissioning Programme. However, TAQA is committed to the schedule of environmental management measures set out in the ES to further reduce the potential for environmental effects. These management measures are summarised in [Table 4.2](#).

### 4.1 Environmental Sensitivities Summary

**Table 4.1: Environmental Sensitivities Summary**

Environmental Receptor	Main Features
<b>Conservation Interests</b>	The Braemar Pockmarks Special Area of Conservation (SAC) is approximately 23 km north-north-east of Brae Bravo. A Marine Life Study of the Brae Area infrastructure has not identified the presence of the cold water coral ( <i>Lophelia</i> spp).
<b>Seabed</b>	The seabed community in the Brae Area is classed as representative of the Central North Sea and is dominated by the bristle worm ( <i>Paramphinone jeffreysii</i> ), with other species such as <i>Spiophanes bombyx</i> , <i>Galthowenia oculata</i> , <i>Tharyx killariensis</i> and <i>Pholoe assimilies</i> also present.
<b>Fish</b>	Several fish species are present in the Brae Area and use it for spawning and/or nursery grounds. These species include Norway pout, Nephrops, mackerel, haddock, and blue whiting. The basking shark, tope, porbeagle, common skate and angel shark may also be present in low numbers.
<b>Fisheries</b>	Commercial fishing in the Brae Area is dominated by demersal and shellfish fisheries, with fishing effort peaking during spring and autumn. Gear types used are trawls and seine nets. Peterhead is the main landing port for the area.
<b>Marine Mammals</b>	The seven most commonly sighted species of cetacean in the Brae Area are the harbour porpoise, Atlantic white-sided dolphin, white-beaked dolphin, Risso's dolphin, killer whale, minke whale and long-finned pilot whale. Grey and harbour seals have also been recorded.

**Table 4.1: Environmental Sensitivities Summary**

<b>Environmental Receptor</b>	<b>Main Features</b>
<b>Birds</b>	Seabirds are present in the central North Sea throughout the year, though densities in the Brae Area tend to be lower due to the distance from coastal colonies. Seabird densities in the Brae Area are at their lowest in late spring/early summer during the breeding season. After this, diversity, and density of seabirds offshore increases. Seabirds are particularly vulnerable to surface pollutants during moulting (July) when the birds are flightless.
<b>Onshore Communities</b>	Onshore communities are potentially sensitive to disturbance from cleaning, dismantling and disposal activities. TAQA will select onshore decommissioning facilities that comply with all regulatory requirements to ensure that potential impacts are appropriately controlled.
<b>Other Users of the Sea</b>	There are no ferry routes and no known military users in the vicinity of the Brae Area. Recreation activity in the offshore North Sea is limited to occasional yachts in passage. Telecommunications cables are charted to the north of the Brae platforms. No designated wreck sites or marine archaeological features are located within the area.
<b>Atmosphere</b>	The primary source of atmospheric emissions will be from vessel activity during decommissioning activities.

## 4.2 Potential Environmental Impacts and their Management

The environmental assessment has not identified any significant residual environmental effects as a result of activities described within this Decommissioning Programme. However, TAQA is committed to the schedule of environmental management measures set out in the ES [3] to further reduce the potential for environmental effects. These management measures are summarised in Table 4.2.

**Table 4.2: Environmental Impacts and Management**

Activity	Main Impacts	Management
<b>Upper Jacket Removal</b>	Energy and Emissions	All vessels will comply with MARPOL 73/78 Annex VI on air pollution and machinery will be maintained in an efficient state.
	Underwater Noise	Noise modelling has been conducted to identify the impacts of noise on marine mammals and potential mitigation measures. The results are documented within the ES [3]. Procedures for vessel operations and underwater cutting will incorporate mitigation measures identified by the noise study.  Currently, there are no plans to use explosives. However, should the use of explosives be necessary TAQA will complete appropriate evaluations and consultations prior to their use.
	Wild Birds	Management of wild birds in the vicinity of the Upper Jacket is achieved through the TAQA wild birds' management strategy.
	Seabed Disturbance	No seabed disturbance is anticipated during the removal of the Brae Bravo Upper Jacket.
<b>Upper Jacket Removal</b>	Accidental Events	The potential for spills, dropped objects or other contaminants to impact the ecosystem has been assessed. This assessment is documented in the Environmental Statement [3].

## 5 Interested Party Consultations

The Brae Operator consulted a wide range of interested parties during the decommissioning planning stages, preparation of the environmental statements, and compilation of the Decommissioning Programme for Brae Alpha, Brae Bravo, etc. [4]. These included:

- BEIS Environmental Management Team
- BEIS Offshore Decommissioning Unit
- Greenpeace
- HSE
- Joint Nature Conservation Committee
- Marine Conservation Society
- Marine Scotland
- National Federation of Fishermen's Organisations
- Oil and Gas Authority
- Scottish Environment Protection Authority
- Scottish Fishermen's Federation
- WWF

The Brae Operator also made information regarding decommissioning of the Brae Area available to other interested parties and the general public. This information is published via the TAQA Brae Decommissioning website, <https://eu.taqa.com/decommissioning-consultations-and-projects/>.

TAQA does not propose to undertake any additional consultation in respect of decommissioning the Brae Bravo Upper Jacket described in this Decommissioning Programme. However, TAQA has informed the statutory consultees of the publication of this dedicated Upper Jacket Decommissioning Programme.

**Table 5.1** summarises comments received from stakeholders following notification that this document is a standalone decommissioning programme for the upper jacket section of the Brae Bravo sub-structure.

**Table 5.1: Summary of Statutory Stakeholder Comments**

**UK**

<b>Stakeholder</b>	<b>Comment</b>	<b>Response</b>
The National Federation of Fishermen's Organisations	No comments received	
Scottish Fishermen's Federation	No comments received. Acknowledged understanding of scope of DP	
Northern Irish Fish Producers' Organisation	No comments received	
Global Marine Systems Limited	No comments received	
Public	No comments received	

## 6 Programme Management

### 6.1 Project Management and Verification

TAQA, on behalf of the Section 29 Notice Holders, has appointed a project management team to manage the planning and execution of this decommissioning programme. TAQA health, environmental and safety management principles will govern hazard identification, risk management and operational controls. The work will be coordinated with due regard to interfaces with other operators' oil and gas assets and with other sea users. TAQA will control and manage the progress of all permits, licences, authorisations, notices, consents, and consultations required. Any significant changes to this decommissioning programme will be discussed and agreed with OPRED.

### 6.2 Post-decommissioning Debris Clearance and Verification

A survey will be conducted following removal of the Brae Bravo Upper Jacket to confirm the status of the remaining Footings and to confirm the Upper Jacket cut level is in line with the approved decommissioning programme.

The post-decommissioning survey results will be notified to the UK Fisheries Offshore Oil and Gas Legacy Trust Fund Ltd for inclusion in their FishSAFE system, and to the United Kingdom Hydrographic Office for notification and marking on Admiralty charts and notices to mariners.

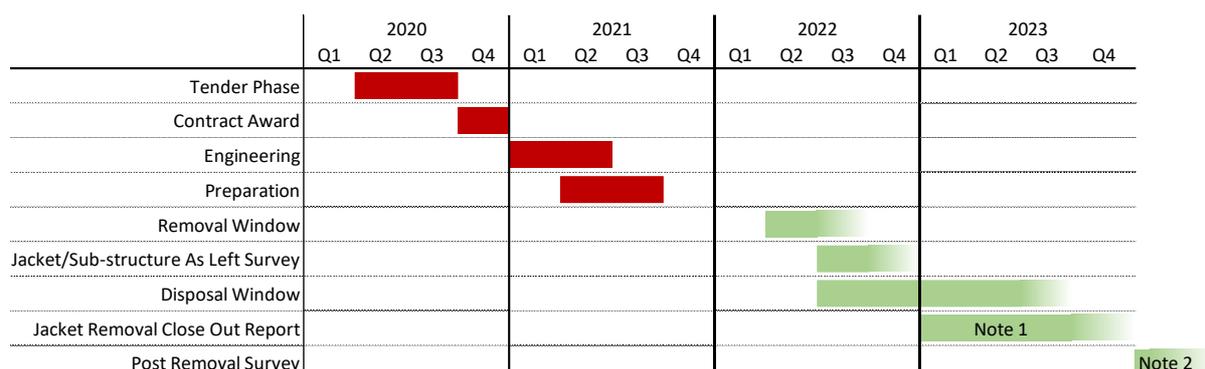
A further post-decommissioning site survey will be carried out within a 500m radius of the Brae Bravo installation site at the conclusion of the overall Brae Area decommissioning activities.

### 6.3 Schedule

The main milestones in the Brae Bravo Upper Jacket decommissioning process were, or are anticipated to be:

- Brae Bravo cessation of production: 2018
- Brae Bravo platform topsides removal: 2021
- Brae Bravo Upper Jacket removal: 2022
- Brae Bravo Upper Jacket removal as left survey: 2022
- Post removal survey: Post 2023  
(Subject to overall Brae Area decommissioning completion)

This schedule may change to maximise economic recovery, or to exploit opportunities to minimise decommissioning impacts by combining Brae Area decommissioning activities into campaigns, or by combining Brae Area decommissioning operations with third-party decommissioning. The Brae Bravo Upper Jacket decommissioning schedule is shown in [Figure 6.1](#).



Notes:

- 1 The Jacket Removal Close Out Report will be submitted within 12 months of the removal of the jacket.
- 2 The Brae Area Post Removal Survey will be conducted in accordance with the overall Brae Area decommissioning schedule.

**Figure 6.1: Brae Bravo Upper Jacket Decommissioning Schedule**

## 6.4 Long Term Facilities Management

The planned decommissioning of the Brae Area will take place over an extended period. Throughout this period, the assets and seabed will be in various stages of decommissioning and remediation. At all times, the facilities will be maintained to a standard that enables completion of the programmes safely and in compliance with regulations and TAQA's corporate standards.

## 6.5 Costs

TAQA has used the Oil and Gas UK work breakdown structure presented in [Table 6.1](#) to develop cost estimates for the Brae Bravo Upper Jacket decommissioning programme. The provisional estimated costs have been provided to OPRED in confidence.

**Table 6.1: Provisional Decommissioning Costs**

Item	Estimated Cost (£Million)
Operator Project Management	
Facility Running/Owner Costs	
Upper Jacket Removal	
Upper Jacket Onshore Recycling	
Site Remediation	
Monitoring	

## 6.6 Close Out

A close out report will be submitted to OPRED within twelve months of the completion of the Brae Bravo Upper Jacket offshore decommissioning scopes and disposal. Any variances from the approved decommissioning programme will be described and explained in the close out report.

## 6.7 Post-Decommissioning Monitoring and Evaluations

Following completion of the Brae Bravo Upper Jacket decommissioning activities detailed in this document and the wider Brae Area activities described in the associated decommissioning programmes [4], TAQA will carry out a post decommissioning environmental seabed survey. The survey will focus on chemical and physical disturbances of the decommissioning and be compared with the pre decommissioning survey. A copy of the survey results will be forwarded to OPRED. After the survey results have been sent to OPRED and reviewed, a post monitoring survey schedule will be agreed by both parties taking account of ongoing liability, and the status and findings of previous surveys. The schedule will apply a risk-based approach to the frequency and scope of further surveys. At least two post decommissioning environmental surveys are expected.

## 6.8 Management of Residual Liability

The Footings that are left in place following the completion of the Upper Jacket Decommissioning Programme will remain the property and responsibility of the Brae Bravo owners and will be subject to a separate decommissioning programme.

The Brae Bravo Operator recognises that the parties to the Decommissioning Programme will continue, post completion of the programme, to retain ownership of, and residual liability for any infrastructure left in place.

The presence of the Brae Bravo sub-structure Footings will be communicated and published through bulletins and the FishSAFE electronic hazard charting system and by marking the structures on Admiralty charts as appropriate.

TAQA will engage with OPRED on all future legacy and liability matters and relating to the Brae Area facilities.

---

## 7 Supporting Documents

- [1] 9010-MIP-99-PM-RP-00008-000, Brae Bravo Topsides, Flare Bridge, Flare Tower, and Flare Jacket/Sub-structure Decommissioning Programmes, Marathon Oil, July 2018
- [2] Guidance Notes Decommissioning of Offshore Oil and Gas Installations and Pipelines, BEIS, November 2018
- [3] 9000-MIP-99-EV-RT-00001-000, Brae Alpha, Brae Bravo, Central Brae, West Brae, and Sedgwick Combined Decommissioning Programmes, Environmental Statement: Main Report, Marathon Oil Decommissioning Services, June 2017
- [4] 9000-MIP-99-PM-RP-00003-000, I02, Brae Alpha, Brae Bravo, Central Brae, West Brae, and Sedgwick Combined Decommissioning Programmes, June 2017

## 8 Section 29 Holders' Letters of Support

**From:** Sandy Hutchison [REDACTED]

**Sent:** 04 May 2022 08:19

**To:** [REDACTED]

**Cc:** Gemma Sinclair [REDACTED]; Chris Wicks [REDACTED]

**Subject:** Brae Bravo Decomm Programme

Dear Stewart:

### **BRAE BRAVO UPPER JACKET DECOMMISSIONING PROGRAMME**

We, TAQA Bratani Limited confirm that we authorise TAQA BRATANI LIMITED to submit on our behalf the Brae Bravo Upper Jacket Decommissioning Programme.

We confirm that we support the proposals detailed in the Brae Bravo Upper Jacket Decommissioning Programme, which are to be submitted by TAQA BRATANI LIMITED in so far as they relate to those facilities in respect of which we are required to submit abandonment programmes under Section 29 of the Petroleum Act 1998.

Kind regards

Sandy Hutchison  
Legal, Commercial and Business Services Director  
For and on behalf of TAQA Bratani Limited



**POWERING  
A THRIVING  
FUTURE**

**Sandy Hutchison**  
Legal, Commercial and Business Services Director



TAQA House, Prime Four Business Park, Kingswells,  
Aberdeen, AB15 8PU  
United Kingdom

[taqa.com](http://taqa.com)

TAQA is the brand name of Abu Dhabi National Energy Company PJSC  
TAQA Bratani Limited, registered in England and Wales with registration number 05975475 and having its registered office at Cannon Place, 78 Cannon Street, London EC4N 6AF



**Spirit Energy Resources Limited**

5<sup>th</sup> Floor  
IQ Building  
15 Justice Mill Lane  
Aberdeen  
AB11 6EQ

Telephone: 01224 415000  
[www.spirit-energy.com](http://www.spirit-energy.com)

Department for Business, Energy and Industrial Strategy (BEIS)  
Offshore Petroleum Regulator for Environment &  
Decommissioning  
AB1 Building  
Crimon Place  
Aberdeen  
AB10 1BJ

27<sup>th</sup> April 2022

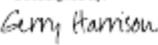
Dear Sir or Madam,

**BRAE BRAVO UPPER JACKET DECOMMISSIONING PROGRAMME**

We, Spirit Energy Resources Limited, confirm that we hereby authorise TAQA Bratani Limited to submit on our behalf the Brae Bravo Upper Jacket Decommissioning Programme.

We confirm that we support the proposals detailed in the Brae Bravo Upper Jacket Decommissioning Programme, which are to be submitted by TAQA Bratani Limited in so far as they relate to those facilities in respect of which we are required to submit an abandonment programme under section 29 of the Petroleum Act 1998.

Yours faithfully,

DocuSigned by:  
  
EAB7574BD0C0A8E7

**Gerry Harrison**

**Director**

For and on behalf of Spirit Energy Resources Limited

Spirit Energy Resources Limited  
Registered in England and Wales No.02855151  
Trading Address: 5th Floor, IQ Building, 15 Justice Mill Lane, Aberdeen AB11 6EQ  
Registered Office: 1st Floor, 20 Kingston Road, Staines-upon-Thames, TW18 4LG



Offshore Petroleum Regulator for Environment and Decommissioning  
 Department for Business, Energy & Industrial Strategy  
 3rd Floor, Wing C  
 AB1 Building  
 Crimon Place  
 Aberdeen  
 AB10 1BJ

28<sup>th</sup> April 2022

Dear Sir or Madam

**BRAE BRAVO UPPER JACKET DECOMMISSIONING PROGRAMME PETROLEUM ACT 1998**

We, NEO Energy Petroleum Limited (company number 03288689) confirm that we authorise TAQA BRATANI LIMITED to submit on our behalf the Brae Bravo Upper Jacket Decommissioning Programme.

We confirm that we support the proposals detailed in the Brae Bravo Upper Jacket Decommissioning Programme, which are to be submitted by TAQA BRATANI LIMITED in so far as they relate to those facilities in respect of which we are required to submit abandonment programmes under Section 29 of the Petroleum Act 1998

Yours faithfully  
 For and on behalf of NEO Energy Petroleum Limited



Andrew Barker  
 Development Manger and Technical Services Manager

The Gherkin  
 30 St Mary Axe  
 London EC3A 8BF

9th Floor, The Silver Fin Building  
 455 Union Street  
 Aberdeen AB11 6DB

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NEO Energy (ONS) Limited is a company registered in Scotland under company number SC309081  
 Registered Office: The Silver Fin Building (9th Floor), 455 Union Street, Aberdeen, United Kingdom, AB11 6DB

**From:** Sandy Hutchison [REDACTED]

**Sent:** 04 May 2022 08:20

**To:** [REDACTED]

**Cc:** Gemma Sinclair [REDACTED]; Chris Wicks [REDACTED]

**Subject:** Brae Bravo Decomm Programme

Dear Stewart:

**BRAE BRAVO UPPER JACKET DECOMMISSIONING PROGRAMME**

We, TAQA Bratani LNS Limited confirm that we authorise TAQA BRATANI LIMITED to submit on our behalf the Brae Bravo Upper Jacket Decommissioning Programme.

We confirm that we support the proposals detailed in the Brae Bravo Upper Jacket Decommissioning Programme, which are to be submitted by TAQA BRATANI LIMITED in so far as they relate to those facilities in respect of which we are required to submit abandonment programmes under Section 29 of the Petroleum Act 1998.

Sandy Hutchison  
Legal, Commercial and Business Services Director  
For and on behalf of TAQA Bratani LNS Limited



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FUTURE**

**Sandy Hutchison**  
Legal, Commercial and Business Services Director



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Aberdeen, AB15 8PU  
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[taqa.com](http://taqa.com)

TAQA is the brand name of Abu Dhabi National Energy Company PJSC  
TAQA Bratani Limited, registered in England and Wales with registration number 05975475 and having its registered office at Cannon Place, 78 Cannon Street, London EC4N 6AF



BP Exploration Operating Company Limited  
1 Wellheads Avenue  
Dyce  
Aberdeen  
AB21 7PB

Offshore Petroleum Regulator for Environment and Decommissioning  
Department for Business, Energy & Industrial Strategy  
3rd Floor, Wing C  
AB1 Building  
Crimon Place  
Aberdeen  
AB10 1BJ

Date: 11<sup>th</sup> May 2022

Dear Sir or Madam,

**BRAE BRAVO UPPER JACKET DECOMMISSIONING PROGRAMME**

We, BP Exploration Operating Company Limited, have no current ownership or equity interest in Brae Bravo Field but acknowledge that we remain in receipt of a notice under section 29 of the Petroleum Act 1998 ("Section 29 Notice") which may be relevant to certain facilities located at the Brae Bravo Field.

In such capacity and in so far as relevant to such facilities, we confirm that we have no objection to TAQA BRATANI LIMITED submitting abandonment programmes relating to the Brae Bravo Upper Jacket.

Yours faithfully,

*Allen Deans*

Allen Deans  
Commercial Advisor



eni uk

Registered Office  
Eni UK Limited  
Eni House, 10 Ebury Bridge Road  
London SW1W 8PZ  
United Kingdom  
Registered in England & Wales  
(Company number 862823)  
Tel: +44 (0) 20 7344 6000  
Fax: +44 (0) 20 7344 6044

Stewart Welsh  
Department for Business, Energy and Industrial Strategy  
1 Victoria Street  
London  
SW1H 0ET

May 9, 2022

Dear Stewart

**BRAE BRAVO UPPER JACKET DECOMMISSIONING PROGRAMME**

We, Eni UK Limited, confirm that we authorise TAQA BRATANI LIMITED to submit on our behalf the Brae Bravo Upper Jacket Decommissioning Programme.

We confirm that we support the proposals detailed in the Brae Bravo Upper Jacket Decommissioning Programme, which are to be submitted by TAQA BRATANI LIMITED in so far as they relate to those facilities in respect of which we are required to submit abandonment programmes under Section 29 of the Petroleum Act 1998.



**Nicolo' Aggogeri**  
Managing Director  
For and on behalf of Eni UK Limited

683576

# centrica

GB Gas Holdings Limited  
Millstream  
Maldenhead Road  
Windsor  
Berkshire SL4 5GD

Telephone 01753 494000  
Facsimile 01753 494001  
Website: www.centrica.com

To:

Department for Business, Energy and Industrial Strategy (BEIS)  
Offshore Petroleum Regulator for Environment & Decommissioning  
AB1 Building  
Crimon Place  
Aberdeen  
AB10 1BJ

Date: 11 May 2022

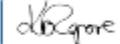
Dear Sir or Madam,

## BRAE BRAVO UPPER JACKET DECOMMISSIONING PROGRAMME

We, GB Gas Holdings Limited confirm that we authorise TAQA BRATANI LIMITED to submit on our behalf the Brae Bravo Upper Jacket Decommissioning Programme.

We confirm that we support the proposals detailed in the Brae Bravo Upper Jacket Decommissioning Programme, which are to be submitted by TAQA BRATANI LIMITED in so far as they relate to those facilities in respect of which we are required to submit abandonment programmes under Section 29 of the Petroleum Act 1998.

Yours faithfully,

DocuSigned by:  
  
C7C6D1FA73304BC...

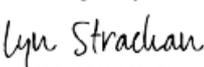
**Kate Ringrose**  
Group Chief Financial Officer

For and on behalf of GB Gas Holdings Limited

## BRAE BRAVO UPPER JACKET DECOMMISSIONING PROGRAMME

We, NEPTUNE E&P UKCS LIMITED confirm that we authorise TAQA BRATANI LIMITED to submit on our behalf the Brae Bravo Upper Jacket Decommissioning Programme.

We confirm that we support the proposals detailed in the Brae Bravo Upper Jacket Decommissioning Programme, which are to be submitted by TAQA BRATANI LIMITED in so far as they relate to those facilities in respect of which we are required to submit abandonment programmes under Section 29 of the Petroleum Act 1998.

DocuSigned by:  
  
A68CBA92DA884EF...

Lyn Strachan  
Commercial Lead Non-Operated Assets and Decommissioning

For and on behalf of NEPTUNE E&P UKCS LIMITED

---

Repsol Sinopec Resources UK Ltd

---

Repsol Sinopec LNS Ltd

## CONTACT

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