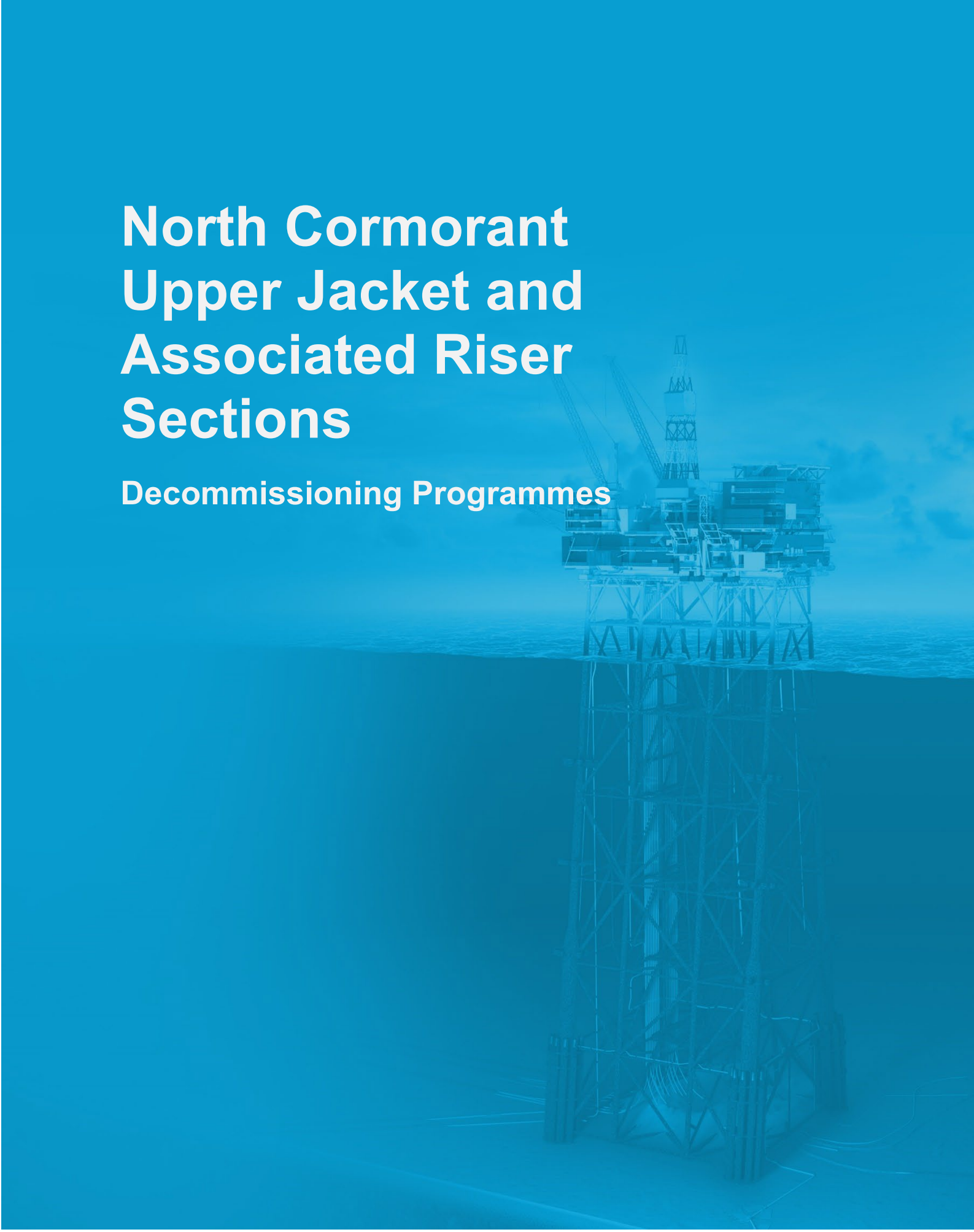
North Cormorant Upper Jacket and Associated Riser Sections

Decommissioning Programmes



November 2024 – Consultation Draft
TB-CONDEC01-X-AD-0002-000

DOCUMENT CONTROL

TAQA Internal Revision Summary			
Document Owner:	**TAQA Bratani Limited**		
Revision No:	**A6**	**Revision Date:**	November 2024
Revision Summary:	**Pre-Consultation Draft**		
Authorisation	**Prepared By:**	**Verified By:**	**Approved By:**
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OPRED Revision Summary			
Revision No.	**Reference**	**Changes / Comments**	**Issue Date**
A1		Initial Draft	November 2022
A2		Revised to incorporate OPRED Comments	April 2023
A3		Revised to address OPRED comments on Eider UJ DP	July 2023
A4		Revised to address OPRED comments on Rev A3.	September 2023
A5		Revised to address OPRED comments on Eider Upper jacket DP	May 2024
A6	Consultation Draft	Revised to address OPRED comments	November 2024

Distribution List	
Company	**Name**
Offshore Petroleum Regulator for Environment and Decommissioning (OPRED)	Robert Willison

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LIST OF ABBREVIATIONS

Abbreviation	Explanation
AWMP	Active Waste Management Plan
BEIS	Department of Business, Energy and Industrial Strategy (now the Department for Energy Security and Net Zero)
CoP	Cessation of Production
DP	Decommissioning Programme
EA	Environmental Appraisal
E&P	Exploration and Production
ES	Environmental Statement
EU	European Union
FPAL	First Point Assessment Limited
HLV	Heavy Lift Vessel
ICES	International Council for the Exploration of the Sea
ICCP	Impressed Current Cathodic Protection
JLS	Jacket Lift System
JNCC	Joint Nature Conservation Committee
LAT	Lowest Astronomical Tide
MARPOL	International Convention for the Prevention of Pollution from Ships
NNS	Northern North Sea
NORM	Naturally Occurring Radioactive Material
NSTA	North Sea Transition Authority (Previously the OGA)
OEUK	Offshore Energies UK
OGA	Oil and Gas Authority (Now the NSTA)
OPEP	Oil Pollution Emergency Plan
OPEX	Operational Expense
OPPC	Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSPAR	Oslo Paris Convention
S29	Section 29 of the Petroleum Act 1998
SAC	Special Area of Conservation
SLV	Single Lift Vessel
SOPEP	Shipboard Oil Pollution Emergency Plan

Abbreviation	Explanation
SSIV	Sub Sea Isolation Valve
TAQA	TAQA Bratani Limited
Te	Tonnes
UJ	Upper jacket
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
WBS	Work Breakdown Structure
WDP#	Well Decommissioning Phase in accordance with OEUK Guidance

1 EXECUTIVE SUMMARY

1.1 Decommissioning Programmes

This document contains six Decommissioning Programmes (DPs), one for the North Cormorant Upper Jacket and a further five for the associated pipeline, umbilical and electrical cable riser sections.

The Upper jacket consists of the platform's sub-structure from the topside cut height at around 11 m above Lowest Astronomical Tide (LAT) to approximately 116 m below LAT, which is circa 45m above the seabed. See Figure 1-1. This section of the sub-structure is referred to as the "Upper Jacket" throughout this document. The lower section of the sub-structure is referred to as the "Footings". The Footings will be covered by a separate DP and supporting documents to be submitted to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) in due course. The platform topsides are covered by a DP that was approved in November 2020 [1].

The North Cormorant platform is located in Block 211/21a in the UK Northern North Sea. The field was discovered in May 1974. The platform was installed in 1981 and production started in February 1982.

TAQA submitted a CoP (Cessation of Production) application for North Cormorant to the Oil and Gas Authority (OGA) in January 2022. This was approved in February 2022. North Cormorant ceased production in June 2024.

These decommissioning programmes for the North Cormorant Upper Jacket and associated riser sections are supported by an Environmental Appraisal, see Section 4, and technical assessments [2][3]. Early decommissioning planning commenced in 2020. North Cormorant decommissioning start in 2024 at the earliest. TAQA expects completion of decommissioning by 2029, and submission of a close out report in 2030

1.2 Requirement for Decommissioning Programmes

In accordance with the Petroleum Act 1998, the North Cormorant installation Section 29 notice holders listed in Table 1.2 are applying to OPRED for approval to decommission the North Cormorant Upper Jacket and associated riser sections detailed in Sections 2.1, 2.2 and 3.1 of this document. Appendix 2 presents Section 29 Holders' Letters of Support for the proposed Decommissioning Programmes.

In conjunction with stakeholder and regulatory consultation, these Decommissioning Programmes are submitted in compliance with national regulations and international obligations and OPRED guidelines. These Decommissioning Programmes are for an approximately 7-year schedule, beginning in 2024.

1.3 Introduction

The North Cormorant platform was designed as a fixed drilling and production installation for the Cormorant North Field in the East Shetland Basin of the UKCS in licence block 211/21a.

The North Cormorant platform was installed in 1981, in a water depth of 161 m. It consists of an eight-legged steel sub-structure supporting modular topsides. The sub-structure is a "K" braced frame with extensive horizontal and diagonal bracings throughout the water column. It is secured to the seabed by thirty two foundation piles, eight at each corner leg. The piles are approximately 2 m diameter steel tubes, with a target penetration depth of 43.0 m. The corner legs (B2, F2, B4 and F4) measure 6 m in diameter at the base reducing to 2 m at the top of the sub-structure. The Footings footprint at seabed level is 75 m by 77 m. The plan area at the top of the sub-structure is 31 m by 77 m. The height of the sub-structure is 172 m. Figure 1-1 is an overall view of the installation, including the sub-structure. The sub-structure was originally barge launched, upended, and sunk to the seabed in a controlled fashion. It was then anchored using the 32 foundation piles. Each pile is grouted into a pile sleeve. The pile sleeves are integral parts of the sub-structure secured to the legs by shear plates. The design did not include provision for removing the sub-structure by reversing the launch and installation processes. The overall installed weight of the entire sub-structure is estimated as 20,052 Te, excluding marine growth, piles, and grout. The sub-structure is therefore a candidate for derogation under OSPAR decision 98/3.

The Upper Jacket and associated riser sections covered by these Decommissioning Programmes have an estimated lift weight of ≈ 12,500 Te, including marine growth. The Upper Jacket extends from the topside cut height at around 11 m above LAT to a cut depth of approximately 116 m below LAT. The exact cut depth will be determined following detailed engineering considering technical constraints such as: sub-structure design, in particular the 'K' bracing, and cutting technology and safety impacts. Once the exact planned cut depth is known, OPRED will be advised. The cut depths of individual members achieved in practice may vary from the planned depth by one or two meters. OPRED will be advised of the precise cut depths achieved following Upper Jacket removal.

North Cormorant ceased production in June 2024.

Production from Otter flowed directly to North Cormorant, while the Eider platform provided electric power, control, and chemical injection to Otter. The requirement for these services ceased with Otter CoP in Q2 2024. The Causeway and Fionn subsea facilities also tie back to the North Cormorant platform and thence to the Brent system. The Causeway and Fionn facilities were operated by Ithaca Energy (UK) Limited and have now ceased production. Therefore, the shutdown of the North Cormorant did not strand any economic reserves.

Produced oil from North Cormorant and Otter was exported via Cormorant Alpha. Gas was exported via the Western Leg pipeline.

The pipeline, umbilical, and electrical cable riser sections that are attached to the Upper Jacket will be removed with the Upper Jacket.

TAQA has carried out an assessment [3] that confirms that removal of the Upper Jacket will not preclude subsequent decommissioning of the sub-structure Footings, since following removal of the Upper Jacket the Footings have sufficient inherent structural integrity to allow a variety of decommissioning options utilising a range of decommissioning vessels and methodologies to be considered.

The North Cormorant Topsides will be removed under a separate DP [1], which was issued in 2020 and approved. The Consent to Locate for the installation will be appropriately modified to reflect Topsides

removal. During the period after Topsides removal, but before Upper Jacket removal, aids to navigation will be maintained on the sub-structure to mitigate risk to other sea users. The aids to navigation will be in accordance with the revised consent to locate for the installation. The selection and operation of the aids to navigation will take cognisance of guidance from relevant technical bodies including the Northern Lighthouse Board regarding the characteristics, monitoring and maintenance of the aids to navigation.

Separate Decommissioning Programmes covering the North Cormorant Footings and associated pipeline, power cable and umbilical riser sections will be submitted at a later stage, in line with TAQA's wider northern North Sea decommissioning plans. Section 3.1 describes the boundaries of the Decommissioning Programmes contained in this document in detail.

Two of the jacket legs, B2 and B4, are used as diesel storage tanks. See Figure 1-1. The diesel tanks will have been appropriately drained and cleaned as part of the platform de-energisation process well in advance of the Upper Jacket removal. The diesel tanks will not be cut through during Upper Jacket removal. However, small residual quantities of diesel may remain in the tanks that could be discharged during Upper Jacket removal. Prior to Upper Jacket removal operations commencing TAQA will apply for an oil discharge permit under the Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations (OPPC) to cover potential residual diesel discharges. Legs, C2, C4, E2 and E4 are used as potable water storage tanks. See Figure 1-1. The potable water storage tanks will be cut through during Upper Jacket removal.

There is a drill cuttings pile at the base of the North Cormorant sub-structure as shown in Figure 1-1. The cuttings pile is outside the scope of these Decommissioning Programmes. The North Cormorant Footings and Associated Riser Sections Decommissioning Programmes will address the cuttings pile.

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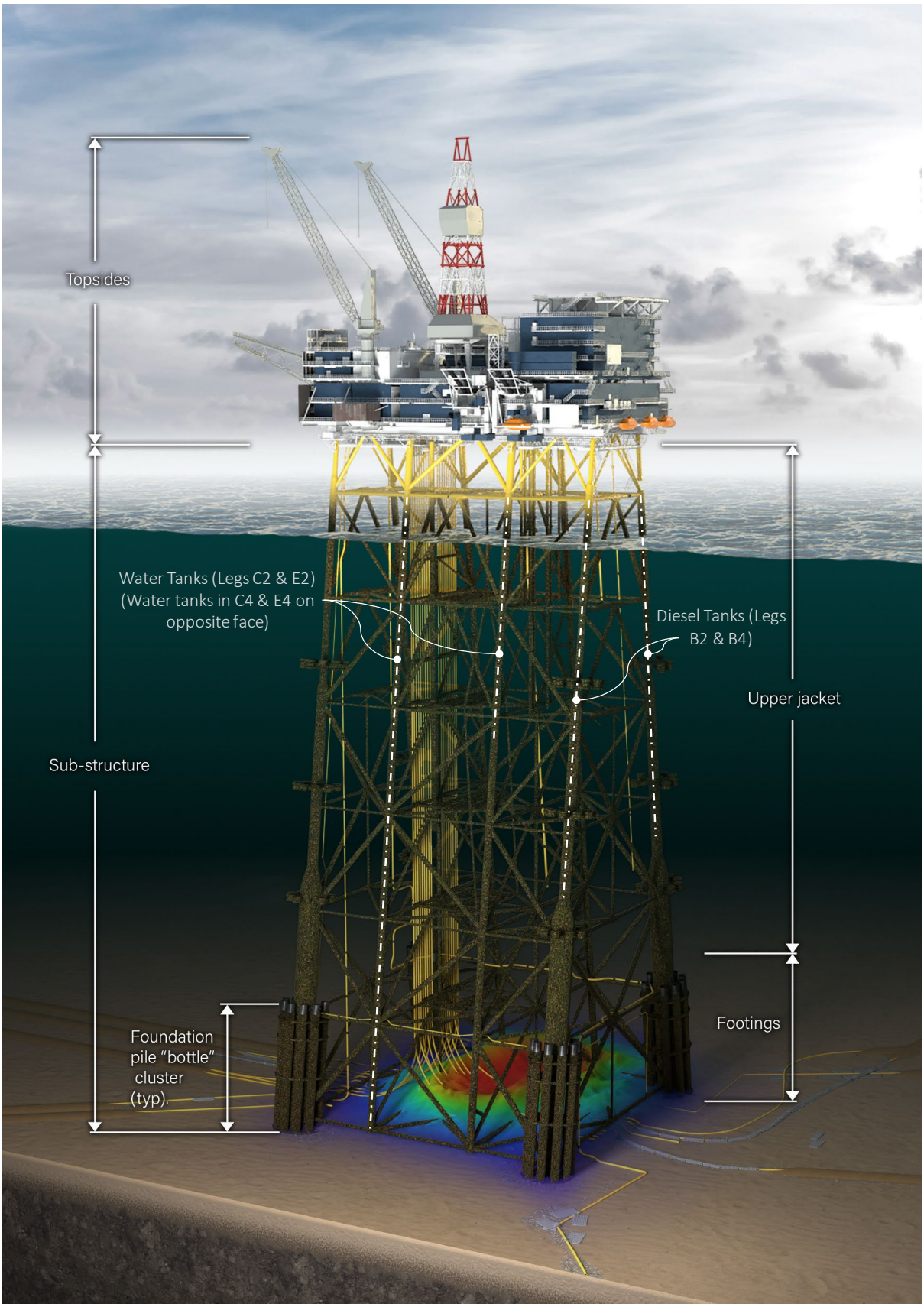


Figure 1-1: North Cormorant Overview

1.4 Overview of Installation Being Decommissioned

1.4.1 Installation

Table 1.1: Installation to be Decommissioned			
Field:	**Cormorant North**	**Production Type** (Oil/Gas/Condensate):	**Oil/Gas**
Water Depth:	**161 m**	**UKCS Block**:	**211/21a**
Distance to Median (km):	**35 km**	**Distance from Nearest UK Coastline** (km):	**112 km**
Surface Installation			
Number:	**Type:**	**Upper Jacket Weight (Te):**	
1	Fixed Large Steel Jacket	≈12,500 Te *	

*Including marine growth

Table 1.2: Installation Section 29 Notice Holders Details		
Section 29 Notice Holders	**Registration Number**	**Equity Interest (%)**
TAQA Bratani Limited	05975475	100%
Shell U.K. Limited	00140141	0%
Esso Exploration and Production UK Limited	00207426	0%

1.4.2 Pipeline Umbilical and Power Cable Riser Sections

The pipeline, umbilical and power cable riser sections listed below will be removed as part of the Upper Jacket. The riser sections will be cut at the top and bottom of the Upper Jacket at approximately 11 m above LAT and 116 m below LAT respectively. TAQA is the Operator of these pipeline, umbilical, and power cable risers, except for the Ithaca operated PL2888 and PL2890. TAQA will consult the S29 notice holders for these facilities, and Ithaca as Operator of PL2888 and PL2890, and keep them informed of decommissioning plans and progress. The S29 notice holders for the TAQA operated pipeline and umbilical risers are listed in, Table 1.3, Table 1.4, Table 1.5, Table 1.6 and Table 1.7.

- Rigid Pipeline Riser Sections
  - PL113, Cormorant Alpha 20 inch oil pipeline
  - PL114, 10-inch Gas Import/Export Pipeline to/from Western Leg
  - PL475, 12 inch oil pipeline from Otter
  - PL477, Tern 16 inch oil pipeline
- Rigid Pipeline Riser Sections in J Tubes
  - PL478, Tern 8 inch Gas Pipeline
  - PL2888, Causeway / Fionn 8 inch Production pipeline (Operated by Ithaca Energy (UK) Limited (Ithica). Subject to a separate approved Decommissioning Programme submitted by Ithaca as Operator [4]).

- PL2890, Causeway / Fionn 8 inch Water Injection pipeline(Operated by Ithaca, and subject to a separate approved Decommissioning Programme submitted by Ithaca as Operator)

- Umbilical / Power Cable Riser Sections in J Tubes
  - PLU2891, Causeway Control Umbilical (Operated by Ithaca, and subject to a separate approved Decommissioning Programme submitted by Ithaca as Operator)
  - PLU2893, Fionn Control Umbilical (Operated by Ithaca, and subject to a separate approved Decommissioning Programme submitted by Ithaca as Operator)
  - PL3815, North Cormorant / Eider 33kV Subsea Power Cable
  - PL3816, Cable to ICCP Skid 1
  - PL3817, Cable to ICCP Skid 2
  - PL3818, Cable to ICCP Skid 3
  - PL3819, Cable to ICCP Skid 4
  - PL3820, Cable to ICCP Skid 5
  - PL3821, Cable to ICCP Skid 6
  - PL3822, Cable to ICCP Skid 7
  - PL3823, Cable to ICCP Skid 8
  - PLU6206, Western Leg SSIV Hydraulic Control Umbilical

The pipeline riser sections and power cables will be in an appropriately isolated, de-energised and cleaned state prior to North Cormorant topsides decommissioning. Umbilicals containing oil based hydraulic fluids will be flushed, water based hydraulic fluids may be discharged under a permit when the umbilicals are cut.

The risers and J tubes will be severed at or below the Upper Jacket cut depth approximately 116 m below LAT. The upper sections of the rigid risers and J tubes will be removed with the Upper Jacket.

The Pipeline Works Authorisations will be amended as necessary to reflect the pipeline, umbilical and power cable as left status. The jacket footings, associated riser sections, and subsea sections of the pipelines, umbilicals, and power cables will be covered by further Decommissioning Programmes.

Table 1.3: Section 29 Notice Holders; PL113 Riser

Section 29 Notice Holders	Registration Number	Equity Interest (%)
TAQA Bratani Limited	05975475	100
Shell U.K. Limited	00140141	0
Esso Exploration and Production UK Limited	00207426	0

Table 1.4: Section 29 Notice Holders; PL114 Riser		
Section 29 Notice Holders	**Registration Number**	**Equity Interest (%)**
TAQA Bratani Limited	05975475	100
Shell U.K. Limited	00140141	0
Esso Exploration and Production UK Limited	00207426	0

Table 1.5: Section 29 Notice Holders; PL475 Riser		
Section 29 Notice Holders	**Registration Number**	**Equity Interest (%)**
TAQA Bratani Limited	05975475	100
Shell U.K. Limited	00140141	0
Esso Exploration and Production UK Limited	00207426	0

Table 1.6: Section 29 Notice Holders; PL477, PL478 Risers		
Section 29 Notice Holders	**Registration Number**	**Equity Interest (%)**
TAQA Bratani Limited	05975475	100
Shell U.K. Limited	00140141	0
Esso Exploration and Production UK Limited	00207426	0

Table 1.7: Section 29 Notice Holders; PL3815, PL3816, PL3817, PL3818, PL3819, PL3820, PL3821, PL3822, PL3823, PLU6206 Risers		
Section 29 Notice Holders	**Registration Number**	**Equity Interest (%)**
TAQA Bratani Limited	05975475	100

1.5 Summary of Proposed Decommissioning Programmes

Table 1.8: Summary of Decommissioning Programmes	
Proposed Decommissioning Solution	**Reason for Selection**
Upper Jacket	
Removal of the North Cormorant Upper Jacket between approximately 11 m above LAT and 116 m below LAT. Recovered material will be returned to shore for recycling or disposal. (Well conductors will be cut at an appropriate depth of 116 m below LAT or deeper, to facilitate Upper Jacket removal).	Removal of the North Cormorant Upper Jacket between approximately 11 m above LAT and 116 m below LAT complies with OSPAR Decision 98/3 and Regulatory requirements.
Rigid Pipeline Riser Sections	
Four rigid pipeline risers were installed with the North Cormorant substructure. There are a further three rigid risers installed in J tubes. The upper sections of these risers will be removed with the Upper Jacket. The cut elevations of the risers will be aligned with the Upper Jacket cut elevations at approximately 11 m above LAT and 116 m below LAT.	Removal of the North Cormorant rigid risers with the Upper Jacket between approximately 11 m above LAT and 116 m below LAT complies with OSPAR Decision 98/3 and Regulatory requirements.
Flexible Riser, Umbilical and Cable Riser Sections	
There are three umbilicals and nine cables installed in J tubes, which are part of the North Cormorant sub-structure. The upper sections of the J Tubes, flexible risers, umbilical and power cables will be removed with the Upper Jacket. The J tubes cut elevations will be aligned with the Upper Jacket cut elevations at approximately 11 m above LAT and 116 m below LAT.	Removal of the North Cormorant J tubes flexible risers, umbilicals, and power cables with the Upper Jacket between approximately 11 m above LAT and 116 m below LAT complies with OSPAR Decision 98/3 and Regulatory requirements.
Conductors	
The well conductors may be removed as part of the Topsides decommissioning scope or as part of the Upper Jacket decommissioning scope. Irrespective, the conductors will be cut above the seabed, at approximately the same elevation as the Upper Jacket at the lowest practicable height that does not disturb the cuttings pile. The sections that are removed will be transported to shore for recycling.	Partial removal of the conductors between approximately 11 m above LAT and 116 m below LAT complies with OSPAR Decision 98/3 and Regulatory requirements.

Table 1.8: Summary of Decommissioning Programmes
Interdependencies
At the time of the proposed removal of the North Cormorant Upper Jacket it will have been completely isolated from all surrounding infrastructure, and its removal and transportation to shore for recycling and disposal will have no effect on any other facility. Production from Otter flowed directly to North Cormorant, while the Eider platform provided electric power, control, and chemical injection to Otter. The requirement for these services ended when Otter production ceased in Q2 2024. The Causeway and Fionn subsea facilities also tie back to the North Cormorant platform and thence to the Brent system. The Causeway and Fionn facilities were operated by Ithaca Energy (UK) Limited and have now ceased production. North Cormorant cessation of production and decommissioning will therefore not strand any economic reserves. TAQA will liaise with the relevant riser S29 notice holders for the Causeway and Fionn risers regarding the riser sections that will be decommissioned with the Upper Jacket. The Upper Jacket decommissioning solution will not preclude any feasible future proposals for decommissioning the Footings and associated riser sections.

1.6 Field Location Including Field Layout and Adjacent Facilities

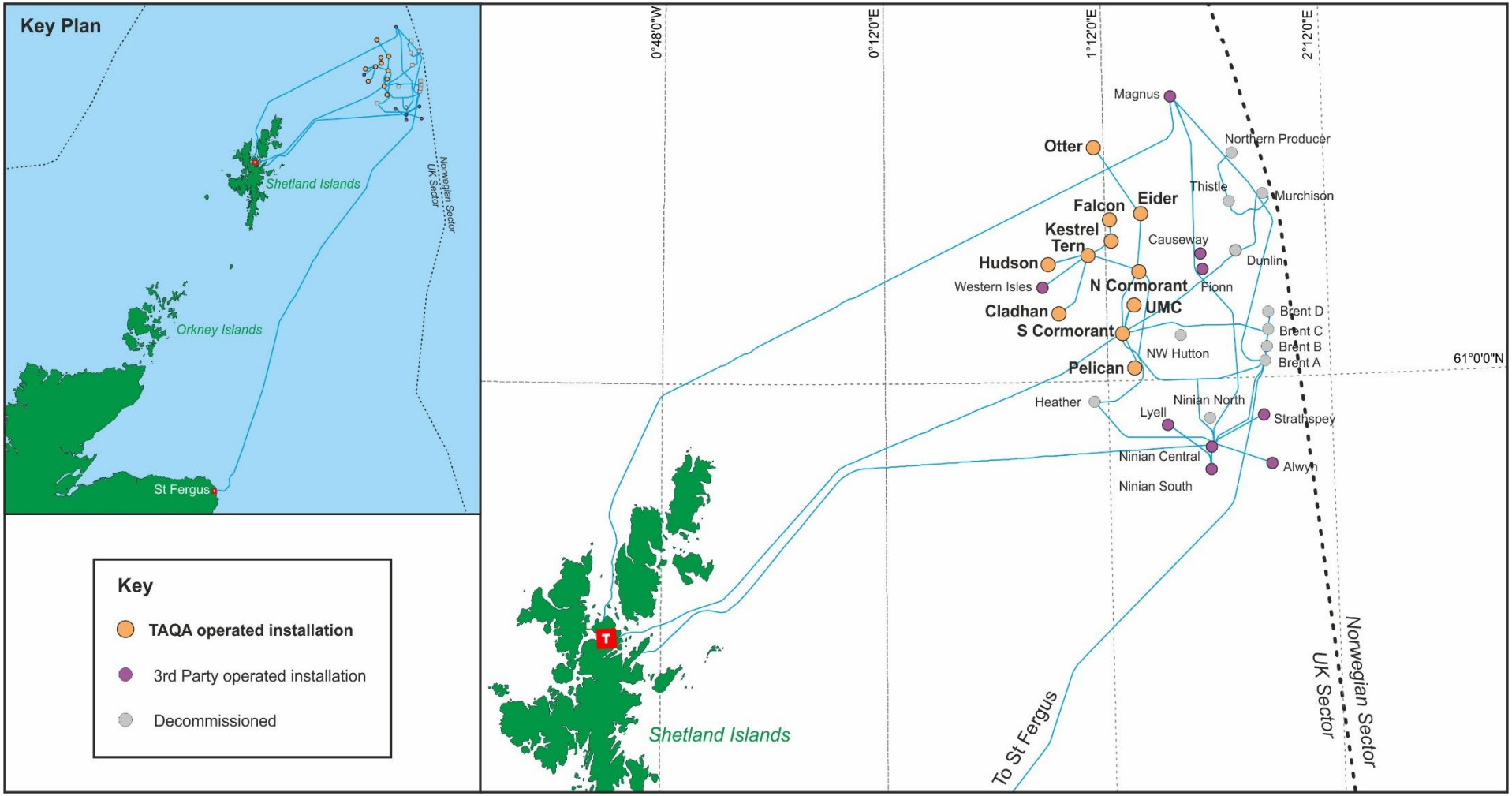


Figure 1-2: North Cormorant Field Location in UKCS

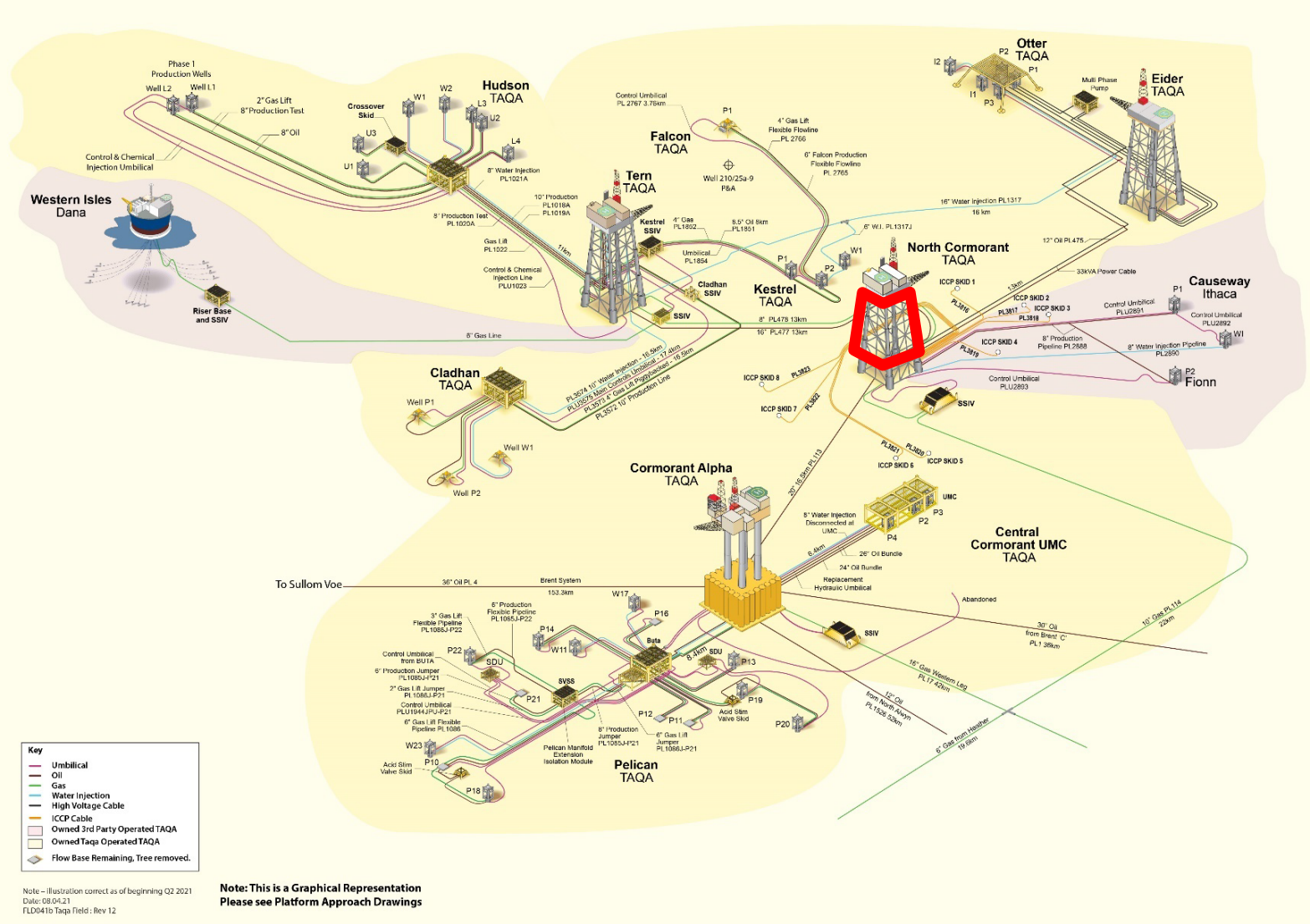


Figure 1-3: TAQA NNS Field Layout (Scope of this DP highlighted in red)

Table 1.9: Adjacent Facilities					
Owner	**Name**	**Type**	**Distance / Direction**	**Information**	**Status**
TAQA Bratani Limited	Otter	Subsea Wells (Template)	32 km north north west of North Cormorant	Water Injection / Production Wells	Out of use pending Decommissioning
TAQA Bratani Limited	Otter	Subsea Structure	32 km north north west of North Cormorant	Multiphase Pump	Out of use pending Decommissioning
TAQA Bratani Limited	Otter Production Pipeline	12” Pipeline PL475	From Otter to North Cormorant	Export Pipeline to North Cormorant	Out of use pending Decommissioning
TAQA Bratani Limited	Otter Production Pipeline	10” Pipeline PL1868	13 km north of North Cormorant	Export Pipeline from Otter to Eider	Out of use pending Decommissioning
TAQA Bratani Limited	Otter Water Injection Pipeline	10” Pipeline PL1869	13 km north of North Cormorant	Water Injection from Eider to Otter	Out of use pending Decommissioning
TAQA Bratani Limited	Otter Power Cable	Power Cable PL4438	13 km north of North Cormorant	Power from Eider to Otter	Out of use pending Decommissioning
TAQA Bratani Limited	Otter Power Cable	Power Cable PL4439	13 km north of North Cormorant	Power from Eider to Otter	Out of use pending Decommissioning
TAQA Bratani Limited	Otter Power Cable	Power Cable PL4440	13 km north of North Cormorant	Power from Eider to Otter	Out of Use pending decommissioning
TAQA Bratani Limited	Eider / North Cormorant	Power Cable PL3815	North Cormorant to Eider	Power Cable	Operational
TAQA Bratani Limited	Eider	Platform	13 km north of North Cormorant	Production Platform	Undergoing De-energisation & Disembarkation
TAQA Bratani Limited	Tern	Platform	13 km west north west of North Cormorant	Production Platform	Undergoing De-energisation & Disembarkation
TAQA Bratani Limited	Tern / North Cormorant	8” Pipeline PL478	Tern to North Cormorant	Gas Import / export Line	Out of Use pending decommissioning
TAQA Bratani Limited	Tern to North Cormorant	16” Pipeline PL477	Tern to North Cormorant	Oil Export Line	Out of Use pending decommissioning
Ithaca Energy (UK) Ltd	Causeway	Subsea Wells	15.6 km east north east of North Cormorant	Water Injection / Production	Shut in pending Decommissioning
Ithaca Energy (UK) Ltd	Causeway to North Cormorant	8” Pipeline PL2888	Causeway to North Cormorant	Production	Shut in pending Decommissioning

Table 1.9: Adjacent Facilities					
Owner	**Name**	**Type**	**Distance / Direction**	**Information**	**Status**
Ithaca Energy (UK) Ltd	Fionn	Subsea Well	11.8 km east of North Cormorant	Water Injection / Production	Shut in pending Decommissioning
Ithaca Energy (UK) Ltd	Causeway to North Cormorant	8” Pipeline PL2890	Causeway to North Cormorant	Water injection	Shut in pending Decommissioning
Ithaca Energy (UK) Ltd	Causeway to North Cormorant	Umbilical PLU2891	Causeway to North Cormorant	Control Umbilical	Shut in pending Decommissioning
Ithaca Energy (UK) Ltd	Fionn to North Cormorant	Umbilical PLU2893	Fionn to North Cormorant	Control Umbilical	Shut in pending Decommissioning
TAQA Bratani Limited	North Cormorant to Western Leg	10” Pipeline PL114	North Cormorant to PL17 (WelGas2 tee)	Gas Import/ Export Line	Out of Use pending decommissioning
TAQA Bratani Limited	North Cormorant to Cormorant Alpha	20” Pipeline PL113	North Cormorant to Cormorant Alpha	Oil Export Line	Out of Use pending decommissioning
TAQA Bratani Limited	Cormorant Alpha	Platform	15.8 km south of North Cormorant	Production Platform	Out of Use pending decommissioning
Impacts of Decommissioning					
Production from Otter flows directly to North Cormorant, while the Eider platform provides electric power, control, and chemical injection to Otter. The requirement for these services ended when Otter ceased production, in Q2 2024. The Cormorant East field is accessed by, and produced to, the North Cormorant platform however its production profile is aligned with that of the Cormorant North and Otter fields. The Causeway and Fionn fields are tied back to the North Cormorant platform, however both fields have ceased production. Therefore, at the time of the proposed North Cormorant Upper Jacket removal no economic reserves will be stranded. The Decommissioning Programmes contained in this document will have no impact on any third-party infrastructure.					

1.7 Industrial Implications

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

- Publish North Cormorant Upper Jacket decommissioning project information, including the high level project schedule, on the TAQA decommissioning website.
- In the event of further contract awards for North Cormorant 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 North Cormorant Upper Jacket and Associated Risers Decommissioning Programmes 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 Installation: Upper Jacket

Table 2.1: Jacket Information					
Name	Facility Type	Location		Upper Jacket	
				Total Estimated Recovered Weight (Te)	No. of Legs
North Cormorant (Upper Jacket)	Large Fixed Steel	WGS84	61º 14’ 25.542” N 01º 08’ 58.396” E	≈12,500*	8
		WGS84 Decimal Minute	61° 14.426'N 01° 08.973'E		

* Including marine growth

See Figure 2-1.

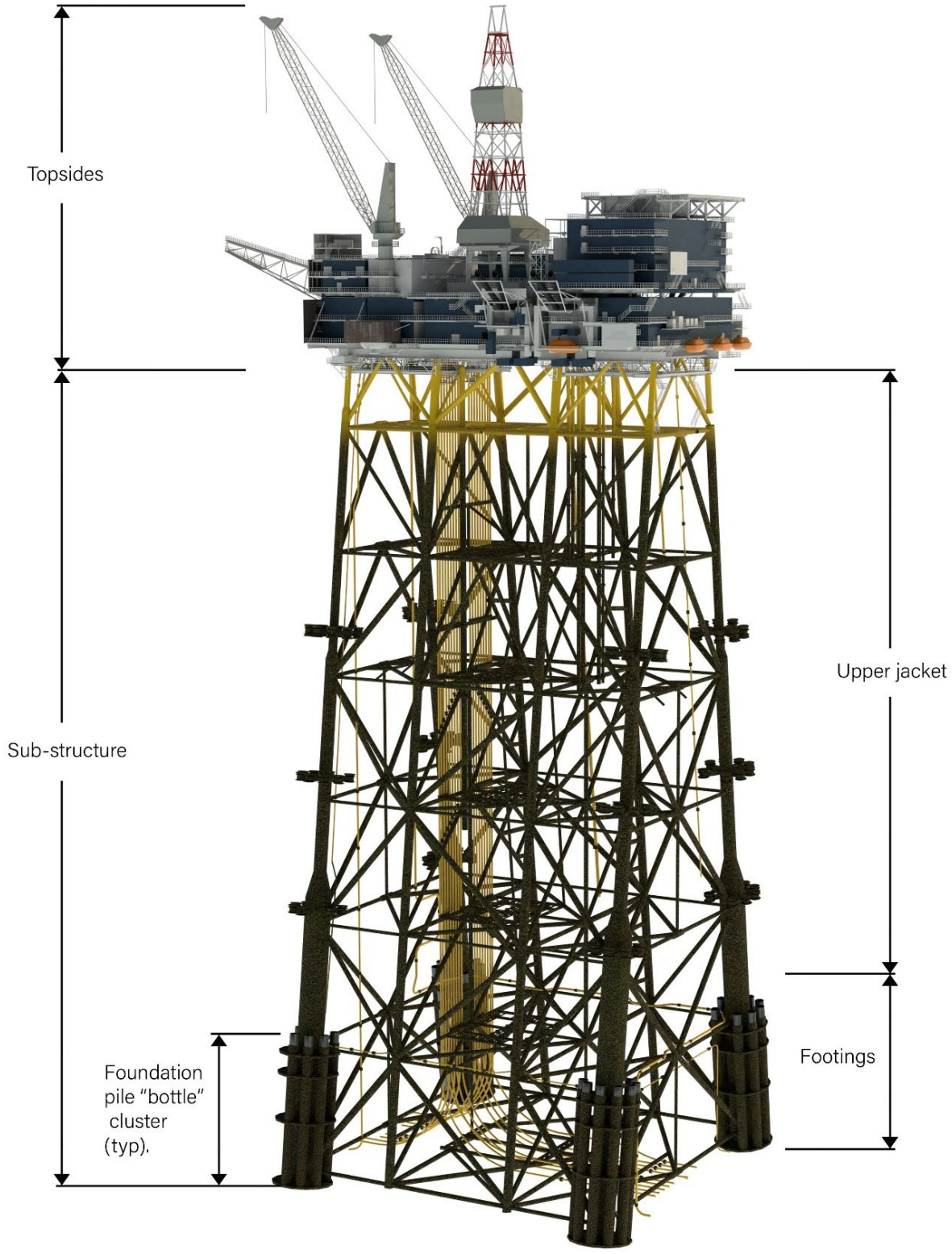


Figure 2-1: North Cormorant Platform

2.2 Pipeline Umbilical and Power Cable Riser Sections

The North Cormorant Upper Jacket supports pipeline, umbilical and power cable riser sections. Portions of the risers and pipelines outwith the Upper Jacket, i.e. attached to the Footings or on the seabed, are beyond the scope of these decommissioning programmes.

Section 1.4.2 lists the pipeline, umbilical, and power cable riser sections which are attached to the Upper Jacket and will be removed with it. The risers will be cut at the Upper Jacket cut elevations at approximately 11 m above LAT and 116 m below LAT. The risers may be cut at a depth greater than 116 m below LAT if it is practicable to do so. Irrespective, the risers will be cut at a depth that avoids disturbance of the drill cuttings pile at the base of the sub-structure.

2.3 Wells

There are no wells in the scope of these Decommissioning Programmes. The North Cormorant wells are described in the North Cormorant Topsides Decommissioning Programme [1].

2.4 Drill Cuttings

There are no drill cuttings in the scope of these Decommissioning Programmes. The North Cormorant Footings and Associated Riser Sections Decommissioning Programmes will address the drill cuttings.

2.5 Inventory Estimates

The approximate amounts of materials that make-up the North Cormorant Upper Jacket have been evaluated. These estimates will be refined during detailed engineering and the quantities of materials coming ashore will be tracked through the dismantling phase of the project to confirm overall quantities and the proportions that go to reuse, recycle and disposal.

A summary of the material inventories for the North Cormorant Upper Jacket is presented in Table 2.2 and in Figure 2-2.

Table 2.2: Material Inventory

Material	Weight Te	% Of Total
Ferrous Metal	≈ 11,090	≈ 88.72
Hazardous Material / NORM	≈ 15	≈ 0.12
Other Non-Hazardous (Including Marine Growth)	≈ 1395	≈ 11.16
Concrete	0	0
Total	≈ 12,500	≈ 100

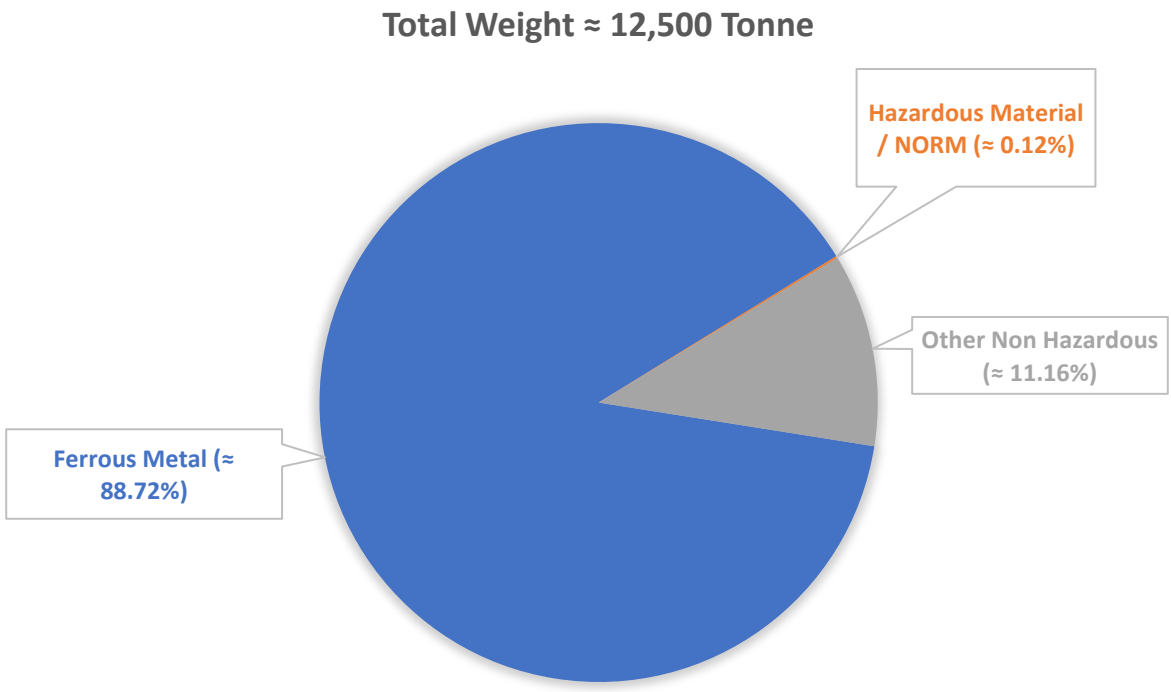


Figure 2-2: Material Inventory

This estimate includes the total weight of all material present, including allowances for marine growth and additional material added since the original installation of the platform. The quantity of marine growth is accounted for as part of the "Other Non-Hazardous" category and is estimated to be approximately 700 Te. The Upper Jacket weight is inclusive of an estimated 15 Te of hazardous waste. This is limited to paint at the top of the Upper Jacket, and its presence only extends through the splash zone to a depth of approximately 3 m below LAT.

3 REMOVAL AND DISPOSAL METHODS

The reuse of an installation or its constituent parts is the preferred decommissioning option. TAQA carried out a review of options for reusing the North Cormorant platform, including the Upper Jacket, and concluded there are no technically viable reuse options.

The majority of the North Cormorant 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 North Cormorant sub-structure stands in 161 m of water and its full height is 172 m. The North Cormorant Upper Jacket will be removed between around 11 m above LAT and approximately 116 m below LAT which is 45 m above the seabed, see Figure 2-1 and Figure 3-1. TAQA will inform OPRED when the exact cut elevations are determined.

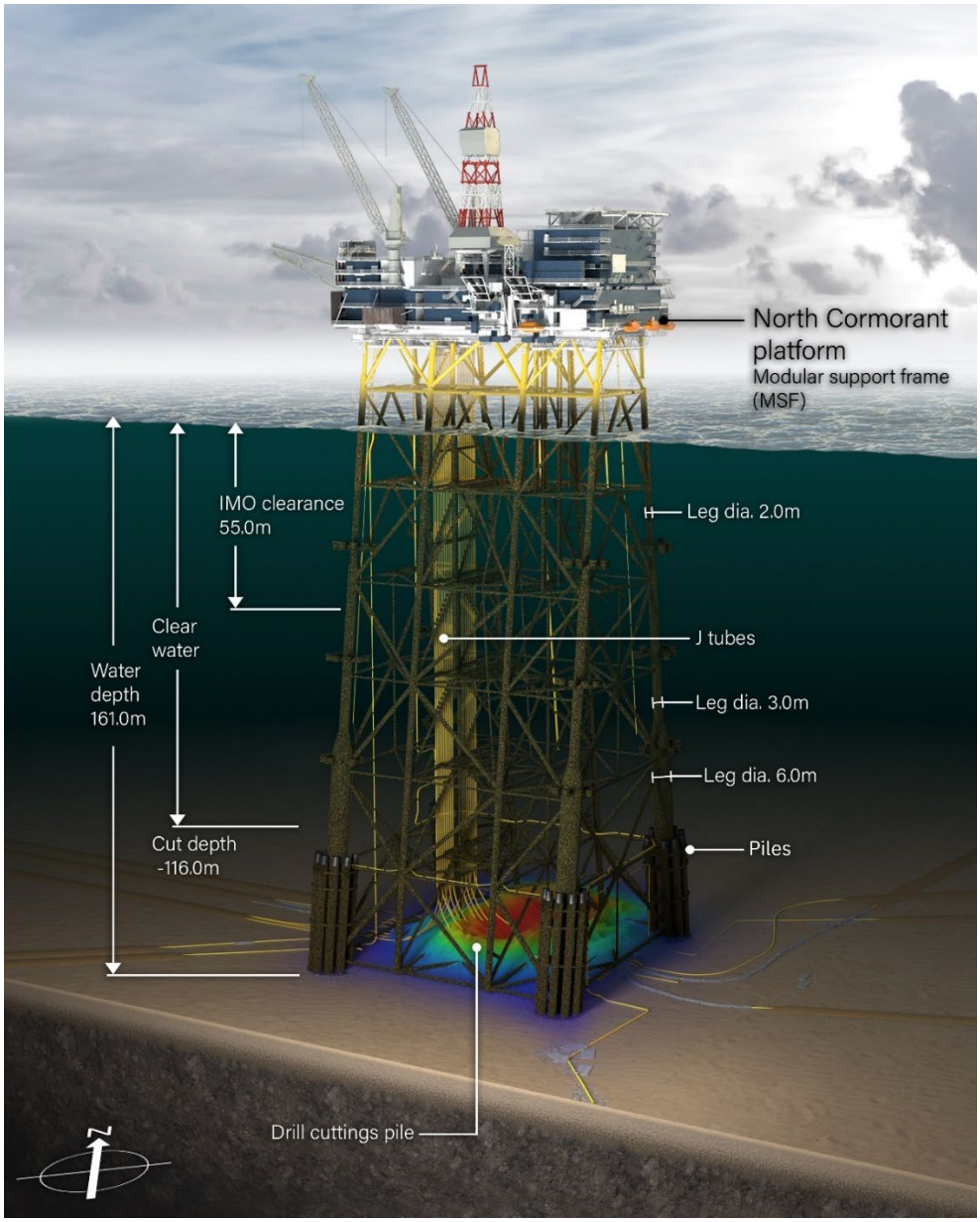


Figure 3-1: North Cormorant Sub-structure

Two of the jacket legs, B2 and B4, form diesel storage tanks, which extend from +10 m LAT to - 90 m LAT. See Figure 1-1. The Upper Jacket will be removed as a single piece above a cut at - 116 m LAT, consequently the base of the diesel leg tanks will not be cut through during Upper Jacket removal. The diesel tanks oil tank will have been drained and cleaned as part of the platform de-energisation process well in advance of the Upper Jacket removal. There may be small residual volumes of diesel remaining in the tanks after draining and cleaning that could be discharged during Upper Jacket removal. Prior to Upper Jacket removal operations commencing TAQA will apply for an oil discharge permit under the Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations (OPPC) to cover potential residual diesel discharges. These discharges will be fully assessed in the relevant permit applications.
Legs, C2, C4, E2 and E4 are used as potable water storage tanks. The C2, E2, and E4 tanks extend from the + 10 m level to the – 159 m level, while the tank in leg C4 extends from + 10 m to – 50 m. See Figure 1-1. The volume of the larger water tanks is approximately 500 m^3, and the volume of the smaller water tank is approximately 160 m^3. The leg C2, E2 and E4 water tanks will be cut when the Upper Jacket is removed, see Figure 1-1.

The cut depth at 116 m below LAT was determined following detailed engineering considering technical constraints including structural design, cross bracing configuration and cutting technology.

1. The structural design influences the cut depth as the Upper Jacket must retain sufficient structural integrity to allow it to be lifted and handled safely. Additionally, there are risers and J tubes within the Upper Jacket that must be supported during removal. Therefore, the locations of the supports also influence the selected cut depth. Finally, the available lift system's load limit and hook height influence the Upper Jacket lift.
2. The cross-bracing configuration is part of the structural design, but also influences cut depth as only locations where there is sufficient room between bracings to allow Remotely Operated Vehicle (ROV) and cutting tool access are suitable for cuts.
3. The influence of cutting technology is related to cross bracing configuration, in that the size of the tools required to make the cuts in the sub-structure members dictates locations where cuts may be made.

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 weight of the Upper Jacket is approximately 12,500 Te. This weight includes an allowance for the weight of the risers, which will be partly removed with the Upper Jacket.

TAQA conducted studies on removal techniques for its NNS steel piled jackets Upper Jackets and Footings [2][3] in accordance with OSPAR 98/3. These considered 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 approaching the limit of the largest available crane vessel's capacity.
4. The Upper Jacket and Footings cannot be lifted onto a quayside in one piece due to the height of the structure and limits on crane vessel lift heights. Therefore, the jacket would have to be set down in inshore waters and dismantled in pieces using a crane vessel.

Therefore, TAQA 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 potential Footings decommissioning methodology [2]. TAQA conducted a further study to determine if removal of the Upper Jacket would preclude potential Footings decommissioning options [3]. The study concluded that removal of the Upper Jacket will not prejudice decommissioning of the Footings, and that a delay of the order of years or decades between the removal of the Upper Jacket and potential decommissioning of the Footings would not impact the Footings' mechanical strength to an extent that would preclude their decommissioning. The removal of the Upper Jacket will be carried out such that it does not preclude the potential future decommissioning of the Footings, since following removal of the Upper Jacket the Footings have sufficient inherent structural integrity to allow a variety of decommissioning options utilising a range of decommissioning vessels and methodologies to be considered.

Following Upper Jacket removal, TAQA will conduct an as left survey of the Footings, to confirm that Upper Jacket removal is in accordance with the DP. TAQA will notify the presence of the Footings to other sea users through the FishSAFE mapping and bulletin system and via inclusion on Admiralty charts. The Consent to Locate for the North Cormorant platform will be modified following Upper Jacket removal. The modified Consent to Locate will remain in place until final decommissioning of the installation, which will occur when the platform footings are removed, or when derogation is granted for the footings to be decommissioned in situ. Following complete field decommissioning, a post removal monitoring scheme will be agreed with OPRED by TAQA. This will typically include an independent verification of the seabed, two environmental baseline surveys, at least two pipeline surveys, and two surveys of the North Cormorant platform location.

The Footings and drill cuttings pile are shown in Figure 3-2. The Footings and associated riser sections will be the subject of separate Decommissioning Programmes that will also address the fate of the cuttings pile. The North Cormorant substructure is a candidate for derogation under OSPAR 98/3. If derogation is granted, the Footings, associated riser sections and cuttings pile may be left in situ.

The recovered Upper Jacket and associated riser sections will be returned to shore for recycling or disposal. TAQA will select a recycling and disposal facility appropriately, considering safety, environmental, socio-economic, availability and cost factors. If a dismantling yard outside the UK is selected, TAQA will comply with the trans-frontier waste regulatory regime pertaining at that time. Notwithstanding, TAQA will inform OPRED of the selected removal method and disposal route.

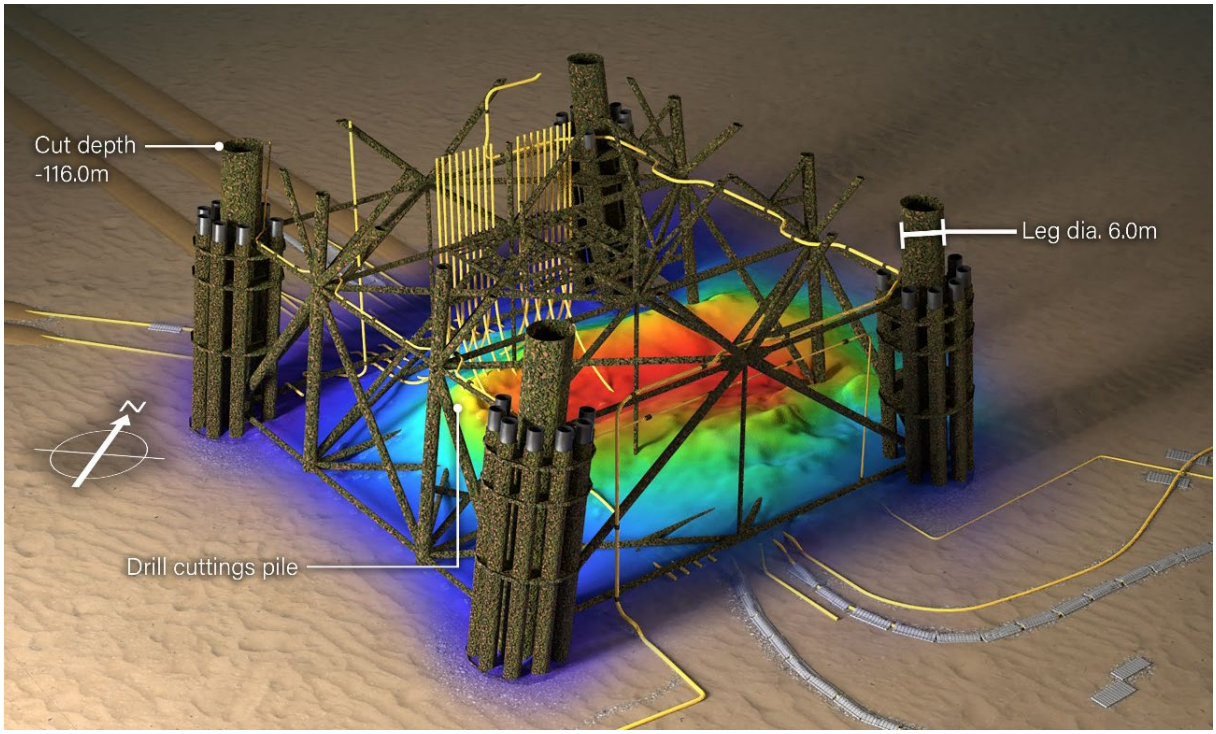


Figure 3-2: North Cormorant Footings

3.2 Upper Jacket Removal Methods

TAQA has conducted various studies on removal techniques for the complete removal of its NNS steel piled jackets, Upper Jackets and Footings in accordance with OSPAR 98/3. Due to the complexities of the Footings, all current proven technologies require removal of the Upper Jacket separately from the Footings. The removal of the Upper Jacket will be carried out such that it does not preclude the possible future decommissioning of the Footings [3].

The removal methods considered by TAQA for the North Cormorant Upper Jacket are listed in Table 3.1 below:

Table 3.1: Upper Jacket Proposed Removal Methods

1) HLV (Semi-submersible crane vessel) ☒
2) SLV ☒
3) Other ☒ (Dual HLV)

Method	Description
Removal by SLV	Removal of the North Cormorant Upper Jacket could be achieved by cutting at approximately 116 m below LAT and utilising the SLV Pioneering Spirit's Jacket Lift System (JLS). The JLS would lift and rotate the Upper Jacket and transport it to shore. The vessel's size prevents it entering most ports. Therefore, the vessel would transit to a nearshore location and offload the Upper Jacket onto a barge. The barge would then transport the Upper Jacket to shore for recycling and disposal.
Removal by HLV	Removal of the North Cormorant Upper Jacket to a depth of 116 m below LAT could be achieved by an HLV cutting the Upper Jacket into two sections. Each section height would be determined by the HLV's ability to transfer the lift to the quayside directly, avoiding the requirement for a transfer barge. The HLV would transport each section to shore for recycling and disposal
Removal by dual HLVs	Removal of the North Cormorant Upper Jacket could be achieved by cutting at approximately 116 m below LAT and recovering the Upper Jacket in sections, each by twin HLVs working in tandem to conduct a "quad lift" and transfer to barge. The barge would then be towed to an onshore facility for recycling and disposal of the recovered jacket.
Proposed removal method and disposal route	**The recovered section of the Upper Jacket and associated riser sections will be taken ashore for recycling and disposal.** **TAQA has selected a removal contractor following a tender evaluation process that considered safety, environmental, technical, and socio-economic factors. TAQA will select removal methods and disposal routes in collaboration with the removal contractor.** **OPRED will be informed once the removal method and recycling and disposal routes have been selected.**

3.3 Waste Streams

Table 3.2: Waste Stream Management Methods	
Waste Stream	Removal and Disposal Method
Carbon Steel	Carbon steel will be recycled
Hazardous Material / NORM	Hazardous materials, including any NORM, will be recovered to shore and disposed of under appropriate permits and in accordance with relevant regulations and guidance.
Other Non-Hazardous (Including Marine Growth),	Non-ferrous metals – principally material from sacrificial anodes will be recycled. Marine Growth – some marine growth may be removed offshore to allow cutting and lifting activities; the remainder will be taken ashore for recycling/disposal under appropriate permits.
Onshore Dismantling Sites	Appropriate licenced sites will be selected for onshore dismantling, recycling, and disposal. TAQA will ensure that the removal contractor has a proven track record and waste stream management throughout the deconstruction process. TAQA will carry out audits on disposal yards to provide assurance that they are compliant with legislation. Once an onshore dismantling site has been selected OPRED will be advised.

Table 3.3: Inventory Disposition			
Waste Stream	**Total Inventory Tonnage**	**Planned Tonnage to Shore**	**Planned Left *in situ***
Upper Jacket	≈ 12,500	≈ 12,500 Te	0 Te

Recovered material will be landed ashore between 2025 and 2027. It is not possible to fully define the available recycling and waste disposal sites and treatment options, which will be determined through a competitive tendering process. Therefore, the following is a summary of the general waste disposal strategy. Percentages shown relate to the weight of material which is expected to be recovered to shore.

On removal and where practical, TAQA will ensure the principles of the waste hierarchy will be met in the handling of materials from the North Cormorant Upper Jacket decommissioning to maximize the quantities of reused and recycled material.

Preventing waste is the most preferred option. This will be achieved through reducing consumption and using resources efficiently. TAQA will comply with the Duty of Care requirements under the UK Waste Regulations and The Environmental Protection (Duty of Care) (Scotland) Regulations 2014. The project will follow industry good practice at all stages of reuse, recycling, and disposal.

The project will target options at the top of the waste hierarchy. Based on the current materials breakdown, TAQA aims to recycle around 95 % of the waste generated from these programmes. The possibility for the recovered material to be contaminated by, hydrocarbons, paints, etc. may limit the recovered material that can be successfully recycled.

Waste management activities will be conducted in full compliance with all relevant legislation and regulatory controls. Disposal to landfill will be the option of last resort when there are no other options and the environmental disadvantages of alternatives to landfill outweigh any benefits. For example, alternatives to landfill may involve additional transportation mileage or additional waste treatment, emission, or discharge impacts.

TAQA recognises that there will be large quantities of material returned to shore for recycling or disposal. Regardless of the 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 APPRAISAL OVERVIEW

The Environmental Appraisal (EA) process considered the potential for significant environmental effects as a result of interactions between the proposed decommissioning activities and sensitive environmental receptors. It has been prepared in accordance with BEIS Decommissioning Guidelines [5], and Decom North Sea EA Guidelines [6].

The environmental sensitivities around the North Cormorant platform are summarised in Table 4.1. The environmental assessment has not identified any significant residual environmental effects as a result of activities described within these Decommissioning Programmes. The rationale behind the assessments that there are no significant impacts are presented in Table 4.2. 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 4.3.

4.1 Environmental Sensitivities (Summary)

Table 4.1: Environmental Sensitivities

Environmental Receptor	Main Features
Conservation interests	There are no Nature Conservation Marine Protected Areas (NCMPAs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) or Demonstration and Research Marine Protected Areas (DRMPAs) within 40 km of the North Cormorant platform. The closest designated site is the Pobie Bank Reef SAC, located 77 km to the southwest of the North Cormorant Decommissioning area.
Seabed	The North Cormorant platform is located at a water depth of 161 m. The combined energy at the seabed from wave and tide action is therefore low. Recent survey work indicates that the seabed sediments range from fine silt to fine sands, with patches of coarse material. This is consistent with mapped information which classifies this region of the North Sea as the European Nature Information System (EUNIS) broadscale habitats 'Offshore Circalittoral Sand', 'Deep Circalittoral Coarse Sediment' and '*Capitella capitata, Thyasira* spp. in organically – enriched Offshore Circalittoral Mud and Sandy Mud'. Invertebrate communities living within the sediments are dominated by annelid species characteristic of background conditions in this part of the NNS, and evident in baseline surveys. The North Cormorant area has a high abundance of polychaetes, however, a high abundance of the taxa Nematoda is present closer to the North Cormorant platform, potentially as a result of the high barium concentrations associated with the drill cuttings here. Four individual ocean quahog (bivalves) were observed in a recent survey. No OSPAR threatened and/or declining species/habit, or other species/habitat of conservation concern were found to be present in the offshore decommissioning project area.

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
Fish and Shellfish	The North Cormorant platform sits within known spawning grounds for haddock, Norway pout, saithe, whiting and cod. The area is known to be an area of high intensity spawning for cod. The area is also a potential nursery ground for haddock, Norway pout, whiting, blue whiting, hake, herring, ling, mackerel and spurdog. The area is known to be a high intensity nursery ground for blue whiting. However, published sensitivity maps indicate that the probability of aggregations of juvenile cod, common sole, haddock, herring, horse mackerel, mackerel, plaice, sprat, whiting and Norway pout occurring in the offshore decommissioning project area is low, and blue whiting and hake are medium.
Fisheries & Shipping	The North Cormorant platform is located in International Council for the Exploration of the Sea (ICES) Rectangle 51F1. This region is primarily targeted for demersal species, with some minor shellfish and pelagic fishing occurring therein. Annual fishery landings by live weight and value are considered low for shellfish and pelagic fisheries and moderate for demersal fisheries in comparison to other areas of the North Sea. Fishing effort has remained relatively low within this region for the last five fishing years and is dominated by bottom-towed demersal fishing gears. Fishing effort generally peaks in the summer months within ICES Rectangle 51F1. Shipping density in the NNS in the vicinity of the proposed decommissioning activities is low. Between 200 - 300 vessels transit through Block 211/21a annually.
Marine Mammals	Harbour porpoise, Atlantic white-sided dolphin and minke whale were the most abundant species recorded in the survey block covering the North Cormorant Decommissioning area. These species are Scottish Priority Marine Features (PMFs) and European Protected Species (EPS). The harbour porpoise is also protected under Annex II of the EU Habitats Directive (92/43/EEC as amended by 97/62/EC).Around the North Cormorant platform, both grey and harbour seal densities are predicted to be between 0 and 1 seals per 25 km2, which is considered to be low.
Seabirds	Offshore in the NNS, the most numerous species present are likely to be northern fulmar, black-legged kittiwake, and common guillemot. The North Cormorant decommissioning area is located within or close to hotspots for northern fulmar, northern gannet, and Atlantic puffin during their breeding season, when adults of these species can be seen foraging far from their coastal breeding colonies. In addition, after the breeding season ends in June, large numbers of moulting auks (common guillemot, razorbill, and Atlantic puffin) disperse from their coastal colonies and into the offshore waters from July onwards. At this time, these high numbers of birds are particularly vulnerable to oil pollution. However, overall, seabird sensitivity to oil pollution in the region of the offshore decommissioning project area is considered low.
Onshore Communities	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.

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
Other Users of the Sea	The proposed decommissioning operations are located in a well-developed area for oil and gas extraction. However, there is little activity from other sea users recorded in the area. Apart from pipelines and cables associated with the Cormorant North field, there are no other cables or pipelines in the vicinity, no designated military practice and exercise areas, no offshore renewable or wind farm activity and no designated or protected wrecks which could interact with the decommissioning activities.
Atmosphere	The primary source of atmospheric emissions will be from vessel activity during decommissioning activities.

4.2 Potential Environmental Impacts and their Management

A review of potentially significant environmental and social interactions has been completed and, considering the mitigation measures that will be built into the project activities, there is expected to be no significant impact on receptors from North Cormorant Upper Jacket decommissioning.

Given the remote offshore location of the North Cormorant field, there is no potential for North Cormorant Upper Jacket decommissioning to impact any European or nationally designated protected sites. The Environmental Appraisal has considered the Scottish National Marine Plan adopted by the Scottish Government to help ensure sustainable development of the marine area. TAQA considers that the proposed decommissioning activities are in alignment with its objectives and policies.

Based on the findings of the Environmental Appraisal including the identification and subsequent application of appropriate mitigation measures, and project management according to TAQA's Health, Safety, Security and Environment Policy, and Environmental Management System, it is considered that the proposed North Cormorant Upper Jacket decommissioning activities do not pose any significant threat of impact to environmental or societal receptors within the UKCS. Summaries of the bases for this determination are given in Table 4.2.

Notwithstanding, TAQA is committed will apply the management measures set out in Table 4.3 to ensure that decommissioning activities at North Cormorant represent good practice and reduce further any potential environmental impacts.

Table 4.2: Environmental Impact Screening Summary		
Impact	**Further Assessment**	**Rationale**
Emissions to Air	No	• Majority of emissions relate to vessel time, or the recycling of material returned to shore which will be limited in duration. • The estimated CO_2 emissions generated by the decommissioning activities is 22,137 Te. . These emissions correspond to a total of approximately 87 vessel days of effort across four different vessel types, and onshore deconstruction, material transport and material recycling. • The total CO_2 emissions equate to less than 15% of the operational emissions emitted by the North Cormorant asset during 2022 and less than 0.16 % of the total UKCS emissions in 2022 (14,300,000 Te; OEUK, 2023). Considering the above, atmospheric emissions do not warrant further assessment.
Disturbance to the Seabed	No	• Planned use of dynamically positioned vessels therefore no direct seabed interaction associated with the decommissioning. • Cutting will be carried out using abrasive water jet or diamond wire. Both techniques will generate swarf, and abrasive water jet will release spent abrasive media. Any swarf, abrasive media, marine growth, etc. that falls to the seabed will fall within a footprint that extends some 15 m from the base of the Jacket. Any such discharges are unlikely to cause significant disturbance to the seabed or cuttings pile. Following award of contract and selection of cutting methodology, any such disturbances will be quantified and assessed in the Marine Licence application submitted in support of the execution of Upper Jacket removal. On this basis, no further assessment need be undertaken.

Table 4.2: Environmental Impact Screening Summary		
Impact	**Further Assessment**	**Rationale**
Physical Presence of Vessels in Relation to Other Users of the Sea	No	• Limited in duration. • Similar vessels to those currently deployed for oil and gas installation, operation, and decommissioning activities. • Vessel activity focussed within the existing 500 m safety zone and will not occupy “new” areas. • Other sea users will be notified in advance of and subsequent to operations. • The decommissioning of the North Cormorant Upper Jacket is estimated to require up to four vessels, however these would not all be on location at the same time (max of three at any one time). Considering the above, temporary presence of vessels does not need further assessment.
Physical presence of infrastructure decommissioned in situ in relation to other sea users	No	• The decommissioning of the Upper Jacket will not result in any material left in situ. However, the Jacket Footings will remain in situ. The Footings and associated riser sections will be the subject of subsequent Decommissioning Programmes. • On this basis, no further assessment need be undertaken.
Physical presence of Footings following removal of the 500 m safety zone but prior to the footings DP approval in relation to other sea users	No	• Once the Upper Jacket is removed, there will be no aids to navigation in place to alert other sea users to the presence of the Jacket Footings. This potentially leads to an increase in the risk to other sea users. This issue will be addressed in a variation to the Consent to Locate for the installation. • This change potentially leads to an increase in the risk to other sea users. To mitigate the risk TAQA will advise the relevant bodies of changes to the installation to facilitate updates to Admiralty charts and the FishSAFE system to notify other sea users of the presence of the Jacket Footings. These mitigation measures will be addressed in the application to vary the Consent to Locate.. On this basis, no further assessment need be undertaken.

Table 4.2: Environmental Impact Screening Summary		
Impact	**Further Assessment**	**Rationale**
Discharges to Sea	No	• Discharges from vessels are typically well-controlled activities that are regulated through vessel and machinery design, management, and operational procedures. • The potable water storage tanks in Legs E2 and E4 will be cut through during removal. This may lead to the discharge of potable water to sea. (The potable water storage tank in C4 only extends to -50 m and is therefore will not be cut through). Given the benign nature of potable water, these discharges will not have any adverse environmental impact. • The base of the storage tanks for diesel in the Upper Jacket legs will not be cut through during removal activities. However, there may be small residual quantities of diesel discharged during Upper Jacket removal. These discharges are expected to be negligible as the tanks will have been emptied and cleaned as part of preparation activities. Prior to Upper Jacket removal operations commencing, TAQA will apply for an oil discharge permit under the Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations (OPPC) to cover any residual diesel discharges. These potential discharges will be fully assessed in the relevant permit applications. • Any marine growth present on the Upper Jacket will be removed prior to cutting but will be limited to the cut location and lift points. This will be fully assessed in the relevant environmental permit applications. Marine growth remaining on the Upper Jacket will be removed onshore. Considering the above, discharges to sea resulting from any vessel and Upper Jacket removal activity should not be assessed further.

Table 4.2: Environmental Impact Screening Summary		
Impact	**Further Assessment**	**Rationale**
Underwater Noise Emissions	No	• Aside from vessel noise and Upper Jacket cutting activities, there will be no other noise generating activities. • Vessel presence and cutting activities will be limited in duration. • The project is not located within an area protected for marine mammals. • With industry-standard mitigation measures and JNCC guidance, EAs for offshore oil and gas decommissioning projects typically show no injury, or significant disturbance associated with these projects. • The cutting technique is likely to be diamond wire, or possibly abrasive water jet. Department of Energy Security & Net Zero guidance states that "Sound radiated from the diamond wire cutting of a conductor or abrasive water jets is not easily discernible above the background noise." On this basis, underwater noise assessment does not need assessed further.
Resource Use	No	• Limited raw materials required (largely restricted to fuel use). • The estimated total energy usage for the decommissioning activities is 264,826 GJ. • Material will be returned to shore as a result of project activities, expectation is to reuse or recycle c.95 % of this returned material. There may be instances where infrastructure returned to shore is contaminated and cannot be recycled, but the weight/volume of such material is not expected to result in substantial landfill use. Considering the above, resource use does not warrant further assessment.
Waste	No	• The waste to be brought to shore will be managed in line with TAQA's Waste Management Strategy and the Waste Hierarchy, as part of the project AWMP, using approved waste contractors and in liaison with the relevant Regulators. On this basis, no further assessment of waste is necessary.

Table 4.2: Environmental Impact Screening Summary		
Impact	**Further Assessment**	**Rationale**
Unplanned Events	No	• The OPEP in place for the North Cormorant platform will be revised as necessary to cover decommissioning. • SOPEPs will be in place for vessels used in decommissioning operations. • Emergency response procedures will be in place for the North Cormorant installation and decommissioning vessels during decommissioning operations. • Wells will be abandoned to OEUK WDP2 [7] prior to Upper jacket removal. Therefore, the reservoir will be fully isolated from the surface to prevent any discharge of reservoir fluids. (TAQA may apply for derogation to leave the North Cormorant platform footings in place. If derogation is granted the wells will be abandoned at "AB2 Derogated" status, in accordance with NSTA guidance, corresponding to OEUK WDP2 status [7]. If derogation is not granted, the wells will be abandoned at AB3 status according to [8], corresponding to OEUK WDP3 status [7]). Considering the above, the potential of unplanned during decommissioning activities do not warrant further assessment.

Table 4.2: Environmental Impact Screening Summary		
Impact	**Further Assessment**	**Rationale**
Wild Birds	No	All nesting birds and nesting activities are protected from damage by conservation legislation. Under the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2017 – (OMR 17), it is an offence to: • take, damage, or destroy the nest of any wild bird while that nest is in use or being built, or • take or destroy an egg of any wild bird. TAQA has in place a proactive Seabird Management Strategy, which is managed continuously. This includes a suite of remedial strategies that can be used, if required, to prevent birds from nesting. Part of the strategy includes conducting independent annual nesting bird surveys on each of TAQA's offshore platforms. Since 2021 there has been no evidence of nesting birds on North Cormorant. In addition, monthly surveys are conducted on the platform by trained personnel to provide a summary of bird activity and presence throughout the year. Again, this has not identified any nesting birds. Prior to disembarkation, an asset specific survey will be undertaken to identify those areas of higher risk of nesting birds and appropriate deterrent measures will be put in place. In addition to the ongoing annual surveys, a dedicated survey will be conducted prior to the arrival of the HLV in the field to re-confirm there remains no nesting birds. In the event nesting birds are encountered, TAQA will engage with OPRED to agree any necessary licensing obligations at that time. This may include application for a disturbance licence. Considering the above, the potential impacts on seabirds and seabird nests do not warrant further assessment in this EA.

Table 4.3: Environmental Impact Management	
Impact	**Management**
Emissions to Air	Vessel management in accordance with TAQA's marine procedures. Minimal vessel use/movement. Engine maintenance.
Disturbance to the Seabed	Dynamically positioned vessels will be used. Therefore, no anchoring will take place. A post-decommissioning seabed verification will be conducted using non-intrusive methods.
Physical Presence of Vessels in Relation to Other Users of the Sea	Minimal vessel use. Notification to Mariners.
Physical presence of infrastructure decommissioned in situ in relation to other sea users	None of the equipment within scope of these Decommissioning Programmes will be left in situ. The sub-structure Footings that remain after decommissioning will be included in the FishSAFE mapping and bulletin systems and marked on Admiralty charts.
Discharges to Sea	MARPOL compliance. Bilge management procedures. Vessel audit procedures. Contractor management procedures. Emptying and cleaning of B2 and B4 diesel oil tanks prior to any Upper jacket removal, compliance with regulatory requirements including discharge permit for any residual diesel in tanks. The tanks in legs C2, E2 and E4 contain potable water. Discharge of this water has no significant environmental impact.
Underwater Noise Emissions	There will be no noise generating activities apart from vessel use and underwater cutting. Vessel noise during the cutting process will mask cutting noise. Notwithstanding, vessel use and cutting durations will be minimised where possible. 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.
Waste	Adherence to the Waste Hierarchy. Waste Management Strategy and Active Waste Management Plan.
Unplanned Events	OPEP in place for operations. SOPEP on all vessels. Navigational warnings in place. Contractor management and communication. Lifting operations management of risk. Dropped object risk assessments
Wild Birds	Management of wild birds in the vicinity of the Upper Jacket is achieved through the TAQA wild birds management strategy.

5 INTERESTED PARTY CONSULTATIONS

TAQA consulted a wide range of interested parties during the decommissioning planning stages, and compilation of the Decommissioning Programme. These are summarised as:

Table 5.1: Summary of Stakeholder Comments		
Statutory Consultees		
Who	**Comment**	**Response**
Scottish Fisherman's Federation (SFF)		
National Federation of Fisherman's Organisations (NFFO)		
Northern Irish Fish Producers Organisation (NIFPO)		
Global Marine Services (GMS)		
North Sea Transition Authority (NSTA)		
Other Stakeholders		
Who	**Comment**	**Response**
Public		

6 PROGRAMME MANAGEMENT

6.1 Project Management and Verification

A TAQA Project Management team will be appointed to manage the selected North Cormorant Upper Jacket removal contractor. TAQA health, environment and safety management principals will govern hazard identification, risk management and operational controls. Where possible the work will be coordinated with due regard to interfaces with other operators' oil and gas assets in the NNS and with other users of the sea. The TAQA Project Management team will control and manage the progress all permits, licences, authorisations, notices, consents, and consultations required as part of this process. Any changes in detail to the offshore removal programme will be discussed and agreed with OPRED.

6.2 Post Decommissioning as Left Status

Following the removal of the North Cormorant Upper Jacket TAQA will conduct an as left survey of the Footings, to confirm that Upper Jacket removal is in accordance with the approved DPs. The presence of the Footings that remain after the removal of the Upper Jacket will be addressed in a variation to the Consent to Locate and included in the FishSAFE mapping and bulletin systems and marked on Admiralty Charts and notices to mariners as required.

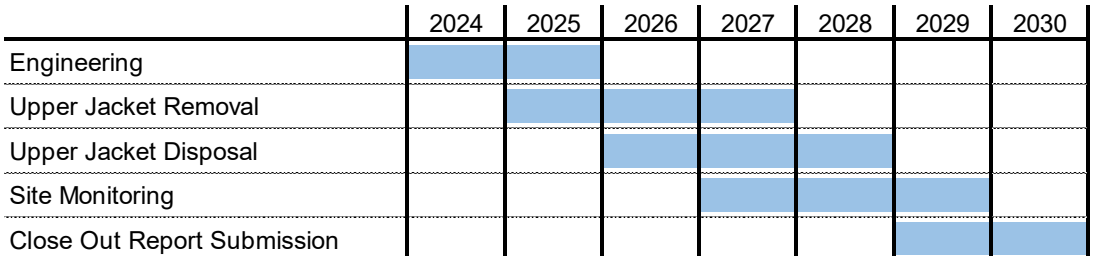
Following complete field decommissioning, an independent verification of the seabed will be performed, and TAQA will conduct two environmental baseline surveys, at least two pipeline surveys, and two surveys of the seabed at the North Cormorant platform location.

6.3 Schedule

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

- Cessation of production: Q2 2024
- Topsides / Upper Jacket removal: 2025-2027
- Upper Jacket disposal 2026-2028
- Upper Jacket removal as left survey: 2027-2029
- Post Removal Survey Post 2027

This schedule may change to maximise economic recovery, or to exploit opportunities to minimise decommissioning impacts by combining activities into campaigns, or by combining North Cormorant decommissioning operations with third-party decommissioning. The North Cormorant Upper Jacket decommissioning schedule is illustrated in Figure 6-1.



Note: Actual execution windows will be subject to contractor portfolio and market capacity, and removal may be accelerated.

Figure 6-1: North Cormorant Decommissioning Schedule

6.4 Long Term Facilities Management

The planned decommissioning of the North Cormorant field will take place over an extended period. Throughout this period the asset and the 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 programme safely and in compliance with regulations and TAQA's corporate standards.

TAQA will communicate the presence of the North Cormorant Footings through the FishSAFE mapping and bulletin systems and by providing details of the facilities to the UK Hydrographic Office for inclusion on Admiralty charts as appropriate. TAQA will also amend the North Cormorant Consent to Locate to reflect the installation's revised configuration following Upper Jacket removal.

Following complete field decommissioning, an independent verification of the seabed will be performed, and TAQA will conduct two environmental baseline surveys, at least two pipeline surveys, and two surveys of the seabed at the North Cormorant platform location.

6.5 Costs

Table 6.1: Provisional Decommissioning Programmes Costs

Item	Estimated Cost (£m)
WBS 1 – Operator Project Management	Provided to OPRED in confidence
WBS 2 – Post CoP OPEX	
WBS 3 – Well Abandonment	
WBS 4 – Facilities & Pipelines Permanent Isolation & Cleaning	
WBS 5 – Topsides Preparation	
WBS 6 – Topsides Removal	
WBS 7 – Substructure Removal	
WBS 8 – Onshore Recycling	
WBS 9 – Subsea Infrastructure	
WBS 10 – Site Remediation	
WBS 11 – Monitoring	

6.6 Close Out

In accordance with the OPRED guidelines, a close out report will be submitted to OPRED within twelve months of the completion of the offshore decommissioning scope 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 Evaluation

Following the full decommissioning of the North Cormorant field, TAQA will carry out two post decommissioning baseline environmental surveys. The surveys will focus on chemical and physical disturbances of the decommissioned area and be compared with pre decommissioning surveys.
TAQA will also commission an independent verification of the seabed. In addition, TAQA will also conduct at least two pipeline surveys, and two surveys of the North Cormorant platform location.
TAQA will forward a copy of all the survey results 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.

6.8 Management of Residual Liability

The Footings and associated riser sections that are left in place following the completion of the Upper Jacket and Associated Riser Sections Decommissioning Programme will remain the property and responsibility of the North Cormorant S29 notice holders and will be subject to a separate Decommissioning Programme.

The North Cormorant Operator recognises that the parties to the North Cormorant and Associated Riser Sections Decommissioning Programmes will continue, post completion of the programme, to retain ownership of, and residual liability for any infrastructure left in place.

The presence of the North Cormorant 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 also amend the North Cormorant Consent to Locate to reflect the installation's revised configuration following Upper Jacket removal.

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

7 SUPPORTING DOCUMENTS

[1] TAQA, North Cormorant Topside Decommissioning Programme TB-CONDEC01-X-AD-0001-000

[2] TAQA, Eider Sub-structure Removal Options Structural Assessment, 77-AEIA0288-S-RE-0001-000

[3] Xodus, Impact of Upper Jacket Removal on Subsequent Footings Removal, A-302504-S00-TECH-002

[4] Causeway and Fionn Fields Subsea Installations and Associated Pipelines Decommissioning Programmes, Ithaca Energy, CFI-LLA-IT-DE-PRO-0001, Rev 6, November 2022

[5] Department for Business Energy & Industrial Strategy, Guidance Notes: Decommissioning of Offshore Oil & Gas Installations and Pipelines, November 2018

[6] Decom North Sea, Environmental Appraisal Guidelines, 2017

[7] OEUK Well Decommissioning Guidelines, Issue 7 November 2022

[8] NSTA, UKCS Well Applications and Consents Guidance, July 2022

8 APPENDICES

Appendix 1 Public Notice

Appendix 2 Section 29 Holders' Letter of Support

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