

OTTER SUBSEA INSTALLATION: REMOVAL OF ROOF HATCHES FROM THE OTTER TEMPLATE AND WATER INJECTION WELLHEAD PROTECTION STRUCTURES

Decommissioning Programme Close
Out Report



DOCUMENT CONTROL

TAQA Internal Revision Summary			
Document Owner:	TAQA Bratani Limited		
Revision No:	02	Revision Date:	16 th September 2025
Revision Summary:	Issued for Comment		
Authorisation	Prepared By:	Verified By:	Approved By:
	C. Leaf	D. Talbert/L. Dunn	C. Wicks

OPRED Revision Summary			
Revision No.	Reference	Changes / Comments	Issue Date
01	First draft	-	12 th August 2025
02	Second draft	Revised to reflect OPRED comment	16 th September 2025

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

TABLE OF CONTENTS

LIST OF ABBREVIATIONS	3
1 SUMMARY.....	4
1.1 Decommissioning Programme.....	4
1.2 Project Delivery Against the Approved Schedule	10
1.3 Project Overview.....	10
1.4 Associated Decommissioning Approvals	11
2 DECOMMISSIONING ACTIVITIES	12
2.1 Contracts Awarded	12
2.2 Subsea Installations	12
2.3 Results of Post decommissioning Survey.....	12
2.4 Stakeholder Engagement.....	16
3 IMPACT ON ENVIRONMENT	17
3.1 Activities.....	17
3.2 Greenhouse Gas Emissions	17
3.3 Future Monitoring.....	18
4 IMPACT ON HEALTH AND SAFETY.....	19
4.1 Incidents / Accidents During Project Execution.....	19
5 WASTE.....	20
6 LESSONS LEARNED	22
7 COST SUMMARY	23
8 PHOTOGRAPHS	24

TABLE OF TABLES

Table 1-1: Overview of the Decommissioned Installations in the DP	9
Table 1-2: Summary of the Approved Decommissioning Option in the Approved DP	9
Table 1-3: Associated Decommissioning Approvals	11
Table 2-1: Contracts Awarded	12
Table 2-2: Subsea Installation Decommissioning Key Milestones.....	12
Table 2-3: Stakeholder Engagement.....	16
Table 5-1: Materials Returned to Shore	20

TABLE OF FIGURES

Figure 1-1: Otter Field Layout	5
Figure 1-2: Overview of Otter Template Protection Structure.....	6
Figure 1-3: Otter Template Protection Structure Hatch Types	7
Figure 1-4: Water Injection Wellhead Protection Structure Hatches	8
Figure 1-5: Planned and Actual Decommissioning Schedules	10

TABLE OF PHOTOGRAPHS

Photograph 2-1: Otter water injection wellhead protection structure without hatches ...	13
Photograph 2-2: Close up of Otter water injection wellhead protection structure without hatches.....	13
Photograph 2-3: View from the top of the Otter template protection structure showing the Xmas tree below	14
Photograph 2-4: Top of the Otter template protection structure with the hatches removed	14
Photograph 2-5: Empty hatches hinges viewed from the top of the Otter template protection structure.....	15
Photograph 2-6: Empty hatches hinges at the Otter template protection structure	15
Photograph 5-1: Reuse of seven of the Otter protection structures hatches as a segregation wall at the waste management subcontractor's facilities.....	21
Photograph 8-1: Water injection wellhead protection structure hatch (I2) (depicted by red arrow) on top of one of the Type 1 template protection structure hatches	24
Photograph 8-2: Two more of the Type 1 template protection structure hatches	25
Photograph 8-3: One of the Type 2 template protection structure hatches	26
Photograph 8-4: The Type 3 template protection structure hatch	27

LIST OF ABBREVIATIONS

Abbreviation	Explanation
AWMP	Active Waste Management Plan
CoP	Cessation of Production
CO ₂	Carbon Dioxide
DP	Decommissioning Programme
DSV	Diving Support Vessel
GHG	Greenhouse Gases
km	Kilometres
m	Metres
NNS	Northern North Sea
NORM	Naturally Occurring Radioactive Material
NSTA	North Sea Transition Authority (Previously the OGA)
OGA	Oil and Gas Authority
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSPAR	Oslo Paris Agreement
P&A	Plugging and Abandonment
ROV	Remotely Operated Vehicle
TAQA	TAQA Bratani Limited
Te	Tonnes
UK	United Kingdom
UKCS	United Kingdom Continental Shelf

1 SUMMARY

1.1 Decommissioning Programme

The TAQA operated Otter field infrastructure is located in UK continental shelf (UKCS) Blocks 210/15a, 210/20d and 211/16, 120 km north-east of the Shetland Islands, in a water depth of approximately 182 m. [Figure 1-1](#) overleaf presents the layout of the Otter field infrastructure. The field was produced via the North Cormorant Platform, which is located in UKCS Block 211/21a approximately 32.5 km south southeast of the Otter field and onwards transfer of the oil was via the Brent Pipeline System to the Sullom Voe Terminal in Shetland.

The Otter field protection structures are located approximately 21 km north of the Eider platform in the Northern North Sea (NNS) in UKCS Block 210/15a. The structures protect the Otter wells and manifold skid from fishing gear impacts and dropped objects. There are two protection structures:

- The template protection structure; and
- The water injection wellhead protection structure.

The template protection structure is not directly connected to the template or its supports, and the water injection wellhead protection structure is not directly connected to the wellhead. The figures on the following pages depict the Otter template protection structure ([Figure 1-2](#) and [Figure 1-3](#)) and the water injection wellhead protection structure ([Figure 1-4](#)).

The top of the template protection structure consisted of seven hatches for individual access to the four well slots and the manifold located on the Otter template (see [Figure 1-3](#)). With the exception of the central hatch, the hatches were hinged on the port and starboard top chord members and supported on the centre hatch. The centre hatch gave access to the manifold and was hinged on a beam supported by the top chord members. The centre hatch could only be opened if all other hatches were already open.

The top of the water injection wellhead protection structure (see [Figure 1-4](#)) consisted of two hatches, hinged on the starboard top chord, and supported on the opposite port chord.

The Otter field ceased production in early June 2024, followed by pipeline flushing and subsea disconnection. Plugging and abandonment (P&A) of the wells is scheduled for late 2025, early 2026. Hatch removal was required to facilitate pipeline disconnection work and to provide equipment access for P&A of the Otter wells.

The draft Decommissioning Programme (DP) for the nine Otter protection structures hatches was agreed in principle with the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) in June 2024, with agreement that works could proceed ahead of the DP being finalised following statutory consultation subject to TAQA obtaining the required Marine Licence. The final DP was formally approved by OPRED on 24th December 2024.

The Otter protection structures hatches DP related only to the nine hatches. All other parts of the protection structures remain; they and the remaining Otter field infrastructure will be subject to a separate, future DP(s) and associated Close Out Report(s) thus are not detailed herein.

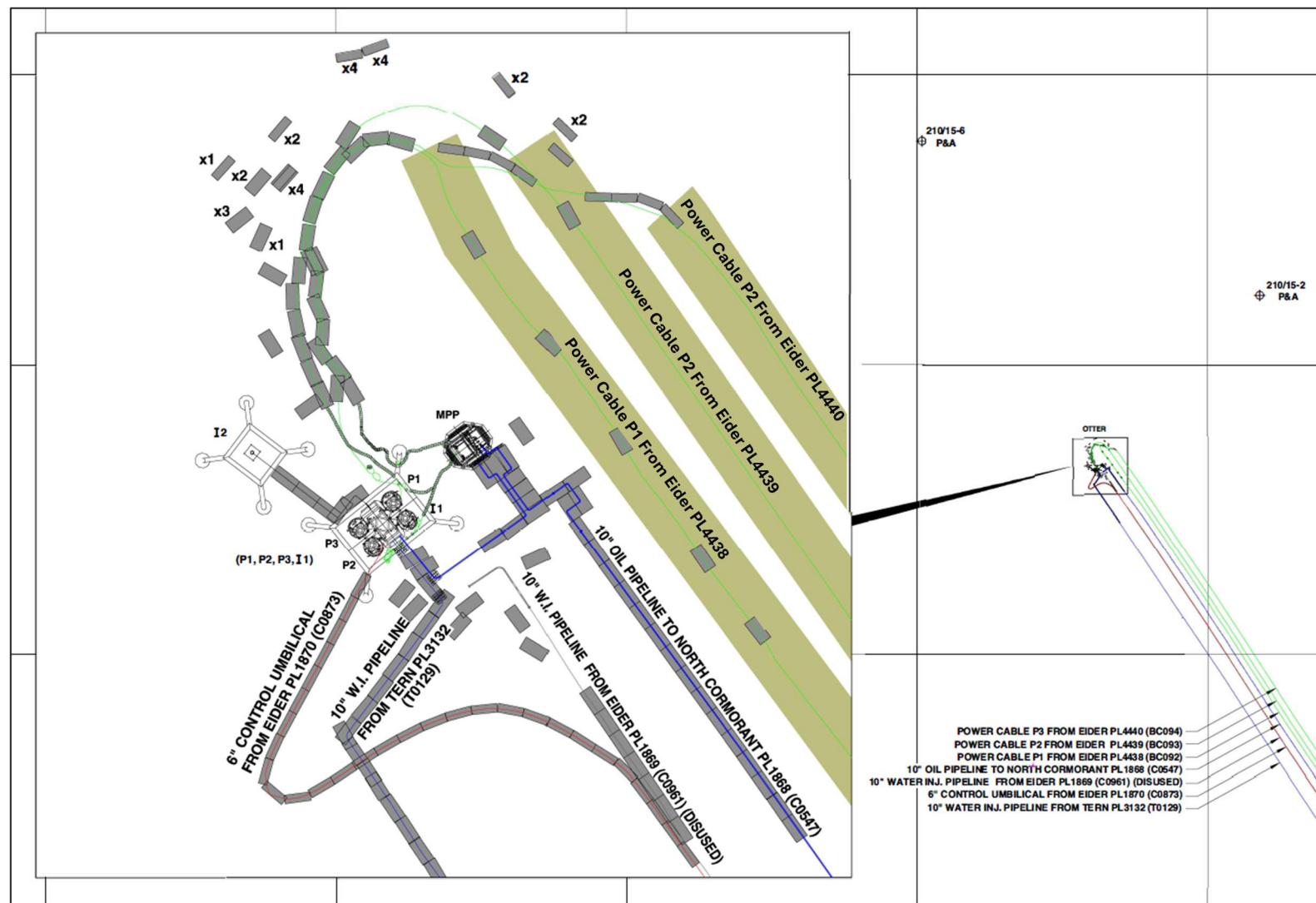


Figure 1-1: Otter Field Layout

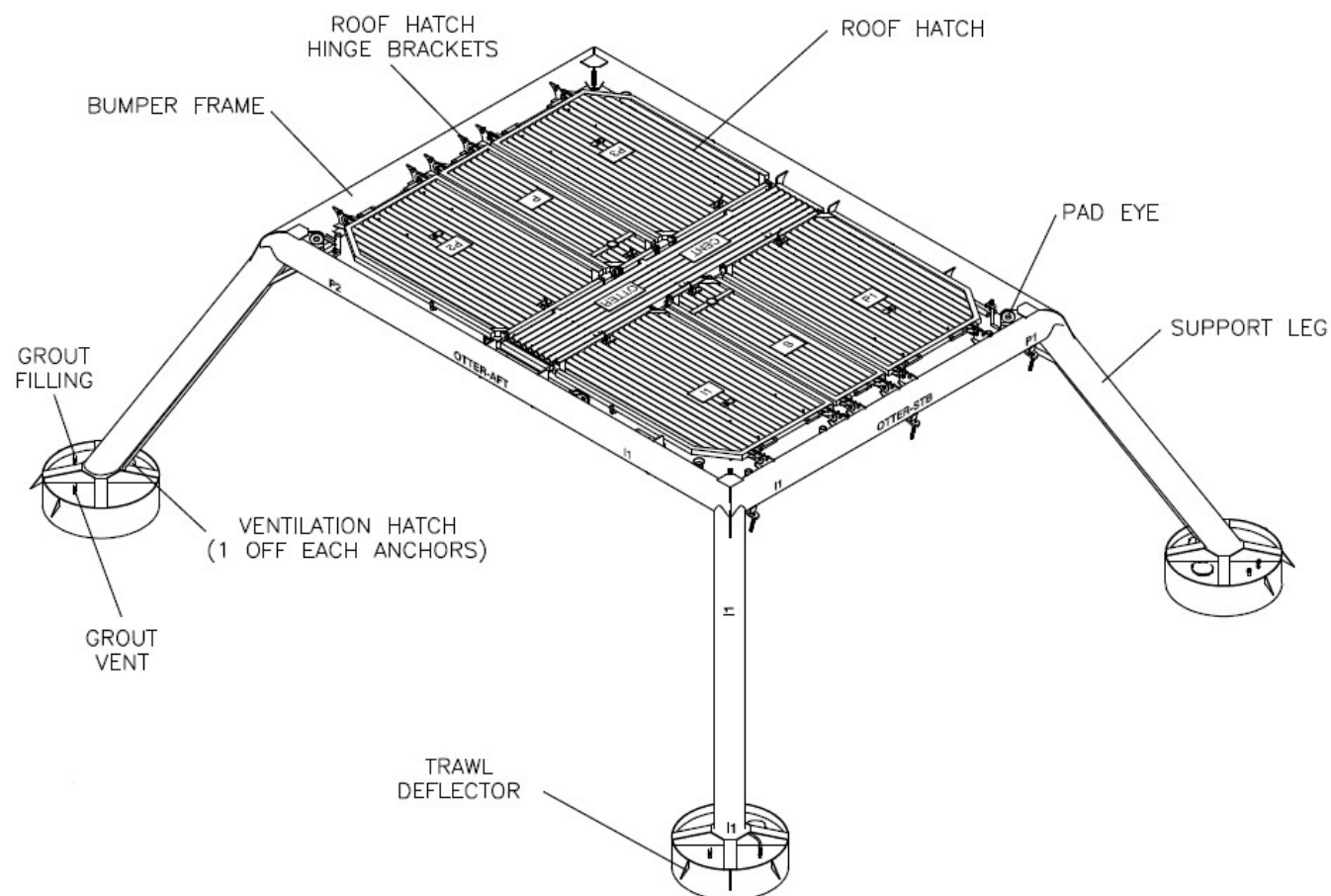


Figure 1-2: Overview of Otter Template Protection Structure

OTTER PROTECTION STRUCTURES HATCHES
DECOMMISSIONING PROGRAMME CLOSE OUT REPORT

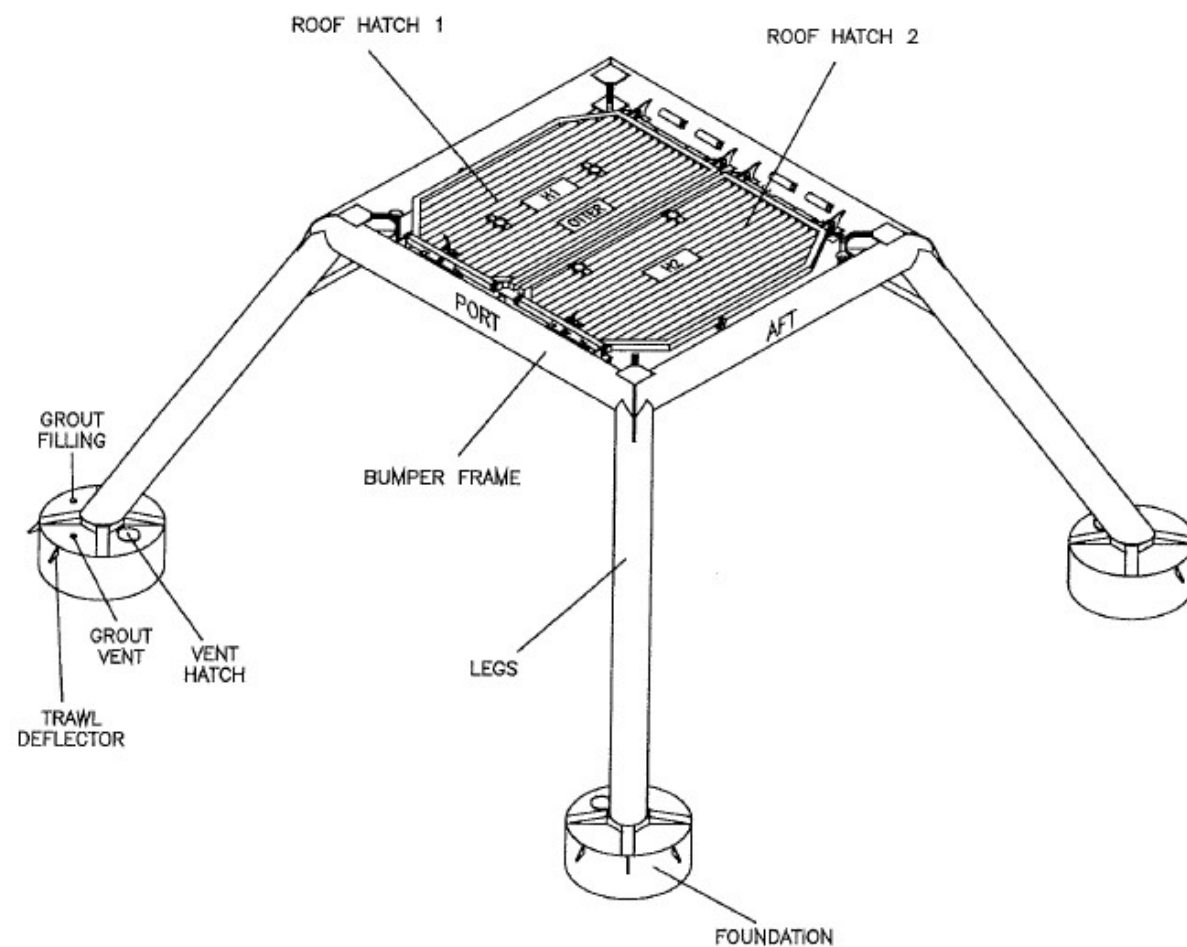


Figure 1-4: Water Injection Wellhead Protection Structure Hatches

Table 1-1 below provides detail on the number, type and weight of the nine hatches.

Table 1-1: Overview of the Decommissioned Installations in the DP		
Otter Protection Structures Hatches		
Number	Type	Total Weight in Air (Te)
2	Template Protection Structure Hatch Type 1A (wells I1, P3)	7.2 (3.6 Te each)
2	Template Protection Structure Hatch Type 1M (wells P1, P2)	7.2 (3.6 Te each)
2	Template Protection Structure Hatch Type 2 (P&S)	4.2 (2.1 Te each)
1	Template Protection Structure Hatch Type 3 (centre)	8.1
2	Water Injection Wellhead Protection Structure Hatches (I2)	7.2 (3.6 Te each)
9	Total Number and Weight of Hatches as Installed	33.9

Table 1-2 below summarises the approved decommissioning option for the nine hatches as per the approved DP.

Table 1-2: Summary of the Approved Decommissioning Option in the Approved DP	
Proposed Decommissioning Solution	Reason For Selection
Otter Protection Structures' Hatches	
Full Removal: All recovered materials, i.e. hatches, transported to shore for re-use, recycling, or disposal.	To facilitate pipeline disconnection, to enable P&A of Otter wells and in compliance with OSPAR Decision 98/3 and regulatory requirements.
Drill Cuttings	
There were no drill cuttings in the scope of the DP.	
Interdependencies	
The scope of the DP was limited to the Otter protection structures' hatches removal and recovery. This was required to facilitate pipeline disconnection and to enable P&A of the Otter wells. The other components of the Otter subsea installation will be the subjects of a separate DP.	

1.2 Project Delivery Against the Approved Schedule

Figure 1-5 below presents the planned project schedule as documented in the approved DP and the actual decommissioning schedule carried out.

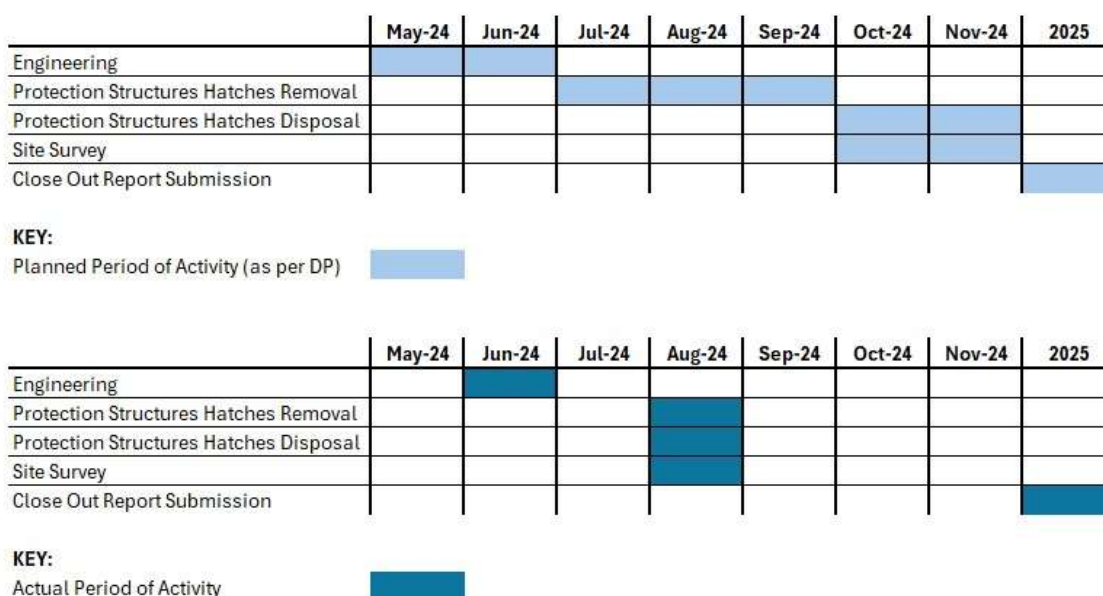


Figure 1-5: Planned and Actual Decommissioning Schedules

As can be seen from Figure 1-5, the Otter protection structures hatches decommissioning was completed within the approved DP schedule, with the “disposal” element being completed ahead of the anticipated schedule.

1.3 Project Overview

TAQA awarded the contract for removal and recovery to shore of the Otter protection structures hatches to Subsea7. Removal of the Otter protection structures hatches was undertaken in August 2024 using Subsea7’s Seven Kestrel Diving Support Vessel (DSV), dive team and remotely operated vehicle (ROV).

The Otter protection structures hatches were removed from the protection structures, temporarily placed on existing concrete mattresses, rerigged and hoisted onto the deck of the Seven Kestrel DSV.

The hatches were then returned to shore at South Harbour, Port of Aberdeen (August 2024). The post removal survey was undertaken as part of the removal scope by Subsea7 (August 2024).

Augean, TAQA’s incumbent waste management contractor, was responsible for arranging waste management of the hatches. Augean subcontracted A&M Smith Recycling Services for onward management of the resulting wastes.

1.4 Associated Decommissioning Approvals

Table 1-3 below summarises the decommissioning approvals associated with removal of the Otter protection structures hatches.

Table 1-3: Associated Decommissioning Approvals	
Otter Protection Structures Hatches Removal	Marine Licence ML/1142/1 (version 2), valid from 1st June to 31st December 2024. Authorised temporary placement on existing concrete mattresses and removal of the Otter protection structures hatches.

2 DECOMMISSIONING ACTIVITIES

2.1 Contracts Awarded

The key contractors appointed by TAQA for execution of the DP are listed in [Table 2-1](#) below.

Table 2-1: Contracts Awarded		
Contractor	Service	Date of Award
Subsea7	Engineering design and removal of Otter protection structures hatches, recovery to shore and post removal survey	June 2024
Augean Ltd	Waste management of recovered hatches (TAQA's incumbent waste management contractor)	N/A

2.2 Subsea Installations

The dates that key milestones were achieved during execution of the DP are listed in [Table 2-2](#) below.

Table 2-2: Subsea Installation Decommissioning Key Milestones	
Activity	Date
Engineering	June 2024
Protection Structures Hatches Removal	August 2024
Protection Structures Hatches Disposal (Reuse)	August 2024
Site Survey	August 2024
Close Out Reporting	August 2025

2.3 Results of Post decommissioning Survey

The results of the post decommissioning survey show completed removal of the Otter protection structures hatches as per the approved decommissioning option in the approved DP. The post decommissioning survey results are illustrated in the photographs on the following pages.



Photograph 2-1: Otter water injection wellhead protection structure without hatches



Photograph 2-2: Close up of Otter water injection wellhead protection structure without hatches



Photograph 2-3: View from the top of the Otter template protection structure showing the Xmas tree below



Photograph 2-4: Top of the Otter template protection structure with the hatches removed



Photograph 2-5: Empty hatches hinges viewed from the top of the Otter template protection structure



Photograph 2-6: Empty hatches hinges at the Otter template protection structure

2.4 Stakeholder Engagement

Table 2-3 below summarises the stakeholder engagement undertaken by TAQA for the scope of works in the approved DP.

Table 2-3: Stakeholder Engagement
TAQA consulted with: • OPRED Environmental Management Team • OPRED Offshore Decommissioning Unit • Health and Safety Executive • North Sea Transition Authority • Scottish Fishermen's Federation • Section 29 Holders Information regarding decommissioning of TAQA's NNS assets is also available to other interested parties and the general public via the Decommissioning page on TAQA UK's website: Decommissioning – TAQA United Kingdom

3 IMPACT ON ENVIRONMENT

3.1 Activities

No environmental incidents occurred as a result of the activities undertaken to decommission the Otter protection structures hatches.

As described in Section 5, a reuse opportunity was identified for seven of the total nine Otter protection structures hatches. This resulted in a positive environmental impact given the reuse of the seven hatches negated the use of virgin materials and avoided the use of energy and emission of greenhouse gases that would have resulted from onward movement and recycling of those hatches at a smelter.

3.2 Greenhouse Gas Emissions

TAQA has developed an Emissions Management Strategy which details how TAQA will support the UK government's commitment to achieve net zero Greenhouse Gas (GHG) emissions by 2050 and the Scottish government's target of 2045, through aligning with the NSTA's Stewardship Expectation 11 (Net Zero) and demonstrating that being an environmentally responsible operator is part of TAQA's licence to operate.

Net zero means that the UK's total GHG emissions would be equal to or less than the emissions the UK removed from the environment. This can be achieved by a combination of emission removal, emission reduction and offsetting.

Atmospheric emissions associated with decommissioning activities are however inevitable. TAQA is dedicated to minimising greenhouse gas emissions from decommissioning operations, as far as is reasonably practicable for each project. TAQA is committed to working with the supply chain and joint ventures as part of meeting these commitments. Atmospheric emissions are an element of the assessment process when determining removal scopes and a focus area for tender reviews.

TAQA has assessed the emissions associated with the Otter protection structures hatches removal project. In doing so, clear boundaries and assumptions have been documented for the scope of the emissions assessment to allow, as far as possible, replication and comparison with other decommissioning projects.

The scope encompassed the following elements:

- DSV fuel use during transit to and from the Otter protection structures;
- Road transportation from the quayside to the first tier waste management contractor and onwards to the waste management subcontractor's facility where seven of the hatches were reused;
- Road transportation onwards from the waste management subcontractor's facility to the landfill where non-metal wastes were disposed;
- Road and sea transportation for onward movement of the remaining two hatches to the smelter in Spain; and
- An estimation of the associated energy use at the smelter (electric arc furnace) for smelting of the two hatches.

The results from the assessment show total emissions of approximately 39.4 Te of CO₂ (Carbon Dioxide) can be attributed to the Otter protection structures hatches removal project.

Taking the total mass of material returned to shore and its management (considering the elements listed above), this produced a rate of approximately 1.15 Te CO₂ emissions per tonne of material recovered to shore.

3.3 Future Monitoring

As per the approved DP, no future monitoring will be undertaken for the scope of works governed by the Otter protection structures DP. Following the wider Otter subsea infrastructure decommissioning (which will be subject to a separate future DP) TAQA will carry out a post-decommissioning environmental seabed survey, centred around the sites of the Otter facilities, the results of which will be made available to OPRED.

4 IMPACT ON HEALTH AND SAFETY

4.1 Incidents / Accidents During Project Execution

No health and safety incidents or accidents occurred as a result of the activities undertaken to decommission the Otter protection structures hatches.

5 WASTE

The wastes and materials resulting from decommissioning of the Otter protection structures hatches were managed in accordance with the Northern North Sea Subsea Disconnections Active Waste Management Plan (AWMP) which prioritises reuse and recycling over disposal, aligned to the principles of the waste hierarchy and the circular economy.

The wastes and materials resulting from decommissioning of the Otter protection structures hatches are shown in [Table 5-1](#) below. The waste management subcontractor identified a reuse opportunity for seven of the hatches which it used to form a segregation wall at its waste management facility in Aberdeenshire (see [Photograph 5-1](#) overleaf). The remaining two hatches were sent for recycling (smelting).

Table 5-1: Materials Returned to Shore				
Material	Total Weight (Te) as per the approved DP	Material left In situ (Te)	Actual Weight (Te) to shore	Disposal Method
Ferrous metals (all grades)	33.6	0	33.6	Reused / recycled
Non-ferrous metals (aluminium alloys)	0.3	0	0.05	Landfilled
Concrete	0	0	0	N/A
Hazardous (including NORM and residual fluids)	0	0	0	N/A
Other non-hazardous (includes marine growth)	0.3	0	0.5	Landfilled
Total	34.2	0	34.15	N/A
Total reuse/recycling/energy recovery as percentage of total weight to shore			98.34%	
Total disposed as percentage of total weight to shore			1.66%	

The difference in weight between the actual weight to shore and estimated weights report in the DP is minimal and primarily associated with the dissolution of the anodes. This resulted in a lesser weight of non-ferrous metals in the actual weight to shore compared to that estimated in the DP which was based on the weights at time of installation.



Photograph 5-1: Reuse of seven of the Otter protection structures hatches as a segregation wall at the waste management subcontractor's facilities

6 LESSONS LEARNED

The following summarises the lessons learned from decommissioning of the Otter protection structures hatches.

The contract for removal of the Otter protection structures hatches was awarded by TAQA to Subsea7 as a variation to an existing contract for a wider subsea disconnect scope. Adding the hatches to the wider scope resulted in the avoidance of mobilisation / demobilisation of vessels, equipment and people specifically for the Otter hatches removal scope. This resulted in both cost savings for TAQA and a reduction in GHG emissions associated with removal of the otter protection structures hatches.

Adding the Otter protection structures hatches scope as a variation to the existing contract agreement with Subsea7 also meant that contractual terms were pre-agreed, thereby avoiding the need for either party to negotiate specific terms for the project.

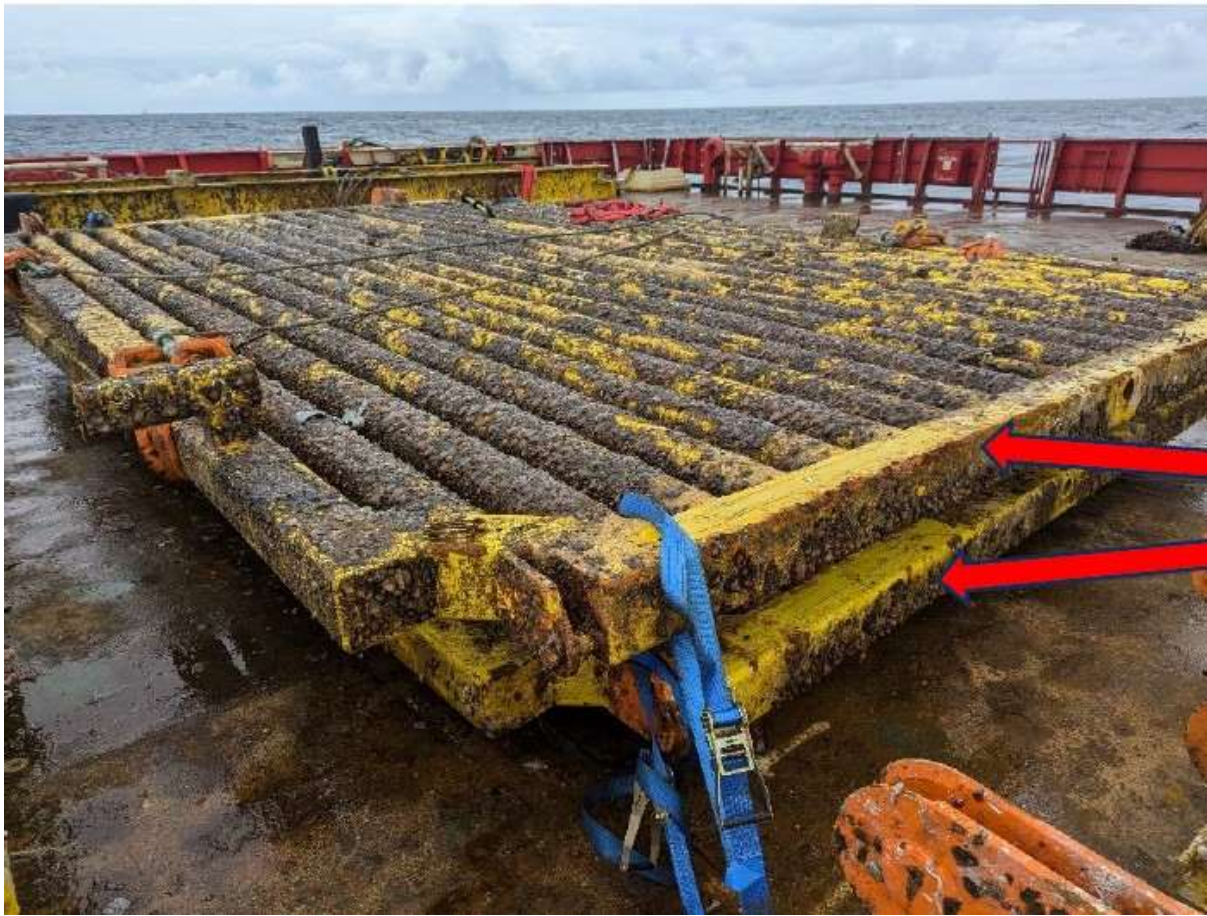
7 COST SUMMARY

TAQA has submitted a separate cost summary for decommissioning of the Otter protection structures hatches to OPRED in confidence, thus no cost information is provided herein.

8 PHOTOGRAPHS



Photograph 8-1: Water injection wellhead protection structure hatch (I2) (depicted by red arrow) on top of one of the Type 1 template protection structure hatches



Photograph 8-2: Two more of the Type 1 template protection structure hatches



Photograph 8-3: One of the Type 2 template protection structure hatches



Photograph 8-4: The Type 3 template protection structure hatch

CONTACT

TAQA Bratani Limited
Brimmond House
Prime Four Business Park
Kingswells
Aberdeenshire
AB15 8PU
Scotland UK

Tel: +44 (0)1224 275275 www.taqa.com

