



Lancaster Field

FPSO Decommissioning Programme

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HUR-GLA-ASM-REP-0001-A3

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	INST	P/L
Contents		
Tables and Figures4	✓	
Terms and Abbreviations5	✓	
Appendices.....6	✓	
1. Executive Summary7	✓	
1.1. Decommissioning Programme..... 7	✓	
1.2. Requirement for Decommissioning Programme 7	✓	
1.3. Introduction 7	✓	
1.4. Overview of Installation being Decommissioned8	✓	
1.5. Summary of Proposed Decommissioning Programme9	✓	
1.6. Field Location including Field Layout and Adjacent Facilities.....10	✓	
1.7. Industrial Implications11	✓	
2. Description of Items to be Decommissioned.....12	✓	
2.1. Installation – Surface Facility12	✓	
2.2. Wells12		
2.3. Inventory Estimates12	✓	
3. Removal and Disposal Methods14	✓	
3.1. Surface Facility (FPSO)14	✓	
3.2. Waste Streams17	✓	
4. Environmental Appraisal Overview18	✓	
4.1. Environmental Sensitivities.....18	✓	
4.2. Potential Environmental Impacts and their Management20	✓	
5. Interested Party Consultations.....21		
6. Programme Management.....23	✓	
6.1. Project Management and Verification.....23	✓	
6.2. Post Decommissioning Debris Clearance and Verification23	✓	
6.3. Schedule.....23	✓	
6.4. Costs.....24		
6.5. Close Out.....24		
6.6. Post Decommissioning Monitoring and Evaluation.....24	✓	
7. Supporting Documents25		
Appendix 1 Partner Letter(s) of Support26		
Appendix 2 Public Notices27		



Tables and Figures

Table No.	Description	Page
Table 1.1	Installation(s) being Decommissioned	8
Table 1.2	Installation (s) Section 29 Notice Holders Details	9
Table 1.3	Summary of Decommissioning Programme(s)	9
Table 1.4	Adjacent Facilities	11
Table 2.1	Surface Facilities Information	12
Table 3.1	FPSO Dimensions	15
Table 3.2	Preparation of Surface Facility for Removal	16
Table 3.3	Surface Facility Removal Methods.....	16
Table 3.4	Waste Stream Management Methods.....	17
Table 4.1	Environmental Sensitivities.....	19
Table 4.2	Environmental Impact Management	20
Table 5.1	Summary of Stakeholders Comments.....	22
Table 6.1	Provisional Decommissioning Programme Costs.....	24
Table 7.1	Supporting Documents	25

Figure No.	Description	Page
Figure 1:1	Field Locations in UKCS.....	10
Figure 1:2	Field Layout.....	10
Figure 1:3	Disconnectable Turret Buoy (DTB) position post FPSO removal	11
Figure 2:1	Pie chart of estimated FPSO inventories	13
Figure 3:1	Waste Hierarchy	14
Figure 3:2	FPSO Aoka Mizu	15
Figure 3:3	Disconnectable Turret Buoy (DTB)	15
Figure 6:1	Gantt Chart of Project Plan.....	23



Terms and Abbreviations

ALARP	As Low As Reasonably Practicable
CA	Comparative Assessment
CoP	Cessation of Production
DTB	Disconnectable Turret Buoy
EA	Environmental Appraisal
EPS	Early Production System
FDP	Field Development Plan
FPSO	Floating Production Storage and Offloading (vessel)
GOR	Gas Oil Ratio
GVI	General Visual Inspection
ICES	International Council for the Exploration of the Seas
IMO	International Maritime Organization
LSA	Low Specific Activity
MOC	Management Of Change
MPA	Marine Protected Area
NORM	Naturally Occurring Radioactive Material
OGA	Oil and Gas Authority
OPOL	Offshore Pollution Liability Association
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
PFML	Petrofac Facilities Management Ltd
PXEA	Practice and Exercise Area
SCSSV	Surface-Controlled Subsurface Safety Valve
SOSI	Seabird Oil Sensitivity Index
SURF	Subsea Umbilicals, Risers & Flowlines
SFF	Scottish Fishermen's Federation
TMS	Turret Mooring System
UKCS	United Kingdom Continental Shelf



Appendices

Appendix	Description	Page
1	Partner Letters of Support	
2	Copy of Public Notice	



1. Executive Summary

1.1. Decommissioning Programme

This document is the decommissioning programme for the Lancaster Field production host the Aoka Mizu Floating Production Storage and Offloading (FPSO).

The remaining Lancaster Field infrastructure which is listed on the Section 29 Notices will be subject to a separate Wells, Subsea, Pipelines and Mooring System Decommissioning Programme (HUR-GLA-ASM-REP-0002), which will be submitted separately to OPRED.

The Aoka Mizu will be utilised for the initial decommissioning activities, namely the flushing/de-oiling of the subsea infrastructure i.e. manifolds, risers, subsea flowlines and umbilical, and to support with the implementation of positive isolations. The FPSO is then not required to perform any further decommissioning related activities on the subsea infrastructure after completion of the decommissioning activities above, and it is proposed that the vessel is removed thereafter from its current location. Activities associated with subsequent decommissioning stages of the subsea flowlines, umbilical, risers and other subsea infrastructure will require the services provided by other specialist vessels.

The early removal of this Installation will not prejudice any further decommissioning work in the Lancaster Field.

1.2. Requirement for Decommissioning Programme

Installation

In accordance with the Petroleum Act 1998, the Section 29 notice holders of the Lancaster Field's FPSO installation (Table 1.2) are applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for decommissioning the installation detailed in Section 2.1 of this programme. (See also Appendix 1- Partner Letter(s) of Support).

In conjunction with public, stakeholder and regulatory consultation, the Decommissioning Programme is submitted in compliance with national and international regulations and OPRED guidelines. The schedule outlined in this document is for a 23-30 day decommissioning project plan due to begin in 2023, however the decommissioning programme could begin as early as Q2 2022.

The Lancaster Field Operator (Hurricane Energy PLC), on behalf of the P1368 Central Licensee (Hurricane GLA Limited), has submitted to the Oil and Gas Authority (OGA) a Cessation of Production document which demonstrates, against a backdrop of the Licensee's financial position, that all economic development opportunities have been pursued for the Lancaster Field and associated infrastructure including access to current third-party infrastructure. On 14 December 2021 the OGA confirmed no objection to the CoP document as proposed.

1.3. Introduction

The Lancaster Field is located West of Shetland, approximately 70 kilometres southwest of the Clair Field and approximately 15 kilometres to the southeast of the Foinaven and Schiehallion Fields within Blocks 205/21a, 205/22a and 205/26b in Frontier Licence P1368 Central. The licence is owned by Hurricane GLA Limited with 100% interest. Hurricane GLA Limited is a 100% wholly owned subsidiary of Hurricane Energy PLC. Hurricane Energy PLC operates Frontier Licence P1368 Central and the Lancaster Field on behalf of Hurricane GLA Limited. Hereafter "Hurricane" or "Company" shall be used to reference either one or more of Hurricane Energy PLC and Hurricane GLA Limited, as the context requires.



Field Description

The reservoir at the Lancaster Field is comprised of fractured basement consisting of both igneous and metamorphic rocks of Precambrian age at a depth of approximately 1000 metres below sea level at its shallowest point. This basement reservoir is overlain by a sequence of Mesozoic sediments which onlap onto the flanks of the basement high which are overlain by a thick sequence of late Cretaceous marine shales which act as a regional seal. The Lancaster Field is a 4-way dip structure with hydrocarbon fill controlled by dip spill to the east. The oil present within the reservoir is 38° API with a gas oil ratio (GOR) in the range of 390 - 420 scf/stb based on a single stage flash to stock tank conditions.

Development and Infrastructure

The first phase of the Lancaster Field development was defined by Hurricane as an Early Production System (EPS) and was the subject of the 2017 Lancaster EPS Field Development Plan (FDP).

The Lancaster EPS consists of two horizontal production wells, 205/21a-6 (P6) and 205/21a-7Z (P7Z) tied back to the turret-moored Aoka Mizu FPSO which Hurricane has leased from Bluewater (Aoka Mizu) B.V. and which is operated by Bluewater Lancaster Production (UK) Limited (hereafter individually or collectively referred to as "Bluewater"). The Lancaster EPS development is shown schematically in Figure 1:2.

The two subsea production wells are tied back to the Lancaster Production Manifold that is located approximately 2km due North of the FPSO. Twin surface laid 6"ID flexible flowlines and a continuous dynamic static umbilical connect the FPSO to the manifold. The lines are protected by a single continuous rockdump berm, that terminates approximately 30m from Manifold.

The Lancaster EPS commenced production operations in May 2019 and there has been no additional development of the field since then.

The Aoka Mizu FPSO is moored on location by a Turret Mooring System (TMS). The TMS allows the FPSO to passively weathervane and consists of a Disconnectable Turret Buoy (DTB) moored to the seabed by 12 mooring lines, arranged in 3 clusters of 4.

Following public, stakeholder and regulatory consultation, the Decommissioning Programme for the FPSO is submitted without a request for derogation and in full compliance with OPRED guidelines. This Decommissioning Programme explains the principles of the activities associated with the removal of the FPSO from the Lancaster Field location and is to be supported by environmental permits which will be obtained for the decommissioning activities described in this Decommissioning Programme, as required.

1.4. Overview of Installation being Decommissioned

1.4.1. Installation

Field(s)	Lancaster	Production Type	Oil
Water Depth (m)	150	UKCS block	205/21a
Distance to median (km)	54	Distance from nearest UK coastline (km)	98
Surface Installation(s)			
Number	Type	FPSO Weight (Te)	Jacket Weight (Te)
1	FPSO	33,042	N/A

Table 1.1 - Installation(s) being Decommissioned



Section 29 Notice Holder(s)*	Registration Number	Equity Interest (%)
Hurricane Energy PLC	05245689	0%
Hurricane GLA Limited	10656211	100%
Bluewater (Aoka Mizu) B.V.	Overseas company registration in NETHERLANDS (Reg Ref. NL57513783).	0%

Table 1.2 - Installation (s) Section 29 Notice Holders Details

1.5. Summary of Proposed Decommissioning Programme

Selected Option	Reason for Selection	Proposed Decommissioning Solution
1. FPSO		
Complete removal and re-use	FPSO suitable for re-use	The Aoka Mizu FPSO is under a Lease Contract between Hurricane and the FPSO owner, Bluewater (Aoka Mizu) B.V., until the end of field life is declared by Hurricane. After completion of the operation at its current location, at the discretion of the FPSO owner, the FPSO will transit from the field to a suitable licensed location for preparation for re-use or decommissioning. Following redelivery, the FPSO owner will re-assume full control of and responsibility for the FPSO. The decommissioned waste and FPSO vessel (if not reused) will be recycled or disposed of in compliance with the standards comparable with those set under the applicable laws of the United Kingdom.
2. Disconnectable Turret Buoy (DTB)		
Disconnected and lowered to neutrally buoyant depth	To allow demobilisation of the FPSO, the DTB must be disconnected and lowered to a neutrally buoyant depth.	Addressed under a separate Wells, Subsea, Pipelines and Mooring System Decommissioning Programme HUR-GLA-ASM-REP-0002
3. Pipelines, Flowlines & Umbilicals		
Flushed with water	To ensure cleanliness in preparation for later decommissioning	Addressed under a separate Wells, Subsea, Pipelines and Mooring System Decommissioning Programme HUR-GLA-ASM-REP-0002
4. Interdependencies		
The FPSO can be disconnected and demobilised independent of any decommissioning activities required for the DTB, mooring system and subsea system (covered under a separate Decommissioning Programme). In order to assist decommissioning of the subsea system, flushing of subsea flowlines, jumpers and umbilical chemical cores will be carried out from the FPSO prior to disconnection. Suitable personnel from the FPSO core crew will be retained through the decommissioning programme to undertake sampling and analysis of the returned flushing fluids to ensure the specified cleanliness of the subsea system is achieved.		

Table 1.3 - Summary of Decommissioning Programme(s)



1.6. Field Location including Field Layout and Adjacent Facilities

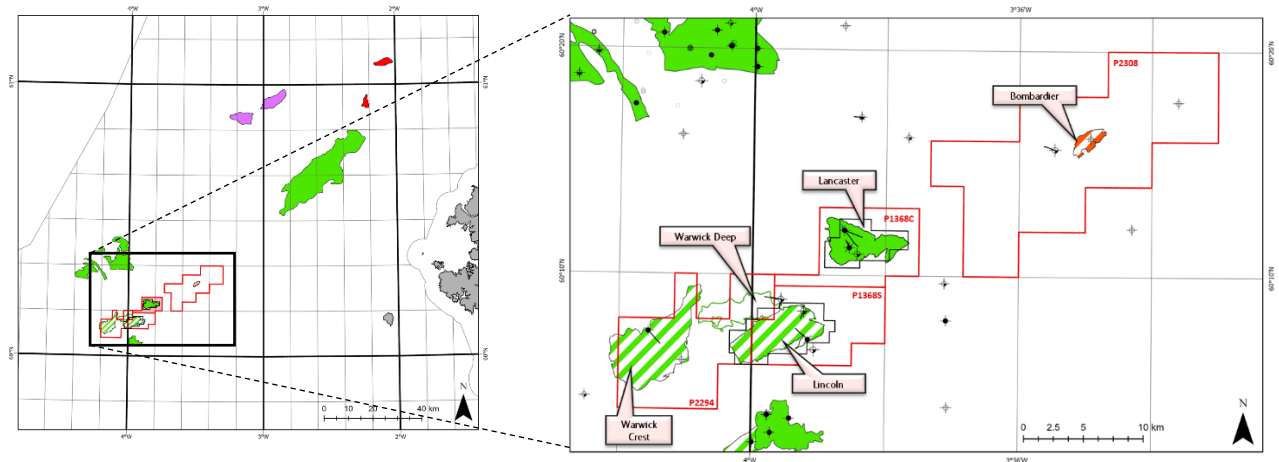


Figure 1:1 - Field Locations in UKCS

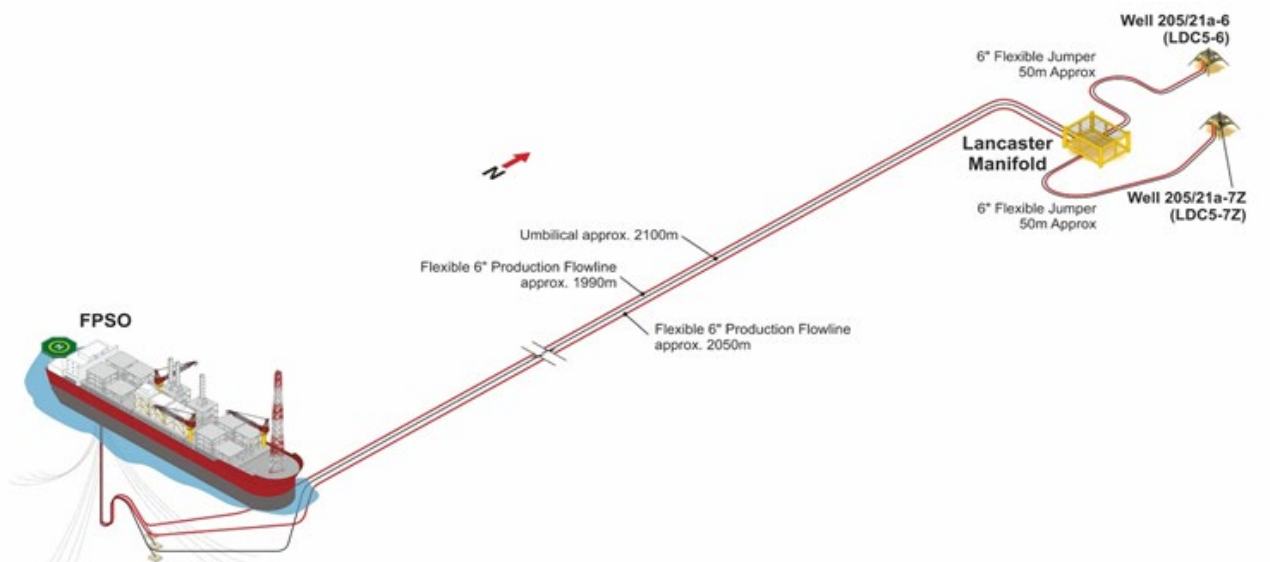


Figure 1:2 - Field Layout

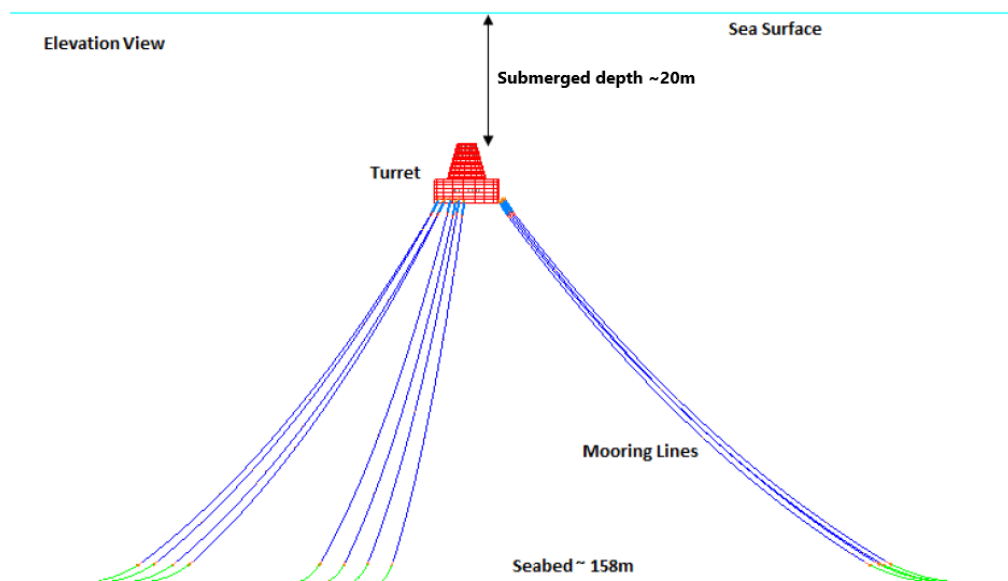


Figure 1:3 - Disconnectable Turret Buoy (DTB) position post FPSO removal

Owner	Name	Type	Distance/Direction	Information	Status
Harbour Energy plc	Solan	Platform	14.3km South West	Gas/liquids processing, oil export via subsea storage tank to shuttle tankers	Operational
Impacts of Decommissioning Proposals					
The decommissioning programme will have no impact on any nearby/adjacent facility.					

Table 1.4 - Adjacent Facilities

1.7. Industrial Implications

Bluewater Lancaster Production (UK) Ltd. will carry out the demobilisation of the Aoka Mizu FPSO under the existing Production, Operation and Services contract with Hurricane GLA Limited.



2. Description of Items to be Decommissioned

2.1. Installation – Surface Facility

Name	Facility Type	Location**		Topsides/Facilities		Jacket (if applicable)			
				Weight (Te)	No of modules	Weight (Te)	Number of legs	Number of piles	Weight of piles (Te)
Aoka Mizu	FPSO	WGS84 Decimal	60.179894 N 3.869937 W	33,042	N/A	N/A	N/A	N/A	N/A
		WGS84 Decimal Minute	60° 10.793'N 3° 52.195'W						

Table 2.1 - Surface Facilities Information

2.2. Wells

No wells are included in the scope of this decommissioning programme.

Following removal of the FPSO, there will no longer be pressure monitoring of the Lancaster wells. Prior to FPSO demobilisation, an MOC will be undertaken by Hurricane's Well Operator (PFML) with an accompanying Risk Assessment to determine whether the proposed integrity / suspension status is ALARP, or whether additional measures are required, e.g., downhole isolation plugs, additional monitoring capabilities at surface.

The current mitigations in place are as follows:

- The SCSSV and Xmas Tree valves will be tested in the normal way (Well Operating Practices Document), these integrity tests are valid for 12 months.
- A GVI inspection will be performed, this will be subject to Risk Assessment in terms of requirement to increase the GVI frequency given there will be no further monitoring capability at the wellhead (or downhole).

2.3. Inventory Estimates

As per routine production operations when Lancaster Field is in production:

Crude cargo will be off loaded via shuttle tanker (as part of the preparatory works prior to sail away from the Lancaster Field location).

Produced water and slops water will be cleaned to be with OPOL limits prior to discharge to sea (as part of the preparatory works prior to sail away from the Lancaster Field location). Residual slops will be stored in slops tanks for onshore discharge using an approved hazardous waste contractor.

All other FPSO materials and inventory remain the responsibility of Bluewater. The FPSO will be returned to Bluewater for re-use / redeployment following demobilisation from the Lancaster Field.

Environmental appraisal is not required to support this Decommissioning Programme.

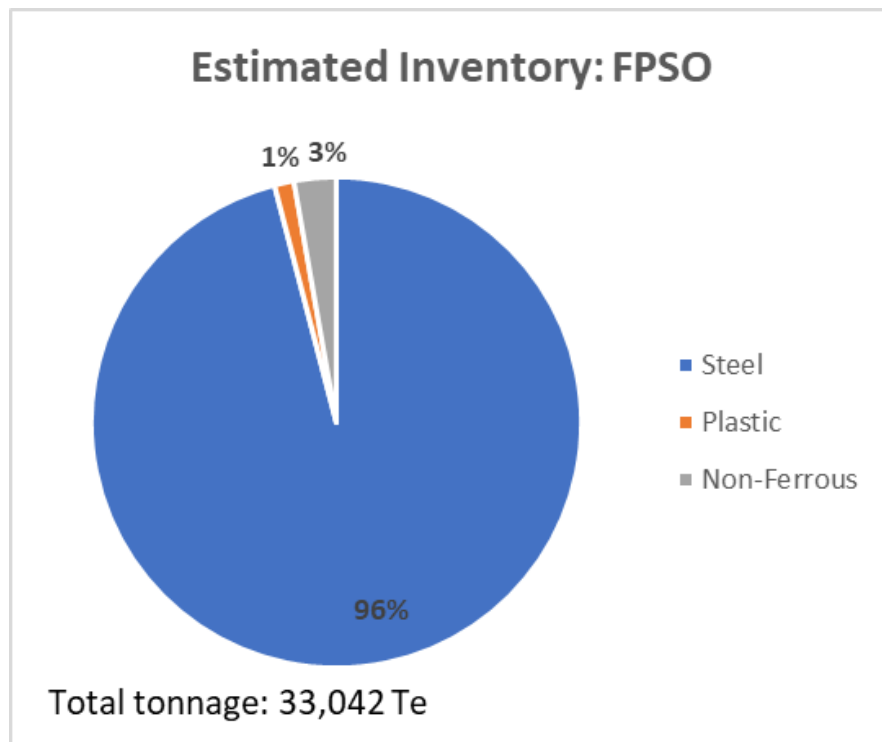


Figure 2:1 - Pie chart of estimated FPSO inventories



3. Removal and Disposal Methods

In line with the waste hierarchy, the re-use of an installation (or parts thereof) is first in the order of preferred decommissioning options. The FPSO will be removed from the Lancaster Field and made available for re-use by its owner Bluewater, in line with the preferred option in the waste hierarchy.

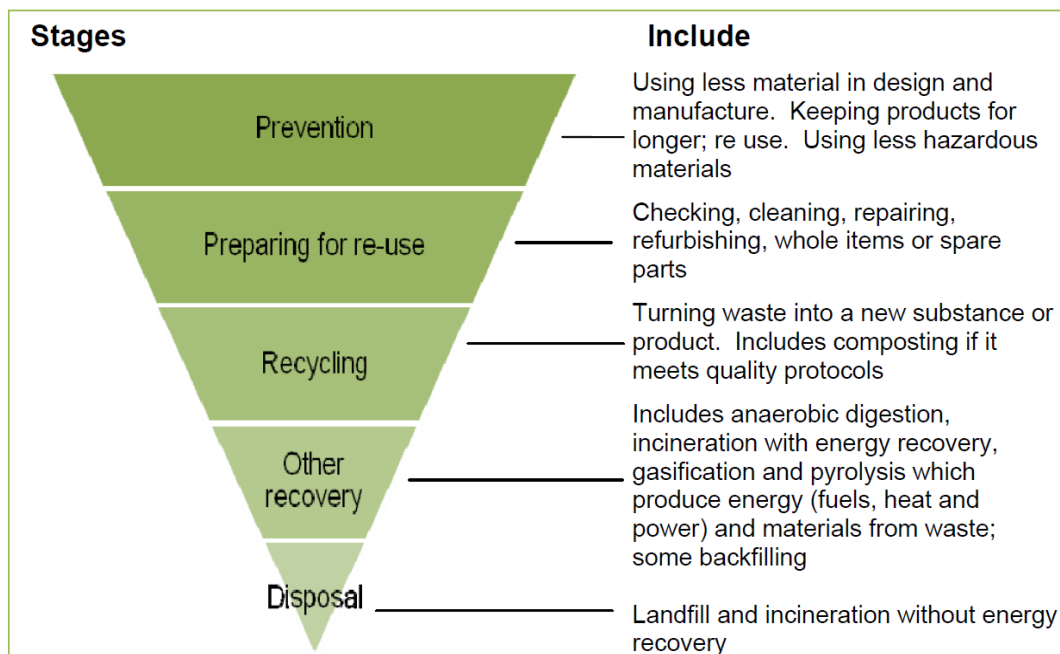


Figure 3:1 - Waste Hierarchy

Decommissioning the Aoka Mizu FPSO will generate a quantity of waste which Hurricane and Bluewater will manage using environmentally acceptable methods for managing wastes in line with the Waste Framework Directive and principles of the waste hierarchy.

3.1. Surface Facility (FPSO)

Surface Facility Description: The Aoka Mizu is a Bluewater designed, owned and operated FPSO. The FPSO was built in 2008, integrating a turret moonpool, a foundation grillage to support process topsides and hull upgrades for higher ultimate strength and fatigue capacity.

The FPSO operated on the Ettrick and Blackbird Fields, UKCS, from 2009 until 2016. Following a period of lay-up in Gdansk (Poland), the FPSO was refurbished and upgraded for redeployment to the Lancaster Field at the Drydock World Dubai shipyard in 2017-2018.

The FPSO is equipped with a DTB, located aft of the accommodation enabling passive weathervaning. The mooring legs are connected to the DTB and are arranged in a 3x4 configuration, optimised with respect to prevailing wind conditions. The Aoka Mizu commenced production from the Lancaster Field in 2019.

The main dimensions of the FPSO are set out in Table 3.1 while a picture of the Aoka Mizu is provided in Figure 3:2.



Dimension	Metres
Length	248.1
Breadth	42.0
Depth	21.2

Table 3.1 - FPSO Dimensions*Figure 3:2 - FPSO Aoka Mizu*

Section 2 of this decommissioning programme describes all items and substances relating to the Lancaster FPSO to be removed from the Lancaster Field. No items or substances in the Lancaster Field, other than detailed in Section 2 will be removed at this time and will be the subject of a further decommissioning programme. The decommissioned waste and FPSO vessel (if not reused) will be recycled or disposed of in compliance with the standards comparable with those set under the applicable laws of the United Kingdom.

*Figure 3:3 - Disconnectable Turret Buoy (DTB)*

**Preparation:**

Waste Type	Composition of Waste	Disposal Route
Onboard hydrocarbons	Process fluids, fuels and lubricants	<p>Crude inventory will be offloaded to a shuttle tanker for sale.</p> <p>Methanol and other production chemical inventory will be disposed of by bullheading into the Lancaster wells.</p> <p>Produced water that is unable to be overboarded under the oil discharge permit will be stored in slops tanks for onshore discharge using an approved hazardous waste contractor.</p> <p>Fuels and lubricants will remain in their dedicated storage tanks for the FPSO transit, and then disposed of onshore using an approved hazardous waste contractor.</p>
Other hazardous materials	NORM, LSA scale, any radioactive material, instruments containing heavy metals, batteries	Transported onshore for disposal by appropriate means, only minimal quantities expected.

*Table 3.2 - Preparation of Surface Facility for Removal***Removal Methods:**

1) HLV (semi-submersible crane vessel) <input type="checkbox"/> 2) SLV <input type="checkbox"/> 3) Piece small <input type="checkbox"/> 4) Other <input checked="" type="checkbox"/>	
Method	Description
Disconnection and complete removal	<p>Following the flushing, cleaning and disconnection of all risers and umbilical's and putting in place appropriate barriers for retention of hydrocarbons the FPSO using its own systems shall disconnect and lower the DTB from its moonpool.</p> <p>The FPSO will then transit outside the Lancaster Field's FPSO 500m Safety Zone, at which point the FPSO is considered to be redelivered to the owner.</p> <p>The DTB with connected mooring system, risers and umbilical will be at a depth of approximately 20m below mean sea level following disconnection and will remain in this condition pending subsea and mooring system decommissioning.</p>

Table 3.3 - Surface Facility Removal Methods



3.2. Waste Streams

Waste Stream	Removal and Disposal method
Bulk liquids	<p>Prior to the FPSO moving off the Lancaster Field location, any crude inventory in the FPSO cargo tanks will be sold and offloaded to a shuttle tanker for onwards transport to the receiving terminal.</p> <p>Any remaining methanol or production chemical inventory on the FPSO will be disposed of by bull heading into the Lancaster wells.</p> <p>All subsea flowline cleaning chemicals and flushing water will be returned to the FPSO for processing and discharge in line with the permits in place for the operations. Any produced water that is unable to be overboarded under the oil discharge permit will be stored in the FPSO slops tanks for onshore discharge and disposal.</p> <p>The remaining inventory in the slops tanks will be discharged at port, at which point the final FPSO tank cleaning and gas-freeing activities will be carried out.</p> <p>Fuels and lubricants will remain in their dedicated storage tanks for the FPSO transit, and then disposed of onshore.</p>
Marine growth	Marine growth is expected, however will not impact the demobilisation operations.
NORM/LSA Scale	NORM contaminated items will be decontaminated at an approved facility prior to disposal. All NORM materials will be disposed of at a suitably permitted facility.
Asbestos	No asbestos has been identified.
Other hazardous wastes	Any hazardous wastes remaining within the FPSO shall be disposed of onshore under appropriate permits.
Onshore Dismantling sites	Section 2 of this decommissioning programme describes all items and substances relating to the Lancaster FPSO to be removed from the Lancaster Field. No items or substances in the Lancaster Field, other than detailed in Section 2 will be removed at this time and will be the subject of a further decommissioning programme. The decommissioned waste and FPSO vessel (if not reused) will be recycled or disposed of in compliance with the standards comparable with those set under the applicable laws of the United Kingdom.

Table 3.4 - Waste Stream Management Methods



4. Environmental Appraisal Overview

The Environmental Appraisal for the Lancaster Field decommissioning will be submitted with the Wells, Subsea and Mooring System Decommissioning Programme.

A summary of the main sensitivities in the area are given in Table 4.1 below.

All operations described in this Decommissioning Programme will be subject to the relevant environmental permits, consents and approvals and will be managed through a Permits, Licences, Authorisations, Notifications and Consents (PLANC) register jointly developed by Bluewater and Hurricane.

4.1. Environmental Sensitivities

Environmental Receptor	Main Features
Conservation interests	The project area is located outside any conservation sites. The closest marine SPA to the Aoka Mizu FPSO location is the Seas off Foula SPA, roughly 30 km from the FPSO at its nearest point. The Faeroe-Shetland Sponge Belt MPA is approximately 18 km to the north, the West Shetland Shelf MPA is approximately 40 km to the southwest and the North-west Orkney MPA is approximately 60 km to the southeast of the Lancaster Field.
Seabed	The Lancaster Field is situated at the edge of the continental shelf to the west of Shetland. Water depths over the whole of the Lancaster Field range from 134 m to around 180 m, the water depth at the Aoka Mizu FPSO location is approximately 150 m. Lancaster is situated at the upper edge of an area on the continental shelf known as the 'iceberg ploughmark zone'. This area is characterised by the presence of furrows in the seabed caused by the grounding of icebergs in previous glacial periods. The seabed generally comprises of coarse sandy sediments interspersed with more gravelly areas supporting patches of cobbles and boulders.
Fish	The Lancaster Field lies within spawning areas for Norway pout, a species that spawns during the winter and early spring (January to April), and sand eels which spawn from November to February. The Lancaster field is also located within year round nursery grounds for spurdog (high intensity), herring, whiting, blue whiting, ling, hake, monkfish (high intensity), sandeels, mackerel (high intensity) and Norway pout (Coull <i>et al</i> , 1998; Ellis <i>et al</i> , 2012).
Fisheries	The Lancaster Field lies in ICES rectangle 49E6, fishing effort is moderate compared to other ICES rectangles in Scottish waters. Effort is spread throughout the year but tends to be focused from November to May and in September.
Marine Mammals	The Lancaster Field is situated near the edge of the Faroe-Shetland Channel. The waters of the channel support important and diverse populations of whales, dolphins and porpoises. The area is understood to provide feeding grounds, breeding and nursery areas and migration routes for a range of cetacean species. Certain species are resident in the shallower waters of the shelf where they feed all year round such as minke whales, smallest of the larger filter feeding whales, white beaked dolphins and harbour porpoises. White sided dolphins and larger species such as killer whales and long finned pilot whales preferentially inhabit the deeper waters beyond the continental shelf and are rarer in the shallow waters around the Aoka Mizu FPSO. The Lancaster field is located in the relatively shallow waters of the continental shelf, where minke whales, white-beaked dolphins, and harbour porpoises feed year round.



Environmental Receptor	Main Features
	Two species of seals are resident on Scottish waters, grey and common seals, both are rarely sighted waters as deep as the Aoka Mizu FPSO location.
Birds	<p>Seabirds present within the immediate vicinity of the Aoka Mizu FPSO include Fulmar (<i>Fulmarus glacialis</i>), Gannet (<i>Sula bassana</i>), Shag (<i>Phalacrocorax aristotelis</i>), Arctic Skua (<i>Stercorarius parasiticus</i>), Great Skua (<i>Stercorarius skua</i>), Great Black-Backed Gull (<i>Larus marinus</i>), Kittiwake (<i>Rissa tridactyla</i>), Common Tern (<i>Sterna hirundo</i>), Arctic Tern (<i>Sterna paradisaea</i>), Guillemot (<i>Uria aalge</i>), Razorbill (<i>Alca torda</i>), Black Guillemot (<i>Cepphus grylle</i>) and Puffin (<i>Fratercula arctica</i>). All these species have breeding populations within the SEA 4 area, which exceed one percent of their European population, with most of these species having major breeding colonies, in terms of their biogeographic population, located on Shetland, Orkney and the north coast of Scotland.</p> <p>The Seabird Oil Sensitivity Index (SOSI) identifies areas at sea where seabirds are likely to be most sensitive to surface pollution; the SOSI values in Block 205/21a is low throughout the year except for periods of high sensitivity in January and November with no data available for this block in December.</p>
Onshore Communities	All onshore facilities used during the decommissioning of the Lancaster EPS FPSO, including offload ports and recycling facilities, will comply with all permitting and legislative requirements.
Other Users of the Sea	<p>The Lancaster Field is in what is described as an open water location and the level of shipping traffic is quite low although there has been an increase in routes since the drilling operations at Lancaster began in 2009. The majority of this traffic is made up of support vessels for the offshore industry.</p> <p>The Lancaster Field does not fall within a Ministry of Defence (MoD) designated Practice and Exercise Area (PXEA), the nearest practice area is approximately 100km to the south. However, licensing conditions relevant to the Lancaster field indicate the requirement to consult with MoD regarding training areas. In addition, an annual multi-disciplinary training and readiness exercise is known to take place in waters west of Scotland (Exercise Joint Warrior).</p>
Atmosphere	Although offshore winds around the FPSO may blow from any direction, southwesterly winds are most prevalent. In spring (March to May), winds are recorded from all directions with those from the southeast slightly more dominant (Met Office, 2009). Gale force winds have been recorded, but winds of 11 to 27 knots are most common. Conditions are more settled during the summer (June to August); winds up to 21 knots are most common at this time. Wind strength increases in autumn (September to November) with gale forces winds from the southwest encountered regularly. Conditions are roughest in winter (December to February) with a significant proportion of winds in excess of 33 knots. The wind regime at this time is dominated by winds from the southwest.

Table 4.1 - Environmental Sensitivities



4.2. Potential Environmental Impacts and their Management

Activity	Main Impacts	Management
Floating Facility Removal	Disconnection and submersion of the DTB to -20m may cause interference with other vessels.	<p>A guard vessel will remain on station to ensure any approaching shipping is made aware of the obstruction and advised to change course if necessary. The earliest opportunity for the subsea decommissioning programme will be the summer season following removal of the FPSO. Therefore, the DTB will remain submerged in the water column for a minimum of one year post removal of the FPSO.</p> <p>The subsea decommissioning programme will be executed in line with OGA Stewardship Expectation 10 Cost Effective Decommissioning, it is expected this will be within 3 years of removal of the FPSO.</p>
Floating Facility Removal	There will be no impact on the seabed from the removal of the FPSO as all infrastructure will remain in the water column attached to the DTB until the subsea and mooring systems are decommissioned.	
Floating Facility Removal	It is anticipated that there will be localised effects on air quality from the project due to increased vessel use but it is not anticipated that there will be a significant impact on air quality on a wider scale.	

Table 4.2 - Environmental Impact Management



5. Interested Party Consultations

Who	Comment	Response
Informal Stakeholder Consultations		
Scottish Fishermen's Federation	<p>Although it is highlighted under Section 1.1 of the Executive Summary that the remaining Lancaster Field will be subject to a separate Decommissioning Programme, we feel that it would be worth mentioning the existence of the Lancaster Manifold under the Development and Infrastructure section (Section 1.3).</p> <p>In the interest of fishermen's safety, we are pleased to note that following FPSO decommissioning, a guard vessel will remain on site to monitor and ensure the safety of the DTB prior to its decommissioning.</p> <p>It is noted that there is no requirement for post decommissioning debris clearance or verification following FPSO removal (an as-left ROV survey of the DTB and moorings will be carried out post demobilisation of the FPSO), but that a full-scale post decommissioning environmental seabed and pipeline survey of the Lancaster field will be carried out following full decommissioning of the field. We would take this opportunity to mention that as highlighted and reiterated to OPRED on numerous occasions, given past experiences of both abandoned wellhead and oil & gas fields in the process of being decommissioned, the SFF has serious reservations regarding the use of survey data to verify that an area is safe for fishing activity to resume following decommissioning activity. It is our view that the undertaking of trawl verification sweeps under controlled conditions, which replicated the fishing operations that will be permitted in the area following the decommissioning work, is the best method of establishing that it is safe for fishing to resume in said area.</p>	<p>Description of the manifold, flowlines and umbilical added to Section 1.3</p> <p>Noted</p> <p>Wording added to clarify that debris clearance and verification will be carried out on completion of the SURF and moorings decommissioning programme.</p>
UK HSE	-	



Statutory Consultations		
National Federation of Fishermen's Organisations		
Scottish Fishermen's Federation		
UK HSE		
Public		
Global Marine Systems		
Northern Irish Fish Producers' Organisation Ltd		

Table 5.1 - Summary of Stakeholders Comments



6. Programme Management

6.1. Project Management and Verification

Hurricane Asset Management Team will manage and liaise with Bluewater for the removal of the FPSO Aoka Mizu from the Lancaster Field. Standard procedures for operational control, hazard identification and management will be used.

Hurricane, together with Bluewater, will monitor and track the process of consents and the 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 Debris Clearance and Verification

There is no requirement for post decommissioning debris clearance or verification following FPSO removal, this will be carried out upon completion of the Wells Subsea, Pipelines and Mooring System Decommissioning Programme.

A full-scale post decommissioning environmental seabed and pipeline survey of the Lancaster field will be carried out following full decommissioning of the field. Results of this survey will be available once the work is complete, with a copy forwarded to OPRED.

6.3. Schedule

A nominal decommissioning schedule is provided in Figure 6:1 based around a nominal cessation of production (CoP) date of Q2 2023. The actual timing of CoP will depend on many factors including production performance, oil price.

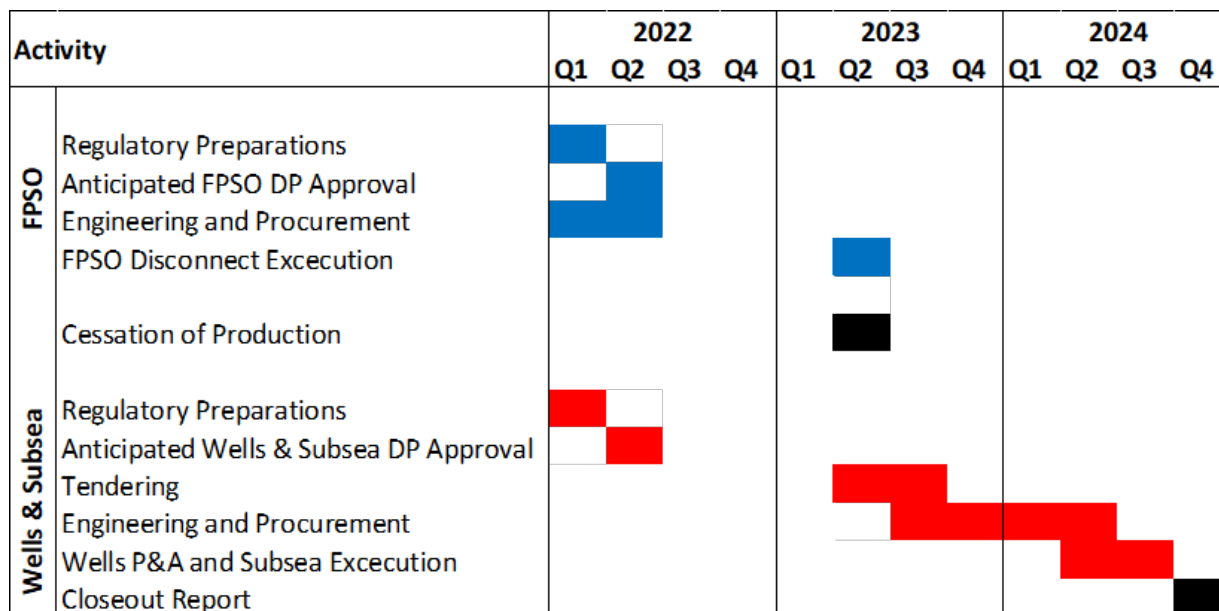


Figure 6:1 - Gantt Chart of Project Plan



6.4. Costs

Item	Estimated Cost (£m)
Surface Facility (FPSO) – Preparation, disconnection and removal	Provided to OPRED
Pipeline(s) Decommissioning	N/A
Subsea Installation(s) and Stabilisation Feature(s)	N/A
Well Abandonment	N/A
Continuing Liability – Future Pipeline and Environmental Survey Requirements	N/A
TOTAL	Provided to OPRED

Table 6.1 - Provisional Decommissioning Programme Costs

6.5. Close Out

In accordance with the OPRED Guidelines, a close out report will be submitted to OPRED within one year of the completion of this FPSO Decommissioning Programme.

The report will detail the scope performed and explain any major variances from the programme.

A full field close out report will be submitted to OPRED within one year of the completion of full field decommissioning.

6.6. Post Decommissioning Monitoring and Evaluation

Following FPSO decommissioning a guard vessel will remain on site to monitor and ensure the safety of the DTB prior to its decommissioning. The guard vessel will remain on station until the DTB is removed from the field. The earliest opportunity for the subsea decommissioning programme will be the summer season following removal of the FPSO. Therefore, the DTB will remain submerged in the water column for a minimum of one year post removal of the FPSO.

The subsea decommissioning programme will be executed in line with OGA Stewardship Expectation 10 Cost Effective Decommissioning, however it is expected this will be within 3 years of removal of the FPSO.

Post-decommissioning site surveys for the subsea installations and moorings will be covered under the Decommissioning Programme for the subsea infrastructure and wells.



7. Supporting Documents

Not applicable, the FPSO decommissioning does not require support of an environmental appraisal or comparative assessment.

<i>Document Number</i>	<i>Title</i>

Table 7.1 - Supporting Documents



Appendix 1 Partner Letter(s) of Support

The Partner Letters of Support will be issued with the final version of the Decommissioning Programme following statutory consultation.



Appendix 2 Public Notices

The public notices and consultee correspondence will be added following Statutory Consultation.